
The Marine Group Services Ltd

Harbour Management and Dredging



July 2025

Table of Contents	Page
1. Introduction to The Marine Group Services Ltd	3
The Marine Group is a Comprehensive Marine Service Business	3
2. Water Injection Dredging	4
The Method	4
The Benefits	5
Applications	5
Environmental Considerations	5
3. Plough Dredging	7
Applications	7
4. Project Capability	8
The Marine Group Services Ltd – Dredging Vessels – Doonhamer.....	8
The Marine Group Services Ltd – Dredging Vessels – Amy Jane.....	9
5. Case Studies	10
Plymouth Yacht Haven	10
Grimsby Fish Docks.....	13
Port of Blyth	15
New Holland Dock	18
Sands and Gravels at Blyth	21

1. Introduction to The Marine Group Services Ltd

The Marine Group is a Comprehensive Marine Service Business

Our boatyard premises provide some of the largest and most comprehensive facilities in Wales and cover the full range of services from boat repairs to engine servicing and replacement.

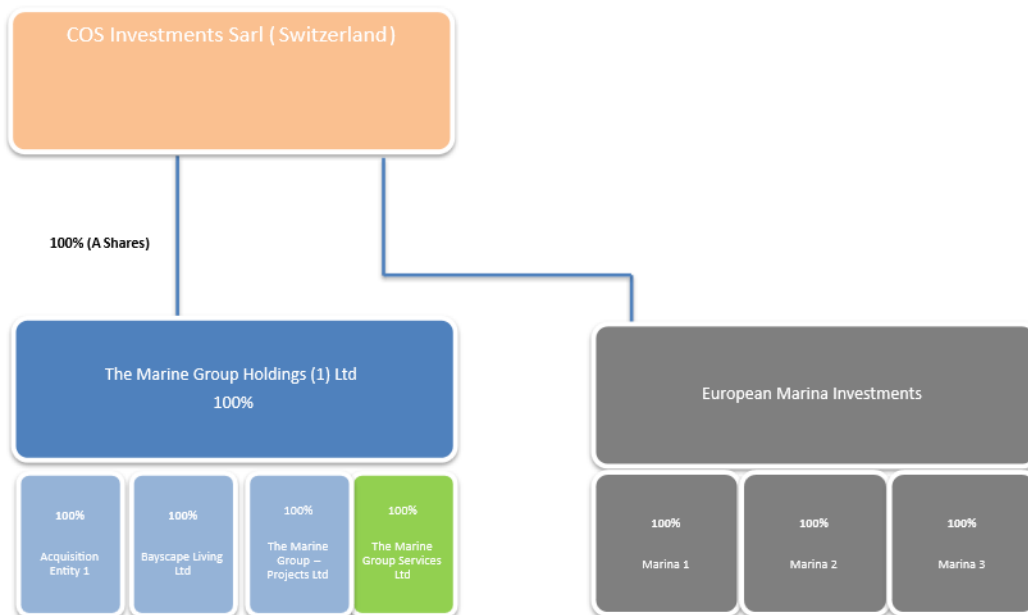
The service team are friendly and passionate in their quest to provide genuine and exemplary customer service whether for a small job or a large insurance contract repair. Please feel free to contact us if you would like to discuss any work.

Our Harbour Management team provides contracted dredging services including water injection and plough dredging delivered by one of our dredgers. In support of dredging works we are able to provide licencing, environmental assessments, and surveying. In addition, we provide consulting services for the development of commercial marinas and harbours on behalf of third-party customers.

The Marine Group Services Ltd (Company no. 15480739) is newly capitalised and is ultimately owned by [COS Investments Sàrl](#), a specialist marine business investment fund with investments in a number of marinas, service businesses and property. COS Investments Sàrl has an audited net asset position of £16 million. More information on The Marine Group Services Ltd can be found at: www.themarine.group



