

Selection of Equipment

2024 Men's and Women's Windsurfer Event

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1 Preamble

In May 2019, the World Sailing Council took the decision to reject the previous Board recommendation to retain the RS:X as the outcome of the re-evaluation process. Taking into consideration the opinion of the Equipment Committee at the mid-year meeting, the Board made the recommendation to Council to conduct sea trials before selecting the Equipment for 2024.

World Sailing Council approved the Board recommendation as follows by 33 votes in favour, 3 against and 1 abstain:

“In order to conduct sea trials before selecting the Equipment for 2024, the Regulations require the outcome of the re-evaluation to be to ‘Select new equipment’.

Following the decision from Council to reject the previous Board recommendation to retain the RS:X as the outcome of the re-evaluation process, and taking into consideration the opinion of the Equipment Committee at the mid-year meeting, the Board made the following recommendation to Council:

The Board recommended to Council to “Select New Equipment” as the outcome of the re-evaluation with the following additional recommendations:

- *That Council shall select equipment following sea trials,*
- *That the existing equipment (RS:X) is included as a full option in the sea trials,*
- *That the sea trials seek to evaluate foiling and non-foiling equipment equally,*
- *That the evaluation follows a new invitation to manufacturers and class associations to tender to be selected,*
- *That the evaluation is carried by a Working Party appointed by the Equipment and Events Committees against an updated set of criteria to be approved by both committees.*

The evaluation Working Party included members from the Events Committee, the Equipment Committee, the Technical and Offshore team, the Athletes Commission, the Emerging Nations Program, World Sailing’s Technical and Offshore team and World Sailing’s Board members.

Working Party was composed of:

- World Sailing Vice President – Ana Sanchez (not present at the trials)
- Chair of the Equipment Committee – Dina Kowalshyn
- Chair of the Events Committee – Sarah Kenny
- Two Equipment Committee Members – Barry Johnson and Bruno de Wannemaeker
- One Events Committee Member – John Derbyshire
- World Sailing Head of Technical and Offshore – Jaime Navarro
- World Sailing Technical Specialist – Hendrik Plate
- Chair of the Athletes’ Commission – Yann Rocherieux represented at the sea trials by Maayan Davidovich
- Assisted by Training and Development Manager – Rob Holden

2 Executive Summary

This report seeks to provide the outcome of the evaluation and make a recommendation to provide guidance for the final decision by Council in November.

The Working Party conducted a two phase evaluation. Phase 1 evaluated the documentation received following the invitation to tender. The WP shortlisted tenders to participate in the Sea Trials. Both the Equipment and Events Committees approved the proposed shortlist. ([See Appendix 13](#) for further information on the process). Following the shortlisting, the Working Party evaluated 2 non-foiling equipment options: the RS:X and the Glide, and 3 foiling options. The foiling options ranged from the one-design iFoil (which includes the option to replace the foil with a fin), to a one- design board with registered series production rig and foil from Windfoil 1 and the full registered series production proposal of Formula Foil Limited.

During Phase 2 the Working Party conducted further evaluation of the information available from the tender documents, Equipment Inspections and observations of the equipment at manufacturing sites, evaluation of feedback from surveys to the windsurfing community and the activities at the trials which included presentations from the candidates and feedback from the sailors.

The Working Party selected 10 male and 10 female representing 18 nations to the sea trials at Circolo Surf Torbole, Italy. The sailors ([See Appendix 7](#)) held extensive Olympic sailing / coaching experience and foiling expertise. Lake Garda's extensive variety of breeze ensured the sailors could gain a full understanding of the equipment in 5 knots and flat water, up to 25 knots with short steep wind driven chop providing waves up to 50 cm with a 3 to 5 meter wavelength.

2.1. Recommendation

The Working Party considered that foiling windsurfing offers the most suitable equipment and event option for 2024 and concluded that the foiling equipment and the windsurfing community is ready now for selection of foiling equipment for the 2024 Olympic Games.

Following comprehensive on-water testing and evaluation against the approved criteria, the Working Party recommends the selection of the Starboard iFoil as the equipment for the windsurfer events in 2024. (link to recommendation paper: [here](#))

A new foiling windsurfer event for 2024 can best utilize its strengths and appeal to elite windsurfers and the broader windsurfing community, the youth, media and general public to ensure that if and when the windsurfing event is reviewed by the IOC, it stands on its own merit and can be distinguished from the other sailing events. The One Design iFoil will provide MNAs, Sailing Clubs and Sailors with an affordable option to benefit from these opportunities.

The Working Party is of the view that delaying the decision to introduce foiling in the 2028 Olympics would constitute a missed opportunity and retaining the current equipment would jeopardize the Olympic windsurfing events. The Starboard iFoil best meets the criteria and will showcase windsurfing to its full potential in the 2024 Olympic Games.

The Working Party noted that at the trials, 17 out of the 19 sailors preferred to select foiling equipment for 2024 and 16 of the 17 stated that they would support a recommendation to foiling even if the equipment recommended was not their first choice.

The Working Party was satisfied that the iFoil offered:

- An affordable package option for all MNA's
- Competition in different formats from 5 knots to 35 knots
- Easy transport to competitions and training venues
- Proven quality products and supply chain management

- Support for emerging nations
- One design equipment allowing all nations to start on a level playing field with equipment that will reward skill and tactical knowledge
- Youth appeal and complement to the existing pathways
- Supports a unique signature event that will attract media coverage with the possibility of dynamic formats and short competition timelines
- Impressive sustainability program in place today and a future commitment to our oceans
- A closer connection to the wider windsurfing community both for sailors and industry
- A recommendation supported by a large majority of sailors at the trials

3 Event Considerations and Event Criteria Evaluation

3.1. Background

World Sailing Council approved policy requires the 2024 Olympic Sailing events to offer the best possible value to the International Olympic Committee (IOC) and the Olympic Games and to strengthen the position of Sailing within the Olympic Games.

The combined 2024 Events and Equipment Committee Working Party (2024 Events WP) Report considers this in detail. The Report noted:

- The IOC is moving from a sport based, to an event based programme putting increased scrutiny on each event,
- Olympic sport needing to appeal to a young audience to ensure the Olympic programme remains relevant to young people by ensuring innovation and adapting to modern taste and new trends,
- The importance of media appeal and value.

The 2024 Events WP identified the key criteria relevant to strengthen the position of Sailing within the Olympic Games as Universality, Innovation (equipment and format), Media Value and Youth Appeal (sailor and non-sailor). World Sailing policy also requires that across the 10 events in the Olympic sailing program, men and women of different physiques have an opportunity to compete.

The Evaluation Criteria requires the Working Party to consider in evaluating each windsurfer equipment option:

1. Suitability to multiple formats
 - Course racing / Slalom / Marathon
 - Wind ranges, sea states, water depth and
2. Appeal
 - To current Olympic windsurfers and other elite windsurfers
 - To other windsurfers (recreational)
 - To the youth
 - To media and the general public
 - To both genders
 - To a range of physiques
3. Safety

3.2. Potential for Windsurfer Events

The 2024 Events WP Report says:

“The IOC is changing the landscape of the Olympic Games by shifting from a sport-based programme to an event-based programme. In this new paradigm, new Olympic events have a ‘unique signature’ or ‘look and feel’ which is readily apparent to broad audiences and the media as well as those more closely connected to the sport.

A key challenge for Sailing is to differentiate the sailing events to ensure that when each event is reviewed by the IOC, it stands on its own merit. The appeal of the sailing events to youth and the media and a non-sailing audience is very relevant in this context. As President Bach identified in his Olympic Agenda 2020 speech, Olympic sport should inspire, increase the numbers of young people watching the Olympic Games and “get the couch potatoes off the couch” as “our children playing sport can be future athletes.” The IOC’s Olympic Broadcast Service (OBS) and the IOC’s Olympic Channel are also very focused on increasing the appeal of the Olympic sport product to a younger audience. The event based approach allows a “product” (i.e. broadcast content) to be targeted to specific

audiences and gives sports the opportunity to diversify their product (i.e. events) to appeal to as broad an audience as possible.

Traditionally Olympic sailing events have been very similar and, in most cases, difficult for the media and non- sailors to differentiate. Even with the introduction of Windsurfing, although visually different, the racing format is the same as the other Sailing events and does not offer the media or non-sailing audience something different to the other events. Whilst we would expect the very traditional form of sailing to continue to have a place in the Olympic Games, it is important that not all 10 events appear to be the same to the media and non- sailing audiences.”

The 2024 Events WP did not think the current windsurfer events maximized the potential to showcase this part of the sport.

Council’s decision to re-evaluate the windsurfer equipment provides the opportunity for both equipment and format / disciplines to be used to differentiate the windsurfer events and give them a "unique signature", meet the need for youth and media appeal and showcase the diversity of our sport. This in turn will both strengthen the windsurfer events in the future Olympic sailing program and the program overall.

3.3. Suitability to multiple formats

All tenderers proposed a multi- disciplinary format, moving away from the current course race only format. Further details on the proposed formats is available in the tender documentation accessible [here](#).

The formats proposed by the 3 foiling options are very similar with the possibility of including some or all of - course racing (15 minute target time), slalom sprints (approximately 3 minute races), marathon, point to point and GPS speed with the slalom proposed for the lower wind range of 5-10 knots.

The RS:X proposes course racing, marathon and slalom with downwind slalom in 10-30 knots and course racing in 4 -10 knots. The Glide proposed the option of course racing, long distance and slalom and referred to the suitability of the equipment for match racing and team sailing and freestyle.

The foiling community is very open to considering different racing formats to maximise the appeal of the event such as elimination heats, final series and winner takes gold final race.

Course racing and slalom were tested at the sea trials and the long distance, point to point and GPS speed options were discussed in some detail. Although appropriate format testing will be required in due course, the WP view is the windsurfing event format should include a slalom event that is not condition dependent and either a long distance or point to point race (depending on the venue options). The WP recognised the potential opportunity to use a GPS speed event as either a race or to seed athletes for the slalom event.

All equipment tested at the sea trials is suitable for course racing, marathon and slalom. The key difference is between the foiling and non-foiling equipment and the wind ranges and sea conditions.

The unique feature of foiling equipment for both course racing and downwind foiling slalom (and potentially long-distance racing) is in the lower wind range. Foiling will be visually appealing in the lower wind range conditions when it is typically more difficult to create visual excitement in sailing. It also enables easy to understand commentary and vision (particularly for a non- sailing audience) as the impact of coming off the foil is immediately apparent in speed loss as is the impact of pumping to get onto the foil.

The WP concluded that low wind range slalom was not a viable option for non-foiling boards. The WP was satisfied that all equipment presented was suitable for the high wind range with the foiling options offering different equipment options to manage more extreme wind ranges (fin, fuselage, sail size).

The WP was of the view that potential venue and water depth limitations for foiling equipment could be managed and noted that this is not expected to be an issue for the next 2 Olympic Games venues.

As has occurred in the past, with the cost pressure on Host Cities and OCOG's, it is likely that in the future the length of the Sailing events will come under pressure. The short, sharp foiling racing formats enables an event that could be run over a reduced number of competition days and maximise racing when conditions are ideal. Shorter races, fewer race hours or days as a result in each discipline and less total event days open more opportunities for scheduling (including the potential for an athlete to compete in 2 sailing events) and reducing costs.

The WP recognized that a new foiling windsurfer event for 2024 can best utilize its strengths to ensure that if and when the windsurfing event is reviewed by the IOC, it stands on its own merit and can be distinguished from the other sailing events. This "unique signature" could be better achieved in the Windsurfing event with foiling equipment and competition in different disciplines.

3.4. Appeal

Olympic sport faces the challenge of enhancing its attractiveness especially to youth audiences. The Olympic programme must remain relevant to young people by ensuring innovation and adapting to modern taste and new trends, while respecting the history and tradition of the sports.

As described by Yiannis Exarchos, CEO of the Olympic Broadcasting Services in the 2019 ASOIF Report: [here](#)

"In this era of content overload, where (free) alternative entertainment formats abound and consumers' willingness to pay for content is increasingly limited, IFs need to innovate in order to ensure that their content strategy meets the needs of fans across all platforms and age groups. At its core, this means having a product that tells a story, is entertaining enough to capture and hold fans' attention and imagination, and that the barrier to understand what is unfolding in front of the spectator is as low as possible in order to deliver growth.

To achieve this, an appropriate balance needs to be struck between tradition (history) and innovation, including competition structures (e.g. the positioning of ITF's Davis Cup), competition formats (e.g. Rugby 7s, FIBA's 3x3 basketball), and scoring system changes to create a greater number of high intensity exciting moments (e.g. ITTF for table tennis). However, different sports have demonstrated highly divergent degrees of willingness to experiment with traditional rules and structures.

Overall, contributors believe the "winners" of tomorrow will be those that innovate and evolve their competition structures and formats, leverage the lifestyle appeal of athletes, ensure a rich and immersive media experience and offer plenty of opportunity for engagement through social media.

(...) I can already see some International Federations, including what we might call traditional and even elitist sports, transforming by embracing the opportunities of technology. I think this example needs to be followed by all Federations. Even the strongest and more traditional sports need to understand the realities very, very well."

Yiannis Exarchos - CEO, Olympic Broadcasting Services

For the 2020 Olympic Games, the IOC focused on introducing youth and urban innovations and events with dynamic formats and exciting competitions including for the first-time events such as

Basketball 3x3 and BMX Freestyle as well as the new sports of Surfing, Sport Climbing and Skateboarding. The IOC announced in June this year the proposed inclusion of Breakdancing (known as “Breaking”) for the 2024 Games, describing it as offering “the opportunity to connect with the younger generation” and ‘inspiring a new audience”. The addition of new events for Paris will put pressure on existing events and athlete quotas.

The WP view is that a foiling windsurfer event can best meet the youth focused and urban based event criteria and “inspire a new audience”. The WP recognised the benefits of retaining the RS:X equipment and also the potential appeal of the Glide as an alternative non-foiling option, particularly for athletes with smaller physiques and transitioning youth athletes. However, the WP concluded that foiling equipment has much greater appeal to elite windsurfers and the broader windsurfing community, the youth, media and general public which will strengthen windsurfing and the sport of sailing in the Olympic Games and more generally.

