

HARBOUR & SHIPPING

JANUARY 1985



(see inside story)



Shore Boat Builders Ltd.

23511 Dyke Road, Richmond, British Columbia 524-1341

Builders of Fiberglass and Aluminum Vessels



Fiberglass Hull for Patrol Vessel

Early in November the Department of Fisheries and Oceans commissioned the FPV **Bajo Reef**, a 57-foot fiberglass vessel specifically designed for inshore fisheries patrol work in the Pacific region.

The vessel has an overall length of 57 feet, 4 inches (17.50 m) and a waterline length of 53 feet (16.20 m). Moulded beam is 17 feet, 1 inch (5.20 m), moulded depth, 10 feet, 1.5 inches (3.10 m) and draft aft, 7 feet (2.10 m). The vessel has a displacement of 42 light tons, and can accommodate five persons. Tank capacities are 1,260 Imperial gallons (5,730 l) of fuel and 350 Imperial gallons (1,590 l) of fresh water.

The Minister of Fisheries and Oceans asked Mrs. Ruth Kendall, president of the Semiahmoo Fish and Game Club to sponsor the **Bajo Reef** in recognition of the contribution she and the members of her club have made to the rebuilding of salmon and trout stocks in the Little Campbell River. In 1977 the club purchased land along the river to protect it from industrial and urban encroachment. They subsequently worked to improve the stream habitat and, in 1982, built an enhancement facility to increase salmon and trout production.

The vessel is named after a dangerous reef located off Nootka Sound, 49° 34.38'

N, 126° 48.8' W. "Bajo" is a Spanish word meaning underneath or below, and was given to the reef and a nearby point by Captain Alejandro Malaspina when he explored the area in August and September 1791 with the ships **Descuierta** and **Atrevida**. The reef had also been noted by Captain Cook when he sailed into the Sound in March, 1778.

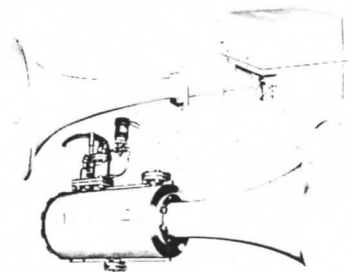
The new fisheries patrol vessel will be used on the west coast of Vancouver Island, the Queen Charlotte Islands, and the mainland coastal waters of B.C.

The design for the **Bajo Reef** was developed by Peter S. Hatfield Ltd. of Vancouver, B.C., with considerable

