RPS NORTH AMERICA OFFSHORE WIND SERVICES

2022

NATURAL RESOURCES

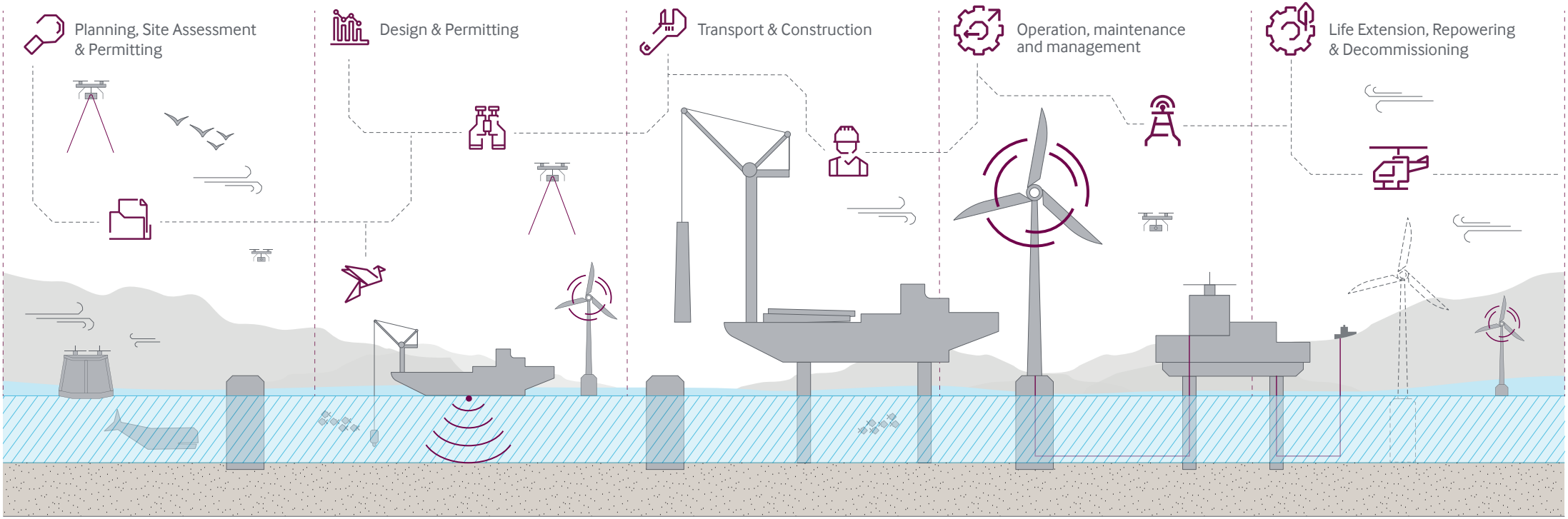
MAKING COMPLEX EASY

INTRODUCTION

RPS has been supporting the offshore renewable energy industry since its inception, leveraging over 40 years of experience supporting the offshore oil and gas industry. Our long-term track record of supporting offshore and coastal engineering projects for a variety of clients including developers, regulatory authorities, and government agencies ensures that our clients receive the benefit of a deep understanding of the industry and offshore energy development projects.

This document provides an overview of RPS North America's environmental capabilities in offshore wind development. More specific information on RPS' environmental capabilities is available on the website or upon request.

https://www.rpsgroup.com/sectors/energy/renewables/renewable-energy-markets/offshore-wind/



ASSET LIFECYCLE – Offshore Wind Energy

Permitting Support

Site Investigation

Metocean Capabilities

Metocean Modeling & Analysis

Health, Safety & Environment
(HSE, across the asset lifecycle)

Data management, visualization and portal development

Project Management and Quality Control
(offshore and onshore)

Communications and engagement
Contractor management

Spill awareness and response training/exercises

Permitting Supprt

Benthic & Fisheries

Hydrodynamic and Sediment Transport Modeling

OSRP & Oil Spill Modeling

Site Investigation

Geotechnical Engineering
Geohazard piling and anchoring assessment
Environmental loading and design criteria
Onshore cable routing substation siting

