

European Offshore Wind Deployment Centre Environmental Statement

Appendix 1.1: External Consultant Information





Company Experience

ABPmer is a specialist consultancy providing high quality scientific advice for interests relating to the marine environment. Major clients include ports, coastal authorities, nature conservation bodies, government departments, marine industries and other engineering and environmental consultancies.

Staff resources are managed and developed in four key areas:

- Coastal Processes;
- Data (including field survey and GIS);
- Modelling; and
- Environment.

In relation to the present study, ABPmer is recognised as a leading authority on coastal process investigations for offshore wind farms, both in terms of advancing generic science and offering project specific services. Our experience and expertise in relation to offshore wind developments includes:

- Oceanographic/metocean survey and survey design;
- Coastal process studies;
- Production of Environmental Impact Assessments and Environmental Statements; and
- Metocean analysis for operation, maintenance and design.

ABPmer is a longstanding member of Renewable UK, REA and is represented at the Offshore Renewable Energy Environmental Forum (OREEF).

Key Staff

Project Director:	Mr Bill Cooper
Project Manager:	Dr. Claire Hinton
Quality Manager:	Dr. David Lambkin
Numerical Modelling Lead:	Mr Nigel West
Data Manager:	Mrs Nicola Dewey

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Offshore Renewables (and related) Experience

Anatec's experience in relation to assessments for offshore renewables includes carrying out the following:

- Site Selection Screening (Rounds 1-3, Scottish Round, Pentland Firth Marine Round and other ad-hoc areas upon request)
- Provision of Shipping Data (merchant, fishing & recreational craft)
- Radar Surveys (covering sites in Scotland, England, Wales and Northern Ireland from onshore and offshore).
- Risk Modelling (meeting MCA and DECC Standards)
- Assessment of Mitigation Measures
- Consultation/Liaison
- Cumulative Assessment
- TWA & CPA application support
- Expert Witness for Robin Rigg Parliamentary Committee & Scarweather Sands Public Enquiry

In the past seven years, Anatec have completed navigational risk assessments for the majority of Round 1 and 2 Offshore Windfarm sites in the UK, including.

- Robin Rigg, Solway Firth (Consented)
- Rhyl Flats, Liverpool Bay (Consented)
- Burbo Bank, Liverpool Bay (Consented)
- Scarweather Sands, South Wales (Consented)
- Cromer, North East Norfolk (Consented)
- Inner Dowsing, Lincolnshire (Consented)
- Lynn, Lincolnshire (Consented)
- Walney Offshore Wind Farm (Consented)
- London Array (Consented)
- Ormonde (Consented)
- Greater Gabbard (Consented)
- West of Duddon Sands (Consented)
- Cirrus Shell Flat Array (Withdrawn)
- Lincs (Consented)
- Sheringham Shoal (Consented)
- Docking Shoal (In Progress)
- Race Bank (In Progress)
- Humber Gateway (Consented)
- Westernmost Rough (In Progress)

We also performed the navigation risk assessments for the SW Wave Hub project off St Ives, the Wave Dragon project off Milford Haven and EMEC Fall of Warness Tidal Site in Orkney. Other wet renewables projects Anatec has been involved in include site assessment reviews for Trident Energy and Lunar Energy.

Named Consultants

Michael Cain M.Sc, PgD, B.Sc,
John Beattie M.Sc, B.Eng,
Robert Jones B.Sc.

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Brown & May Marine Ltd

Summary of Experience

Brown and May Marine Ltd has been undertaking studies and services relating to various interfaces that occur between commercial fishing and, offshore renewable energy, offshore oil and gas developments and cable installations since 1982. Given below are examples of the work undertaken.

Commercial Fisheries Components of EIA's

The commercial fisheries components for the EIA's and ES's have been completed for the following offshore wind farm developments in the UKCS:

- Scarweather Sands - Green Energy, Swansea Bay 2004 – 2005
- Walney 1&2 - Dong Energy, Eastern Irish Sea, 2005 – 2008
- West of Duddon Sands - Scottish Power, Eastern Irish Sea 2005 – 2006
- Shell Flats 2 - Scottish Power, Eastern Irish Sea 2006 – 2007
- Lincs - Centrica, Wash 2006 – 2007
- Docking Shoal - Centrica, Wash 2007 – 2008
- Race Bank - Centrica, Wash 2007 – 2008
- Dudgeon - Warwick Energy, North Sea 2007 – 2008
- Gunfleet Sands 2 - Dong Energy, Thames Estuary 2007 – 2008
- Aberdeen Offshore Wind- Amec, Aberdeen Bay 2007 – 2008
- Westernmost Rough - Dong Energy, North Sea 2008 – 2009

We are currently engaged in commercial fisheries works for ten Round 2 and 2.5 wind farms and six Round 3 wind farms.

