

SUBSEA SERVICES



2 WHO WE ARE



Boskalis is a leading global dredging and marine expert. Since our founding in 1910, we have established a long track record of demanding projects, which have been achieved successfully through close cooperation with our clients.

In the international offshore energy sector, we offer a unique range of offshore services, including but not limited to the development, construction, transport, installation (fixed & floating), inspection, repair & maintenance (IRM) and decommissioning of offshore and onshore facilities.

Our work goes beyond the provision of services. With safety as our core value Boskalis has uncompromisingly embraced safety within its culture. This is the essence of 'NINA', our No Injuries, No Accidents safety program, which is held in high regard in the industry and by our clients. NINA rests on five values and five rules. Together they ensure that safety can be openly discussed, leading to a clear and very positive development in how safety is perceived.

Boskalis is known for its environmental expertise and commitment to the environment. Our clients benefit from our vast experience in preparing environmental impact assessments and environmental management plans. Our state-of-the-art monitoring programs and environmentally friendly techniques, working methods and equipment will enable you to fully comply with environmental regulations.

With our uniquely integrated capabilities and innovative power, we offer the offshore energy sector a truly unparalleled combination of people, vessels and activities which enables us to break new grounds and create new horizons for our clients. Our Boskalis Subsea Services include:

- Diving & ROV operations
- Subsea IRM
- Subsea Light Construction Work
- Decommissioning
- UXO (Unexploded Ordnance) Survey and Removal
- Associated services: project management, subsea engineering, marine services and vessel management

We provide total solutions based on fully equipped diving support vessels, in-house project management and engineering, and management of our own ROV equipment. We have been actively involved with offshore diving services since the early 1970's whereby excellence and safety is our main driver.

YOUR RELIABLE PARTNER

Providing diving support with our DP3 DSV Protea during the hookup of FPSO "Enquest Producer" in the North Sea.



Boskalis Subsea Services operates on a global basis from four strategic locations: the headquarters in The Netherlands and Regional offices in Cape Town, Dubai and Singapore. We also have stationed an air dive spread in Houston together with our partner Delta Subsea.

We use the global network of Boskalis and its subsidiaries to work on an international basis and use a vast variety of resources and vessels to provide a tailor-made and cost-effective one-stop-shop solution.

OUR CUSTOMERS ARE:

- Oil & gas and exploration & production operators
- Offshore renewable energy operators
- Offshore contractors
- Marine civil engineering contractors
- Port & government authorities

WHY BOSKALIS SUBSEA SERVICES?

- Over 40 years experience in offshore diving services
- Highest subsea quality & safety standards and procedures
- We are renowned as reliable & flexible
- In-house IRM campaign department
- Efficient deployment of equipment & people
- Year-around presence of dedicated DSV's
- A proven track record in Subsea

SAFE AND SUSTAINABLE

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STANDARDS OF EXCELLENCE

- ISO 14001 Environmental management system
- OHSAS 1800 Occupational health and safety
- ISO 9001 Quality management systems
- IMCA Offshore operations



SAFETY STATEMENT

Our people are our most valuable assets, making safety a core value. Our goal is: No Injuries No Accidents. This is embedded in our company's culture and supported through Values and Rules. All employees, including our sub-contractors, are expected to take these values and rules to heart.

VALUES

I AM RESPONSIBLE FOR MY OWN SAFETY
I APPROACH OTHERS ABOUT WORKING SAFELY
I TAKE ACTION IN CASE OF UNSAFE OPERATIONS
IF NECESSARY, I WILL STOP THE WORK
I ACCEPT FEEDBACK ABOUT MY SAFETY
BEHAVIOUR REGARDLESS OF RANK AND POSITION
I REPORT ALL INCIDENTS, INCLUDING
NEAR-MISSES, TO INFORM OTHERS AND BUILD
ON LESSONS LEARNED

RULES

PREPARE A RISK ASSESSMENT FOR EACH
PROJECT, VESSEL OR LOCATION
OBTAIN A PERMIT TO WORK FOR DEFINED
HIGH-RISK ACTIVITIES
MAKE A JOB HAZARD ANALYSIS FOR
HAZARDOUS NON-ROUTINE ACTIVITIES
BE INFORMED ABOUT RISK & CONTROL
MEASURES
BE FIT FOR DUTY AND WEAR THE PPE
REQUIRED

PROVEN SUBSEA SOLUTIONS



Boskalis has an extensive track record in subsea construction and removal services, ranging from subsea installation support to turn key lifetime extension of subsea jackets, including project management, engineering and fabrication capabilities.

