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Race Management Newsletter

Issue No. 36
January 2004

Contents

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Letters, comments and articles for publication should be sent to Mike Pearson, 9 Baylys Road, Oreston, Plymouth PL9 7NQ, or e-mailed to Mike@baylys.freeserve.co.uk

Services

If you would like to receive this Newsletter regularly, then let Joanne Moulton at the RYA know, and she will put your name on the mailing list. (If you are a qualified RRO or NRO you will automatically be e-mailed a copy from your Race Management Co-ordinator. Please keep him informed of your current e-mail address.

The Race Management Group is always available to give you help and advice on any aspect of Race Management, from helping you to check your Club or Open Meeting Sailing Instructions or advising you on what you need to do to run a major event.

Do not hesitate to ask for help. Contact John Derbyshire at the RYA or any of the Committee members listed on page 1 or the Race Management Co-ordinators listed below.

Your Regional Race Management Co-ordinator is listed below. They arrange training seminars for your region. Contact them for dates and times.

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EDITOR'S COMMENTS

Since our last news letter I suspect we have all enjoyed an excellent summer's racing due to the fact that the weather was on our side for a change.

At "Racing" we now have Joanne Moulton back three days per week at Hamble, and John Derbyshire has arranged an additional Secretary to help the administration to run more smoothly.

As in June at Hamble, the Racing Working Groups spent a day together at the end of November at Wyboston Lakes. Again, it was an exercise in working together to help improve racing rather than in the past working separately with the minimum of communication links. Articles in this newsletter reflect many of the subjects discussed. Further information on any of the subjects can be fully explained or a full copy of the powerpoint presentations can be obtained by contacting the relevant author.

Your Race Management Working Group has been reorganised following a review by Council. Roger Palmer is now Chairman, and many of the longer serving members will shortly be replaced. Their valuable input will be sadly missed, although we shall still call upon them for their expertise from time to time.

Martin Bedford is now fully reviewing the Club Race Officer syllabus/presentation and will be giving guidance to all the current Race Management Co-ordinators at a special seminar at the March RYA Dinghy Show. Martin has also accepted the role of co-ordinating all the Race Management Co-ordinators and will be regularly in touch with relevant updates.

It has also been decided by the combined working groups that the current Race Management Co-ordinator will also act as the Regional Agent for the judge and umpire group. Therefore, if any individual or club wishes to enquire about running a judges or umpires seminar they may do so within the Region or in their own local area. The Co-ordinator will present their interest to Chris Watts, the Judges and Umpires Group Chairman, who will then set up the seminar as required.

On a personal issue, I would like to produce a scheme that allows inland race officers to gain experience with major events on the coast, which endorses the tidal and shipping problems. I would like to suggest that these inland sailors first obtain a VHF operators certificate and an RYA Day Skipper certificate. They would then be in a position to be invited to the coastal venues where further experience could be gained. We would also need assistance from the Class Associations where they provided me with the dates and venues of all the years planned championships, with contact details, which I could publish in this newsletter every January. This would give the individual an opportunity to build the experience as required. Please come back to me if you feel that this is a good way forward.

Finally, this newsletter is aimed at Race Officers to share experiences and to qualify ideas. We need your input, what do you think about "**NO DISCARDS**"?

Write or e-mail to Mike Pearson.

NOTICE: The two-yearly National Race Officers Conference is at Holme Pierpont, Nottingham, on Saturday 31st January and Sunday 1st February – Contact Joanne Moulton to book your slot. (Remember, you require attendance to at least one conference in your four year appointment to qualify for re-appointment).

Child Protection - are you aware? Jackie Reid – jackie.reid@rya.org.uk

Roger Wilson wrote in the last issue about 'Increasing the Fun in Youth Sailing'. Young people need to feel safe both on the water and on shore, and confident that they will receive equal standards of treatment from all adults involved in the sport, wherever they are competing.

