

**AQUATONICS LTD**  
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## **PHIL SMITH BSc, PhD, CEnv, CChem, MRSC, MCIWEM**

Nationality: British

### **KEY EXPERIENCE**

Dr Smith is a Chartered Chemist and Chartered Environmentalist with 39 years of experience in ecological surveys and assessment of the impacts of contaminants (metals and organics) on water, sediments, invertebrates and fish. Key areas of experience are:

- Expert Witness and Expert Advisor on water pollution, fish and shellfish kills and related issues.
- Ecological and chemical surveys of fresh, estuarine and marine waters.
- Identification of estuarine and marine invertebrates.
- Monitoring the impacts of discharges, engineering works & dredging on the aquatic environment.
- Assessing ecological and chemical aspects of pollution.
- Conservation assessment of aquatic habitats.
- Oil spill sensitivity mapping and contingency planning.
- Assessment of contaminated sediments.
- Environmental Impact Assessments and EIA Training.

### **OTHER EXPERIENCE**

- Impact of underwater noise, e.g. from quarries and seismic surveys
- Forensic analysis of marine life on bones, hulls etc
- Satellite and aircraft remote sensing
- Environmental communications and education
- Environmental Management

### **ACADEMIC QUALIFICATIONS**

BSc Chemistry and Environmental Science (First), University of Wales Institute of Science and Technology (UWIST), Cardiff. (1978). Specialised in freshwater biology and ecology, analytical chemistry, organic chemistry and radiochemistry.

PhD 'Environmental Effects of Discharges to the Littoral Zone of the Humber Estuary'. Department of Zoology, University of Hull. (1982). Research included studies of benthic invertebrates at polluted & unpolluted sites; analysis of metals in fauna & sediments; analysis of hydrocarbons in sediments; invertebrate toxicity testing & satellite remote sensing of discharges.

### **PROFESSIONAL QUALIFICATIONS**

Chartered Chemist (CChem) qualification from the Royal Society of Chemistry (1981).

Member of the Chartered Institution of Water & Environmental Management (MCIWEM) (1988).

Chartered Environmentalist (CEnv) from the Society for the Environment (2004).

## **MEMBERSHIP OF PROFESSIONAL AND SPECIAL INTEREST GROUPS**

Listed on the Police National Crime Agency (NCA) Database for Expert Advisors.

Member of the Royal Society of Chemistry (MRSC).

Member of the Chartered Institution of Water and Environmental Management (MCIWEM).

Member of the Marine Biological Association, UK.

Member of the Estuarine and Coastal Sciences Association.

Member of the Freshwater Biological Association.

## **EMPLOYMENT**

Launched Aquatic Environmental Consultants in 1982 to provide industry, engineering consultancies and regulatory organisations with advice on monitoring and predicting the effects of discharges, spills and engineering works on aquatic ecosystems. In January 2004 the name of the consultancy was changed to Aquatonics Ltd.

Dr Smith has worked throughout the UK and in Ireland, Norway, Oman, Egypt, Saudi Arabia, Qatar, Bermuda, Trinidad, Madagascar, India, Thailand and Hong Kong. Details are provided in the list of contracts. He works well with people of all nationalities and cultures, and finds it relatively easy to adapt to local conditions and cultural norms.

## **LANGUAGES**

English – native; French - fair; Spanish - basic.

## **COMPUTING**

Familiar with:

Internet applications including writing html

MS Word, Excel and Access

MS Power Point

PRIMER software for analysis of univariate and multivariate environmental data

## **LICENCES HELD**

Licence from English Nature under the Wildlife and Countryside Act for surveying the tentacled lagoon worm, *Alkmaria romijni*, most recently (2015) in the Thames estuary.

## **PAPERS, PUBLICATIONS AND PRESENTATIONS**

Smith, P R J (1982). Environmental Effects of Discharges to the Littoral Zone of the Humber Estuary. PhD Thesis, Department of Zoology, University of Hull.

Smith, P R J (1982). Biological monitoring of estuarine discharges. Third International Environment and Safety Conference, London.

Smith, P R J (1983). Coastal Pollution. Leaflet on satellite remote sensing of coastal pollution prepared for the National Remote Sensing Centre, Farnborough.

Smith, P R J and Jones, N V (1983). Routine biological monitoring of estuarine intertidal sites. Society for Experimental Biology conference, University of Hull.

Smith, P R J (1985). Remote sensing from satellites and aircraft and its application in coastal and estuarine studies.

Field Studies Council Staff Course, Slapton Ley.

Jones, N V and Smith, P R J (1986). Temporal changes in heavy metals and other parameters of intertidal sediments at a site in the Humber estuary (UK). *Water Science Technology*, Vol 18, 324.

Smith, P R J and Ford, A J (1990). Environmental Impact Assessment of a Proposed Redevelopment at Folkestone Harbour, Kent. Estuarine and Coastal Sciences Association meeting on 'The Coast and Estuaries of South East England' (unpublished).

Smith, P R J (1991). Environmental Impact Assessment. Royal Society of Arts meeting on 'The Future of Britain's Estuaries' 13-14 February 1991.

Smith, P R J (1995). Exploration for hydrocarbons in Lyme Bay. Presentation to ProGeo 95 Conference 'Environmental Assessment - the Role of the Geologist'. 7 July 1995.

