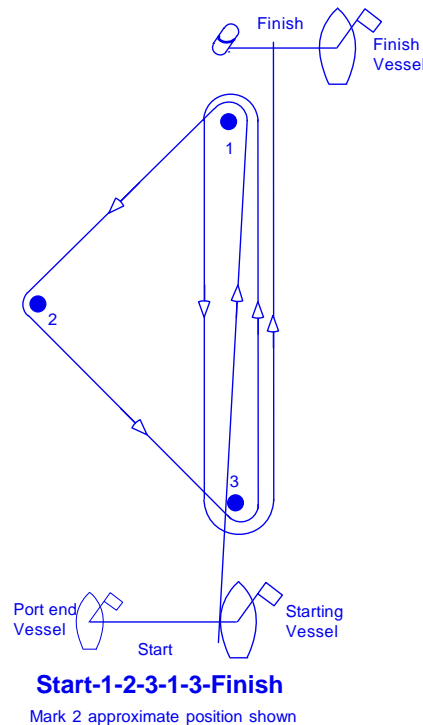


## Analysis of the 2011 FD World Championships Split Fleet System and Results

The sailing and other aspects of the 2011 Flying Dutchman World Championships, June 30<sup>th</sup> to July 9<sup>th</sup>, at Fragelia Della Vela Di Malcesine have been described elsewhere, so this report contains descriptions of how the 130 boat fleet was split, the course and recommendations for future large Flying Dutchman regattas.

### Sailing Instructions and courses



*FD Championship course, with offset start line for split fleets.*

The sailing Instructions issued on arrival in Malcesine were probably a quick rewrite of the Sailing Instructions from the previous regatta, and did not conform to the FD Championship rules. They were also for a single start, and it was quickly agreed with the Race officer that fair starts would not be possible for 130 FDs on a 1.6 km line, with everyone trying to start at the pin so as to go left. At other venues it could be possible, but puts an enormous responsibility on the RC to set a fair line. The Sailing Instructions were therefore rewritten to split the fleet into two starts, as described in detail below, as well as to institute the low point scoring as required by the FD Championship rules, and adjusting time limits and other details. The cooperation of Giorgio Battinelli and Alberti Marco in this process was much appreciated.

One other point of interest was that the initial Sailing Instructions had racing during 4<sup>th</sup> to 8<sup>th</sup> July with a reserve day on Saturday 9<sup>th</sup> July at the end of the schedule rather than in the middle as previously agreed. It was also not clear if the prize giving was to be on Friday 8<sup>th</sup> July, or Saturday 9<sup>th</sup> July for which few competitors would stay if racing was complete on the 8<sup>th</sup> July. There was some difference of opinion as to whether the reserve day should be used to complete the schedule of nine races if the four races required to constitute a Championship had been completed, even if no final series races had been sailed. A satisfactory compromise was reached which specified that no race would be started after 10 am on Saturday.

For the future the Championship rules should include a requirement that the Sailing Instructions shall be submitted to the IFDCO VP Championships at least 30 days before the Championships, and that after the schedule of races has been announced in the Notice of Race it shall not be changed without consultation with IFDCO VP Championships.

In the event the Qualifying series of six races was completed on the first three days but on day four there was no wind for the first races of the final series. This left the three Final series races to be sailed on Friday and Saturday, and the race committee decided to have a morning race at 9 am on Friday, but this was abandoned and the fleet sent in. In the afternoon the race committee managed to run three races in the afternoon to complete the Championship. This made for a very long last day, as essentially four races were run on this day, and many competitors no doubt would have preferred only two races in the afternoon. This was probably due to the request for nine races coupled with the club's wish to finish the regatta on Friday. In the event there was no wind on Saturday morning so finishing on Friday turned out to be wise.

### **Split Fleet System**

For championships with more than 90 boats it is difficult to set fair starting lines, identify early starters etc. and so achieve a fair start. The crush of boats at the first weather mark can also cause problems and so it is generally accepted that the fleet should be split into two or more starts for a qualifying series which serves to divide the fleet into a "Gold" and a "Silver" division. There are a number of ways to implement the qualifying fleet split. The 2011 Sail for Gold regatta in Weymouth used the following system:

#### **Qualifying Series:**

22.3.1 Boats will be assigned to fleets Yellow or Blue, of, as nearly as possible, equal size and ability. Initial assignments will be made by a seeding committee appointed by the race committee. Those assignments will be posted by **2100** on the day before the first scheduled race for each event.

22.3.2 Boats will be reassigned to fleets after each day of racing, except if on the first day fewer than two races are completed by all fleets. If all fleets have completed the same number of races, boats will be reassigned on the basis of their ranks in the series. If all fleets have not completed the same number of races, the series scores for reassignment will be calculated for those races, numbered in order of completion, completed by all fleets. For two fleets, reassignments will be made as follows:

*Rank in series Fleet assignment*

Yellow 1, 4, 5, 8, 9, 12, 13, etc.

Blue 2, 3, 6, 7, 10, 11, etc.

and so on

If two or more boats have the same rank, they will be entered in the left column in the order of fleets in SI 22.3.1.

22.3.3 Assignments will be based on the ranking available at 2100 that day regardless of protests or requests for redress not yet decided.

22.3.4 If all fleets have not completed the same number of races by the end of a day, the fleets with fewer races will continue racing the following day until all fleets have completed the same number of races. All boats will thereafter race in the new fleets.

#### **22.4 Final Series:**

22.4.1 Boats will be assigned to final-series fleets Gold and Silver, on the basis of their ranks in the qualifying series. There will be the same number of fleets in the final series as there were in the qualifying series. The final-series fleets will have, as nearly as possible, equal size but none larger than the Gold fleet. Boats with the best qualifying-series ranks will race all final-series races in the Gold fleet, boats with the next-best qualifying-series ranks will race in the Silver fleet.

22.4.2 Any recalculation of qualifying-series ranking after boats have been assigned to final-series fleets will not affect the assignments except that a redress decision may promote a boat to a higher fleet.

This system has the advantage of successively equalizing the qualifying fleets on the basis of their performance at the regatta, as opposed to using performance at previous events to split the fleet. However, it has the significant disadvantage of boats having to keep track of which fleet they are racing in, and even changing colour on the water for subsequent races when fleets have to make up a race.

For the 2009 FD Worlds in Medemblik, with a fleet of 100 boats, the sailing instructions were as follows:

## 7 FORMAT OF RACING

7.1 The regatta will consist of a qualifying series and a final series.

7.2 For the qualifying series boats will be assigned to groups Yellow, Blue, Red, Green, etc., of, as nearly as possible, equal size and ability. The target group size is 25% of the total entries. Assignments will be made by a seeding committee appointed by the race committee. Those assignments will be posted by August 1 1800h

7.3 (a) Boats will be assigned to final-series fleets Gold and Silver on the basis of their ranks in the qualifying-series. There will be the same number of fleets in the final series as there were in the qualifying series. The final-series fleets will have, as nearly as possible, equal size but so that the Silver fleet is not larger than the Gold fleet. Boats with the best qualifying-series ranks will race all final-series races in the Gold fleet, boats with the next-best qualifying-series ranks will race in the Silver fleet.

(b) Any recalculation of qualifying-series ranking after boats have been assigned to final-series fleets will not affect the assignments except that a redress decision may promote a boat to a higher fleet.

