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# Harbour Management

Water Injection  
Dredging

As an operator of commercially successful marinas in Wales, The Marine & Property Group Ltd is well placed to offer consultancy support for Harbour Management Projects.

Our team have a wide-range of experience in working with both private developers and local authorities to explore market demands and offer a unique and full understanding of the opportunities, benefits and challenges that surround harbour management and development plans.

Assessing and understanding key strategic, economic, commercial, financial and management criteria allows us to arrive at feasible and well considered solutions. We believe in a collaborative approach and understand the importance of stakeholder engagement when working on harbour management projects. This helps ensure that proposals are consistent with local planning considerations and enable management of stakeholder's expectations.

We understand that every project is unique. Our professional team will liaise closely with; local councils; government authorities; third party specialist partners such as civil engineers and surveyors; local communities and businesses to provide you with the bespoke advice you require to move your project forward.

We offer a range of services such as feasibility studies, environmental studies, dredging licences advice, marina layout optimisation, marina systems assistance, landside property development and fully integrated economic appraisals.



Get in Touch  
02920 34 34 59

# Our Process

## The Problem

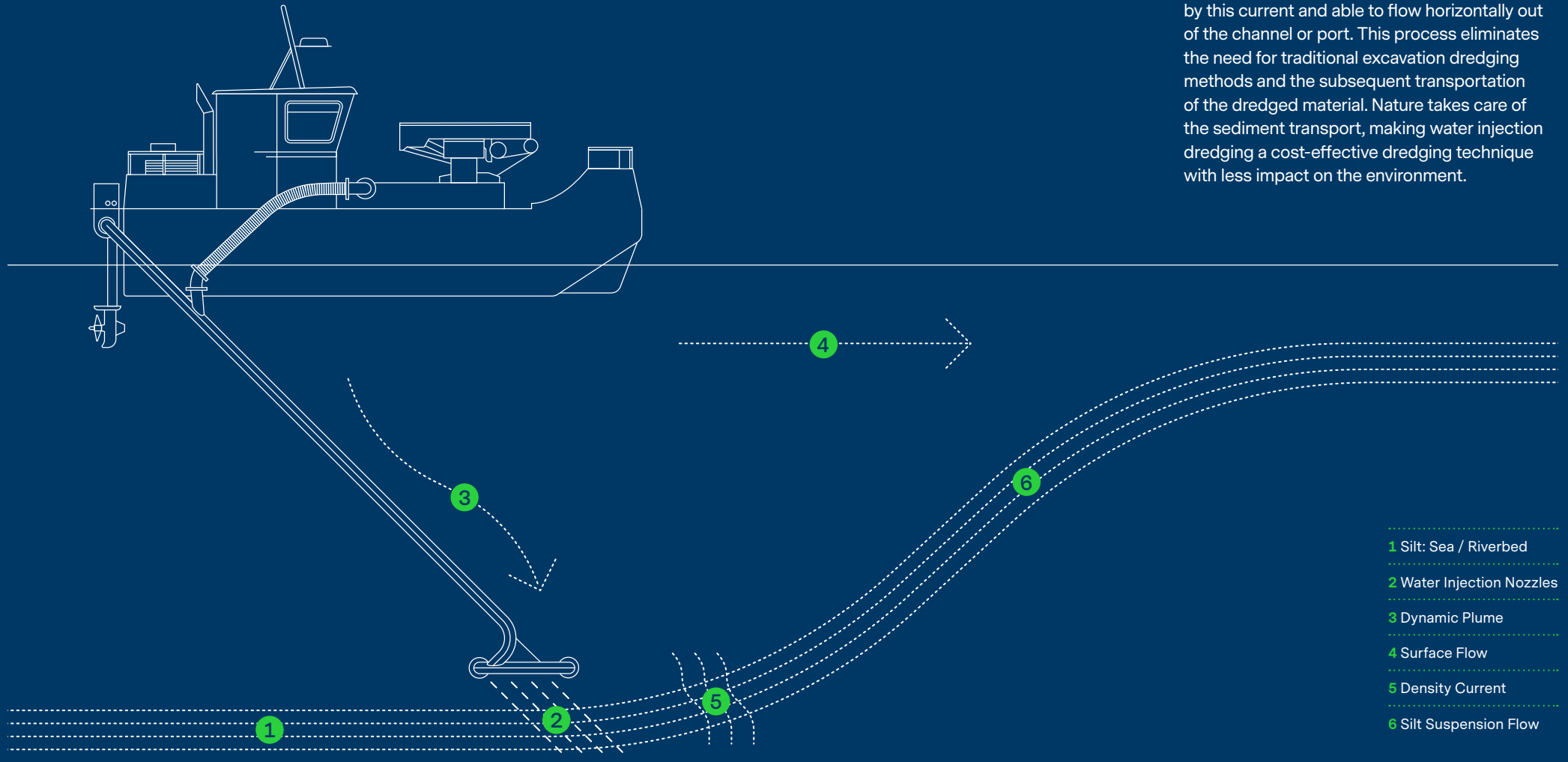
Ports, harbours, navigation channels and marinas are continually confronted with siltation, which reduces access. Capital and Maintenance dredging is a necessity for companies operating in these waterways to ensure safe navigation depths. Planning this dredging work can be daunting without access to the right expertise.