Fisheries Liaison

Fisheries liaison work, public meeting attendance, and compensation assessment and advice provided for:

- Dong Energy
- Warwick Energy
- Centrica
- Scottish Power
- Vattenfall
- SSE Renewables
- EON
- Seagreen
- Sea Energy
- EDP Renovaveis

Experience in Scottish Waters

Brown and May Marine Ltd (BMM) have more than thirty years experience undertaking commercial fisheries assessments in Scottish waters.

In 1980 BMM staff undertook a Commercial Fishing Interaction Study for Shell Expro's Flaga pipeline in the Northern North Sea, the first study specific to

commercial fishing activities to be undertaken in the UK. This work contributed to the pipeline being awarded the first trenching dispensation in the UK Continental Shelf.

Over the past thirty years in excess of a hundred commercial fishing studies have been carried out in Scottish Waters for the offshore oil and gas and subsea cables industries.

BMM has established a strong working relationship with the Scottish Fishermen's Federation (SFF) for over twenty five years, working together on a range of projects not only in Scottish waters, but using their fishing experience to aid projects further afield.

BMM additionally has good working relationships with Marine Scotland, having worked closely with both the Science department (formerly Fisheries Research Services) and the formerly named Scottish Fisheries Protection Agency (SFPA), as well as with various district fisheries officers.

BMM has experience of the Scottish Atlantic salmon fisheries, and have liaised in the past with both commercial and recreational stakeholders and statutory consultees.

Examples of recent work undertaken in Scottish waters during the past 18 months are listed below:

- BP West of Shetland – Commercial Fishing Study and Interaction Frequency
- Conoco – Philips – Commercial Fishing Interaction Study for Jasmine pipeline
- Aberdeen Offshore Windfarm - Commercial Fishing Assessment and Impact Assessment
- Aberdeen Offshore Windfarm – Salmon and Sea trout Baseline Assessment
- Enagas: Experience sharing with the SFF. A series of visits organised by BMM subsequent to a Commercial Fishing Study undertaken in the Mediterranean to facilitate sharing the SFF experience of fishing in waters shared with the offshore oil and gas industry.
- Airtricity: FLO to the proposed Beatrice offshore wind farm development. FLO to the proposed Islay and Kintyre offshore wind farm developments. Contracted to undertake the commercial fishing aspect of the EIA (Ongoing).
- Scottish Power: FLO and EIA advice for Islay tidal energy project

The works we are currently undertaking are listed below:

- Beatrice Offshore Wind Farm- Commercial Fisheries EIA, Salmon & Trout EIA, and overall Fisheries Liaison Officer
- Moray Offshore Wind Farm- Commercial Fisheries EIA, Salmon & Trout EIA, Natural Fisheries EIA, and overall Fisheries Liaison Officer
- Aberdeen Offshore Wind Farm- Commercial Fisheries EIA, Salmon & Trout EIA, and overall Fisheries Liaison Officer
- Firth of Forth Offshore Wind Farm- Commercial Fisheries EIA and overall Fisheries Liaison Officer
- Inch Cape Offshore Wind Farm- Overall Fisheries Liaison Officer
- Neart Na Gaoithe Offshore Wind Farm- Commercial Fisheries EIA, Salmon & Trout EIA, and overall Fisheries Liaison Officer

- Islay & Kintyre Offshore Wind Farm- Commercial Fisheries EIA and overall Fisheries Liaison Officer

Named Consultants

Stephen Appleby
Josephine Henniker-Major
Patrick McGovern
Sara Xoubanova
Leanne James

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**Summary of Experience**

Policy and economics of energy, sustainability and climate change working for Research Councils, Governments, local authorities and corporates

Key Staff Involved

Donald Webb, Head of Energy & Sustainability, BSc Hons, MBA, Member of the Institute of Consulting

Richard Howard, BSc Hons, MSc

Contact Details

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Genesis Oil & Gas Consultants Ltd. was formed in 1988 and now employs over 700 engineers and scientists spread across main offices in Aberdeen, London, Paris, Perth (Australia); with smaller offices in Norway, Abu Dhabi and Brazil. We specialise in the energy industry with major projects world-wide. Our key skills are in offshore engineering, safety and the environment addressing all project phases from planning and concept design to operational support both for traditional oil & gas and the renewable energy sectors.