Smith, P R J (1998). Environmental Impacts of Offshore Oil and Gas. Plenary Lecture at a meeting on Marine Pollution held at the King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia. 26-27 April 1998.

Smith, P R J, Perrett, J, Garwood, P and Moore, G (1999). Two additions to the UK marine fauna: *Desdemona ornata* Banse, 1957 (Polychaeta, Sabellidae) and *Grandidierella japonica* Stephensen, 1938 (Amphipoda, Gammaridea). Newsletter of the Porcupine Natural History Society, p 8-11, Number 2.

Smith, P R J (2000a). The Use of a Glauconitic Clay to Remove Metals from Solution. Aquatonics Ltd.

Smith, P R J (2000b). Use of a Glauconitic Clay to Remove Copper from Effluents Produced During Manufacture of Printed Circuit Boards. Report for Aquatonics Ltd.

Smith, P R J (2001). Trials of a Prototype Plant using Clay Slurry to Remove Metals from a Mine Effluent. Report for Aquatonics Ltd.

Smith, P R J & Hook, M (2002). Comparison of Different Clay Slurries for Removing Copper from Solution. Report for Aquatonics Ltd.

Smith, P R J. (2002). Use of Waste Clays to Treat Mine Drainage & Industrial Effluents. Presentation to Wheal Jane Link Project members, Camborne School of Mines, September 2002.

Townsend, M; Worsfold, TM; Smith, PRJ; Martina, LJ; McNeill, CL and Kendall, MA (2006). Occurrence of *Sternaspis scutata* (Polychaeta: Sternaspidae) in the English Channel. *Cahiers de Biologie Marine*, Volume 47, 281-285.

Smith, P, Snook, D, Muscutt, A and Smith, A (2010). Effects of a diesel spill on freshwater macroinvertebrates in two urban watercourses, Wiltshire, UK. *Water and Environment Journal*. 24(4): 249-260.

Smith, P and Barber T (2011). *Geophilus seurati* from a core sample in muddy sand in the Hayle estuary, Cornwall. *Bulletin of the British Myriapod and Isopod Group*. Volume 25, p51.

Smith, P and Nunny, R (2012). Mapping of sedimentary marine biotopes around Lundy, UK. *Journal of the Lundy Field Society*, 3, 41-74.

Smith, P, Smith, A and Rabineau, J (2012). The Hayle estuary complex - detecting modern anthropogenic disturbance in a highly polluted and physically amended estuarine system. Oral presentation at the 50th ECSA Conference, Venice, June 2012.

Pinder, AM, Sweeney, P and Smith, PRJ (2013). First confirmed record of the genus *Insulodrilus* (Benham, 1903) (Annelida: Clitellata: Phreodrilidae) in Europe. BioInvasion Records (open access journal) Vol. 2, 195-199.

**CLIENTS (those marked with an asterisk had a legal or insurance component)**

Adelphi Environmental  
AECOM  
Aerolaminates  
Ambios  
Andrew Jackson Solicitors\*  
Anglian Water  
Aseda Environmental Consultancy  
Ashdown Environmental Ltd  
Associated British Ports  
Axe Vale Rivers Association  
Babtie Group  
BBH Architects (Dartmouth) Ltd  
Berridge Environmental Laboratories  
BICC Cables  
Binnie Black & Veatch  
Black and Veatch Ltd  
Blackfords Solicitors\*  
Biodiversity by Design  
BioLab Ltd\*  
Body Shop International plc  
Bond Dickinson Solicitors\*  
Bovis Technical Services Ltd  
Bristol Water plc  
British Coal  
Buro Happold  
Butterworth Laboratories Limited  
Carlsberg UK\*  
Cascade Consulting Ltd  
CH2MHILL  
Chris Blandford Associates  
Cobham Resource Consultants  
Cornwall Council  
Countryside Planning & Management  
Cremer and Warner  
CWA International\*  
Dart Harbour & Navigation Authority  
David Bellamy Associates  
Dentons UK and Middle East LLP  
Department of Trade and Industry  
Devon and Cornwall Police\*  
Devon Wildlife Trust  
Donegal County Council  
Dorset Land Surveying\*  
EAD Ltd  
Eagle Star Estates  
Ecological Planning & Research

EDAW Ltd  
English Heritage  
ENSR International  
Environ  
Environmental Management Ltd  
Environmental Perspectives  
Environmental Protection Department, Hong Kong  
Environmental Resources Management Ltd  
Environmental Sciences Ltd, Trinidad  
ERM Ltd\*  
Essex and Suffolk Water  
Exeter City Council\*  
Faber Maunsell Ltd  
Falmouth Boat Construction  
FDL (Fuerst Day Lawson)\*  
First Steps Ltd  
Fugro Survey Ltd  
Gabb & Co, Solicitors\*  
GE Wind Power  
Glastonbury Festivals Ltd\*  
Greengage LLP  
Hammonds Solicitors\*  
Haswell Consulting Engineers  
Hawkins Solicitors\*  
Hayle Harbour Company  
Heidra Ltd  
Highland Regional Council  
Hill Dickinson Solicitors\*  
Hydrosearch  
Imerys Minerals Ltd\*  
IMG Ltd  
ING Real Estate  
INEOS Chlor-Vinyls\*  
Jack Moody Group\*  
Jersey Electricity  
Kent County Council  
Kerr-McGee Oil UK  
Lancashire County Council  
Landa Conserven\*  
Laura Ashley Foundation  
Linden Homes  
Llanelli Borough Council  
MacAlister Elliott & Partners  
Manchester Airport Group\*  
Marcus Hodges  
Marina Developments Ltd  
Marine Bio-Images  
Marine Minerals Ltd  
Medina Valley Centre  
Metoc plc  
Mid-Ocean Club/ Save Open Spaces Bermuda\*  
Ministry of Environment and Water Resources, Oman\*