The 2024 Events WP Report identified that despite sailing images being extremely visually appealing, the product has limited appeal to broadcasters. Because of the length and complexity of the sailing events, there is very limited ability for a broadcaster to cut out of one sport and go to sailing to show their athlete qualifying for the next phase/win a place/win a medal in a way that works for an audience that is unfamiliar with the sport but ready to engage to support their flag.

Shorter faster races and the addition of a slalom event and possibly other disciplines as part of the windsurfer event, would create a different type of product to showcase the diversity and increase the attractiveness of Sailing to a wider audience. The shorter sharper foiling racing proposed for both course racing and slalom facilitates the creation of “bite sized” content. This will maximise exposure on social media, live broadcast and facilitate national broadcaster uptake. There will be strong media appeal and general public interest in a foiling windsurf event because it is visually fascinating and exciting and showcases innovative technology.

There is strong support for foiling in the broader windsurfing community and significant support in the RS:X community. All but 2 of the 19 sailors at the sea trials favoured foiling for 2024 at the conclusion of the trials. In addition, World Sailing surveys¹ ([See section 13.4](#)) showed the following replies:

Which option represents your preference for the 2024 Olympic Sailing Competition?	RS:X windsurfers	Windsurfing community
Select New - Foiling	41.3%	38.3%
Select New - Combination of foiling & non-foiling subject to wind conditions - convertible board	6.9%	21.9%
Select New - Combination of foiling & non-foiling subject to wind conditions - different boards	5.6%	14.4%
Retain RS:X	36.9%	10.2%
Select New - other One-Design Raceboard	6.3%	10.2%
Select New - other non-foiling equipment	3.1%	5.1%
	160 replies	964 replies
Do you already practice windfoil?	RS:X windsurfers	Windsurfing community
Yes	77.5%	63.4%
No	22.5%	36.6%
	160 replies	964 replies

¹ identification of respondents not verified

RS:X windsurfers = survey sent to World Sailing’s list of RS:X sailors competing in World Sailing events.

Windsurfing Community = survey sent to the general public.

It is likely that the existing windsurfing youth pathway will remain similar to the current pathway using existing windsurfing pathway equipment before transitioning to foiling equipment. All the Tender's identified the Techno 293 as the correct pathway class to their equipment. The skills learned in that class and its progressions are skills that are required to compete in any higher level windsurfing, foiling or non-foiling. The Techno 293 Class is also introducing a steppingstone to foiling. Their new equipment was available for testing on the last day of the trials. The Techno foil uses the Techno rig on a new board and beginner friendly foil.

The emerging nations evaluation of the equipment proposals is in [Appendix 10](#) and the iFoil recommended option provides strong support to assist those nations with the transition. It is also likely that a number of the stronger sailing nations with no or very small windsurfing programs will re-engage with Olympic foiling windsurfing supported by greater interest in foiling from the youth and broader windsurfing and sailing community.

3.5. Gender considerations

The WP recognises that the number of women currently competing at the highest level in foiling is lower than the men. However, it is expected that the ratio will reduce quickly once the foiling equipment is chosen for the Olympic event. The IKA-Formula Kite has seen a 300% increase in women participation since the equipment was selected for the Olympic games. In addition, the surveys ([See section 13.4](#)) show that a significant number of current Olympic windsurfing and youth pathway athletes already foil recreationally.

World Sailing Regulations allow the selection of different equipment for the men's and women's event. The WP discussed this possibility, including retaining the RS:X for women and changing the men to foiling equipment. However, the WP was of the view that having different equipment for men and women, even for one Olympic cycle will have more disadvantages than advantages and could be very detrimental to women in windsurfing in the short and longer term.

3.6. Safety

Safety is an important consideration in all sailing when going afloat, whether it is simply finding the correct personal floatation device, making sure the equipment is structurally safe or avoiding potentially dangerous situations.

Speed adds risk to sailing. The foiling equipment increases the average speed, however the top speed remains similar to non-foiling equipment. Foils by their nature mean that there is more surface area to come into contact with should a sailor be in the water. Given that the discipline is developing, and while sailor ability is still in the steep part of the learning curve, it would be prudent to exercise precautions when it comes to safety measures.

During windsurfing foiling events helmets could be mandatory. Additional safety measures can include the raising of flags to mandate that races must start on starboard tack and cannot be foiling within one minute of the start. A longer start line can keep boards apart and a wide-set top mark gate in traditional windward leeward courses can be used.

The tenderers representing foiling equipment have reported that to date, there have not been any serious injuries directly attributable to collisions or impact with the actual foil but rather related to aspects of windsurfing that are common regardless of the equipment type. This is consistent with the following survey conducted by the windsurfing foiling community:

https://docs.google.com/forms/d/1sc_yQmYeFoUMmeZmHaWGB3hWRjLfqW7OZ5JA8J59Gfo/viewanalytics

The highest risk case for foiling equipment is to suffer a severe cut after falling off the board and being hit by the foil. However, the light weight of the equipment reduces the strength of the impact when compared to heavier foiling equipment such as seen with multihulls.

As foiling classes are created, safety should be one of their number one priorities. The Class should talk to its sailors and develop clear race management policies for use at Class and World Sailing Events. The Race Management Policies should focus on wind conditions, sea state and athlete safety. In addition, the Class Rules should define what personal equipment is mandatory or optional in consultation with World Sailing. The Class should also work with World Sailing and the Coaches Commissions to ensure best practices are adopted for all foiling events.

At the trials a sailor suffered an incident and filled the following safety incident report:

While going downwind during a jibe I missed the boom during the manoeuvre to turn the sail. I fell behind the board while changing side and hit the foil mast with the left instep foot. The impact produced a contusion but no cut. After the incident I was able to sail by myself back ashore where I was provided ice to reduce the bruise. Later in the afternoon I went to the doctor who advised 10 days for recovery. To note: The board was not foiling at the time and this type of incident happens often with non-foiling equipment too. I have had myself the same incident with the Techno 293 which resulted in a 3cm cut.

4 Non-foiling equipment options

The trials included two non-foiling equipment options. In this section the equipment is summarized. The tender documents are included [here](#).

4.1. RS:X

Neil Pryde submitted a proposal to retain the current equipment for the 2024 Olympics. The tender is supported by their Class Association.

The RS:X was designed in 2004 to an ISAF design brief and was an opportunity to bring all the styles of windsurfing together. It has been used successfully at the 2008, 2012, 2016 Olympic Games and will be the equipment for the 2020 Olympic Games.

Neil Pryde has been and currently is the single source of the equipment.

Due to the recent World Sailing policy changes Neil Pryde has introduced terms and processes that would allow the license of multiple qualified manufacturers. Neil Pryde Ltd. has confirmed that the RS:X Windsurfing equipment will be open to any other qualified manufacturer, and they are willing to sign the Olympic Class contract for the 2024 Olympics which includes provisions that address these policies.

The One Design equipment has a carbon mast, boom and fin, a 'wide-style' board with a centerboard. The board is 2856 mm long and 93.3 cm wide and can travel as baggage on commercial airlines. The equipment has proved suitable for use in competitions in conditions from 5 to 30 knots. All competitors use the same board, male or female, with different rigs and fins for each gender. Men use a 9.5m² sail and 520 cm mast while women and youth use an 8.5m² sail and 490 cm mast. The Men use a 66 cm fin and the Women a 60 cm fin.

Further details of the RS:X equipment can be found in [Section 6](#) and [Appendix 9](#).



4.2. Glide

The Glide was designed to be a high performing course racing equipment utilizing the same equipment for both men and women. It has been introduced primarily in China. The tenderer's vision is to provide universality via low cost and the provision of charter equipment at events.

The cost and durability of the equipment was reported to be a high priority in the choice of the materials and distribution systems. These considerations are reflected in areas like the mast which is 80% carbon as opposed to the 100% carbon RS:X.

The Glide is 2990 mm long and under the 3-meter max length requirement from airlines. It is 85 cm wide so can fit through airport scanners. The hull graphics are white to reduce solar heating. The Glide has a max 60cm fin and retractable 75cm centerboard to create ease of launching and sailing in very shallow waters.

The mast track, gasket, centre board systems, fin fixing system were all specifically designed and made for the Glide and the upgradable Glide Regatta board concept. The rig is the same size for men and women and has an area of 8.5 m². The Glide rig has 3 cambers to increase the bottom end and top end performance when compared to the RSX, which has 2 cambers.

The Glide presented class rules and a Class Constitution but is not at a point to be considered for International Class status. The equipment has not been in the market for 2 years and it is just moving into the global market. There has been increasing activity in the Asian market since 2018 and the Glide has been designated as equipment for the 2021 World Masters Games.

Further details of the GLIDE equipment can be found in [Section 6](#) and [Appendix 9](#).



5 Foiling equipment options summary

5.1. iFoil (equipment recommended by the Evaluation Working Party)

The Starboard iFoil offers One Design equipment where most components are the same for both genders. The proposed equipment presents different rig size, (sail and mast) for different genders and offers the option to replace the foil with a fin as an alternative to for extreme sailing conditions.

At an event a sailor will register: one Board, one Foil, one Sail and one Fin. The foil offers two fuselage lengths, providing the option to use a shorter fuselage in more extreme conditions, with the physique of the sailor determining when this is appropriate.

- Sail sizes: Women = 8m², Men = 9m²
- Fin sizes: Women = 66cm, Men = 68cm

The equipment was developed to accommodate men from 65kg to 85kg and women from 55kg to 70kg and fits in two bags that can be brought to regattas or training venues as passenger's excess baggage.

Currently single manufacturer opened to license multiple manufacturers and brands.

Further details of the iFoil equipment can be found in the paper recommendation from the WP [here](#) and in [Section 6](#) and [Appendix 9](#).



5.2. WindFoil1

The equipment package for the Windfoil1 is a combination of a One Design board and Registered Series Production series production components (sail, rig and foil).

Registered Production Series schemes are a combination of both Box Rules and One Design Models. Manufacturers may register models with different specifications and measurements in accordance with the limitations of the Box Rules but then each registered model is treated as a One Design where manufacturers should ensure that each equipment item produced in that model series is identical.

The intention is to limit the cost of the equipment with a One Design board while allowing the development of sails and foils to ensure that the equipment remains cutting edge and keeping the industry engaged.

At an event, sailors can register: one board; one mast; one foil; one boom; and two sails. The Board would be the One Design board from the Starboard iFoil package, all other equipment must be equipment listed as registered by the class.

To be registered, equipment must be manufactured in a series production run of at least 50 pieces per model/size. Each piece of equipment shall be produced using the same manufacturing specification and materials and shall be within tightest production tolerances. To enter the scheme, each brand must guarantee a minimum building capacity per equipment/model/size per month on an ongoing basis until the end of the next Olympic Cycle.

Like for the IKA – Formula Kite, the registration system would include a registration period where manufacturers are allowed to register models, followed by an evaluation period where compliance with the requirements is evaluated. Compliant equipment would be then licensed for the remainder of the Olympic cycle.

The sail sizes are: Women = 7.5m² and 8.5m² and Men = 8.5m² and 9.5m² however, sailors can only register one mast at an event that must work for both sail sizes.

The foil package for the WF1 consists of one foil mast, no longer than 100cm in depth, one fuselage, no longer than 120cm in length, one rear wing, one front wing no larger than 1000cm² with a 100 cm in span for men, and 900cm² and 90cm in span for women.

Further details of the Windfoil1 equipment can be found in [Section 6](#) and [Appendix 9](#).



5.3. Formula Foil Limited

The Formula Foil Limited, submitted on behalf of the International Formula Windsurfing Class (IFWC) presents a proposal based on the IFWC current Registered Series Production scheme and mimics the system used at their current events with changes to control the access and introduction of new models of equipment and limitations to the equipment items allowed at an event.

At an event, sailors can register: one board; one mast; one foil; two rigs. For the foil, sailors can register one foil mast, two fuselages, two front wings and two rear wings.

At events, men are allowed to register one sail between 8 to 9 m² and one sail between 9 to 10m². At events women are allowed to register one sail between 7 to 8 m² and one sail between 8 to 9m².

All equipment must be equipment listed as registered by the class. And the use of prototype and custom equipment would not be permitted.

Like for the IKA – Formula Kite, the registration system would include a registration period where manufacturers are allowed to register models, followed by an evaluation period where compliance with the requirements is evaluated. Compliant equipment would be then licensed in December 2021 for the remaining of the Olympic cycle.

Further details of the Formula Foil Ltd equipment can be found in [Section 6](#) and [Appendix 9](#).



6 Equipment Criteria Evaluation

6.1. RS:X

6.1.1 RS:X - Cost

The RS:X equipment required to compete includes one board, one sail, one rig, and one fin for men and similar for women.

The price of the equipment is shown in Section 8.4 in [Appendix 8](#) where the men's and women's equipment vary by sail size, mast and fin.

The reported price² for a package ready to sail excluding transport bag is for men €5,7912.00 and women € 5,6423.00.

Although campaign costs would vary with the quality and durability of the equipment, when considering the need for 2 fins and 4 sails the price of the package and spares becomes: €10,611 for men and €10,092 for women.

Youth sail the same equipment as women giving the women's equipment a second-hand market.

6.1.2 RS:X – Quality and Availability

The RS:X equipment is available via the Pryde Group distributors and an online store that ships direct to sailors from Hong Kong.

The current Olympic equipment has had a series of supply issues. Most relate to quality of the product, particularly of the 66 cm men's fin. This fin was introduced after the Rio Olympics and has undergone several stages of model updates to resolve engineering challenges. Unfortunately, there has been a lack of supply to replace the defective equipment.

Neil Pryde states that the uncertainty around the use of the RS:X equipment beyond 2020 and the reduced market outside of the Olympic fleet has affected production to the point where Neil Pryde has informed World Sailing that it will not enter into an agreement with the organisers of Tokyo 2020 to supply equipment at the Games unless the RS:X is selected as equipment for 2024. The Working Party noted that this highlights that the market segment of the RS:X is only the Olympic fleet.

