



Women's Skiff Evaluation Evaluation Panel Report

20 April 2012



1. Recommendation

The Evaluation Panel is unanimous in recommending that one of two boats is selected as the Equipment for the Women's Skiff event in the 2016 Olympic Sailing competition. These two boats are:

Mackay FX and RS900.

It is recommended that none of the remaining boats presented in the 2012 Evaluation Event is considered for selection as Olympic equipment at this time. These boats are the Arup Skiff, the Aura, the Rebel and the 29erXX.

In deciding between the RS900 and the Mackay FX it is recommended that the following key factors be born in mind:

Both boats fit the established criteria.

Both boats require skillsets which exactly parallel those for the Men's Skiff.

Both boats have visual and practical affinity with the Men's Skiff equipment.

Both boats have suppliers with a proven track-record for quality and global supply.

The Mackay FX offers the advantages of a providing a common platform with the Men's Skiff event.

The Mackay FX is bigger and heavier. It will suit crews at the upper end of weight range criteria.

The RS900 was designed specifically to fit the published criteria for the Women's Skiff event.

The RS900 is lighter and smaller.

The RS900 is expected to suit a crew weight well within the criteria.

2. Summary Narrative

Suitable Boats: Mackay FX, RS900

The Mackay FX and the RS900 are both suitable for the specified crew weight criteria including consideration of kinetics and the manageability of the boat. It is clear that the Mackay FX offers advantages as a common men and women's platform with rapid implementation. However this has to be balanced against the smaller and lighter RS900.

These two boats, the Mackay FX and RS900 were clearly preferred by the MNA sailors. In terms of the boat layout and performance, both the Mackay FX and RS900 have solid wings and offer similar skills and techniques to the men's skiff.

Both the Mackay FX and RS900 manufacturers have a proven track record in a global market and with high performance skiffs; they currently produce and distribute ISAF Classes worldwide.

Good Performers: Rebel

Of the four other skiffs, the new Rebel has the best performance and is designed to be challenging. It is different to the RS900 and Mackay FX as it had racks with netting instead of solid wings. On balance it did not rank as well as the RS900 or Mackay FX. Only one MNA sailor ranked the Rebel as their first choice. International supply capability is less well-proven.

Not Suitable: 29erXX, Aura, Arup

The 29erXX is a larger rig on the 29er hull platform. Only two sailors ranked the 29erXX in their top three choices. It failed to impress in respect of its performance, the sailors felt it was too easy to sail and underpowered, particularly upwind.

The innovative Aura impressed at first sight but disappointed on the water. Only one MNA sailor ranked the boat as a top three.

The Arup skiff offered a technical departure from the other boats. It was the lightest boat but seen to be too complicated and too unstable. It was not ranked in the MNA sailor top three.

3. Boat Comparison Table

Data	29erXX	Arup	Aura	MackayFX	Rebel	RS900
Length – m	4.45	3.7	4.75	4.99	4.5	4.68
Beam overall – m	1.77	1.8	2.2	2.9	3.0	2.8
All up weight – kg	109	75	101	131	95	119
Main area – m ²	15	14.5	12.5	13.8	11.8	11.8
Jib area – m ²			4.75	5.8	5.8	6
Spinnaker area m ²	19	21	25	25.1	26.8	26.6
Complete Price (excl. tax)	£11 650 (€13 869)	£9 600 (€11 428)	£11 480 (€13 667)	(£14 280) €17 000	£11 995 (€14 280)	£10 352 ^a (€12 324)
Builder (as presented at the trials)	Ovington Boats	Aardvark/ Rondar / Lightweight Structures	Ovington Boats	Mackay Boats & Ovington Boats	Hartley Boats	CMI Thailand

GBP to Euro exchange rate of 0.84 where applicable.

^a price offer to MNAs, please see below for all prices.

The following sections list details of the individual boats.

See Appendix 1 for the final questionnaire MNA sailor feedback results

ISAF Women's Skiff Evaluation

4. Boat Name: MACKAY FX Entrant: Mackay Boats

4.1 General Review

The Mackay FX is an existing 49er hull and appendage platform with a new smaller rig designed specifically for the evaluation. The modification includes a few simple retrofit deck layout changes, including; increased downhaul and jib sheet purchase and an additional turning block on the gennaker sheet.

