CASE STUDY PACK

Ports & Harbours

Expertise for Sustainable, Safe and Successful Marine Development



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CASE STUDY PACK

Ports and harbours operate in complex and highly regulated environments. Development, operations and long-term planning must account for increased marine activity, environmental protection, climate commitments, safe navigation and diverse stakeholder expectations. Achieving this balance requires strong evidence, transparent assessment and clear insight that supports confident decision-making throughout the project lifecycle.

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From Evidence to Action

- Evidence-based environmental and ecological assessments that strengthen consent applications.
- High-quality ecological data and analysis that inform sustainable and resilient project design.
- Accurate modelling, risk mapping and navigational insights that improve safety and operational planning.
- Streamlined processes that reduce program risk, avoid delays and enhance consistency.
- Practical, actionable recommendations that support both commercial priorities and environmental objectives.
- Confidence that developments align with regulatory expectations and stakeholder requirements.



Our Approach

We support port and harbour developments by:

- Bringing together integrated environmental, ecological and navigational expertise
- Applying advanced analytical tools and high-quality data to inform decisions at key project stages
- Delivering assessments that are transparent, proportionate and aligned with planning and regulatory needs
- Working closely with project teams and stakeholders to anticipate issues early and avoid costly changes
- Providing lifecycle support from feasibility and early design through to construction and operations
- Grounding all recommendations in sector-specific insight, ensuring solutions are workable and effective.



This approach ensures that marine infrastructure is safe, compliant and future-ready, with risk managed proactively and progress maintained throughout the development process.



CASE STUDY 01

Canada Dock London

APEM Group, was commissioned by Assystem Energy (on behalf of Gardiner & Theobald LLP) to assess the ecological impacts of a proposed bridge redevelopment at Dockside Canada Water.

- Comprehensive EIA delivery
- Protected species surveys
- Heritage integration

CASE STUDY 01

Canada Dock



Project Summary

The project involved replacing the existing Albion Bridge to support a wider regeneration masterplan. APEM's role was to deliver aquatic ecology surveys to inform the Environmental Impact Report (EIR) to support the planning application, ensuring the project aligned with environmental regulations and protected the sensitive marine ecosystem within the dock.

Project Context

The redevelopment of Dockside Canada Water is part of a broader urban regeneration initiative led by Art-Invest Real Estate UK (AIRE UK). The proposed bridge replacement required a detailed understanding of the dock's aquatic ecology to ensure minimal disruption to marine habitats and species. APEM was brought in to provide expert ecological insight, building on a strong relationship with Assystem Energy through previous projects within Canada Water including aquatic ecology surveys and EIRs for previous developments.

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Surveys Conducted

- Macroinvertebrate surveys (grab, wall scrape, sweep net)
- Invertebrate and fish eDNA sampling
- Water quality sampling (pH, conductivity, temperature, and dissolved oxygen).

Standards Followed

- Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for Environmental Impact Report (EIR)
- NE Atlantic Marine Biological Analytical Quality Control (NMBAQC) compliant sample analysis

Challenges

Environmental, access, and operational challenges were tackled during survey planning and mobilisation:

- Access and safety constraints were identified, as initial dock access points were found to be unsafe, requiring close collaboration with the client to identify alternative, secure launch sites for survey equipment.

- Ecological sensitivities were encountered on site, including floating vegetation and bird boxes that presented a risk of disturbing nesting birds, prompting the need for in-situ inspections to confirm safe working areas.

- Low water levels and unsuitable sediment conditions limited sampling, necessitating adaptive planning to identify alternative sampling methods and viable locations where grab sampling could not be undertaken.





Solutions

APEM delivered a coordinated programme of ecological services to support the project's assessment:

- Coordinated multidisciplinary survey effort, with the Marine Ecology, Field, and BioLabs teams working together to conduct aquatic surveys that characterised benthic communities and fish species using standardised, compliant methodologies

- Prepared ecological impact reporting and mitigation planning, with the Marine Ecology team authoring the EIR to outline potential construction and operational effects and identify appropriate mitigation measures for aquatic ecology receptors

- Delivered all work in alignment with industry standards, ensuring data collection, analysis, and reporting met CIEEM and NMBAQC requirements and reflected best practice.

CASE STUDY 02

Cory Decarbonisation Project

Navigational Risk Expertise for Cory's Carbon Capture and Marine Infrastructure Project

- Carbon capture infrastructure assessment
- Thames estuary ecological surveys
- Navigation and vessel impact analysis



CASE STUDY 02

Cory Decarbonisation Project



Project Summary

The project involved building a new jetty to transport captured Liquid CO_2 to an offshore storage site, with the facility expected to capture around 1.4 million tonnes of CO_2 annually. NASH Maritime, part of APEM Group, was engaged by WSP to deliver a Navigation Risk Assessment (NRA) to ensure safe and viable marine operations during the pre-consent phase.