The Marine Group Services Ltd – Corporate Structure



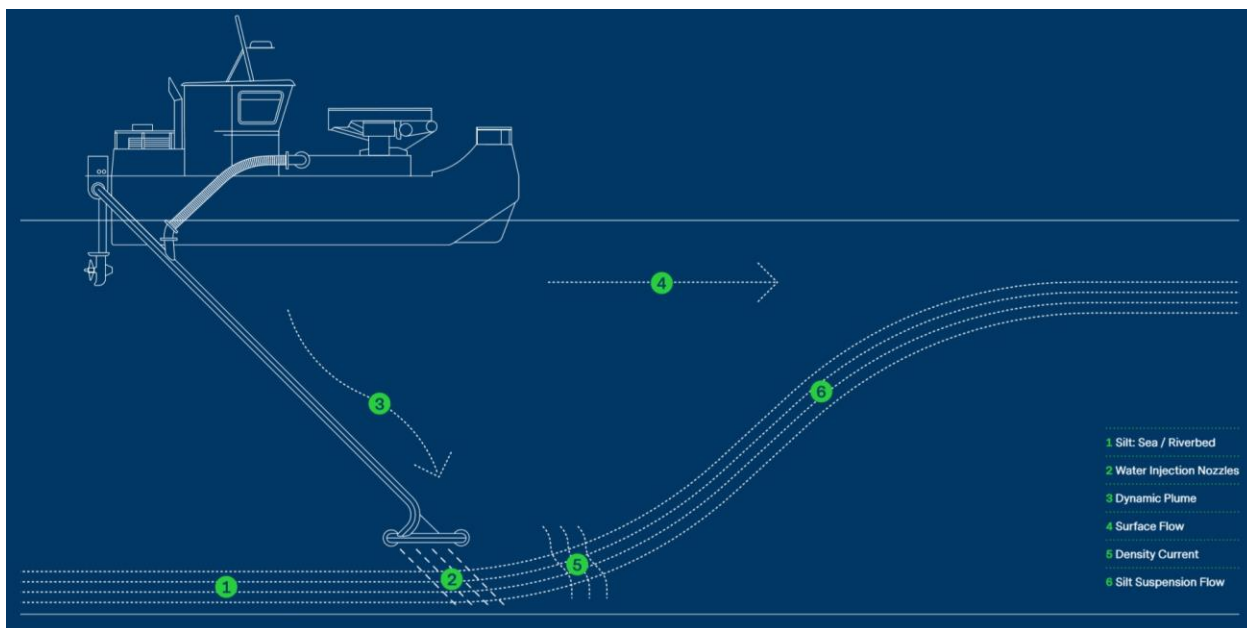
2. Water Injection Dredging

Ports, harbours, navigation channels and marinas are continually confronted with siltation, which reduces access. Consequently, dredging works can quickly account for a large proportion of port authorities' budgets and the pressure to reduce these ongoing costs is increasing. Therefore, maintenance dredging is a necessity for companies operating in these waterways to ensure safe navigation depths in these locations. Planning this dredging work can be complex and daunting without access to the right expertise.

As a company, we have first-hand experience and an in-depth understanding of the requirements of dredging operations. As part of our service we can offer advice and support throughout a dredging project. Our dredgers and team of highly qualified marine engineers offer water injection dredging which provides a cost effective, environmentally sound dredging method. Given the varied nature of the locations our fleet of dredgers can work in, we price each project individually to offer a competitive quote to meet your individual requirements.

The Method

Water injection dredging is one of a number of hydrodynamic dredging techniques, where the basic principle is to remobilise the sediments, using the action of natural currents. Water injection dredging uses water pumps connected to a series of nozzles on a horizontal jet bar. The nozzles inject large volumes of water at low pressure directly onto the sediment build up. This process fluidises the sediment build up, turning it into a density current which remains close to the water bed. The sediments are then picked up by this current and able to flow horizontally out of the channel or port. This process eliminates the need for traditional excavation dredging methods and the subsequent transportation of the dredged material. Nature takes care of the sediment transport, making water injection dredging a cost-effective dredging technique with less impact on the environment.





The Benefits

- Cost effective method of dredging
- No disposal licence required
- Vessel is fully road transportable
- Quick mobilisation/demobilisation times
- No need to move pontoons or infrastructure
- Shorter timeframes for carrying out work
- Vessel has great manoeuvrability
- Able to reach hard to reach areas close to embankments and quay walls
- Environmentally sound solution
- Creates a considerably lower CO2 footprint compared with conventional dredging

Water injection dredging is often combined with other dredging technologies which can then operate with increased efficiency. The process can therefore provide either a stand-alone dredging solution or complement traditional dredging methods.