7.4 The fleets in the qualifying series and the starting sequence are as follows:

	Race	1	2	3	4	5	6
1 <sup>st</sup> start		Yellow Blue	Yellow Red	Yellow Green	Red Green	Blue Green	Red Blue
2 <sup>nd</sup> start		Red Green	Blue Green	Red Blue	Yellow Blue	Yellow Red	Yellow Green

7.5 In the final races the starting order is:

1. Gold fleet
2. Silver fleet

What was not clear from these sailing instructions was that the boats would be reassigned to groups on a daily basis, somewhat similarly to the Weymouth system. This led to the unfortunate result that the top boats did not in fact race against each other until the Final series, and led to some feelings that the fleet should not have been split.

For the 2011 FD World Championships in Malcesine, which had an entry of 130 boats, requests to split the fleet in accord with the FD Championship rule 1.5 were made, but the sailing instructions were not available until arrival and had a single start. In discussion with the Race committee it transpired that they also preferred to split the fleet and so this, as well as a number of other significant changes to the sailing instructions, were agreed.

The VP Championships split the entry into 4 groups, Red, Green, Blue and Yellow, about 33 boats each. These allocations were for the whole of the Qualifying series. The

intention was to allocate boats based on the Dawes Cup results as follows, with non European boats allocation based on previous Worlds:

Red	Green	Blue	Yellow
1	2	3	4
8	7	6	5
9	10	11	12
16	15	14	13
17	18	19	20
24	23	22	21

This, at least mathematically, splits the talent equally between the groups. The groups were then inspected and the numbers from each nation approximately equalized, and the lady competitors were also distributed. Given the limited time no effort to distribute the 100+, 25+ boats or under 26 competitors were made.

For future large regattas a more systematic approach to allocating boats to groups could be used and the Dawes Cup, Vogel & Meier FD Ranking, the German Ranking list or previous Worlds results employed. However, again these rankings primarily contain European sailors. Australian, New Zealand and North American sailors etc. have to be assigned on an ad hoc basis. As can be seen from the analysis below, the ranking lists are heavily biased towards competitors who attend many regattas and are not a very good indicator of performance at a large World Championships, and do not even accurately rank the top sailors.

Given the ranking prior to arrival it would be possible to assign bow numbers by group, i.e. 1 to 33 Red, 34 to 65 Green, 66 to 98 Blue and 99 to 130 Yellow. That way the RC would have a second check on the group to which a boat belongs. A possibility is a coloured circle on the bow, together with the number, which would be easy to see at the start, or coloured numbers (just dreaming!) as well as a ribbon on the mainsail.

Coloured ribbons were issued to each group, to be attached at the end of the mainsail top batten at the leech. Some sailors preferred to attach the ribbon at the head of the mainsail and this was acceptable, but ribbons on the boom would not be visible. After the qualifying series of six races Gold and Black ribbons were issued to the Gold and Silver fleets as no silver ribbons were available. The choice of black was unfortunate and white would have been better, but this did not cause any problems.

For qualifying races the fleet was split into two starts, i.e. two groups race together but the group pairing changes as follows:

	Start 1	Start 2
Race 1	Red & Green	Blue & Yellow
Race 2	Yellow & Red	Green & Blue
Race 3	Green & Yellow	Red & Blue
Race 4	Blue & Yellow	Red & Green
Race 5	Green & Blue	Yellow & Red
Race 6	Red & Blue	Green & Yellow
Race 7	Gold	Silver
Race 8	Gold	Silver
Race 9	Gold	Silver

That is, each group raced against each other group twice and has 3 first starts and 3 second starts in the first 6 races. After 6 races the fleet was split into Gold and Silver for the final 3 races.

In Malcesine we were fortunate to have excellent conditions for the Qualifying series and only missed a day at the start of the final series. However, at future regattas it is possible that Qualifying series races are missed, and that if this schedule is adhered to there could be only one final series race, which clearly is not acceptable. The recommendation is that there are two qualifying races per day for the first three days, then a lay day on day four, with Final series races on days five and six. Provided the Qualifying series has had at least three races the Final series shall commence on or after the lay day. It has also been suggested that there only be three Qualifying series races with six races in the Final series

Although the order of starts was included in the Sailing Instructions so sailors knew what to expect, the colours of the two groups for the signalled start were displayed at the warning signal, e.g. for the first start the Red and the Green flags would be used, while for the second start the Blue and Yellow flags would be displayed. In this way the competitors know on the water to which start they belong. Only changing ribbons for the final series also made the system simpler for both the competitors and the Race Committee.

### **Split starting sequence, advantages and disadvantages**

The starts were according the RRS 26 with the group coloured flags raised at the warning signal in lieu of the class flag. The race officer chose to use the "I" flag at the preparatory signal in order to dissuade premature starters, and did in fact call a number of boats OCS who dipped the line and did not go round the end. It was agreed that, in view of the large number of entries that boats would be counted as starting provided they cross the start line within 5 minutes of the start signal. In order to encourage second start boats to keep well clear of the first start the decision was made to give the second start 5 minutes clear to explore the line before their warning signal. This meant there was a minimum 15 minute delay before the second start, which proved ideal for avoiding the leading second start boats catching the first start tail enders at the finish.

However, it is recommended that future Sailing Instructions should include a penalty for boats that are within 50 m of the starting line, if it is not their start. The Race committee has enough to do in the final minute to be too busy to check that no second start boats are in the first start, either inadvertently or otherwise, and boats not starting should not interfere with the start. This was not a major problem but had to be watched.

The 15 minute between starts meant that the second start boats going upwind met the first start boats at the Gybe mark coming downwind, and on this lake with the left heavily favoured, this caused some problems. In hindsight, it might have been better to have the two starts only 5 minutes apart. On one occasion the second fleet had a restart and this delay meant that the first fleet was coming down the second reach at this start. Fortunately the leeward mark had been set ahead and to starboard of the committee boat, so the starboard tack starters went well to leeward of the reaching first start boats.

Again because the wind favoured the left side boats on the run would start on starboard gybe and gybe at an angle of about 30 degrees to downwind towards the leeward mark. There were a number of occasions where the second fleet was approaching the leeward mark on their second reach when the first fleet was running on port gybe approaching the same mark. Although not ideal this did not cause major problems, except perhaps for calling for room, as both fleets were going round and then to weather, i.e. no worse than racing in the full 130 boat fleet! There were some problems with some tail

enders going round the weather mark when other boats were going to the finish. In order to avoid this problem the finish line should be significantly to weather of mark #1.

Due again to the favoured left side the boats heavily favoured the pin end of the line, and at least in the qualifying series there was usually a significant sag in the line. This apparently was not the case for the final series for which the black flag was invoked for some starts.

