



PARTRAC MARINE DATA EXPERTISE

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about partrac

Partrac is a marine data acquisition company. We provide oceanographic, marine geoscience and environmental services for complex engineering and environmental projects.

Formed in 2003, Partrac is headquartered in Glasgow and operates across the UK and worldwide. Our ethos is based upon acquiring quality data in a safe, cost-effective and environmentally responsible manner.

We help our clients design their projects so that their data objectives can be met using the safest and most efficient methods. We also provide data analysis and interpretation to support clients' logistical, engineering and management decisions.

Our staff are key to our success; over half of our employees are qualified to PhD or MSc level. Partrac staff are appropriately trained and experienced in managing the risks associated with working in challenging marine environments.

oceanography

Coastal Oceanography

Partrac is a leading provider of coastal oceanographic surveys, with experience throughout the UK and worldwide.

We provide a range of services from drogue tracking and dye tracing in support of dispersion and dilution studies, through to more complex programmes including seabed ADCP deployments and vessel mounted current profile surveys.

- ◆ Survey design, planning and management
- ◆ Licence applications
- ◆ Seabed ADCP and AWAC deployments
- ◆ Vessel mounted ADCP surveys
- ◆ Turbulence surveys
- ◆ Dilution and circulation studies
- ◆ Drogue and dye tracing
- ◆ CTD and current profile surveys
- ◆ Tidal measurement
- ◆ Water quality monitoring
- ◆ Data processing and analysis
- ◆ High quality reporting

For further details, please contact Sam Athey on: 0141 552 3903





Metocean

Partrac's metocean division acquires meteorological and oceanographic data in support of offshore projects. We provide data and support that is critical to the design and installation of structures in offshore renewables and oil and gas industries. We also provide the design, development and installation of bespoke real-time monitoring solutions which provide essential operational data.

- ◆ Planning and management of metocean surveys
- ◆ Current surveys (ADCP, AWAC, single point current meters)
- ◆ Tidal measurement
- ◆ Wave monitoring (wave buoys, wave radar)
- ◆ Meteorological parameters (met buoys and onshore met stations)
- ◆ Data processing and presentation
- ◆ High quality reporting and interpretation



geosciences

Shallow Geotechnics

Collection of seabed samples is often required for seabed geological mapping, geophysical investigations for validation of sediment transport models and to delineate benthic habitats for environmental impact assessment. We undertake a range of seabed sampling activities including:

- ◆ Grab sampling using Day, Van Veen and Hamon grabs
- ◆ Box coring
- ◆ Gravity coring
- ◆ Vibro-coring (3 to 6 m)

Dredge Monitoring

The process of dredging can give rise to plumes of suspended sediments which require robust monitoring and management. We have developed a range of monitoring approaches to help our clients effectively monitor dredge plumes, including:

- ◆ 3D sediment plume mapping, using the ADCP-Sediview method
- ◆ Depth profiling using autonomous turbidity sensors
- ◆ Real-time monitoring buoys for turbidity compliance monitoring
- ◆ Time-integrating and time-series sediment traps for sediment quality investigations



For further details, please contact Dr Kevin Black on: [0141 552 3903](tel:01415523903)

geosciences

Sediment Monitoring & Scour

The fate of contaminated sediments in ports and harbours for example, is contingent upon erosion, transport and deposition. At marine structures, excessive sediment transport can lead to scour, which needs to be monitored, assessed and managed.

We are leaders in the field of sediment monitoring and use a range of cutting edge methods to monitor sediments in any aquatic environment.

- ◆ Alarmed, real-time turbidity monitoring
- ◆ Spatial sediment flux assessment using Sediview
- ◆ Point sediment flux assessment using integrated ADCP-OBS systems
- ◆ Towed, multi-instrument package systems
- ◆ Submersible water samplers for sensor calibration and sediment quality
- ◆ *In situ* particle size determination
- ◆ Sentinel inline time-integrating suspended sediment trap
- ◆ *In-situ* measurement of seabed stability (Voyager I/II benthic flumes)
- ◆ Intertidal sediment stability (Cohesive Strength Meter)
- ◆ Point bed-level change measurement
- ◆ *In-situ* real-time scour depth measurement (long-term, unattended)



Sediment Analysis

We operate an in-house physical sedimentology laboratory which supports environmental and oceanographic projects. All analyses are conducted to recognised BS/ISO EN standards and comprehensive quality assurance protocols are adhered to using our Quality Management System. We offer the following analytical services:

- ◆ Grain size (sedimentation, laser, sieving)
- ◆ Grain density
- ◆ Grain shape
- ◆ Organic, carbonate and moisture content
- ◆ Settling velocity for sands and silts
- ◆ Critical entrainment stress
- ◆ Total suspended solids

In conjunction with an NMBAQC-certified partner we also offer benthic taxonomic identification of offshore samples.

