Your Step by Step Guide to understanding how race results are calculated

Dinghy Handicap System

FOR

DUMMIES

1st Edition : Summer 2013

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As at most Sailing Clubs, at Glossop we accommodate a wide range of dinghy types from super-fast, state of the art 'flying machines' to traditional 'classics'....

How can these boats race 'fairly' against each other?

Well it turns out that a 'Handicap' system has been developed (and refined) by the RYA for over 60 years.
The concept is very simple, each type of dinghy (dinghy class) is assigned a handicap number, often referred to as a 'Portsmouth Yardstick' or 'PY' number

International Moth, PY = 600

Mirror, PY = 1385

In a typical 'Handicap' race, numerous dinghy types will race against each other and all start at the same time. The race officer will record the time taken for each of the boats to complete the course (usually referred to as the 'Elapsed time'). A simple calculation is then performed using the 'Elapsed Time' and the 'PY' to produce a 'Corrected Time'

$$\text{Corrected Time (in seconds)} = \frac{\text{Elapsed Time (in seconds)}}{\text{Portsmouth Yardstick}} \times 1000$$

$$\text{Corrected Time (in seconds)} = \frac{\text{Elapsed Time (in seconds)}}{\text{Portsmouth Yardstick}} \times 1000$$

Example

A Mirror dinghy and an International Moth have a race, they each complete 3 laps of the same course, the Moth finishes in 45 minutes and the helm is showered and halfway home when the Mirror finishes almost 1 hour later – but which boat won???

International Moth, PY = 600

Completes race in 45 minutes (Elapsed Time)
Elapsed Time = 45 x 60 = 2700 seconds

Corrected Time = (2700 / 600) x 1000 = 4500 seconds

Mirror, PY = 1385

Completes race in 103 minutes (Elapsed Time)
Elapsed Time = 103 x 60 = 6180 seconds

Corrected Time = (6180 / 1385) x 1000 = 4462 seconds

The Mirror WON!... with 38 seconds to spare ☺

All of Glossop's Race results are posted on the webpages under the http://gdsc.org/?q=content/members-pages , Diary pages

Rank	Class	SailNo	Club	HelmName	CrewName	PY	Elapsed	Corrected	Points
1	LASER	133372	GSC	Dom Curry		1087	2668	0:40:54	1.0
2	JAVELIN	546	GSC	Roger Partington	Steve Tinsley	926	2327	0:41:53	2.0
3	RS 400	1323	GSC	Phil Titchmarsh	Paul Nix	947	2382	0:41:55	3.0
4	LASER	162793	GSC	Gus Goodall		1087	2756	0:42:15	4.0
5	LASER	135553	GSC	Danny Monaghan		1087	2761	0:42:20	5.0
6	LASER	72	GSC	Alex Hewitt		1087	2818	0:43:12	6.0
7	SUPERNOVA	1013	GSC	Phil Hewitt		1070	2802	0:43:39	7.0
8	LASER	150717	GSC	Howard McGlashan		1050	2757	0:43:46	8.0
9	LASER	144530	GSC	Richard Hawson		1087	2877	0:44:07	9.0
10	LASER RADIAL	180961	GSC	Paul Rose		1117	DUT		9.4
11	JAVELIN	577	GSC	Mike Curry		926	2460	0:44:17	10.0
12	TOPPER	27480	GSC	Daniel McGlashan		1313	4200	0:53:19	11.0
13	RS 400	872	GSC	Roger Bennett		947	3088	0:54:21	12.0

For each of the major race series we run, we use the RYA recommended 'PY' for each of the dinghy classes that race

Notice that the race results show the 'PY' & 'Elapsed time' recorded. A 'Corrected Time' is then calculated and the race finishing position for each competitor is determined based on Corrected Times. In the example above, even though Roger & Steve were the first boat over the finishing line in their Javelin, Dom managed to beat them in his Laser after the corrected time calculation.... (Nice one Dom! ☺)

The results of all of the races within a series are published. Only half of the races sailed in the series count, meaning that if the series consists of 20 races, each helm will count only their best 10 results – the remainder of their results are discarded. The 'Discards' appear in (brackets) in the results table :-

Sailed: 17, Discards: 8, To count: 9, Ratings: PY, Entries: 41, Scoring system: Appendix A