Project Context

The marine element of the Cory Decarbonisation Project required careful planning to ensure the new jetty would integrate safely with existing and future vessel traffic in the Thames Estuary.

NASH Maritime assessed the navigational impacts of the proposed infrastructure to ensure the jetty's design and operation would not affect other port users.

Key Facts

- CO_2 capture target: ~1.4 million tonnes per year
- Location: Belvedere, South East London
- Project type: Nationally Significant Infrastructure Project (NSIP)
- Marine scope: New jetty and liquid CO_2 shipping operations

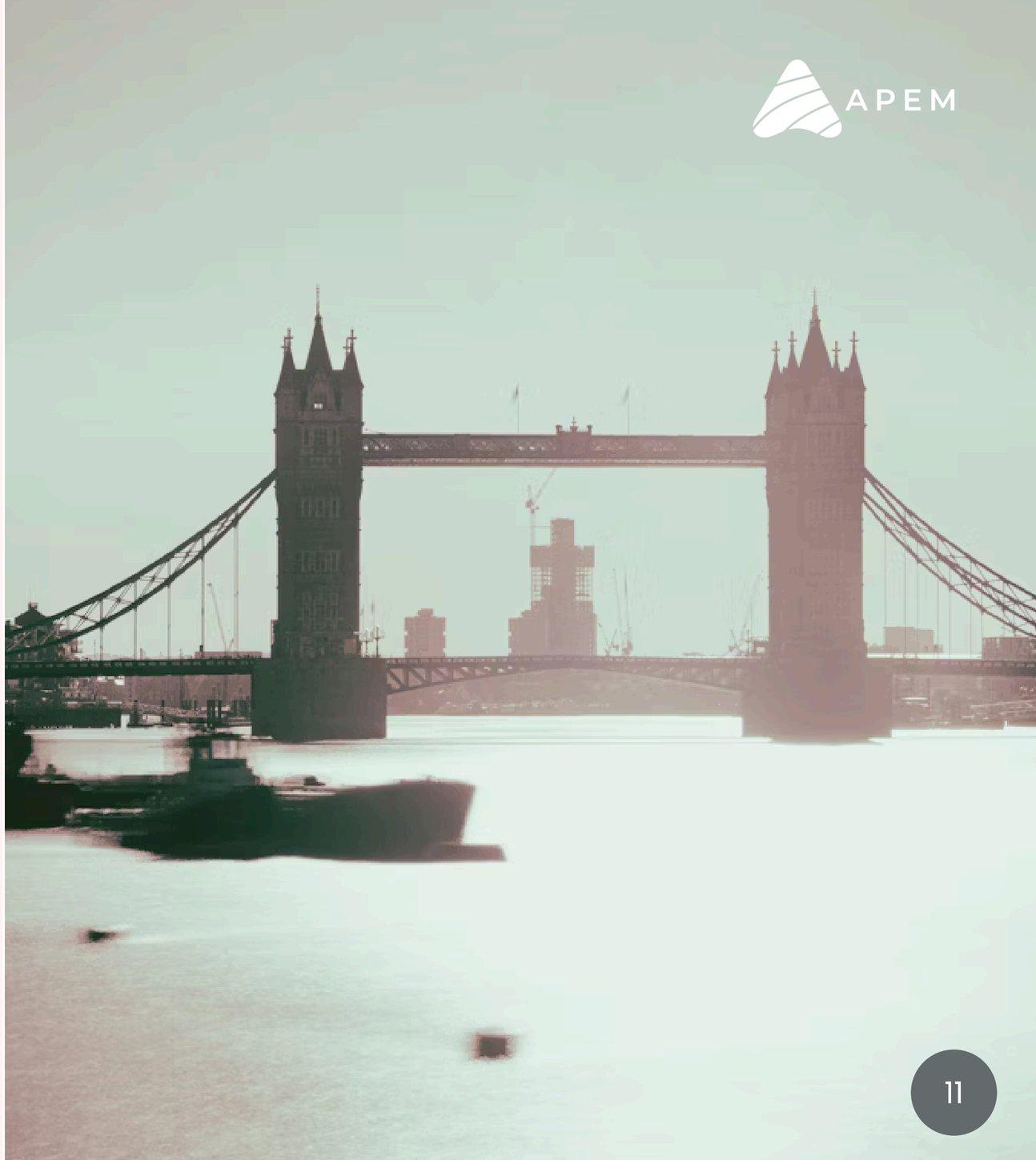
Additional Support

NASH Maritime continued to support the Cory project team as the development progressed through the planning and design phases. The team's expertise in maritime and port authority engagement, risk modelling, and marine operations is helping to ensure the project's long-term success and alignment with the UK's offshore wind energy and decarbonisation strategies.