Metocean Modeling & Analysis

Permitting Supprt

Site Investigation and Surveys

Geotechnical Engineering
Client representative-piling and cable installation Geotechnical investigation planning
Laboratory test oversight
Factual and interpretive reporting
Geophysical / geotechnical integration and ground modeling

Metocean Modeling and Analysis

Due Diligence
Divestment support/due diligence

Permitting Support

Site Investigation and Surveys

Geotechnical Engineering
As laid cable burial assessment

Metocean Modeling and Analysis Capabilities

Permitting Support
Regulatory advice Planning support
Regulators & stakeholder engagement

Surveys
Surveys- design, procurement & management

Engineering
Engineering options analysis

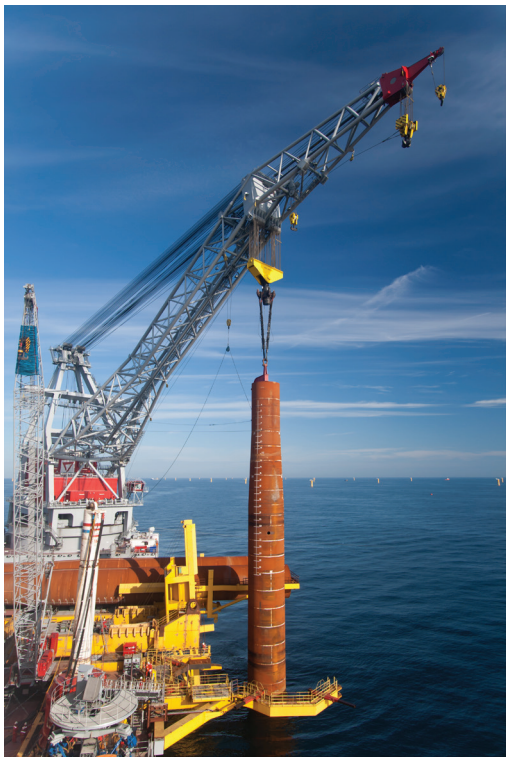
PERMITTING SUPPORT

RPS is ideally qualified to prepare the construction and operations plan (COP) for submission to the Bureau of Ocean Energy Management (BOEM) and all required federal, state, regional, and local approvals and permit applications. RPS has managed resource survey activities, performed site design and environmental studies conducted as part of the COP, and supported associated permitting efforts required for determining the placement and layout of the offshore wind project.

RPS Group's ocean scientists, regulatory specialists, and engineers are ideally qualified to successfully navigate the complex marine regulatory environment required for a successful offshore wind permitting project. The RPS team includes experts in many of the key scientific and technical areas required to support a successful offshore permitting program. Our experience working with government agencies, policy makers, and stakeholders on offshore wind projects and other marine and coastal projects gives us the background and understanding of the issues to ensure a successful outcome.

RPS can provide our clients with the familiarity, knowledge, and efficiency with the permitting expectations and issues required before, during, and after construction of a project. The RPS permitting team works closely with project proponents, developers, and stakeholders to develop comprehensive and efficient strategies for successful permitting efforts.

RPS has been providing NEPA support to US government and industry clients for over the past 30 years, which has involved performing dozens of modeling assessments to support impact and mitigation analyses for Environmental Assessments, Environmental Impact Statements, Site Assessment Plans (SAP) and Construction and Operations Plans (COP).