Rank	Class	SailNo	Club	HelmName	CrewName	PY	31/3	31/3	7/4	28/4	5/5	5/5	12/5	19/5	19/5	26/5	26/5	2/6	2/6	9/6	9/6	16/6	16/6	Total	Nett
1st	PHANTOM	1296	GSC	Dave Morris		1012	(4.0)	2.0	(4.0)	(42.0 DNC)	(3.5 DUT)	3.5 DUT	(6.0)	2.0	1.0	(42.0 DNC)	(10.0)	3.0	(4.0)	1.0	1.0	3.5 DUT	3.5 DUT	136.0	20.5
2nd	SUPERNOVA	1013	GSC	Phil Hewitt		1070	(42.0 DNC)	(42.0 DNC)	3.0	3.0	(6.0)	3.0	5.0	(6.0)	2.0	(7.0)	(9.0)	(7.0)	2.0	(6.0)	3.0	1.0	1.0	148.0	23.0
3rd	LASER	135553	GSC	Danny Monaghan		1087	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(7.0)	5.0	3.0	5.0	(6.0)	4.2 DUT	4.2 DUT	3.0	4.0	2.0	3.0	298.4	33.4
4th	RS 400	1323	GSC	Phil Titchmarsh	Paul Nix	947	1.0	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	1.0	(42.0 DNF)	8.0	8.1 DUT	8.1 DUT	3.0	1.0	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	4.0	5.0	375.2	39.2
5th	LASER	144530	GSC	Richard Hawson		1087	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(8.0)	2.0	(42.0 DNF)	4.0	4.0	(9.0)	(7.0)	4.0	6.0	7.0	6.0	3.0	4.0	274.0	40.0
6th	LASER RADIAL	180961	GSC	Paul Rose		1117	5.0	1.0	2.0	(42.0 DNC)	(42.0 DNF)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	9.4 DUT	9.4 DUT	(42.0 DNC)	(42.0 DNC)	8.0	8.0	7.0	2.0	387.8	51.8
7th	JAVELIN	546	GSC	Roger Partington	Steve Tinsley	926	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	2.0	1.0	3.0	(42.0 DNC)	(42.0 DNC)	2.0	3.0	9.0	5.0	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	445.0	109.0
8th	LASER	162793	GSC	Gus Goodall		1087	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	5.0 DUT	5.0	(42.0 DNC)	(42.0 DNC)	3.0	(42.0 DNC)	4.0	(42.0 DNC)	5.0	(42.0 DNC)	4.0	9.0	42.0 DNC	42.0 DNC	455.0	119.0
9th	LASER		GSC	Josh Harbut		1087	14.0 DUT	14.0 DUT	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	14.0 DUT	(42.0 DNF)	5.0	(42.0 DNC)	(42.0 DNC)	11.0	7.0	14.0 DUT	(42.0 DNC)	5.0	42.0 DNC	462.0	126.0
10th	LASER	189467	GSC	Simon Hollinghurst		1087	(42.0 DNC)	(42.0 DNC)	5.0	(42.0 DNF)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	7.0	(42.0 DNC)	(42.0 DNC)	42.0 DNC	13.2 DUT	13.2 DUT	5.0	7.0	42.0 DNC	42.0 DNC	512.4	176.4
11th	LASER	128794	GSC	Paul Nix		1087	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	42.0 DNC	2.0	1.0	2.0	2.0	42.0 DNC	42.0 DNC	553.0	217.0
12th	LASER	174377	GSC	Dave Worth		1087	(42.0 DNC)	(42.0 DNC)	1.0	2.0	3.0	(42.0 DNC)	4.0	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	556.0	220.0
13th	RS 400	872	GSC	Roger Bennett		947	(42.0 DNF)	3.0	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	12.0	12.0	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	17.3 DUT	17.3 DUT	565.6	229.6
14th	LASER	171420	GSC	Roger Bennett		1087	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	7.0	4.0	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	5.5 DUT	5.5 DUT	568.0	232.0
15th	OK	2145	GSC	Ben Steel		1106	2.0	(42.0 DNC)	(42.0 DNC)	1.0	(42.0 DNC)	(42.0 DNC)	2.0	(42.0 DNF)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNF	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	593.0	257.0
16th	JAVELIN	577	GSC	Richard Smith	Kathryn Smith	926	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	1.0	(42.0 DNC)	42.0 DNC	42.0 DNC	8.0	3.0	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	600.0	264.0
17th	LASER		GSC	Roger Tolman		1087	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	5.0	9.0	6.0	608.0	272.0
18th	LASER	150717	GSC	Howard McGlashan		1087	3.0	(42.0 DNC)	(42.0 DNC)	(42.0 DNF)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	8.0	11.0	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	610.0	274.0
19th	JAVELIN	577	GSC	Mike Curry		926	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNC	10.0	4.0	12.0	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	614.0	278.0
20th	OK	2145	GSC	Tony Woods		1106	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	1.0	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	1.0	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	632.0	296.0
21st	RS 400	1323	GSC	Mike Curry	Dom Curry	947	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	4.0	5.0	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	639.0	303.0
22nd	SUPERNOVA	462	GSC	Mike Hughes		1070	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	42.0 DNC	6.0	42.0 DNC	42.0 DNC	42.0 DNC	6.0	42.0 DNC	642.0	306.0
23rd	LASER	72	GSC	Alex Hewitt		1087	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	42.0 DNC	6.0	8.0	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	644.0	308.0
24th	LASER		GSC	Nathan Harbut		1087	30.0 DUT	30.0 DUT	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNC)	(42.0 DNF)	6.0	(42.0 DNC)	(42.0 DNC)	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNC	42.0 DNF	42.0 DNC	654.0	318.0