6.1.3 RS:X – Customer Service

At the most recent World Championships held the week before the trials, at the same venue, the European distributor was able to support the sailors at the event. Spare parts which had been previously ordered were delivered two weeks prior to the start of the regatta. Some warranties were accommodated by the end of the trials event with one coach happily leaving with two replacement fins for his sailors.

6.1.4 RS:X - Suitability to multiple formats

The RS:X equipment performs well in a wide range of conditions. It could be used in formats other than the current staple, course racing where it has proven to serve strong current, rough sea, big swell, light or strong wind. Even though the option of slalom racing is acknowledged, the alternative is compromised given that the ideal wind range is also the perfect condition for course racing. The equipment could be used for point to point, marathon and GPS speed too.

6.1.5 RS:X - Athlete weight range

All sports have an optimum physical range and do not cater for all physiques. (see Sailors Physique Survey from Aarhus 2018 [here](#)).

² Retail prices as reported in the tender document, Excluding VAT and shipping

Ideally the most universal events should accommodate the broadest range of physiques around the world. Given that the RS:X has served so many years as the Olympic Equipment, the physique range for the Olympic windsurf event has been optimised. Something that would happen with any one design equipment after a long period at top level competition.

6.1.6 RS:X - Transport Considerations

The RS:X is transportable via aircraft as excess baggage. The board is 5 to 6kg heavier than the foiling options but without a foil, the overall package of equipment required to compete is similar to the foiling alternatives and slightly heavier than the Glide equipment.

6.1.7 RS:X - Class Management

The RS:X Class Association was established in November 2006 and incorporated in January 2007. Neil Pryde and the RS:X Class have been reliable and long-standing partners of World Sailing. World and continental championships show high participation numbers from a variety of MNAs. 85 Men and 62 Women participated in the 2018 World Championships out of a quota of 100 men and 80 women. In addition to the senior fleet, the class has a youth fleet which has annual World and Continental Championship events.

The RS:X Class conducts regular annual manufacturing visits and audits through its Chief Measurer who visits each manufacturing facility and inspects the equipment against the build tolerances.

6.1.8 RS:X – Sea trials sailors Feedback

A summary of the reported advantages and disadvantages can be found in [Appendix 8](#)

6.2. Glide

6.2.1 Glide- Cost

The reported price³ per a package of equipment ready to sail without transport bag is €3460.

Although campaign costs would vary with the quality and durability of the equipment, when considering the need for 2 fins and 4 sails the price of the package and spares becomes: €5744 The Glide is the cheapest equipment at the trials.

6.2.2 Glide– Quality and Availability

The Glide is a relatively new product that is just beginning to move to the global market. They have produced 120 boards since February and can support their main distribution centres for Asia, Europe, USA, and Australia (South Pacific). They will soon introduce 20 units in Europe and in the USA and have 20 units that arrived in Australia in July 2019 and 50 units in Japan.

The Tender states that they have selected suppliers with high level of consistency and durability. The manufacturer has quality control processes in place for all parts and will implement the use of serial number tracking for every equipment item. Items found outside of Olympic tolerances will be sold for use at windsurf schools only.

Currently it is a single manufacturer equipment, however the tenderer is willing to license other builders under licensing terms which need to be defined and fees that would go towards class management and the cost of supplying charter equipment at events. The proposal includes the mandatory use of chartered or supplied equipment for major events to ensure standardization among the equipment. However, it is expected that sailors will continue to travel with their equipment to major events as is currently the case for training purposes.

³ Retail prices as reported in the tender document, Excluding VAT and shipping

About the manufacturer - Technic Devotion Ltd.

Technic Devotion Ltd is based in Zuhai, China and produces different water sport boards and equipment. In addition, Technic Devotion is specialised in producing wishbone booms and smaller windsurf equipment items like mast bases and extensions.

The company runs a paper document-based quality control system, following the boards through the manufacturing process. Building specifications are available at several stations of the process. Manufacturing weights are checked of the core, after lamination and of the final product. Moreover, weights of raw materials like resin and fibres are noted at the running sheets of each board. A water tightness test is done in a heated pool, to expand trapped air and force it to expand it out of the board. Technic Devotion Ltd. owns several different testing machines, the presentation of boom and centre board testing showed non-standardised and therefore non-repeatable testing procedures.

The boards are CNC milled from standard EPS foam blocks, leading to extended processing times and more waste materials compared to pre-shaped EPS blanks. During the milling process the block is held in place with a multi-point vacuum gripping system along the centreline. The support only along the centreline leads to vibrations of the EPS foam block and consequently less accurate milling results.

Raw material is stored in an air-conditioned room, batch numbers or fibre specifications were not available in the room during inspection. The fibre fabrics are cut in an air-conditioned room. The cutting is done by hand based on mylar templates.

The boards are produced in a closed mould, so core, laminate and inserts are applied to the mould tool and everything is cured under vacuum and heated in a manually climate-controlled room. After demoulding filler is applied, the board is shaped and prepared for painting. The paint cabins are high standard, including water walls and floors to absorb paint dust. The paint job is followed by wet sanding and polishing. At the end mast tracks are fitted and holes for the foot straps are drilled. The jig used to drill the holes showed high tolerances, leading to possible differences between the boards.

Technic Devotion Limited also produces Wishbone booms. The booms are built with prepreg carbon, ensuring constant fibre to resin ratios and a high-quality product. The preparation of the material happens in an air-conditioned room to reduce variations in the product quality. The prepreg is cut by a plotter to ensure accurate cut raw material. The prepared prepreg is then laid up by hand, the prepared blanks are cured in a pressurised and heated closed mould process, leading to a consistent shape and fast process times.

In addition, most of the tooling and plastic inject moulding parts are made inhouse, leading to fast processing times of equipment changes and simple supply chain management

6.2.3 Glide - Suitability to multiple formats

The Glide could be used in similar formats as the RS:X including course racing, 6 buoy slalom, figure 8 slalom and long distance racing in open ocean harbors or any other venue. The board is shaped for carving gybes and has excellent buoyancy.

The designers were aware of safety and injury concerns with windsurf equipment. The centerboard stomp pad and cover combination reduces the risk of injury to the feet and makes it easy for daggerboard deployment. The Glide mast track has a narrower slot and rounded edge addressing existing problems related to toe cuts due to sharp edges and wide slots.

The Tender document states: *“The Glide 2990 fits very nicely in between the Bic Techno and the RS:X allowing a smooth transition from one to the other. It is also an excellent learn to windsurf*

board. Our initial entry into Asia and Australia, we have seen the Glide being adopted into Youth Development programs”. The evaluation from the sailors supports these claims and the equipment seems targeted to this range. There is no feature of the equipment other than perhaps the reduced cost that makes a strong case for replacement of the current equipment.

6.2.4 Glide- Athlete weight range

The sail size of the Glide is 8.5 m², the same for both men and women competitors. This reduces the sail area for men compared to the current equipment and will undoubtedly reduce the ideal weight range for men. The class rules describe racing in weight divisions with larger sails and fins for heavier sailors, but this is not what is proposed for the Olympic one-design class.

The sailor’s feedback was mixed for the Glide. The men felt that the equipment was overall geared for smaller athletes than RS:X. The boom and sail are lighter than the RS:X making it easier to pump.

6.2.5 Glide- Transport Considerations

Although lighter than the RS:X, similar transportation considerations apply.

6.2.6 Glide- Class management

The Glide has a class structure drafted and intends to apply for World Sailing Class recognition once the distribution numbers are met.

6.2.7 Glide– Sea trials sailors Feedback

A summary of the reported advantages and disadvantages can be found in [Appendix 8](#)

6.3. iFoil

6.3.1 iFoil - Cost

The cost of equipment for the iFoil proposal includes one board, one sail, one rig, one fin, and one foil defined as one foil mast, two fuselage and one front and one back wings.

The duplication of the fuselage is seen as the least expensive way to provide for a depowering option for foiling.

The option to replace the foil with a fin offers a solution for extreme wind and waves conditions and could be used in shallow waters. The use of a fin at events could be evaluated and controlled through Race Management enforcing its use if required. The WP is of the view that as skills improve, the need for a fin will become less likely. However, the option remains valid for events where deemed required and provides an option for clubs and owners to utilize the same equipment for non-foiling purposes.

As presented by the Tenderer, the table below shows the full retail cost of the racing package including travel bags and exc. VAT.

<u>Package price for all MNAs^{4,5}</u>		<u>Support to Emerging Nations⁶</u>
Men	Euro 6829	50% off the retail, ex-factory on full pack, per year:
Women	Euro 6729	- Top 3 men,
Youth	Euro 4259	- Top 3 women,
		- Top3 Youth,
		and 40% reduction from retail price on spare parts

⁴ Includes travel bag. Prices from tender corrected on October 2nd.

⁵ Exc VAT. 2% year increase applicable only after 2022.

⁶ As defined within World Sailing’s Emerging Nations Program. Information available upon request.

The package price includes bags for parts with an approximate cost of 260 €.

Although campaign costs would vary with the quality and durability of the equipment, when considering the need for 2 foils and 4 sails the price of the package (without transport bag) and spares becomes: €14,795 for men and €14,483 for women.

It is expected that the sail and mast life will benefit from less impacts from pumping and their resulting loads with the water surface when foiling compared to non-foiling equipment.

Compared to other foiling equipment, the Starboard iFoil presents the lowest price. In addition, because of the One Design nature of the concept, and having only one sail size for men and women, sailors will have limited equipment items at events eliminating the need to test and travel with multiple models best suited to different conditions.

Furthermore, because most components are the same for both genders, the cost of coaches and training sessions, and the investment for MNAs and clubs in equipment will be minimized.

6.3.2 iFoil - Quality and availability

The Starboard iFoil equipment has been highly rated for this section. Starboard has been the global leader in windsurfing board manufacturing since 2001, both in terms of quantities sold and race winning results. Over 180,000 boards have been produced since 1994 and currently over 85 different models are offered.

The brand has won 12 Professional Windsurfers Association constructors titles out of the 13 made available over the years and also holds the 2018 PWA Foil World title.

The equipment is currently available for purchase. Starboard has committed to the following production for 2020:

Capacity	Orders by:	Shipping end of:
50	Nov-10 th	January
100	Dec-10 th	February
200	Jan-10 th	March
300	Feb-10 th	May
400	Mar-10 th	April
400	monthly capacity onwards	

Starboard is a partner with the UN technology innovation lab and the first certified B Corp company in the water sports segment, meeting strict verifications. Starboard has its headquarters in the same country as the manufacturing site of the boards and conducts weekly production inspections.

Their partner and group member Severne sails, is a specialist in windsurfing sails, winner of the 2018 PWA constructors title for sails and also 2019 leader. There is a strong quality control process that starts with the raw sail materials and ends with them fully rigging one of every 20 sails built. All material is laser cut and assembled with a template that verifies dimensions.

Apex masts and Enigma booms are used. Starboard has been managing the quality process in these factories for the past 10 years and visits the factories quarterly to ensure tolerances are met.

Accessibility is through Starboard's 75 distributors located on every continent. In areas where there is a distributor, the equipment is sold in shops. In areas where there are no distributors, the sailors will be able to buy directly from Starboard. Distributors may also sell directly to MNA's, teams, and clubs.

Starboard proposes to license (under a 7% royalty and fixed fee per equipment item) qualified interested parties who meet the necessary technical qualifications and regulatory requirements

to manufacture and sell the equipment after achieving production standards. In addition, third-party brands may distribute iFoil equipment under their own branding at a cost.

About the manufacturer - Cobra International (Section applicable to RS:X, iFoil, WF1, FFL)

Cobra International is the manufacturer of most of the board brands in the market. The board manufacturing starts with the production of EPS foam blanks, the blanks dimensions are close to the shape of the final board, reducing waste material during the following CNC milling and it enables the possibility to tailor the foam density for different boards. Moreover, the process leads to a more homogeneous core material, compared with cutting it from a premanufactured EPS foam blocks. All of this leads to a higher quality and more sustainable product.

The CNC milling centre of Cobra International houses about ten different types of CNC machines and further expansion and modernisation is planned. To hold the foam blocks in place during the milling process without deforming the blank, a rocker line shaped vacuum holding device is used for each board. After the CNC cutting process, each core is checked with templates to proof its shape. Each step is documented by Cobra. Each brand manufacturing at Cobra can take boards out of the manufacturing line to approve the quality after the different manufacturing steps.

Fibre fabrics are stored and cut in an air-conditioned room. The cutting is done by hand following templates and the measurements in the digital quality control system. Brands can choose different lamination procedures to manufacture their boards. One option is the “custom” manufacturing route, where the board is hand shaped at different stages of the building process to ensure highest shape accuracy. This process is used for iFoil and the Windfoil1 board. Another option is the “one shot” process, whereby core and laminate (including inserts) are applied to two mould halves and cure in a closed mould process. For all boards epoxy resins are used to avoid chemical reactions between the EPS core and the resin.

After demoulding of the board or the lamination process, the boards are painted, and graphics are applied. The graphics are produced inhouse and are applied by different technologies. The thinnest graphics get applied by a water transfer process, leading to smooth surface graphics. This technology is used for the underside of the latest RS:X boards to reduce hydrodynamic drag.

After the paint job the boards go to the finishing where they are polished, mast tracks are fitted, and deck pads are applied.

Cobra is also producing different fins, like the RS:X fins or the Drake fins of the iFoil. The fins are produced in a climate-controlled room by a resin transfer moulding process (RTM). For this process dry fibres are laid up into a mould tool, the mould is closed, and the resin is injected into the tool. This procedure leads to two smooth surfaces of the product, high consistency, a repetitive process for high volume production and a minimum of finishing work.

6.3.3 iFoil - Customer service and warranty considerations

The Tender presents forms for online submittal of warranty claims. The warranty is for the original purchaser of the equipment and is for a period of 12 months. This seems typical within the industry.