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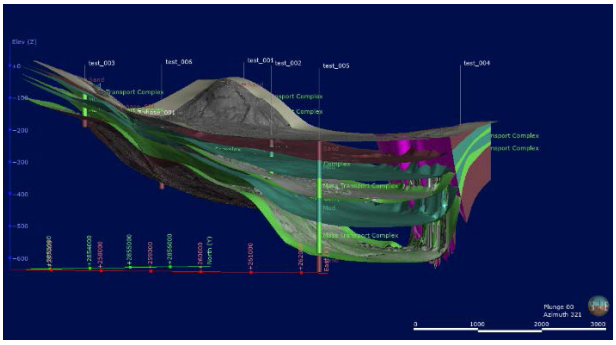
OFFSHORE WIND SITE INVESTIGATION

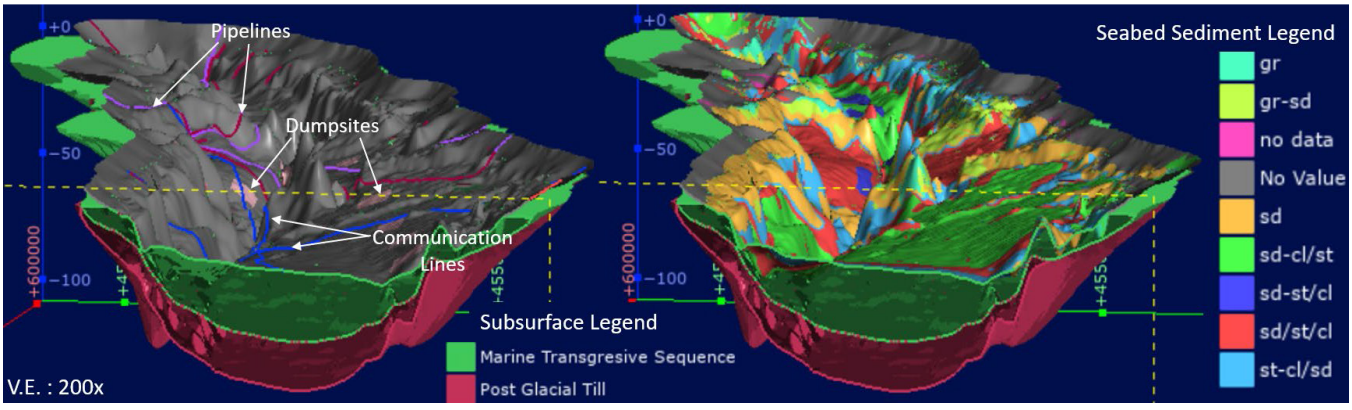
At RPS, we have complete understanding of all the site investigation elements that drive successful submittal of Site Assessment Plans (SAP) and Construction and Operations Plans (COP) to the Bureau of Ocean Energy Management (BOEM).

Site Investigation Skills

RPS have expertise in supporting and carrying out a range of tasks and skills related to site investigation and survey in the Offshore Renewables sector. This includes:

- Preparation of survey specifications
- Management of tender process / proposal review
- Site operations Health Safety & Environment (HSE)/ Quality Assurance
- Interpretation of geophysical, geotechnical, biological, and environmental data
- Unexploded Ordnance or Discarded Military Munitions
- Contamination studies (ALARP Certification)
- Geotechnical testing and parameter selection
- Quality control of data acquisition and reporting
- Integrated geophysical, geotechnical, archaeological, biological, and environmental reporting
- Stand-alone archaeological reporting
- Ground model formulation
- Client and HSE representation





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METOCEAN CAPABILITIES

Our Metocean team has a global reputation for excellence in physical oceanography services, meteorological conditions studies, and other water-related measurements in often difficult environments. We are dedicated to solving environmental problems in coastal and deep-water environments as well as inland rivers and lakes, using both classical and innovative data acquisition systems, modern data analysis techniques, and focus on customer needs, and attention to detail.

We have extensive experience and knowledge in developing and utilizing a wide variety of Metocean instrumentation. We own and maintain a suite of oceanographic and freshwater instrumentation. With our office locations strategically placed throughout the US, RPS is prepared and positioned to provide rapid-response services, and to coordinate and manage multidisciplinary teams for highly complex long-term projects.