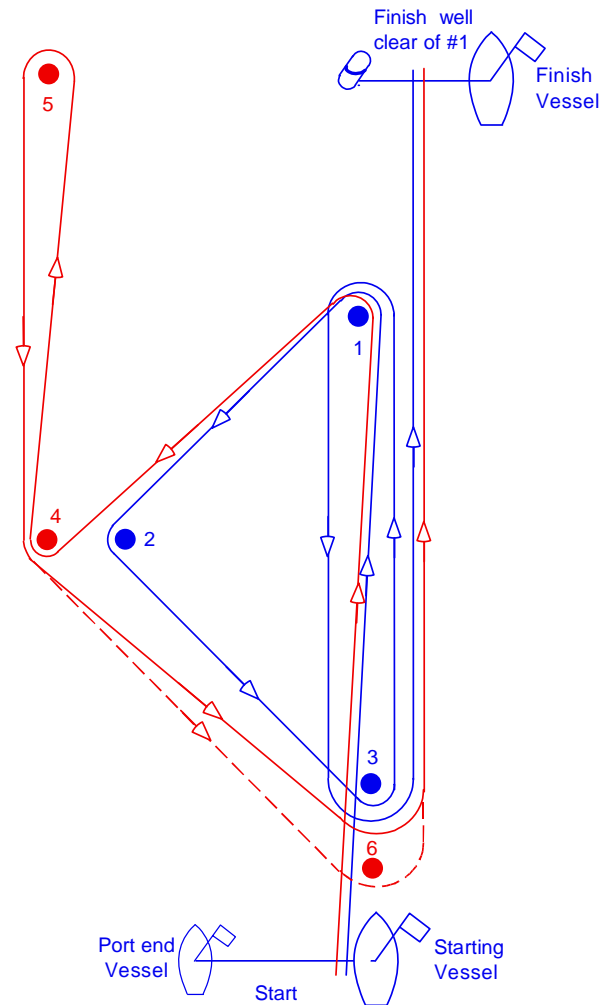


*The start of the first race of the 2011 FD Worlds, Malcesine.*

Although the order of starts was included in the Sailing Instructions so sailors know what to expect, For the top competitors, who come to race against each other, splitting the fleet with them in different groups makes the competition less interesting. This was the main motivation for the four colour groups racing in pairs so that any two competitors race against each other twice during the six qualifying races, although three-way competition among top competitors ceded to different groups would not occur.

### **Split Fleet Courses**

In regattas with windward-leeward courses one can separate fleets by having the first fleet reach away from the first windward mark and have their own leeward and windward marks. However, with the FD course with a gybe mark and two reaches this becomes more difficult. The Race committee will require both the start and finish of both courses to be the same and for them to require a minimum number of extra marks. One suggestion is shown below, but requires two extra marks or three if the last rounding of mark #3 is to have no overlap of the fleets, and in case of a wind shift two weather marks have to be moved, so this is only the best suggestion I can make.



**Fleet 1 Start-1p-4s-5p-4p-3p (or 6p)-Finish**

**Fleet 2 Start-1p-2p-3p-1p-3p-Finish**

Marks 2 & 4 approximate position shown

*A possible but complex course layout to partly separate the two fleets. Note the starboard first rounding of #4, and the extra mark #6 if the fleets are to be more completely separated.*

## Scoring

The sailing Instructions included the following regarding scoring:

- 16.1 The Low Point System of RRS Appendix A will apply. (See IFDCO Championship rule 7.1)
- 16.2 Four races are required to be completed to constitute a series. If more than seven races are completed then there shall be two discards. If seven, six, five races are completed there shall be one discard. If only four races are completed then all shall count. When only three or less races are completed the Championship is not valid (See IFDCO Championship rule 7.1 a))
- 16.3 When there is a tie on total points between two or more boats, the boat that has finished more times in front of the others shall prevail (inclusive all discardable races). For such boats as may still be equal the better result in the last race in which the points are non equal will prevail. A DSQ arising from RRS 42 infringement may be discarded. (See IFDCO Championship rule 7.1 b))
- 16.4 A boats score will be the sum of its score in the qualifying and final series. In the event that one group does not have the same number of races as another group, boats will be assigned their average score from the qualifying series for the missing qualifying series race and their average score from the final series for the missing final series race.

- 16.5 RRS A 4.2 will not apply. A boat that "did not start", "Did not finish", "retired after finishing", or was "disqualified" shall be scored points for the finishing place one more than the number of boats in its starting group pairing.
- 16.6 After the allocation to "Gold" and "Silver" fleets a Gold fleet boat's score will be the sum of her scores in the qualifying races plus her score in the gold fleet races, for her final "Gold fleet score".  
For a Silver fleet boat her score will be the sum of her scores in the qualifying races plus her score in the silver fleet races, for her final "Silver fleet score".  
The discards, as per 16.2, will be applied to all races from either the "Qualifying" or "Gold" or "Silver" races.

Although not included, and as it turned out not required, scores for the "Silver fleet" for the Ladies Cup, 100+, Under 25 and 25 plus boat trophies would have had the number of Gold Fleet boats, i.e. 66, added to their race scores. For clarity this should be included in future Sailing Instructions.

Note that the RRS Appendix A scoring system has the following tie breaking system:

A8.1 If there is a series-score tie between two or more boats, each boat's race scores shall be listed in order of best to worst, and at the first point(s) where there is a difference the tie shall be broken in favour of the boat(s) with the best score(s). No excluded scores shall be used.

A8.2 If a tie remains between two or more boats, they shall be ranked in order of their scores in the last race. Any remaining ties shall be broken by using the tied boats' scores in the next-to-last race and so on until the ties are broken. These scores shall be used even if some of them are excluded scores.

Although the sailing instructions invoke Appendix A scoring, this is stated to be modified according to the IFDCO Championship rule 7.1 for tie breaking, as re-stated in SI 16.3.

With 130 boats in a split fleet there were a number of tie scores and this caused some problems, as the scoring program applied Appendix A tie breaking. The Qualifying series scores had 18 ties, with two three way ties, and one four way tie. This large number of ties partly results from two boats for each race pair having the same score. Interestingly the initial results of the Qualifying series had two boats tied at the Gold-Silver split point, and the tie was broken differently under the two systems! Fortunately this was no longer a tie in the final Qualifying series results.

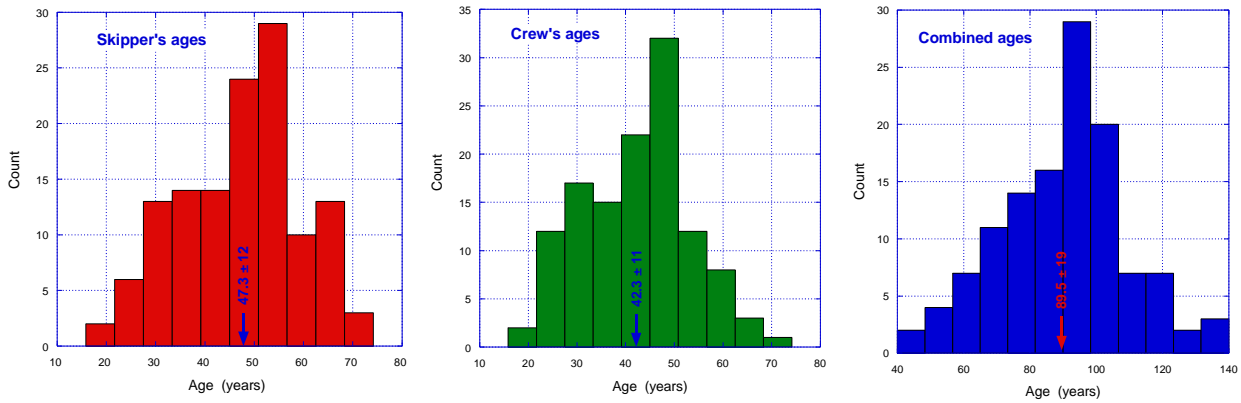
Total Final results had eight ties, with one three way tie, in the Gold fleet, and seven ties in the Silver fleet. Of these ties the RRS Appendix A system agreed with the FD Championship tie breaking system six times and re-ordered them nine times. Both tie breaking systems have their rationale, and personally I favour the FD system, however, the class should consider adopting the RRS Appendix A system to avoid future scoring problems, or develop scoring software which correctly applies the FD tie breaking system.