Sediment Tracking

We design and undertake sediment tracking studies for clients. Sediment (or particle) tracking is a method used to determine the pathways and rates of sediment transport through the environment. Uniquely labelled tracer particles are introduced into the study area and their spatial distribution is monitored through time.

- ◆ Bioturbation studies
- ◆ Contaminated sediment fate/transport field assessments
- ◆ Siltation impact assessment
- ◆ Laboratory sediment transport studies
- ◆ Marine larvae transport studies
- ◆ Scaled physical modelling studies

We use a range of tracers, which are manufactured in-house to the following specifications:

- ◆ Density: 1050 to 3800 kg m⁻³
- ◆ Size: medium silts to cobbles
- ◆ Fluorescent and magnetic signatures

The magnetic signature allows us to use arrays of *in situ* magnets to capture tracer in any aquatic environment, although conventional methods (e.g. water samplers) are also used. Typical applications include the transport and fate of contaminated estuarine sediments, the impact of dredge plumes on sensitive seabed regions, and source-sink pathways in rivers and the sea.

environmental

Benthic Survey

Large scale marine projects such as interconnectors, offshore wind farm development and submarine pipeline routing require characterisation of the seabed biological environment. Visual reconnaissance of seabed areas is often required in advance of any site investigations to establish the presence of any sensitive and important seabed habitats (Annex I). In many cases this is complemented with seabed samples to further identify and quantify benthic species.

Often supporting the site's geophysical survey, we provide the following services:

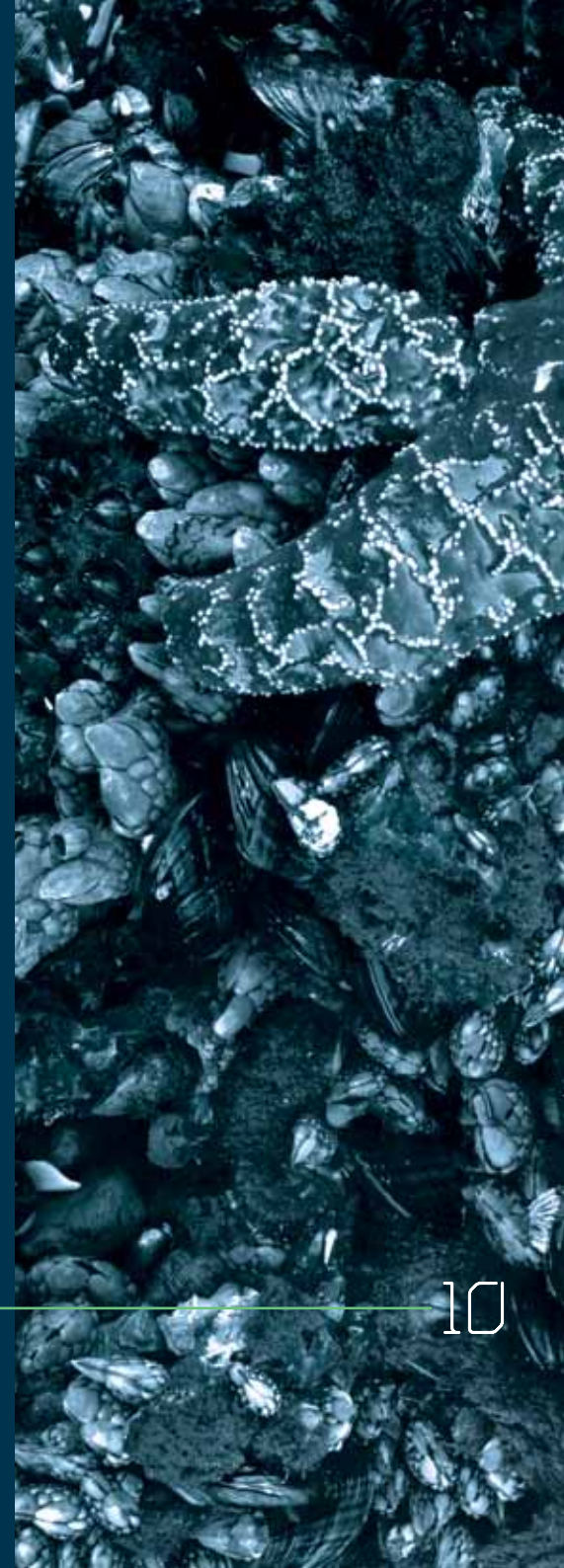
- ◆ Benthic survey management
- ◆ Video and stills photography
- ◆ Seabed sampling (grab sampling, box coring)
- ◆ Identification of seabed biotopes and epifauna characteristics
- ◆ Physio-chemical analysis
- ◆ Taxonomic identification