6.3.4 iFoil - Suitability to multiple formats

The iFoil is the result of research and development following the evolution of equipment raced in the PWA and Formula Foil for the past 5 years. The equipment has been raced in multiple styles of racing, in high winds and large waves. During the sea trials at Torbole on Lake Garda, the iFoil was tested in multiple formats from 5 to 25 knots of wind. The trials did not include a test in big waves but Formula and PWA events have managed to conduct foiling races in rough conditions over the past few years.

In the case of the iFoil this area of concern is mitigated by having the option to choose between two foil fuselage lengths to better adapt to the conditions and by having the option to replace the foil with a fin providing an alternative for extreme sailing conditions. Although the fin was tested at the trials with 25knots, there were no extreme sailing conditions and the feedback from the sailors suggested that as skills improve, the need for a fin will be unlikely at high level competition.

6.3.5 iFoil - Athlete weight range

The iFoil package was developed to accommodate men between 65kg to 85kg and women from 55kg to 70kg. The results of their testing was the selection of the 900 cm² wing and 9.0 m² sail areas for men. Larger wings and sails are common and available in other foiling tenders, however the 900 cm² wings were also found to suit the women with the 8.0 m² sail.

From these results and from the athlete feedback at the sea trials it is concluded that the iFoil is suitable for the same weight range as for the current Olympic equipment and potentially broader.

The Working Party believes that the addition of downwind slalom in the lower wind range will also help extend the upper end of the weight range for both men and women. A lower requirement for pumping in light air may reduce the anaerobic level of the athletes and result in a different ideal physique, however windsurfing is a physically demanding activity and it will require the same level of balance and body control as the current equipment.

6.3.6 iFoil - Transport considerations

The board is 95 cm wide designed to fit airport scanners around the world. The entire kit is packed into two bags of 30 kg each allowing athletes to fly with their equipment as excess baggage around the world. Among the foiling options, the iFoil presents the minimum number of equipment items required for an event.

6.3.7 iFoil - Class management

The iFoil is supported by the International Formula Windsurfing Class (IFWC), a World Sailing recognised Class since 2001, the iFoil proposes to start as a division within the IFWC supported by the International Windsurfing Association. The Class rules from IFWC would be updated to represent the iFoil division. The iFoil Class Association would then apply for World Sailing International Class status at the earliest opportunity.

The one design nature facilitates the equipment inspection procedures at events, however as with other One Design classes the measurement procedures to ensure compliance with technical specifications and tolerances beyond checking the origin of production will need to be developed to ensure compliance at main events.

6.3.8 iFoil - Other

Regarding the suitability to serve as equipment for next Olympic cycle when compared to the other foiling options: Noting that for 2024 Registered Series Production (RSP) schemes require to close their equipment registration periods ahead of the Olympic Qualifiers in 2022, manufacturers that may want to register new models won't be able to develop designs beyond 2021. Furthermore, because registered models will require to comply with all quality and production capacity requirements, registration deadlines will be brought forward.

This effectively means that compared to the iFoil, RSP schemes would allow less than a year of further design development. The Working Party believes therefore that for 2024, the iFoil equipment will be considered as up to date to in terms of development as selecting any of the other foiling options.

For 2028 however, the Registered Series Production schemes would allow models to be registered up to 2026, and therefore introduce developments in the Olympic equipment and allowing the classes to remaining at the forefront of technology. As with other Olympic One Design classes, updates to the iFoil equipment can still be implemented when approved by World Sailing

and Class members. In addition, the modular foil design would allow required updates to be implemented by updating the required modular parts without the need to reject or replace all previous equipment.

Regarding the options to charter and supply equipment at events, a One Design would allow the opportunity of organizing chartered equipment events, however it is believed that given the ease of transportation, the cost of competing with one's own equipment would be less than chartering equipment.

The Working Party believes the iFoil option is attractive because it offers a one-design package that is the lowest priced among the foiling equipment and is likely to be the lowest campaign cost.

With One Design equipment all nations start on a level playing field. The quality program tolerances of the manufacturers are good and that the equipment quality will be an improvement over the current equipment's track record.

[6.3.9 iFoil – Sea trials sailors Feedback](#)

A summary of the reported advantages and disadvantages can be found in [Appendix 8](#)

6.4. WindFoil 1

6.4.1 WF1 – Cost

The Registered Series Production equipment will have models of equipment within the limitations of the class rules available to sailors to choose from. This encourages competition between the brands and can result in a high quality product at lower prices.

However, the greater the flexibility of Registered Series Production equipment, the more equipment options, the greater the potential for an “arms race“. This flexibility also makes the equipment less accessible for emerging sailing nations and makes the transition from current windsurf equipment more complex.

The opportunity for multiple brands and different manufacturers allows sailors to have brand sponsorships. This type of system is proven to work currently at the PWA and IFWC events where sailors compete with the equipment models of their sponsors and not necessarily test all brands available to choose the best performing. The WP however recognizes the risks involved when discussing Olympic budgets where richer MNA's would be able to test equipment from multiple manufacturers potentially resulting in athletes attending events with multiple equipment combinations. To avoid this, WF1 proposes that sailors are allowed to register a maximum number of equipment items per year.

The One Design board in the Windfoil1 proposal reduces these concerns relative to Formula Foil Limited, however the Windfoil1 option would be more expensive than the iFoil.

The iFoil board and foils are eligible to race under Windfoil 1, however the allowance within Windfoil1 to use two different sail sizes⁷ per gender increase the cost relative to the iFoil model.

The sails sizes proposed for the Windfoil1 are currently under development. In the meantime, the class rules would allow for a transition period where existing market sail sizes within defined dimensions are allowed. The transition to the WF1 sail sizes (larger than current standard models) will be a cost for the first quad as well, but sails are replaced often and the second-hand use of the smaller sails for recreation will be possible.

The option for “package” pricing will depend on each brand. It is foreseen that sailors will have to test and try different foils and sailmakers to decide which suppliers models they want to compete with. The reported costs⁸ show a set of the minimum equipment items required for sailing from one brand ranging from a minimum of € 7,620 to a maximum of € 10,750.

Although campaign costs would vary with the quality and durability of the equipment, when considering the need for 2 foils and 4 sails, the price of the package (without transport bag) and spares goes from a minimum of € 15,860 to a maximum of € 21350 depending on the brands.

6.4.2 WF1 - Quality and availability

The Registered Series Production scheme would include requirements for manufacturers including minimum production numbers per model registered and minimum monthly production capacity to ensure that models are available to all sailors who may wish to use it and prevent manufacturers to serve only a limited number of athletes or MNAs.

The scheme would include also an evaluation period during which the quality of the registered equipment is tested and evaluated against the registration requirements. Only if the criteria is met the registered model would see itself licensed and eligible to compete in the Olympics. The

⁷ The WP notes that following the sea trials, WindFoil1 has proposed to limit the sails to one size per gender to reduce cost.

⁸ As described in section 9 on WF1 Costs reported by tenderers presentations at sea trials.

scheme however still requires further development to define the quality controls and registration details.

Given that there is mass produced foiling equipment available in the market today, (Between Severne, Phantom and Neil Pryde there are 1500 foil race sails sold per year, and about 1000 race foils) WF1 would issue a list of equipment publicly available on the market which meets the requirements including the existing foiling rig sizes allowed during the transition to the WF1 defined sizes.

While each manufacturer and brand has their own quality controls systems in place, the WF1 class would require developing the systems to evaluate compliance with their registration requirements. It is expected that World Sailing would have to assist in the development and implementation of the required controls both at manufacturer sites and at events.

6.4.3 WF1- Customer service and warranty considerations

Customer service and warranty will also vary per manufacturer. For the existing products in the market for IFWC and PWA competition this has been sufficient but with the expected increase in market demand and heavy use of equipment it is impossible to know how each of the multiple manufacturers will respond.

6.4.4 WF1 - Suitability to multiple formats

The WF1 team have facilitated test events and regattas over the last 8 months to trial the suitability of the format concepts and to make refinements along the way. WF1 proposes the introduction of multiple formats (in the same manner as iFoil) which have been developed around fleet sizes comparable to World Cup and Olympic Games Regattas.

Each sub-format serves its purpose and highlights a fundamental aspect of the sport. The Marathon would promote venues, produce great media images, and easy to understand for spectators. The Point to Point races are spectator friendly, and highlight the differing skills required for up and downwind sailing. The Sprint Slalom allows for a greater number of races to be completed in a short space of time, reward perfect execution of racing elements, and provide exciting viewing.

The GPS Speed component incorporates SAP Sailing Analytics and modern technology in an easy to understand yet exciting way. Finally, the Course Racing component anchors the format to a traditional racing style.

Suitability to multiple formats for foiling equipment has been demonstrated by the PWA and was successfully trialled in Torbole in winds from 5 to 25 knots. The PWA has competed in high winds and big waves. WF1 addresses wind ranges by allowing for two sail sizes, 9.5 and 8.5 m² for men and 8.5 and 7.5 m² for women.

When compared to the One Design equipment, the WF1 or Formula Foil Limited options allows for spectators to identify the athletes by their brands, introducing different equipment models to the scene and engaging viewers to see the competition between brands and models and not only between athletes.

6.4.5 WF1- Athlete weight range

The use of Registered Series Production equipment for windsurfing events with different size rigs and sails facilitates a broader range of competitive physiques. As the class rules allow multiple models, these models also cater for a wider range of body physiques. The WF1 proposal has a One Design board so the athlete physique range is lower than for the Formula Foil Ltd but higher than the One Design iFoil with one sail option.

At the sea trials, the men concluded that it would be unlikely to change down to the smaller sails in course racing but would consider it on other formats. The Women found that the 8.5 m² sail

was possibly too big for them other than for the lightest conditions and overall they preferred the 8.0m² option proposed for the iFoil package in the higher wind conditions. However, the WP recognizes that in the same way as with any other equipment, as experience increases the sailors will be able to develop skills to further control bigger rig sizes. Smaller sail areas were reported as having better manoeuvrability and the difference in size between the sail sizes of the iFoil and WF1 was described as not being sufficiently big to expand the weight range, however the Working Party estimates that with the option of two rig sizes, the weight range for WF1 would result in a slightly wider weight than the iFoil.

6.4.6 WF1 - Transport considerations

Transport of WF1 can be similar to the iFoil with the addition of one sail and mast. They will use the same board and the 2 bags at 30 kg each seems a reasonable expectation, however the option of having multiple equipment models available may result in sailors transporting different models to events and multiple spares of each.

6.4.7 WF1- Class management

The Class Association has been recently formalized as an incorporated society in Great Britain. WF1 has expressed their intention to apply to become a World Sailing recognized Class Association in May 2020 for a decision in World Sailing's Annual Conference in 2021.

Foundation industry partners are Starboard, Severne, Neil Pryde and Phantom International. The tender is also supported by the International Formula Windsurfing Class (IFWC) a World Sailing recognised Class since 2001. WF1 would start as a division within the class initially using the IFWC class rules which would be adjusted to represent the One Design board and define the required registration periods for Olympic equipment.

There is a need for further development of the registration process and the role of the class. These questions centre around systems implemented to ensure that an item of equipment from a registered model is complying with class rules. Controls to inspect at events and quality controls for all manufacturers to check compliance with the requirements need to be developed.

6.4.8 WF1 - Other

Suitability to serve as equipment for the next Olympic cycle is ensured with evolution during the next open cycle, but the disadvantage is the cost of new equipment.

The advantage presented by the WF1 proposal is that the equipment will remain cutting edge being updated as new models are registered within the scheme from one cycle to another.

Development will be driven by each manufacturer's desire to produce the next great improvement in each component. These evolutions would probably be most likely to occur in the sails and foil wings. Regardless of evolution of performance sailors would be purchasing a number of sails every year, but the evolution of the foils could be a more significant cost.

Regarding the options to charter and supply equipment at events, the One Design board would allow the opportunity of organizing semi-chartered equipment events, where sailors would have to bring their own rigs and foils. Alternatively, event organizers could consider the option of running an event with one of the registered equipment models.

6.4.9 WF1 – Sea trials sailors Feedback

A summary of the reported advantages and disadvantages can be found in [Appendix 8](#)

6.5. Formula Foil limited

6.5.1 FFL – Cost

The Formula Foil Limited (FFL) scheme allows sailors at an event to register: one board, one mast, one foil and two rigs.

For the foil, sailors can register one foil mast, two fuselages, two front wings and two rear wings. For the sails, men are allowed to register one sail between 8 to 9 m² and one sail between 9 to 10m². Women are allowed to register at an event one sail between 7 to 8 m² and one sail between 8 to 9m².

The board would also fall under the Registered Series Production equipment. This increase in options presents a larger risk of increased costs than that described for the Registration Production Series schemes of the Windfoil1. However, it also allows for cheaper options available in the market to compete against the expensive ones.

Due to the variety of registered equipment costs can vary. However, iFoil equipment as well as Windfoil 1 equipment would be eligible to race within the Formula Foil Ltd. The Class shows an estimate of costs per equipment item. However, more items of equipment are permitted in the FFL, leading to the highest cost among all the options.

The benefits of branding sponsorship opportunities described in the WF1 model are also applicable for the FFL. Cost to MNA's may be offset by sponsorship from manufacturers or brands which is common in the windsurf industry. Currently manufacturers have team riders, but it is expected that these would merge with National Teams..

6.5.2 FFL - Quality and availability

The equipment presented at the trials spanned most of the manufacturers active in the class with equipment from Starboard/Severne, Phantom, Future Fly, Neil Pryde, and Exploder Foils in attendance. The presented equipment is currently available and competing.

Each supplier's business models are different with some being sold through distributors to shops and others selling direct globally. Future Fly, one of the companies that sells direct states that they have some distributors in countries such as Japan, Holland, Korea, Denmark, Israel and Greece. Their main logistics centre is in Germany to service Europe. They also ship directly from Vietnam. In 2019 they sold product to Germany, Italy, France, Estonia, Greece, Holland, Hong Kong, Japan, Israel, Russia, Finland and the UK.

However strong the rule compliance has been in the past, Olympic status would put additional pressure on equipment control. Although equipment inspections already take place at events, further development will be needed.

6.5.3 FFL- Customer service and warranty considerations

Same comments as for WF1

6.5.4 FFL - Suitability to multiple formats

The Class Association has successfully organised formula foiling events and championships for 2 years. All format considerations described with the other foiling options are applicable to the FFL too.