The Mackay FX proved to be one of the fastest in terms of speed.

Performance was good and the sailors felt it was nice to sail and

power was easily controlled. The work done by North Sails and Southern Spars should be acknowledged as rig and sails were executed perfectly and looked in proportion to the boat.

The sailors felt that the boat was challenging and quickly adapted to the boat, some of this owing to the large size of the hull platform. However this size and weight is also a concern voiced by the panel and the sailors, where boat manageability may be difficult on and off the water. The optimum weight range of the boat is suspected to be at the higher end of the criteria weight range.

Due to the excellent work and substantial investment of the 49er builders the quality and equipment control is good. The platform is good quality and will therefore have a good second hand market. As the 49er is currently available the price information is credible and the Mackay FX is €1000 cheaper than the 49er. The builder is in a satisfactory position to produce and deliver boats in a reasonable timescale.

For nations with existing 49er fleets it would appear to have advantages. However it is considered that the size of the boat is not ideal for the women's target crew weight and it may be a compromise.

4.2 MNA Sailor Feedback

Number of sailors 1st Choice = 11, 2nd Choice = 7, 3rd Choice = 0

In an open discussion forum the sailors unanimously said it is suitable for the women's Olympic skiff class.

Common feedback themes included;

- Hull and appendages are proven in Olympic competition
- Rig is refined and controllable.
- Boat is heavier than others, may be hard to launch in waves for two women.
- Concerns that the correct crew weight is too heavy.
- Sailors saw the benefit of parallel training with the Men's skiff.

4.3 Evaluation Panel Feedback

On the boat:

- It was the laser radial version of the 49er with few surprises

On the bid:

- The presentations traded on the 49er history, proven track record and availability
- Details were provided of how the new rig proportions were developed and compared with the current 49er rig.
- The boat is the most expensive of the skiff.
- If selected then 50 full mast and sails packages could be ready for delivery 10 weeks from order. Additional orders could be supplied at 8-10 per week.

4.4 Builder and Dealer Distribution



Manufacturer-controlled one-design.

Builder Information:

Hull Mackay Boats (NZL), Ovington Boats (GBR), Bethwaite/McConaghy Boats (CHN)

Spars Southern Spars (Sri Lanka)

Sails North Sails (Sri Lanka)

Dealer Distribution in Oceania, Europe, North America

4.5 Hull Construction

Foam sandwich glass reinforced plastic (GRP) with local carbon reinforcement. Principally woven fabric with epoxy resin.

4.6 Class Association

The proposal comes with an entirely different class association structure to 49er.

Number of boats worldwide: 0 rigs, but there are many 49er hulls already built.

4.7 Provisions of Selection

Selection should be subject to the following:

- Signing of the ISAF Olympic Classes Agreement
- ISAF controlled distribution of the first 100 rigs or to May 2013 and hulls if necessary.
- It is suggested the boat is renamed the 49erFX to provide better media understanding.
- 49erFX should utilise the 49er class rules with the addition of an appendix.
- 49er Class Association should consider administering the class. The benefits of having a women's committee in this class and utilising it combined strength. The Constitution Committee should review the current proposed class association proposal.

4.8 Links

Mackay Boats: www.mackayboats.com/index.cfm/boats/fx/

5. Boat Name: RS900 Entrant: RS Sailing

5.1 General Review

The RS900 design is a new boat similar in style to the 49er and is designed specifically for the women's skiff evaluation.

The boat's performance was good and the sailors felt it was a stable hull and rewarding to sail. The boat proved ideal for the target weight range of 110kg -130kg. While the boat was not the most powerful at the evaluation it rewards good crew handling and tactics.

RS Sailing provided ISAF with a good building specification and demonstrated the quality control procedures they have in place with the hull manufacturer for a number of their products. The boat pricing information is creditable with additional discounts for boats sold to MNAs. The builder is in a satisfactory position to produce and deliver boats in a reasonable timescale.



5.2 MNA Sailor Feedback

Number of sailors 1st Choice = 6, 2nd Choice = 6, 3rd Choice = 6

In an open discussion forum the sailor unanimously said it is suitable for the women's Olympic skiff class.