One of the challenges for offshore wind power is the difficulties in designing, installing, operating and maintaining rotating equipment in remote locations in the harsh North Sea environment. This challenge is dealt with on a daily basis by engineers in the oil and gas industry and the expertise possessed by Genesis is directly transferable into the renewable energy market. Our work on permitting (safety & environment) and foundation selection and design are areas where we have brought significant experience to the renewable market.

The key skills provided by Genesis are:

- Consents management and Environment Impact Assessment, onshore and offshore;
- Concept design;
- Foundation selection and design;
- Environmental studies including bird impact studies, underwater noise modelling, habitat assessments and marine mammal studies;
- Project execution and management services;
- Safety assessments;
- Rotating equipment design and support;
- Power system and network studies;
- Reliability and availability prediction for machinery and power output;
- Instrumentation and SCADA design; and
- Operational support

Examples of our client work has included environmental, safety and engineering support to the European Offshore Wind Deployment Centre where we have been

responsible for engineering and environmental support to the project, safety support to the Beatrice wind farm and concept design for the Havsul offshore wind farm.

Major projects include:

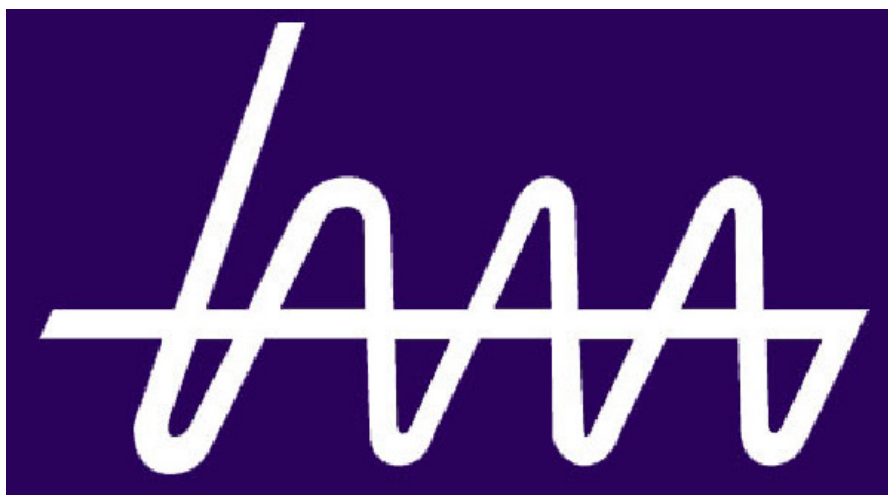
- Environmental and engineering support to EOWDC with input to major sections of the Environmental Statement and the production of specialist studies on habitats, other users of the sea, marine mammals and noise. Genesis has also been involved in providing planning and engineering support including, structural and electrical studies.
- Engineering support to the Havsul offshore wind farm in Norwegian waters providing key advice on the selection and design of the foundations.
- Genesis provided technical safety support to the Beatrice Demonstrator project where our role included facilitating and participating in hazard identification sessions and writing the draft safety case for operation of the project as an appendix to the existing Beatrice Safety Case.
- Genesis provided advice to SeaEnergy Renewables on suitable HSE management system structure and the development of HSE plans.

Contact Details:

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HarmonicQuay is the trading name for Dr Genevra Harker, and provides project management, environmental and oceanographic expertise to the energy sector, with the main focus on renewable energy projects. Building on initial experience in the offshore oil and gas industry Dr Harker has worked on numerous UK offshore wind farms including Neart na Gaoithe, Hornsea Zone, Dogger Bank Zone, Race Bank, Docking Shoal, Lincs, Lynn, Inner Dowsing, Gunfleet Sands, Scarweather and Shell Flats. She has also worked on desk studies for wind farms in France and the US. For the EOWDC, her main role was technical reviewer.



