SCHRS Technical Review for 2022

From: JC.Rouvès Président of the SCHRS World Council

To: SCHRS World Council

November 14, 2022

After these COVID years which have disrupted the practice of sport catamarans, it seemed important to me to take stock of the following points :

- The collection of reliable data from the results of regattas which are essential for the SCHRS to have reliable statistics
- A comparison of the key figures for the years 2021 and 2022
- An overall comparison and by type of the participation of sport catamarans in the inter-series regattas in 2021 and 2022
- A global statistical analysis and by type of catamarans, comparing the SCHRS 2022 ratings with the performance ratings.
- Graphical highlighting of the impact on performance ratings brought about by the modification of the parameters of the SCHRS 2022 calculation formula.
- For 2023, is it necessary to modify the SCHRS Formula ?

1.Data sources

The table below shows the origin and distribution of the data that feed the SCHRS database and therefore the statistics.

It should be noted that the agreement signed in July 2020 with the French Sailing Federation now allows us to receive, according to an automated process, all the results of the inter-series regattas of sport catamarans disputed in France, Guadeloupe, Martinique and La Meeting.

The entry of results from other countries is done manually on targeted clubs, but this action is time-consuming .

It should be noted that in 2022 we were able to integrate the results of 27 races from Canada, which contributes to the diversity of countries and places of data collection, thus allowing us to have for our statistics a very broad spectrum of navigation conditions, both at sea and on lakes.

Discussions are underway with the company Manage2sail via the Swiss Sailing Federation, to have access to the sports catamaran races published on their website.

	From July 2020 to November13, 2021		From November 14,2021 to November 14, 2022	
Data origin	**Nb races**	**%**	**Nb races**	**%**
France	746	64,76%	650	59,36%
Europe (without France)	146	12,67%	173	15,80%
Australia	169	14,67%	82	7,49%
USA	59	5,12%	137	12,51%
Dubaî	32	2,78%	26	2,37%
Canada	0	0,00%	27	2,47%
Total	1152	100,00%	1095	100,00%

2.The key numbers (Dashboards 2021 - 2022)

Despite the increase in the number of catamarans registered in races, 11177 in 2022 against 8578 in 2020-2021, the useful data ratios for statistics remain stable, 17.70% in 2022 against 18.28% in 2021. Due of the Covid which severely limited the collection of data in 2020, the years 2020 and 2021 have been grouped together

We note the same stability for all the other indicators, except for the GOODALL VIPER DOUBLE which disappears from the Top 5 in favor of the NACRA 15 which is the new young boat referenced by WorldSailing.

Dashboard 2020 - 2021

Ratio SCHRS list / Number of multihull models having raced		
SCHRS list	320	
Multihull models that have raced	102	31,88%

Ratio SCHRS list / Nb of models with data stat. Exploitable		
Nb of models with data stat. exploitable	41	12,81%

Total number of multihulls registered	**8578**	
Total number of multihulls for statistics	**1568**	18,28%

Top five participation rates		
FORMULE 18	299	19,07%
HOBIE 16	102	6,51%
CLASSIC-A (DER.RAYON =)	98	6,25%
GOODALL VIPER DOUBLE	90	5,74%
SL16	68	4,34%
Total	**657**	**41,90%**

Diff.between ratings perf. and SCHRS ratings		
	Less advantage	Max advantage
Diff. between rating perf. and SCHRS rating	0,082006	-0,062349
Diff. In % between rating perf. and SCHRS rating	5,70%	-4,40%
Diff. between rating stat. SCHRS rating / hour	00:02:38	00:03:25

Standard deviation and variance	MAX	MIN
Standard deviation (Data dispersion)	0,10937498	0,00000000
Coefficient of variation	8,82%	0,00%

Dashboard 2022

Ratio SCHRS list / Number of multihull models having raced		
SCHRS list	320	
Multihull models that have raced	103	32,19%

Ratio SCHRS list / Nb of models with data stat. Exploitable		
Nb of models with data stat. exploitable	41	12,81%