Formula events are already racing under slalom format in light winds and course racing when the winds exceed 8 knots up to 35 knots of wind, an advantage at the upper end of reduced sail sizes.

6.5.5 FFL - Athlete weight range

The FFL concept allows for the widest variety of equipment sizes including the wider foil wings and biggest sail sizes. This gives an opportunity to accommodate athlete's preferences and a wider range of physiques offering an attractive option for larger men up to 95 kg.

6.5.6 FFL - Transport considerations

While the board can be up to 1m wide, the equipment can still be transported by aeroplane as hold baggage. Transport of FFL equipment would be similar than for the WF1 with the increased risk option of having further multiple equipment models available which may result in sailors transporting different models to events and multiple spares of each.

6.5.7 FFL - Class management

The FFL offers the advantage of an established class structure, long standing, with vast experience of organising and managing major championships, with a full time office providing administrative and financial services.

As for the WF1, the class would still require establishing a Technical Committee and develop the required quality controls and evaluation procedures to ensure compliance with the registration's cycles being proposed.

6.5.8 FFL - Other

It is unlikely that charter equipment will have much popularity with this scheme. However, with the ease of transport the cost to fly with your equipment as baggage will be less than a charter.

All the equipment is part of a registered series production (RSP) model that the IFWC has administered for about 20 years. As you can see the Starboard foil board is class legal in Formula Foil as are the foils and sails proposed. However, the models are open and the sailor chooses the brand and model they like for themselves.

Regarding the suitability to serve future Olympic cycles, the same comments as for the WF1 apply. With the Registered Production Series, equipment remains class legal throughout its life and offers opportunities to youth, reduced cost to emerging nations and allows high performing recreational sailors to compete in regional events, increasing general interest in the Olympic event.

6.5.9 FFL – Sea trials sailors Feedback

A summary of the reported advantages and disadvantages can be found in [Appendix 8](#)

7 Appendix: Sailors

World Sailing MNAs were invited to nominate up to two male and/or two female windsurfers. Applications were received from 26 MNAs which had endorsed 40 sailors; all keen to trial the equipment and voice their opinions.

The working party then selected 20 participants comprised of 10 male and 10 female windsurfers representing 18 MNAs. 12 of the nominated windsurfers were active RS:X athletes and raced at the 2019 RS:X World Championships held the week prior to the trials in Lake Garda with the eight remaining windsurfers holding a variety of Olympic sailing, coaching, slalom and foiling experience.

As part of the application process, nominees declared any conflict of interest, any professional relationship with windsurfer manufacturers and agreed to act in a fair and unbiased way. The same declaration applied for the members of the WS Working Party.

The 20 windsurfers selected for the sea-trials were:

Female	Male
Helene Noesmoen (FRA)	Luka Mratovic (CRO)
Izzy Adcock (GBR)	Christian Justesen (DEN)
Bryony Shaw (GBR)	Marcos Fernandez (ESP)
Noga Geller (ISR)	Vincent Langer (GER)
Marta Maggetti (ITA)	Vyron Kokalanis (GRE) withdrew
Lilian De Geus (NED)	Kensei Ikeda (JPN)
Maja Dziarnowska (POL)	Endre Funnemark (NOR)
Zofia Klepacka (POL)	João Rodrigues (POR)
Anna Sagulenko (UKR)	Maksim Ombreko (RUS)
Farrah Hall (USA)	Elia Colombo (SUI)

In addition to the athletes selected, tenderers were able to invite a male and female windsurfer of their choice who was well experienced with the equipment to ensure it was used to its full potential.

Tenderers invited Kiran Badloe (NED), Blanca Alabau (ESP) and Gonzalo Costa Hoevel (ARG) to further advise and assist the selected windsurfers.

The Women selected were aged between 17 to 37 years old with height varying from 158 to 178 cm and weight ranging from 53 to 68 kg.

The Men aged from 20 to 47 years with height from 173 to 191 cm and a weight range of 70 to 92 kg.

A broad range of age, height, weight and experience enabled the working party to observe a variety of sailing physiques and unbiased feedback to make an informed recommendation.

The profiles below show career highlights. Note that information was drawn from World Sailing Biographies and may which not include all results.



Helene NOESMOEN FRA

Current Olympic campaign in RS:X for France. Current RS:X World Ranking: 48th

DATE	CLASS	EVENT	POS
Sep 19	RS:X - Women	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	45
Sep 17	RS:X - Women	RS:X World Championships Enoshima, JPN	12
Feb 16	RS:X - Women	RS:X World Championships Eilat, ISR	50
Sep 14	RS:X - Women	2014 ISAF Sailing World Championships Santander, ESP	34
Mar 12	RS:X - Women	RS:X World Championships Cadiz, ESP	15
Aug 08	Techno 293 - Women	Techno 293 Under 17 World Championships Sopot, POL	1



Luka MRATOVIC CRO

Active racing in RS:X, Foil and Slalom in PWA and IFCA competitions. Current RS:X World Ranking: 76th

DATE	CLASS	EVENT	POS
Sep 19	RS:X - Men	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	80
Aug 19	Funboard - Open	Engadinwind 2019 IFCA Foil World Championship Silvaplana, SUI	14
Aug 16	RS:X - Men	Rio 2016 Olympic Games Sailing Competition Rio de Janeiro, BRA	24
Jun 16	Funboard - Men	IFCA Slalom World Championship Bol, Brac Island, Dalmatia, CRO	5
Jul 12	RS:X - Men	London 2012 Olympic Sailing Competition Weymouth and Portland, GBR	21
Aug 08	RS:X - Men	2008 Beijing Olympic Games Sailing Competition Qingdao, CHN	32



Izzy ADCOCK GBR

Bic Techno, RS:X, Wave, Slalom and Foil experience.

DATE	CLASS	EVENT	POS
Aug 19	Funboard - Open	Engadinwind 2019 IFCA Foil World Championship Silvaplana, SUI	61
Oct 18	Techno 293 - Women	2018 Techno 293 Youth Europeans Vari Varkiza, GRE	6
Aug 18	Techno 293 - Women	Techno 293 World Championships Liepaja, LAT	17
Apr 18	Techno 293 Plus - Women	Techno 293 Plus European Championships Mondello, ITA	19
Jul 17	Techno 293 - Women	Techno 293+ World Championship Brittany, FRA	18



Christian JUSTESEN DEN

International and National windsurf foiling competitions and a campaign in the Nacra 17

DATE	CLASS	EVENT	POS
Mar 19	Nacra 17	50th Trofeo S.A.R Princesa Sofia PALMA DE MALLORCA, ESP	46
Feb 19	Nacra 17	Portugal Grand Prix Vilamoura, Round 2 Vilamoura Sailing, POR	15
Jul 18	Nacra 17	Hempel Sailing World Championships Aarhus 2018 Aarhus, DEN	34
May 18	Nacra 17	Medemblik Regatta (formerly Delta Lloyd Regatta) Medemblik , NED	13
Mar 18	Nacra 17	49th Trofeo S.A.R Princesa Sofia PALMA DE MALLORCA, ESP	33



Bryony SHAW GBR

Current Olympic campaign in RS:X for Great Britain. Recreational Windfoil experience. Current RS:X World Ranking: 15

DATE	CLASS	EVENT	POS
Aug 16	RS:X - Women	Rio 2016 Olympic Games Sailing Competition Rio de Janeiro, BRA	9
Jul 12	RS:X - Women	London 2012 Olympic Sailing Competition Weymouth and Portland, GBR	7
Aug 08	RS:X - Women	2008 Beijing Olympic Games Sailing Competition Qingdao, CHN	3



Marcos FERNANDEZ ESP

Coaching RS:X men's Spanish team. Sailing on formula foil and competing in waves at national level.

DATE	CLASS	EVENT	POS
Mar 12	RS:X - Men	RS:X World Championships Cadiz, ESP	80
Sep 11	RS:X - Men	RS:X European Championship Bourgas, BUL	56
Aug 09	RS:X - Men	RS:X World Championships Weymouth & Portland, GBR	93



Noga GELLER ISR

Current Olympic campaign in RS:X for Israel. Current RS:X World Ranking: 42nd

DATE	CLASS	EVENT	POS
Sep 19	RS:X - Women	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	29
Jul 18	RS:X - Women	Hempel Sailing World Championships Aarhus 2018 Aarhus, DEN	16
Sep 17	RS:X - Women	RS:X World Championships Enoshima, JPN	15
Feb 16	RS:X - Women	RS:X World Championships Eilat, ISR	14
Oct 12	RS:X - Women	RS:X Youth World Championships Pengu Island, TPE	12
Jul 11	Techno 293 - Women	Techno 293 Under 17 World Championships San Francisco, USA	5



Vincent LANGER GER

Formula World Champion 2017, 2x IFCA Slalom World Champion 2016 and 17

DATE	CLASS	EVENT	POS
Jun 19	Funboard - Men	IFCA Slalom World Championship Westerland, Sylt, GER	3
May 17	Formula Windsurfing	Formula Windsurfing World Championship Westerland, Sylt, GER	1
Jun 16	Funboard - Men	IFCA Slalom World Championship Bol, Brac Island, Dalmatia, CRO	1
Jul 15	Funboard - Open	IFCA Slalom World Championship Westerland, GER	1
May 14	Funboard - Men	IFCA Funboard Open Slalom World Championships Azores, POR	3
Jun 07	RS:X - Men	ISAF Sailing World Championships Cascais, POR	107
Jul 05	Formula Windsurfing	Formula Windsurfing Youth World Championship, GBR	3



Marta MAGGETTI ITA

Current Olympic campaign in RS:X for Italy, Foil, Slalom. World Current RS:X World Ranking: 10th

DATE	CLASS	EVENT	POS
Sep 19	RS:X - Women	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	5
Jul 18	RS:X - Women	Hempel Sailing World Championships Aarhus 2018 Aarhus, DEN	7
Sep 17	RS:X - Women	RS:X World Championships Enoshima, JPN	16
Jul 16	RS:X - Women	RS:X European Championship Helsinki, FIN	4
Feb 16	RS:X - Women	RS:X World Championships Eilat, ISR	22
Oct 15	RS:X - Women	RS:X World Championships Al Mussanah, OMA	24
Aug 12	Techno 293 - Women	Techno 293 Under 17 World Championships Medemblik, NED	1



Lilian DE GEUS NED

Current Olympic campaign in RS:X for Netherlands. Some foiling experience, Current RS:X World Ranking: 5th

DATE	CLASS	EVENT	POS
Sep 19	RS:X - Women	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	3
Jul 18	RS:X - Women	Hempel Sailing World Championships Aarhus 2018 Aarhus, DEN	1
Aug 16	RS:X - Women	Rio 2016 Olympic Games Sailing Competition Rio de Janeiro, BRA	4
Oct 12	IKA - Formula Kite	Kiteboard Course Racing World Championship Cagliari, ITA	9
Dec 11	RS:X - Women	Perth 2011 ISAF Sailing World Championships Perth, AUS	40

	Aug 10	RS:X - Women	RS:X World Championships Kerteminde, DEN	58
	Kensei IKEDA JPN Current RS:X Olympic campaign for Japan. Current RS:X World Ranking: 61 st			
	DATE	CLASS	EVENT	POS
	Sep 19	RS:X - Men	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	62
	Aug 19	RS:X - Men	Hempel World Cup Series - Round 1, Enoshima Enoshima, JPN	21
	Mar 19	RS:X - Men	50th Trofeo S.A.R Princesa Sofia PALMA DE MALLORCA, ESP	13
	Sep 18	RS:X - Men	ASAF Cup - JSAF Enoshima Olympic Week Enoshima, JPN	16
	Jul 18	RS:X - Men	Hempel Sailing World Championships Aarhus 2018 Aarhus, DEN	72
Sep 17	RS:X - Men	RS:X World Championships Enoshima, JPN	56	
	Maja DZIARNOWSKA POL Current Olympic campaign in RSX for Poland. Current RS:X World Ranking: 28 th			
	DATE	CLASS	EVENT	POS
	Sep 19	RS:X - Women	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	20
	Jun 19	Formula Windsurfing - Open	2019 Formula Windsurfing Foil World Championship Puck, POL	45
	Jul 18	RS:X - Women	Hempel Sailing World Championships Aarhus 2018 Aarhus, DEN	22
	Aug 12	Formula Windsurfing - Women	Formula Windsurfing World Championships 2 Liepaja, LAT	2
	Jan 09	RS:X - Women	2008 RS:X Youth World Championships Pattaya, THA	3
Jul 08	RS:X - Women	Volvo Youth Sailing ISAF World Championships Århus, DEN	2	
	Endre FUNNEMARK NOR Current Olympic campaign in RS:X for Norway. Current RS:X World Ranking: 58 th			
	DATE	CLASS	EVENT	POS
	Sep 19	RS:X - Men	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	45
	Aug 19	RS:X - Men	Hempel World Cup Series - Round 1, Enoshima Enoshima, JPN	23
	Jan 19	RS:X - Men	Hempel World Cup Series - Round 2, Miami Miami, USA	33
	Jul 18	RS:X - Men	Hempel Sailing World Championships Aarhus 2018 Aarhus, DEN	81
Nov 16	RS:X - Men	RS:X Youth World Championship Limassol, CYP	35	



Zofia KLEPACKA POL

Current Olympic campaign in RS:X for Poland. Current RS:X World Ranking: 4th

DATE	CLASS	EVENT	POS
Sep 19	RS:X - Women	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	8
Jul 12	RS:X - Women	London 2012 Olympic Sailing Competition Weymouth and Portland, GBR	3
Aug 08	RS:X - Women	2008 Beijing Olympic Games Sailing Competition Qingdao, CHN	7
Aug 04	Mistral - Women	2004 Athens Olympic Games Sailing Competition Athens, GRE	12
Jul 04	Mistral - Women	Volvo Youth Sailing ISAF World Championships Gdynia, POL	1