Challenges

The project required a detailed understanding of the navigational environment in a busy and complex section of the Thames:

- Siting the new jetty in a location that minimised disruption to existing vessel traffic, including Cory's existing marine operations
- Ensuring safe berthing and mooring of CO_2 tankers
- Managing interactions with passing vessels and other port operations
- Aligning the NRA with the Port of London Authority's (PLA) risk assessment methodology
- These challenges were compounded by the need to future-proof the infrastructure for evolving maritime demands.





Solutions

NASH Maritime delivered a robust suite of services to support the project's development consent application:

- Conducted a siting review of jetty options from a navigational safety perspective
- Performed a navigation impact assessment to inform jetty concept design and marine logistics
- Delivered ship bridge simulations using a range of tanker design vessels to test berthing scenarios and assess impacts on passing traffic
- Facilitated stakeholder engagement with local maritime users and authorities
- Carried out mooring analysis to evaluate vessel interaction and inform detailed design
- Developed passage plans for new vessel operations
- Prepared a full Navigation Risk Assessment in accordance with PLA methodology.



CASE STUDY 03

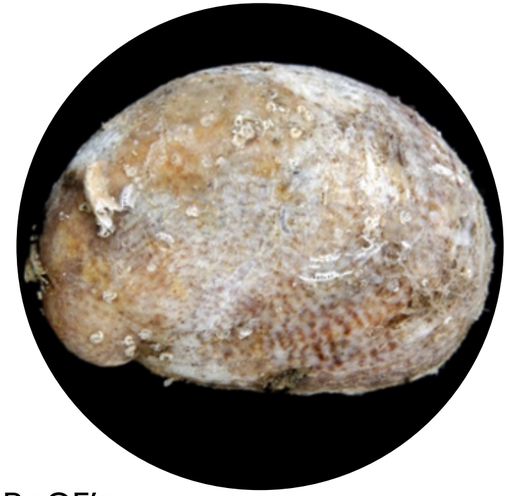
Port of Cromarty Firth (PoCF)

A pioneering biosecurity strategy designed to protect one of Scotland's most diverse multi-use ports from the growing risks posed by marine invasive non-native species (INNS).

- Tailored biosecurity plan for port and construction activities
- Targeted INNS risk mitigation across multiple sectors
- Collaborative delivery between Marine Consultancy and INNS teams

CASE STUDY 03

Port of Cromarty Firth



Project Summary

With a diverse range of sectors operating within PoCF's Statutory Harbour Authority area – including shipping, offshore energy, recreation, tourism, and aquaculture – the risk of introducing and spreading INNS is potentially high. The Biosecurity Plan was designed to mitigate the immediate threat that these sectors may present in relation to the accidental movement of INNS, reducing the threat they pose to local wildlife by establishing long-term management strategies.

APEM's work focused on delivering practical, achievable biosecurity measures tailored to the wide variety of port-related activities, ensuring that they could be effectively adopted across all relevant sectors. Work was presented in a concise, easily accessible document, presenting clear justification for each recommended action along with how they should be most effectively implemented.

