

## Coastal Planning & Engineering

### Introduction

Jacobs is a world leader in coastal and maritime engineering and planning. We take great pride in our ability to deliver innovative and high quality technical solutions in the marine and coastal environment, balancing the need to provide resilient coastlines with the development of multi-functional, innovative engineering and planning solutions to deliver sustainable, prosperous coastal environments that work with natural processes as far as possible.

Jacobs coastal experts deliver coastal design, management and modelling solutions to our clients and support the broader Jacobs maritime, mining, power and energy, transportation, defence, and environmental teams with coastal expertise.

Throughout its history, the firm has remained at the forefront of coastal and maritime engineering, coastal management and planning, and the analysis of coastal processes supported by numerical modelling. Our global team of coastal engineering specialists and scientists has a long history of successfully delivering coastal projects. Key to this is taking the time to understand our client's business challenges to ensure we apply our best people, excellent local knowledge and leading expertise to tailor solutions to meet their needs. We place a strong emphasis on client relationships and pride ourselves on our ability to create positive outcomes for our clients and coastal communities.

### Key Capabilities

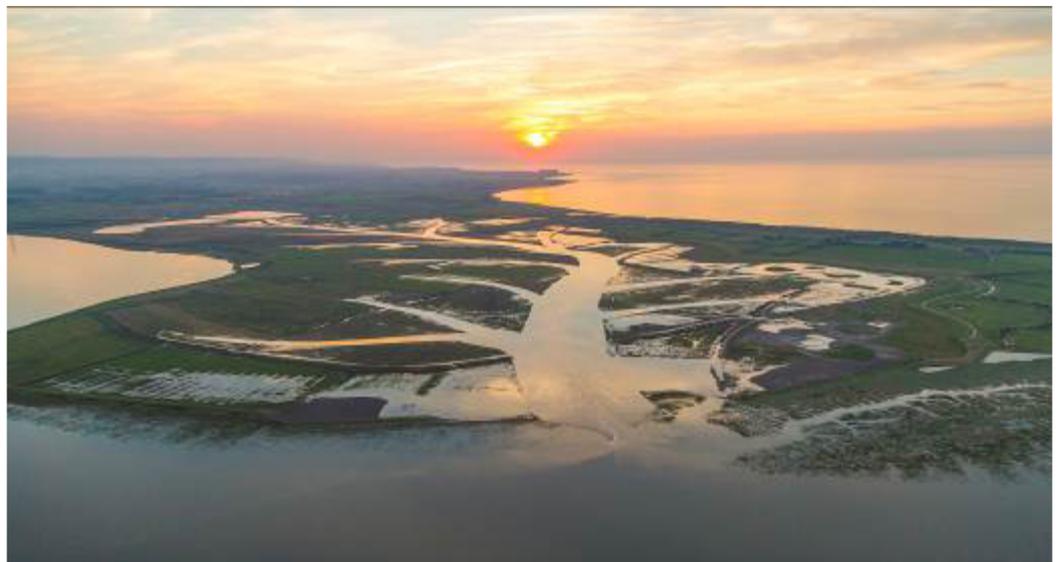
Our expertise covers all aspects of work in the coastal zone including coastal development / management policy, and engineering scheme options appraisal and design, encompassing:

- Flood and coastal erosion risk assessment
- Coastal resilience and climate change adaptation
- Strategic coastal risk management planning
- Integrated coastal zone management
- Coastal storm damage reduction
- Planning and design of shore protection schemes
- Asset management
- Coastal habitat and wetland restoration, including inter-tidal, beaches and sand dunes
- Living shoreline and nature-based solutions, including reefs, mangrove and marshes
- Coastal waterfront and offshore developments, including marinas, outfalls & artificial islands

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Aerial view of Steart Coastal Management Scheme (courtesy of Sacha Dent at WWT)

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- Condition inspection and maintenance advice
- Coastal monitoring & metocean data collection and analysis
- Numerical modelling of waves, tides, sediment transport and shoreline / beach evolution
- Physical modelling specification and supervision
- Dredging and reclamation
- Water quality assessment, modelling and monitoring

## What We Do

### World leading coastal engineering services

Our coastal engineering capability covers all forms of marine design. For structural protection approaches, we are experienced with seawalls, groins, nearshore breakwaters, revetments, embankments, and many other forms of coastal and maritime structures. We also have extensive experience in the use of softer forms of defense and much of our work now also involves the creation of artificial headlands, beach and sand dune nourishment, beach recycling and wetland creation schemes.

We undertake all stages in the formulation and delivery of coastal engineering projects, including: feasibility studies; detailed designs; consenting/permitting; preparation and management of tender and procurement processes; and construction management/supervision.

We retain our world-leading position in this field by continually striving to deliver cutting-edge technologies, tools, services, and thought-leading innovative solutions to protect vulnerable assets on the coast.

### Understanding the coastal environment – the key to sustainable coastal planning and development

It is essential to understand coastal processes such as waves, tides and sediment transport, before developing coastal projects that lead to long-term coastal development plans and/or engineering solutions. Jacobs understands this and brings industry-leading expertise in developing a fundamental understanding of processes and conditions when developing sustainable solutions. We utilize a wide range of industry standard numerical models and have developed commercial software tools to manage and monitor the coastal environment.

These tools, when combined with the analytical expertise of our geomorphologists, allow our teams to test and refine process understanding and ensure projects move forward with an appropriate understanding not only of the local conditions, but also of potential remote implications and long-term sustainability.

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This note is for general information purposes only to provide an indication of the range of services Jacobs offers and information on previous projects utilizing these capabilities. It is current as at the date specified below. Exact services and personnel must be confirmed on a project-by-project basis.

Date: 16 December 2020.

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