



DHI MARKET AREA: COAST AND MARINE

COASTAL ENGINEERING

Hydraulic and environmental engineering services for sustainable coastal development

Coastal environments are transient – continuously reshaped by the natural forces of waves, tides, surges, erosion and deposition. To be sustainable, coastal development must be carried out with a clear understanding of — and respect for — these natural processes. Careful planning and comprehensive assessments are required to preserve the complex coastal dynamics and safeguard the coasts for future generations. A successful and long-lasting design of marine elements such as beaches and lagoons is only possible if the hydraulic, coastal and environmental aspects are included in the earliest planning stages.

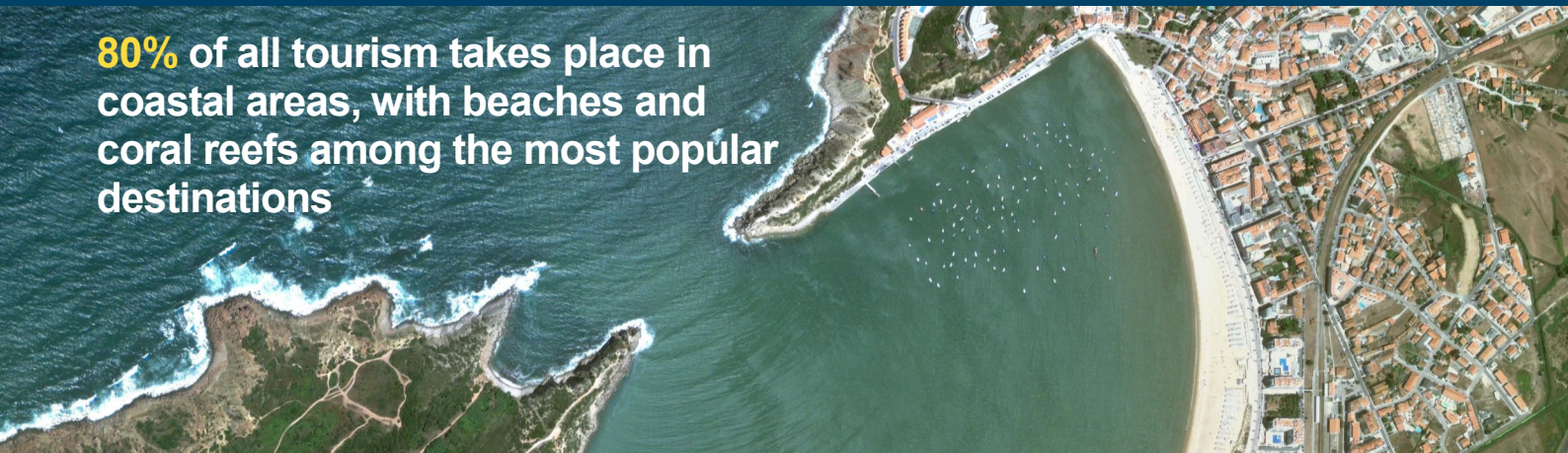
- THE CHALLENGES**
- Reducing extensive investments involved in setting up coastal structures
 - Limiting the environmental impacts of such structures
 - Utilising the various aspects of a coastline to the maximum — for a given development project
 - Integrating the possibilities offered by the marine environment with societal demands
 - Contending with the vulnerability of coastal zones to the effects of climate change (such as sea level rise and more severe storms and surge)
 - Predicting sediment transport and consequent morphological changes

OUR APPROACH At DHI, our philosophy is to work with nature to ensure the sustainability of coastal development. All our solutions are based on a thorough understanding and detailed analyses of the various processes and phenomena. We offer a unique combination of knowledge, decades of experience and a comprehensive suite of tools. We provide our clients with the optimal solutions to overcome complex coastal engineering challenges.

OUR SOLUTIONS We provide a combination of know-how and tools to outline sustainable and optimal design concepts. We develop a clear understanding of natural, hydraulic and coastal processes by conducting surveying and monitoring studies, numerical modelling and physical model testing. This enables us to help develop waterfront projects successfully, in a cost-effective manner. We also identify the risks associated with climate change and develop adaptive measures, thereby ensuring the long-term sustainability of the development. Lastly, we help in identifying potential impacts of the development project on the ambient environment as early as possible. In so doing, remedial measures can be evaluated and implemented before the cost of remediation becomes prohibitive.

THE ULTIMATE GOAL SUSTAINABLE, COST-EFFECTIVE AND ADAPTIVE COASTAL DEVELOPMENTS

80% of all tourism takes place in coastal areas, with beaches and coral reefs among the most popular destinations



OUR TOOLS AND SERVICES

We provide the necessary know-how, advanced data sampling and modelling tools to develop sustainable coastal projects.

Our tools and services include:

- waves: MIKE 21 SW, MIKE 21 BW
- flow: MIKE 21/3
- cohesive sediment transport: MIKE FM MT
- non-cohesive sediment transport: MIKE FM ST
- littoral processes and coastline kinetics: LITPACK
- ecology: MIKE ECO Lab
- monitoring of waves, currents, water quality, marine biology
- bathymetric and sediment surveys
- shoreline stability and management
- sediment balances
- coastal protection and flood assessment
- optimising dredging projects
- feasibility studies
- Environmental Impact Assessments (EIAs) on projects and dredging activities
- capacity building by THE ACADEMY by DHI

Contact us: info@dhigroup.com
For more information visit: www.dhigroup.com