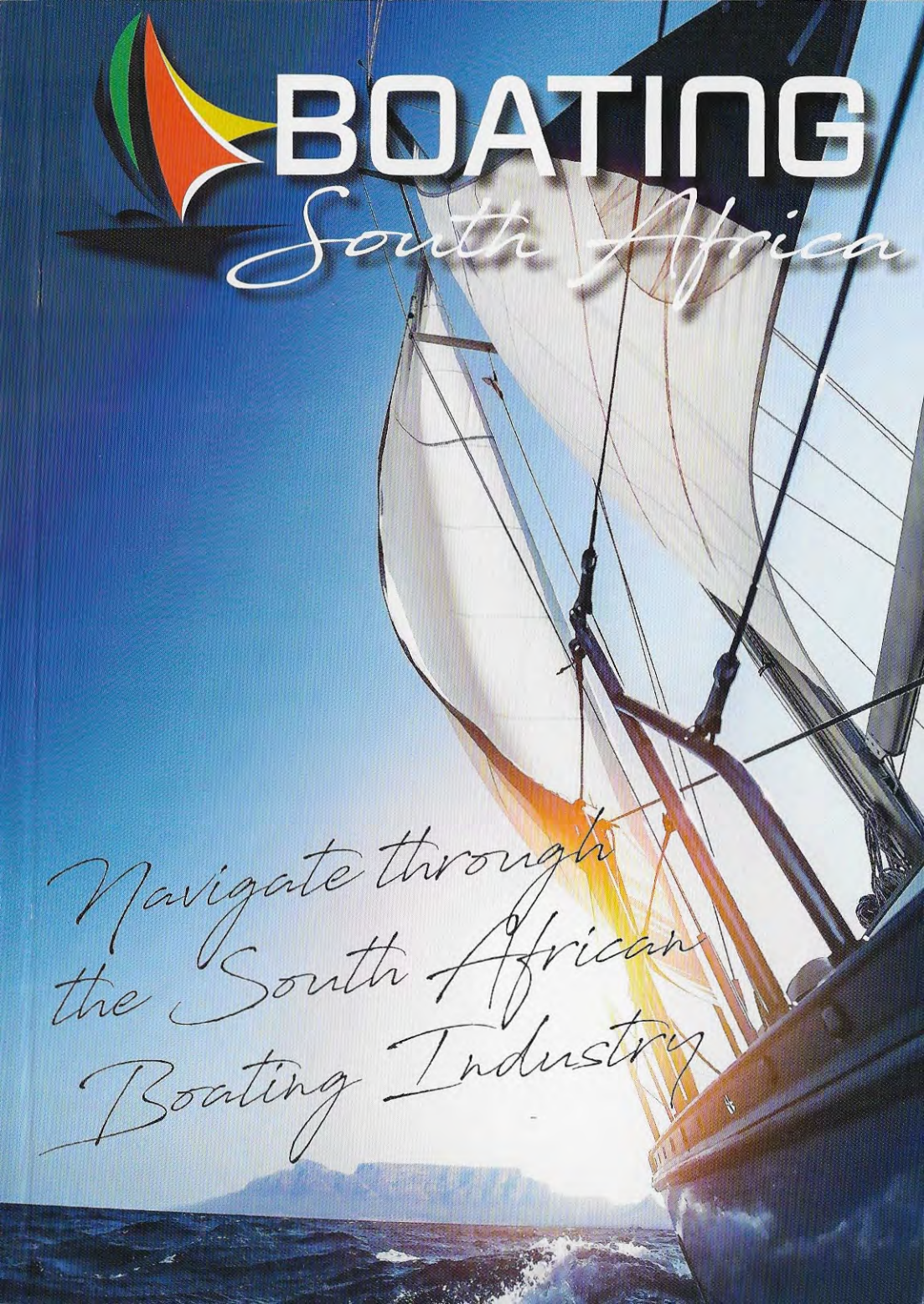
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Crafting South Africa's vision for disabled sailing – the SV14-Project

In 2014, the International Paralympic Committee (IPC) removed sailing from the 2020 Paralympic Games programme. This dramatic move shocked competitive sailors world-wide, but more so the sailors with disabilities. Sailors with disabilities is one of the few sports in which all sailors irrespective of their degree of abilities can participate on equal terms.

Sailing was first introduced to the Paralympic Games at the Atlanta 1996 Games, but only as a sport to promote it – in other words the athletes did not compete for any medals. It became a medal sport at the Sydney 2000 Paralympic Games.

