



# ports & maritime operations industry profile

**frc environmental has the expertise and experience to deliver insight across the full range of aquatic environments, from freshwater and estuarine to marine ecosystems. Our wide-ranging capabilities in survey, assessment, management, monitoring and reporting enable us to give you absolute clarity and the confidence for action.**

**If it involves water, it involves frc environmental.**

## Ports & Maritime Operations

**frc environmental** has over two decades of continuous experience supporting the effective design and management of port and maritime infrastructure, both in Australia and internationally.

Port and marina constructions typically involve construction in the inter-tidal and shallow sub-tidal zones. Potential environmental impacts include:

- release of contaminants from sediments disturbed by dredging and construction
- alteration of wave energy and current patterns within the inshore environment with flow on effects to marine ecological communities
- impacts on migratory and reproductive behaviours
- introduction of litter, noise and light pollution
- acute and chronic hydrocarbon pollution of nearby waters and sediments
- increased boat strike on animals of conservational significance, and
- the introduction of marine pests

**frc environmental** is able to effectively support the development of ports and maritime infrastructure, drawing upon an in-depth understanding of the distribution, ecology and conservation significance of the flora and fauna of soft-sediment embayments, rocky shores and fringing coral reefs.



*frc environmental has extensive experience and expertise examining the aquatic ecological impacts of ports, harbours and marinas*



*Major industrial ports present significant potential impacts. Quantitative monitoring is essential to a responsive environmental management plan*

Our capacity to conduct both qualitative and quantitative surveys is second to none; we operate our own vessels, have a team of ADAS-certified commercial / scientific divers and can deploy a range of photographic equipment, corers, grabs, traps and nets. Further, our field team leaders are empowered to work with clients, reviewing and refining methodologies in light of 'issues of the day' – field realities are acknowledged, decisions get made and the job gets done safely and efficiently.

We are also able to assess the resilience of key communities to a range of site, and project-specific impacts such as:

- altered wave energy
- the use of underwater explosives
- increased boat traffic
- antifouls (TBT, copper compounds, etc), and
- acute and chronic fuel spills

Our in-depth understanding of both the coastal environment and the potential impacts of constructing and operating ports and marinas, provide the essential basis from which to develop practical management actions.

### Daru Island Deepwater Port and Baseline Studies

PNG Sustainable Development Corporation realised that industrial growth of the Western Province was likely to be limited by export facilities. A deepwater (Panamax) port at Daru was identified as a solution to this bottleneck. To support the approvals process, PNGSDP appointed **frc environmental** as specialist coastal ecologists to undertake a rigorous assessment of the likely impacts of reclamation, dredging and port operations.

**frc environmental's** ecologists and environmental scientists worked effectively with local support under often challenging conditions. We stayed on schedule and in budget; environmental approvals were granted without the requirement for a supplementary EIS.

### Port of Airlie EIS and Monitoring Program Design

Meridien's development of the \$500M Port of Airlie resort was always going to be controversial. Their choice of **frc environmental** as a key consultant, substantially enhanced their credibility with assessment agencies, Council and conservation groups.

We mapped and described mangrove, seagrass and coral communities of Boathaven Bay, guiding the refinement of design for the project. Fisheries Queensland readily accepted our monitoring design. As the proposed development required the loss of substantial areas of seagrass and mangrove, our understanding of the principals and practice of Fisheries Queensland's compensatory habitat policy was critical to securing marine plant permits.



*Marinas, as public facilities, both pose a specific array of threats to the coastal environment and offer the solution to challenges like sewage disposal - a detailed understanding of the natural environment is key to effectively avoiding, minimising and mitigating these threats*

#### industry experience

- Ports & Maritime Operations
- Mining, Oil & Gas
- Linear Infrastructure
- Power Generation & Distribution
- Waste Management
- Water Infrastructure
- Effluent Infrastructure
- Urban, Industrial & Agricultural Development
- Government
- International Development & Aid
- Fisheries & Aquaculture
- Wetland Construction & Rehabilitation
- Tourism
- Defence
- Forensic & Legal