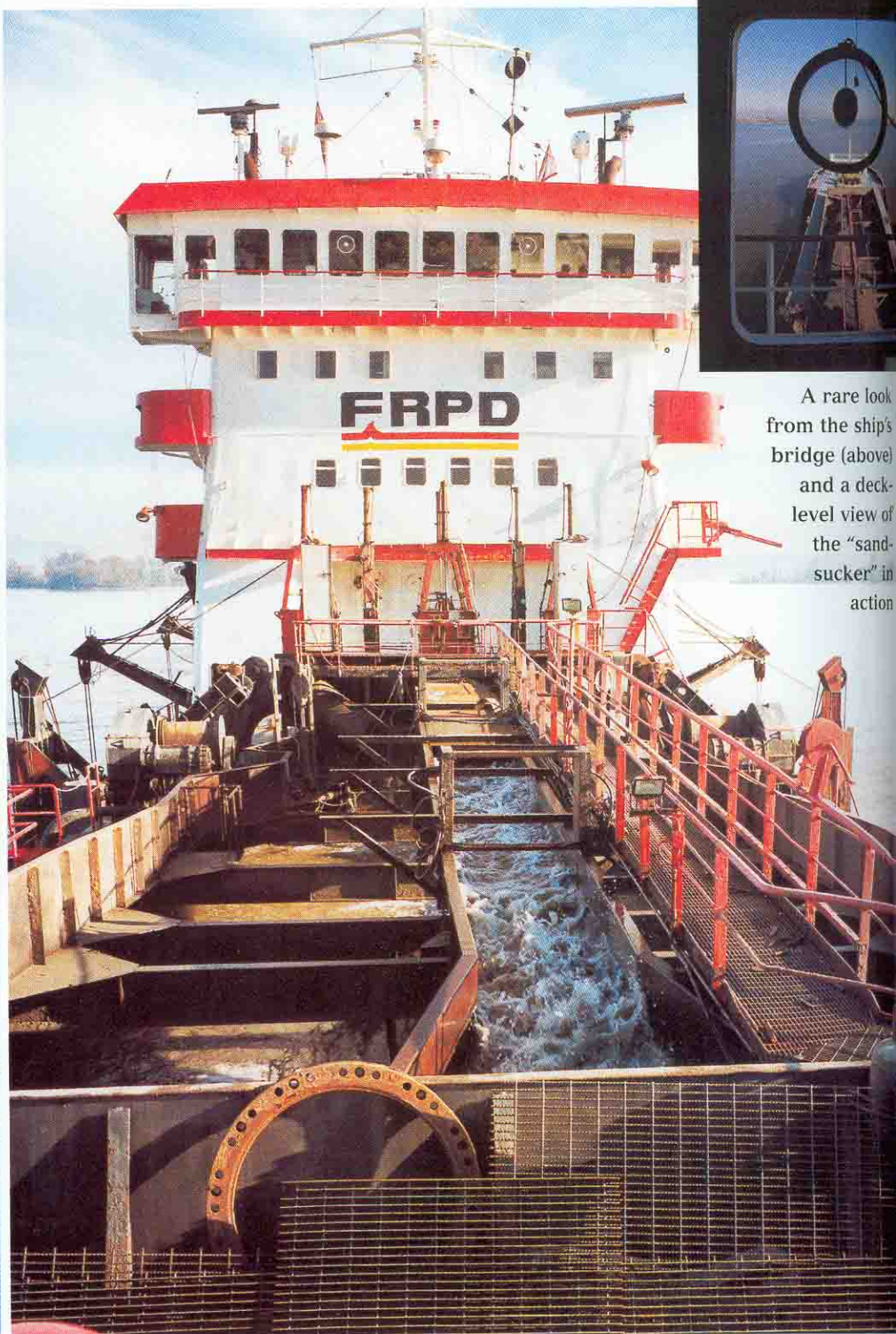


Keeping channels

By Correspondent Tonia Jurbin

The Fraser Port, north of Vancouver, is Canada's largest freshwater port covering about 100 km of the Fraser River, 227 kms of which is shoreline. Shipping and trade-related activities along this mighty river account for \$1.4 billion towards Canada's GDP and create about 24,000 jobs, 6,000 of which are in the lower mainland. Twenty-two million tonnes of cargo valued at about \$9.2 billion pass through this port annually, and, it is also Canada's major auto-port. The port is administered by the Fraser River Port Authority (FRPA) which was formed in 1999 when the Canada Marine Act created a system of port authorities designed to increase financial autonomy and assist with trade through more effective interaction with port stakeholders. Prior to that, the Fraser River Harbour Commission administered the port.



A rare look from the ship's bridge (above) and a deck-level view of the "sand-sucker" in action



els clear

Maintaining the navigation channel serving B.C.'s Fraser Port is essential to helping ensure that cargo vessels safely reach the public and private docks upstream. But more importantly, that same maintenance work also contributes in large part to flood prevention along the Fraser River as about 1.2 million m³ of sediment enter the channel each year during the freshet when the flows are at their highest levels.

As part of restructuring, the Canadian Coast Guard (CCG) recently withdrew from the responsibility of maintaining the channel, thus creating a major challenge for FRPA to contend with. In the interest of efficiency, the FRPA solved its problem by entering into a 10-year partnership with Fraser River Pile & Dredge (FRP&D), a private contractor located in New Westminster.

The contract is worth about \$30 million and will generate about

40,000 person days of work.

With extensive experience along this river, FRP&D is well equipped to carry out the job with a combination of dredging equipment including its 660 mm dia cutter suction dredge the Columbia and, the biggest "sand-sucking" river bottom dredging ship on the Fraser, the 3420 m³ Fraser Titan.