## 100+ Trophy

Some time ago this was the 75+ Trophy and if this is to be a competition while the Danes continue to sail FD perhaps it should have remained at 75+! The nearest 100+ team to the Bojsen Mollers was Ian McCrossin and James Cook at 15<sup>th</sup> place. It will be some years before HUN 70 or NED 26 reach 100+.

The age distributions of the skippers, crews and the combined ages are shown below.

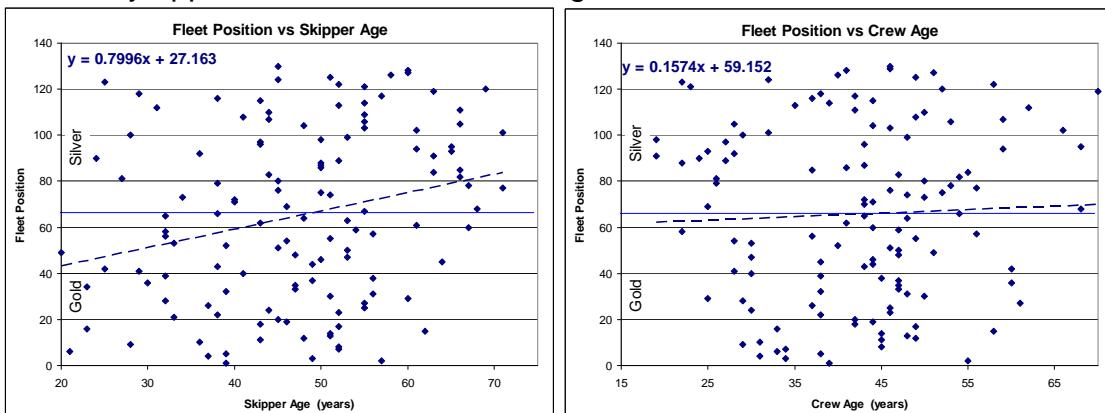
	Skippers	Crews	Combined
Minimum	<b>20 y</b>	<b>19 y</b>	<b>47 y</b>
Average	<b>47.3 y</b>	<b>42.3 y</b>	<b>89.5 y</b>
Maximum	<b>71 y</b>	<b>70 y</b>	<b>136 y</b>
Standard Deviation	<b>12 y</b>	<b>11 y</b>	<b>19 y</b>



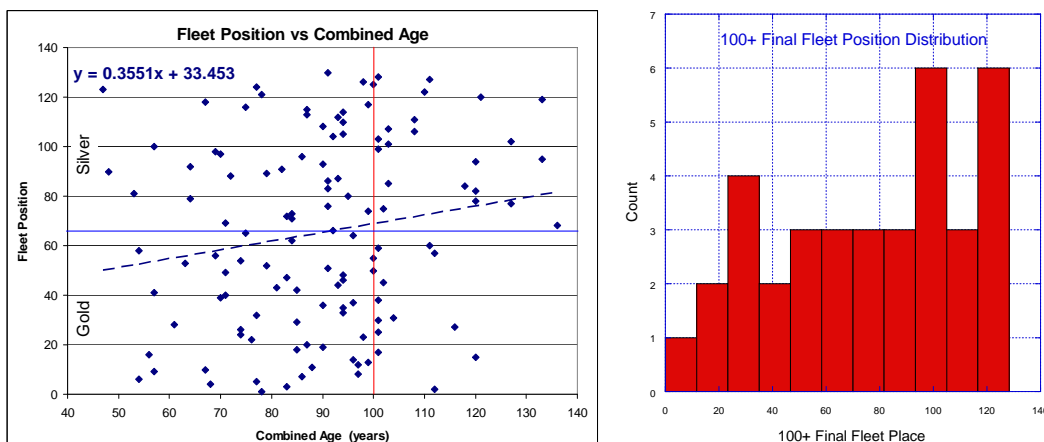
The distributions of Skipper's, Crew's and Combined ages.

The youngest Skipper was Sevilla Marco (ESP 91), the youngest crew was Nigel Gorbold (GBR 367) and the youngest combination was Philipp Backes and Dominic Kiefer (GER 2098) who were also sailing the oldest boat. The oldest skipper was Wolfgang Dietrich (GER 224), the oldest crew was Paul Hemker, our joint chief measurer (GBR 382) who was sailing with our class secretary Peter Doran, and the oldest combination was Henry Koning and Rob Taal (AHO 1) who came second in the Silver fleet.

How is the talent distributed with age? One might assume that young sailors do not yet have enough experience while older sailors begin to lose agility, so the middle of the age group should have the best average results. However, the graphs of the final positions do not show any appreciable correlation with age.

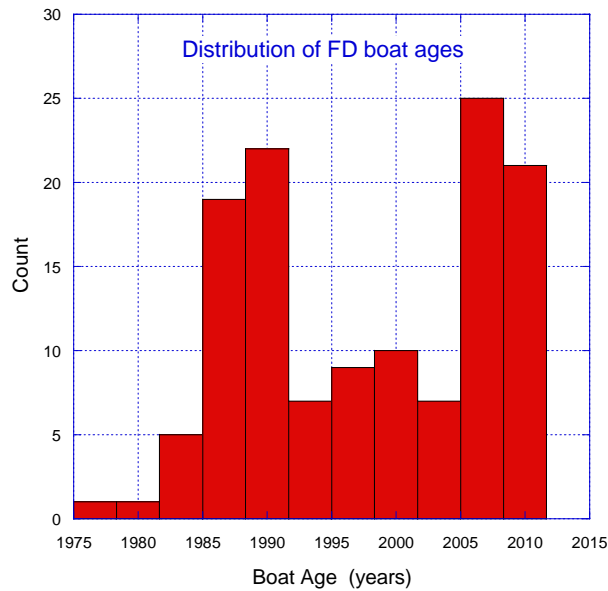


The final fleet positions vs. Skipper and Crew ages show essentially no correlation.