Over the last couple of years the RYA has been encouraging its clubs and affiliated organisations to adopt child protection or welfare policies. Guidelines can be downloaded from the website and adapted to the organisation's requirements. RYA Training Centres offering junior and youth courses are now required to have child protection procedures in place as part of their annual inspection. Dinghy and Windsurfing Instructors, Racing Coaches and Champion Club co-ordinators have all been made aware of issues specific to training young people, through their conferences or handbooks. The Racing Department has produced excellent Sailor Supervision guidelines for those accompanying teams to away events.

This has not been done in response to any serious incident in the sport, which is generally regarded as a low-risk activity from a child protection point of view. However we are competing with other sports for young people's time and interest, and must therefore be seen to be taking child protection as seriously as other governing bodies. Life is probably no more dangerous for children now than it ever was, but we have to face the fact that parents are more aware of the potential risks and are more likely to complain if they are concerned, and expectations about how adults treat children have changed.

A young sailor who has had an enjoyable experience of sailing at his or her own club, whose coach has signed up to the RYA Code of Conduct stating that 'coaches must respect the rights, dignity and worth of every person', should be confident of an equally high standard of treatment from officials. You also need to avoid inadvertently putting yourself in a situation where you could be accused of inappropriate behaviour.

You are strongly advised to read the relevant sections of the RYA's Child Protection Policy and Procedures which can be found on the website: www.rya.org.uk/HQ/cpp.

Here are some of the key 'do nots' from the Good Practice Guide, Template P of the RYA's guidelines:

Do not: spend excessive amounts of time alone with children away from others; take children alone on car journeys, however short; take children to your home; photograph or video children, or publish their pictures, without the knowledge and consent of their parents. **Never**: engage in rough, physical or sexually provocative games; allow or engage in inappropriate touching of any form; make sexually suggestive comments to a child, even in fun; let allegations a child makes go unchallenged or unrecorded.

Jackie Reid
RYA Administration Manager and
Child Protection Co-ordinator

Average Lap Racing

Notes from Mike Harrison – RaceManagement@RYAScotland.org.uk

Note

These notes are based on club experience largely at Port Edgar YC and on RYA Scotland National events such as the Scottish Single-handed Championship and the Scottish Champion of Champions.

Preamble

"HANDICAP RACING IS NEVER FAIR - Average Lap Racing is fairer than most"
Why is it good?

- clubs with small numbers and wide range of handicaps get better racing
- has everyone sailing for approximately same length of time in similar conditions of tide and wind
- lots of activity – mark rounding, meeting other boats, shouting (almost as good as team racing!), sharpens up boat-handling and rules skills, fun!

Before the start

Keep the race short. ALRs work best for races of 40-50 minutes. Aim to have the fastest boats (e.g. Hurricane 5.9s) do a round in about 6-9 minutes (i.e. 5-6 rounds) and the slowest (Mirror or Optimist) about 20 minutes (2-3 rounds). The course needs to be the same for each round - whether triangle, windward-leeward, or trapezoid doesn't matter - with a gate to go through on each round, preferably about 100-150m upwind of the leeward mark.

Starts

If you want more than one start you can split according to handicap (e.g. fast, medium and slow) and have separate races.
A friendly way if you are trying to encourage people into racing who don't necessarily have very slow boats is to split according to ability/experience. One system which has been used at PEYC is to have (1) fast boats (trapezing & cats) – usually sailed by the experienced, (2) all other boats – sailed by the experienced and the not-so-experienced, except (3) any boat which is not a fast boat and is being sailed by someone who claims to be a 'novice'. Each start is a separate Average Lap Race. This means that novices in any boat except trapeze boats at least start away from the people who might be seen as a threat.
It is also possible to do as we do for the Champion of Champions and Single-Handed and split the start to make management of the start-line easier for both Race Officer and Competitors *while having them all in the one race*. Some people have difficulty with the concept of those in the same race starting at different times. Why? They will finish at different times, in a pursuit race they start at different times, in an Average Lap Race they do a different number of rounds. By starting, say Contenders and Optimists at different times each type of boat gets a chance of a better start than they would if they all started together. It also means that the start line does not need to be too long - handy as it will then be used at the end of each round and at the finish without adjustment. Not all computer race calculation programs can be set up to have groups of boats with different start times in the same race, so it may be necessary to do some manual adjustment if you opt for this system.

