ECO-DREDGING

AN ITALIAN INNOVATION

FINCANTIERI



Environmental protection, a fundamental principle in our constitutional system, can now be achieved thanks to **technological innovations** based on a fundamental cornerstone: the circular economy.

Eco-dredging, thanks to Limpidh2o technology totally
Made in Italy, allows reclamation and dredging of the
seabed, as well as coastal, port, river and water basins
in an environmentally sustainable manner respecting the
principles of the current regulatory strategic direction.

LIMPIDH20® INNOVATIVE TECHNOLOGY

MINIMAL ENVIRONMENTAL IMPACT



Removal of sediment without coming into contact with the bed, avoiding material spillage and the phenomenon of sediment resuspension

The absence of material spillage is decisive in operations in protected areas or in the presence of contaminated agents, as it avoids turbidity and prevents the dispersion of pollutants in the environment

SEDIMENT ENRICHMENT



The system allows the dewatering and classification of extracted sediments and the separation of any foreign bodies (branches, waste, chains, etc.), together with a reduction in dredged volumes.

The enrichment of resources is achieved by analysing the chemical, physical and biological characteristics of sediments

SLUDGE REDUCTION AND ISOLATION OF POLLUTED MATERIAL



Sediment removal through a closed-loop system allows a significant reduction in the sludge to be managed, achieved by sediment dewatering and classification.

The ability of the plant to operate with different mesh sizes allows polluted material to be isolated

ECONOMIC SUSTAINABILITY



The entire process combines respect for the environment, through recovery of the reusable part of the dredged material, with a clear economic advantage

The advantage is not just a reduction in overall operating costs (sediment removal and subsequent management), but is also linked to the recovery and subsequent reuse of resources that would otherwise be completely lost

ENHANCEMENT OF OPERATIONS

COASTAL, RIVER AND RESERVOIR DREDGING

Ability to plan and conduct continuous integrated maintenance.

No limitation on site depth and size of the operation.

SAND BANK

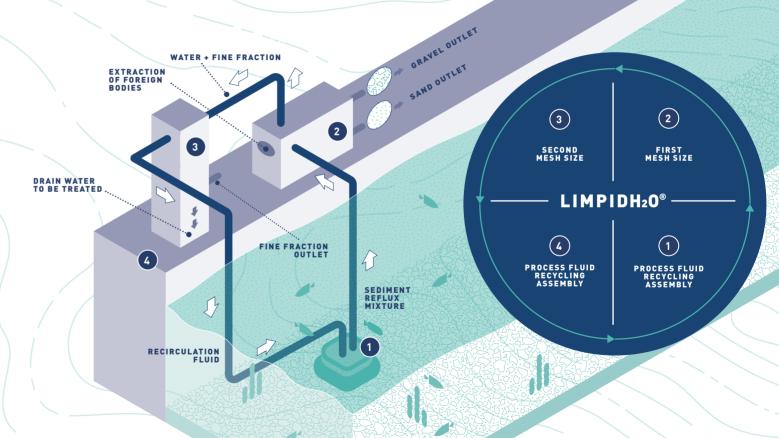
Centralized management of recovered resources in terms of quantity, quality and destination site, according to a national information framework.

BEACH NOURISHMENT

Possibility of reusing resources recovered in "selective" beach nourishment interventions, with selected grain size classes.

Ability to operate in any landscape context and even during the tourist season.

LIMPIDH20° SYSTEM OPERATING DIAGRAM



THE OPERATING SOLUTION

DECO PLATFORM

DECO SHIP





SPECIALIZATION AND OPERATIONAL FLEXIBILITY

The solution includes two types of industrially complementary units, with different size and performance characteristics in order to be able to operate in different contexts, but both characterized by the ability to:

- Operate in line with the strategic direction of the European Community's Eco-Innovation
 Action Plan 2020.
- Separate and isolate contaminated materials on-board the ship,
- minimizing the proportion to be treated or landfilled (about 10-15% of the total volume).
- Enrich and reuse recovered materials.
- Maintain full usability of the site during dredging activities as sediment removal and classification operations take place on-board the units, without the need for sweeps or other containment systems.
- Greatly reduce the occupation of space on land and at sea.