Applications

Water injection dredging is a popular and effective method for maintenance dredging as it involves variable quantities of material, from thin to thicker layers. With maintenance dredging in navigation channels and harbours, the sediments to be dredged are the most recent layers which have formed. This process is a regular activity, within a dynamic environment, where sedimentation and erosion are on-going occurrences even as dredging is taking place.

As the process does not dig into or excavate as traditional dredgers do, water injection dredgers can operate in places where other types of equipment cannot reach including:

- Marinas
- Underneath jetties and moored vessels
- Alongside quay walls
- In locks
- Inland waterways/canals
- Culverts
- Access channels
- Flood prevention
- Increasing depths for ship berthing
- Wind farm installations
- Levelling the water bed for pipelines and tunnel sections
- Increasing the depth of pipelines and cables

Environmental Considerations

For water injection dredging to be effective, it is essential that the environmental and ground conditions on-site are clearly understood. Site specific bathymetry and geometry plays an important part in the effectiveness of water injection dredging.

Factors influencing the dredging production rates include:

[The Marine Group Services Ltd, Cardiff Marine Village, Penarth Road, Cardiff, CF11 8TU](#)



- The water depth
- The dredge template
- The bathymetric features
- The site geometry of the sediment deposition areas
- The characteristics of the transport path of the density current

When required, we can assist with carrying out the necessary surveys and trials prior to dredging commencing.

The process of transporting dredged material horizontally along the water bed, compared to traditional dredging techniques, results in the following specific circumstances which reduces the impact of the process on the environment:

- An increased quantity of sediment goes into the lower layers of the water column
- The rate of sediment input in the natural systems at the dredged area is increased
- The sediment is transported by natural phenomena to the final destination through the density current
- The rate of sedimentation in the deposition areas may vary if the natural conditions vary
- Dredged sediments remain within the ecosystem

Special attention should always be given to areas nearby the dredging location to determine if there are sensitive habitats such as shellfish beds or spawning habitats. In addition, in most cases, if the soil is contaminated water injection dredging is not a suitable method. We can offer advice in organising environmental studies and the types of permissions that are likely to be required prior to dredging.

3. Plough Dredging

Ploughing is often used on dredging sites to even out irregularities in the seabed. Ploughs are suitable for different types of seabed and are more effective when coarser material is encountered which is unsuitable for water injection dredging.

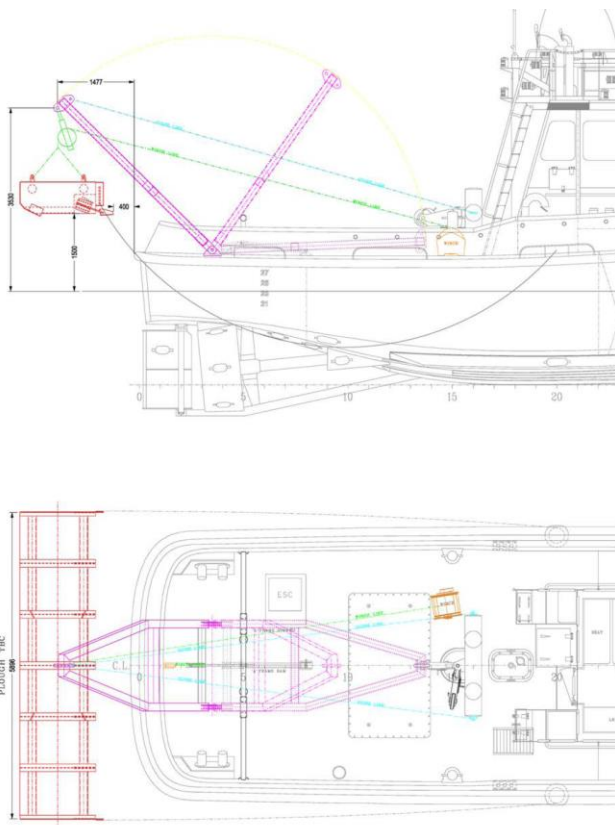
Unlike water injection dredging, plough dredging requires contact with the sediment itself and effectively drags material into channels and sumps for onward dispersal by marine currents or further extraction methods.