Montgomery Watson  
Nalder and Son (solicitors)\*  
Natural England  
Newsome Vaughan Solicitors\*  
Nicholas James Group  
Nicholas Pearson Associates  
North Devon Council  
Noss Marina  
NYK Bulkship  
Osborne Clarke Solicitors\*  
Oxfordshire County Council  
Overseas Development Administration, UK (now DFID)\*  
Paramount London  
PB World  
Pell-Frischmann Ltd  
Persimmon Homes  
Phillips Petroleum  
Pirelli Cables  
Plumpton College\*  
Plymouth Yacht Marina  
Portsmouth City Council  
Posford Haskoning Ltd  
Premier Oil  
Qatar Petroleum  
RMC Roadstone Products Ltd  
RPS Ltd  
Sansbury Hill (Solicitors)\*  
Scottish Aquaculture Research Forum (SARF)  
Scottish Natural Heritage  
Scottish Power  
Sea Containers  
Sea Sediments Ltd  
Shell International E & P  
Southern Water  
South Wales Wood Recycling\*  
South West Water\*  
Steeles Law\*  
St Francis Group  
Stockport Borough Council  
Strathclyde Regional Council  
Sutton Harbour Holdings  
Symonds Travers Morgan  
Teesside Development Corporation  
The Environment Practice  
Tioxide UK Ltd  
Trevor Crocker and Partners  
Triton Energy (UK) Ltd  
United Biscuits  
URS Corporation Ltd\*  
Wansford Trout Farm Limited\*  
Watson Hawsley  
Wessex Water plc

West of England P & I Hong Kong\*  
World Bank  
WSP Environmental  
Wyvern Waste Services Ltd  
W S Atkins  
Yelland Quay Ltd

## CONTRACTS SINCE 1987

### 2017

**Shoreline Surveys Ltd / Premier Marinas** Ecological survey of Sovereign Harbour.  
**Ocean Ecology** QA of identifications of benthic invertebrate samples from Suriname.  
**Pennon Group** Site visit in relation to a water pollution incident.  
**Plumpton College** Advice in relation to a water pollution incident.  
**Sutton Harbour Holdings** Ecological survey and ecological assessment of a proposed development.  
**John Knowlson** Advice in relation to a water pollution incident.  
**Andrew Jackson (solicitors)** Assessing impacts of dredging on cockle ecology and landings.  
**Manchester Airport** Survey of the River Bollin and Timperley Brook.

### 2016

**Andrew Jackson (solicitors)** Assessing impacts of dredging on cockle ecology and landings.  
**Glastonbury Festival Ltd** Legal case involving water pollution incidents.  
**Manchester Airport** Survey of the River Bollin and Timperley Brook.  
**Bond Dickinson LLP** Advice in relation to water pollution of a stream in Dorset.  
**Bond Dickinson LLP** Advice in relation to a fish kill in SW England.

### 2015

**Andrew Jackson (solicitors)** Assessing impacts of dredging on cockle ecology and landings.  
**Alvis Bros Ltd** Survey and reporting on a water pollution incident from pig slurry.  
**Glastonbury Festival Ltd** Legal case involving water pollution incidents.  
**Manchester Airport** Survey of the River Bollin.  
**Salcombe Harbour Hotel** Advice on Marine Management Organisation (MMO) licence and CEMP.  
**Bond Dickinson LLP** Expert Witness in relation to a fish kill in SW England.  
**Symmetry Law** Expert Witness in relation to a pollution incident in NW England.  
**Chris Blandford Associates/Paramount Pictures** Intertidal and subtidal surveys around the Swanscombe Peninsula as part of the EIA for the London Paramount Entertainment Resort.

### 2014

**Andrew Jackson (solicitors)** Assessing impacts of dredging on cockle ecology and landings.  
**Exeter City Council/Dorset Land Surveying** Water quality in urban watercourses and sewers.  
**North Devon District Council** Intertidal survey and report for proposed watersports centre at Larkstone Cove, Ilfracombe.  
**Yelland Quay Ltd** Ecological surveys of intertidal habitats at Yelland Quay and advice on EIA scoping document.  
**ING RED UK** Baseline survey to assess impacts of sluicing on benthic invertebrates & contaminants, Carnsew Pool, Hayle.  
**Jersey Electricity** Analysis of invertebrates in intertidal cores from Jersey.  
**EAD Ltd** Survey of intertidal habitats at Clyde Quay, Millbay, Plymouth and inputs to Environmental Statement.  
**EAD Ltd** Assistance with assessing intertidal biotopes and features at Dawlish Warren, Devon.  
**Manchester Airport** Survey of the River Bollin.  
**Biodiversity by Design** Advice relating to water quality requirements for coral, mangrove and seagrass, Malaysia.

### 2013

**Linden Homes** Advice on marine ecology aspects of a development on the Plymouth waterfront. Ecological survey and assistance with MMO Licence application.