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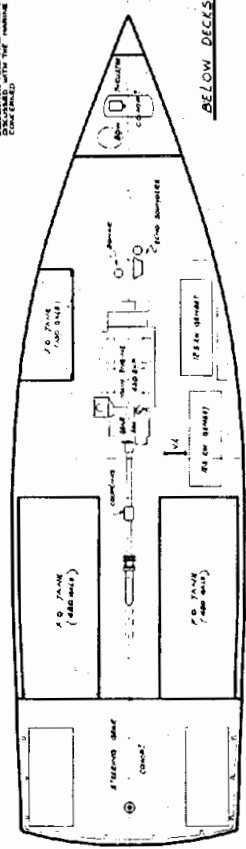
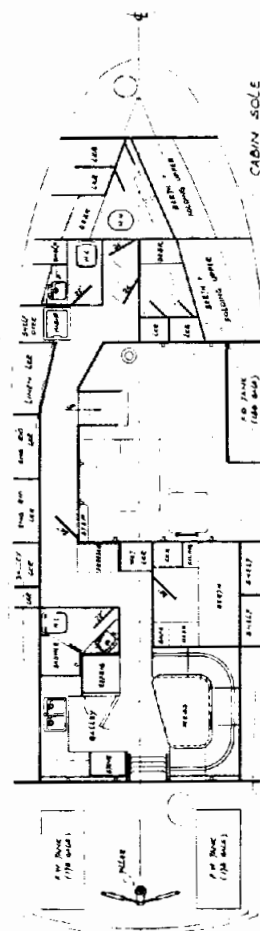
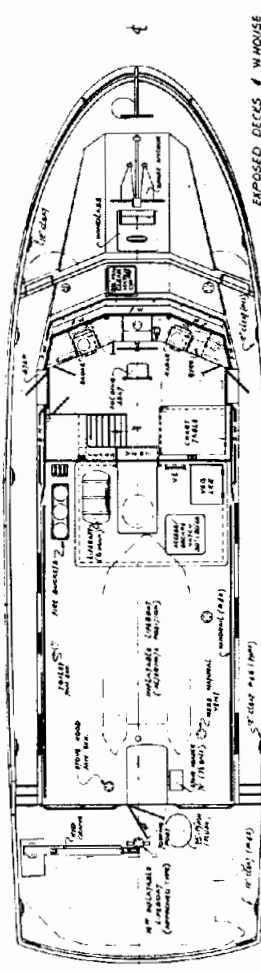
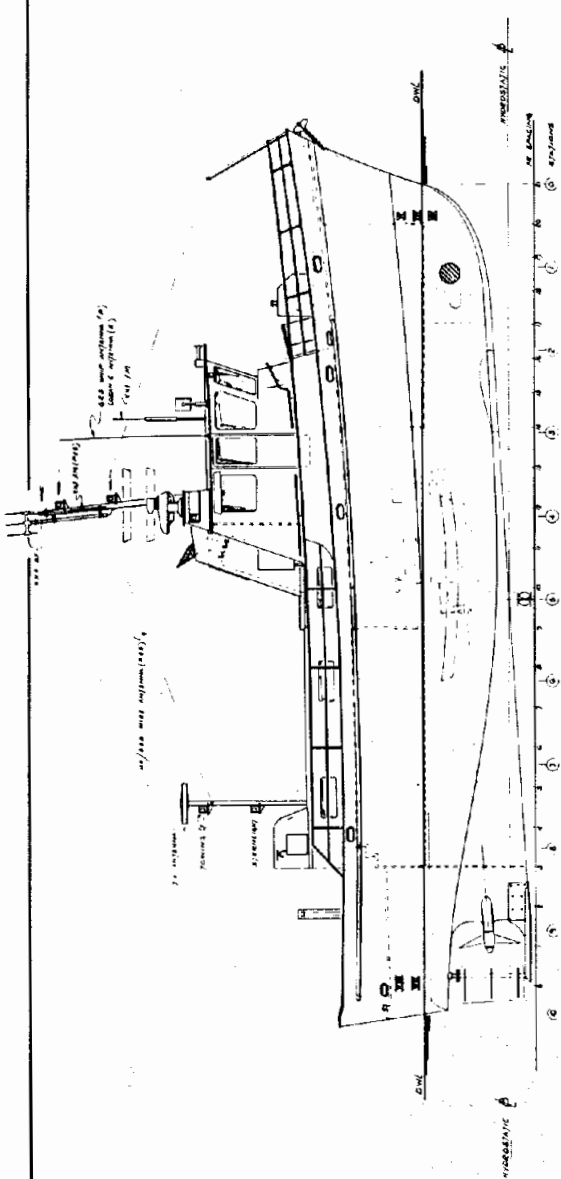
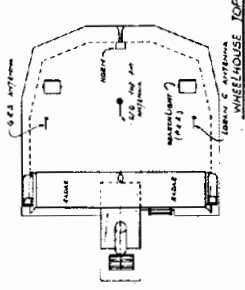
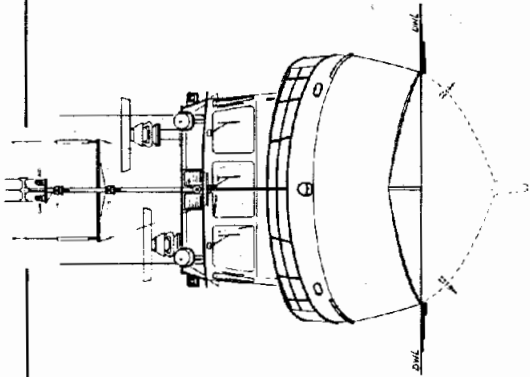
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PRINCIPAL PARTICULARS

LENGTH (ft)	64.3
BREADTH (ft)	22.0
DEPTH (ft)	10.5
DISPL. (GROSS)	1,117
NET TONNAGE (GROSS)	57.8
NET TONNAGE (NET)	57.8
POWER	430 HP
COMPLEMENT	MAN/BOAT + CREW

CAPACITIES

FUEL OIL	7500 IMP GALS
FRESH WATER	250 IMP GALS

CLASSIFICATION

ABS "M" FISHERIES PATROL VESSEL
 ICG VESSEL TRADE 1

D. APPROVED BY ABS SAFETY NO. 1, 1985	
C. SIZE: 64.3 x 22.0 x 10.5	NO. 1
B. APPROVED BY ABS SAFETY NO. 1, 1985	NO. 1
A. APPROVED BY ABS SAFETY NO. 1, 1985	NO. 1
SC "M" FISHERIES PATROL VESSEL	
FISHERIES & OCEANS CANADA	
GENERAL ARRANGEMENT	
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NO. 100	NO. 100