Plough dredging may be operated in conjunction with water injection dredging to manage a harbour featuring varied sediment granularity.

The Marine Group is able to offer both dredging methods and as a result there are few dredging mandates that cannot be readily fulfilled.

Applications

Ploughs offer an economical solution, requiring only a very limited amount of energy, which makes them environmentally friendly. Ploughing is often used on dredging sites to even out irregularities in the seabed and to work in hand with other methods and processes.



Amy Jane Vessel with Plough Attachment

4. Project Capability

The Marine Group Services Ltd – Dredging Vessels – Doonhamer

The Doonhamer Water Injection Dredger is 55 tonnes in weight yet is highly manoeuvrable and able to work at close quarters to harbour infrastructure including dock walls and pontoons. The vessel is able to move up to 650 m³ per hour. New modern engines provide twin propulsion and high-pressure pumps. Mathematically she has proven to be able to move material at up to half the cost per / m³ compared with other vessels and operators. This is achievable because of her significant variable power and her large 5.5 metre dredging boom.

Environmentally her new engines ensure that fuel consumption is some 30% less than similar vessels and with running warranties on all components we are able to target 99.5% uptime for all works.

Size

- Length – 16.6 metres
- Beam – 5.5 metres
- Draft – 1.6 metres
- Deadweight – 55 tonnes
- Air Draft – 6 metres

Deck Equipment

- 5 tonne winch
- A frame
- Achor winch
- Forward 13 tonne winch

Crew

- Two Crew Capacity
- Galley and shower / bathroom facilities

Dredging Capacity

- Volumes of up to 400 cubic metres / hour depending on sediment type
- Dredge to maximum depth – 14 metres
- Dredge to minimum depth – 2 metres



Technical

- Stat X Marine Fire Protection System
- Brand New 2x HD Hyundai engines (formerly Doosan) MD196TI delivering 320HP each at 2000RPM. 3:1 gearbox reduction.
- Engines and sterngear new and commissioned by Watermota 2024
- Dredging pumps two 6" APEX TD driven by two JU6H-NL54 200HP diesel engines. Pump new 2024 and commissioned by John Deere 2024
- Coding – Workboat
- Year of Build 1991
- Refurbishment 2025

The Marine Group Services Ltd – Dredging Vessels – Amy Jane

The Amy Jane is a leased 16.59m plough dredger and workboat, classified under the MCA Workboat Code for operations up to area category 2. With a gross tonnage of 35.77, this versatile vessel is meticulously maintained to the highest standards, ensuring safety, efficiency, and reliability. Built in 2006 and refitted in 2024, the Amy Jane undergoes regular inspections and maintenance checks to provide a seamless service for a variety of maritime operations.

Size

- Length – 16.6 metres
- Beam – 5.0 metres
- Draft – 2.2 metres
- Deadweight – 37 tonnes

Deck Equipment

- 10 bollard
- A frame
- Achor winch

Crew

- Four Crew Capacity
- Galley and shower / bathroom facilities

Dredging Capacity

- Six metre plough and leveler
- Dredge to maximum depth – 14 metres
- Dredge to minimum depth – 3 metres



Technical

- 4000 Dredgemaster plough software system
- 2 x Caterpillar 3408 C DI-TA
- Tanks 8.6m³ FO, 1m³FW
- Coding – Workboat
- Year of Build 2006
- Refurbishment 2024

5. Case Studies

Plymouth Yacht Haven

Project Scope	Cattewater Harbour Commissioners were keen to explore dredging options within the harbour. The Harbour master engaged The Marine Group Services to provide a trial of water injection dredging using Doonhamer. The trial was carried out over two tidal cycles at Plymouth Yacht Haven. Although there was no predetermined target depth for the dredging, the objective was to remove as much sediment as possible around the pontoons. Client: Cattewater Harbour Commissioners.
Client	Cattewater Harbour Commissioners
Location	Plymouth Yacht Haven Quay
Nature of their business operations:	Conservancy authority for the Cattewater Harbour, and pilotage authority for the Port of Plymouth
Principal Quantities	1'500 m3