Habitat Mapping

Mapping of seabed habitats is an important precursor activity to intrusive site investigations. Our environmental team undertake offshore data acquisition programmes to design sampling strategies and appropriate sampling approaches to delineate primary and secondary habitats. Our team collates together the available data (sidescan and bathymetry data, benthic video and photographs and taxonomic data from samples) to form synoptic seabed habitat maps in accordance with JNCC guidelines.

- ◆ Shipboard environmental teams to support geophysical surveys
- ◆ Production of quality assured seabed habitat maps

For further details, please contact Peter Wilson on: 0141 552 3903





Marine Mammal Survey

To reduce the risk of disturbance and injury to marine mammals from excessive noise, government bodies such as the JNCC (Joint Nature Conservancy Committee) in the UK, and the MMS (Minerals Management Service) in the USA, have established protocols that state that all vessels involved in seismic exploration or explosive activity carry a dedicated Marine Mammal Observer (MMO) and/or, during hours of darkness or low visibility, a Passive Acoustic Monitoring (PAM) system.

MMOs and PAM operators are required to observe marine mammals prior to any seismic survey or explosive activity. An MMO and PAM operator are present to advise party chiefs and client representatives on the use of the guidelines, ensuring that all mitigation procedures are followed correctly.

- ◆ Seismic survey (2D, 3D, VSP)
- ◆ Explosive activity monitoring
- ◆ Environmental baseline conditions
- ◆ Data input into EIA

Intertidal Ecology

The intertidal regions of estuaries are constantly under pressure from pollution, infrastructure development and erosion due to wave action and rising sea levels. We offer a range of services in the area of sediment ecology:

- ◆ Intertidal sampling
- ◆ Tidal, wave and sediment dynamics characterisation
- ◆ *In situ* measurement of sediment accretion rate
- ◆ Benthic taxonomy
- ◆ Biotope mapping



sectors

Wave & Tidal

The wave and tidal energy industry has experienced unprecedented growth in the past decade, moving from prototype devices to grid connected demonstrators, to array size leases.

Wave and tidal sites present some unique data acquisition challenges and require innovation and careful planning to provide high-quality data at exposed sites with high current speeds.

Partrac has a strong track record of working with tidal and wave energy developers. We have undertaken numerous tidal resource assessments and environmental surveys at high-energy sites across the UK and Europe.

Clients

Wave & Tidal:

AWS Ocean / Hammerfest Strøm / Marine Current Turbines / Scottish Power Renewables / Tidal Energy Limited / Tocardo NV/ SPR / Seaenergy / RWE Npower

Offshore Wind

The offshore wind industry has ambitious targets for delivering energy to the grid by 2020. This challenging time-line requires all engineering and environmental risks to be identified and quantified. Partrac assists the industry in managing its risks by providing data and survey and interpretive reports.

We have developed a strong track record in offshore renewables - we support clients throughout the development of their projects from oceanographic surveys, licensing, and environmental baseline surveys, through to geo-technical investigations, operation of real-time metocean data collection instruments and post-installation monitoring.