PETER S. HATHREID

"BAJO REEF"

SPECIFICATIONS AND PRINCIPAL PARTICULARS

Owner Department of Fisheries & Oceans
Designer Peter S. Hatfield Ltd.
Builder Shore Boat Builders Ltd.
Ship Model Testing B.C. Research Ocean
..... Engineering Centre
Length Overall 57 ft. 4 in. (17.5 m)
Length Waterline 53 ft. (16.2 m)
Beam Moulded 17 ft. 1 in. (5.2 m)
Depth Moulded 10 ft. 1.5 in. (3.1 m)
Draft Aft 7 ft. (2.1 m)
Fuel Capacity 1,260 Imp. Gals. (5730 L)
Fresh Water Capacity 350 Imp. Gals. (1590 L)
Complement Master & 4 crew
Classification ABS A1 Fisheries Patrol Vessel
..... CCG Home Trade II
Propulsion Engine One Caterpillar 3412 DITA
..... Diesel developing 425 HP at 1200 rpm
Reduction Gear One Twin Disc MG 520
..... with 2.02:1 ratio
Propeller One 4-bladed stainless steel Osborne
..... Diameter 48" (1219.2 mm), Pitch 33" (838.2 mm)
Auxiliary Engines ... Two Northern Lights Model 854
..... driving two 18 kW 115/230 generators

LIST OF MAJOR SUPPLIERS

Main Engine (Caterpillar), Reduction
Gears (Twin Disc) Finning Power Products
Propeller (stainless steel) Osborne Propellers Ltd.
Main Propulsion and Bow Thruster
Controls J. Kobelt Mfg. Co. Ltd.
Bowthruster (18") Westec Equipment Ltd.
Auxiliary Engines & Generator
Sets Van Isle Power Systems
Steering Gear Wagner Engineering Ltd.
Anchor Windlass & Complete Hydraulic
System Hytac Equipment Ltd.
Pumps & Compressors Pumps & Power Ltd.,
..... Rotair Industries Ltd.
Sanitary System (Vacuflush) Intermann Marine
Fresh Water Maker (ER-40) . Seagold Industries Corp.
Engine Alarm System Prime Mover Controls Inc.

Internal Communication System

(Mimcom 10) Canadian Marconi Co.
Navigation Light Panel Sea Sentry Marine Ltd.
Inflatable Life Raft Beaufort Air-Sea Equipment
..... Canada Ltd.
Life Boat C.W. Lucas Ltd.
Fire Fighting System (Halon) Air-Sea Systems
Paints & Coatings . International Paints (Canada) Ltd.
Heating & Ventilation Tri-Metal Fabricators Ltd.
Deck Coverings Raeco (Western) Ltd.
Insulation Fleck Bros. Ltd.,
..... F. Drexel Co. Ltd.
Oily Water Separator Les Hall Filter Service Ltd.
Exterior Doors, Hatches & Windows,
Port Lights Sea-Glaze Marine Windows Ltd.
Mooring Lines Wolff Marine Supply Ltd.
External Communication System: Regency
VHF/ARDF, Raytheon VHF, Distress
Alarm Generator Frederick Goertz Ltd.
Radars (2 Furuno) Hy-Seas Marine Electronics
Navigational Sounder (JRC) Canadian Marconi
Colour Sonar C.R.C. Electronics
Accoustical Design, Silencers, and
Floating Wheelhouse Design ... Vibrasonic Controls
Deck Crane (Tico) Danco Equipment Ltd.
Whistle Airchime Mfg. Co. Ltd.

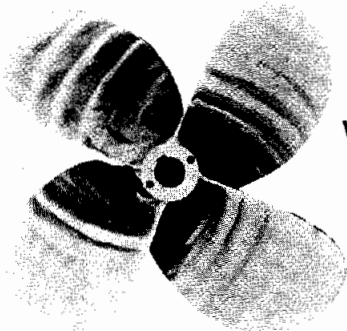
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regional input from Captain B.G. Irving, Chief, Ship Division, Support Services Branch, DFO, who ensured the vessel would meet the requirements set out for the service. The technical expertise and project management during the construction period was provided by the staff of J.M. Cutts, Director, Ship Branch, Ottawa.

Before the detail design of the hull was finalized, a comprehensive series of model tests was carried out at the B.C. Research Ocean Engineering Centre at

Vancouver. The model tests included resistance at a full range of speeds with all appendages, wake surveys to aid in propeller design and qualitative seakeeping.