OUR GOAL IS 100% RETRIEVAL ON EVERY PROJECT

SERVICES

Offshore Wind
- Wind and climate characterization
- Lidar buoy development and deployment
- Waves, currents, salinity and temperature
- Design and operational criteria
- Forecasting

Oil& Gas
- Rig and platform measurement systems
- Deep-water moorings
- Meteorological systems
- Desktop studies/design and operational corrections

Coastal, river and lake processes
- Current and wave studies
- Discharge measurements
- Coastal processes and circulation studies
- Sediment transport and fate
- Water quality monitoring and assessment

Real-time data collection
- Coastal systems
- Ocean systems
- Port and harbor systems

Dredging support
- Dredging and dredged material disposal planning studies
- Dredge and dump scow plume monitoring
- Sediment sampling
- Acoustics

Custom built monitoring buoys
- Oceanographic and meteorological research
- Weather forecasting
- Site conditions monitoring and forecasting

Example applications
- Real-time metocean measurements for wind farm development
- Numerical model verification and calibration
- Coastal restoration / remediation, pre and post-conditions
- Design criteria – docks, terminals, plat forms, bridges, pipelines
- Dredge and thermal plume monitoring

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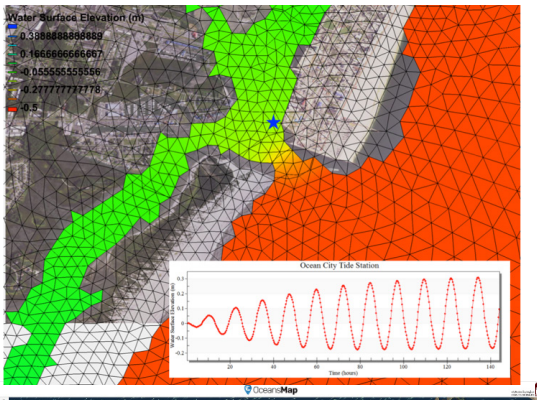
METOCEAN MODELING AND ANALYSIS

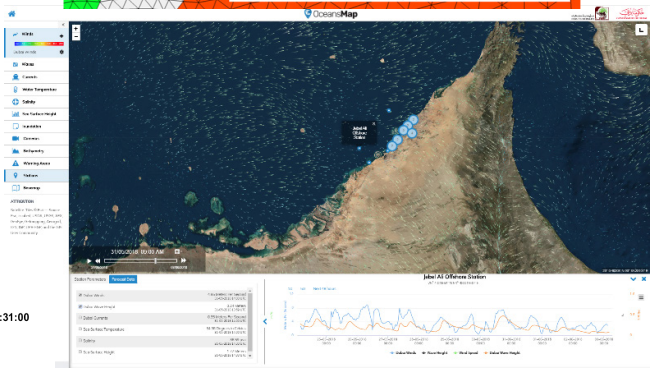
RPS has extensive experience and knowledge in modeling and analysis of metocean conditions and coastal processes including atmospheric modeling, wave modeling, hydrodynamic modeling, tsunami/storm modeling and sediment transport and water quality modeling. RPS's Ocean Science division roots are in numerical model development and application as well as environmental data management. Our experience with model development makes us uniquely qualified to tailor model applications to solve complex issues in the environment to suit our clients' needs.

RPS has supported a wide variety of projects that include modeling components, ranging from model development, model application to model data integration. Projects range from operational forecast and warning systems to hindcasts of past events, and metocean extremal analysis for design and operational conditions. Additionally, RPS leverages machine learning and artificial intelligence to assess and provide improved characterization and prediction of metocean conditions.

Services

- Metocean and coastal modeling
- Environmental and metocean data analysis
- Extremal analysis
- Climate change impacts assessment
- Metocean design criteria development
- Operational forecasting
- Real time portal development
- Mobile application development (forecast & warning)
- Assessment of ocean and coastal infrastructure
- Offshore hazards assessment





Modeling Capabilities

Hydrodynamic, hydro morphological and water quality

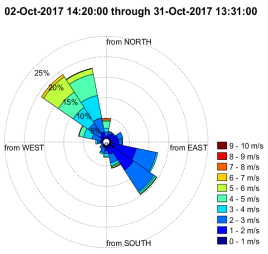
- Tides, currents, inundation
- Rivers, lakes
- Temperature & salinity
- Geomorphology, shoreline change, turbidity and scour
- Water quality (natural and discharges)