DSV Komodo providing AIR/SAT and ROV services in the Middle East.



INSPECTION, REPAIR, MAINTENANCE

- Offshore structures & Floating assets (UWILD)
- Seabed infrastructure & pipelines
- Risers, flowlines, and umbilicals
- Quay walls, jetties and buoys
- Renewables, windfarms
- Locks, dams and pumping stations
- Self-healing corrosion prevention and sealant systems

LIGHT CONSTRUCTION AND REMOVAL WORK

- Spool pieces and tie-ins (metrology)
- J-tube/risers
- (Repair) Clamps
- Pipeline repairs, coating removal, excavation & backfill
- Umbilical/jumper installations
- SPM change out
- PIG (launcher) removal
- Leak testing, precommissioning
- Seabed/span corrections
- Mattress installations
- X-mas Tree Interventions
- Life time extensions
- 3D Photogrammetry
- Subsea protection structures
- Anodes installation
- Subsea cutting
- Fabrication of installation materials

SUBSEA DECOMMISSIONING

- Well intervention
- Isolation & barrier testing
- Flushing of flowlines
- Cutting and removal of flowlines & pipelines
- Mattres recovery, excavation & backfilling
- Rock & grout removal, air lifting
- Subsea cutting
- Recovery of subsea infrastructure
- Engineering & disposal

UNEXPLODED ORDNANCE (UXO) SURVEY AND REMOVAL

- Investigation, risk based maps, historical data analysis
- Advanced seabed investigation using innovative methods
- In-house data analysis by our team of experts
- Recovery of ammunition
- Detonating and/or disposal service
 - Providing ordnance free site certificate
 - in-house UXO experts