João RODRIGUES POR

7 Olympic Games! Currently competing and coaching with race boards and foiling.

DATE	CLASS	EVENT	POS
May 19	Raceboard - Men	Raceboard European Championship Nove Mlyny, Pavlov, CZE	1
Aug 16	RS:X - Men	Rio 2016 Olympic Games Sailing Competition Rio de Janeiro, BRA	11
Jul 12	RS:X - Men	London 2012 Olympic Sailing Competition Weymouth and Portland, GBR	14
Aug 08	RS:X - Men	2008 Beijing Olympic Games Sailing Competition Qingdao, CHN	11
Aug 04	Mistral - Men	2004 Athens Olympic Games Sailing Competition Athens, GRE	6
Sep 00	Mistral - Men	2000 Sydney Olympic Games Sailing Competition Sydney, AUS	18
Jul 96	Mistral - Men	1996 Atlanta Olympic Games Sailing Competition Savannah, USA	7
Jul 92	Lechner - Men	1992 Barcelona Olympic Games Sailing Competition Barcelona, ESP	23



Anna SAGULENKO UKR

IFCA/PWA Events, IFCA Foil Women's World Champion 2019

DATE	CLASS	EVENT	POS
Aug 19	Funboard - Open	Engadinwind 2019 IFCA Foil World Championship Silvaplana, SUI	41
May 09	RS:X - Women	Delta Lloyd Regatta Medemblik, NED	37
Jun 08	RS:X - Women	Kiel Week Kiel, GER	16
Jul 07	RS:X - Women	RS:X Youth World Championships Sopot, POL	16



Maksim OBEREMKO RUS

6 Olympic Games, Mistral and RS:X. Now Coaching RS:X and competing at IFCA events.

DATE	CLASS	EVENT	POS
Aug 19	Funboard - Open	Engadinwind 2019 IFCA Foil World Championship Silvaplana, SUI	27
Sep 17	Nacra 17	Nacra 17 World Championship La Grande Motte, FRA	40
Aug 16	RS:X - Men	Rio 2016 Olympic Games Sailing Competition Rio de Janeiro, BRA	16
Jul 12	RS:X - Men	London 2012 Olympic Sailing Competition Weymouth and Portland, GBR	23
Aug 08	RS:X - Men	2008 Beijing Olympic Games Sailing Competition Qingdao, CHN	12
Aug 04	Mistral - Men	2004 Athens Olympic Games Sailing Competition Athens, GRE	17
Sep 00	Mistral - Men	2000 Sydney Olympic Games Sailing Competition Sydney, AUS	14
Jul 96	Mistral - Men	1996 Atlanta Olympic Games Sailing Competition Savannah, USA	25



Farrah HALL USA

15 years of Olympic campaigning in RS:X and Mistral One Design; competed at 2012 London Olympic Games. Current RS:X World Ranking: 34th

DATE	CLASS	EVENT	POS
Sep 19	RS:X - Women	RS:X Windsurfing World Championships Torbole, Lake Garda, ITA	56
Jul 19	RS:X - Women	Pan American Games Lima, PER	4
Jul 18	RS:X - Women	Hempel Sailing World Championships Aarhus 2018 Aarhus, DEN	48
Jul 12	RS:X - Women	London 2012 Olympic Sailing Competition Weymouth and Portland, GBR	20



Elia COLOMBO SUI

RS:X, Formula, Slalom and Wind foil

DATE	CLASS	EVENT	POS
Aug 19	Funboard - Open	Engadinwind 2019 IFCA Foil World Championship Silvaplana, SUI	8
Jun 19	Formula Windsurfing - Open	2019 Formula Windsurfing Foil World Championship Puck, POL	5
Jul 16	RS:X - Men	RS:X European Championship Helsinki, FIN	58
Oct 15	RS:X - Men	RS:X World Championships Al Mussanah, OMA	66
Sep 14	RS:X - Men	2014 ISAF Sailing World Championships Santander, ESP	74

8 Appendix: Feedback from athletes

Lake Garda’s extensive variety of breeze allowed the sailors to test the equipment during 5 days of sailing in a variety of conditions. From in 5 knots and flat water, up to 25 knots with short steep wind driven chop. Areas along the cliffs in the strongest puffy winds saw waves up to ¾ m with a 3 to 5 meter wavelength.

Following sailing, feedback sessions and discussions were held with the tenderers and with the working party. In addition to the feedback sessions and open discussions, athletes completed questionnaires. The sailors feedback has been used by the working party to provide the evaluation.

Upon completion of the trials:

- 17 out of the 19 sailors preferred to select foiling equipment for 2024.
- 16 of the 17 stated that they would support a recommendation to foiling even if the equipment recommended was not their first choice.
- One sailor indicated a preference for RS:X
- One sailor did not indicate a preference between foiling or non-foiling but stated that preference for the Glide over RS:X

The following is a summary of the reported advantages and disadvantages of each equipment option from the sailors at the sea trials. Items listed have been commented on at least by two sailors. Full list can be accessed [here](#).

RS:X (feedback from sailors)	
Advantages	Disadvantages
<ol style="list-style-type: none"> 1. Benefits from being the incumbent equipment: No additional cost to invest in new equipment and training programmes. 2. Cheap compared to foiling equipment 3. One Design recognised benefits in equalization of equipment and limited equipment items required 4. Rewards athletic and tactical competition 5. Well established and developed class with an existing world-wide fleet 6. Durable equipment (on items with no quality issues) 7. Accessible to youth 8. Olympic spirit among competitors 9. Defined pathway for youth 10. Allows to race in widest range of winds 11. Can organize events with big fleet sizes 12. Easy to launch from harbour and beaches 13. Safety considerations 	<ol style="list-style-type: none"> 1. Has been the equipment for 5 cycles, old design, unattractive for top level competition and not in line with the windsurfing community trends. 2. Developed in time a narrow ideal sailor weight range 3. Single manufacturer with supply and quality issues 4. Quality of equipment compromised 5. Although a One-Design, there is lack of standardization among equipment 6. Although available, old equipment is not competitive 7. Sailors still competing only because it’s the Olympic equipment but most already sailing other equipment for pleasure 8. Heavy equipment and not high performance 9. Unattractive to young generations 10. Hard to transition to high level due to cost required for spares and replacements and time commitment to achieve top performance level 11. Low value for money and unreasonable price increases 12. Lower media value 13. No use for the equipment outside of the Olympic circuit 14. No presence in MNAs with strong sailing history such as Germany, Australia and New Zealand

Glide (feedback from sailors)	
Advantages	Disadvantages
<ol style="list-style-type: none"> 1. Lighter equipment, less strength demanding than the RS:X. Easy to pump and control 2. Faster at low winds, overall relatable to RS:X 3. Beneficial for youth and light sailors 4. Suitable to wide range of sailing conditions 5. Lowest price 6. Well designed around accessibility and quality resulting in simple equipment 7. Smart improvements to reduce risk of toe cuts 8. Accessible for emerging nations 9. Suitable for competition with big fleets 	<ol style="list-style-type: none"> 1. Unattractive for top level competition and not in line with the windsurfing community trends 2. Does not reflect progression. 3. Although lighter than the RS:X: heavy board and not high performance 4. The differences with the RS:X do not justify a change to this equipment 5. Limited world-wide distribution 6. Will develop a narrow ideal sailor weight range 7. Designed for low weight sailors 8. Single manufacturer with supply and quality issues 9. Sail size suitable for light sailors. 10. Quality of equipment compromised 11. Lower media value 12. Less suited for new formats

iFoil (feedback from sailors)	
Advantages	Disadvantages
<ol style="list-style-type: none"> 1. In line with windsurfing trends, appeals to the wider windsurfing community 2. One Design recognised benefits in equalization of equipment, limited equipment items required, focus on athlete competition among foiling options. 3. Suitable design and equipment sizes all around 4. Design is developed, well tested and ready 5. Quality of equipment and demonstrated capacity at the trials 6. Well established, innovative and good reputation company with world-wide distribution network already servicing the windsurfing community 7. Suited for the existing Olympic equipment sailor's weight range. 8. Cheapest of foiling equipment 9. Allows for easy transition from current equipment to foiling 10. Attractive offer for Emerging Nations 11. High media value 12. Suitable for attractive new formats 13. If opened to multiple branding or multiple manufacturers will allow for equipment sponsorship opportunities 14. High performance equipment 15. Suitable for a wide wind range 16. Offers alternative of a fin for extreme conditions 17. Secondhand equipment will become suitable and attractive for recreational purposes 	<ol style="list-style-type: none"> 1. Cost of change to new equipment 2. The one design equipment will not represent the latest design trends on following cycles unless the class introduces changes 3. Will develop in time a narrow ideal sailor weight range 4. Uncertainty as to how the use of the fin will be regulated 5. One sail size for men and one sail size for women reduces the sailor's weight range compared to the other foiling options 6. Equipment sizes less suitable for heavy sailors compared to other foiling options 7. Only one single brand currently involved: depends on new brands being licensed to allow for equipment sponsorship opportunities and risks of quality or supply issues 8. No secondhand equipment available yet 9. No option to race under 5 knots 10. The option to use a fin and to change between two fuselages increases the required equipment items compared to the RS:X 11. Safety risks involved with foiling

Windfoil1 (feedback from sailors)	
Advantages	Disadvantages
<ol style="list-style-type: none"> 1. Multiple models and manufacturers may be involved allowing to develop the equipment 2. Multiple brands allowing for equipment sponsorship 3. Competition among brands to produce better quality 4. Option to choose equipment best suited to sailor 5. Two sail sizes accommodate a wider sailor range weight and wider wind range 6. Attractive to audiences who may compete with cheaper registered equipment 7. Media value as with iFoil but also including competition among brands 8. In line with windsurfing trends, appeals to the wider windsurfing community 9. High performance equipment 10. Secondhand equipment will become suitable and attractive for recreational purposes 11. Involves the industry and avoids risk of issues resulting from single manufacturer 12. Class run by known Olympic athletes 13. Suitable for attractive new formats 	<ol style="list-style-type: none"> 1. Cost of change to new equipment 2. Potential arms race involved with having multiple manufacturers and multiple model options 3. Financial capacity of nations and teams will give unequal opportunities to test and select suitable equipment models 4. Expensive models could become the norm if proven to be of higher performance 5. Risk of having manufacturers developing models for specific sailors making it hard to control at events 6. Requirement for teams to test and update their equipment 7. Uncertainty for MNAs to invest in equipment 8. Increased equipment items as it requires two sail sizes and allows for multiple models 9. No option to race under 5 knots 10. Allows for competition between manufacturers and not solely on competition among athletes 11. Safety risks involved with foiling 12. Proposed sail sizes are not in the market yet

Formula Foil Limited (feedback from sailors)	
Advantages	Disadvantages
<ol style="list-style-type: none"> 1. Multiple models and manufacturers may be involved allowing to develop the equipment 2. Multiple brands allowing for equipment sponsorship 3. Competition among brands to produce better quality 4. Option to choose equipment best suited to sailor 5. Range of sail sizes accommodates the widest sailor range weight 6. Attractive to audiences who may compete with cheaper registered equipment 7. Media value as with iFoil but also including competition among brands 8. In line with windsurfing trends, appeals to the wider windsurfing community. Existing model of competition within foiling community and with an existing class 9. Equipment is already being used 10. High performance equipment 11. Secondhand equipment will become suitable and attractive for recreational purposes 12. Involves the industry and avoids risk of issues resulting from single manufacturer 13. Class run by known Olympic athletes 14. Suitable for attractive new formats 	<ol style="list-style-type: none"> 1. Cost of change to new equipment 2. Potential arms race involved with having multiple manufacturers and multiple model options 3. Financial capacity of nations and teams will give unequal opportunities to test and select suitable equipment models 4. Expensive models could become the norm if proven to be of higher performance 5. Risk of having manufacturers developing models for specific sailors making it hard to control at events 6. Requirement for teams to test and update their equipment 7. Uncertainty for MNAs to invest in equipment 8. Increased equipment items as it requires two sail sizes and allows for multiple models 9. No option to race under 5 knots 10. Allows for competition between manufacturers and not solely on competition among athletes 11. Safety risks involved with foiling 12. Proposed sail sizes are not in the market yet 13. Sail sizes will result in heavier athletes not suitable for current RS:X sailors

9 Appendix: Tender details

9.1. iFoil - Starboard

The iFoil is presented by Starboard as a new one design convertible class (fin and foil). Boards, foils, sails, masts, booms and fins can be manufactured by multiple manufacturers but require a license from Starboard. Please find the iFoil Tender Document [here](#).

Starboard is a proven expert and market leader in technical and manufacturing expertise, worldwide high-volume distribution and production, customer service, quality management and marketing. All Starboard equipment is widely accessible and available around the world due to 75 distribution partners present in all continents.

9.1.1 iFoil Suppliers

Currently Starboard is working together with the following companies to produce the iFoil equipment:

- iFoil 95 Board and Drake 68 & 66 fin: Cobra Int., Thailand [predicted capacity of 400 per month]
- Severne Hyperglide 2 Sails: IK, China [predicted capacity 400 per month]
- Severne Apex 490 & 530 Masts: Italica, Italy [predicted capacity 400 per month]
- Starboard Race Carbon Foil: Sonic, China [predicted capacity 400 per month]
- Severne Enigma 190/240 Booms: Italica, China [predicted capacity 400 per month]
- Severne extensions & mast base: Technical Devotion, China [predicted capacity 400 per month]

Cobra International and Technical Devotion were visited during the evaluation period to assess manufacturing procedures and capacity as well as measures of quality control.

9.1.2 iFoil Equipment Data

At events athletes register: one board, one foil, two fuselages, one sail, one mast, one fin and one boom for racing. Sail sizes differ for men (9.0 m²) and women (8.0 m²), consequently two different mast length are required. Moreover, the fin used in difficult sea states has different lengths for men and women (Men: 68cm, Women: 66cm). All other equipment items are the same for both genders. The following tables give technical details of the main equipment items.