Notes :
• Finishing first in a race earns the helm 1 point, finishing second earns the helm 2 points etc…
• For performing a 'Duty' (Race Officer, Assistant Race Officer, Safety or Galley) results in the helm being awarded 'Average' points for all of the races he/she sails in the series

So is the Portsmouth Handicap System perfect ?.....

- Short answer is 'No'

- The PY's are issued by the RYA each year after they collate and analyse all of the race results submitted by affiliated Sailing Clubs.

- Arguably the biggest issue with the PY system is that it fails to take into account the sailors experience & ability. For example, in theory a novice sailor having just completed a Level 1 dinghy course could race against an Olympic Squad sailor (both in identical Laser Dinghies) and would be given no allowance for his/her inexperience

- Many other factors play a part too , the size of water being raced on, the course, the wind strength, the crew weight, the age of the boat, the condition of the sails etc.....

What about a 'Personal' PY number – which does take into account the sailors experience/competance ?

We are currently experimenting with a 'Personal' PY calculation method. The approach used is :-

1. Calculate the race results as usual using the RYA dinghy class PY's to determine the race winner
2. Based on the race winners 'Corrected' time, work backwards to calculate the PY that each of the competitors would have needed to have the same 'Corrected' time as the race winner – this is then the competitors 'Personal' PY for that specific race
3. The 'Personal' PY's for each competitor can then be averaged across a complete race series to provide a (hopefully) sensible 'Personal' PY which can be used in the following race series

Example : After performing the 'Personal' PY ratings calculations based on races run in this years 'Spring Series'