**St Francis Group/Environ** Advice on aquatic ecology (freshwater and marine) aspects of a proposed quarry development at Penlee, Cornwall.

**Symmetry Law** Advice on likely impacts of a spill of caustic soda (sodium hydroxide) to a canal.

**Nicholas James Group** Application to the MMO for a construction licence for a pontoon near seagrass bed in the Salcombe estuary, UK. Preparation of the Construction Environmental Management Plan (CEMP). Surveys of *Zostera* (seagrass) bed.

**Black and Veatch Ltd** Assessment of suitability of an upper estuarine site for tentacled lagoon worm (*Alkmaria romijni*) at Totnes, Dart estuary, UK. Report on flora and fauna of the site in advance of emergency repairs to a quay wall.

**Marine Minerals Ltd** Benthic grab sampling survey as part of the EIA of obtaining tin from subtidal sands, North Cornwall.

**Natural England** Training package to aid Natural England staff in carrying out in-situ biotope mapping of littoral sand habitats.

**Ambios** QA of benthic samples from the Bulgarian coast of the Black Sea.

**BBH Architects (Dartmouth) Ltd** Ecological survey and report on a landing stage that required retrospective planning permission.

## 2012

**Noss Marina** Advice relating to proposed development at Noss-on-Dart, Dart estuary, Devon.

**Greengage LLP** Intertidal surveys and bird surveys at a site in Wandsworth, London.

**Marina Developments Ltd** Advice relating to tentacled lagoon worm survey and shellfish, Dart estuary, Devon

**NYK Bulkship** Identification of barnacles on the bulk carrier Atlantic Laurel.

**Marine Minerals Ltd** Assessment of benthic invertebrates in 8 grab samples from the north coast of Cornwall (St Ives Bay, Porthtowan Bay and Perran Bay).

**Harbour Hotels** Advice relating to ecological impacts of a proposed pontoon at Salcombe Harbour Hotel.

**PB World & Cornwall Council** Surveys at Hayle, Cornwall. Repeat of 2010 baseline survey (benthic invertebrates, lugworm (*Arenicola marina*) casts, hard substrates, boundaries of selected biotopes and sampling sediments and fauna for metal analysis).

**Manchester Airport** Ecological survey of the River Bollin.

**Andrew Jackson (solicitors)** Assessing impacts of dredging on cockle ecology and landings.

**South West Water** Water weed surveys and advice relating to dissolved oxygen and aluminium analyses in fish, sediments and soils.

## 2011

**South West Water (2011-2012)** Advice on a fish kill and pollution incident, East Looe River, Cornwall.

**Symmetry Law** Assessment of the ecological impacts of mercury.

**Andrew Jackson (solicitors)** Assessing impacts of dredging on cockle ecology and landings. Permanova+ analysis of data on cockle condition.

**WSP (2011-2012)** Assessment of ecological impacts of a TBT pollution incident, Manchester Ship Canal.

**PB World & Cornwall Council** Assessment of the ecological impacts of a trial tidal exclusion: effects on seaweeds, invertebrates and fish.

**Symmetry Law** Assessment of the ecological impacts of a spill at a chemical works in NW England.

**Symmetry Law** Ecological and chemical survey of a river in NW England.

**Jersey Electricity** Analysis of invertebrates in intertidal cores from Jersey.

## 2010

**Marine Bio-images and Scottish Natural Heritage** Analysis of diver cores and grab samples from Lamlash Bay, Arran (the first No Take Zone in Scotland).

**PB World & Cornwall Council** Surveys at Hayle e.g. benthic invertebrates, lugworm (*Arenicola marina*) cast counts, and timed searches of hard substrates for invertebrates and algae. Surveys of biotope boundaries and sampling sediments & fauna for metals.

**Environmental Sciences Ltd, Trinidad** Provision of bespoke database for recording benthic and other data. Assistance with identifying marine benthos from oil-related surveys around Trinidad.

**Symmetry Law & Hammonds Solicitors** Additional Expert Witness work on alleged water pollution case from a

composting site in the west Midlands. The case was eventually dropped by the Environment Agency.

**Hill Dickinson & Andrew Jackson (solicitors)** Assessing impacts of dredging on cockle ecology and landings.

**Manchester Airport** Survey of the River Bollin.

**Environmental Sciences Ltd, Trinidad** Assistance with statistical analysis (using Primer ® software) and interpretation of benthic biological and abiotic data for baseline surveys in the Gulf of Paria, Trinidad.

## 2009

**AECOM (formerly Faber Maunsell)** Ecological survey of an intertidal site near a proposed marina on the Torridge estuary, Devon.

**Buro Happold** Surveys of intertidal and subtidal habitats at Mill Bay, Plymouth.

**EAD & Dart Harbour & Navigation Authority** Ecological survey of an intertidal site at Hoo Down, near Kingswear on the Dart estuary.

**IMG Ltd** Assessment of possible impacts of perchlorate from fireworks display on nearby lakes at Hampstead Heath, London.

**Buro Happold** Preparation of section on aquatic ecology (seaweeds, invertebrates, fish and marine mammals) of the Environmental Statement for the Hayle Harbour Revision Order (HRO).

**Hammonds Solicitors** Site visit and analysis of data relating to suspected water pollution incident due to run-off from a composting site.