9.1.2.1 iFoil - Board

Type	Starboard iFoil 95
Length:	2.2 m
Width:	0.95
Max Thickness:	0.16 m at 0.2 m from stern
Min Thickness:	0.06 m at 1.66 m from stern
Volume:	196 Litre
Weight:	10.7 kg
Construction:	Glass/Carbon/EPS

9.1.2.2 iFoil - Appendages

Item	Type	Size	Weight ¹	Material
Foil Mast	Starboard Carbon Race	95 cm	2.54 kg	Carbon
Fuselage 1	Starboard Carbon Race	115 cm	2.00 kg	Aluminium
Fuselage 2	Starboard Carbon Race	95 cm	-	Aluminium
Front wing	Starboard Carbon Race	900 cm ²	1.00 kg	Carbon
Rear wing	Starboard Carbon Race	255 cm ²	0.20 kg	Carbon
			Total Foil: 5.74 kg	

Fin Men	Starboard Drake	68 cm	0.96 kg	Carbon
Fin Women	Starboard Drake	66 cm	0.94 kg	Carbon

1 measured at Sea- trials

9.1.2.3 iFoil – Rig

Item	Type	Size	Weight	Material
Boom	Severne Enigma	190 – 240 cm	3.73	Carbon
Sail Men	Severne Hyperglide 2	9 m ²	5.9	-
Sail Women	Severne Hyperglide 2	8 m ²	5.6	-
Mast Men	Severne Apex	530	-	Carbon
Mast Women	Severne Apex	490	-	Carbon

9.1.3 iFoil Cost

As presented by the Tenderer, the table below shows the full retail cost of the racing package including travel bags and exc. VAT.

9.1.3.1 Package costs

Package	Full Retail [€]	Export [€]
Total Package Price (Men)	6,829.00	3,950.00
Total Package Price (Women)	6,729.00	3,889.00
Total Package Price (Youth)	4,259.00	2,462.00

The package price includes bags for parts with an approximate cost of 260 €.

The package price represents a discount against the purchase of the individual parts is higher as shown in the tables below:

9.1.3.2 Items Cost

Item	Full Retail [€]	Export [€]
2020 iFoil 95 Carbon Reflex (Men & Women)	2,332.00	1,271.00
2020 iFoil 95 StarLite (Youth)	1,332.00	705.00
Race Foil Plus + 95 Plus Fuselagen (M& W)	2,299.00	1,028.00
Alu Race Foil Plus + 95 Fuselage (Y)	1,249.00	556.00
Race Fin 66 (W & Y)	398.00	216.00
Race fin 68 (M)	397.00	216.00
HyperGlide 9.0 (M)	907.00	407.00
HyperGlide 8.0 (W & Y)	854.00	387.00
Apex 530 (M)	767.00	282.00
Apex 490 (W & Y)	674.00	241.00
Enigma 190/240 (M & W)	1,040.00	523.00
Alu Race Boom (Y)	240.00	134.00
SDM Extension 36 (M, W & Y)	95.00	54.00
Mast Base (M, W & Y)	57.00	27.00
iFoil Travel Board Bag (M, W & Y)	181.00	99.00
HyperGlide Rig Bag (M, W & Y)	79.00	43.00

9.1.3.3 Package Cost based on single items

Item	Full Retail [€]	Export [€]
Package single item prices Men	8,154.00	3,950.00
Package single item prices Women	8,009.00	3,889.00
Package single item prices Youth	5,159.00	2,462.00

9.2. WindFoil 1

The WindFoil 1 (WF1) is a class concept based on a registered series production scheme for all equipment items except the board which is a one design board distributed by multiple licensed brands (board design: iFoil 95). Brands can register their equipment during a certain period at the beginning of each quadrennial before it is locked for the rest of the period until the Olympics. This enables equipment development from one Olympic cycle to the next one and leads to a variety of equipment options for the athletes. Please find the WF1 Tender Document [here](#).

9.2.1 WF1 - Suppliers

Currently WF1 is working together with different industry partners: Starboard, Severne, Phantom International and Neil Pryde, but any brand with eligible class legal equipment can join.

9.2.2 WF1 - Equipment Data

The equipment per event and athlete is limited to 1x One-Design board, 1x Foil, 2x sails, 1x boom and 1x mast. All equipment items can be chosen from the list of registered equipment considering the following size ranges for male and female athletes. Sail sizes for men are 8.5 m² and 9.5 m², and for women; 7.5 m² and 8.5 m². The mast length has to be the same for both sails per gender. Also, the front wing area and span has different size limits for each gender (see table below). The following tables give an overview of the restrictions per equipment item.

9.2.2.1 WF1 - Board

Dimension	
Type	Different Brands but same board as Starboard iFoil 95
Length:	2.20 m
Width:	0.95 m
Max Thickness:	0.16 m at 0.2 m from stern
Min Thickness:	0.06 m at 1.66 m from stern
Volume:	196 Litter
Weight:	10.7 kg
Construction:	Glass/Carbon/EPS

9.2.2.2 WF1 - Appendages

Item	Type	Size	Weight	Material
Foil Mast	Any registered	Not greater than 100cm	Any	Any
Fuselage	Any registered	Not greater than 120cm	Any	Any
Front wing M	Any registered	Max. 1000cm ² Span: Max. 100cm	Any	Any
Front wing W	Any registered	Max. 900cm ² Span: Max. 90cm	Any	Any
Rear wing	Any registered	No Restrictions	Any	Any

9.2.2.3 WF1 – Rig

Item	Type	Size	Weight	Material
Boom	Any registered	190 – 240 cm	Any	Any
Sail Men	Any registered	8.5 m ² and 9.5 m ²	Any	Any
Sail Women	Any registered	7.5 m ² and 8.5 m ²	Any	Any
Mast Men	Any registered	Only 1 mast for both sails	Any	Any
Mast Women	Any registered	Only 1 mast for both sails	Any	Any

9.2.3 WF1 - Cost

The following numbers for costs of the Windfoil1 were given in a presentation during the sea trials. The table gives estimated minimum and maximum retail prices for different equipment items. The variance in price is based on the different available equipment in the registered series production scheme.

9.2.3.1 WF-1 Cost Estimation

Item	Min Retail [€]	Max Retail [€]
Board	2300.00	3400.00
Foil	2400.00	2900.00
Sail 1	860.00	1200.00
Sail 2	830.00	1150.00

Mast	530.00	800.00
Boom	700.00	1300.00
Total	7620.00	10750.00

9.3. Formula Foil Ltd.

Formula Foil Ltd. (FFL) is a production equipment registration scheme proposed by the international Formula Windsurfing Class. Every manufacturer can register class legal, series production equipment for racing. At Events athletes can chose each equipment component from the list of registered FFL equipment. Limited to 1 board, 1 Foil and 2 Rigs per Sailor and Event. The foils will be limited to 1 mast, 2 fuselages, 2 front wings and 2 rear wings. Please find the FFL Tender Document [here](#).

9.3.1 FFL - International Formula Windsurfing Class

The International Formula Windsurfing Class was adopted as World Sailing Class in 2001. The class runs a production equipment registration scheme in partnership with World Sailing.

9.3.2 FFL - Suppliers

There is no restriction on manufacturers for the Formula Foil Ltd. class as long their equipment is class rule compliant. The biggest manufacturer for boards is Cobra International.

Formula Foil enjoys support from the wider industry; with support for competitors at this world championship from:

- Formula boards, foil specific: FMX, Future Fly, JP, PD, Starboard;
- Foil brands: Aquaris, Boss, Exploder, Moses, NP, Phantom, Starboard, Z;
- Sail brands: Challenger, GA, Loft, NP, Phantom, Severne.

9.3.3 FFL - Equipment Data

The following dimensions are the restrictions given by the FFL Class rules.

Dimension	
Type	Any Registered
Length:	Any
Width:	Max. 1005 mm
Max Thickness:	Any
Min Thickness:	Any
Volume:	Any
Weight:	Min. 9kg
Construction:	Any

Item	Type	Size	Weight	Material
Foil Mast	Any registered	Any	Any	Any
Fuselage 1	Any registered	Any	Any	Any
Fuselage 2	Any registered	Any	Any	Any
Front wing 1	Any registered	Any	Any	Any
Front wing 2	Any registered	Any	Any	Any
Rear wing 1	Any registered	Any	Any	Any
Rear wing 2	Any registered	Any	Any	Any

Item	Type	Size	Weight	Material
Mast	Any registered	Max. length 6250mm	Any	Any
Boom	Any registered	Max length 3010	Any	Any
Sail 1 M	Any registered	9-10 m ²	Any	Any
Sail 2 M	Any registered	8-9 m ²	Any	Any
Sail 1 W	Any registered	8-9m ²	Any	Any
Sail 2 W	Any Registered	7-8m ²	Any	Any

9.3.4 FFL - Cost

Due to the variety of registered equipment costs can vary. However, iFoil equipment as well as Windfoil 1 equipment would be eligible to race within the Formula Foil Ltd. Class and shows an estimate of costs per equipment item. However, more items of equipment are permitted in the FFL, leading to a higher cost for a full set of equipment.

9.4. RS:X

The RSX is a one design windsurf class presented by Neil Pryde and Olympic equipment since 2008. The equipment served three Olympics and will be used for the Olympic Games in 2020. Since the equipment went into production in 2005, 5200 boards were sold. The tender includes the commitment to enter into discussion with potential licensees who wish to use the Technical Knowledge and the Processes in order to manufacture, distribute and sell the RS:X products. Please find the RS:X Tender Document [here](#).

Neil Pryde was founded 1981 and is one of the leading windsurfing brands. Neil Pryde is part of the Pryde Group, which also operates the windsurf brands RRD and JP Australia as well as other kitesurf and snowboard brands. Neil Pryde works with 17 one design distributors around the world.

9.4.1 RS:X - Suppliers

Neil Pryde is the IP right holder on the equipment and responsible for setting the manufacturing tolerance of each piece of equipment as well as the specifications for equipment in terms of material, shape and finishing specification to be considered confidential and not for onward distribution.

Neil Pryde created a new production process in collaboration with Cobra to allow highest level of shape replication from hull to hull.

- Sails: Pryde Group Performance Manufacturing, Shenzhen, China.
- Hulls and Fins: Cobra international Co Ltd, Chonbury, Thailand.
- Mast 490 & 520 Masts: Weihai Julia Sport Product Co, Weihai, China.
- Boom/extension/base: Technic Devotion Corp, Zhongshan, Guangong. Province, China.

Cobra International and Technic Devotion were visited during the evaluation period to assess manufacturing procedures and capacity as well as measures of quality control.

9.4.2 RS:X - Equipment Data

One board and two size of sail are available for competitors. Men use 9.5 m² sail 520 carbon mast and 66cm fin while woman and youth use 8.5 m² sail 490 cm carbon mast and 60 cm fin.

9.4.2.1 RSX - Board

Dimension	
Type	Neil Pryde RSX
Length:	285.6cm
Width:	93.3cm
Thickness:	3.8cm
Volume:	227 Litter
Weight:	15.75 kg
Construction:	PVC/Carbon/Epoxy sandwich over CNC machined EPS foam

9.4.2.2 RSX - Appendages

Item	Type	Size	Weight ₁	Material
Fin Men	Neil Pryde	66 cm	0.99 kg	Carbon/epoxy
Fin Women	Neil Pryde	60 cm	0.7 kg	Carbon/epoxy

9.4.2.3 RSX – Rig

Item	Type	Size	Weight ¹	Material
Boom	Neil Pryde	190 – 240 cm	3.05kg	Carbon
Sail Men	Neil Pryde	9.5 m ²	6.1	-
Sail Women	Neil Pryde	8.5 m ²	5.5	-
Mast Men	Neil Pryde	520	2.4kg	Carbon
Mast Women	Neil Pryde	490	2.2kg	Carbon

9.4.3 RS:X – Costs⁹

9.4.3.1 Package Cost

Item	Full Retail [€]
RS:X Package Men	5,791.00
RS:X Package Women	5,642.00

9.4.3.2 Item Cost

Item	Full Retail [€]
RS:X Board	2,885.00
RS:X Mast Men	531.00
RS:X Mast Women	483.00
RS:X Boom	869.00
RS:X Sail Men	997.00
RS:X Sail Women	913.00
RS:X Fin Men	416.00
RS:X Fin Women	399.00
RS:X Mast Extension	41.00
RS:X Mast Base	52.00

9.4.3.3 Package Cost based on single items

Item	Full Retail [€]
RS:X Package single item prices Men	5,791.00
RS:X Package single item prices Women	5,642.00

9.5. Glide

The Glide has a board of 2990mm in length with an 8.5 m² 3x cambered rig. The equipment is currently mainly used in Asia, primarily in China as youth racing equipment. The Glide 2990 board is registered production equipment for the International Raceboard Class since August 2018.

The Glide is a one design race board class. One design class rules and class constitution are drafted. Since July 2018 the Glide Class is recognised by the international Windsurf association as a class. The GLIDE class has also been approved by Chinese Yachting Association (CYA) to be an official class in the National Youth Windsurfing Championship and Asia Youth Windsurfing Championship.

9.5.1 Glide- Suppliers

Hull, boom, mast bases, masts and centreboards are produced by Technic Devotion Limited in China, well known as supplier for wishbone booms, mast extensions and mast bases for different brands in the windsurf industry (Neil Pryde, Starboard, Severne...). Part of the manufacturing facilities of Technic Devotion have been inspected during a site visit to evaluate manufacturing capacities and quality control. Fins are built by Select and Sails by Global Creations.

⁹ Retail prices as reported in the tender document, Excluding VAT and shipping

9.5.2 Glide -Equipment Data

9.5.2.1 Glide Board

Dimension	
Type	Glide 2990
Length:	2.99 m
Width:	0.95
Max Thickness:	0.16 m at 0.2 m from stern
Min Thickness:	0.06 m at 1.66 m from stern
Volume:	196 Litre
Weight:	14.01 kg
Construction:	Glass/Carbon/EPS

9.5.2.2 Glide - Appendages

Item	Type	Size	Weight
Fin Men+ Women		60 cm	0.96 kg
Centreboard	Retractable	75 cm	0.94 kg

9.5.2.3 Glide – Rig

Item	Type	Size	Weight ¹	Material
Boom	Glide	190 – 240 cm	3.73	Carbon
Sail Men+ Women	Glide	8.5 m ²	5.9	-
Mast Men+ Women	Glide	490	-	Carbon

9.5.3 Glide – Cost¹⁰

Item	Full Retail [€]
Board	1920.00
Fin	102.00
Centreboard	130.00
Boom	520.00
Mast	268.00
Sail	520.00
Package single item price Men/Women	3460.00

¹⁰ Retail price Ex VAT and shipping

10 Appendix: Emerging nations considerations

When changing Olympic equipment arguably the biggest impact is to the lower end of the fleet and the emerging nations who have less financial support. The iFoil tender for Olympic equipment for boards has several supports and benefits built in for the emerging nations.

