THE MARIPORT GROUP LTD.

REPRESENTATIVE PROJECTS IN SHALLOW DRAFT MARINE EQUIPMENT AND OPERATIONS

Mackenzie River

Dredging Cost/Benefit Study (Canada)[1]

Undertook a detailed operating cost analysis under status quo river depths; and assuming various changes in depth and configuration at critical points, determined that much of the benefit to be achieved by dredging could be obtained by changes in operating practices.

Over the Top Shipping Study

Undertook a preliminary analysis of the opportunity to ship large modules via the Arctic and the northern river system to the Alberta Oil Sands

Shipment of Calcined Bauxite - Demerara River (Guyana)[2]

Undertook an analysis of operational needs and costs relative to the movement of calcined bauxite from a mine 65 miles up the Demerara River. Recommended alternative shallow draft equipment to minimise transfer costs to ocean vessels.

Kaolin Clay Movements - Belem (Brazil)[1]

Undertook a detailed analysis of Kaolin clay delivery from an inland site 340-km up a shallow river to a processing location near Belem. Evaluated deep sea access relative to limited draft port location, and simplified original engineering proposals to develop a cost-effective berthing arrangement.

Shipment of Water - Morgan's Bluff, Nassau (Bahamas)[1]

On behalf of both the operating authority in the Bahamas and the World Bank, provided various analyses and advisory services over a 15-year period for shipment of water from a shallow draft port with a difficult access to Nassau.

Shipment of Salt – Iles de la Madeleine to Quebec and E.C. USA Destinations[1]

Worked closely with both the client and environmental bodies to develop a suitable shipping operation out of a shallow water lagoon to various destinations. Was able to achieve close to Seaway draft equivalent. Later, worked with the client to fine tune the shipping operation, minimize costs and maximize lift with minimal underkeel clearance.

Ports Master Plan - Turks and Caicos Islands[2]

Shipping costs to and within the Turks and Caicos Islands are high because available water depths are very low. Analyzed needs, costs and economic benefit, and recommended transshipment via a single relatively deep draft port to overcome problems.

Shipment of Cement Within the Great Lakes[1]

Analyzed the movement of cement within the Great Lakes to determine the optimum vessel size to maximize lift on very limited draft at one port and a tight access channel at another port. Barge configuration proposed was approved by the naval architects and constructed.

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[1] Undertaken wholly, or in part, by Mariport principals prior to establishment of the company.

[2] Subcontract to prime consultant.

River Navigation Study – Bangladesh[2]

As part of an economic impact study of dredging within a river system, evaluated the existing fleet of vessels and recommended new vessel configurations that permitted enhanced capability under extreme shallow draft conditions. Vessels currently are conventional single screw coaster types with low block coefficients. Provided a conceptual design, suitable for module pre-fabrication, of a high block coefficient, twin screw, tunnel stern inland waterways type craft.

South Dock Reorganization & Implementation – Turks & Caicos Islands[2]

Development in Providenciales, TCI, has been so rapid that the island port had become dangerously over-utilized. Developed a phased reorganization plan and a D.B.O.T. concept that would work within government's funding capability.

ATB Design

For a company planning a new ATB for Arctic service, worked with the client's naval architects to optimize capacity around limiting drafts into certain key communities in the Eastern Arctic.

Heavy Oil Development - Madagascar[1]

Undertook a comprehensive port and logistics scoping exercise for support of heavy oil development at Tsimiroro and Bemolanga. The evaluation included road, air, marine and air cushion systems for delivery to the site as well as costings for primary supply of logistics materials to Madagascar. Through transportation and delivery costs were developed and a recommendation made as to the appropriate system. Access is severely draft limited.

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EXPERTISE IN SHALLOW DRAFT MARINE EQUIPMENT AND OPERATIONS

In many marine operations, the provision of deep draft facilities is either impractical, for environmental or technical reasons, or it is uneconomic. If costs of adapting the geography of a region are not cost effective, then adapting marine equipment to meet existing or marginally improved locations often is.

Shallow draft or specialized equipment can be built, or converted, to handle a wide range of shipment problems, from shallow ports in the Caribbean to beach landings in the Arctic for mine support.

Mariport has developed an in-house capability over many years relative to providing marine service in shallow, difficult access or hazardous locations around the world. We can draw on examples of marine systems that can operate in as little as 4-feet (1.2m) of water.

Such concepts can also be readily applied to other ship sizes and relative water depths up to ULCC (Ultra Large Crude Carrier). By adjusting ship design parameters, propulsion and manoeuvring devices, vessels can be created to meet unusual physical restraints.

In many circumstances, because of the separation of power source and cargo unit, tugs and barges can be highly effective. For short-haul operations, powered barges may also provide effective solutions. Barges can meet unusual draft/length/breadth restraints in port approaches or manoeuvring through restricted channels. Mariport has significant capability in the application of tugs and barges to marine transportation needs.

[1] Undertaken jointly with other consultants, or under sub-contract.