

Introducing the 49erFX



History

The new FX rig for the 49er was developed for ISAF to be the women Olympic High Performance class. After 9 months of testing the boat was taken to Santander (ESP) and trialed against 5 other boats by the ISAF evaluation committee.

The boat was selected at the ISAF mid-year conference in early May 2012 and will be used for the 2016 Olympics in Brazil.

Since the ISAF trials in Santander the work and development has continued on the FX with many hours of 2 boats testing.

Things like the jib battens has been fine tuned together with sail corner reinforcement, jib sheeting angles and refined the different rig settings in a range of conditions. The results from this have been included in the final sails which are made by North Sails in Sri Lanka.

The final sails are built from the same cloth as the 49er. Gennakers are being offered in Black, Dark Blue, Red, White, Pink and Light blue

In Santander a 49erFX and a 49er tested against each other. The weight of the girls are 125kg and the guys are 140kg.

The girls held onto the guys upwind which was a pleasure to watch. At times the guys had an edge, and at other times the girls were faster. Overall the guys probably had a slight edge upwind but not enough to matter- and of course the girls had an edge downwind. At the end of the day they were very even around the course.

The key is how much the rig depowers. It's very cool to watch it in action in 20-25 knots! You can see a similar action on YouTube. The clip is called; [hFX sailing in 25kts in Auckland](#)

Another big positive was the downwind performance.

In the 49er you get to the point where you bear away so much that the spinnaker begins to collapse from the back. This does not happen in the FX. The spinnaker is much flatter and flies further off the boat. The girls at 125kg can push it hard in 25 knots and were slightly faster than the

guys. The dynamics of the rig are such that the bow lifts a lot more than the 49er and it's much harder to nosedive. They can send it through the waves with much more confidence. The guys commented that the FX is much easier to bear away than the 49er.

Advantages of the FX...

A proven platform

- The 49er was a quantum leap in terms of high performance Olympic sailing. It still leads the field.
- It's a boat that captures the essence of true Olympic athleticism, based on a strict and well proven one design concept.
- The FX rig is perfectly suited to the 49er hull. The performance is outstanding.

Low cost

- An existing supply of used 49er hulls available worldwide enables women teams to enter the class at a reduced cost.
- Many MNA's already have a number of 49er hulls.
- The conversion from an existing 49er is simple and low cost. For around €5500 the new FX mast and sails can be put onto an existing 49er.
- 49er costs are well proven. There is no chance of large price increases once the true cost of manufacturing a boat to Olympic standard is discovered.
- The strength and durability of the 49er is well proven. There will not be costs associated with replacing equipment as it goes through a development cycle.

Fast supply

- Delays due to teething problems associated with bringing any new class to Olympic standard will be largely averted with the FX on the 49er platform.
- The builders are already well proven Olympic class builders and the production tooling is already in place and operational.
- There is already an existing network of dealers and suppliers in place world wide.
- The Southern Spars and North Sails have well established production facilities. They have already made test production runs of FX masts and sails.
- ISAF will manage the initial supply of rigs so that all MNAs will have the opportunity to receive rigs at the same time.

Reliable equipment from established one design suppliers

- The hulls, wings and foils are made by established Olympic Class boat builders – Ovington Boats, McConaghy Boats and MacKay Boats. All well experienced in the manufacture of strict one design boats.
- Southern Spars manufacture the FX masts in a facility with tight management and control procedures that ensure rigs are built within tight tolerances. The 49er mast is

also made at Southern Spars and has been accepted by the class as being of a highly uniform performance and quality.

- North Sails manufacture the sails and have a solid reputation across many classes for producing quality strict one design sails.

Lower campaign costs

- The opportunity to share equipment, coaching, transport and regatta costs between the men and women skiff teams will reduce campaign costs.
- It is easy to run joint training and racing with both the 49er and FX. There is very little difference in performance between the 2 boats.
- The FX will have popular support from weekend warrior and youth sailors who find the 49er too much of a handful. FX fleets will be large. Quality racing will be found closer to home.

True high performance

- The FX is a true high performance skiff. It demands athleticism, balance, skill and daring.
- The FX is a skiff that will show to the world how spectacular our sport is and what amazing athletes our women sailors are.
- Our top women sailors want a skiff that is thrilling in 10 knots and still racing in 25 knots. This is the FX.
- Media and spectators already love the FX. The women's skiff event in the FX has the potential to be one of the glamour events of the entire Olympics.

