

AUSTRALIAN SAILING YARDSTICKS 2018-19 INTRODUCTION

These yardsticks are prepared to provide the fairest possible calculation of results for mixed fleet racing. New and modified classes appear every year and it is important to gather information and review results as quickly as possible.

For dinghy classes there have been no changes to the previous Yardsticks published for the 2017-18 season. In the absence of race results data for dinghy classes and new internationally sourced classes, where there is yardstick data from overseas available, a comparison is made with other international classes to derive an equivalent Australian Sailing yardstick value. This is explained further down in this document.

Catamaran yardsticks are contained in a separate document.

USE OF THE AUSTRALIAN SAILING YARDSTICKS

A club which intends to run a race or event under the Australian Sailing Yardstick system should include in the Notice of Race and in the Sailing Instructions, clauses based on the following:

1. The version of the Australian Sailing Yardstick System that is to be used in calculating the mixed class fleet racing results.
2. The Australian Sailing Yardstick numbers to be used for each class, adjusted as necessary for variations from Base Rig.

Or;

2. The Australian Sailing Yardstick numbers will be those published by the Race Committee 'n' minutes prior to the start of the first*/each* race.

Or;

2. Australian Sailing Yardstick numbers will be those listed hereunder:-
3. Boats without Australian Sailing Yardstick numbers published in the current listing will be allocated an estimated Trial Number

Or;

3. Boats without Australian Sailing Yardstick numbers published in the current listing will be allocated numbers.
4. Whether or not Australian Sailing Yardstick numbers will be adjusted during the series.

When deciding upon which of the Sailing Instructions listed at 2 above a club should use, the club should remember that the listed Australian Sailing Yardstick numbers are derived from Yardstick Returns of racing on all kinds of water: sea, estuary, river and lake. The Australian Sailing Yardstick numbers are therefore an average and thus, particularly with dinghies, may not necessarily be applicable to any one club. Accordingly, if after racing, a listed Australian Sailing Yardstick numbers appears to be inequitable, a club may consider a change to the Australian Sailing Yardstick numbers. All such changed Australian Sailing Yardstick numbers rank as Trial or Club Numbers.

ONGOING VALIDITY OF YARDSTICKS

In order to assure the continued validity of yardsticks, mixed fleet race result returns must be received. Electronic submission of results containing the information set out below is encouraged as it enables processing of the information in a timely manner.

Yachting administrators are encouraged to ensure that results are submitted as soon as possible.

Event organisers are reminded that it is their responsibility to ensure that sufficient data is provided to Australian Sailing to validate the yardsticks of the classes. To ensure the ongoing reliability of Australian Sailing yardsticks for all forms of interclass racing at club and regatta level a consistent and steady supply of results are necessary.

Data for each heat of an event needs to include the following :-

- Date and location of the event.
- Contact details of results officers.
- Event grade:
 - State based or open interclass championships.
 - Whether sailors have achieved National, State or Club champion status.
- Conditions:
 - Wind strength, wind state (gusty, shift, etc.)
 - Sea state: wave height, effects of current
 - Local conditions, such as land effects, currents
- Course sailed by each division. This needs to include:
 - Leg length (this is desirable but not mandatory),
 - Course angles (desirable - relative to wind direction or compass bearing)
 - Course configuration (desirable: W-L; Triangle, W-L; etc.)
 - Number of legs sailed (desirable)
 - Overall distance for each division (required).
- Race results for each boat, including:
 - Class
 - Sail number, skipper's name
 - Elapsed times for competitors (or start time and finish times).
- Other information:
 - Suggested review of ratings for specific classes.

The above race result data needs to be submitted in an electronic format, such as spreadsheet or CSV extract from your race software. A sample submission spreadsheet is included below.

Australian Sailing OTB Results return form
V1.0

Results to be used for Yardstick calculations

Date and location of event.