**Falmouth Boat Construction** Ecological survey of a proposed pontoon development, Fal estuary.

**Manchester Airport** Survey of the River Bollin in spring and autumn 2009.

## 2008

**Steeles Law and Landa Conserven** Assessment of causes of mortality of farmed mussels in Poole Harbour and assistance with calculating the financial loss (continued in 2009).

**ING Real Estate and Buro Happold** Aquatonics Ltd provided advice on the aquatic aspects of the proposed development of Hayle Harbour. This included biotope mapping of the Hayle estuary complex.

**Hill Dickinson & Andrew Jackson (solicitors)** Advice on assessing impacts of dredging on cockle ecology and landings.

**The Marine Hotel, Salcombe** Ecological impact assessment of a proposed hotel and pontoon development, with special reference to eelgrass (*Zostera marina*) and seahorses (*Hippocampus hippocampus* and *H. guttulatus*).

**Heidra Ltd** Assistance with scoping the environmental assessment of a small hydroelectric power scheme on the River Mardle, Dartmoor.

**Devon and Cornwall Police** Estimation of the time a skull had been in seawater, from an analysis of the growth of marine life on it.

**Medina Valley Centre** Analysis of core samples from the Medina estuary, Isle of Wight.

## 2007

**URS Corporation Ltd/BioLab Ltd** Repeat ecological survey of an English river following a fire and chemical spill.

**Environmental Perspectives** Ecological assessment of freshwater tidal habitat at Brentford, Thames.

**Natural England** Mapping sedimentary biotopes around the Lundy Marine Nature Reserve.

**Faber Maunsell Ltd**

Intertidal surveys of a lagoon near a proposed marina development on the Dart estuary.

**The Environment Practice and ING Real Estate**

Intertidal surveys of Carnsew Pool and Hayle Harbour, Cornwall. Preparation of text on aquatic ecology and impacts for the Environmental Statement.

**First Steps Ltd**

Provision of a Workshop on Environmental Impact Assessment, BRE Watford.

**South West Water & Pell Frischmann**

Mitigation of impacts of a new intertidal and shallow subtidal pipeline at South Town, Dartmouth. Involved moving samples of rocks, sediment and associated flora and fauna from the pipeline route to a safe haven nearby and replacing them at the end of trenching and back-filling.

## 2006

### **The Environment Practice and ING Real Estate**

Intertidal surveys of Carnsew Pool and Penpol, Hayle, Cornwall.

### **Ecological Planning and Research**

Intertidal ecological survey and analysis of chemical contaminants at a site on the Itchen estuary, Southampton.

### **URS Corporation Ltd**

Ecological survey of an English river following a fire and chemical spill.

### **First Steps Ltd**

Provision of a Workshop on Environmental Impact Assessment, BRE Watford.

### **Pell-Frischmann Ltd**

Intertidal ecological survey and biotope mapping prior to a first time sewerage scheme, Helford estuary, Cornwall.

### **Faber Maunsell Ltd**

Intertidal and subtidal surveys for a proposed marina development on the Dart estuary.

### **Ecological Planning and Research**

Biotope mapping of intertidal habitats at Lyme Regis, as part of the ecological impact assessment of Phase IV of the sea defence programme.

### **IMG Ltd**

Ecological assessment of possible impacts of music concerts held on a floating stage on a lake at Hampstead Heath, London.

### **South West Water Ltd**

Ecological survey at Starcross, Exe estuary, to assess impacts of an accidental discharge of sewage.

### **Environmental Resources Management**

Repeat ecological survey of a stream and river affected by a diesel spill. Appearance in court as an Expert Witness.

### **The Environment Practice/ ING Real Estate**

Continuation with ecological and fishery inputs into the EIA for the Hayle Harbour development, Cornwall.

### **Environmental Perspectives**

Ecological and sediment contamination survey of intertidal sediments at a proposed development site on the Thames at Battersea.

### **Marine Bio-Images**

Analysis of sediment contamination data in Portland Harbour.

### **Scottish Aquaculture Research Forum (SARF)**

The biodiversity implications of farming novel marine species.

## 2005

### **Devon Wildlife Trust**

Ecological survey of Lyme Bay, English Channel. Mapping of sediment biotopes.

### **The Environment Practice/ ING Real Estate**

Continuation with ecological and fishery inputs into the EIA for the Hayle Harbour development, Cornwall.

### **Aseda Environmental Consultancy**

Assistance with survey of brackish water habitats near Queenborough, Isle of Sheppey. Identification of invertebrates from saline waters.

### **Fugro Survey Ltd**

Assessment of environmental impacts of effluent from an Autonomous Underwater Vehicle (AUV).

### **South West Water**

Ecological surveys and EIA of a proposed pipeline route, Dartmouth, UK.

### **ERM Ltd**

Assessment of the ecological impact of a spill of red diesel on a stream and the River Ray, Swindon.

### **WSP Environmental**

Survey of intertidal habitats near Swansea Docks, Wales. Part of the EIA of the SA1 development.

### **CWA International/West of England P & I Hong Kong**

Examination of suspected contaminated tuna from the Marshall Islands. Visit to Thailand to inspect reefer vessel and cannery and take samples for chemical analysis.

## 2004

### **Cascade Consulting Ltd / Plymouth Yacht Marina**

Survey of intertidal and subtidal habitats prior to dredging.

### **South West Water Ltd**

Ecological impacts of an accidental release of sewage in the Teign estuary, Devon.