The **Bajo Reef** has a semi-displacement type of hull form, round bilge forward with a hard chine aft. The hull is made of fiberglass reinforced plastic (FRP) using "Airex" sandwich construction. The deckhouse, deck, floors and bulkheads are balsa core FRP, and the wheelhouse is aluminum. The vessel was built to

American Bureau of Shipping Workboat Rules for Reinforced Plastic Vessels, and during construction was inspected to Class A1 Fisheries Patrol Vessel. It also complies with Canadian Coast Guard regulations for Canadian Home Trade II Service.

Shore Boat Builders Ltd. handled all construction of the **Bajo Reef**, including the building of the plug and female mould, which comprise the tooling for the vessel.

The hull form was chosen to enable a maximum operating speed of approximately 11½ knots with a single engine installation of approximately 450 BHP rating. The engine chosen for the main propulsion unit was the Caterpillar 3412 DITA Marine Diesel, producing 450 BHP at 1200, which drives a single 4-bladed stainless steel propeller through a Twin Disc MG520 reduction gear with a ratio of 2.02:1. Finning Power Products supplied the engine and reduction gears while the propeller was manufactured by Osborne Propellers Ltd.

The vessel also has an 18-inch hydraulically-driven bowthruster for greater maneuverability at low speeds. The bowthruster was supplied by Westec Equipment Ltd. while Hytac Equipment Ltd. supplied the anchor windlass and the hydraulic system. Hydraulic power is provided by power take offs from the main engine and from one of the vessel's two auxiliary engines.

The auxiliaries, supplied by Van Isle Power Systems complete with switch boards, are two Northern Lights Model 854 18 kW generator sets.

Controls for both the main engine and bow thruster were supplied by J. Kobelt Manufacturing Company Limited. Wagner Engineering Ltd. provided the steering gear. The engine room is protected by a Halon gas fire fighting system installed by Air Sea Systems, and Prime Move Controls Inc. supplied the engine alarm system.

A feature of the vessel's arrangement is that the machinery space components can readily be removed through a large hatch

Continued on Page 36

Safety by Beaufort and Air-Sea Systems

When Shore Boat Builders needed integrated fire protection and survival equipment for the M.V. BAJO REEF, they turned to the Safety Specialists; Air-Sea Systems and Beaufort.

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in the deckhouse top. It is envisaged that, whenever possible, items of machinery will be removed from the vessel for shop work ashore rather than repaired *in situ*.

The **Bajo Reef** is equipped with sophisticated communications equipment so that even when working in the deep fjords of the B.C. Coast, the crew can maintain contact with their marine base and the West Coast Fisheries headquarters, and communicate with the commercial fishing fleet and other vessels, including ships at sea. Most of this equipment was supplied by Frederick Goertz Ltd., including a Regency VHF/ARDF radio, a Raytheon VHF radio, and a distress alarm generator. Other wheelhouse equipment includes an SR50 gyrocompass from Sperry Inc., two

Furuno 1011 72-mile radars from Hy-Seas Marine Electronics, a JRC model JFF200 navigational sounder from Canadian Marconi, and an SS265 colour sonar from C.R.C. Electronics. The internal communications system is a Mimcom 10 supplied by Canadian Marconi, and Sea Sentry Marine Ltd. supplied the navigation light panel.

As well as the windlass and capstan mentioned above, the deck equipment includes a Tico crane from Danco Equipment Ltd. The vessel carries a life boat from C.W. Lucas Ltd. and an inflatable 6-man liferaft from Beaufort Air-Sea Equipment Canada Ltd.

The Vacuflush sanitary system was provided by Intermann Marine and Seagold Industries supplied the vessel

with an ER-40 fresh water maker. Tri-Metal Fabricators fitted the heating and ventilation system. Other equipment fitted includes an oily water separator from Les Hall Filter Service Ltd., a whistle from Airchime Manufacturing Co. Ltd. and pumps and compressors from Pumps and Power Ltd. and Rotair Industries Ltd. Insulation was supplied by both Fleck Bros. and F. Drexel Co. Ltd. Accoustical design for the vessel was undertaken by Vibrasonic Controls, who also designed the floating wheelhouse. In addition Vibrasonic supplied silencers for the main engine and the diesel generators.

Paints and coatings used on the **Bajo Reef** were from International Paints (Canada) Limited, and Raeco (Western) Ltd. supplied deck coverings. Heavy aluminum-framed windows and port lights fitted with 3/4 inch thick tempered glass and aluminum weather-tight doors were manufactured and supplied by Sea-Glaze Marine Windows Ltd.

Assistance in launching the vessel was provided by Willies Boat Moving.



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