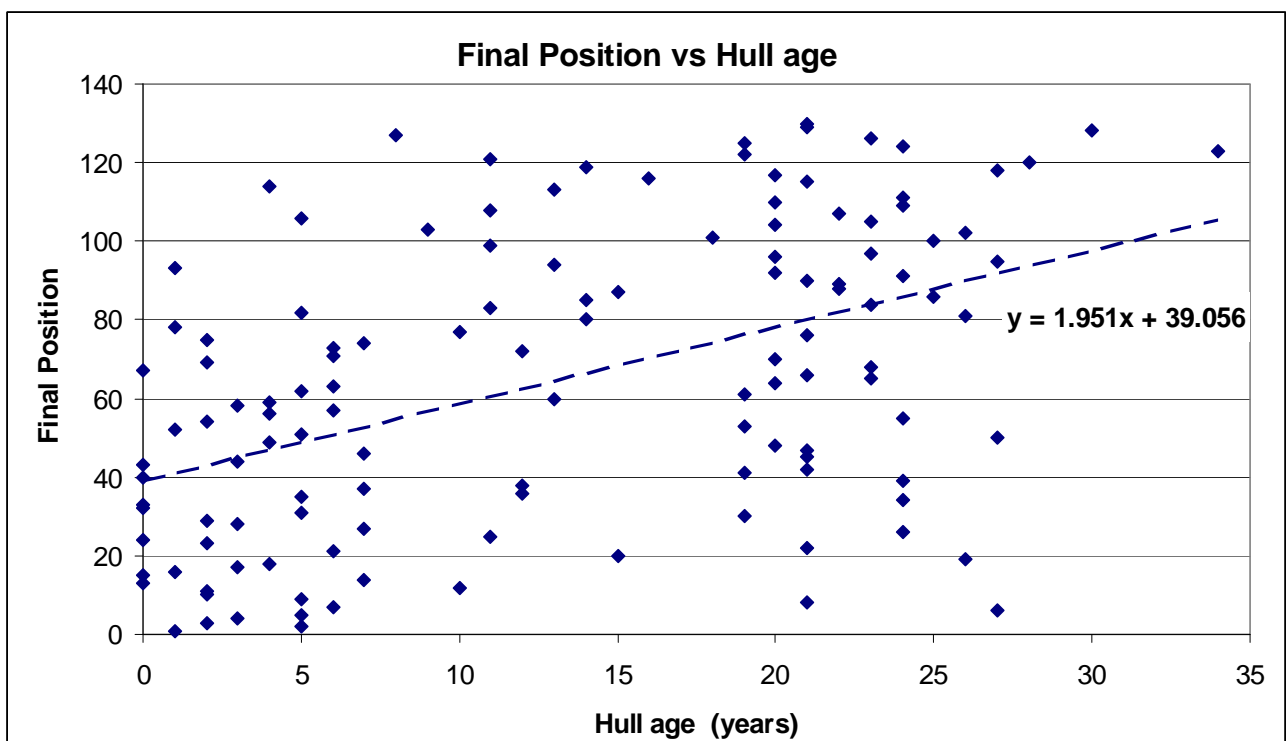


The final fleet positions vs. Combined ages, and the distribution of 100+ positions.

It will be seen that there are three crews in the first 20 with combined ages of 100+, and that there are a cluster of crews close to a combined age 100 years. Although there is a slight deficit of 100+ crews in the first 20 places and a few extra tail enders, this trend is nowhere near as much as one might expect, indicating that Flying Dutchman sailors keep right on sailing well into retirement.



*Distribution of Flying Dutchman hull ages.*



*The Final Fleet positions versus the ages of the FD hulls.*

While on the subject of age the above histogram shows the distribution of Flying Dutchman hull ages. It is understandable that at a World Championships that there are a large number of new boats but it is interesting to see the large number of boats which are between 20 and 26 years old. These boats are presumably the last generation of Olympic Flying Dutchmen and indicate the longevity of the hulls. Few modern high performance racing dinghies remain competitive for this length of time.

It can be seen that for the hulls less than six years old there is no correlation with the final position and in fact a five year old hull was second. For hulls older than six years there is also negligible correlation with position, but the average position of this group is clearly lower down the fleet. However, the sixth place hull was 27 years old, and this was not the only older boat in the top twenty.

## **Ladies Cup**

There were five lady helmspersons and one all lady crew in the championships. The winner of the "Ladies Cup" was Silvia Aichholzer, with Christoph Zingerle crewing (AUT 39) a 24 year old boat to a final position of 39, i.e. in the top third of the fleet. The runner up was Elisa Koenig with Lars Dehne crewing (GER 133). They had a good lead coming out of the Qualifying series but, together with some top boats, had problems in the Final series to end up 56th. Tanja Heijink and Nettie Van der Valk (NED 33), our all lady crew ended up 62<sup>nd</sup>, so above the half way mark of the fleet, congratulations. Although there were no really high wind days, these championships had very difficult and testing conditions and the high placings of these lady sailors attests to their skills and to the fact that the modern FD can be sailed competitively by the ladies.

## **Prize Giving**

It was not clear until late on Friday night whether the prize giving would be on Friday evening, after a long days racing, or Saturday after a final race in the morning. The final results were only available in paper form, and late in the afternoon, and results for the Dawes Cup, the Euro Cup as well as the Ladies Cup, 100+, Under 25 and 25 plus boat trophies determined before finally awarding trophies to the top 16 competitors. Unfortunately there was no cooperation from the club regarding their prizes, which only a short time before the ceremony were delivered as magnificent action photos of the recipients racing. This together with not knowing who would present the prizes made organization difficult, but I must take full responsibility for the error in the Ladies Cup winner, my sincere apologies to both Elisa and Silvia.

## **Statistics**

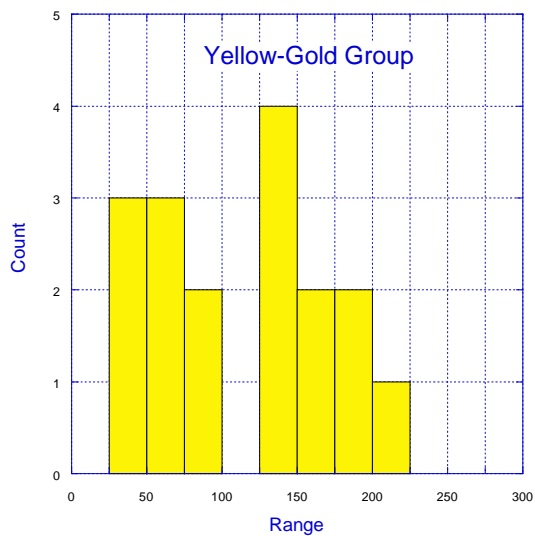
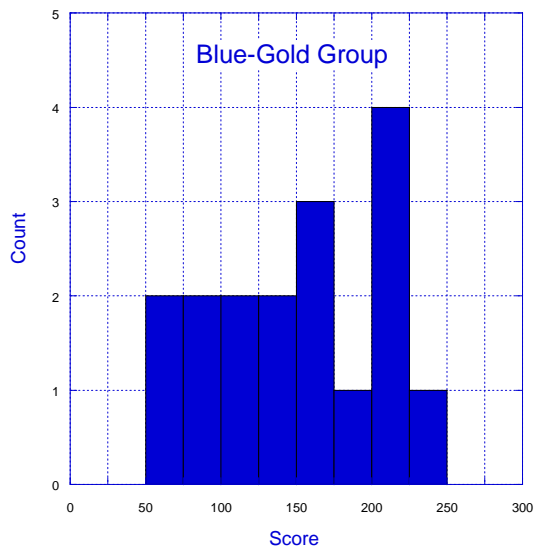
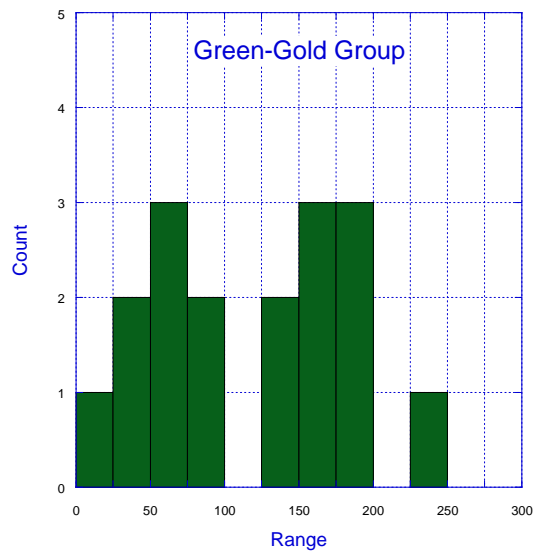
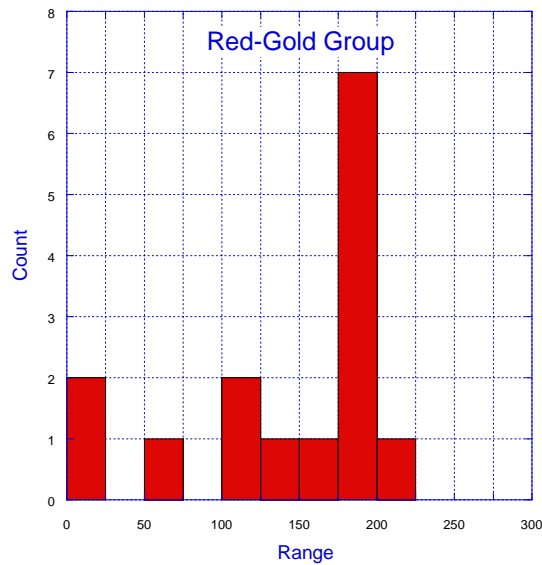
It is of interest to look at the results from the various qualifying series groups to see if they were equally balanced, as it would clearly be an advantage to be in a weaker group and thus get higher scores in the qualifying series. The first indicator is the number of boats in the Gold and Silver fleets from each group, and as indicated in the table this was clearly close to ideal.

