Institution: University of Portsmouth

Unit of Assessment: 7 Earth Systems and Environmental Sciences

a. Overview

Earth Systems and Environmental Sciences research at Portsmouth is primarily focused in two Schools: the School of Earth and Environmental Sciences and the School of Biological Sciences. Research on natural resource management is also carried out in the Portsmouth Business School. Activities are coordinated in five research groups: (1) *Ecotoxicology and Environmental Monitoring* (Allen, Fones, Ford, Mills, Reynolds, Smith, Thorpe (Karen), Watson) focussing on quantification of transfers and evaluation of impacts of a range of chemicals (including nutrients, pharmaceuticals, radionuclides and heavy metals) in aquatic systems; (2) *Natural Resource Management and Modelling* (Thorpe (Andy), Watson, Wattage, Willis), a cross-disciplinary group complemented by fisheries economists (Failler and Bjorndal) submitted under UoA19 Business and Management Studies. Valuation of fisheries resources and marine protected areas is a particular research strength; (3) *Biodiversity and Evolution* (Armbruster, Barrales, Gale, Loydell, Minter, Tallis, Willis); has strengths in plant diversity and evolution together with studies of evolutionary processes over geological timescales; (4) *Environmental Microbiology and Biotechnology* (Cragg, Hayes, Hellio, May, Watts) focus on preservation and degradation of marine woods, microbial ecology and anti-fouling technologies; (5) *Crustal Evolution* (Benson, Darling, Fowler, Rust, Storey, Strachan) has particular strength in the innovative use of accessory minerals to gain new insight into a range of tectonic processes and also ice coverage on Greenland. Recent appointments have added complementary strength in rock physics and deformation as well as isotope geochemistry.

Three of these groups (1 - 3) are cross-school collaborations reflecting the interdisciplinary nature of our research and our strategic research aim to build critical mass, aligned to RCUK and EU objectives, from existing research strengths across the University. Research in *Ecotoxicology and Environmental* Monitoring and *Biodiversity and Evolution* is complemented by work on environmental change submitted under UoA 17 Geography, Environmental Studies and Archaeology.

b. Research strategy

The strategic objectives outlined in our submission for RAE 2008 (then UoA17) were to increase significantly the generation of internationally recognised and world-leading research, and improve external cross-disciplinary collaboration and income generation. We have recognised that significant improvement in the Unit's research environment (identified as a weakness in RAE2008) was required to deliver these objectives. Our key strategic objectives during the assessment period were therefore to

(a) Develop a critical mass in key subject areas. We have built substantially on the small group of internationally recognised researchers submitted to RAE 2008. The unit has benefitted from considerable University investment in new staff and facilities to grow, in particular, areas of research excellence in the development of plate tectonics (now forming the *Crustal Evolution* group); plant sciences (together with established stratigraphic and palaeontological expertise forming the *Biodiversity and Evolution* group); aquatic sciences specialising in pollutant transport, monitoring and ecotoxicology (forming the *Ecotoxicology and Environmental Monitoring* group). This has resulted in a near-doubling in staff in this submission compared to RAE2008.

(b) Integrate and develop all environment-related research activities in the University. The University of Portsmouth Environment Network (UPEN) was created in 2010 to coordinate and support the activities of 40 principal investigators and postdoctoral researchers, as well as 70 research students, providing a critical mass of expertise in discipline areas relating to the "environment". UPEN activities are organised under three broad, cross-disciplinary thematic areas: 'Sustainable Society'; 'Hazards Engineering and Risk in the Environment' and 'Ecosystem Complexity and Environmental Change' which align to Research Council and EU future priorities. This UoA is central to UPEN and four of the five research groups (1-4 above) make a strong contribution across all themes. UPEN has been successful not only in fostering internal collaboration, through seminars, sandpit events and themed workshops, but also in facilitating the formation of research partnerships needed to allow us to address national and international priorities (in particular the NERC *Biodiversity*, *Earth System Science* and *Environment, Pollution and Human Health* themes), and in promoting networks between academics, businesses and communities both nationally and internationally.