Waves

- Wave climate modeling and assessment
- Wind wave and swell
- Storm surge
- Tsunami
- Ship wake waves

Meteorological

- Mesoscale
- Wind-wake



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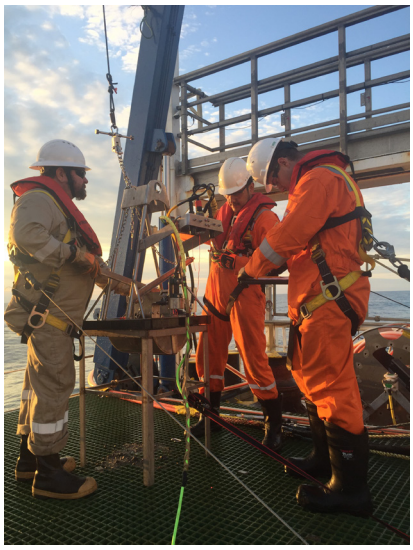
BENTHIC & FISHERIES

RPS developed its offshore renewable energy benthic sampling plans, procedures, and reporting to meet federal regulations (30 CFR Subpart F §585.626) and subsequent agency (e.g., BOEM and NMFS) guidelines. RPS goal for the benthic sampling plan is to limit client costs and liabilities to the furthest extent possible. While the guidelines for this work remain somewhat nebulous and changeable, RPS remains proactively involved with developers and regulators as regulatory requirements mature. RPS also assists in the development of benthic and fisheries monitoring plans, specifically those associated with traps, pots, trawls and dredges.

RPS provides sample station planning and citing, in-field sampling, lab analysis, data analysis, data integration (benthic habitat maps) and reporting to characterize benthic habitats in conjunction with its vessel operations partners. Technology for meeting regulatory guidance relies heavily on grab samples with real-time video, and towed video sled transect coverage over complex, sensitive, or dangerous seafloor. RPS also offers Sediment Profile Imaging with Plan View video (SPI/PV) to replace/supplement grab samples, if requested. The purpose of the sampling investigation is to characterize and monitor benthic resources and support habitat mapping for inclusion into essential fish habitat (EFH) consultation. The objectives of the benthic investigation are to:

- Identify and confirm the dominant benthic macrofaunal and macrofloral communities and substrates present where development is proposed;
- Identify potentially sensitive seafloor habitats, specifically associated with EFH (potential hard bottom, vegetated habitats, biogenic habitats), benthic features, and other biologically sensitive resources in the vicinity of proposed structures;
- Establish a pre-construction baseline that may allow detection of changes to any post-construction benthic habitats associated with proposed operations;
- Collect additional information aimed at reducing uncertainty associated with baseline estimates and/or to inform the interpretation of (other) survey results; and
- Enable easy development of an approach to quantify any substantial changes in the benthic community composition associated with a proposed operation.



To fulfill the objectives, at each location grab sample data (including camera footage), video transect footage, and/or SPI PV imagery, is integrated to produce georeferenced station-specific habitat characterizations in accordance with both NMFS (2020 modified CMECS and FGDC (2012) CMECS (including Water Column, Geoform, Substrate, and Biotic components). The results of this benthic analysis are then superimposed and integrated with the geophysical seabed data (Bathymetry, Backscatter, and Side Scan Sonar) using GIS spatial analysis techniques to generate benthic habitat maps.