Contact details

Event grade:

Conditions:

Wind strength

Sea state

Current effects

Local conditions

e.g. State based or open interclass championships.

e.g. 1 metre

e.g. SW breeze, open water, nill land effect

Example race details

Class	Start time	Course length	distance (required)	Course sailed (e.g. WL, TST)	leg lengths (desirable)	course angles (desirable)	course config (desirable)	number of legs sailed (desirable)
Optimist	10:05:00 AM	2.05						
Sabot	10:10:00 AM	2.05						
CadetInternational	10:15:00 AM	2.05						
Laser	10:20:00 AM	2.05						
Minnow	10:10:00 AM	2.05						
LaserRadial	10:20:00 AM	2.05						

Race results (example extracted from Top Yacht)

Finish Times for Race 1

HR	MN	SC	DidNot	Sail No	Class	Boat	From	SKIPPER	CREW
10	37	23	0	737	Optimist	CRACKERJ	SYC		
10	40	59	0	7056	Sabot	TIGER BITE	BRYC/SYC		
10	44	26	0	9551	CadetInte	SEA-YA	ASC		
10	43	2	0	196446	Laser	DUCK N W	SYC		
10	37	53	0	0610	Optimist	JACKA	SSCBC		
10	42	37	0	1145	Minnow	BLONDES	BYS		
10	44	51	0	9285	CadetInte	UNCUT	ASC		
10	43	40	0	1	LaserRadii-		SYC		
10	38	45	0	564	Optimist	GOANNA	SSCBC		
10	41	44	0	4465	Sabot	I SPY	RBYC		
10	44	59	0	5509	CadetInte	SAMARAN	SYC		

To obtain an electronic copy of the return sheet, go to:
<https://www.sailingresources.org.au/class-assoc/yardsticks-chb-handicap/>

Enquires with regard to new classes or classes not listed should be directed to Australian Sailing at:
sailingservices@sailing.org.au

REVISION OF RATINGS

Class Associations wishing to question their ratings must ensure that Australian Sailing receives sufficient data to conduct that review. This involves ensuring that clubs that are organising multi class events (in particular Regattas and Class titles), where several classes sail the same course, forward the results to Australian Sailing in the required format.

Where a rapid review is required the Class Association should forward sufficient data to allow that review to be conducted.

USE OF THE YARDSTICK

The aim of the yardstick is to provide a basis for yachts of different ratings to compete fairly when sailed well. The yardstick is not intended to compensate for differences in skills or competence of individual sailors (that is a handicap). The yardstick is calculated and maintained on a statistical basis and within broad limits remains valid for a variety of wind strengths and courses sailed. Comparison of yachts of different classes sailing different courses is outside the scope of the current rating system.

Yardsticks are based on the current design of a class unless otherwise noted. It normally takes 12 months for a major change in class rules to be incorporated into the yardstick, as results have to be gathered and assessed. For example the current yardsticks for Cherubs and Javelins are for boats with an asymmetric kite not for the previously standard symmetrical kite. Where major changes are occurring within class designs the associations should inform the Yardstick Coordinator of these changes and try and ensure that results submitted indicate the boats sailing under the changed design.

DEFINITIONS

Elapsed Time (ET) is the time taken (in minutes and decimal minutes, or in seconds) for a boat to sail a proper course.

Corrected Time (CT) is the elapsed time divided by the boat's class yardstick (YS) and multiplied by 100

Standard Boat Time (SBT) is the corrected time for the first boat on corrected times to sail a proper course. Alternatively, a consistently sailed boat finishing in the top five of the fleet, on corrected time, can be taken as the standard boat

Back Calculated Yardstick (BCYS) is the corrected time divided by the standard boat time and multiplied by its own yardstick.

Performance Factor (PF) is the BCYS divided by the boat's class yardstick. This is used to rate the class yardstick

$$CT = \frac{ET \times 100}{YS}$$

$$BCYS = \frac{CT \times YS}{SBT}$$

$$PF = \frac{BCYS}{YS}$$

FURTHER HANDICAPPING

Further assistance with regard to handicapping on a club basis may be obtained by contacting Australian Sailing via email at sailingservices@sailing.org.au

TRAILABLE YACHT CONVERSION FACTOR

The Class Basic Handicap system (CBH) is recommended for trailable yachts. For occasions when trailable yachts compete with off-the-beach yachts, it is possible to convert CBH to Tentative Yardstick by the formula:

$$\text{Yardstick} = \frac{K}{\text{CBH}}$$

For 2017/18 season $K = 80.25$

When using K to create tentative yardsticks for trailable yachts the result should be rounded down to the **nearest 0.1** to preserve the differential between trailables given by their CBH's.

MIXED CLASS RACING

The best racing occurs when the fleet consists of only one Class, as in State Titles. So, whenever possible, clubs should arrange for a Class to race separately if there are sufficient numbers. For other yachts, divisions should be formed by grouping yachts as shown below.

First preference:

- Monohulls
- Catamarans
- Trailable yachts
- Sailboards

This may be subdivided into fast and slow divisions related to yardsticks or if sufficient yachts of a class are present they may form a separate division.