(c) Improve coordination and monitoring of research activities. Research objectives are set through School and Faculty Research Strategies and implemented through Research and Knowledge Transfer committees. Research groups are represented by a Research Lead who reports to and from these committees. Information is passed down to staff via minutes and also regular monthly research meetings disseminating key information and discussing new funding opportunities and potential collaboration across Schools and Faculties. A programme of weekly research seminars with prestigious national and international speakers is publicised by UPEN to ensure cross-School participation. Individual targets are monitored and reviewed through annual Performance and Development Review (PDR, see below) ensuring that sufficient time, facilities and funding are in place to realise objectives.

This research strategy has led to major improvements in the research environment and significant growth of high-quality research in this area. Evidence for this improvement includes:

- Achievement of critical mass in key research strengths by a near-doubling of the number of submitted staff from 13.2 FTE in 2008 to 25.8 FTE now; 12 of these are new appointments since 2008 and 7 are early career researchers;
- Eight of the 12 new appointments were previously at overseas research institutions, enhancing our international profile and collaborations;
- Continuing increases in external income generation leading to a 3-fold greater annual income in this assessment period compared to RAE2008;
- Double the number of PDRAs since RAE2008
- Double the annual number of PhD completions compared to the previous submission.

Our future strategy is to continue to grow, and enhance the international reputation of, our existing groups. We will increase income and KT activities and will continue to deliver improvements to infrastructure and equipment. We will achieve this by:

(a) Ensuring sustainability, and further building capability of our existing research groups through incorporating less experienced staff on collaborative research bids and as members of supervisory teams of PGRS. Staff will be supported through mentoring and training

opportunities, monitored through PDR, and through strategic recruitment of new staff;

(b) Further enhancing the PGRS community by increasing externally-funded studentships, providing strategically-directed bursaries in key research areas, and promoting the newly established MRes Science to graduates, with projects aligned to our research themes;

(c) Increasing the volume and diversity of external funding. All of our research groups are supported by RCUK and/or EU funding and the aim is to significantly increase the number of successful applications and income over the next REF period and thus the number of PDRA's and funded research degree studentships. We will also diversify our funding (currently primarily RCUK (>50%) and industrial) by developing, in particular, our EU portfolio through the Horizon 2020 funding scheme;

(d) Further developing staff and providing internal seed-corn funding. PI's are given full support through our Research and Innovation Services (RIS) office and the internal Peer Review College as well as through our established mentoring programme by experienced researchers. Seed-corn monies will continue to be made available from School funds for pilot schemes and larger sums are also available through the University's Research Development Fund, which provides funding for multidisciplinary, cross-School projects.

(e) In addition to supporting and developing existing research groups, we will develop our Centre for Applied GeoSciences (CAG, formed 2010). CAG researchers are currently supported with funding from consultancy and KTP income; together with strategic internal investment, this will provide a good base from which to build high-quality pure and applied research.

c. People, including:

i. Staffing strategy and staff development

Research leadership was identified as a weakness during the RAE2008 period. Our staffing strategy has therefore been driven by the need to develop research leaders in our key research groups, resulting in a number of promotions to Reader and Professor. These are supported by appointment of early-career staff to strengthen research groups. Plant sciences research in *Biodiversity and Evolution*, led by Armbruster, has been developed through appointment of ECRs Barrales and Tallis, and this group's stratigraphic and palaeontological research was developed, leading to promotion of Gale to Professor, and appointment of ECR Minter. Links with the *Natural Resource Management* group have been enhanced through the appointment of Willis (ECR) focusing on fisheries biodiversity. The *Crustal Evolution* group has appointed (and promoted from Senior Research Fellow to Reader) Storey, as well as Benson and ECR Darling; Strachan has been promoted to Professor. In the *Ecotoxicology and Environmental Monitoring* group, Fones and Ford have been promoted to Reader, Mills and Smith to Professor and new staff Reynolds (ECR), Thorpe (Karen, ECR) and Allen, have been appointed. The *Environmental Microbiology and Biotechnology* group has been created by the appointment of Hayes and Watts, and the development of Cragg's and Hellio's (both promoted to Reader) biotechnology research.