Total number of multihulls registered	**11177**	
Total number of multihulls for statistics	**1936**	17,32%

Top five participation rates		
FORMULE 18	303	15,65%
HOBIE 16	154	7,95%
GOODALL VIPER DOUBLE	120	6,20%
CLASSIC-A (DER.RAYON =)	104	5,37%
NACRA 15	88	4,55%
Total	**769**	**39,72%**

Diff.between ratings perf. and SCHRS ratings		
	Less advantage	Max advantage
Diff. between rating perf. and SCHRS rating	0,051878	-0,017334
Diff. In % between rating perf. and SCHRS rating	4,68%	-1,55%
Diff. between rating stat. SCHRS rating / hour	00:02:48	00:00:55

Standard deviation and variance	MAX	MIN
Standard deviation (Data dispersion)	0,11373787	0,00000000
Coefficient of variation	10,20%	0,00%

3. Evolution of the participation of different models of sport catamarans in regattas.

- 320 catamaran models are listed in the SCHRS 2022 rating list
- 122 catamaran models participated at least once in a regatta during 2022
- 103 catamaran models are registered in the statistical list, but only 41 models were statistically usable (more than five participations per model)

As we will see in more detail, these 41 boats represent **90.08%** of models present in the races.

In the attached Excel document, we note that of the 122 models that took part in a regatta :

- Group C1 (Catamarans with daggerboards) represents 55.97%
- Group C3 (Catamarans without daggerboard) represents 32.66%
- Group C4 (Small catamarans < or = 4.38 m), without daggerboard) represents 7.79%
- The FB group (Flying catamarans) represent 3.59%

Name of the Excel document to consult **"Compare participation 2021 -2022"**

4.Why is it useful to know the evolution of the participation of catamaran models?

- First of all, it tells us about the real activity of the practice of the sport catamaran in inter series

- Secondly, it allows us to identify the boats that have an important presence in the regattas

- Thirdly, these identified boats serve us as target boats to objectively compare their performance ratings with the ratings calculated by the SCHRS Formula

