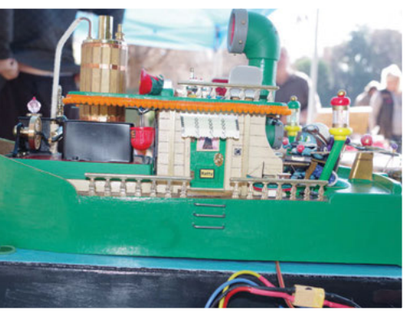

ENGINEERS AT LEISURE

The club has an active sailing division which holds a hotly-contested, year-long club championship. Although there are many different versions of model yachts in the club, it has standardised on the "SeaWind" model for the championship. SeaWind is available as an almost ready-to-sail boat straight out of the box. Since all these boats are identical, it is the skill of the sailor that determines results, not the boat with the most affluent skipper and the best equipment.

All the boats have the same rigs and controls as full sized boats and are very quick and responsive. Although many skippers are big-boat sailors too, they enjoy the convenience of a thrilling race close to home without the expense and chores which accompany big-boat ownership.

The technology used in model boats today has changed significantly from that of the past. ABS plastic has replaced wood in most cases, the non-wind-powered boats are driven by electric motors, powered by rechargeable batteries, and are generally controlled by sophisticated digital UHF radios. Some boats even provide feedback to the shore-bound sailor regarding the motors' speed and temperature, allowing the operator to monitor the boat as though on board.

I am the current chairman of the club. My fleet of boats includes the tugboat *Parat*, manufactured and sold in kit form by Graupner. My other boats include the Graupner twin stern-drive speedboat *Atlantic Challenger*, as well as a trawler, a speedboat, a submarine, a steamboat, and a coaster.

Parat uses a special drive mechanism known as the Voith Schneider drive. This allows the tug boat to move sideways as well as forward and reverse; which is very useful when positioning large vessels in a harbour. The model operates in the same way as the real one.

Challenger is driven by twin jets which draw water in from the dam and forces it out of a narrow aperture in the stern which propels the boat. Steering is achieved by adjusting the output of the jets. This makes the boat very fast and highly manoeuvrable on the water.

Challenger has a special feature designed by my friend Dezi. Sensors, which have been fitted to the two motors that drive the pumps which propel the boat, are used to monitor the temperature and RPM of each motor, as well the amount of current drawn from the battery.

This information is sent via WiFi to a mobile phone which runs a specially written app to display a graphical representation of the state of the motors and the battery in real time. The state of battery acts as a "fuel gauge", while the feedback on the temperature and speed of the motors helps the operator to avoid overdriving them. There are plans to upgrade this system to use a 900 MHz radio system instead of WiFi (to increase signal range) and to include a GPS system to provide accurate speed, position and heading information from the boat.

The club has 40 members, of various ages and skill levels. While most of the members have some sailing skills, some don't. They learn to sail at the dam. Some of the members are able to "scratch-build" a boat – i.e. build a boat using raw materials from plans, drawings or photos of real – or in some cases – imagined boats or ships. The types of ship vary greatly too, from harbour tug boats, navy warships and sail boats, to "fantasy" boats like Steven Geyser's *SS Paddapoop*.

One particularly skilled boat builder, Tertius van Zyl, built his model of the South African navy's warship *Spioenkop* (Valour class frigate F147) from scratch using photos and drawings of the original. His model is highly accurate – even to the motorised method of drawing the helicopter in and out of its onboard hangar. The F147 is not the only ship he's built from scratch. He also built a realistic scale model of *HMS Launceston Castle,* a corvette which was used for anti-submarine convey protection during the Secord World War, as well as a scale model of the Royal Navy's frigate F397, which produces realistic-looking smoke from its chimney.

SS Paddapoop is also scratch built. The boat is based on characters from Kenneth Grahame's *The Wind in the Willows*. Close examination shows Toad at the wheel as well as cabins for Ratty and Mole. The fine detail is exquisite.

An interesting anecdote about the submarine *Seawolf* is how we nearly lost her. The water at Emmarentia Dam is only clear for a depth of perhaps 300 to 500 mm. After that it becomes murky and progressively darker. *Seawolf* is black in colour and on one occasion dived so low that it lost radio contact with the operator. It was impossible to see her from the shore and since we had lost radio contact we couldn't get her to resurface. Eager not to lose her, a diver, James "SlimJim" Hagen, was called in to locate her. After two hours of dedicated work at great depths and in freezing, inky waters, the vessel was finally recovered by the diver, and returned to its joyfull and relieved owner – me. To prevent this from happening again, the conning tower of the sub has been painted bright orange and the radio antenna red.

One of the tug boats, *Smit Nederland* is so powerful that it can tow a small canoe. This is sometimes used to attract the public's attention and to promote the existence of the club.

For a video of a typical club day at the dam,visit https://bit.ly/2mm3Gh4

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