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MARINE LIFE MITIGATION SERVICES

Protected Species Observers (PSOs)

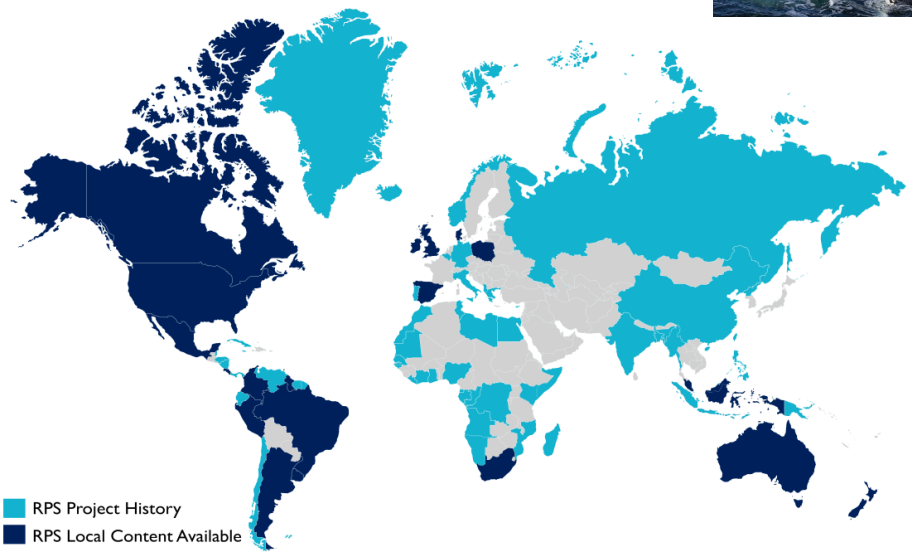
RPS are world-wide leaders in the training and deployment of Protected Species/Marine Mammal Observers with expertise in global regulatory requirements and industry best practices and standards. RPS PSOs are the most well-qualified and highly trained professionals in the industry. RPS provides full-time, shore-based project management to clients during the planning and operation stages, a consistent and reliable methodology in the field, and high-quality, standardized data collection and reporting procedures. The combination of expert guidance in monitoring, mitigation and reporting requirements in the survey planning phase in addition to full-time project support to PSOs and clients in the field minimizes potential operational downtime wherever possible and decreases the risk of potential compliance incidents on your program.

RPS Protected Species Observers

- Highly-qualified degreed professionals with strong backgrounds in the natural sciences
- Expert knowledge in current regulations
- Local content available in most countries
- Industry-standard safety certifications

World-Wide Capabilities

RPS operates worldwide from offices in the UK, Europe, USA, Mexico, Brazil, and Australia, with these primary business centers supported by global business partners.



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MARINE LIFE MITIGATION SERVICES

Passive Acoustic Monitoring

RPS has developed a strong capability in providing highly trained personnel and robust systems of equipment for acoustic monitoring in a variety of applications including energy, academia and renewables. In addition to visual protected species surveys conducted by PSOs, Passive Acoustic Monitoring (PAM) systems are an effective tool for monitoring marine mammals that spend most of their lives below the water surface. PAM Operators monitor and record biologically produced sounds in aquatic environments. PAM systems can be deployed where visual coverage is compromised or where 24-hour monitoring is required. It is a proven, useful supplementary tool for many species where visual surveys are not sufficient for detection. RPS is a leader in providing the latest technologically, proficient and field-tested PAM systems, and expert in-house PAM Operators.

RPS Passive Acoustic Monitoring Operators

- Knowledgeable technicians with expertise in operating the leading acoustic hardware and software
- Experience in installing, operating, and troubleshooting systems
- Highly-qualified individuals with strong backgrounds in the sciences
- Expert knowledge of regulations
- Effective communication skills with multi-tiered personnel
- World-wide experience
- Industry-standard medical and safety certificates

Technical Expertise

- Able to develop and implement new project equipment deployment strategies on a variety of vessel types
- Proficient in maintenance and troubleshooting of technical equipment
- Experience with in-field testing of innovative PAM technology
- Skilled in numerous PAM software packages, including: PAMGuard, Spectrogram 16, IFAW Ishmael, etc.

RPS is a global science and technology solutions company. Our solutions are based upon science and advanced research. Our services and products, along with our staff 's diverse technical backgrounds, are specialized in the analysis of marine, freshwater, air and land resources; computer modeling of physical, chemical, and biological processes; geographic information systems (GIS); operational research and data management.