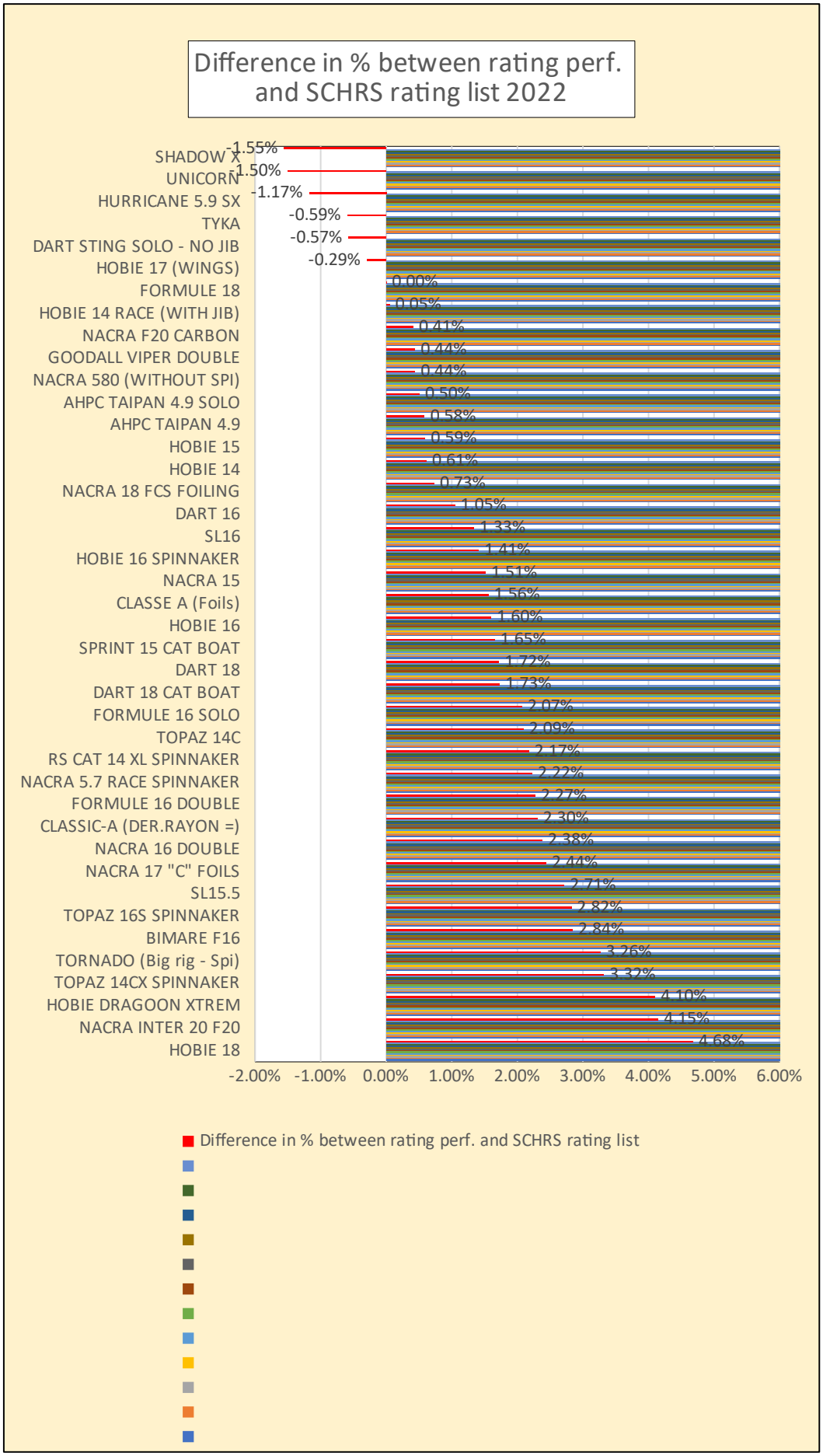
- Finally, these comparisons allow us to identify abnormal differences in ratings, to understand why they exist and if necessary to change one or more parameters of the SCHRS Formula to adapt it to technical developments in sport catamarans5.Résultats statistiques SCHRS 2022