This recruitment and development strategy has led to the near-doubling in staff numbers submitted since RAE2008, with 12 newly appointed (7 ECRs) out of 25.8 FTEs in this submission. New academic staff are supported by a formal mentoring scheme that operates alongside reduced initial teaching loads to facilitate successful engagement with the research agenda. New staff are provided with start-up funds and are given priority when allocating Faculty-funded PhD studentships. Continuing development is provided by seed-corn funding for new research projects,

networking activities and conference attendance for individuals (and groups) with the potential to be internationally competitive. Research activity and plans, including plans for publication and funding applications, are a key part of the annual Performance and Development Review (PDR). Faculty-level support includes initial start-up funding and dedicated support for costing research proposals. University-level support is provided via a programme of internal CPD events, provision of research development funds, facilitation of cross-disciplinary working, PI development training, and the Peer Review College that reviews applications for external research funding. All staff are supported and actively encouraged in developing their research profile through appropriate external placements and secondments; for example, Thorpe (Karen) is currently on secondment to the Food and Environment Research Agency, York, for a NERC-funded study of endocrine disruption in fish.

Equality and diversity

The University is proactive in developing its inclusive working practices to meet best employment and staff development practices. Whilst improvement in the number of women submitted is only modest (increased to 20% of FTEs from 15% in RAE2008), we have supported women as early career researchers: 3 out of 7 ECRs are women. A strategy is in place for the University to achieve Athena SWAN Bronze by 2014, with individual Schools within the Science Faculty applying for Silver Awards in the 2014-16 window. The latest University staff survey by Capita placed Portsmouth top as an employer of choice amongst 26 higher education institutions surveyed in the last 12 months.

Development of research staff and the Concordat

The University Research Staff Forum seeks to provide feedback on issues raised at University and Faculty level, as well as being a source of advice, guidance and information to researchers. The forum hosts visiting speakers on a range of topics, such as leadership in research and career opportunities for researchers. We are committed to the Concordat to Support the Career Development of Researchers and to ensure effective development opportunities for all levels of research-active staff. The University has been awarded the European Commission Human Resources Excellence in Research Award.

Since RAE2008, we have increased PDRAs in number from 5 to 10, with funding from a variety of sources, but principally NERC. The welfare and progress of PDRAs is the primary responsibility of the PI. Progress is monitored by annual PDR. PDRAs have the opportunity to assist in the delivery of undergraduate courses, after appropriate training, should they so wish. Research & KT Committees include PDRA representation and PDRAs are invited to attend regular meetings of the University's Research Staff Forum.

ii. Research students

Our research strategy has been, and continues to be, to increase the number of research students. Since RAE2008, we have doubled the number of PhD completions through a combination of externally funded PhDs (funding sources are RCUK, knowledge transfer partnerships, industrial partners, and overseas sponsors) and Faculty-funded PhD and MRes bursaries. Projects aligned to our research strategy are offered to self-funding students.

The welfare and progress of research students is the responsibility of the Postgraduate Tutor. All research students have two or three supervisors, are allocated an individual desk and networked PC, and have access to all appropriate technical facilities. Progress is tracked via regular minuted

meetings with supervisors, and annual appraisals, and reported via Skills Forge for QA purposes. Students have the opportunity to develop teaching skills through assisting in up to 6 hrs per week of undergraduate laboratory and fieldwork. Such Graduate Teaching Assistants are required to develop their teaching practice through the GPROF graduate student professional development programme. All students present at the Faculty Research Students Conference, and are also expected to attend seminars and research meetings. Regular Student-Staff Consultative Committee meetings (3-4 per year) provide an opportunity for discussion of any resource or academic issues affecting the research student body.

At University level, support for research students is provided by the University of Portsmouth Graduate School, which was established in September 2011. In September 2012 it moved into new dedicated space consisting of offices, meeting rooms, a *viva voce* room and a large teaching and development room. The role of the Graduate School is to lead and coordinate support for research students and their supervisors across both the University's academic as well as its central departments and structures. The Graduate School also has a major role in the marketing, recruitment and admission of research degree students and works with Faculties and central departments to produce a coordinated approach to these issues.