The Para World Sailing Committee who is responsible for sailing people with disabilities worldwide, was completely blindsided by the IPC's decision. According to the IPC, sailing was dropped as it did not meet their (the IPC Handbook's) minimum criteria for worldwide reach. The Para World Sailing Committee clearly has their work cut out for them if they want to see sailing reinstituted in the Paralympic Games. The task ahead is huge. One of the challenges includes the prohibitive costs – it is an extremely expensive sport. Moreover, relying on a commercial strategy to develop and grow the sport is a non-starter, as the effective demand for boats both adapted for and/or specifically designed for sailors with disabilities is too low.

A few people in South Africa, are however not resting on their laurels. They are undaunted by the many obstacles and are developing a viable socio-business model that will demonstrate it is not only the profit motive that can deliver efficient solutions to meet people's needs. Human passion to serve others can indeed be an equal, if not more powerful motivator.

Among the most notable South Africans involved in this quest are people like Peter Jacops, Alex Simonis, Martin Voogd, Russel Volmer, Mandy Latimore and Luan Gray, to name a few.

A South African vision for competitive disabled sailing – the SV14 project

South Africa has an incredibly strong boat building industry, with a well-established international focus.

It was therefore no surprise when in 2015, the challenge went out via social media to create a boat designed and built specifically for sailors with disabilities, as well as easily available to them, Cape Town based designers Alex Simonis and Martin Voogd immediately stepped up to the plate. Peter Jacops, a CE inspector (who posted the challenge) met with Alex and Martin as well as Russel Vollmer, an experienced and active sailors with disabilities (and an ex-commodore of the Royal Cape Yacht Club) to discuss how they could start to help South Africa develop and grow competitive disabled sailing with the ultimate aim of assisting the Para World Sailing Committee get the sport back in the Paralympic Games.

Thus the SV14-project was born – a boat that is modern-looking, safe, versatile, comfortable, affordable and easy to handle by either one or two persons.

The SV14 not only meets the rigorous requirements of efficiently and safely pushing through the water, but also provides a comfortable and adaptable seating arrangement to allow sailors with disabilities to sail and enjoy the ride much as an able-bodied person would - Alex and Martin have given our boating industry the edge, by being the first to design a boat to meet both the requirements of disabled sailors for firstly speed with safety and secondly comfort. But there's more – the SV14 also provides disabled sailors with enormous flexibility – currently none of the boats in this class provide sailors with the flexibility to use their boat with just the mainsail, the mainsail and jib and/or the mainsail, jib and spinnaker. This means that the same boat can be used by a sailor who starts as a beginner, develops to intermediate level and moves on to competitive level.

Russel, who is one of the local 'test-pilots' for the prototype says,"The SV14 demonstrates that South Africa is at the 'top-of-the-tree' when it comes to boatbuilding for sailors with disabilities." Robertson and Caine (one of SA's top boat builders) threw their hat in the ring and built the South African prototype at their cost.

SA Sailing is also keen to assist and are willing to sponsor the building of 5 boats – the challenge is to find a competent boat builder who has the production time and who can sponsor the labour time as well.

Luan Gray, a lifelong sailor and qualified sailing instructor who is pioneering a Disabled Sailing Programme in South Africa has also teamed up with the SV14 project. Luan and Russel believes that adaptive sailing has huge potential for expansion within Africa as a whole.

What exactly is the SV14?

'SV' stands for Simonis-Voogd who designed this impressive sailing boat and the '14' is the length of the boat, i.e. 14 foot.

Simonis says the idea of an affordable craft was inspired by the British Mirror dinghy that was launched in 1963. The Mirror had a simple design and was made of plywood stitched together with copper wire and joints were sealed with glass fibre. Today, there are over 70,000 of these craft, an achievement that is unequalled in this class of dinghy. Simonis explains that the Mirror dinghy can't simply be replicated in South Africa, or elsewhere in South Africa.

"Today we do all our design work on computers, making use of 3D solid modeling programs. This allows us to design a very high level of detailing and accuracy, simply impossible to do by hand. Besides that, all these programs allow us to design better boats and it also gives us the opportunity to generate accurate and efficient output for direct CNC cutting."

The end result of the design is a magnificent sailing boat that can be used not only recreationally but competitively in 'top-class' events such as the Paralymics.