Summary of Expertise

Hayes McKenzie Partnership Ltd (formerly Hayes McKenzie Partnership) have been specialising in the measurement, assessment and control of noise from wind farm sites for 20 years. During that time this has included work on over 600 proposed, consented or completed wind farm sites in the UK, Continental Europe, USA, Canada, Australia, New Zealand and Asia; source noise measurements on around 30 turbine types, measurements of residential noise levels at around 30 existing wind farms and provision of expert witness evidence for over 70 UK public inquiries. Our clients have included most of the major UK wind farm developers and have included many successful applications, including those gained at Public Inquiry.

All consulting staff are members or associate members of the Institute of Acoustics and Dr McKenzie sits on the joint Institute of Acoustics / Institute of Environmental Assessment Working Group on Environmental Noise Impact Assessment and BERR Working Group 3, Small and Micro Wind Turbines. They were invited contributors to the Australian Standard Acoustics – Measurement, prediction and assessment of noise and wind turbine generators. The company currently has 9 full time consultants and 3 administrative staff and sources all measurement equipment from its own stocks. It is a member of the Association of Noise Consultants.

Key Staff Involved

Dipl.-Ing. Sylvia Broneske MIOA

After graduating from the University of Applied Sciences, Hamburg, Germany with a degree in Environmental Engineering, Sylvia Broneske worked as an Engineer and Consultant in the Site Assessment department of the wind turbine manufacturer Enercon GmbH, Germany.

Her scope of duties included noise and shadow impact assessment for wind farm developments; supervising noise measurements of Enercon wind turbines; advising co-workers, authorities, clients/developers and wind farm neighbours on wind turbine noise-related issues; solving complaints about wind farm noise and optimisation of noise-critical Enercon wind farm sites; calculating periods of shadow flicker and programming the ENERCON shadow shutdown system to prevent shadow flicker at surrounding properties.

In 2007 she joined Hayes McKenzie Partnership Ltd. in Salisbury and is now an acoustic consultant responsible for the preparation of Environmental Impact Assessments for wind farm developments; other noise assessment work for planning

purposes; planning condition compliance tests and source noise measurements of wind turbines, recently in particular of several small wind turbines.

She has given lectures on noise from wind turbines on several occasions, including the 2007 UK Institute of Acoustics one-day meeting on Windfarm Noise and the Wind Turbine Noise Conference in Aalborg/Denmark in 2009. She has recently been invited to speak at a two day conference on wind farm noise in the UK at the KCE Akademie in Germany.

She is currently undertaking an MSc course in Sound and Vibration at the Institute of Sound and Vibration Research (ISVR) at the University of Southampton, continuing to work part-time at Hayes McKenzie Partnership. She is a member of the Institute of Acoustics and of the Verein Deutscher Ingenieure, the German equivalent of the Institute of Mechanical Engineers.

Robin Woodward BSc AMIO

Robin graduated from the ISVR/University of Southampton with a BSc in Acoustics and Music. He joined HMPL in 2010 and is currently carrying out the deployment of measurement equipment for environmental noise surveys in connection with wind farm developments in England and Scotland, the analysis of data and noise predictions and assists with the preparation of Environmental Impact Assessments.

Malcolm D Hayes BSc MIOA – Director of Hayes McKenzie Partnership Ltd

Member of DTI Working Group on Noise from Wind Turbines and of Eskdalemuir Seismic Array Working Group; Member of the Organising Committee for International Conference on wind turbine noise Berlin (2005), Lyon (2007), Aalborg (2009) and Rome (2011)

Contact Details

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Headland Archaeology (UK) Ltd

Headland Archaeology (UK) was founded in 1996 and has since grown to become the largest archaeological company in Scotland, with offices in Edinburgh, Glasgow, Hereford and Leighton Buzzard, whilst the Irish arm has offices in Cork, Galway and Dublin. Headland offers a wide range of services and specialises in major projects such as the M74 Completion Project, Glasgow, A1 and A4 road schemes, Northern Ireland, Clyde Wind Farm, South Lanarkshire, and Upper Forth Crossing, Clackmannanshire.

Headland is a Registered Organisation of the IfA and abides by its Code of Conduct. The company is Achilles Category B2 accredited.