### **The Environment Practice/ ING Real Estate**

Ecological surveys and inputs into EIA of Hayle Harbour development, Cornwall.

**South West Water Ltd** Ecological assessment of seepage from a sewage pipeline in Boscastle Harbour, Cornwall.

**WSP Environmental** EIA of a proposed berth development on the Thames at Battersea. Advice on monitoring benthic invertebrates and fish habitat.

**RPS Ltd** Survey for Desmoulin's Whorl Snail (*Vertigo mouliniana*) near route of proposed Harnham Relief Road, Salisbury.

**Anglian Water** Advice regarding a pollution incident.

**RPS Ltd** River Corridor Surveys and pond surveys for Westbury bypass, Wiltshire.

**Posford Haskoning Ltd** Management of aquatic ecology and fishery aspects of a Scoping Study for Thanet offshore windfarm.

**CH2M HILL/Shell International E & P** Survey of invertebrates and fish in a mangrove area in Qatar, Middle East

**Black and Veatch Consulting/Essex and Suffolk Water** Results of a 5 year monitoring programme on the ecology and fisheries of the Wash embayment, UK.

**CH2M HILL/Shell International E & P** Quality Assurance of benthic samples from marine surveys in Qatar.

### 2003

**Nicholas Pearson Associates** Impact of redevelopment of Battersea Power Station on estuarine invertebrates and fish in the Thames estuary.

**Marcus Hodges/Wessex Water** Advice regarding Wimbleball Reservoir, Devon.

**Babtie Group/Kent County Council** Surveys of freshwater and estuarine aquatic invertebrates near Sittingbourne, Kent.

**Cascade Consulting Ltd** Survey of intertidal habitats and biotopes at Plymouth Yacht Haven.

**Ecological Planning & Research** Survey of intertidal habitats at The Camber, Portsmouth.

**Babtie Group/Oxfordshire County Council** Surveys of freshwater aquatic invertebrates, Witney-Cogges Link, Oxfordshire.

**South West Water** Impact of an accidental discharge of sewage on the ecology of the River Allen, Cornwall.

### 2002

**Adelphi Environmental/Qatar Petroleum** Advice on water quality, sediment quality and tissue guidelines for a marine survey for Qatar Petroleum

**WSP Environmental** Conservation assessment of an intertidal area at Minoco Wharf, Thames estuary, London.

**Gabb & Co, Solicitors** Advice on groundwater contamination in relation to a water supply for an organic farm.

**South West Water** Ecological survey of pipeline route at Warfleet, Dart Estuary.

**Haswell Consulting Engineers/Pirelli Cables** Repeat biological and chemical surveys at Erith, Thames estuary.

**Hydrosearch Associates Ltd and GE Wind Power** Various ecological aspects of EIA and ES for a proposed offshore wind farm in Essex (Gunfleet sands). Advice regarding terrestrial, freshwater and marine ecology and impacts.

### 2001

**Metoc PLC and Scottish Power** Scoping Study for an offshore wind farm (Shell Flat). Advice regarding benthic invertebrates, fish and contamination in sediments.

**Associated British Ports Research & Consultancy** Surveys of benthic invertebrates and contaminants at intertidal sites in Southampton Water

**Hayle Harbour Company** Surveys of fish in Carnsew Pool and other parts of the Hayle estuary complex Cornwall.

**South West Water Ltd** Conservation assessment and biotope mapping of intertidal habitats in Dartmouth and Old Mill Creek; part of an EIA of the Dartmouth and Kingswear sewage treatment scheme.

**Industrial client** Predicted impacts of a high pH discharge on stream ecology.

**EDAW Ltd** Ecological survey of intertidal habitats at Rochester, Kent; part of EIA of a housing & commercial development.

**Binnie Black & Veatch** Continuation with a study on the impacts of reduced freshwater flow on the ecology and fisheries of the Wash embayment, UK.

**Ecological Planning & Research / Associated British Ports** Continuation of predictions of impact of a proposed container terminal on estuarine invertebrate communities in Southampton Water.

### 2000

**Department of Trade and Industry (2000-2003)** SMART award to examine the beneficial use of marine clays (from

dredging) for removing metals from acid mine discharges and industrial effluents. A research project involving laboratory and field trials.

**Adams Loxton Partnership** Advice on environmental protection of water courses for contractors bidding for dualling of the A43.

**The Environment Practice/Hayle Harbour Company (2000 – 2001)** Ecological surveys and ecological impact assessment of harbour, marina, housing, leisure and light industrial development at Hayle, Cornwall.

**Haswell Consulting Engineers/BICC Cables** Intertidal and subtidal benthic surveys in the Thames estuary. EIA of a proposed jetty and associated dredging at Erith.

## 1999

**Nicholas Pearson Associates/Persimmon Homes** Conservation assessment of intertidal habitats at Wandsworth, London as part of the EIA of a housing and berth development.

**Ecological Planning and Research** Review of colonisation rates of artificial intertidal habitats and a survey of colonisation of an artificial mudflat at Shotley Point, created using sediments from dredging.

**Wyvern Waste Services Ltd** Survey of freshwater habitats and inputs into the EIA and mitigation measures for a landfill site on the Somerset Levels, UK.

**Aerolaminates /Ecological Planning & Research** Analysis of benthic invertebrates in the Medina estuary, Isle of Wight. Part of an environmental assessment of a wind turbine blade loading facility.