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HYDRODYNAMIC & SEDIMENT TRANSPORT MODELING

RPS has extensive experience assessing the impacts of sediment disturbing construction activities in both freshwater and marine environments including those from subsea cable installation activities. RPS uses numerical models to simulate both the hydrodynamics and circulation in the study area and the transport, fate, and effects of material suspended during construction activities. Modeling is performed with RPS' in-house developed models or using third party models depending on the project. Our experience with model development makes us uniquely qualified to tailor model applications to suit our clients needs. RPS has supported numerous studies with modeling, simulating a variety of construction activities including pipeline and cable burial, dredging, backfilling and disposal, hopper overflow, land reclamation and pile driving.

Hydrodynamic Modeling

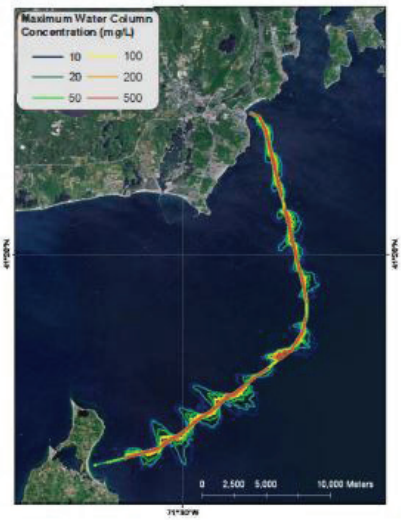
RPS has expertise in hydrodynamic model development and development of model applications for a wide range of study areas. RPS has multiple in house models including HYDROMAP and WQMAP and have experience using many third party models such as Delft3D, EFDC, ROMS, FVCOM, and ADCIRC.

Sediment Transport & Dispersion Modeling

RPS primarily uses its in-house model SSFATE to simulate the transport and fate of suspended sediments, however also has experience using other models depending on project requirements. Model applications include a specification of the environmental conditions, including shoreline, bathymetry and hydrodynamics, as well as the sediment loading from construction activities. The model allows flexibility in specification of the sediment loading and can reflect spatially varied sediment characteristics, trenching dimensions and operational parameters within a single scenario.

Modeling assessments are used to characterize the sediment plume and seabed deposition from sediments resuspended during construction and can further be used to assess the exposure of aquatic organisms using the exposure module SSDOSE. The modeling can also be used to assess the concentration, transport and fate of contaminants associated with the resuspended sediments. Modeling assessments are often performed for inclusion in permit application materials and can be used to develop a construction monitoring plan. RPS also offers field program design and execution of construction plume monitoring.

SSFATE and SSDOSE were jointly developed with the U.S. Army Corps of Engineer Environmental Research and Development Center and have been used in numerous assessments accepted by state, federal, and international regulatory agencies.



Maximum suspended sediment concentrations predicted by the SSFATE model for an approximate 20-mile submarine cable installation.

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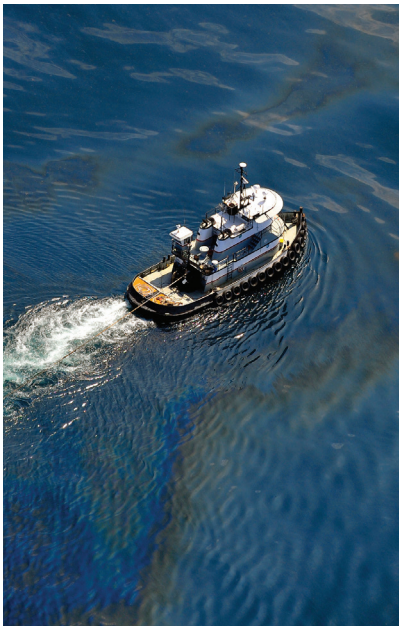
OSRP & OIL SPILL MODELING

RPS Ocean Science, during the last 40 years has been a leader in science-based solutions for coastal and ocean challenges. RPS Ocean Science provides solutions for a diverse range of clients in government, industry, and academia with a unique suite of solutions through consulting, environmental modeling, and application development, services including those associated with ocean sciences, biological sciences, pollution fate and effects, permitting and regulatory support, numerical modeling, computer science, and web-based Geographic Information Systems (GIS), data management and physical, chemical and biological data analysis.