Classes	Groups	Difference between rating perf. and SCHRS rating list	Difference in % between rating perf. and SCHRS rating list	Deviation rating stat./ hour **more** favorable than SCHRS rating	Deviation rating stat./ hour **less** favorable than SCHRS rating	Participation by model	Percentage of participation by type of boat
HOBIE 18	C1	0,052	4,68%		00:02:48	15	0,77%
NACRA INTER 20 F20	C1	0,040	4,15%		00:02:29	18	0,93%
HOBIE DRAGOON XTREM	C4	0,058	4,10%		00:02:27	10	0,52%
TOPAZ 14CX SPINNAKER	C4	0,046	3,32%		00:01:59	10	0,52%
TORNADO (Big rig - Spi)	C1	0,031	3,26%		00:01:57	33	1,70%
BIMARE F16	C1	0,030	2,84%		00:01:42	22	1,14%
TOPAZ 16S SPINNAKER	C3	0,037	2,82%		00:01:41	15	0,77%
SL15.5	C3	0,034	2,71%		00:01:37	54	2,79%
NACRA 17 "C" FOILS	C1	0,024	2,44%		00:01:27	17	0,88%
NACRA 16 DOUBLE	C1	0,025	2,38%		00:01:25	22	1,14%
CLASSIC-A (DER.RAYON =)	C1	0,024	2,30%		00:01:22	104	5,37%
FORMULE 16 DOUBLE	C1	0,024	2,27%		00:01:21	43	2,22%
NACRA 5.7 RACE SPINNAKER	C1	0,024	2,22%		00:01:20	14	0,72%
RS CAT 14 XL SPINNAKER	C4	0,031	2,17%		00:01:18	10	0,52%
TOPAZ 14C	C4	0,031	2,09%		00:01:15	17	0,88%
FORMULE 16 SOLO	C1	0,022	2,07%		00:01:14	11	0,57%
DART 18 CAT BOAT	C3	0,022	1,73%		00:01:02	30	1,55%
DART 18	C3	0,021	1,72%		00:01:01	81	4,18%
SPRINT 15 CAT BOAT	C3	0,024	1,65%		00:00:59	21	1,08%
HOBIE 16	C3	0,019	1,60%		00:00:57	154	7,95%
CLASSE A (Foils)	FB	0,015	1,56%		00:00:56	38	1,96%
NACRA 15	C1	0,017	1,51%		00:00:54	88	4,55%
HOBIE 16 SPINNAKER	C3	0,016	1,41%		00:00:50	75	3,87%
SL16	C3	0,015	1,33%		00:00:48	85	4,39%
DART 16	C3	0,014	1,05%		00:00:37	24	1,24%
NACRA 18 FCS FOILING	FB	0,007	0,73%		00:00:26	14	0,72%
HOBIE 14	C4	0,009	0,61%		00:00:21	26	1,34%
HOBIE 15	C3	0,008	0,59%		00:00:21	20	1,03%
AHPC TAIPAN 4.9	C1	0,006	0,58%		00:00:20	12	0,62%
AHPC TAIPAN 4.9 SOLO	C1	0,006	0,50%		00:00:18	19	0,98%
NACRA 580 (WITHOUT SPI)	C1	0,005	0,44%		00:00:15	23	1,19%
GOODALL VIPER DOUBLE	C1	0,005	0,44%		00:00:15	120	6,20%
NACRA F20 CARBON	C1	0,004	0,41%		00:00:14	52	2,69%
HOBIE 14 RACE (WITH JIB)	C3	0,001	0,05%		00:00:01	8	0,41%
FORMULE 18	C1	0,000	0,00%	00:00:00	00:00:00	303	15,65%
HOBIE 17 (WINGS)	C1	-0,004	-0,29%	00:00:10		32	1,65%
DART STING SOLO - NO JIB	C3	-0,008	-0,57%	00:00:20		23	1,19%
TYKA	C4	-0,008	-0,59%	00:00:21		50	2,58%
HURRICANE 5.9 SX	C1	-0,012	-1,17%	00:00:42		17	0,88%
UNICORN	C1	-0,018	-1,50%	00:00:54		8	0,41%
SHADOW X	C1	-0,017	-1,55%	00:00:55		18	0,93%

This table shows that of the 41 catamaran models taken into account in the statistical calculations, the difference between the performance ratings is between -1.55% and +2.84%, and that 5 models have rating differences unfavorable between 3.26% and 4.68%

We will try to explain these differences when analysing the data group by group.

Graphic presentantion



Analysis by group

5.1 FB group

Flying boat group catamarans represent 2.68% of the models used in the statistics

Classes	Groups	Difference between rating perf. and SCHRS rating list	Difference in % between rating perf. and SCHRS rating list	Deviation rating stat./ hour more favorable than SCHRS rating	Deviation rating stat./ hour less favorable than SCHRS rating	Participation by model	Percentage of participation by type of boat
CLASSE A (Foils)	FB	0,015	1,56%		00:00:56	38	1,96%
NACRA 18 FCS FOILING	FB	0,007	0,73%		00:00:26	14	0,72%

The CLASS A (Foils) and the NACRA 18 FCS are the only Flying Boats sufficiently represented to enter into this statistical analysis.

The low presence of Flying boats in regattas can be explained by their high cost, and the high technical level required to successfully pilot these boats.

5.2 Group C1

Group C1 catamarans (Boats with daggerboards) represent 51.19% of the models used in the statistics

This table shows that of the 21 catamaran models taken into account in the statistical calculations, 18 have differences between the performance ratings and the SCHRS ratings of between -1.55% and +2.84% which fall within the limit range by 3%.
Regarding the models, HOBIE 18 (4.68%), NACRA INTER 20 F20 (4.15%), TORNADO (Big rig - Spi) (3.26%), the explanation could be partly due to the fact that these are already old boats, or as we noticed in 2021 for the NACRA 5.8 an incorrect identification of the model made when the clubs entered the boats participating in the regatta.