Common feedback themes included;

- Sailors liked the layout and lighter hull.
- Boat was forgiving but would benefit from better control of rig and sail power.
- Felt good downwind.
- Easy to right and more stable than the other powerful boats.

5.3 Evaluation Panel Feedback

On the boat:

- It has similarities to the male skiff but has been further refined. (Examples of this included extending the wings forward of the shrouds and centralising the control lines).
- The power of the boat is optimised to the target crew weight range.

On the bid:

- Proven track record of bringing a new product to market in high volumes.
- The boat is substantially less expensive than the 49erFX.
- RS Sailing's commitment to its range of high performance boats.
- Production boats will be 109kg.
- A rig and sail refinement programme is complete following feedback from the evaluation.
- If selected then full production can start before the end of June 2012, 16 boats produced by end of August 2012 and then at a rate of 16 to 24 (maximum) boats per month.

5.4 Builder and Dealer Distribution

Manufacturer-controlled one-design.

Builder Information:

Hull RS Sailing currently produce most of their composite hulls at CMI in Thailand where they have their own full time quality control manager. The bid included provision if there was sufficient demand for a UK and Australian builder.

Spars Selden Spars in United Kingdom

Sails Hyde Sails

RS have the most extensive dealer network of any skiff with representation in all continents (Africa, Asia, Oceania, Europe, North America, Central & South America).

5.5 Hull Construction

Foam sandwich glass reinforced plastic (GRP) with local carbon reinforcement. Principally woven fabric utilising epoxy resin.

5.6 Class Association

The Class will join the RS International Class Association (note this already handles the RS500, RS Feva and RS Tera) in consultation with RS Sailing they are aware of the administration of handling such a class and will be looking at expanding this further.

Number of RS900 boats worldwide: New design.

5.7 Provisions of Selection

Selection should be subject to the following:

- Signing of the ISAF Olympic Classes Agreement and an amended ISAF Classes Agreement.
- An MNA discount of 12% £10352 will be available to all MNAs this commitment is guaranteed for the 12 months or first 100 MNA supported purchases whichever is the sooner.
- The list price of £11750 is to be managed under open book price control policy
- ISAF will control distribution of the first 100 boats or up to May 2013.

5.8 Links

RS900 Page www.rssailing.com/fleets.asp?fleet=RS900&selection=Details%20and%20Spec

Dealer Network www.rssailing.com/

6. Boat Name: REBEL Entrant: Hartley Boats

6.1 General Review

The Rebel is a modern light skiff. The performance of the boat showed to be one of the fastest. The boat's performance was good. The sailors felt that the boat was challenging and sometimes difficult, particularly in some manoeuvres. It would need careful attention to boat handling and technique. The suitability of the boat to the criteria weight range is good. The boat rewards a high skill level.

The building quality of the boats presented was generally high with materials that should produce a satisfactory lifetime. The design decisions of the boat were justified by the team. The initial impressions of the boats were mixed. The builder is in a satisfactory position to produce boats in a reasonable timescale.



6.2 MNA Sailor Feedback

Number of sailors 1st Choice = 1, 2nd Choice = 6, 3rd Choice = 11

In an open discussion forum the sailors unanimously said it is suitable for the women's Olympic skiff class.

- High performance and good rig controls but there were negative comments regarding the spinnaker system.
- The manoeuvring is different to the other skiff boats as the boat is lightweight.
- The rack and netting arrangement created negative feedback. Sailors said that in between races and during pre-start manoeuvring it was less sure footed than the solid wing boats.
- The spinnaker load was heavier than other boats.

6.3 Evaluation Panel Feedback

On the boat:

- The boat is fast and technically challenging.
- The boat was more challenging in manoeuvres and careful technique is required to gybe and tack.
- The boat is one of the lightest boats at the evaluation at 95kg.

On the bid:

- The builder presently does not produce any ISAF classes or high performance skiffs. The bid team demonstrated they contained the knowledge to reduce any concerns related to this.
- The Rebel bid team explained how the rack and netting choice was a conscious decision linked to reducing the cost and weight of the boat.

6.4 Builder and Dealer Distribution

Manufacturer-controlled one-design.