Methodology

Doonhamer was mobilised from Cardiff to Plymouth in 2 days before working daylight tides only to dredge around the pontoons at Plymouth Yacht Haven. A pre dredge survey was not provided by the Client before the works. This was not a significant issue for the crew as an arbitrary level was set on the Tower Dredge System. This allowed the crew to monitor in real time the exact location and depth of the boom. This is given to an accuracy under 3cm.

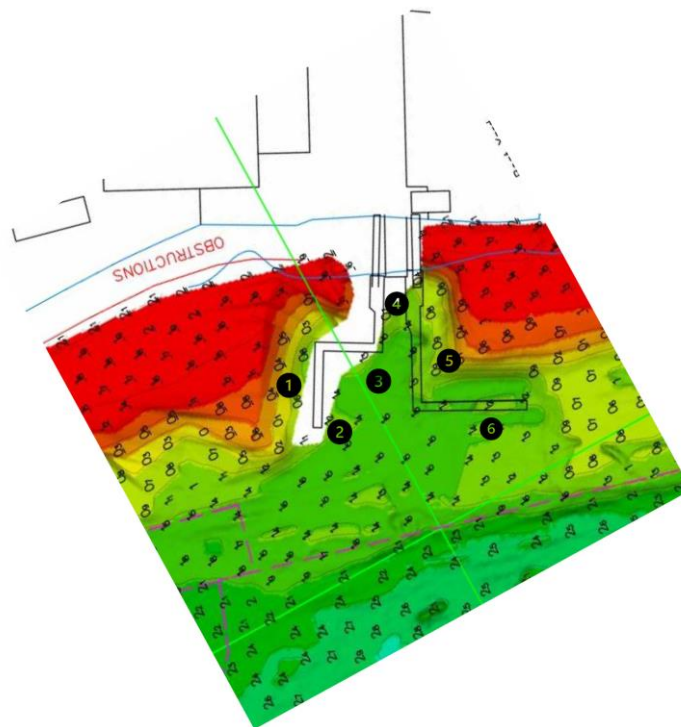
The dredge system allows the crew to monitor real time progress and target more challenging areas if required. During the dredge of Plymouth Yacht Haven this was not required as the sediment was soft uncompacted mud in a strong tidal environment.

Regular operations were maintained at the yacht haven, including customers visiting vessels and launching vessels from the dry stack.

Due to the lack of a pre dredge survey the crew were able to take a number of depth readings using the onboard echosounder prior to the dredge. This was then compared to depth readings post dredge to give a change in depth to discuss with the client and ensure they were satisfied with the results.

While these readings would not be necessary at Dover due to the number of surveys, the crew will take a number of manual readings in areas expected to re-silt or have difficult access such as the charter pontoon.

The tracks from the dredge system were integrated into an available survey to indicate the results of the trial. Within 2 tides Doonhamer had removed approximately 1,500m³ of sediment. On average the depth of water was increased by 0.6, with an increase in 1.1m in places.





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Duration	2 days, working daylight tides only
Completion Date	May 2025
Form of Contract	Standard Marine Group Terms and Conditions
Client Satisfaction	Yes, the client was satisfied by the results. As we understand the client and those invited to the open day were impressed at the efficiency compared to traditional dredging and are looking to integrate WID into their dredging plans over the next year.