During the race

During the race you MUST record each boat passing through the start-finish gate in each round. There are two ways of doing this:

1. **Continuous list** - write down the number of each boat as it passes, if possible record the time; certainly you must have the time at the finish, and it is a good idea to have the times for the penultimate round (but of course you don't know which that is until you start finishing! so try to do it each time).
   Advantage: easy to record.
   Disadvantage: takes more time afterwards to work out how many rounds each boat has done)

2. **Check marks on ordered list** - have a list of entrants. If not the first race in the series your computer (human or electronic) should be able to provide you with such a list in order of either Class + Sail-number **or** Handicap + Class + Sail-number. Each time a boat passes write either time **or** a number (start with 1 for first boat to pass through line and number consecutively, you can then if necessary reconstruct the order of all passings) **or** minimally a tick
   Advantage: Final calculations don't take much time.
   Disadvantage: If quite a lot of boats it can be difficult finding boats in the list as they flash past you.

Finishing

For a club race don't worry too much about getting all the boats with the same handicap number on the same round, but if it's possible try to do so.
Stop before

the wind dies
the tide goes out
it gets dark
the competitors get dizzy
everybody is bored
A more technical routine:

In the ordinary race you have to make sure you finish the fastest, so the slowest can do the same number of rounds. With Average Lap Races it's more important to stop the slowest boats in time. Unless the wind is falling right off the faster ones will only take 10 minutes or so to complete their round, whereas the Opi could take 20-25 if you let them start another round.
How do you decide when to give the finishing signal? In order of priority:

1 If possible just before the first boat of the slowest class starts another round.
2 If possible, look for a natural gap in the fleet
3 If possible try to avoid splitting boats with the same handicap if the wind is not steady or strange things can happen

'If possible' is the key phrase. It's not always possible, and very rarely possible to meet all three of the conditions. What is important is that you have (and desirable that the competitors know) an approximate length for the race. It is not important that you give the signal exactly at that time. In a race intended for 40-50 minutes, I would go for ±10 minutes to try to meet the conditions above.

After the race

You need to calculate the corrected times in the usual way. You then need to scale the results so that you get the time for the same number of rounds for each boat. There are two ways of doing this

1. **Divide** each time by the number of rounds that boat did, thus getting the average time for **one lap**. The only snag with this is that you will often need to go to 1/10ths of a second to separate boats.
   (finishingTime - startTime) * 1000 / (handicapNumber * numberOfRounds)
2. **Divide** by the number of rounds that boat did and **multiply** by the number of rounds done by the boat(s) which did most rounds. You can then give the finishing times just in minutes and seconds without needing fractions of a second.
   (finishingTime - startTime) * 1000 *mostRounds / (handicapNumber * numberOfRounds)

Hint: A calculator which has hours, minutes and seconds avoids having to convert all times to seconds, and while most people are only interested in those who finish within a few seconds of themselves, overall it is easier to understand the results if they are given in h:mm:ss format (or h:mm:ss.d format).
Make sure someone buys you a pint and a sandwich while you are doing the calculations!

Conclusion

The thing to remember is that handicap racing is NEVER fair. All we can do is try to have races which are as fair as possible. Every system has its pluses and minuses. I believe that Average Lap Racing has more pluses than most other handicap systems.

General Maxim

A race which is shorter than planned is more popular than one which is longer than planned

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Some Extracts from Sailing Instructions

Note: These were from an event which included a class race (referred to in the SIs as a 'Level Race'), very small Fast & Slow Handicap classes racing separate races but starting together, and one Single-handed class which was split into three starts but all sailing the same race. Note the 'Grand Prix' finishing system for the Level Race. There were also Traveller results to be extracted from the Sing-handed Race for classes such as Laser, Radial, Contender and Topper.

Classes, Signals and order of Starts

Singlehanded: Class Splits and Flags

Singlehanders will race as one class, but the start will be split into fleets for separate starts. Other Starts. The division of between fast and slow handicap will be announced at the briefing and on the notice board.