For the Gold Fleet the Yellow and Green groups had somewhat lower average scores than the Blue or Red groups but the histograms indicate that Red and Green groups had the boats with scores below 25 but the red group had a large number of high scoring boats.

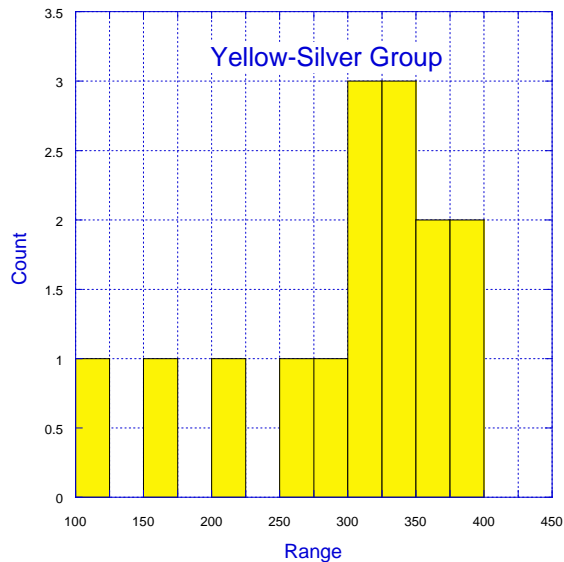
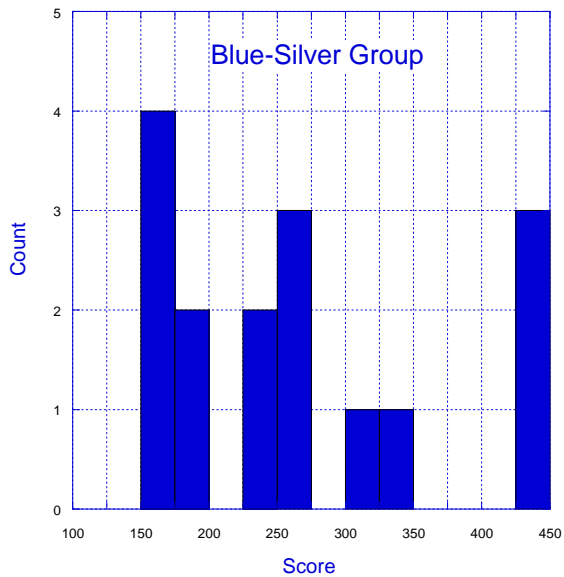
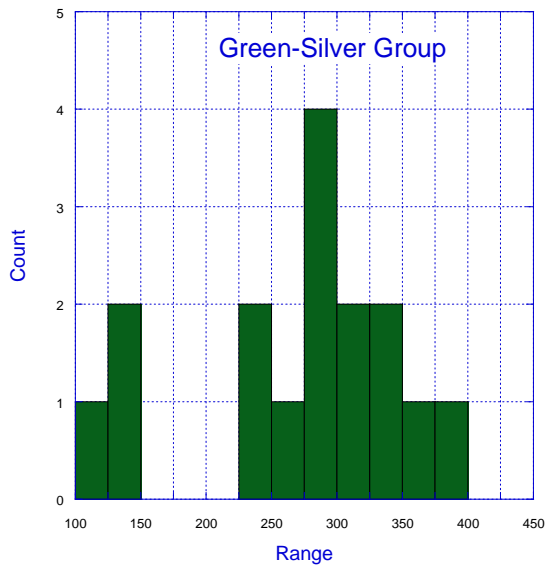
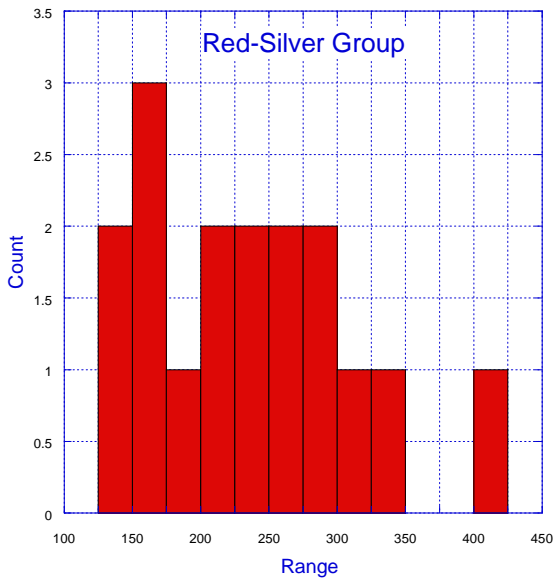
The scores for the Silver fleet are, as expected, higher than for the gold fleet with the Red group having the lowest average score and the Yellow group having the highest average score, but it can be seen that the latter group also has boats with low scores. With

only 16 boats in each sub group it is difficult to draw any firm conclusions, but there does not appear to be any significant bias and the split fleet Championship was essentially fair.

Qualifying Series	Final Series	Number of boats	Average Points	Standard deviation
Blue	Gold	17	149	$\pm 58$
	Silver	16	264	$\pm 97$
Green	Gold	17	118	$\pm 67$
	Silver	16	269	$\pm 79$
Red	Gold	15	140	$\pm 64$
	Silver	17	236	$\pm 77$
Yellow	Gold	17	114	$\pm 59$
	Silver	15	297	$\pm 80$



