ISLAND SCOUT
Built for the Long Haul

ITB's newly-commissioned **Island Scout** is BC's first big new outside tug in years. And while its design and equipment are all modern, it's a towboater's tug through-and-through.

On July 12 this year, following a five-year gestation, Island Tug & Barge's Susan Masi swung a bottle of champagne against the bullnose of the company's **Island Scout**, officially commissioning the 82-foot tug. It was the first commissioning of a deep-sea tug in BC for years, and the **Island Scout** is now certainly the most sophisticated tug on the coast. Although the Island Tug & Barge name goes back a long way, today's Vancouver-based ITB has its roots in Peter Shields' company Shields Navigation, and was built to its current strength by Peter's son Capt. Bob Shields (see "ITB: A Family Affair," **Mariner Life**, June 2005). Island Tug & Barge is a company that likes to do things right: It's an attitude evident in the high-quality of the company's existing fleet of eight tugs and twelve barges, and it's an attitude that's evident in the company's dedication to environmental responsibility. (In April 2005, ITB was the first Canadian tug and barge company to be awarded the Exceptional Compliance Program Award from Washington State Department of Ecology for excellence in marine safety and environmental stewardship.) So it's no surprise that when the crew at ITB set out to build a brand-new deep-sea tug, they pulled out all the stops to build the tug right.

Design and Hull

The hull of the **Island Scout** was built in 2001 at the Jinli Shipyard in Nanjing China, to a design that is basically a slight enlarged version of Seaspan's 1970s Cove-Dixon designed C-Cl tugs (these include the **Seaspan Cutlass**, **Cavalier**, **Crusader** a **Corsair**). These were among the last locally-built tugs to featu a rounded (moulded) hull form — later tugs featured less-expe sive, more easily-fabricated hard chines.

China has a long tradition of skilled steel forming, and tu built for the domestic Chinese fleet typically have moulded hul By outsourcing hull construction to China, Island Tug & Bar was able to take advantage these skills, and have the mould hull built with all double-welded seams, at a competitive pric The finished hull was shipped across the Pacific atop one of IT new Jingling-built double-hulled oil barges, arriving at ITB's Ber Point maintenance facility where the task of turning it from a h into a tug began.

Robert Allan Ltd. was contracted to design the house and f ishing details, and Marc McAllister of McAllister Marine Surv

and Design Ltd. was contracted to manage the finishing out process. After the underwater components were complete and the house roughed in, the partially-finished tug was lifted into the water in July 2005, while it was still light enough to be lifted by derrick. The engines and machinery were then installed with the tug afloat.

Power and Propulsion

In the engine room a pair of Cummins KTA38 M0 main engines, with dual 800/500 HP ratings, are linked by Centalink flexible coupling to Twin Disc MG 5222 gears with 6.10:1 reduction. The flexible couplings provide dual advantages, both compensating for any misalignment between the soft mounted engines and hard mounted gears, and also reducing transmitted engine noise.

> **"The main engines are fitted with Cummins Eliminator and Centinel options, which combined effectively eliminate the need for oil changes."**

Behind the gears, the seven-inch diameter shafts are fitted with dual-caliper Kobelt shaft brakes. These compensate for the weight of the tug's long shafts and heavy 78-inch by 60-inch propellers. Over 20 feet of each shaft pass through oil bath tubes with Wartsila oil seals at either end.

The twin nozzle-mounted props each have double rudder blades behind them. The fully redundant Jastram steering system allows the two sets of rudders to be operated either independently or in synchronized mode. A pair of 99 Kw gensets, powered by by Caterpillar 3306 diesels with hydraulic power take offs, round out the engine room. The **Scout** is equipped with both AC power and 24-volt DC power, with Comar Electrical Services supplying much of the equipment and installation. The towing and hawser winches and the 150-horsepower bow thruster are all driven hydraulically.

The main engines are fitted with Cummins Eliminator and Centinel options, which combined effectively eliminate the need for oil changes, thus reducing operating and maintenance costs while also reducing the amount of waste oil products that need to be dealt with. The Cummins-designed Eliminator removes all disposable lube oil filters. The Centinel Oil Management, an oil burn system, works in conjunction with the Eliminator to virtually negate the need for oil changes and waste oil disposal.