Grimsby Fish Docks

Project Scope	In June 2025, The Marine Group Services (TMGS) was commissioned by Grimsby Fish Dock Enterprises to carry out a trial of water injection dredging. The objective was to clear the approach channel to the lock within five tidal windows and to evaluate TMGS's method and equipment against the performance of previous contractors.
Client	Grimsby Fish Dock Enterprises Ltd
Location	Grimsby Fish Dock Approach Channel
Nature of their business operations:	Port Operator
Principal Quantities	2'500 m3



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Methodology	<p>The trial was conducted using TMGS's specialist water injection dredging vessel, Doonhamer, over five non-consecutive daylight tides. The dredging process involved injecting low-pressure water into the seabed to resuspend sediment, allowing it to be carried away naturally by tidal currents. This was undertaken ensuring the movement of the vessel was from the lock gates moving along the channel.</p> <p>The approach channel was located within a busy port area at the Fish Docks, in close proximity to the ABP Royal Docks. As a result, TMGS's crew worked in coordination with Marine Control to ensure safe access for incoming and outgoing vessels. This required maintaining clear communications throughout all dredging operations, planning around vessel movements, and adapting to real-time instructions from port authorities.</p> <p>Despite the complexity of the environment, the team ensured minimal disruption to port traffic, successfully working within the operational windows provided.</p> 
Design Responsibility & Team:	Design as requested by the client. Dredging was undertaken by a crew of 2. It was undertaken over two weeks
Completion Date	30/07/2025
Form of Contract	Standard Marine Group Terms and Conditions
Client Satisfaction	Yes the results of the trial were a technical success in showing our efficiency in relation to other contractors.



Port of Blyth

Project Scope	<p>The Port of Blyth engaged The Marine Group Services (TMGS) to support its ongoing maintenance dredging regime. The port traditionally relies on a cutter suction dredger to maintain berth pockets; however, this method has limitations particularly around critical infrastructure. Cutter suction equipment cannot dredge right up to quay walls or around floating pontoons, typically leaving a 3–4 m buffer of undisturbed material.</p> <p>To address these areas, TMGS was brought in to deploy its specialist water injection dredging vessel, Doonhamer, offering a precision method for clearing sediment where conventional equipment cannot operate effectively.</p> <p>The objective was not to remove sediment entirely from the harbour system, but to locally mobilise material that had accumulated around quay walls, sunken objects, and within tight areas such as leisure pontoons. This approach aimed to improve access to quay walls.</p> <p>The client had also requested that Doonhamer trial an area on a sand bar. Although sand is not optimal to remove by WID, the results for 10 minutes work were even better than expected by the crew. A few photos are held in the attachment</p>
Client	Blyth Harbour Commission, Port of Blyth
Location	Port of Blyth, South Harbour, Blyth, Northumberland, NE24 3PB
Nature of their business operations:	Management of the Port of Blyth as a Trust Port
Principal Quantities	6'000 to 7'000 m3

Methodology

Prior to the works a pre dredge survey was uploaded to the dredge system to track progress.

Due to the minimum tide high across the site of 5 metres, and due to the short-distance of sediment mobilisation required, Doonhamer was able to work at all states of tide, allowing for 24hr working rota if required.

TMGS crews operated under the direct supervision of the Harbour Master, who identified specific areas of concern and directed operations accordingly. Communications were maintained throughout via the requested VHF frequency, ensuring vessel movements and dredging activity were coordinated safely and effectively.

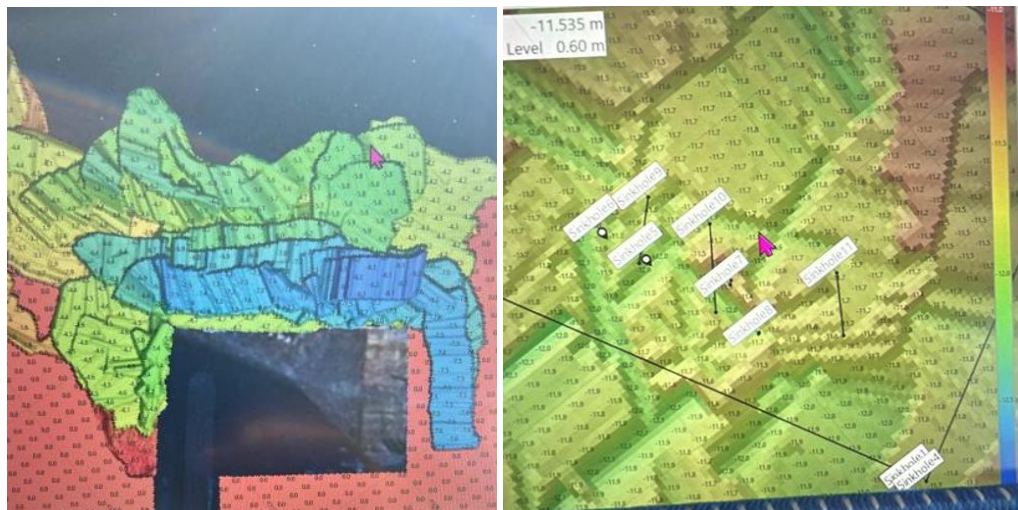
Port of Blyth identified the presence of contaminated sediment in certain zones of the port. TMGS worked closely with the client to identify and avoid these areas, ensuring environmental risk was minimised and compliance maintained throughout the campaign. The coordinates of these constraints can be plotted into the Dredge system for avoidance, as well as marking on the quay.