COMPARISON

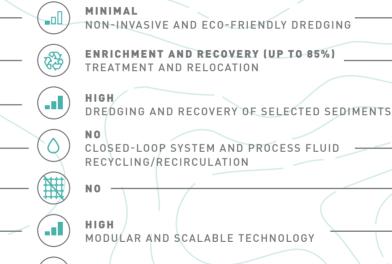
_ TRADITIONAL DREDGING *

MASSIVE USE

LIMPIDH₂0[®] ECO-DREDGING

IMPACT ON THE BED DREDGED MATERIAL DESTINATION ABILITY TO ENRICH SEDIMENTS BASED ON THEIR CHARACTERISTICS RESUSPENSION OF POLLUTANTS IN SEDIMENTS SWEEPS AND OTHER CONTAINMEN METHODS **OPERATIONAL** FLEXIBILITY NEED FOR LAGOON OR CONTAINMENT TANK PROCESS PARAMETER MONITORING

INVASIVE SEDIMENT REMOVAL LAGOON/CONTAINMENT TANK LEAKAGE OF DREDGED MATERIAL UNDIFFERENTIATED SEDIMENT DREDGING

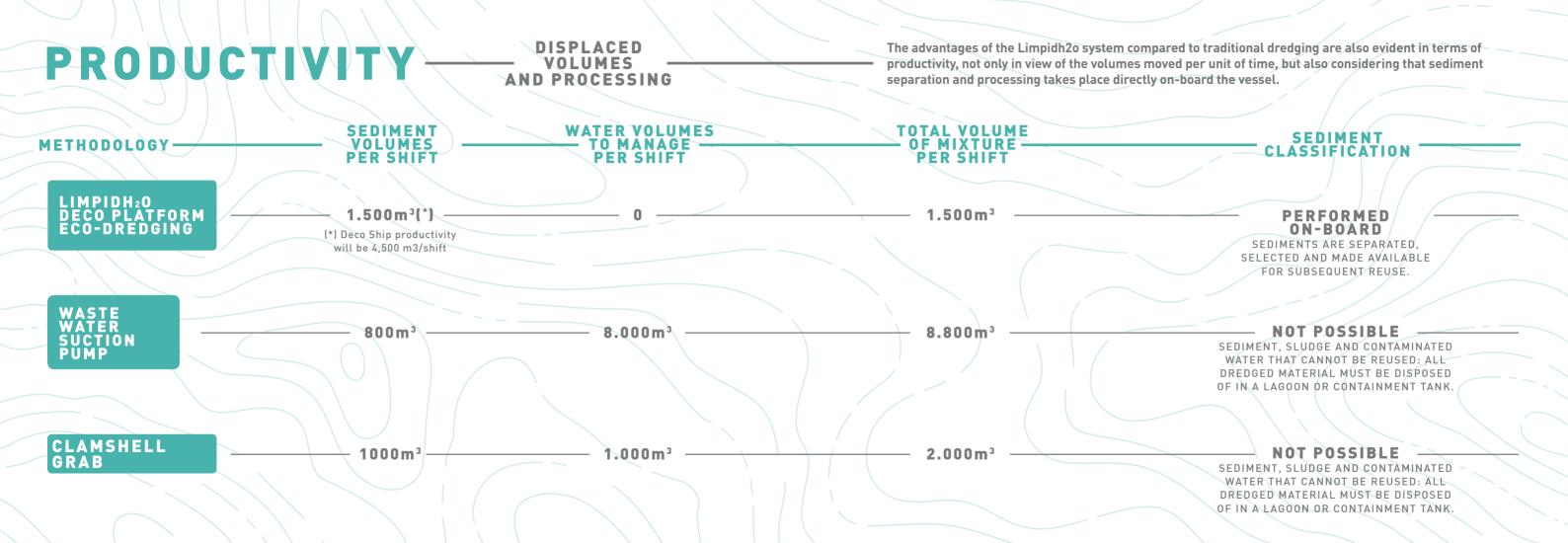








*Eseguito mediante benna bivalve o pompa dragante



DECOPLATFORM THE FLEXIBLE PLATFORM FOR DIVERSE APPLICATIONS

MAIN CHARACTERISTICS ECO-DREDGING SYSTEM

















GRAVEL



SAND



FOREIGN BODIES

DECO PLATFORM THE IDEAL SOLUTION FOR OPERATIONS IN ALL TYPES OF BED

DECO PLATFORM IS DESIGNED FOR







EXTENSIVE OPERATIONAL FLEXIBILITY IN RELATION TO DEPLOYMENT SITUATIONS



EASY ACCESS
TO WORK AREAS

. DECO PLATFORM GUARANTEES 🗕



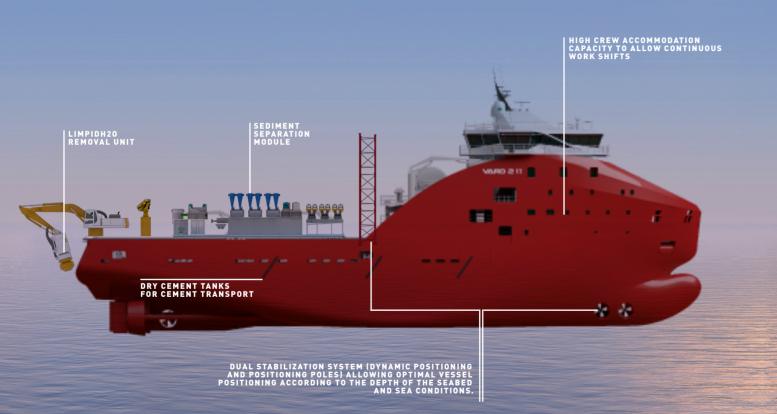
FULL COMPLIANCE WITH REGULATIONS AND MINIMIZATION OF ENVIRONMENTAL RISK



LOWER OPERATING COSTS THAN
THE OVERALL COST
OF TRADITIONAL METHODS

DECO SHIP MODULAR AND MULTI-PURPOSE

CARATTERISTICHE PRINCIPALI IMPIANTO ECODRAGAGGIO









UP TO 12 M DEPTH

SEDIMENT REMOVAL 1,500 M3 / SHIFT ON-BOARD SEDIMENT

INTEGRATED **SEPARATION** CONTROL SYSTEM



POLLUTANTS



GRAVEL



SAND



FOREIGN BODIES