The Graduate School Development Programme (GSDP) provides the key elements of generic research skills and transferable career development skills training as outlined by Vitae and the RCUK. In the last academic year, over 120 GSDP workshop events on over 65 topics took place. Although the Graduate School offers both a PG Certificate and MSc qualification in Research Methods, and supports the Faculty-based MRes programmes, most research degree students gain their formal development and training through attending sessions on the GSDP as agreed with their supervision team as part of the University Graduate School's PRaXiS skills analysis planning process. The Graduate School explicitly supports the development of supervisors through coordinating the compulsory induction course for new supervisors as well as the wider Research Supervision Events programme (approximately 10 events a year). The centralised Graduate School training is complemented by subject-specific and advanced training that is available from individual departments, for example workshops on analytical methods in geosciences.

The Graduate School has formal responsibility for research degree issues within the Management and Governance structure of the University. In particular, it is responsible for issues of quality and monitoring and for ensuring that the voice of supervisors and research degree students is heard. The work of the Graduate School is managed and organised through the University Research Degrees Committee, the Graduate School Management Board and the Faculty Research Degree Committee.

d. Income, infrastructure and facilities

Since 2008 we have attracted £3M in research funding (a three-fold increase in annual income over RAE2008), 55% of which is RCUK, 16% is EU and 10% is UK industry and public corporations. During the period from 2008 we have secured competitive grants from 35 different organisations including BBSRC, NERC, Technology Strategy Board, EC, NATO, Environment Agency, British Council and The Leverhulme Trust. We have played key roles as part of larger consortia, including work with NOC and the Universities of Southampton and East Anglia as part of the NERC Macronutrient Cycles Programme, and led a NATO programme on geo-environmental security of the Toktogul region, Kyrgyzstan. International collaborations have resulted in 8 EU projects including the Interreg GIMs project to develop a UK-French research centre for the development of "green" barrier materials.

We will continue to prioritise RCUK thematic and non-thematic applications; our research themes align well with NERC priorities in *Biodiversity*, *Earth System Science* and *Environment, Pollution and Human Health*. We plan to diversify our sources of large grants by further developing, in particular, our EU portfolio through the Horizon 2020 funding scheme and are actively applying to both Marie Curie and ERC. KT activities will be supported by applications for Knowledge Transfer Partnerships, and by accessing EU funds now available through the Solent Local Enterprise Partnership. We are actively developing our links with Brazilian partners to exploit the Brazilian Government's Science Without Frontiers programme.

Development of the research funding portfolio is supported through a recently instigated competition-based University Research Development Fund (RDF) which encourages interdisciplinary and collaborative bids that will lead to excellent research. The RDF supported the recent success of a cross-school bid to the NERC Radioactivity and the Environment programme (award to Portsmouth £392k as part of a consortium). Competitive external grant applications go through the University Peer Review College, a multidisciplinary panel that scrutinizes and provides feedback on proposals prior to submission. In addition, the Faculty has a dedicated Research Finance Officer who provides costing support for grant applications.

To support aquatic sciences research across the *Ecotoxicology and Environmental Monitoring* and *Environmental Microbiology* and *Biotechnology* groups, the University continues to invest in laboratories at the Institute of Marine Sciences (IMS), an internationally important marine research station at the mouth of Langstone Harbour. The IMS brings together world-class research expertise and specialist facilities in molecular biology and gene regulation with those in ecology, ecotoxicology, and evolutionary biology. IMS has benefitted recently from the completion of new £2M Home Office-licensed aquarium facilities for both marine and freshwater species, quarantine and animal holding rooms, and research laboratories, which support, for example, Ford's work on pharmaceuticals in the aquatic environment and Smith and Thorpe's work on the impacts of environmental radioactivity on fish. A further £7M future capital investment is planned to provide flexible laboratory, workshop and teaching space for cross-disciplinary work in marine environmental sciences.