ROV INTERVENTIONS

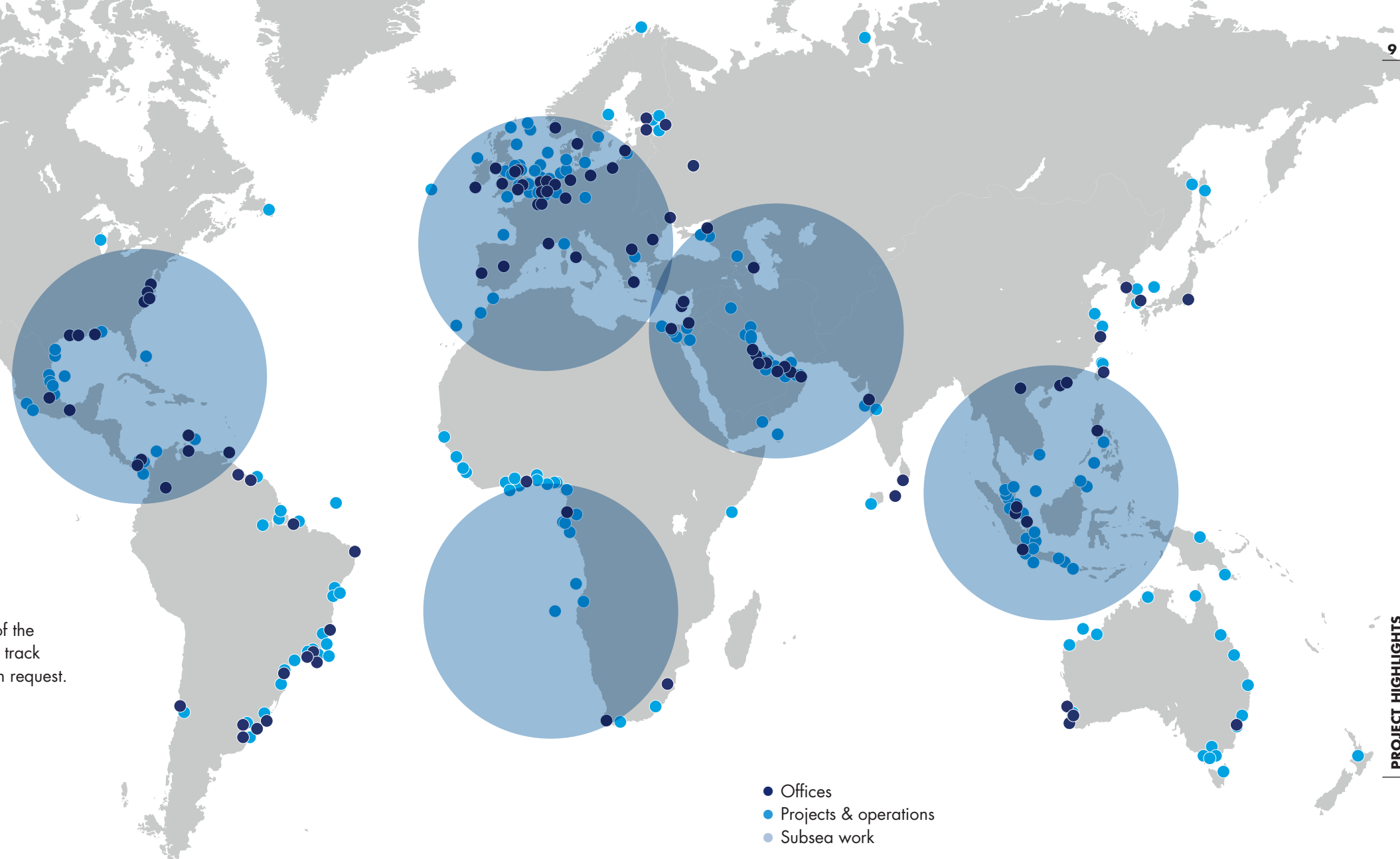
- ROV Structural inspection
- GVI, CVI, FMD, CP measurements
- Pipeline inspections
- WROV interventions

ASSOCIATED SERVICES

- Grouting
- Underwater welding and cutting
- Hyperbaric welding
- Rope access
- Project management and engineering
- Vessel management

PROJECT HIGHLIGHTS

This map shows a selection of the most recent projects. Our full track record can be provided upon request.



INSPECTION, REPAIR, MAINTENANCE

YEAR AROUND IRM WORKS

Scope: Air Diving, Saturation Diving, ROV Interventions with Smit Komodo 365 days per year.

Location: Persian Gulf, Middle East



LIGHT CONTRUCTION AND REMOVAL WORK

MAERSK DABRAT

Scope: Subsea lifetime extension of a wellhead jacket, air & saturation diving, 3d photogrammetry.

Location: North Sea, Danish Sector



SUBSEA DECOMMISSIONING

THAMES FIELD DECOMMISSIONING

Scope: Preparation for well abandonment including, flushing, barrier and pressure test, cutting of pipelines and umbilicals. Saturation Diving campaign with DSV Constructor.

Location: UK sector of the Southern North Sea



UNEXPLODED ORDNANCE (UXO) SURVEY AND REMOVAL

SMIT KAMARA

Scope: UXO Survey and Clearance with WROV and Smit Kamara for Offshore Wind Farms.

Location: North Sea, Baltic Sea



ROV INTERVENTIONS

ROV IRM

Scope: IRM Works with Smit Kamara as a Schilling HD Work Class ROV up to 3,000 m water depth 365 days per year.

