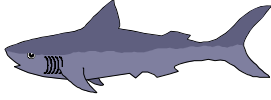


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help define the level of skill required to surf on a particular surfing reef. This is critical because the design characteristics of the surfing reef need to match the skill level of the surfers who benefit from the reef.



### A NEW HYDROGRAPHIC SURVEY LAUNCH FOR ELIOT SINCLAIR AND PARTNERS

By Maurice Perwick

Maurice Perwick, a Director of Eliot Sinclair & Partners Ltd. in Christchurch, commissioned a new survey vessel for their 'Port operations' work in February 2000. The brief was to build a vessel 6 metres in length with good stability and sea handling capability. Trials at sea on a number of aluminium mono-hulls concluded with an order being taken with Newman Marine of Havelock near Picton in the South Island of New Zealand for a SeaRanger 6000. The vessel was delivered in June for work in Nelson Harbour in July.

#### Engines

The choice of engine was restricted to those that

were quiet, economical, four stroke and high amperage (40 amp at 1500 revs). A Honda 130HP outboard motor was chosen along with a 9.9HP four stroke Honda Auxiliary, this with 10 amp output.

This large outboard suits the demands for keeping batteries charged throughout the survey day.

#### Battery Management

Battery charging and daily needs were of great concern when deciding on outboard motors as in the past the logistics of charging batteries on-board or on land are often difficult. A Battery Manager was installed to distribute charge to the two batteries - one starter motor battery and vessel instrumentation, and the other 130amp Deep Cycle battery for 12v survey equipment and inverter for 240v AC gear. This intelligent Battery Manager ensures that both batteries are kept at optimum condition. It is satisfying to see both batteries in the green when you shut down the gear at the end of a day's work and motor back to the jetty.

#### Hydrographic Modifications

The dash was enlarged to cater for Survey Navigation equipment - Trimble MS750, RTK, TSS 320B, Compaq Pentium III running 'Hydro PRO' v1.5 and strengthened to carry an Odom Hydrotrac underneath. The TSS 325 Heave Compensator is mounted over the 200/10° Transducer hull mounted. The fairing around the transducer is unusual but holds bottom lock to 18 knots. A Fluxgate Compass and Radio Telemetry



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The next trial will be to integrate a VGA daylight bright screen for the Helmsman. We use perforated screens on the windows to shield direct sunlight from the cabin, while being able to maintain watch through 360 Deg. available through the extensive windows around the cabin.

Offsets

All the survey equipment is on the same alignment as the Helmsman station. The Helmsman's eye, GPS antennae and transducer are on the same offset from the centreline of the vessel.

It has always been a belief of mine to make the navigation system as simple and as integrated as possible to assist the Helmsman. This reduces fatigue and maintains orientation of the senses to stay in sync with the vessel.

Vessel Accessories

Fore and aft work-lights work are very effective when berthing and surveying after dark, especially in confined berths.

Windscreen wipers and washers ensure good clear visibility at all times. The eyebrow gives some relief from the sun during the heat of the day. The vessel is fully surveyed and operated under Safe Ship Management as required under MSA regulations for all vessels carrying out commercial work. The vessel displays 'Restricted as to Manoeuvrability' symbols by day and lights by night.

Diving

Diving operations are supported by way of a dive ladder on the deck with walk-through transom and fittings for placing bottles fully rigged against the rails.

Handrails

Handrails extend over the cuddy cabin and coach roof to ensure safe travel around the entire vessel. Boat hooks reside fore and aft.

Radios

An Icor VHF Marine Radio and 4 channel CD/radio ensure the quiet and comfort of the vessel is enhanced with cabin and external speakers.

Weather Handling

The vessel has proved itself in adverse weather and sea state and has allowed work to continue when previously our partially open boat would have us drenched and back to shore.

Maintenance & Readiness

The vessel is painted to the waterline and stays clean. The vessel has a dry cabin and all wiring looms for the survey gear are permanently installed. The addition of the computer and Sounder ensure mobilisations are swiftly

<b>Positioning</b>	<b>Specifications</b>
RTK-DGPS	Sea Ranger 6000 (6M)
Trimble MS750	Honda 130HP 4-stroke
	10 HP Honda Aux.
<b>Sounding</b>	Licensed for 8 persons
Odom 3200 Mk1	
Hull mount 200Hz transducer	<b>Communications</b>
Odom Hydrotrak with sidescan (OTS)	Two sets radios
33Hz (OTS)	Real time tide telemetry
<b>AcquisitionProcessing</b>	<b>Motion Compensation</b>
Compaq Pentium III	5 axes TSS 325
HydroPRO v1.3	
<b>Battery Management</b>	<b>Nav/Extras</b>
Switch-mode power supply and 240 volt inverter.	Fluxgate compass
	4 Channel CD Stereo

**SEA IMAGE HYDROGRAPHICS INVOLVED IN CONVERSION OF KLEIN 595 SONAR DATA**

By Peter Knight

Sea-Image Engineer Steve Taylor has been working with Mike Trinder of the Geology Department at the University of Otago on a project to convert the analogue side scan signal from the Klein 595 to a digital record for use with CARIS SIPS.

The system currently being designed and tested is expected to perform the analogue to digital conversion at the post-processing stage. The Klein 595 data is recorded on tape in the field and then later routed through a modem to a computer that performs the analogue to digital conversion.

The digital file is formatted in the Triton .XTF format in order to be read by Caris' Sonar Information Processing System (SIPS).

The conversion of the Klein 595 data to digital form allows for a much enhanced visual display (many more levels of grey); the ability to massage data in various ways, and the ability to create geo-referenced sidescan mosaics.

Sea Image Hydrographics is an applied research group at the Department of Surveying, University of Otago.