Builder Information:

Hull Hartley Boats (GBR) the proposal also included the possibility of builder in Australia

Spars Selden Spars (GBR)

Sails North Sails

The global dealer distribution element for the Rebel was presented in their bid and is summed up by the following quote "A new Olympic Class that is based on a high performance skiff design starting from a zero base is unlikely to be anything other than sailed just by elite squad sailors supported by a National team organisation. The product distribution is not a commercial enterprise but is driven by the need to supply and

service a discrete market of elite sailors and National teams. For this reason Hartley Boats has chosen a supply strategy that is based on direct to customer with no intermediate links."

6.5 Hull Construction

Foam sandwich glass reinforced plastic (GRP) with local carbon reinforcement. Principally woven fabric with epoxy resin.

6.6 Class Association

No existing International class association although the Rebel team presented a organisational structure for a new class association strongly supported by the builder.

Number of Rebel boats worldwide: New design.

6.7 Provisions of Selection

Selection should be subject to the following:

- Signing of the ISAF Olympic Classes Agreement and an amended ISAF Class Agreement
- The list price of £11995 is to be managed under open book price control policy
- ISAF control the price until 2016.
- ISAF controlled distribution of the first 100 boats or to May 2013.

6.8 Links

Rebel Skiff: www.rebelskiff.com

7. Boat Name: 29ERXX Entrant: Ovington Boats / 29erXX Class Association

7.1 General Review

The 29erXX is a larger rig on the 29er hull platform. It is a proven boat that is easy to handle.

The boat's performance was average. The sailors felt it was too easy to sail and underpowered particularly upwind. It is not easily powered up and the boat does not present a similar enough challenge to the men's skiff. The boat suits the lower end of the weight range. Of all the skiffs this was the easiest to sail. The lack of challenge was a main concern of the Evaluation Panel and MNA Sailors.

The building manual and quality control of the boat is good and the documentation is to a high standard. The hull and foils have already proved to have a long lifetime with the 29er rig and a subsequent good second hand market for the hull. The boat has a low tech construction in terms of the large amount of chop strand mat and polyester used in construction, therefore the boat is relatively heavy for its size.

The boat price is in accordance with the specification. The current production capacity far exceeds any conceivable demand and the builders are in a satisfactory position to produce and deliver boats in a reasonable timescale.

There are small fleets scattered around the world meeting the minimum requirements for ISAF status.

7.2 MNA Sailor Feedback

Number of sailors 1st Choice = 2, 2nd Choice = 0, 3rd Choice = 0.

In an open forum with MNA evaluation sailors all but one said it was not suitable for the women's Olympic skiff.

Common feedback themes included;

- The sailors liked the familiarity to the boat given that most of the sailors present came from a 29er/29erXX background. However the sailors were unimpressed by the performance in comparison with the other boats, it was not felt to be challenging.
- The boat was easy to right after a capsize.
- A few sailors said it is a youth boat and not a skiff and not that exciting.
- Sailors felt they were too heavy for the boat.
- Sailors questioned the balance of the boat
- General themes were it was unresponsive and stopped in waves.

7.3 Evaluation Panel Feedback

On the boat:

- The performance of the boat was underwhelming with the 29erXX consistently at the back of the fleet. It looked underpowered upwind with the target crew range.
- The boat was not a good all-rounder with relatively out-dated technology.

On the bid:

- The 29erXX team presented the large number of current builders around the world, but it should be noted that some are not active. Apart from the hull moulding, most of the components are single supplier.



- The presentation traded on the 29er history, proven track record and availability

7.4 Builder and Dealer Distribution

Manufacturer-controlled one-design.

Builder Information:

Hull Bethwaite Design (AUS), Performance Craft CC (RSA) Mackay Boats (NZL), Melges Boats (USA), Ovington Boats (GBR), Performance Sailcraft Japan (JPN), Rio Technica (ARG), Xtreme Sailing Products (SIN)

Spars Constructed by hull builders from tubing supplied from New Zealand

Sails Pryde Sails / McDiarmid Sails (CHN)

The class have a global dealer network to support.

7.5 Hull Construction

Foam sandwich glass reinforced plastic (GRP). Principally chopped strand mat with polyester resin.

7.6 Class Association

The 29erXX is an ISAF Class with 130 boats worldwide. From the data supplied the United States, Germany and Australia have more than 20 boats. There are however many more 29er hulls built.