Location: Campos dos Goytacazes, Brazil



ASSOCIATED SERVICES

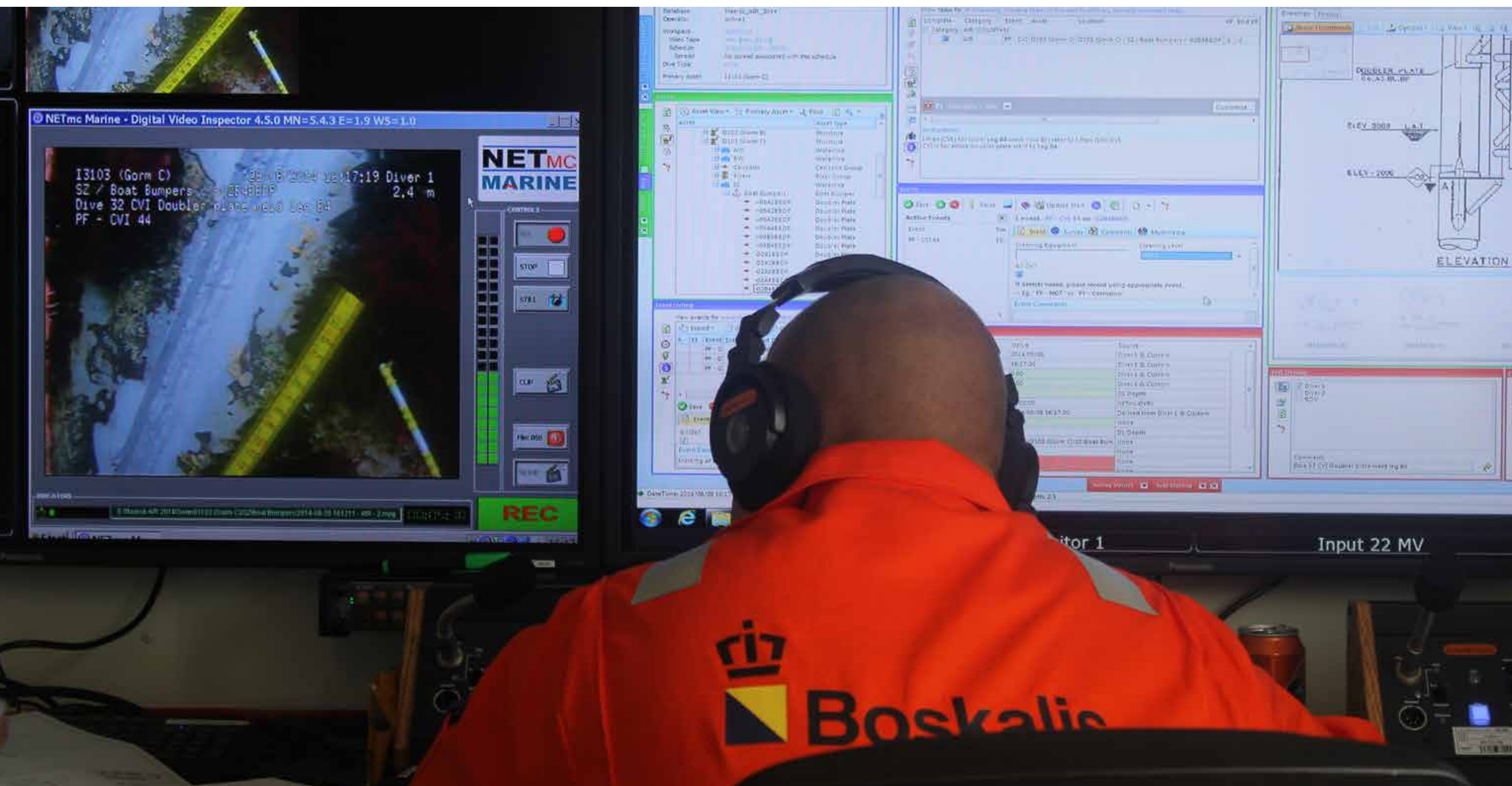
SUBSEA REMOVAL SERVICES

Scope: Rigging & rope access services from the DP3 DSV "Protea" for the removal work of submerged fenders, boat landings, barge bumpers and an access stairs at various platforms.

Location: Danish Sector of the North Sea

INSPECTION AND SURVEY

Boskalis Inspection engineer processing inspection data onboard our DSV.



Boskalis Subsea Services has an in-house Inspection, Repair & Maintenance department dedicated to IRM campaigns. The team manages the entire work-flow from preparations to final reporting. The IRM department is supported by containerized inspection spreads that can be mobilized quickly and efficiently.