Starting Order and Flags

Start	Class		Flag
1	Asymmetric Handicap		D
1	RS200		E
2	Fast Handicap		F
2	Slow Handicap		G
3	Singlehanded	PN<1115	J
4	Singlehanded	1115<=PN<1400	K
5	Singlehanded	PN>=1400	O

Number of Rounds

The number of rounds is not predetermined.

Finishing Procedure

Shortly before the finish there will be two sound signals and flag S will be displayed. All boats will finish the race when they next pass through the finish line at the end of their current lap.

Scoring

The scoring system will be modified as below for Level Races

> If one or more boats complete fewer rounds than the leading boat in their Level Race, then those completing one round fewer will be placed in their finishing order after those completing the full number of rounds, and so on for those completing two or more rounds fewer.

When all boats in a race are unable to complete the full or shortened course for any reason then, at the Race Committee's discretion, the result of the race may be decided by the finishing order of the boats as they completed the previous round.

Results for the Travellers' Series in Single-handed classes will be extracted from the overall results.

HANDICAP RACING

Mike Harrison – RaceManagement@RYAScotland.org.uk

Average Lap Racing -Rolling Handicaps
AVERAGE LAP RACING
HANDICAP RACING IS NEVER FAIR

Average Lap Racing is fairer than most
Why is it good?
clubs with small numbers and wide range of handicaps
has everyone sailing for approximately same length of time in similar conditions of tide and wind
lots of activity – mark rounding, meeting other boats, shouting (almost as good as team racing!)
Length of Race
Length: 40-50 minutes (60 max.)
Hurricanes: 5 minutes a round
Opis: 2-3 rounds in the race
Starts
can have >1 start and separate races
separate on handicap rating or…
separate on skill-level
can have >1 start and still be in same race
can also have CLASS race with no specified number of rounds
if class and handicap – one Flag S can finish all
Recording
'journal'
pre-printed list of competitors, tick boxes
Finishing – when to finish
before the wind dies
before the tide goes out
before it gets dark
before the competitors get dizzy
before everybody is bored

one flag for all races!!!

Finishing – when to finish (more technical answer)
at or near the stated time
before the slowest boat (group of boats) starts another round
where there is a gap
avoid splitting boats with same handicap if possible

divide to get time for one round
Calculating results
multiply to get same number of rounds as fastest boats
ROLLING HANDICAPS
What's the Objective?
Competitive racing
Fair Handicaps
Changing Performance
Danger of Domination

SPLITTING LARGE FLEETS INTO FLIGHTS

There is guidance on splitting large fleets in RRS Appendix KE which is a more advanced version of RRS Appendix K. TO REACH THIS GUIDE YOU MUST FOLLOW THESE INSTRUCTIONS (PROVIDED BY PAUL MAXFIELD).

HTTP://WWW.SAILING.ORG/MENU.ASP?MENULD=OE9MGXKS5BSOE9?7VTVOOQY12?CYLHJJXP2N,SUFRGTGXOPYS&TKN=1013184

IF THAT DOESN'T WORK DO AS FOLLOWS:
GO TO HTTP://WWW.SAILING.ORG/
SELECT 'RULES AND REGULATIONS' FROM MENU ON LEFT, UNDER ISAF
SELECT 'RRS 2001 – 2004'
SELECT 'SI 'NOR GUIDES'
TAKE YOUR PICK

BEHAVIOUR AT EVENTS

ROGER WILSON HAS AGAIN RAISED THE PROBLEM OF BEHAVIOUR, NOT ONLY IN THE JUNIOR CLASSES, BUT ACROSS THE BOARD. LONG TERM IT MIGHT HAVE MAJOR EFFECTS ON OUR SPORT. THE JUNIOR AND YOUTH COACHES ARE NOW WORKING HARD TO STAMP IT OUT AND ALL OF US SHOULD BE ALERT IN OUR OWN AREAS. ROGERS PRESENTATION INDICATES THE PROBLEMS AND THE POSSIBLE SOLUTIONS.