*Histograms of the final scores of boats in the Gold fleet*



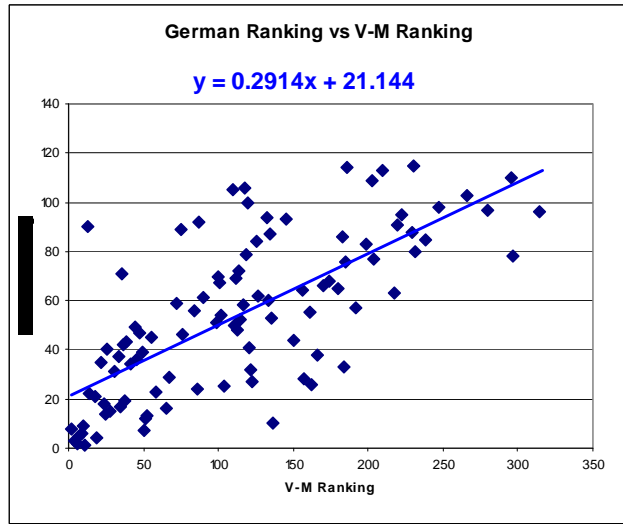
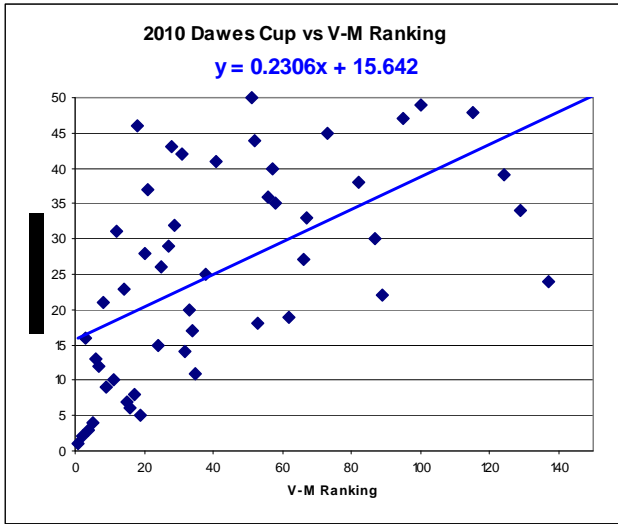
*Histograms of the final scores of boats in the Silver fleet.*

## Ranking Systems

For split fleet championships the assignment to a group is of interest to the sailor and the rationale for the assignments should be transparent. Clearly the sailing talent should as much as possible be equally distributed among the groups. In principle this can be achieved as described above provided it is based on a reliable ranking system, and their lies the rub.

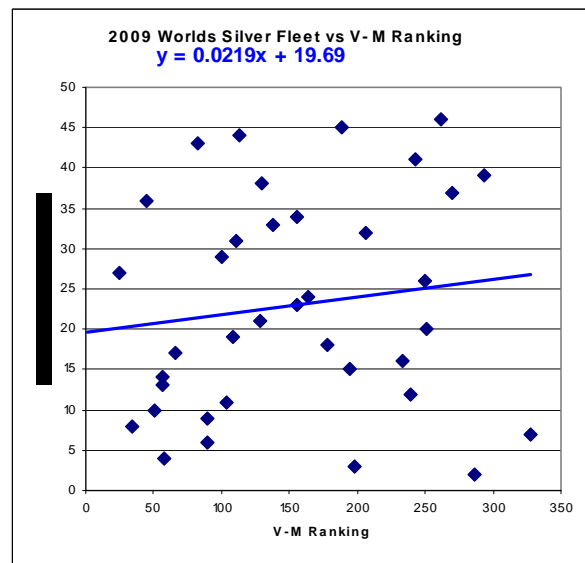
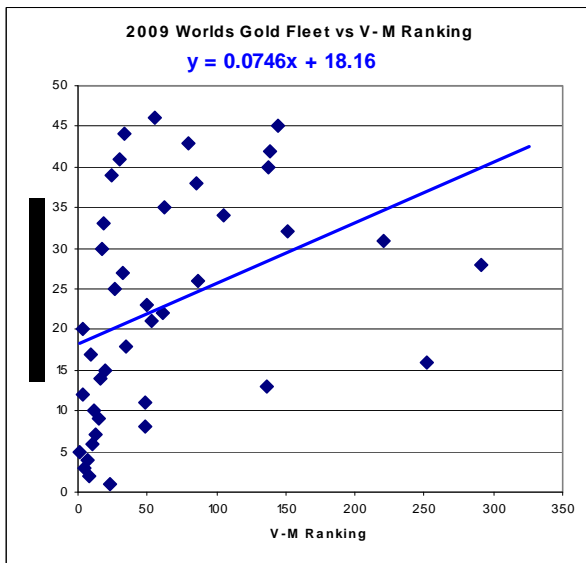
The FD class presently has at least three ranking systems namely the Vogel-Maier ranking, the German class ranking list and the Dawes Cup. The results of previous large World Championships, for instance the 2009 WC in Medemblik, could also be used and have the advantage that they include sailors from outside Europe. For Malcesine the Dawes Cup ranking for the top 50 sailors was used and the following is an analysis of the correlation of the 2011 WC results with the other ranking systems.

The German Ranking list and the Dawes Cup are compared graphically with the Vogel-Maier ranking below. Note the very considerable scatter of the data.



*The Dawes Cup ranking and German Ranking List vs. the Vogel-Maeir Ranking*

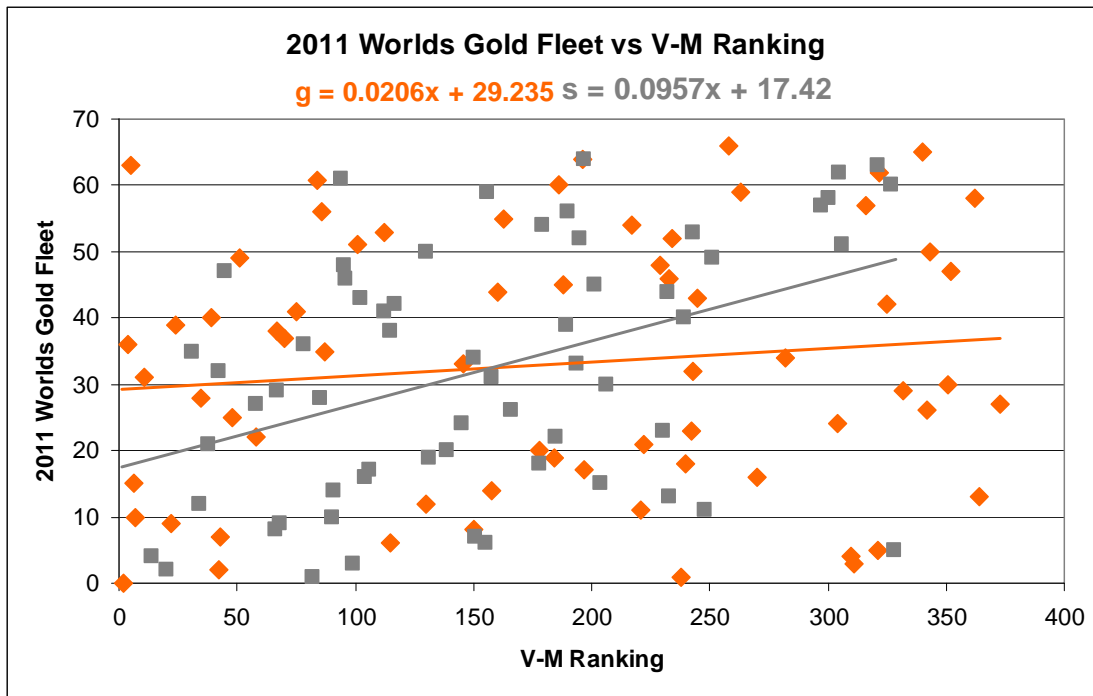
The results of the 2009 WCs in Medemblik were then compared with the Vogel-Maeir ranking.