Second preference:

- Monohulls / trailable yachts
- Catamarans
- Sailboards

In this case it will be necessary to apply the Trailable Yacht conversion factor to obtain tentative yardsticks.

Third preference:

- Fast monohulls and sailboards
- Slow monohulls and trailable yachts
- Catamarans

Where fewer than four sailboards compete in an event, they may be grouped with the monohulls. Owing to the many types of sailboards, whose performance varies with sail area and wind strength, their yardsticks should be treated as tentative.

Mixed Class Correction Factor

The Mixed Class Correction Factor (MCCF) applies to fleets containing multihulls and monohulls or sailboards and monohulls. The MCCF is derived by dividing the sum of the 5 lowest corrected times for monohulls by the sum of the 5 lowest corrected times for the multihulls or sailboards.

The corrected time for each multihull or sailboard is now further corrected by multiplying it by the MCCF.

Notes:

1. *Where the fleet contains multihulls, monohulls and sailboards 2 separate MCCF's must be calculated*
2. ***MCCF's will give extraneous results with very small groups. They should not be used where there is less than 5 of either of the groups under consideration.***

NEW INTERNATIONAL CLASS PROVISIONAL RATINGS

For new classes that do not have a current Australian Sailing yardstick but have a yardstick under either the UK Portsmouth (RYA) or US Portsmouth systems, a yardstick comparison is made with a base set of international classes.

The comparison classes are 470, 505, Contender, Fireball, Laser Radial, OK Dinghy and Tasar. This mix was chosen as it represents a good cross mix of international classes sailed under the Australian Sailing system and has a consistent comparison between the three systems. Other classes have not been chosen as they are not in both the RYA and US systems or the variances were too great to be considered.

YARDSTICKS 2018-2019 MONOHULLS

These yardsticks are valid as at 1 October 2018.

	RELIABLE	PROBABLE	TENTATIVE	NOTES
125			123	
12 ' Skiff			91.5	
14 ' Skiff		84		Based on comparison with RYA yardsticks
16 ' Skiff			85.5	
18 ' Skiff			68	
145			113	
29er			96.5	Based on comparison with RYA yardsticks
420			115	Based on comparison with RYA and US yardsticks
470			101	
49er		77.3		Based on comparison with RYA yardsticks
505			97.5	Based on comparison with RYA yardsticks
5/50			99	
ACCESS 2.3 DINGHY			175	
ACCESS 303 DINGHY			166	
ACCESS Liberty			132	
B14			94	Based on comparison with RYA yardsticks
BANSHEE			113	
Byte			125.4	Based on comparison with RYA and US yardsticks
Byte CII			120.4	Based on comparison with RYA and US yardsticks
CANOE INTERNATIONAL		93.5		Nethercott rule - Pre 2008
CANOE INTERNATIONAL			92.5	Post Jan 2009 Design - Results Needed
CADET INTERNATIONAL			153	
CADET 12'			127	
CHERUB		100		Based on comparison with RYA and US yardsticks, further likelihood of downward review
CONTENDER			106.5	Based on comparison with RYA yardsticks
CORSAIR			119.5	
E CLASS (LAZY E)			113	
EUROPE DINGHY			120	Based on comparison with RYA yardsticks
FIREBALL			101	Based on comparison with RYA yardsticks
FINN			112	Based on comparison with RYA yardsticks
FLYING ANT			136	
FLYING 11			131	
FLYING DUTCHMAN			93	
Formula Fifteen			92	
HARTLEY TS 16 W/O MOTOR			125	
HERON			145	
IMPULSE		118.5		
IMPULSE 6.6			124.5	Smaller than full rig Impulse
International 2.4			137	
JAVELIN			97.5	
JUBILEE			129	
JOLLYBOAT			106	
LASER		114		Based on comparison with RYA yardsticks
LASER RADIAL		118.5		Based on comparison with RYA yardsticks
LASER 4.7			125	Based on comparison with RYA yardsticks
LEADER CAT			117	
MANLY GRADUATE			106	
MICRON 3			128	
MINNOW			168.5	
MIRACLE			130	
MIRROR		143		Gunter Rig
MIRROR			142	Bermuda Rig- Results needed
MUSTO SKIFF			91	Based on comparison with RYA yardsticks
MOTH SKIFF			103	
Moth Scow			115	