ROGER WILSON WILSONS@FORESTLODGE.NILDRAM.CO.UK

Behaviour at Events

The Problems (1):

Junior Classes report that children are being put off sailing because:

- Bullying on the water is making it unfair.
- Bullying off the water stops it being fun.
- The Bullies are winning places on Squads and Teams which their sailing doesn't entitle them to.

The Problems (2):

- Youth Classes report that their sailors don't like protests as they cause bad feelings and ruin their social lives.
- Clubs report that the behaviour of youth sailors ashore is unacceptable to their members.
- There have been problems with the behaviour of sailors at international regattas.

The Problems (3):

Popular Classes report that:

- the weaker sailors are being put off attending open meetings and National Championships as the better sailors are refusing to acknowledge their rights so ruining their racing.
- No-one wants to spend their evenings in a protest room.

The Problems (4):

Juries report that:

- Junior and Youth sailors are telling deliberate lies to Protest Committees.
- Protest Committee decisions are usually right only 50% of the time.
- No-one wants to spend their evenings in a protest room.

Possible Solutions:

1. Do nothing.
2. Education of sailors and coaches.
3. Look at the Race Management.
4. Look at Squad/Team Selection.
5. Mentoring.
6. Rule Advisors and Arbitration.
7. Allow Umpires to blow a whistle if they see a possible infringement, encouraging and witnessing Protests.
8. Allow Umpires to rule on yellow flag protests in fleet racing.
9. Allow Refereeing of Fleet Racing.

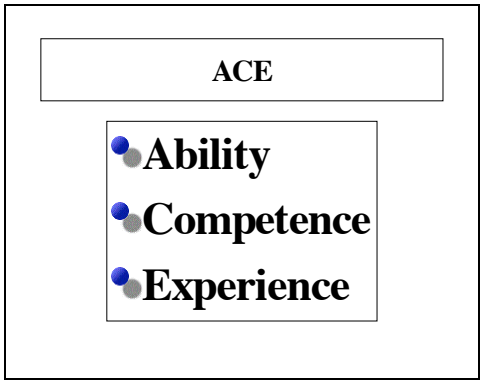
What Could the RYA do?

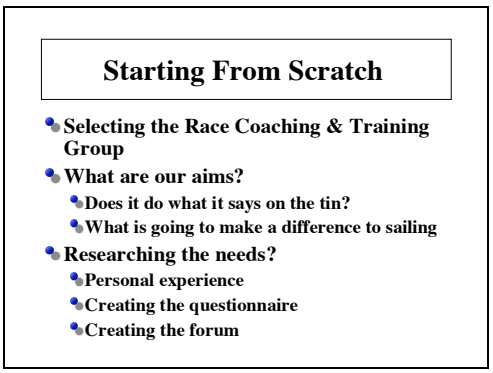
- Publicise the problems and possible solutions.
- Draft a graded library of validated clauses that Clubs and Class Associations could use in Notices of Race and Sailing Instructions to allow Umpires to police racing.
- Encourage Clubs and Classes to try the various options and see what their sailors want.

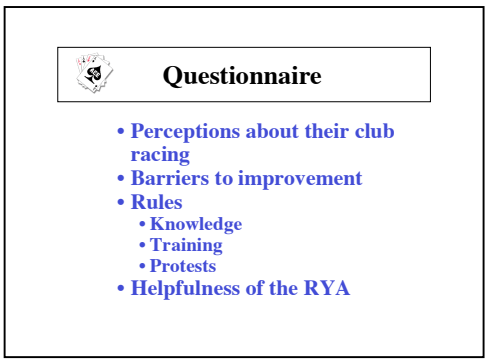
RACE COACHING & TRAINING.