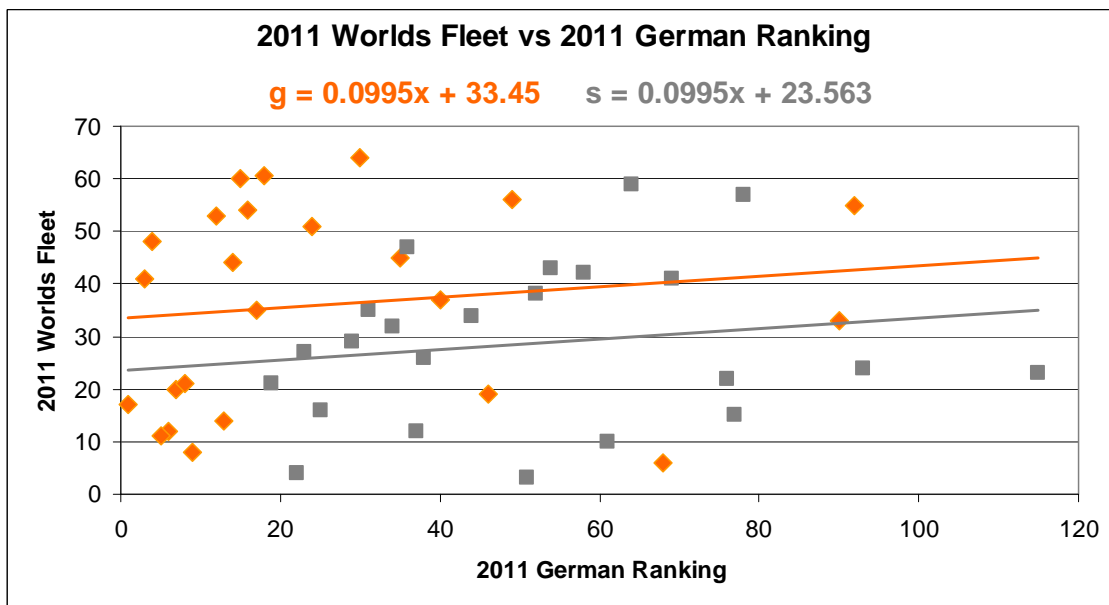
*The 2009 WCs Gold and Silver fleet results vs. the Vogel-Maeir Ranking.*

Note that for the 2009 Silver fleet there is essentially no correlation with the Vogel-Maeir Ranking.

Finally the results of both the 2011 Gold and the Silver fleets were compared with the four possible ranking systems.

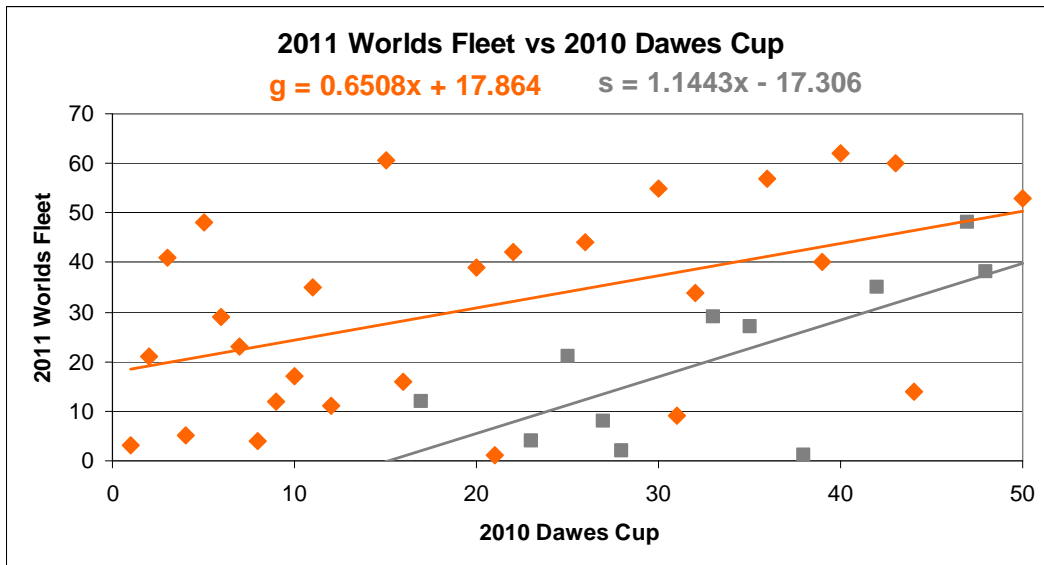


*The 2011 FD Worlds Gold and Silver fleet results vs. the Vogel-Maeir Ranking.*

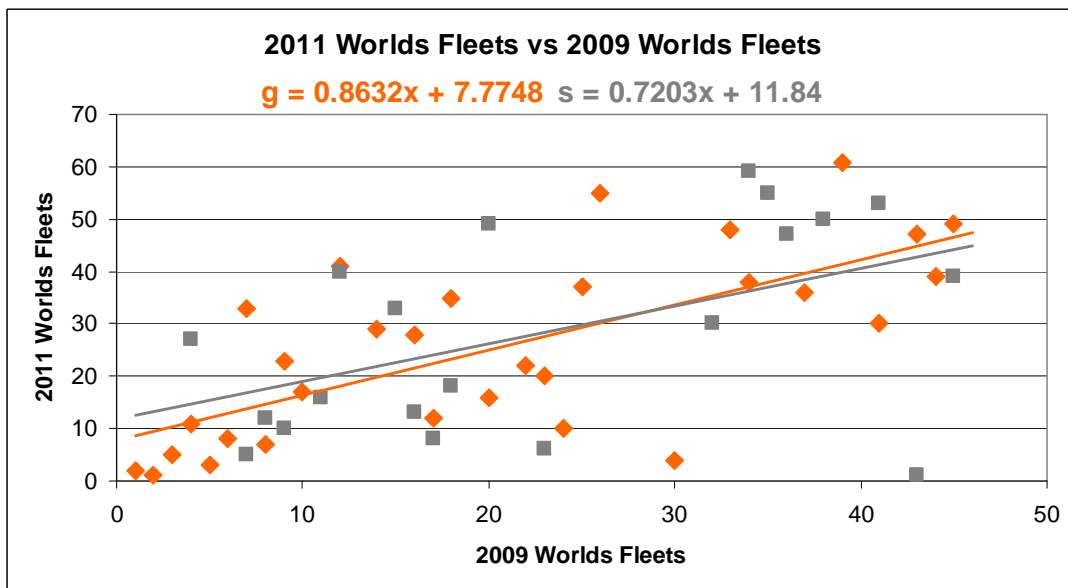


*The 2011 FD Worlds Gold and Silver fleet results vs. the German Ranking.*

There is essentially no correlation between the 2011 WC results and the V-M ranking, presumably because the latter depends on consistent regatta attendance, which deserves to be rewarded but is not necessarily a good indication of sailing skill. A cursory evaluation of this data would suggest that the 2009 WC results would have been the best indicator, as is to be expected.



*The 2011 FD Worlds Gold and Silver fleet results vs. the Dawes Cup.*



*The 2011 FD Worlds Gold and Silver fleet results vs. the 2009 FD Worlds Gold and Silver fleet results. The outlier at (43, 1) is our president Alberto who obviously had other things on his mind in 2009, but was sailing well in 2011. Such results can however, significantly skew any ranking data.*

The great job done by the measurement team inspecting 130 boats in three days is the subject of a separate report but I would like to thank Catherine Best for a great job collecting the age and boat data used in this analysis, and Peter Doran for his help in revising the Sailing Instructions and helping in implementing the allocation of competitors to their qualifying groups.

Peter Hinrichsen  
 VP Championships stand in

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