**Ashdown Environmental Ltd** Survey of macroinvertebrates in a UK stream affected by a pollution incident. Comparison of the aquatic toxicity of two turbine blade cleaning agents.

**Ecological Planning & Research** Conservation assessment of benthic invertebrate communities at Hythe, Southampton Water. Continuation of a long-term EIA of a proposed container port development in Southampton Water.

**Binnie Black & Veatch** Continuation with study on the impacts on ecology and fisheries of reduced freshwater flows into the Wash embayment, UK. Reviews of the ecology and fisheries of cockles, mussels and brown shrimps.

## 1998

**South West Water plc** Ecological survey of benthic biotopes for a sewage pumping main crossing of the Kingsbridge estuary.

**Ecological Planning & Research** Benthic invertebrates of Dibden and Weston Shelf intertidal and subtidal habitats.

**CH2MHILL/Phillips Petroleum** Ecological and marine inputs to an EIA of a petrochemical complex in Qatar.

**Newsome Vaughan Solicitors** Advice relating to a fish kill in the Lake District.

**ENSR International** Survey of freshwater invertebrates at a development site.

**Sansbury Hill (Solicitors)** Advice relating to a pollution incident at a building site in Somerset.

**The Environment Practice** Impact of short-term changes in salinity and tides on intertidal invertebrates, Hayle Harbour, Cornwall.

**MacAlister Elliott & Partners / World Bank** Global Environment Facility Project - Red Sea, Egypt. Public Awareness of the Red Sea Project.

## 1997

**Hydrosearch /Triton Energy (UK)** Environmental Impact Studies of two seismic surveys, for coastal waters off Madagascar. Management of fisheries consultations and liaison.

**Hydrosearch /Premier Oil** Dumbar Field, Pakistan. Providing Premier Oil with examples of oil and gas industry best practice in environmentally sensitive areas.

**MacAlister Elliott & Partners / World Bank** Global Environment Facility Project - Red Sea, Egypt. Advice on oil and gas exploration and oil spills.

**Environmental Resources Management Ltd** Contributed towards the proposed monitoring programme for removal of debris from the disused submarine base at Holy Loch, Scotland.

**Associated British Ports / Ecological Planning & Research (97-98)** Impact of capital dredging incident on intertidal invertebrates.

**Associated British Ports / Ecological Planning & Research (97-99)** Water quality and invertebrates of saline pools. Surveys of intertidal invertebrates at Dibden Bay, Southampton prior to proposed port development.

**Essex and Suffolk Water/ Binnie Black & Veatch (97-98)** Impact of increased water abstraction from the Great Ouse on shellfisheries and ecology of the Wash.

## 1996

**South West Water** Assessment of the impacts of a sewage discharge on the benthic invertebrates of the Truro River, Cornwall.

**Axe Vale Rivers Association** Water quality in the Axe catchment and potential impacts on salmon.

**Osborne Clarke Solicitors** Advice on financial damages resulting from a salmon kill on the River Wye.

**Triton Energy (UK) Ltd** Environmental legislation relating to seismic surveys in Omani coastal waters.

**RMC Roadstone Products Ltd** Assessment of likely impact of noise and vibration from a coastal quarry on marine life.

**Nicholas Pearson Associates** Assistance with preliminary assessment of an offshore pipeline route

**Symonds Travers Morgan** Assistance with scoping an EA for a port development in Oman.

**Wessex Water plc** Report on the impacts of the West Bay sewage discharge on benthos and sediment quality, Lyme Bay.

**Montgomery Watson** Investigations into biofouling of a pumping main with a saline intrusion, Fowey, Cornwall.

**Hawkins Solicitors** Scientific advice relating to a Judicial Review of aggregate dredging for the Lincshore scheme.

**The Environment Practice** Survey of benthic invertebrates in Goldcliff Pill and the Severn estuary in relation to constructed saline lagoons for waders. Advice on construction & operation of the lagoons.

## 1995

**Save Open Spaces/ Mid-Ocean Club** Assessment of the likely environmental impact of the Castle Harbour Resort proposal, Bermuda. Impact of the development on the underlying caves (which contain many endemic invertebrate species) and on terrestrial ecology including native and endemic woodland.

**Hawkins Solicitors** Report on the likely environmental impact of aggregate dredging near the mouth of the Wash on commercial shrimp fishing.

## 1993 - 1996

**Kerr-McGee Oil (UK) and Partners** Baseline surveys of ecology & contaminants in Lyme Bay, prior to exploratory drilling.

## 1994

**Body Shop International plc** Microtox survey of water quality near the Body Shop discharge at Littlehampton, English Channel.

## 1993

**Cobham Resource Consultants** Assessment of impacts of proposed high-speed rail link (HS1) on freshwater invertebrates, London to Channel Tunnel.

**Kerr-McGee Oil UK / Ambios Ltd** Management of inputs for a scoping document on the marine resources, including fish and fisheries, of an oil licence exploration block off the west coast of Ireland.

**Cobham Resource Consultants** Assessment of impacts of road upgrading on freshwater invertebrates, west coast of Scotland.

**The Body Shop** Advice on effluent ecotoxicity.

**Kerr-McGee Oil (UK) and Partners** Pre- and post-drilling surveys of benthic invertebrates and contaminants in Lyme Bay.