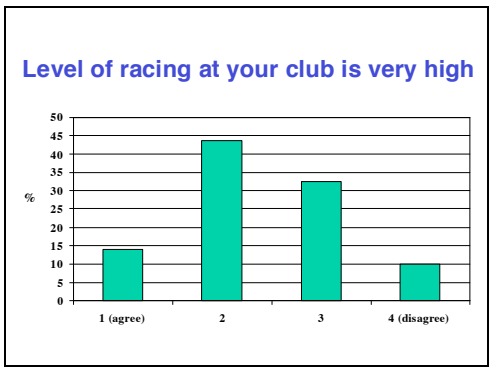
ALAN OLIVE & WILLIAM JEFFCOATE ARE WORKING ON A NEW INITIATIVE WHERE THEY HAVE SELECTED TWO CLASS ASSOCIATIONS & TWO SAILING CLUBS TO APPLY RACE COACHING TO MATURE SAILORS. WE ARE ALL AWARE OF THE JUNIOR & YOUTH SCHEME, BUT NOTHING WAS NEVER IN PLACE FOR THE MATURE SAILOR. THEY HOPE TO PERFECT A SCHEME THAT EVENDUALLY CAN GO NATIONWIDE AND THEIR PRESENTATION EXPLAINS THE LAYOUT.

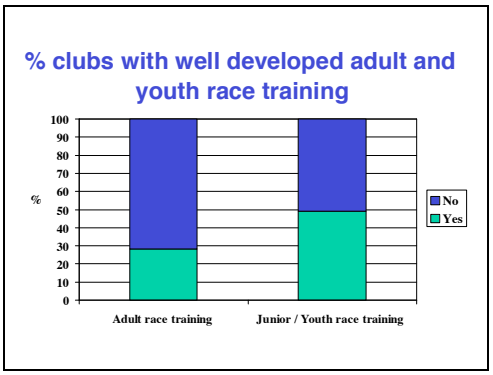
ALAN OLIVE ALAN.OLIVE@RYA.COM
WILLIAM JEFFCOATE JEFFCOATE@BIGFOOT.COM



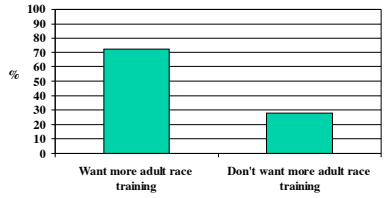




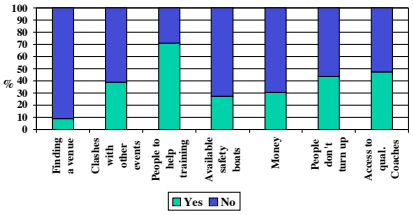




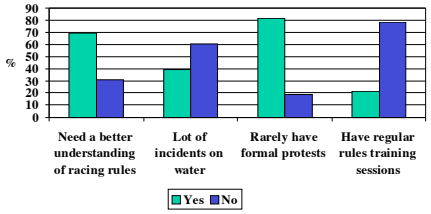
% wanting more adult race training



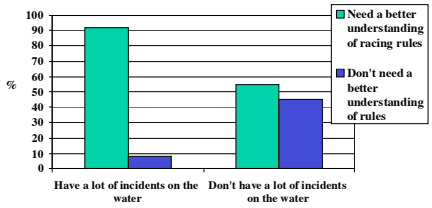
The main problem perceived in organising a training programme



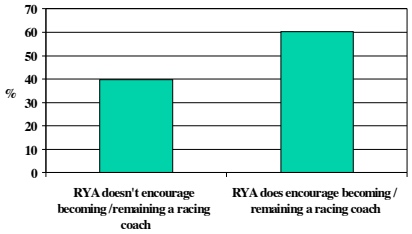
Rules knowledge, infringements and protests



Need for rules training perceived by clubs with more or less incidents



View of the RYA regarding club racing coaches



Interpretations

- Standard of racing is pretty high
- 30% have well developed race training
- 70% want more racing for adults
- 90% want more rules training
- 80% rarely have formal protests

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- 30% have well developed race training
- 70% want more racing for adults
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Action Plan

- E mail group & Forum
- 2 Clubs, 2 Classes
- Dinghy boat show
- Website information
- Rules package for coaches (RRG & JUG)
- Coaching Development & Support (Top Mark)

The Future?

- Activity
- Communicate
- Enthuse

Race starts using automated lights in place of flags and more.