Prior to the FRPA taking over responsibility for channel maintenance, some contracts were awarded every one to three years, with most of the work going to FRP&D since 1989 when they purchased the Fraser Titan.

The contract is to maintain a 10.7 m draft from the mouth of the river to 28 kms upstream annually by



Dredging Manager Tino Isola talks with H.C.N. correspondent Tonia Jurbin from the bridge of the ship.

October 1st. The 10.7 m is the design grade, a further 0 to 2 m subgrade has to be dredged by March 1st in predetermined locations. The work starts at the end of the freshet sometime in August when the flow at Hope, about 190 kms upstream, is less than 5000 m³/second.

During the freshet, sediment is constantly being transported and deposited making it impractical to remove and, furthermore, unsafe for the crew to try. Dredging is also shut down during the fish runs from sometime in March to sometime in June. The rest of the time, from about late August to early March, The Fraser Titan is working 7/24's.

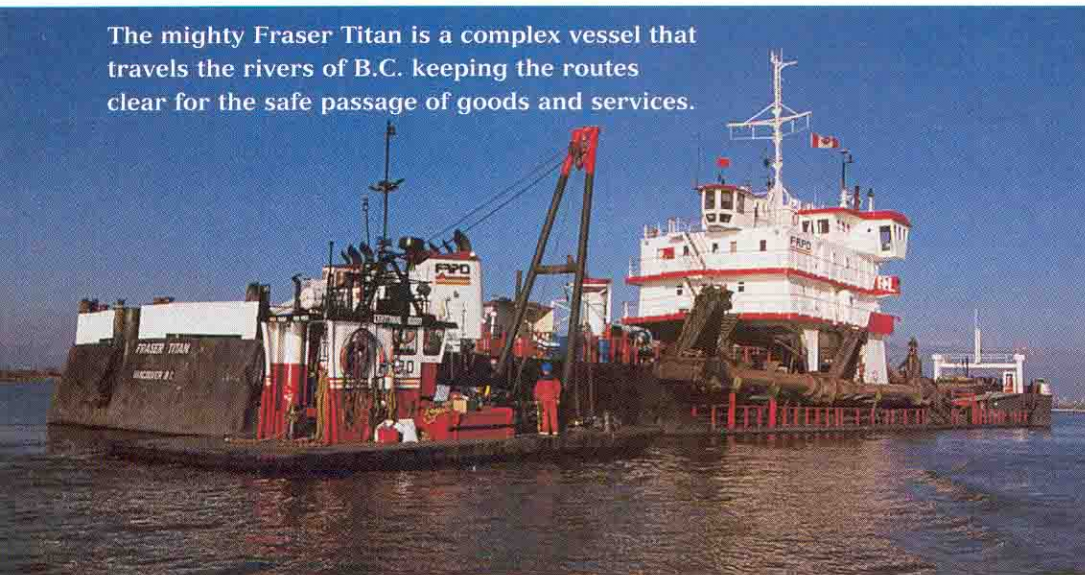
The ship was built in 1969 and refitted in 1989. It's about 95 m long and 16 m wide. It consumes about 17,000 litres of fuel a day to run the 3 - 772 kW propulsion engines, the 2 - 625 kW dredge pump engines, and the 4 - 265 kW generators.

It's home to a crew of about 14 during the dredging season; 3 bridge officers, 5 engineers, 2

Dredge operator Dennis Whitford checks monitors during dredging operations.



The mighty Fraser Titan is a complex vessel that travels the rivers of B.C. keeping the routes clear for the safe passage of goods and services.



dredge operators, 2 deckhands and one revered cook. FRP&D has negotiated special permits for the crew to work the irregular six-hour shifts. A number of support staff and managers may visit the ship daily or infrequently depending on their role. They are picked up at a nearby dock (usually sometime before lunch), run out to the ship and run back when they're done.

At the end of the freshet, the CCG does a hydrographic survey of the navigation channel which is updated weekly. These surveys are passed onto the FRPA and in turn to FRP&D who feed the hydrographic data into the ship's onboard navigation software. The data is accurate to within about half a metre.

Once the data is collected and input, the FRPA, FRP&D's management, and the Fraser Titan's bridge crew work co-operatively to define the problem areas and determine the sequence and locations to be dredged to meet the October 1st design grade deadline.

This deadline is inflexible because of the importance of the port traffic to the region.

During the dredging, the Titan runs up and down the river with the dragarms on the river bottom being carefully monitored in the dredge shack. The port and starboard dra-

garms are controlled and monitored by the dredge operators. From the dredge shack, the operator can monitor the position of the dragarms, ship speed, ship draft at forward and aft, displacement by tonnage, velocity of the incoming flow (the ship has to move faster when dredging finer material), and the density of the dredgate (% of water vs. % of material).

Once the forward and aft hoppers are full, the sand is dumped from the 10 hopper doors at the bottom of the ship at a designated transfer pit. There are three designated transfer pits along the river that are about 400 m by 100 m and whatever depth

is required. The mudline has to be restored at the end of the dredging season.

Once the material is dumped, the Columbia takes over; its job is to pump the sand from the transfer pits to one of the five FRP&D sand re-sale depots.

Revenues from the dredgate are shared between the FRPA and FRP&D.

Tino Isola, the project manager of the dredging division for FRP&D, is

responsible for negotiating the union agreements, sand sales and managing the ship and the dredging program.

"The biggest challenge is to sell as much of the dredgate as we can, and that's not always easy during a downturn in the industry. It's not always possible to stockpile the material either," says Tino. "The sand is aggressively marketed."

Commonly used as structural fill, or preload, when it is not possible to stockpile the material, has to be dumped in pre-approved ocean dumping sites. FRP&D gets paid per unit of material removed. Revenue sharing from the sand sales are negotiated under a separate contract. ♦