Classes	Groups	Difference between rating perf. and SCHRS rating list	Difference in % between rating perf. and SCHRS rating list	Deviation rating stat./ hour more favorable than SCHRS rating	Deviation rating stat./ hour less favorable than SCHRS rating	Participation by model	Percentage of participation by type of boat
HOBIE 18	C1	0,052	4,68%		00:02:48	15	0,77%
NACRA INTER 20 F20	C1	0,040	4,15%		00:02:29	18	0,93%
TORNADO (Big rig - Spi)	C1	0,031	3,26%		00:01:57	33	1,70%
BIMARE F16	C1	0,030	2,84%		00:01:42	22	1,14%
NACRA 17 "C" FOILS	C1	0,024	2,44%		00:01:27	17	0,88%
NACRA 16 DOUBLE	C1	0,025	2,38%		00:01:25	22	1,14%
CLASSIC-A (DER.RAYON =)	C1	0,024	2,30%		00:01:22	104	5,37%
FORMULE 16 DOUBLE	C1	0,024	2,27%		00:01:21	43	2,22%
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GOODALL VIPER DOUBLE	C1	0,005	0,44%		00:00:15	120	6,20%
NACRA F20 CARBON	C1	0,004	0,41%		00:00:14	52	2,69%
FORMULE 18	C1	0,000	0,00%	00:00:00	00:00:00	303	15,65%
HOBIE 17 (WINGS)	C1	-0,004	-0,29%	00:00:10		32	1,65%
HURRICANE 5.9 SX	C1	-0,012	-1,17%	00:00:42		17	0,88%
UNICORN	C1	-0,018	-1,50%	00:00:54		8	0,41%
SHADOW X	C1	-0,017	-1,55%	00:00:55		18	0,93%

5.3 Group 3

Catamarans without daggerboard represent 30.48% of the models used in the statistics

The table shows that the 12 catamaran models taken into account in the statistical calculations all have differences between the performance ratings and the SCHRS ratings of between -0.57% and +2.82%, which fall within the limit range by 3%.

Classes	Groups	Difference between rating perf. and SCHRS rating list	Difference in % between rating perf. and SCHRS rating list	Deviation rating stat./ hour **more** favorable than SCHRS rating	Deviation rating stat./ hour **less** favorable than SCHRS rating	Participation by model	Percentage of participation by type of boat
TOPAZ 16S SPINNAKER	C3	0,037	2,82%		00:01:41	15	0,77%
SL15.5	C3	0,034	2,71%		00:01:37	54	2,79%
DART 18 CAT BOAT	C3	0,022	1,73%		00:01:02	30	1,55%
DART 18	C3	0,021	1,72%		00:01:01	81	4,18%
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HOBIE 16	C3	0,019	1,60%		00:00:57	154	7,95%
HOBIE 16 SPINNAKER	C3	0,016	1,41%		00:00:50	75	3,87%
SL16	C3	0,015	1,33%		00:00:48	85	4,39%
DART 16	C3	0,014	1,05%		00:00:37	24	1,24%
HOBIE 15	C3	0,008	0,59%		00:00:21	20	1,03%
HOBIE 14 RACE (WITH JIB)	C3	0,001	0,05%		00:00:01	8	0,41%
DART STING SOLO - NO JIB	C3	-0,008	-0,57%	00:00:20		23	1,19%

5.4 Group 4

Small catamarans without daggerboard (< or = 4.38 m) represent 6.35% of the models used in the statistics

This table shows that of the 6 catamaran models taken into account in the statistical calculations, 4 have differences between the performance ratings and the SCHRS ratings of between -0.59% and +2.17% which fall within the limit range by 3%.