DECO SHIP IS DESIGNED TO:



RESPECT THE ENVIRONMENT

THROUGH THE INTEGRATION OF THE MOST MODERN TECHNOLOGIES:

Eco-dredging Limpidh2o system

Vessel installations aimed at minimizing environmental impact



PROTECT THE ENVIRONMENT

THROUGH THE FOLLOWING SYSTEMS:

Fire fighting

Oil recovery (DNV Oilrec notation)



ADAPT TO THE ENVIRONMENT

DEPENDING ON THE ENVIRONMENTAL CONDITIONS OF THE AREAS IN WHICH IT OPERATES:

Depth-dependent positioning modes (positioning poles or dynamic positioning)

Power supply mode for systems aimed at reducing noise pollution

THE DUAL USE SHIP

Deco Ship is characterized by its dual use feature, which combines the function of eco-dredging with its ability to support the execution of port and coastal works. This latter feature is achieved through its ability to:

- Separate sand and gravel on-board, allowing them to be used immediately
- Store, transport and transfer cement powder

CERTIFICATES





Limpidh₂O operation has been approved by Sogesid S.p.A., the engineering and technical support company of the Italian Ministry of the Environment, based on field demonstrations that took place at the docks in La Spezia and Livorno in 2014.

The tests clearly showed the low environmental impact of Limpidh2o technology compared to traditional technology, further demonstrating how it is possible to bring eco-dredging practices in line with the regulatory requirements on environmental protection.