In addition, the tight working spaces around pontoons and close to quay walls required careful navigation and control. TMGS's crew were able to operate safely and efficiently in these sensitive areas, using the low impact nature of WID to reduce the risk of damage to nearby infrastructure.

The targeted dredging was successful in clearing material from areas inaccessible to larger dredging equipment. The operation enhanced the overall effectiveness of the port's maintenance programme by complementing existing methods rather than replacing them.

Obstructions were also marked on the dredge system to then pass on to the client.


The campaign demonstrated the value of a hybrid dredging strategy, with water injection dredging providing flexible and cost-effective support where traditional tools fall short. TMGS's responsiveness, precision, and coordination with the Harbour Master were key to the project's success.



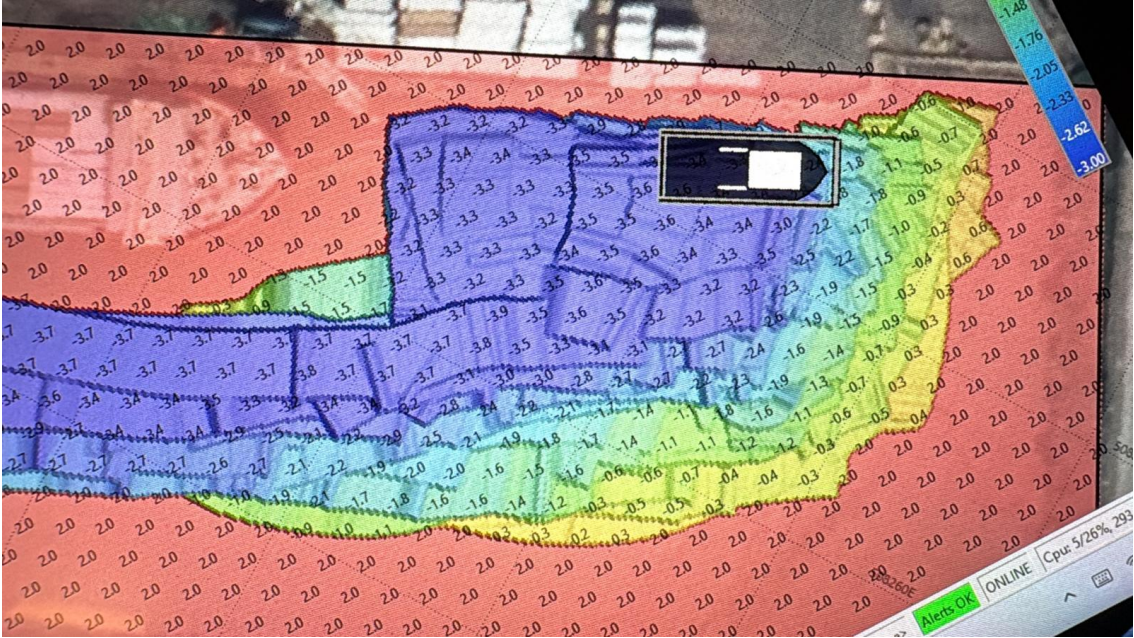


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Design Responsibility & Team:	As directed by the client. Dredging was undertaken by a crew of 2.
Completion Date	15/07/2025
Form of Contract	Standard Marine Group Terms and Conditions
Client Satisfaction	Yes, the project impressed the client, as this was their first use of water injection dredging. Particularly on the minimal dredging on the sand bar within the port. T