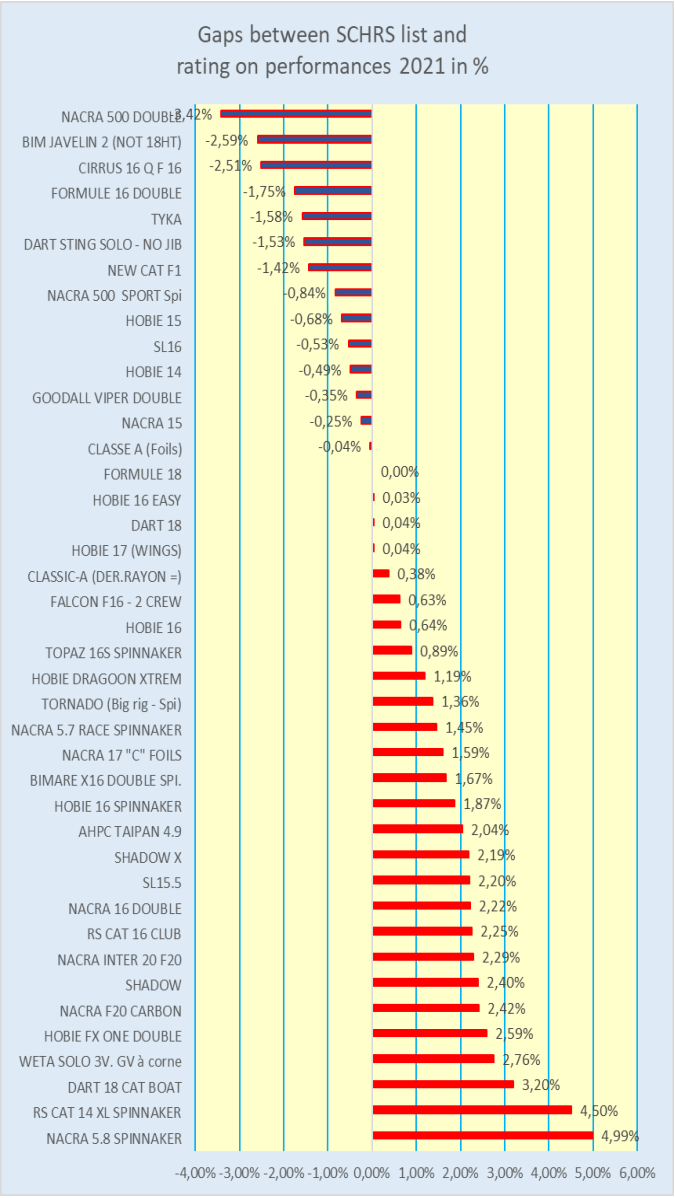
On the other hand, DRAGOON XTREM (4.10%) and TOPAZ 14CX SPINNAKER (3.32%) do not fall within the 3% range. But we cannot draw hasty conclusions, because it should be remembered that these small catamarans are initiation boats for young crews, on which we currently have little statistically exploitable data..