	RELIABLE	PROBABLE	TENTATIVE	NOTES
Moth - Foiler			60	Based on comparison with RYA yardsticks
NS14		108		
OK DINGHY		115.5		
O'Pen Bic			153.3	Based on comparison with IT yardsticks
Optimist			170	Based on comparison with IT yardsticks
PACER		127.5		
P class			157.7	Based on comparison with NZ yardstick
Rooster			110.7	Based on comparison with RYA yardsticks
RS 100 8.4			106	Based on comparison with RYA yardsticks
RS 100 10.2			103	Based on comparison with RYA yardsticks
RS 200			108.9	Based on comparison with RYA yardsticks
RS 300			103.4	Based on comparison with RYA yardsticks
RS 400			99.6	Based on comparison with RYA yardsticks
RS 500			102.7	Based on comparison with RYA yardsticks
RS 600			87.2	Based on comparison with RYA yardsticks
RS 700			89.8	Based on comparison with RYA yardsticks
RS 800			86.3	Based on comparison with RYA yardsticks
RS Aero 5			116.8	Based on comparison with IT yardsticks
RS Aero 7			112.5	Based on comparison with RYA yardsticks
RS Aero 9			109.3	Based on comparison with RYA yardsticks
RS Feva XL			130	Based on comparison with RYA and US yardsticks
RS TERA PRO			143.2	Based on comparison with RYA yardsticks
RS TERA SPORT			153.9	Based on comparison with RYA yardsticks
RS VAREO			113.1	Based on comparison with RYA yardsticks
RS VISION			119.8	Based on comparison with RYA yardsticks
SABRE		127		
SPARROW			145	
SOLO			123.5	Based on comparison with RYA yardsticks
SABOT		160.5		
SABOT Junior (2 UP)			167	
SHARPIE			95	
SPORTSKIFF			104.5	
SPIRAL			124	
TASAR		108		
Vee Jay			135	

* Where any doubt exists as to which type the boat is. The Lower Yardstick for the class MUST be used

YARDSTICKS 2018 – 2019 KEELBOATS

Diamond			103	
Dragon			107	
E22			93	
FLYING FIFTEEN **		109		
FLYING FIFTEEN Mk 1 Hull**			112	
Soling			97	
Star			98	
Yngling			103	

** Where any doubt exists as to which type the boat is. The Lower Yardstick for the class MUST be used

YARDSTICKS 2018 - 2019 CATAMARANS

Catamaran yardsticks are now contained in a separate document.

Please refer to the Australian Sailing web site under OTB, yardsticks.

ARCHIVAL YARDSTICKS

The archival yardsticks listed below are ratings recorded for each class. The year indicates when the last information was recorded. This is a partial list.

MONOHULLS

Class	Handicap	Year
X3 RESORT	164.0	2005
X3 ED	161.0	2005
X3 FUN	147.0	2005
Vee Ess	102.0	2007

CATAMARANS

Class	Handicap	Year
SUNDANCE 5.0	84.0	2005
Hobie 20	73.0	2007
Hobie 17 Sport	79.0	2007
Alpha Omega 4.3	88.0	2007
Alpha Omega 5.0	82.0	2007
Aquakat	87.0	2007

Change to Rig	Adjustment to Yardstick
Non Asymmetric to Asymmetric Spinnaker	- 1.5%
Asymmetric to Non Asymmetric Spinnaker	+1.5%
Spinnaker to No Spinnaker	+2.3%
No –Spinnaker to Spinnaker	-3.1%
Reduction in crew size	-2.0%
Sloop rigged cat sailed 1 up	-4.5%
Single hander sailed 2 up Base yardstick 140+	+4.2%
No Trapeze to Trapeze	-3%

SAILBOARDS

The following yardsticks are provided for guidance for handicapping sailboards in mixed fleet racing. Mixed fleet results involving sailboards are urgently required, as these yardsticks have not been reviewed for many years.

Class	Sail Area sq.m.	Yardstick Lightweight	Yardstick Heavyweight
International Raceboard (Flat bottom planing boards)	7.5 max	97	99
Division II Round bottom, displacement boards open class	7.3 max	102	104
Division II Funboards pre 1987	7.3 max	107	110
Open Class			93
Windsurfer one design	6.5 max	112	116
Junior under 16 any board	6.5 max	115	
Under 13 years any board	5.5 max	127	

Weight is the sailor's dry weight fully equipped including harness and safety gear. Heavy weight is greater than 81 cgs. In wind strengths consistently over Force 4 (15 knots) the yardstick for heavyweight sailors shall be the same as the yardstick for lightweight sailors.