Justification:
Flags are not visible on edge in North or South winds. Flags are visible but not identifiable when flapping in strong winds or bright sunlit background. Flag hoisting is not a crisp, exactly timed signal. Hoisting one flag whilst dropping another, pulling a hooter string and judging boats on a transit line is not possible for one or two people. Flags are not readily controllable by automated means.
Manual hooters are not crisp, consistent, accurate sound signals. Loud hoots, up to 80 times a day, are not liked by neighbours or passers-by.
Human beings, especially inexperienced race officers, make more errors than do electronics.

History:
The Sailing Committee discussed lights and automation in early 2003. The topic was deferred due to lack of time before the season start and undesirability of change in mid-season. The Sailing Coordinator was authorised to research available systems and/or do-it-ourselves design and build possibilities. The Sailing Coordinator was given a budget to purchase a computer based results calculation system, hopefully with the ability to interface to an automated race management system.

Research results:

1) Lights systems
Our neighbours Medway YC, Bough Beech SC, Herne Bay SC and Downs SC have all used lights for some time like many other clubs in the UK. Most are using car spotlights which they find are the best thing for visibility. All started as simple manual switched systems but some are contemplating adding automatic timers. Each has designed their own style of signals and their meanings.

2) Automated lights:
In January 2003 I discovered that WYC member Ian Parrot, who was then Tasar Class Captain, is an electronics design engineer who designs and builds very sophisticated control systems for military aircraft. I consulted him about the feasibility of designing an electronic controller for a light array, driven by a PC to give timed starting signals and react to unplanned signals such as Recalls or Shorten Course. He advised me it is feasible and offered to help with design. We realised that it would be a very time consuming project for volunteers. I produced an outline specification for the Sailing Committee for an array of 5 traffic lights (for 5 starts) with provision for indicating recalls etc., but thought it better to seek further before “re-inventing the wheel”. Upon reflection I realised that my traffic light idea was overcomplicated compared with existing manual systems.

In February 2003 Fowey SC (Cornwall) had an article in the RYA Race Officers’ newsletter about their automation experience. Apparently they persuaded a local Tech College lecturer in computing to create the software for a PC to directly control lights via relays. It took almost two years but they appear to have made considerable progress over manual systems. I believe that their lights were ordinary domestic light bulbs in a black box with coloured glass windows, but they report no problems with visibility. However, I believe they are starting inside a harbour of limited size with flat water! They were prepared to sell their software for £450 but there is no ongoing support or development promised and the programming is seriously technical. One still has to build the relay switches for the desired number of starts and build the light array. There is no automation of finish records or results calculation in the Fowey system to my knowledge. However early in 2003 Fowey seemed to be the most sophisticated system known to the RYA Race Management Committee.

3) Race results Systems:
A number of race result calculation systems were discovered on the Internet. Many were in old programming languages or dated back to old racing rules, hence useless. Most were simple and based on spreadsheets. Only one appeared to have the ability to maintain a large database of boats and the complexity of starts and classes of WYC. You will recall that we have a mix of level rating, Yardstick and Small Cat Handicap system and some classes on average lap time within our everyday starts, plus occasional pursuit races. The one system which might have coped is called SailWave and is in use in many clubs in the UK and a few abroad. However it is an amateur production by one very clever man, from Mumbles Yacht Club, and it showed many of the flaws of amateur "ShareWare" software. For example there was no instruction book. Instead there was a very good online internet "forum" of users who reported errors and snags found. This resulted in help from other users or the severely stretched author, who also made frequent changes and additions to the software. I tried to use SailWave with real WYC race data. I found it very difficult and time-consuming. Although I could make it work after a fashion I could not imagine many irregular Race Officers taking to it. It could be useful to clubs with one, or a few, Race Officers who were very computer literate and/or able to spend a good deal of time learning and tuning the system. This was the situation with the few users I contacted.
Then out of the blue I received a mail shot about a new system, commissioned by a club in Weymouth and already in use in several other clubs. It was written by a small professional software company called Hopford Associates Ltd. I spoke with the Principle, Peter Hopford and I got a trial copy of the HAL system. After successful trials and cross checks with manual results during the WYC Autumn Series data I bought it. It is based on a Microsoft Access database and has full professional support and a development schedule addressing "race within a race" and any 2004 Racing Rule changes, both of which we need. I have successfully demonstrated it to several members and to Broadstairs SC and Margate YC PROs who heard from HAL that I had it. As a trial I have also trained a non computer-literate member in the use of the simple "Race Officers" subset of the system which records finishes.