## The Solution

As a company, we own and operate several marinas, giving us first-hand experience and an in-depth understanding of the requirements of dredging operations. Our dredgers and team of marine engineers offer water injection dredging which provides a cost effective, environmentally sound dredging method. Given the varied nature of the locations our dredgers can work in, we price each project individually for a competitive quote, to meet your individual requirements.

## The Method

Water injection dredging is a hydrodynamic dredging technique, where the basic principle is to remobilise sediment, using the action of natural currents. Water pumps connected to a series of nozzles on a horizontal jet bar, 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

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.

Our dredgers are fully road transportable so offer quick mobilisation/demobilisation times and a shorter timeframe for carrying out work to minimise disruption. The dredger can be afloat and starting work quickly and there is no need to move pontoons or infrastructure as the vessel offers great manoeuvrability, accessing hard to reach areas such as embankments and quay walls. As an environmentally sound solution, there is no need for a disposal licence in addition to any dredging licences required.

## 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. 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/rivers
- 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 the process. When required, we can assist with carrying out the necessary surveys and trials prior to dredging commencing with our survey equipment. Factors influencing the dredging production rates include; the water depth; the bathymetric features, the characteristics of the transport and the path of the density current.

## Environmental Impact

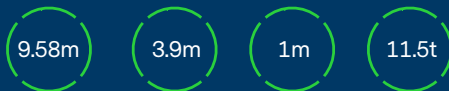
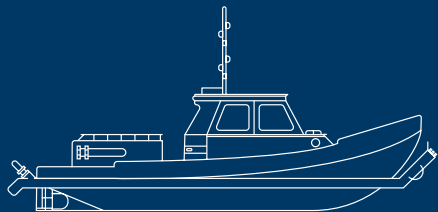
The process of transporting dredged material horizontally along the water bed, compared to traditional dredging techniques, results in the following specific circumstances which reduces the impact of the process on the environment:

- 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 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. We can offer advice in organising environmental studies and the types of permissions that are likely to be required prior to dredging.

## Our Dredgers

### CMS Innovation

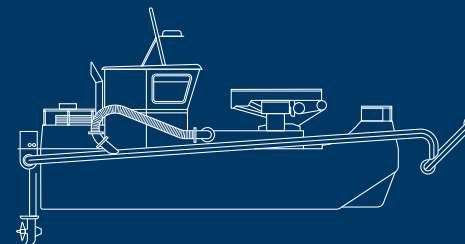


Length Width Draft Weight



Dredge up to 150m<sup>3</sup>/hour Dredge to max depth Dredge to min depth

### CMS Seaka



Length Width Draft Weight



Dredge up to 450m<sup>3</sup>/hour Dredge to max depth Dredge to min depth

# Contact Us



For a competitive water injection dredging quote to meet your individual requirements

Call: 02920 34 34 59

Email: [info@themarinegroup.co.uk](mailto:info@themarinegroup.co.uk)

Read about our latest dredging projects on our website visit:

[www.themarinegroup.co.uk](http://www.themarinegroup.co.uk)