Technical Overview

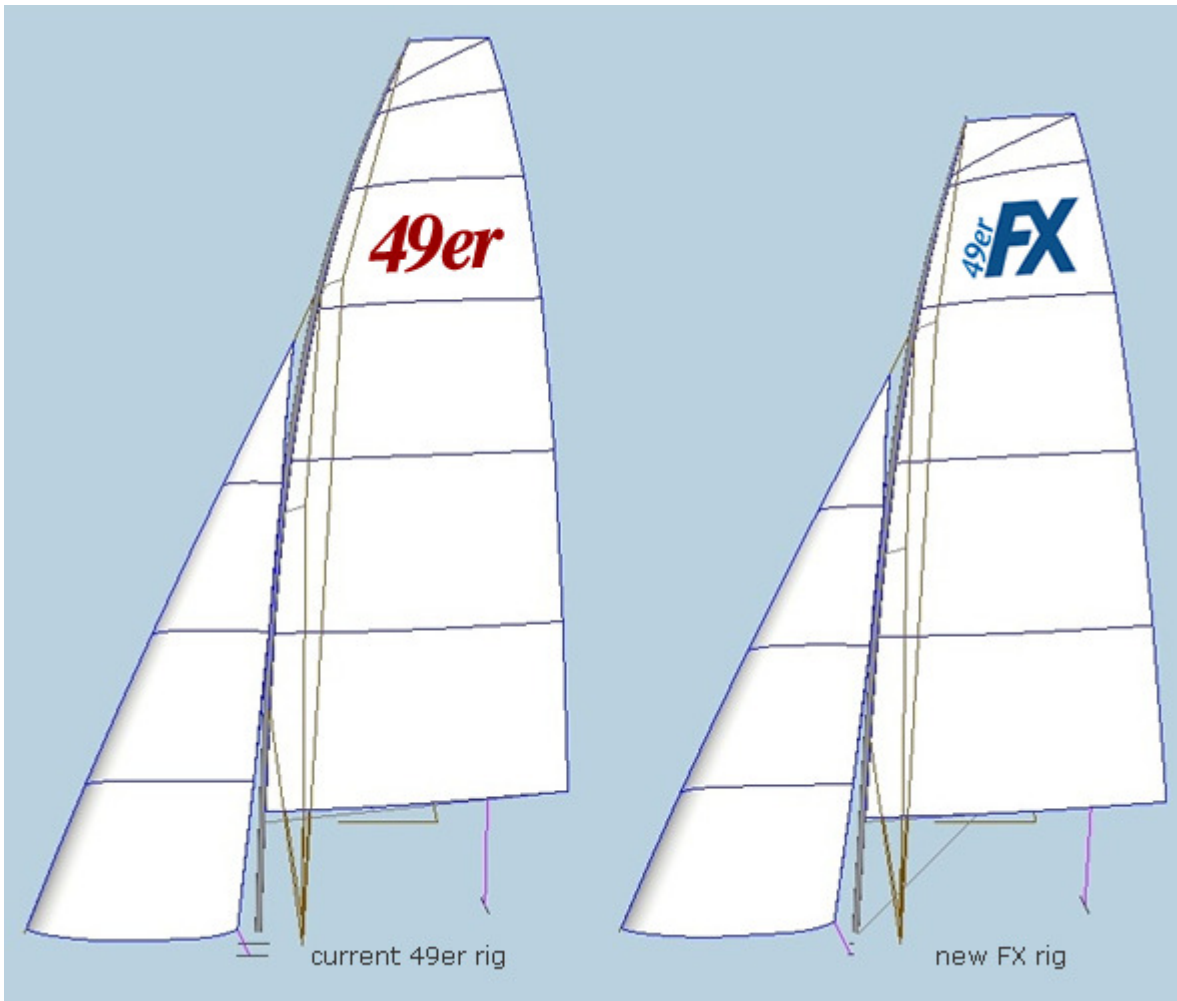
Over the past three Olympic cycles the 49er has evolved into a finely tuned boat that is nicely balanced in all conditions with a rig that is able to be adjusted for best performance in each windspeed and sea state.

With the FX we have the benefit of this evolution as well as new developments in skiff rig design to allow us to achieve the optimum rig very quickly.

Starting with the 49er hull, wings and foils, we then set about designing a rig that would go straight into the existing 49er boats and provide the correct amount of power for the lighter crew target weight specified by ISAF.

Using the North Sails suite of analysis software, John Clinton optimised the new sailplan using the Flow program. Clinton also designed the current carbon 49er rig and 18ft skiff rigs that have won a number of the recent World Championships.

The sailplan was designed to produce the correct amount of power for a 120kg crew so that they would be fully powered up at a similar windspeed as the men in the 49er, and start depowering at a the same windspeed.



The size of the main and jib were adjusted to get the correct fore/aft aerodynamic centre of effort to retain the same balance as the 49er.

A more efficient main was introduced with a wider head as a result of recent 18ft skiff and America's Cup technology. To make this head work a stiffer mast is required. This was achieved by raising the hounds- again like the top 18ft skiff teams- and adding a little carbon to the middle section of the mast to ensure the mid leech stays under control throughout the wind range.

The main was designed with only 5 battens to reduce the rig weight while using rugged purpose designed skiff cloth to ensure the sails last well.

Since the 49er was first introduced, gennaker designs have evolved to become flatter for high speed skiffs and multihulls. The new FX gennaker was based on recent top skiff designs to produce a very efficient sail that allows the smaller rigged FX to compete equally with the 49er downwind in most conditions.

Upwind the new FX sailplan is also able to compete with the 49er in many conditions with the rig settings being adjusted through the range in the same fashion to the 49er to get optimum performance in all wind strengths.

The shorter, lower aspect ratio sailplan has lowered the centre of effort making the boat easier to sail- and easier to right from a capsize while enhancing the overall performance of the boat!

Specifications:

Mast height= 7.5m

Mainsail Area= 13.8 sqm

Jib Area= 5.3 sqm

Gennaker Area= 25.1 sqm

Equipment

The FX class rules stipulate that the hull, wings, foils, boom and pole must be 49er class parts.

The jib sheet is allowed an extra purchase, and the gennaker sheet is allowed an extra block to increase the efficiency of the ratchet block.

The new carbon FX mast is made by [Southern Spars](#) in Sri Lanka.

- The top and bottom tubes are about 450mm shorter than the 49er mast tubes.
- The spreaders are the same as the 49er and can be used on either boat.
- All of the mast fittings are the same on the 49er and FX, so spare parts can be used for either boat.

The Sails are made by North Sails in Sri Lanka.

[North Sails](#) and [Southern Spars](#) are in the same industrial zone near Colombo and both share the same logistics team. This means that the mast and sails can be shipped together to save costs.