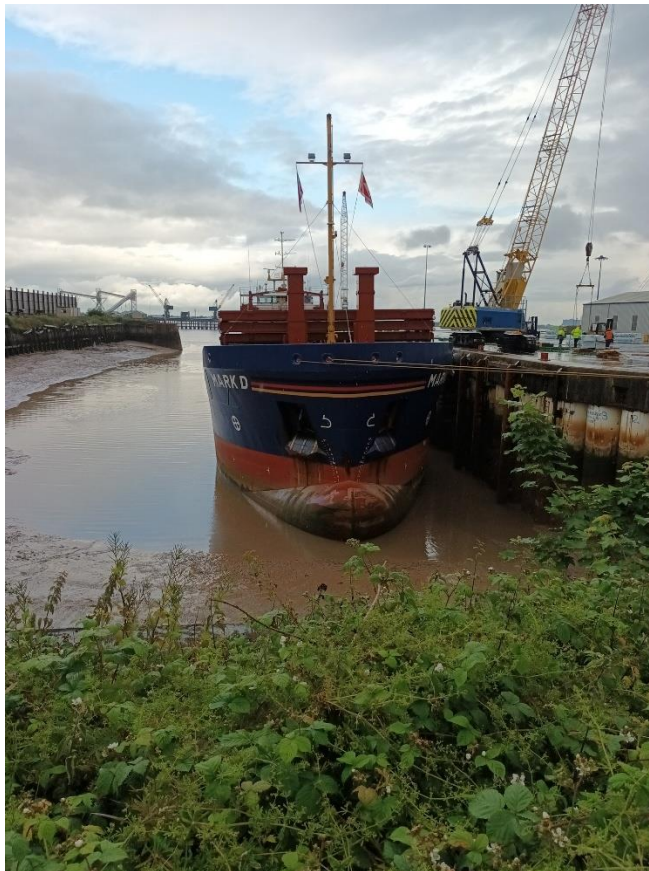
New Holland Dock

Project Scope	A Trial dredge of two full tides in order to increase depths and make use of additional wharf space within the New Holland Dock area
Client	New Holland Dock
Location	New Holland Dock Wharfingers Ltd, The Dock, New Holland, North Lincolnshire, DN19 7RT
Nature of their business operations:	Private and Commercial Dock
Principal Quantities	6'000 to 7'000 m3
Methodology	<p>The client docks freighters on a near daily basis but was currently only able to dock one vessel at a time.</p> <p>Doonhamer was trialled for only 2 tides and after around 11 hours of work increased depths by up to 4 metres across a wide area of the dock.</p> <p>The sediment was of fine and coarse silts and had been heavily compacted in some areas. Nevertheless the power of Doonhamer with 400 HP pumps and a large and powerful 6 metre wide spray bar meant that the material was readily dispersed even around delicate areas at close quarters.</p> <p>The client is now able to dock two freighters within the dock and has requested further work from The Doonhamer during August 2025.</p> 



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**Design
Responsibility
& Team:**

As directed by the client. Dredging was undertaken by a crew of 2.




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Completion Date	June 2025
Form of Contract	Standard Marine Group Terms and Conditions
Client Satisfaction	Yes, the project impressed the client, and as a result we have a continued dredging relationship to maintain the dock.

Sands and Gravels at Blyth

Project Scope	A Trial dredge to establish the mobility of sands and gravels at Blyth
Client	Port of Blyth
Location	Port of Blyth, South Harbour, Blyth, Northumberland, NE24 3PB
Nature of their business operations:	Management of the Port of Blyth as a Trust Port
Methodology	<p>The client requested that the dredging crew in Doonhamer conduct an experimental pass over a sandbank that had significantly accumulated near the Harbour Master's Office.</p> <p>Whilst Water Injection Dredging is most effective in silts and muds, the power of Doonhamer has shown that sands can also be removed albeit at a slower rate than finer material.</p> <p>The below two pictures show the before and after of only ten minutes work by Doonhamer on the sandbank.</p> <p>View before trial</p> 



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View After ten-minute trial