**Bristol Water plc** Environmental assessment of disposal of sludge from a drinking water treatment works. Effects of a change from aluminium sulphate to iron sulphate treatment of the water.

**Bovis Technical Services Ltd** Ecological assessment of an intertidal site on the Thames, London and predicted environmental impacts of a proposed housing development.

**Kerr-McGee Oil (UK) and Partners** Review of the marine biological resources for a North Sea Licence Block application to the DTI.

## 1992

**Nalder and Son (solicitors)** Survey of invertebrates in a stream affected by pollution. Expert witness.

**Portsmouth City Council / Ecological Planning & Research** Pollutants and benthic invertebrates in mudflats proposed for reclamation. Impacts of metals and PCBs on mudflat invertebrates and algae.

**Kerr-McGee Oil UK / Ambios Ltd** Management of baseline and post-drilling surveys of hydrocarbons and metals in

two oil exploration blocks.

**Kerr-McGee Oil UK / Ambios Ltd** Preparation of an environmental programme for their application for an oil exploration licence block in the English Channel.

**David Bellamy Associates** Freshwater invertebrate sampling of sites near Redwick, Gwent. Suitability of sites for creation of bird habitats.

**WS Atkins/South West Water** Assessment of invertebrate and plant habitats in the Kingsbridge estuary, Devon.

**Environmental Management Ltd / South West Water** EIA of the Wimbleball Pumped Storage Scheme; especially the predicted impacts on freshwater invertebrates.

**Ecological Planning & Research / Southern Water** Designing intertidal and subtidal survey programmes at Ventnor, Isle of Wight, including diving surveys. Assessing impacts of a new sewage discharge.

**Environmental Management Ltd / Strathclyde Regional Council** BPEO (Best Practicable Environmental Option) study of sewage sludge treatment and disposal in Strathclyde. Assessment of the impact of the sea disposal route.

## 1991

**Hawkins Solicitors** Assessment of the causes of microbiological contamination of mussel beds in the Wash, UK.

**United Biscuits** Advice on an insurance claim following a fish kill.

**Environmental Management Ltd / Donegal County Council** EIA of a proposed water supply reservoir in County Donegal (Ireland). Impacts on fisheries, water quality and aquatic ecology.

**Countryside Planning and Management/ English Heritage** EIA of a proposed visitor centre for Stonehenge. Impacts on aquatic ecology and water quality.

**Environmental Management Ltd / Teesside Development Corporation** Expert witness on aquatic ecology at a Public Inquiry into a proposed incinerator for sewage sludge and industrial waste at Portrack. Appeared on behalf of TDC who objected to the proposal.

**Laura Ashley Foundation** Water quality in the Thames and Kennet.

**Cremer and Warner / Overseas Development Administration** EIA of a dam supplying water to a zinc smelter, Rajasthan, India.

## 1990 and Prior

**Eagle Star Estates** Water quality and ecological impacts of a proposed new town on the R. Dever chalk stream.

**Llanelli Borough Council / Trevor Crocker and Partners** EIA of proposed harbour works at Burry Port Docks, South Wales.

**Highland Regional Council / Watson Hawksley** EIA of a proposed long sea outfall at Inverness.

**Sea Containers / Trevor Crocker & Partners** EIA of proposed harbour and housing developments at Folkestone, UK.

**Countryside Planning & Management** Advice on water quality in the rivers Lambourn and Winterbourne, UK.

**Stockport Borough Council** Report on water quality in the rivers Tame, Goyt and Mersey. UK.

**Lancashire County Council** Effects of a proposed long sea outfall on marine ecology on the Fylde coast and Morecambe Bay, UK.

**WS Atkins** EIA of the proposed Tees Barrage, UK. Effects on aquatic ecology.

**British Coal / Sea Sediments Ltd** Initial environmental assessment of colliery spoil and tailings water disposal to the intertidal zone, NE England.

**Berridge Environmental Laboratories** Assistance with sampling soils and sediments contaminated with arsenic, copper, zinc & cyanide.

**David Bellamy Associates** Impact of a proposed harbour, housing and leisure development on invertebrates and water quality.

**Cremer and Warner** Water quality implications of a proposed reclamation near Green Island, Hong Kong.

**WS Atkins** Environmental assessment of a proposed weir, reclamations and marina in SW England.

**Butterworth Laboratories Limited** Sampling and analysis of macroinvertebrates from freshwater lagoons, East Sussex, UK.

**Environmental Protection Department, Hong Kong / Watson Hawksley** Analysis and interpretation of chemical & biological data from the summer 1987 baseline survey of the proposed marine disposal site for sewage sludge, Hong Kong.

**Wansford Trout Farm Limited** Report on the effects of the trout farm on ecology and water quality in the West

Beck, UK.

**Ministry of Environment and Water Resources, Oman / WS Atkins** 3 month secondment to the Environmental Impact Section of Oman's Ministry of Environment and Water Resources. Reviewed EISs submitted to the Ministry, e.g. industrial and aquaculture projects, flood control dams and aquifer recharge dams. Advised on environmental aspects of offshore oil.

**Environmental Protection Department, Hong Kong / Watson Hawksley** Advice on monitoring sewage sludge disposal to a marine site, Hong Kong. Co-leader of the summer 1987 survey, responsible for all biological and statistical aspects of the survey, and jointly responsible for sampling sediments and water for chemical analysis.