Boskalis has always been innovating and anticipating the changes in the industry. Being aware of our Clients' demands and making sure that our campaigns are cost effective, we understand that every Inspection, Repair and

Maintenance (IRM) campaign needs to be professionalized to a maximum level.

Boskalis is aware of the importance of providing a complete and clear inspection file for our clients, including indexed photo and video footage of the inspection campaign.

For this reason Boskalis developed in-house HTML reporting templates, bespoke inspection procedures and we are familiar with a broad range of inspection software such as Nexus Woodgroup WGIM, Coabis/AkerSolutions or Forum/Visualsoft.

Boskalis has designed Mobile Inspection Spread Containers, that are fully equipped with the latest modern inspection equipment. With our Mobile Inspection Spread Containers we ensure that the offshore inspection crew will have a full and complete supply of professional inspection equipment and consumables.

We can provide the following inspection techniques and equipment:

VISUAL INSPECTIONS

- GVI, general visual inspection
- CVI, close visual inspection
- DVI, detailed visual inspection
- Coating inspection
- Riser inspections

NON DESTRUCTIVE TESTING

- MPI, magnetic particle inspection
- ACFM, alternating current field measurement
- EMD, eddy current
- FDM, flooded member detection
- UT - wall thickness measurement
- Ultrasonic flaw detection

CATHODIC PROTECTION

- CP – Cathodic potential survey (Contact - stab)
- CP - proximity cathodic potential survey
- Sacrificial anode inspection
- Impressed current anode inspection

SCOUR / FREE SPAN SURVEY

- Marine growth survey
- Debris survey
- Scour survey

MISCELLANEOUS

- Bolt tightness check
- Weld grinding
- Metrology
- Photography inspection

Our divers and inspection engineers are qualified: CSWIP 3.4U qualified inspection personnel and CSWIP 3.1 and CSWIP 3.2 inspection divers.

Atlantis



The equipment operated by Boskalis is state-of-the-art and fully compliant with the highest offshore requirements and is used onboard platforms and diving/ROV support vessels.

SURFACE DEMAND DIVING SYSTEMS

Boskalis is operating complete surface demand diving systems suitable for air, nitrox and mixed gas diving operations. Systems in operations range from:

- (Semi-) Permanent systems onboard of vessels
- Containerized systems
- Daughter diving crafts
- Suitcase systems

All our diving systems can be used worldwide. They are dimensioned having standard container footprints for easy transport by road and sea. Some of the diving systems are classed "Zone 2" for operations onboard FPSO's and platforms in hazardous areas.

SATURATION DIVING SYSTEMS

We operate modular saturation diving systems which can be deployed onboard vessels or installation barges:

- 6 man SAT3 system
- 12 man SAT4 system

DSV Komodo.



ROV/DIVING SUPPORT VESSELS

Boskalis has the following DSV's in their own fleet or on long term charter:

- DP3 DSV Protea (AIR diving/ROV)
- DP2 DSV Constructor (AIR/SAT diving/ROV)
- DP2 Komodo (AIR/SAT diving/ROV)
- DP2 Kamara (ROV)
- DP2 Atlantis (AIR/SAT diving/ROV)
- DP2 Da Vinci (AIR/SAT diving/ROV)

ROV SYSTEMS

- Schilling 150 hp HD WROVs
- Sea-eye Panther Plus XT WROVs
- Sea-eye Cougar XT ROVs
- Sea-eye Tiger ROVs
- Sea-eye Falcon ROVs

All ROV types are available with TMS/LARS. For the Cougar XT, Tiger and Falcon ROVs we have manipulator skids available to optimise their functions. The Tiger and Falcon ROVs are compact containerised systems with integrated LARS.

SURVEY & INSPECTION SYSTEMS

- Pipeline inspection and survey module
- Containerized Inspection Spreads
- Pipetracker

LET'S TALK



'TELL US ABOUT YOUR CHALLENGES'

For over 100 years, Boskalis has helped clients meet some of the toughest challenges.

How can we help you?

Give us a call and tell us about your challenges.

Or look at our portfolio on www.boskalis.com/offshore. You can download our corporate brochure and our solutions brochures.

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