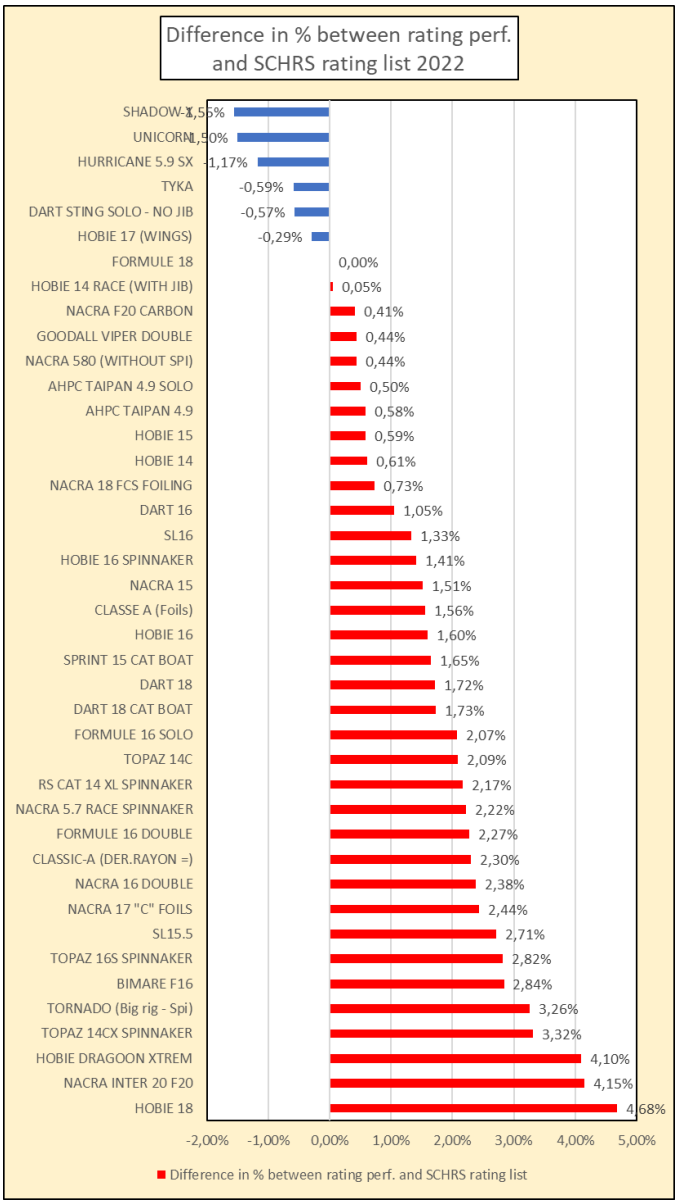
Classes	Groups	Difference between rating perf. and SCHRS rating list	Difference in % between rating perf. and SCHRS rating list	Deviation rating stat./ hour **more** favorable than SCHRS rating	Deviation rating stat./ hour **less** favorable than SCHRS rating	Participation by model	Percentage of participation by type of boat
HOBIE DRAGOON XTREM	C4	0,058	4,10%		00:02:27	10	0,52%
TOPAZ 14CX SPINNAKER	C4	0,046	3,32%		00:01:59	10	0,52%
RS CAT 14 XL SPINNAKER	C4	0,031	2,17%		00:01:18	10	0,52%
TOPAZ 14C	C4	0,031	2,09%		00:01:15	17	0,88%
HOBIE 14	C4	0,009	0,61%		00:00:21	26	1,34%
TYKA	C4	-0,008	-0,59%	00:00:21		50	2,58%

6. Graphical presentation concerning the impact of the modifications of the parameters of the SCHRS 2022 Formula on the differences in ratings on performance

As a reminder, the 2 parameter changes have been made :

- Taking into account a penalty of 0.003 points for boats equipped with decksweeper mainsail
- The modification of the spinnaker penalty which goes from 0.12 to 0.14





First observation, the modification of the parameters, in particular the one concerning boats equipped with spinnaker, led to a redistribution of the hierarchy of boats between the 2021 and 2022 graphs in favor of boats without spinnaker, which was the desired goal.
Second observation, the 2021 rating spreads range from -3.42% to 4.99%, i.e. a spread between the two extremes of 8.41%. The 2022 rating spreads range from -1.55% to 4.68%, i.e. a spread between the two extremes of 6.23%.
This observation is interesting because it shows that the modification of the parameters has made it possible to have a significant narrowing of the gaps between the ratings of the SCHRS 2022 list and the performance ratings calculated by the SCHRS Formula.

My opinion for 2023

Thanks to the work of all the members of the SCHRS, we have over time and the experiences that we have shared, obtained a Table of SCHRS ratings which is in line with the ratings on performance resulting from statistical analyses, based on reliable data, from several continents.
The analysis carried out shows that the current Formula SCHRS works well, and that in the absence of technical innovation on the sport catamarans in 2022, I do not think it is useful to consider modifying the parameters of the Formula SCHRS. But of course, I leave it to the technical committee of the SCHRS to propose any modifications.

The SCHRS FORMULA is the rule, and the statistics are there to alert us to the observed discrepancies between the SCHRS ratings and the performance ratings of the target boats