Pursuant to 30 CFR 585.627(c), offshore wind developers are required to submit an Oil Spill Response Plan (OSRP) to the Bureau of Safety and Environmental Enforcement (BSEE) in accordance with 30 CFR Part 254. In addition to developing the OSRP, RPS conducts a stochastical spill trajectory analysis pursuant to 30 CFR 585.627(c) and recent BOEM Guidelines. The RPS team is uniquely qualified to execute this spill modeling given our vast experience in hydrodynamics (currents and waves); assessment of metocean conditions and time series data, and modeling different types of operational and accidental discharges in the marine environment. RPS has full 2- and 3-dimensional modeling capabilities and in-house developed models (e.g., OILMAP and SIMAP) that specifically address these requirements.

In support of Oil Spill Response/Contingency Planning, Environmental Impact Assessments (EIA), Net Environmental Benefit Analysis (NEBA/SIMA), RPS specializes in:

- Oil spill trajectory and fate modeling, in coastal, marine and fresh water environments (rivers, lakes
- Blowout modeling, including offshore, shallow/deep water modeling, including subsurface (seabed) dispersant injection (SSDI).
- Oil chemical characterization and oil weathering tests.
- Hindcast of past spills to determine potential source (backtrack) and to assess actual spill impacts.
- Atmospheric plume modeling of lighter oil fractions. Assessment of atmospheric concentrations of volatile components to characterize the potential to exceed explosive thresholds (low-explosive-limits).
- Modeling of oil interaction in complex spatial and temporally varying habitats, including oil trapped in reed-beds and mangroves.
- Quantifying the potential likelihood and consequence of an incident to qualitatively or quantitatively characterize risk (risk assessment).
- Spill Response Calculator: evaluate different response strategies, combining response resources, evaluating cost, efficiency and timing.



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MARINE UNEXPLODED ORDNANCE (UXO) CONSULTANCY

RPS provides specialist UXO consultancy-based services for clients undertaking work in the marine environment and have built up a wealth of experience with Offshore Wind and Renewables projects over the last 12 years. From experience we understand that the prior planning and mitigation associated with such sites requires a specialist and technical approach. Due to the nature of these projects meticulous planning and technical design has to be implemented in order to devise appropriate mitigation strategies

Unlike typical on shore sites, marine sites that pose a potential for UXO to remain are likely to contain a far greater range of UXO. Our diverse and experienced team use their wealth of knowledge to assess such sites and design appropriate and pragmatic mitigation strategies for our clients. We work with our clients to implement and oversee the strategy throughout the process to ensure the site can be signed off safely in order to conform to the legal and Health & Safety Executive endorsed principle of As Low as Reasonably

SERVICES

UXO Desk Studies, including risk mitigation strategies

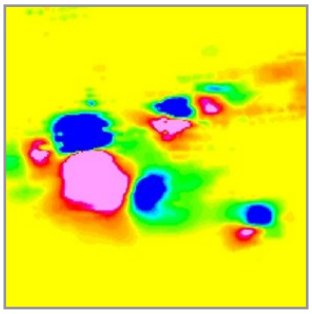
- Risk Assessment
- Burial & Mobility Studies
- Geophysical UXO survey design & technical specifications
- Preparation of Scope of Works and Request for Proposals – including Technical review / scoring

UXO Survey

- Data Processing and pUXO target selection
- Client Representation / QC

UXO Investigation

- Supervision - Contractor
- QC/Client Representation - Client



ALARP Sign-off

- Extended validity review for project life-spans

Operations Support

- Explosive Ordnance Disposal Supervision e.g. dredging, cable lay
- Direct support to clients as UXO / ERW subject matter experts either in client's office or home office.
- 24/7 on-call support for offshore operations

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