STUDENT RESEARCH IN TOP GEAR

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PHOTOGRAPHS BY CAROLINE SCHWEDER

The Bay of Plenty Polytechnic in Tauranga recently unveiled its 11m Ramco Divemaster, the *Okiwa*. The boat was specifically designed to enhance student learning on programmes such as the Diploma in Marine Studies, the Certificate in Maritime and Fishing Technology and the Certificate in Outdoor Recreation.

***Okiwa* going through her paces during delivery sea trials**

The Marine Studies department is the only one of its kind in New Zealand and has been operating since 1991. The *Okiwa* joins three other boats in the polytechnic fleet - two IBC inflatable boats and a 7m IBC inflatable, the *Weka*. The *Okiwa* replaces the recently decommissioned 6m boat *Kiwa*.

A number of meetings between the marine studies, maritime, outdoor recreation and facilities staff explored the requirements of each group and presented a number of options to the polytechnic management.

The boat had to be large enough to transport 16 to 20 divers and quick enough to get to Tuhua (Mayor Island) Motiti and Karewa Islands for day trips. She had to have enough space for diving gear, 40 tanks and a variety of sub-tidal surveying equipment. There had to be space on the back for the maritime department to practice their fishing techniques and she had to be sufficiently robust to last the polytechnic at least 10 years.

The conclusion was that the best value for money with the features required would come from a 10m to 12m vessel. She was designed and built by Ramco, a Hamilton company with an extensive history of building large aluminum boats.

"They are very professional and built the boat to our design, always ensuring open lines of communication as the construction occurred," said Paul Kayes, the Head of the School of Applied Science.

He said the polytechnic was pleased with the outcome and the high level of commitment from Ramco staff in handing over the boat.

The General Manager of Ramco, Don Good, saw the polytechnic as the perfect client. "I can't take credit for the work done, the hero is not me it's the company," he said. "They (the polytechnic) provided a detailed brief and specifications, which made the job that much easier for the team."

The *Okiwa* has an 8mm hull to ensure safety around the shallow rocky survey sites of Tuhua and Slipper Islands. She is powered by twin Johnson four-stroke outboards. Each outboard is a 55 degree V6 design displacing 3614cc, with fuel injection, and produces 165kW at 5500rpm. Fuel consumption averages 31 litres per hour per engine.

The choice of twin outboards was a sensible decision

Outboards were chosen instead of an inboard motor, as that would have eaten into the available deck space. The *Okiwa* weighs 8.5 tonnes and can reach a top speed of 38 knots.

Many of the safety features were driven by Maritime New Zealand survey requirements. As the *Okiwa* is used for diving, a permanent emergency oxygen kit was incorporated beside the two berths in the cabin. A night diving light is also fitted, and mounts for 1m x 1m rigid diving flags installed.

A large number of extra features not necessarily found in pleasure vessels were added, including a variety of flotation devices, fire extinguishers, sealed compartments with individual bilges and an operations manual for a number of different scenarios.

LEFT: The helmstation has been configured for quick reference with every aid to navigation and vessel operation close at hand

LEFT: The forward cabin contains the dining and rest area

"The vessel was purposely designed for the mix of marine research, diving and maritime programmes. She has plenty of grunt to get to the islands off Tauranga Moana, she reduces travel time and increases student learning time," says Paul.

A large amount of training will be undertaken on the boat. A typical day for the Diploma in Marine Studies students will be to use the *Okiwa* for sub-tidal research trips of up to 10 days around Tuhua, Slipper and Mercury Islands. A field trip to Tuhua would see students up at 0630 and on the water by 0800.

Once at Tuhua, students conduct fish surveys at 200 sites, both inside and outside the marine reserve, in conjunction with the Department of Conservation. The survey has been continuing since 1993 and the data is said to be the largest of its kind in the southern hemisphere.

Dive buddies are ready to enter the water when over survey sites previously keyed into a GPS system set to an accuracy of 1m, and follow the deployed shot weight to complete the fish transect. Once information has been collated, the dive buddies are dropped to their next site. Data is transferred across to hardcopy sheets and tanks are re-filled.

The afternoon is a repeat of the morning followed by a tidy of boats, transfer of data, and then entering the hard copy of the data into computers to allow for later analysis. An evening meeting is held to assess the day's success and to plan the following day. All diving carefully follows diving tables and safe practices.

This practical experience has helped graduates work around the world in places such as Sri Lanka, Queensland, Japan, Malaysia

The motors are positioned close together to allow for diver access either side on the transom

and as far away as Kazakhistan.

"A dream goal for the polytechnic would be a 16m to 20m catamaran. That would enable the polytechnic to offer aquaculture, marine biology and maritime programmes to small, harbour-based communities in New Zealand. It could also be used in continued research through the Pacific Islands. A floating classroom ... taking it to the people," says Paul. "If anyone has a spare $2 million, give me a call!"

The polytechnic also offers an aquaculture programme in Kaitaia in partnership with Te Aupouri Maori Trust Board.

Incorporated into the recent launch of the *Okiwa*, the Bay of Plenty Polytechnic unveiled its first Smartpaths programme designed especially for year 13 students, where marine studies will be taught in three secondary schools from 2006.

The course curriculum, developed by Rika Milne, will enable students to learn marine biology, report and identify sea life, and also study snorkelling, scuba diving and underwater surveying. Students earn unit standards in the year-long course.

The work deck area is clear for divers. Note the dive bottle racks under the seats

SPECIFICATIONS

Length overall	11.3m
Beam	3.6m
Draft	530mm
Displacement (unladen)	8.5 tonnes
Engines	2 x 4-stroke Johnson V6 outboards
Power	2 x 225hp
Maximum speed	38 knots
Passengers	20 divers plus crew
Construction	8mm marine alloy
Fuel	900 litres
Water	300 litres
Builder	Ramco Boats
Price as presented	$230,000