Headland has considerable experience of conducting EIAs throughout the UK, and has particularly extensive experience in relation to wind farms

Key Staff Involved

Richard Conolly MA(Hons) MIfA
Linn Breslin MA, AIfA

Contact Details

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Company experience - projects, other companies work for etc:



Institute of Estuarine & Coastal Studies (IECS) at the University of Hull

Summary of Experience

The Institute of Estuarine and Coastal Studies (IECS) has been undertaking research and consultancy work in the estuarine and marine environment since 1982 and has both extensive survey and analysis facilities, together with a range of expertise within our professional staff and Associates. IECS is a multi-disciplinary research and consultancy organisation set up to utilise the facilities and expertise in coastal margin science and management within the University of Hull. IECS covers a wide range of specialisms within the coastal environment ranging from the biological and physical environments (topography, vegetation, ornithology, benthic and pelagic fauna) to coastal planning, environmental quality, marine law and environmental impact assessment.

Key Staff

Anita Franco, Nick Cutts, Katya Solyanko, Krysia Mazik, Shona Thomson, Professor Mike Elliott

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L D A DESIGN

Introducing LDA Design

Founded in 1979, LDA Design is a renowned independent design and environment business driven by a commitment to shape the world for the better. We provide tailor-made solutions to every project. We help our clients regenerate communities, create special places, manage resources and realise their development and commercial goals.

LDA Design attracts people who are leaders in the planning, design, delivery and management of all types of change in the physical environment. We work on projects of all scales across the UK and internationally. Our talented and experienced team approaches each commission as a fresh, creative and practical challenge.

The special abilities of the practice include taking complex projects through an increasingly demanding planning system from concept to delivery. This collaborative and ideas-led approach to problem-solving, combined with the technical abilities we have cultivated over many years, uniquely positions us to meet the challenges arising from climate change and the need for development. Our strength lies in the way that we bring together the diverse skills and experience of our team in a working culture that combines creativity with pragmatism and commercial awareness.

Services and Areas of Expertise

LDA Design brings together all the services necessary for the creative and technical leadership of complex development, regeneration and environmental projects. These skills can be brought into a multidisciplinary team as a specialist expertise if necessary.

- Masterplanning
- Urban Design
- Regeneration
- Landscape Architecture
- Ecology
- Architecture
- Development Planning
- Strategic Land Promotion
- Green Infrastructure
- Rural Consultancy
- Environmental Impact Assessment
- Historic Environments
- Environmental Planning
- Renewable Energy
- Community Asset Management

Support Services

To support our work and goals we have further complementary professional skills in-house, including:

- Expert Witness / Public Inquiry
- Event and Exhibition Organisation
- Graphic Design and Animation
- Public Consultation
- Public Relations
- Media Liaison

Our clients include developers, land-owners, regeneration agencies, government departments, local authorities, renewable energy firms and educational establishments.

For a full client list and further information about us visit our website www.lda-design.co.uk

Named Consultants

William Wheeler

POSITION IN PRACTICE:

Director

QUALIFICATIONS:

MPhilLD Landscape Architecture, 1986

MA (Hons) Geography, 1981

PROFESSIONAL STATUS:

Chartered Member of the Landscape Institute,
1989

Joanna Patton

POSITION IN PRACTICE:

Senior Consultant

QUALIFICATIONS:

MA (Hons) Landscape Architecture, 2003

PROFESSIONAL STATUS:

Chartered Member of the Landscape Institute,
2006

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Wessex Archaeology

Company Experience

Wessex Archaeology is a market leader working in the archaeological and broader heritage world: above ground, below ground and underwater. Established 25 years ago, and today employing a professional staff of over 200, Wessex offers an unrivalled range of archaeological services.

Wessex Archaeology has been involved in over 200 coastal and marine schemes, both development-led and strategic, including numerous schemes relating to the offshore renewables industry and has undertaken both offshore and onshore work, including programmes specifically designed to assess archaeology / cultural heritage and impact on setting.

Wessex Archaeology has a strong track record in providing the full range of archaeological services required to support development schemes in respect of renewable energy projects. Wessex Archaeology's Coastal and Marine service expertise encompasses desk-based cultural heritage assessments for EIAs, REAs, strategic assessments and industry guidance, and further work in support of these studies in the form of geophysical survey and geo-archaeological investigations.

Wessex Archaeology's experience in the area of renewables encompasses over 20 offshore wind farms, a wave power generator, a tidal power generator and Historic Environment guidance for the whole offshore renewables sector.

Key Staff Involved

Project Manager – Jonathan Benjamin
Archaeologist – Andrew Bickett
Senior Geophysics Manager – Paul Baggaley
Marine Geophysicist – David Howell
Senior Graphics Officer – Karen Nichols

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