1. Price: Probably the biggest challenge for emerging nations is price
 iFoil is proposing a very competitive package for their equipment offering a high-tech ready to sail foiling board for just under 6600 Euro but then they are offering a start-up package to emerging nations MNA's consisting of 3 Men's Boards and 3 woman's boards at Just under 3300 euro each. This is a lot less than an RSX making this equipment more accessible.
2. Parts Price: A further challenge for emerging nation after purchasing the equipment is maintaining it and purchasing parts. The iFoil package offers a 40% discount on spare parts to emerging MNA's.
3. Distribution network: All the above does not help the emerging nations if there is not a reliable distribution network. Starboard who is behind the iFoil is a very stable large company with a worldwide distribution network that will ensure that the emerging nations have good prompt access to the equipment.
4. Sailor Size: The emerging nations especially those in Asia often have smaller lighter sailors. The iFoil package has a wider range than the RSX but it covers the lower end of the RSX range very well opening the door for emerging nations to use this as the option for sailors who are too light and too small for the Laser.
5. One Design for Asian Market: Majority of the Asian MNA's prefer to sail in a One Design fleet making all the nations in Asia competitive. The iFoil package will fulfil this and fit well on top of the Bic Techno pathway ensuring that this already developed pathway remains in place.
6. One Design: As soon as a piece of equipment is not One Design it opens the door for more developed and well-funded MNA's to have access to better equipment than the emerging MNA's. The iFoil One Design will ensure that the emerging nations have the best chance to have equipment that is competitive with that of well-developed MNA's.
 One Design will also help to get numbers to continental championships in places like Africa, Asia and Oceania where numbers are normally low.
7. Campaign Costs: It is known that in emerging nations equipment is used a lot longer than in developed nations. Sails have the highest impact on the campaign cost because they need to be replaced on a more regular basis to remain competitive. The iFoil package has only 1 sail option and uses a second shorter fuselage to depower instead of a second sail. The fuselage is very durable and will remain competitive "if looked after" for many years as opposed to the sail which will need more regular replacement. This brings the cost of the campaign down considerably.
8. Travel: The iFoil board and equipment is accepted on most if not all airlines and fits through the standard baggage scanner without any problem. The board is a lot easier to travel with than the RSX board which is more than half a metre longer and a lot heavier, this opens the door for Sailors to travel to continental and international events with their own equipment. This is a lot cheaper than chartering equipment. This will also help grow

continental events in areas where you cannot drive to the venues for example Africa, Asia, Oceania and the Caribbean.

9. Board only Charter: With the iFoil One Design there is also the option of board only charter, so the sailor brings their own foil and rig which is easier to fly with and charters the board at the event. Charter of board only will be far more accessible for the sailors.

iFoil has agreed to work with the World Sailing Training and development department to develop and run training programs both in person as well as online to assist the emerging nations sailors get up to speed on the foiling equipment.

11 Appendix: Sustainability

The following are sustainability considerations from World Sailing Head of Sustainability Dan Reading:

11.1. Starboard (iFoil)

The sustainability considerations from Starboard far exceeded those of other submissions and are to be commended. Many of the activities align with World Sailing's Sustainability Agenda 2030 and corporate strategy as well as being aligned to the International Olympic Committee's Agenda 2020 and 5 focus areas.

Transparency regarding carbon emissions of the company and life cycle assessment demonstrates a professional approach and the fact it is third party certified represents a commitment to improving known environmental impacts with quantitative improvements.

Innovative materials such as bio resins and recycled EVA are all utilised showing the organisation places an importance on development of new materials. There has been much improvement in use of single use plastic and the Plastic Offset Programme is very commendable. There is an improvement opportunity to eliminate the single dust bag to be in line with World Sailing's policy to eliminate single use plastic.

The use of recycled materials in the bag and other components is excellent and really sets the standard for this industry.

In conclusion, the sustainability considerations from Starboard are to be highly commended and World Sailing should be expecting this level of adoption from all equipment suppliers.

11.2. Neil Pryde (RS:X)

Whilst a good effort has been made to link Neil Pryde's activities to the UN's sustainable development goals, there is little evidence or statistics to back up the narrative. The target of removing all plastic packing by 2024 is not particularly ambitious. The achievements of the class association (i.e. gender equality) are not achievements of the manufacture and therefore have been excluded from consideration.

My recommendation would be for Neil Pryde to quantify measurables and to give more detail regarding current activities but also to see how they can align themselves with World Sailing's Sustainability agenda 2030.

11.3. Glide

No detail or initiatives detailed in the proposal. More environmentally friendly resins/foams investigated but no details so difficult to gauge to what extent this has been investigated or how.

My recommendation would be for Technical Devotion Glide to quantify environmental measurables and to give more detail regarding current activities whilst demonstrating how they align themselves with World Sailing's Sustainability agenda 2030.

11.4. Formula Foil Limited

No detail or initiatives related to sustainability covered in the proposal.

There is an opportunity for the organisation to require minimum sustainability standards of the manufacturers which was not referenced in the proposal.

As this proposal pertains to multiple manufacturers it would have been appropriate to detail sustainability initiatives specifically implemented for events. I would like to see ISO 20121 implemented – a sustainable event management system developed by the 2012 Olympics and now a requirement from the IOC to every host city.

11.5. WindFoil 1

There is a reference to sustainability however this section just highlights one of the manufacturers (Starboard) as one of the eligible boards so no apparent initiatives from WindFoil 1

Similar to Formula Foil Limited, there is an opportunity for the organisation to require minimum sustainability standards of the manufacturers for eligibility.

Also, this proposal pertains to multiple manufacturers and therefore it would have been appropriate to detail sustainability initiatives specifically implemented for events. For example, I would like to see principles of ISO 20121 implemented – a sustainable event management system developed by the 2012 Olympics and now a requirement from the IOC to every host city.

11.6. Conclusion.

There was a wide range in the level of sustainability demonstrated by the applicants with Starboard being the most superior.

The process highlighted the need for an industry standardised approach relating to life cycle assessment which can be used by all manufacturers but also by World Sailing to better quantitatively assess sustainability performance at the manufacturing stage.

It is important for World Sailing to demonstrate its alignment to the IOC's Agenda 2020 which encompasses 5 sustainability focus areas as well as the IOCs guidance on sourcing practises. It would be an oversight for sport equipment at an Olympic games to not adhere to this guidance when every other component at the games does.

World Sailing's Sustainability Agenda 2030 sets out the framework for ensuring the above is implemented so it is important that manufacturers and committees familiarise themselves with this document.

12 Appendix: Criteria

The criteria for the evaluation approved by both the Events and Equipment Committees is set out in the invitation to tender document and includes:

- i. Cost
 - Retail prices
 - Campaign cost (including all equipment items required for an Olympic campaign – minimum expected main equipment items)
 - Equipment sponsorship opportunities
 - Existing pathway classes
- ii. Equipment quality and availability
 - Equipment readily available, mass produced and existing distribution networks
 - Production capacity and Manufacturing Processes
 - Equipment Quality and Quality Management
 - Customer service and warranty considerations
- iii. Suitability to multiple formats
 - Course racing / Slalom / Marathon
 - Wind ranges, sea states, water depths
- iv. Appeal
 - To current Olympic windsurfers and other elite windsurfers
 - To other windsurfers
 - To the youth
 - To media and general public
- v. Sailor physique and athletic requirements
 - Level of athletic ability and sailing skills
 - Suitable weight and height ranges predicted and exhibited
- vi. Transport considerations
 - Equipment size and weight
 - Required number of equipment items
- vii. Class management
 - Class Association
 - Class rules
 - Technical committee - Equipment Inspections
- viii. Sustainability considerations
 - Existing policies
 - Life cycle assessment
 - Manufacturers third party environmental certificates
 - Environmental improvement programs.
- ix. Other
 - Suitability to serve as equipment for next Olympic cycle
 - Safety considerations
 - Charter and supply proposals for events

13 Appendix: Evaluation process

13.1. Background

Following the decision from Council to approve the Board recommendation (as presented below) World Sailing opened a tender process to select the equipment for the Men and Women Windsurfing 2024 Olympic Events.

Subject to Council retaining the event, the tender selected for 2024 would also represent the selection for the 2028 Olympic event. In order to conduct sea trials before selecting the Equipment for 2024, the Regulations required the outcome of the re-evaluation to be to 'Select new equipment'.

Following the decision from Council to reject the previous Board recommendation to retain the RS:X as the outcome of the re-evaluation process, and taking into consideration the opinion of the Equipment Committee at the mid-year meeting, the Board made the following recommendation to Council:

The Board recommended to Council to “Select New Equipment” as the outcome of the re-evaluation with the following additional recommendations:

- That Council shall select equipment following sea trials,
- That the existing equipment (RS:X) is included as a full option in the sea trials,
- That the sea trials seek to evaluate foiling and non-foiling equipment equally,
- That the evaluation follows a new invitation to manufacturers and class associations to tender to be selected,
- That the evaluation is carried by a Working Party appointed by the Equipment and Events Committees against an updated set of criteria to be approved by both committees.

The following reasons were presented:

1. Following the outcome of the re-evaluation, the recommendation to Council from the Board (here) to retain the current equipment was rejected.
2. The Equipment Committee gave the following opinion to Council:
'The Equipment Committee recommends that the Board recommendation to Council should be to 'select new equipment' as the outcome of the re-evaluation to conduct sea trials against an updated set of criteria.'
And presented the following reasons:
 - a. The Committee believes that the Board reasons are sound but considers that there is a need to conduct Sea Trials before selecting the equipment for 2024.
 - b. The Committee noted that the Regulations require the outcome of the re-evaluation to be to 'Select new equipment' in order to conduct Sea Trials. This outcome could come with an additional recommendation to consider the current equipment as a full option in the evaluation.
 - c. The updated criteria would seek to evaluate foiling and non-foiling equipment equally.
3. Council did not vote on the opinion from the Equipment Committee, but the Council considered the reasons and opinion before rejecting the Board's recommendation.
4. The sea trials would see the evaluation of the discipline and of the equipment, therefore the involvement of the Events Committee is recommended.

13.2. Process

May 19th Council rejects recommendation to retain RS:X as outcome to the re-evaluation.

June 12 th	New recommendation from the Board to conduct sea trials before selecting equipment
June 27 th	Council approves new recommendation.
July 8 th	Evaluation criteria approved by both the Equipment and Events Committees.
July 15 th	Invitation to tender is published.
July 26 th	Tendering closing date
August 16 th	Shortlist is approved by both the Equipment and Events Committees.
August 17 th	Venue and dates for the trials are announced and MNA's invited to nominate sailors.
Sept. 16 th to 21 st	Manufacturing site inspections
Sept. 29 th to 4 th	Sea trials
October 8 th	Publication of paper announcing the recommendation
October 21 st	Publication of full report
October 30 th	Equipment Committee recommendation
Nov. 1 st and 2 nd	Decision from Council

Following the invitation to tender released on 15 July 2019, World Sailing received seven tenders by the deadline on 26 July from Class Associations and Manufacturers:

1. RS:X
2. Glide
3. iFoil
4. Formula Foil Limited
5. Windfoil 1
6. Windsurfer, International Windsurfer Class Association - Non foiling one design
7. Bow-4Z, Gun Sails von Osterhausen GmbH - Foiling (convertible) one design

Following the evaluation of the received documentation against the suitability to the serve the Olympic event and other criteria stated in the invitation to tender, the Working Party shortlisted the first five tenders shown in above list to participate in the Sea Trials.

Both the Equipment and Events Committees approved the proposed shortlist. During Phase 2 the Working Party conducted further evaluation of the documentation, sites visits to manufacturing sites and all the activities carried at the sea trials which included feedback sessions from the sailors, inspections of the equipment and presentations from the manufacturers on the following:

- I. Cost: Focusing on retail prices, Campaign cost, Equipment sponsorship opportunities and Existing pathway classes.
- II. Equipment quality and availability: Aiming to evaluating if the equipment is readily available, mass produced and with an existing distribution network. Including Production capacity and Manufacturing Processes, covering Equipment Quality, Quality Management, Customer services and warranty considerations.
- III. Suitability to multiple formats: Suitability to Course racing, Slalom, and Marathon formats around different sea state conditions.

Following the evaluation, the Working Party issued a paper to inform of their recommendation. (link to recommendation paper: [here](#)) The equipment shall be selected following World Sailing Regulation 23: At the Annual Conference, the Equipment Committee will consider the Working Party recommendation and make a recommendation to Council as reporting committee regarding

equipment selection matters. Following Regulation 23 process, Council shall first vote to accept or reject the Equipment Committee recommendation. If rejected, Council shall vote to select among the options that took part in the Sea trials.

13.3. World Sailing Surveys

Following the invitation to tender, World Sailing engaged with the windsurfing community to obtain their feedback on the Men's and Women's Windsurfer Equipment for the Paris 2024 Olympic Games.

Separate questionnaires for existing RS:X sailors and for members of the wider windsurfing community were distributed. World Sailing received 160 responses from RS:X windsurfers and 964 from the windsurfing community.

The responses¹¹ from both surveys are available in these links:

- [World Sailing Survey for RS:X windsurfers](#)
- [World Sailing Survey for the Windsurfing Community](#)

The responses generated provided feedback to the Evaluation Working Party for their consultation.

¹¹ identification of respondents not verified

RS:X windsurfers = survey sent to World Sailing's list of RS:X sailors competing in World Sailing events.

Windsurfing Community = survey sent to the general public.