7.7 Provisions of Selection

Selection should be subject to the following:

- Signing of the ISAF Olympic Classes Agreement
- ISAF control the price until 2016.
- ISAF have input into the distribution of the rigs for the next six months.

7.8 Links

29erXX Class www.29erxx.org/

29erXX purchase information www.29erxx.org/where-to-buy.html

Ovington Boats www.ovingtonboats.com/page.29er

8. Boat Name: AURA Entrant: Ovington Boats

8.1 General Review

The Aura was one of the most keenly anticipated boats at the trials offering a truly fresh approach to hull design which seemed to derive ideas from modern multihulls. The building quality and detailing on the boat presented was impressive. The clever use of high tech and proven durable construction methods should ensure a good competitive lifespan for the boat.

The builder is in a satisfactory position to produce and deliver boats in a reasonable timescale.



The evaluation sailors unanimously said that in its present form it is not suitable for the women's Olympic skiff class. The boat's performance in the range of conditions tested was average. The sailors said "it is OK, easy to jump on and sail".

8.2 MNA Sailor Feedback

Number of sailors 1st Choice = 0, 2nd Choice = 0, 3rd Choice = 1

In an open forum MNA sailor feedback for the boat was mixed, although 90% would not like to have the AURA as the Olympic equipment.

Common feedback themes included:

- Crews liked the athletic challenge of the boat and the systems on the boat worked well.
- Sailors felt there was a difficulty with the boat sailing bow up and they could not get their weight far enough forward.
- There was always difficult righting the boat with the narrow daggerboard and a tendency to invert.
- Boat handling was difficult with troubles in manoeuvres, particularly with the open rack arrangement.

8.3 Evaluation Panel Feedback

On the boat:

- The boat suits the weight of 110-130kgs but appears too difficult to sail for the effort required.
- The boat is of durable yet reasonably light construction and well presented, but did not impress on the water.
- Problems with the boat are its manoeuvrability and narrow daggerboard making it sometimes difficult in a capsized.
- The Aura's on water performance was not exceptional in terms of fore and aft trim, behavior in waves and speed.

On the bid:

- Unique points of the boat are its light weight, modern interesting design and styling.
- Proven track record of bringing a new product to market in high volumes

8.4 Builder and Dealer Distribution

Manufacturer-controlled one-design.

Builder Information:

Hull Ovington Boats (GBR), Mackay Boats (NZL)

Spars Southern Spars (Sri Lanka)

Sails Pryde Sails / McDiarmid sails (CHN)

Ovington have a dealer network within Europe

8.5 Hull Construction

Foam sandwich glass reinforced plastic (GRP) with local carbon reinforcement. Principally woven fabric with epoxy resin.

8.6 Class Association

No existing International class association.

Number of boats worldwide: New design.

8.7 Provisions of Selection

Selection should be subject to the following:

- Signing of the ISAF Olympic Classes Agreement and an amended ISAF Class Agreement
- Price stays fixed for MNAs at £11480 for first 100 boats sold.
- ISAF control the price until 2016.
- ISAF controlled distribution of the first 100 boats or to May 2013.

8.8 Links

Ovington Boats http://www.ovingtonboats.com/news_detail.aspx?news_id=67

Aura Skiff <http://auraskiff.com/>

9. Boat Name: ARUP Skiff
Entrant: ARUP

9.1 General Review

The Arup skiff is a boat based on the one design Cherub which is a 12ft development class popular in the United Kingdom. Arup the company behind the boat is a large global company specialise in a wide variety of civil engineering projects.

The Arup skiff was by far the lightest boat at the trials and utilised lightweight construction including a carbon sandwich hull.

One of the key differences with the Arup bid that it was based on an open manufacturer and measurement controlled concept. The Arup team proposed a more one-design concept for competition at higher level.

9.2 MNA Sailor Feedback

Number of sailors 1st Choice = 0, 2nd Choice = 0, 3rd Choice = 0

- The evaluation sailors unanimously said that the boat was not suitable
- The Arup was considered one of the most difficult and challenging boats.
- The loads on the jib and gennaker sheets were easily manageable and the boat was suitable for the target weight range.
- The MNA sailors said it was fun and exciting downwind.
- The boat was too technically difficult to sail and too small a platform for the average crew.
- The sailors demonstrated and commented that it was extremely difficult to get sailing again after a capsize
- The sailors struggled in winds less than 6 knots due to the small size and narrow beam of the design making it overly reactive.