Machinery and Controls

Designed for both pushing and towing, the **Island Scout** is fitted with a custom-designed Burrard Iron Works HA series headline winch with a 50,000 pound pull, while on the aft deck there is a massive Burrard Iron Works HF model single drum towing winch capable of carrying 3000 feet of 1.75-inch towing wire. Sheaves built into the aft bulwarks allow lines to be led forward to snug the tug onto barges in push mode.

The control systems for the **Island Scout** are where the full force of modern electronic technology have been brought to bear. Like many modern boats, the **Scout** has no wheel. Directional control is by either jogs or a joystick, and all systems are electronically-controlled. The real magic lies in the ability of the integrated electronic control systems to work together and switch between manual and fully automatic, integrated control.

In full-manual mode, the rudders on each side are are controlled independently with individual jogs, while Kobelt throttles control engine speed. The bow thruster has its own control, as expected. Switch to synchronized mode, and the rudders are synchronized to work together from a single jog. Switch up further to joystick control and all the control systems — for rudders, throttles and bow thruster —are automatically coordinated for "point and go" control. Push the joystick forward and to port, the tug will crab forward and to port while continuing to point ahead. Twist the joystick and the tug will rotate to face in the new direc-

Simon Hill photo

*Project manager Marc McAllister stands against the big Burrard Iron Works HF series winch on the **Island Scout's** aft deck. Working on the project, he says, has "been a thrill."*

Simon Hill photo

*Power for the **Island Scout** is a pair of Cummins KTA38 M0 main engines with dual 800/500 horsepower ratings, linked by Centalink flexible coupling to Twin Disc MG 5222 gears with 6.10:1 reduction.*

tion. All automatically, and completely seamlessly. It's an impressive system, but one, McAllister admits, that has taken a good deal of effort to get set up and functioning correctly.

Accommodations

The hull, in order to conform to Canadian regulations requiring crew accommodations to be above the vessel's waterline, features a raised fo'c'sle for crew sleeping quarters on the main deck level. At the aft end of the main level is a spacious crew lounge/mess and impressively big galley. On the second level of the aluminum two-story house has additional sleeping quarters (including captain's cabin), with the wheelhouse above that. The elevated wheelhouse allows the tug operators good visibility (through Manly Marine windows) when pushing a light oil barge, and the aft-facing control station is carefully positioned to allow a view of the main winch while at the controls.

All cabins are finished to a yacht-like level of finish, and th are plenty of features designed to ensure crew comfort, such high-flow ventilation fans and stainless appliances in the ga showers on each accommodation level and built-in desks cabins. As well, a great deal of attention has been put into so deadening to keep the working and living environment as q as possible.

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Showing admiring visitors around the tug, project manager M McAllister admits that no expense was spared to ensure l term reliability in the **Island Scout**. Capt. Bob Shields knows

*The **Island Scout** was launched into the water, less engines and machine in July 2005. In this photo taken during the water launch, the the tugs ro moulded hull form is clearly visible.*

Simon Hill photo

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value of reliable equipment, and wherever there was a choice between economy, or reliability and ease of maintenance, he invariably went with the system that would be reliable and easy to maintain.

The tugs that have come before the **Island Scout** have themselves been performing for decades, and now with the **Island Scout** entering service, the West Coast will have one more tug that is designed and built to operate safely and efficiently for decades to come. "It's been a thrill to be involved with it," comments McAllister. For the lucky crews assigned to it, it should be a thrill to work aboard.

Simon Hill photo

photo courtesy Alan Haig-Brown

*(clockwise from top-left) The aft-facing control station is carefully positioned to allow a view of the main winch while at the controls; The main control station is equipped with jogs for the port and starboard rudders, plus a joystick (at right below the intercom handset) for running the tug in fully-automatic integrated mode; Dual-caliper Kobelt shaft brakes control the **Island Scout's** substantial shafts and big props; The **Island Scout's** galley rivals some commercial kitchens in size, and is equipped with all-stainless cabinets and appliances, and a high-flow ventilation fan.*