Personal Handicap Calculations : Spring Series 2013

First Name	Surname	Boat Class	Standard PY	Race 1 Personal PY	Race 2 Personal PY	Race 3 Personal PY	Race 4 Personal PY	Race 5 Personal PY	Race 6 Personal PY	Race 7 Personal PY	Race 8 Personal PY	Race 9 Personal PY	Race 10 Personal PY	Race 13 Personal PY	Race 14 Personal PY	Average Persoanl PY	Delta
Roger	Bennett	Laser	1087	0	0	0	0	0	0	0	0	0	0	0	0	#DIV/0!	#DIV/0!
Roger	Bennett	Laser Rad	1117	0	0	1311	1280	0	0	0	0	0	0	0	0	1296	179
Roger	Bennett	RS400	947	0	0	0	0	0	0	0	1258	1235	0	0	0	1247	300
Mike	Curry	Javelin	926	0	0	0	0	0	0	0	1002	970	1176	0	0	1050	124
Dom	Curry	Laser	1087	0	0	0	0	0	0	0	1087	0	0	0	0	1087	0
Mike	Curry	RS400	947	0	0	1020	1151	0	0	0	0	0	0	0	0	1086	139
Ivan	Doherty	Sprint 15	918	0	1056	0	0	0	0	0	0	0	0	0	0	1056	138
Gus	Goodall	Laser	1087	0	0	1183	0	0	1137	0	1123	0	0	0	1238	1170	83
Gus	Goodall	Laser Rad	1117	0	0	0	0	0	0	0	0	0	1196	0	0	1196	79
Mike	Green	Laser 2K	1090	1280	0	0	0	0	0	0	0	0	0	0	0	1280	190
Josh	Harbutt	Laser	1087	0	0	0	0	0	0	1298	0	0	1339	1551	0	1396	309
Nathan	Harbutt	Laser	1087	0	0	0	0	0	0	1326	0	0	0	0	0	1326	239
Josh	Harbutt	Laser Rad	1117	0	0	0	0	0	0	0	0	0	0	0	0	#DIV/0!	#DIV/0!
Richard	Hawson	Laser	1087	0	0	1283	1094	0	1155	1180	1172	1165	1160	1087	1213	1168	81
Richard	Hawson	Laser Rad	1117	0	0	0	0	0	0	0	0	0	0	0	0	#DIV/0!	#DIV/0!
Josh	Hawson	Laser Rad	1117	0	0	0	0	0	0	0	0	0	1341	0	0	1341	224
Alex	Hewitt	Laser	1087	0	0	0	0	0	0	0	1148	1170	0	0	0	1159	72
Phil	Hewitt	Supernova	1070	1092	1187	1171	1078	1169	1143	1143	1142	1157	1160	1236	1079	1147	77
Simon	Hollinghu	Laser	1087	1147	0	0	0	0	1224	0	0	0	0	0	1218	1196	109
Mike	Hughes	Supernova	1070	0	0	0	0	0	0	0	0	0	1159	0	0	1159	89
Howard	McGlasha	Laser	1087	0	0	0	0	0	0	0	0	0	0	0	0	#DIV/0!	#DIV/0!
Howard	McGlasha	Laser 8.1	1050	0	0	0	0	0	0	0	1123	1152	0	0	0	1137	87
Howard	McGlasha	Laser Rad	1117	0	0	0	0	0	0	0	0	0	0	0	0	#DIV/0!	#DIV/0!
Daniel	McGlasha	Topper	1313	0	0	0	0	0	0	0	1711	2448	0	0	0	2080	767
Danny	Monaghar	Laser	1087	0	0	0	0	1224	1159	1173	1125	1158	0	0	0	1168	81
Danny	Monaghar	Laser 8.1	1050	0	0	0	0	0	0	0	0	0	0	0	1124	1124	74
Ben	Morris	Laser	1087	0	0	0	0	0	0	0	0	1143	0	0	0	1143	56
Dave	Morris	Phantom	1012	1047	0	0	0	1120	1034	1012	0	1098	1075	1221	1012	1077	65
Paul	Nix	Laser	1087	0	0	0	0	0	0	0	0	0	1135	1242	1094	1157	70
Roger	Partingtor	Javelin	926	0	0	943	926	968	0	0	948	932	1074	1209	0	1000	74
Paul	Rose	Laser	1087	0	0	0	0	0	0	0	0	0	0	0	1235	1235	148
Paul	Rose	Laser Rad	1117	1128	0	0	0	0	0	0	0	0	0	0	0	1128	11
Richard	Smith	Javelin	926	0	0	0	0	0	926	0	0	0	1070	1108	0	1035	109
Kathryn	Smith	Laser	1087	0	0	0	0	0	0	0	0	1090	0	0	0	1090	3
Ben	Steel	OK	1106	0	1106	0	0	1145	0	0	0	0	0	0	0	1125	19
Phil	Titchmars	RS400	947	0	0	947	0	1096	0	0	970	947	0	0	0	990	43
Tony	Woods	OK	1106	0	0	0	0	1106	0	0	0	0	1106	0	0	1106	0
Dave	Worth	Laser	1087	1087	1146	1122	0	1162	0	0	0	0	0	0	0	1129	42

For example, Phil Hewitt sails a Supernova which has an PYA PY of 1070 – the 'Personal' handicap calculation based on the Spring Series for Phil is 1147

• If you raced in the 'Spring' 2013 Series, the Personal Handicaps are already available & posted on the notice board in the Clubhouse

• If you would like a Personal Handicap to be calculated we need you to enter some races so that we have some baseline data to work from

• It is the intention to produce race results based on BOTH the 'Standard, RYA' PY values and the 'Personal' PY values (ie 2 separate league tables)– offering the less experienced sailors a very real opportunity to 'win' a series