On some of the technical aspects, Simonis says, "This is a 14ft modern yacht which can be completely built out of 10 sheets of 4'x 8' plywood, 1 sheet of 3' x 6' 12 mm steel and 22 x 10' strips of hardwood. Simonis says they prepared a CNC cutting package using these raw materials, which can be put together like a jigsaw puzzle to create the boat in an estimated time of less than 200 man-hours. The amazing thing is the boat can be built by your average DIY guy and with no expensive tools. The materials are also easily available and the plans and cutting patterns can be downloaded at no cost via the internet."

According to Simonis, cutting to 2D CNC is also not a problem. "2D CNC cutting is so widely used that this can also be done all around the world in a place near you."

In short, this is a phenomenal sailing boat that is optimally adapted for disabled sailors to experience being in control of a boat going at speed, with confidence, but at a fraction of the cost.

Excluding labour cost, and other non-essential boat accessories, the boat costs for a basic SV14 (in current terms) is about R50,000.

What are the medium to long term objectives?

Simonis says they are busy rolling out prototypes in South Africa and Thailand and aim to produce prototypes in the USA, Mauritius and the Netherlands. They are managing the building of the boats through the website www.sv14.org, where aspirant boatbuilders can get information on the costs and where to source materials. The site also has information about the project and the design and allows anyone who is interested to register and get the plans to start building. Upon registration, you will get a build number that will be upgraded to a hull and sail number once the boat is finished. Each one will be encouraged to upload information such as who is building it, who it is for and who the sponsor is. The designers also want to introduce a database with information about cost and suppliers around the world.

Russel is excited about the development part of the project which involves getting more sailors with disabilities interested in sailing.

The idea is to possibly start with the Royal Cape Yacht Club as a base and include as many sailors with disabilities as possible in the club's sailing academy, then expand to other areas in South Africa and later the rest of Africa.

This is all contingent on disabled sailing acquiring a critical mass of boats and here lies the biggest hurdle – without the sufficient number of adapted boats like the SV14, the vision for disabled sailing will remain a dream.

While the boats are relatively easy to build, a more representative structure is probably needed to promote the vision, assure quality, safety and leverage resources. The project potentially also offers a great opportunity to create more jobs, sponsored by public funds through coaching and mentoring people selected to build the boats, but it all requires a coherent, well- funded and well thought through strategy using an institution with the capacity to fully realise the vision.

As this cannot be done commercially, a programmatic socio-business model, backed by sufficient resources must be designed and implemented to give the SV14-project a much-needed boost in order to give SA's disabled sailing the momentum to realise their vision to compete at the highest level.

To lend your support and expertise to this worthy cause or if you would like to build or sponsor a boat please contact Alex Simonis on sailing@sv14.org. Also visit the project's website: **www.sv14.org**

Technical Details

The boat is 14ft long (4.35 meters) and is quite wide, with a very modern hull shape and a reversed angled bow similar to yachts seen in the 'round-the-world' races such as the Volvo Ocean Race.

The design adopts the most stringent safety requirements, not unlike those applied to the 'round-the-world' racing yachts. A crew with disabilities has limited mobility, which means the boat must sail as upright as possible – form stability and a low centre of gravity combined with a high ballast ratio (weight stability) optimise stability. The keel therefore, has a low centre of gravity bulb at the bottom, which yields a limit of positive stability close to 130 degrees.

Each combination of two compartments (there are four watertight compartments) carries enough buoyancy to keep the boat afloat, even if there is a breach in one or more of the compartments.

3D modeling enables a modern sleek design with totally developable surfaces – the boat can be completely built out of flat panels. While the bulb has a complex hydrodynamic shape with a requirement to be made out of a high-density steel, it can be simply made combining shapes CNC cut out of a flat plate of 12 mm steel. The bulb which weighs 110kg with a ballast ratio of over 60%, partly helps to keep the boat at optimum heel angle of less than 20 degrees. Limiting the heel allows sailors with disabilities to be seated at an angle either way up to 20 degrees which means they can sit upright in most sailing conditions, thus providing a far more comfortable voyage.

The rig is optimised to release sail pressure when a gust hits the sail. It is a free-standing, tapered mast made out of two standard size sections of aluminium pipe and is based on the international Laser Class (GRP one-man dinghy). The total weight of the boat including ballast is designed to stay under 200kg, and can be towed on a single axle trailer by a standard family car. There is a single lifting point to allow fairly hassle-free lifting of the boat.

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