Recorded INNS at PoCF

- Japanese skeleton shrimp
- Orange ripple bryozoan
- Slipper limpet

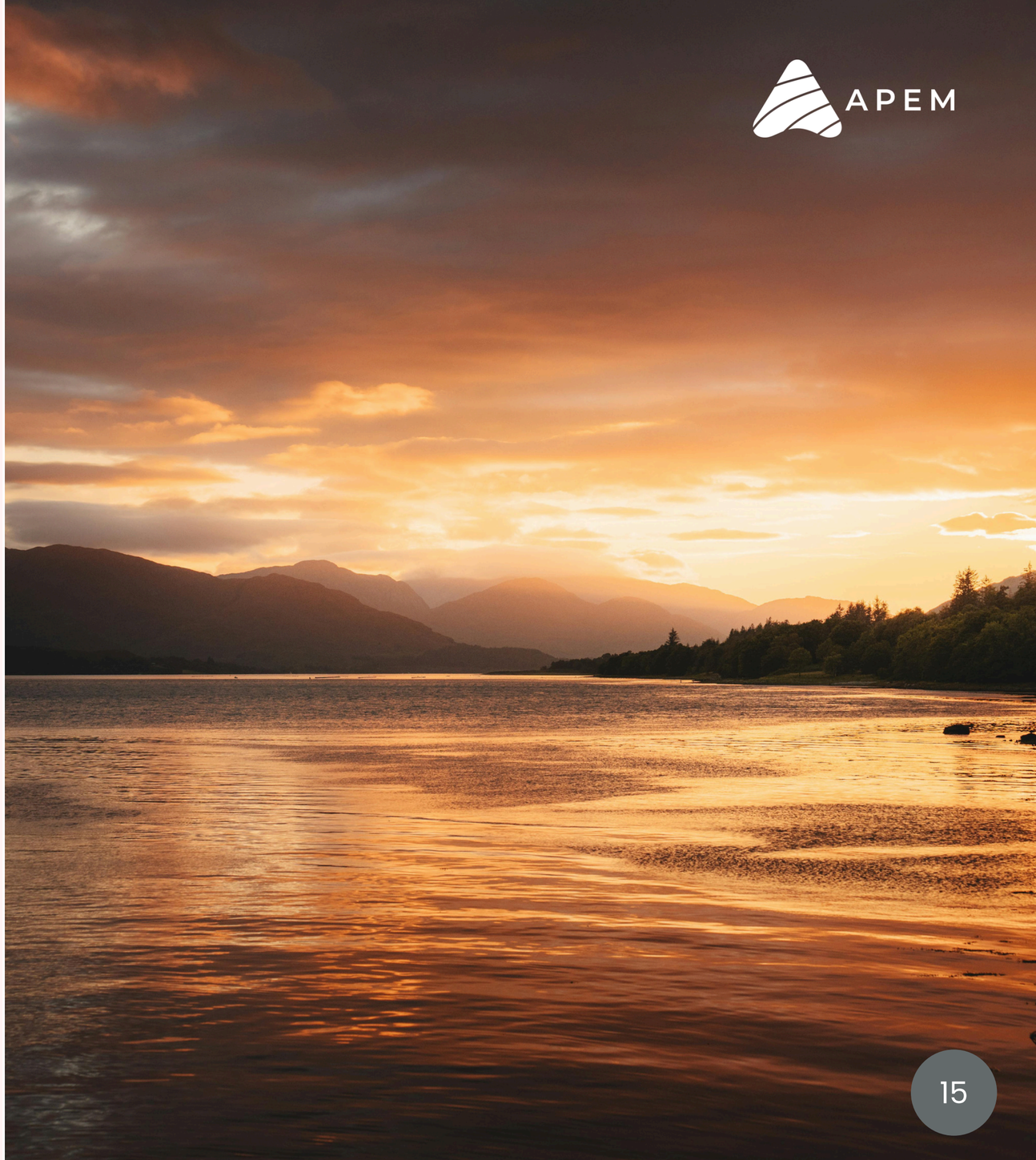
Key Stats

- This project was the first tailored Biosecurity Plan to include both port operations and construction activities at PoCF
- The Port of Cromarty Firth is approximately 30km long and typically between 1 and 2km wide, and up to 6km in places, with a total surface area of over 3,700 hectares (ha)
- The total annual cost of INNS in marine ports to the UK economy, Eschen et al. (2023), is over £4 billion, of which ~£500 million is attributed to Scotland.

Challenges

A range of operational, relationship-building, and communication challenges shaped the early stages of delivery:

- A complex, high-diversity operating environment, with multiple industries working within the port, created conditions that required a bespoke approach capable of functioning across varied operational contexts
- Tight turnaround requirements placed time pressure on the project, requiring the development of targeted and effective biosecurity measures within a limited delivery window
- A newly established client relationship introduced uncertainty, making early trust-building and clear alignment essential to support smooth and coordinated project delivery
- A need for continuous communication with PoCF stakeholders emerged, as frequent engagement was required to remain aligned with regulatory requirements and operational realities, ensuring updates could be integrated swiftly and accurately.





Solutions

APEM delivered a tailored suite of port-wide biosecurity solutions, ensuring measures were practical, effective, and aligned with PoCF operations:

- Developed targeted port-wide biosecurity measures, producing a practical Biosecurity Plan that supports port users in minimising the introduction and spread of INNS across both routine activities and construction operations
- Integrated expertise across specialist teams, with APEM's Marine Consultancy and INNS experts collaborating to combine ecological, development, and biosecurity knowledge into a robust and adaptable plan
- Aligned delivery with port operations and long-term ambitions, ensuring the multidisciplinary approach met ecological requirements while fitting seamlessly with PoCF's operational realities and strategic goals.

Get In Touch.

APEM Group provides industry-leading support for ports and harbours, from ecological assessment and biosecurity planning, to navigational risk, data science and marine operational advisory.

Our integrated expertise ensures your project is compliant, resilient and ready for the future.

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