- ◇ Metocean/oceanographic survey
- ◇ Benthic survey
- ◇ Baseline environmental survey
- ◇ Marine mammal survey
- ◇ Sediment & scour monitoring
- ◇ Management of geotechnical investigations

Clients

Offshore Wind:

EDF / EDP Rennovies / E.ON / Mainstream Renewable Power / SSE Renewables / Warwick Energy / RWE NPower / SPR / Seaenergy Renewables

sectors

Utilities

Partrac has been working with the water and energy infrastructure industries, providing data and surveys to ensure regulatory compliance and infrastructure management and development.

- ◆ Coastal oceanography
- ◆ Water quality monitoring
- ◆ Shallow geotechnics
- ◆ Baseline environmental survey
- ◆ Dye and particulate tracing studies
- ◆ Benthic survey

Partrac is UVDB registered and has been audited for Quality, Environment and H&S management systems by the UVDB Verify scheme

Oil & Gas

The oil and gas industry is a mature, highly-regulated industry with well-defined metocean and environmental data requirements.

Partrac provides data and surveys for new wellhead sites, proposed pipeline routes, LNG developments and decommissioning operations in UK waters and worldwide.

- ◆ Metocean services
- ◆ Baseline environmental survey
- ◆ Benthic survey
- ◆ Sediment mobility & scour

Partrac shares the health, safety and welfare ethos of the industry and works to clients' policies and management systems.

Clients

Utilities:

Northumbrian
Water Ltd /
Scottish Water /
United Kingdom
Atomic Energy
Authority /
Wessex Water

Oil & Gas:

DTI SEA / ENI /
GDF / Saipem /
Nordstream



Dredging, Ports & Marine Construction

Partrac provides dredge, environmental and construction monitoring for marine developments. Much of our work is associated with monitoring dredging and reclamation activities to ensure that environmental licence conditions are adhered to.

- ◆ Dredge monitoring
- ◆ Online dredge monitoring buoys
- ◆ Dredge plume surveys (Sediview surveys)
- ◆ Shallow geotechnics
- ◆ Contaminated sediment surveys
- ◆ FEPA sampling
- ◆ Baseline environmental survey
- ◆ Benthic survey, sediment and water quality monitoring
- ◆ Management of geotechnical investigations
- ◆ Sediment tracking

Clients

Dredging, Ports & Marine Construction:

Able UK / Fowey Harbour Commissioners / London Gateway Port Ltd / Mineral Industry Research Organisation / P&O / Poole Harbour Commissioners / Port of London Authority / Teesport / United States Army Corps of Engineers / Van Oord / Westminster Dredging



q.h.s.e

Health & Safety

The health, safety and security of employees, contractors and those who may be affected by Partrac operations is integral to our business.

We manage our business in such a way, and so far as is reasonably practicable, that the safety and welfare of staff and persons not employed by Partrac is not exposed to risks.

Partrac operates a health and safety management system in line with OHSAS 18001:2007. We aim and seek to continually improve all health and safety systems within the company.

Partrac recognises the specific health and safety risks associated with marine survey, environmental sampling and general boat work. UK health and safety requirements are strictly adhered to and all our staff hold the appropriate certificates for offshore work.

Quality Management

Partrac is a client-focused organisation and we work in close liaison with our clients throughout the project lifecycle to deliver high-quality data and project management.

To ensure that our work maintains a high level of quality throughout, we operate a Quality Management System (QMS) which is accredited to ISO 9001:2008. Contracts and projects are managed in line with procedures in the QMS. Technical, contractual and logistical risks are managed throughout all projects and are continually reviewed against the agreed budget, deliverables and timescales. Transparent progress reports are issued to clients on a regular basis identifying progress, budget spend, issues and the outlook for the following period.

Environmental Management

Partrac has an Environmental Management System (EMS) which is accredited to ISO 14001:2004. We are proactive in ensuring that Partrac and its sub-contractors and associates endeavour to minimise the environmental impact of all business operations. We conduct our activities to meet or exceed all applicable laws and regulations as well as company policies and client environmental requirements.

Partrac has environmental objectives and targets, which are audited, tracked and reviewed through our EMS. Equipment, facilities and operations are continually monitored to ensure compliance.

We communicate environmental policies and objectives to all employees, associates, sub-contractors and, equally, clients.



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