4) I love it when a plan comes together
Finally the icing on the cake was revealed – HAL knew of an engineering company in Ireland called Innovation Technologies who are marketing a professional timing box, called a Sailing Event Controller (SEC) which drives a starting hooter at preset times,can drive start lights and interfaces with a PC to record finishes in a format which reads straight into HAL! The box costs £350 but I have one on free trial and it does everything it claims in a beautifully simple way. A number of Ireland's top clubs are using it, some in conjunction with HAL. I have spoken directly with the inventor in Ireland. He is very keen to establish a foothold in England, knows of our club and promises the support we need to become a UK showcase site. With SEC it is still necessary to build the relays to switch the lights but this is simpler electrical work since all the clever electronics are in the SEC or the PC.

WHERE NEXT

Proposed system for start of 2004 season
New start line with new inner distance mark moved 50 metres parallel to beach to west. Effectively moves new Outer DM 100metres west and leaves current ODM as a good leg for easterly starts without entering harbour channel restricted area.
New hooter (large lorry style) mounted on top of new scaffold pole IDM in a weatherproof, sound proofed box only open to seaward side and protected from rain by louvres. Wired by steel reinforced multicore cable laid in simple trench in mud, up beach under slipway to Race Hut and connected to SEC box for automatic and manual hooting. This is the same method as worked for years on the old University wave measuring machine.

Lights array shown in second attached file of diagrams
Mounted on club flag staff just below crosstree , angled slightly to face down new start line. Lights may be car spotlights or LED matrices might be good alternative. From the new position of the IDM the crosstree is easily visible against the sky, well above the roof lines,

whereas the top of the race hut is not. Today in light fog and bad light I could clearly see white front fog lights on the Thanet Way at a range (measured by speedo) of just under a mile and dark red back fog lights around half a mile. I am suggesting rally standard 12volt, 55watt spots, which are far brighter than everyday fog lights, at £25 a pair (total £100 if my layout is used). The colours are achieved with special clear fluorescent colour paints intended for car headlight tinting, available on the internet. You may have seen motorbikes using the purple tint on headlights in order to be seen in daylight and it is very effective. Spotlights could be securely fixed to our massive flagstaff on front and sides.

Lights housing

Lightweight but strong matt black box around lights to give black background to lights. Would only be about 1.5m high by 1m wide. Open fronted since spotlights are weather proofed for doing over 100mph into mud and water and we don't want reflections. Made of plywood or similar, aluminium angle frame if needed and stays if needed.

Control centre in Race Hut

Small computer under bench top, SEC race timer box about 9 x 3 x 2 inches, relay and manual override switches board about 9 x 9 inches, little LED lights pattern slaved repeater for RO to see what the sailors see – should also show if a main spot light bulb dies- all fit easily on bench top. In the event of difficulties with relays design or build the lights could be wired for direct manual switches as a certain fallback.

Power

All lights and hooter to run off a big mains to 12v transformer to drive long wire runs. Possible to have twin 12v batteries, on continuous charge, in circuit to take load in event of power fail during a start sequence.

Lights Array

A suggested array system is illustrated below. I cannot think of anything simpler, but maybe you can do better.

This system allows for our current 5 starts (multiple classes within each start) and has one spare "Class/Start" light in case we do go for the proposed "Cadets and/or nervous beginners" extra start. Recalls, Shorten and Abandon signalling is described in the notes with the lights diagrams. This proposal is very similar to our current 6-3-0 flags and hooter system, which will suit all our sailors who can't read! 6-3-0 is a standard option on the SEC301 but it also has standard ISAF/RYA 5-4-1-0 timing (and other varieties desired by other clubs) if we ever want to change or take the SEC onto the Committee Boat for accurate Opens and Champs sound signals alongside flags.

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