9.3 Evaluation Panel Feedback

On the boat:

- Unique points of the boat was very light and fast in the right conditions. It suited a 110-130kg crew
The boat was athletically challenging but too technical
- Problems with the boat: too small, too difficult which meant it spent a large amount of time capsized.
- in 15 knots and waves both Arups were towed back in to the shore and were not able to complete a race.

On the bid:

- ARUP motives for being involved and finding out about company's ethos was refreshing as was the commitment and enthusiasm of the people involved.
- The one design control of the equipment was very open and would need tightening. For such a small specialist high performance market fully open builders is not a viable idea. The evaluation panel would recommend a more one design concept with single source moulds and license builders.
- The use of an adjustable rudder with foil adds a further dimension but within a measurement controlled class may lead to expensive development, even if some controls are put on these.
- The commercial model was based on self-funding and the Arup team proposed a premium price for the first batch of boats built.



9.4 Builder and Dealer Distribution

Measurement-controlled one design.

The boats presented at the trials were built in United Kingdom by a number of companies. Manufacturer-controlled one-design.

9.5 Hull Construction

Foam sandwich carbon reinforced plastic (GRP). Principally woven fabric with epoxy resin.

9.6 Class Association

No existing International class association although a proposed class setup was included in the bid.

Number of boats worldwide: new designs.

National class associations: 0

9.7 Provisions of Selection

In addition the requirements listed above and many more contractual limitations should be considered before selecting this boat.

Selection should be subject to the following:

- Signing of the ISAF Olympic Classes Agreement and an amended ISAF Class Agreement
- ISAF control the price until 2016.
- ISAF have input into the distribution of the boat for the next six months.

9.8 Links

Arup company: www.arup.com/

Arup skiff blog arupskiff.wordpress.com/

Appendix 1 – MNA Sailor Feedback

Number of sailors are entered in the data cells.

1. How good was the general boat handling?

	Very Good	Good	Average	Below average	Bad
29erXX	4	5	8	2	1
Arup Skiff	0	1	1	7	11
Aura	0	4	14	1	1
Rebel	0	7	12	0	0
Mackay FX	15	5	0	0	0
RS900	12	6	2	0	0

2. How demanding is the boat to sail?

	Very demanding	Above average	Average	Below average	Not demanding
29erXX	0	5	8	6	1
Arup Skiff	14	1	5	0	0
Aura	1	5	13	1	0
Rebel	4	10	4	1	1
Mackay FX	3	8	9	0	0
RS900	3	6	10	1	0

3. How suitable is your size and strength for the boat?

	Very suitable	Above average	Average	Below average	Not suitable
29erXX	7	4	5	2	2
Arup Skiff	1	5	6	5	3
Aura	5	7	7	1	0
Rebel	6	7	4	2	1
Mackay FX	4	10	2	2	2
RS900	11	6	3	0	0

4. How good is the general quality of the boat?

	Very good	Good	Average	Below average	Bad
29erXX	4	8	5	2	1
Arup Skiff	2	2	4	10	2
Aura	5	5	6	3	1
Rebel	1	11	6	2	0
Mackay FX	13	7	0	0	0
RS900	7	10	3	0	0

5. How safe is the boat? (e.g. in capsize and personal injury)

	Very safe	Safe	Average	Below average	Not safe
29erXX	6	9	4	1	0
Arup Skiff	0	0	3	7	8
Aura	1	5	4	7	3
Rebel	1	8	8	3	0
Mackay FX	9	8	2	1	0
RS900	8	7	3	0	0

6. Overall how would you rate the boats?

	Very good	Good	Average	Below average	Bad
29erXX	1	5	9	2	3
Arup Skiff	0	1	2	4	13
Aura	0	3	10	6	1
Rebel	2	10	3	5	0
Mackay FX	11	5	4	0	0
RS900	9	7	4	0	0

7. Please state your top three boats in order of preference?

	1st	2nd	3rd
29erXX	2	0	0
Arup Skiff	0	0	0
Aura	0	0	1
Rebel	1	6	11
Mackay FX	11	7	0
RS900	6	6	6