The School of Biological Sciences environmental research laboratories include a wide range of research facilities and equipment. Microbiologists in the *Environmental Microbiology and Biotechnology* group have laboratories and facilities for growing algae, fungi and bacteria. With the *Ecotoxicology and Environmental Monitoring* group, they access state-of-the-art equipment for studies of biomolecular structure, function and dynamics. Specifically, there has been investment in facilities for protein production and purification, NMR spectroscopy, surface plasmon resonance, fluorescence, electron (SEM & TEM) and atomic force microscopy, spectroscopy, and quantitative PCR. Through collaboration with structural biologists submitted to UoA 3, environmental scientists have used our Agilent X-Ray Diffractometer with cryojet and the Harwell Diamond Light Source to characterise the enzymes involved in wood degradation for Cragg's BBSRC-funded biofuels research. Two GC/MS with dedicated sample introduction equipment are used in Fones' and Mills' passive sampler research for analysis of non-polar organic pollutants and an LC/MS/MS is used for analysis of polar organics found in water, sediments and soils. Additionally, the *Biodiversity and Evolution* group has access to a greenhouse facility for plant research and a dedicated sample preparation laboratory, in-house SEM imaging and a CL-imaging facility for stratigraphic and palaeontological work.

The *Ecotoxicology and Environmental Monitoring* group has also benefitted from substantial capital investment in the School of Earth and Environmental Sciences to provide infrastructure and equipment for Fones' and Smith's research on nutrients in aquatic systems and Fones' NERC-

funded marine sediment resuspension work. This includes a Seal Analytical Auto Sampler for nutrient analysis, Unisense microelectrode sediment profiling equipment (O_2 and pH), a Turner designs AU-10 Fluorometer, and an Image analysis system (CDD Camera and ImagePro Plus) housed in refurbished Marine Biogeochemistry laboratories with portable fume cupboards and laminar flow cabinets. Additional Faculty funding has allowed purchase of two more Turner fluorometers, a CEM microwave digestion system and two new CTD systems. Unisense microelectrode equipment for O_2, N_2O, pH and nitrate was purchased from Fones' NERC Macronutrients and Shelf-Sea Biogeochemistry grants, and a grant of £25K from the NERC Exceptional Equipment Capital round has purchased a CHN analyser.

The *Crustal Evolution* Research Group has benefitted from significant investment. The purchase in 2008 of a New Wave UP213 Nd:YAG laser (£80K), now coupled to the Agilent ICP-MS, has enabled U-Pb geochronology and trace element measurements in a wide range of accessory minerals. A Rigaku XRS Primus 2 XRF (£150K) was installed in 2012 and enables acquisition of high-precision whole rock, major, minor and trace element data to ppm detection limits from Be to U, with X-ray mapping capability and spot analysis to 0.5mm. These new analytical facilities, together with a recently-installed Nu Plasma multi-collector ICP-MS, support NERC-funded research by Storey and Fowler. Sample preparation is facilitated by full in-house rock crushing and mineral separation facilities and a thin-section laboratory. The group has full access to an SEM equipped with EDS and CL within the School of Biological Sciences. Further University investment in 2012 of £325k (supplemented by EU Grant €100k to Benson) has resulted in establishment of a state-of-the-art rock mechanics laboratory for investigating the deformation of crustal rocks up to simulated depths of 4 km, and measurement of physical properties of rocks and minerals (elastic wave velocity, permeability) to c. 50 km. This is achieved via a servo-controlled triaxial cell, hydrostatic pressure vessels, uniaxial deformation apparatus, and the latest acoustic emission instrumentation.

Geosciences research will be further supported by the acquisition in 2014 of a Phillips XL30 SEM, and £55k of funding has recently been awarded to assist in establishment of a Portsmouth Microanalytical Centre (PMC). This new hub for coordination and development of research and KT activities in related state-of-the-art microanalytical techniques will include upgrades to existing electron microscopy facilities to enable automated imaging and chemical mapping techniques.

e. Collaboration or contribution to the discipline or research base

Collaborative and interdisciplinary research with leading external organisations (within and outside the academic sector) is a key element of the research strategy outlined above. The success of our strategy in this area is evidenced by a large range of active cross-disciplinary and external collaborations: 70% of our submitted publications have both UK and overseas co-authors and a further 22% have co-authors from other UK institutions. Examples of external collaboration (income figures are amounts awarded to this UoA) from each research group include:

Ecotoxicology and Environmental Monitoring

- *Fones'* research on nutrient and sediment resuspension in collaboration with CEFAS, NOC, PML and the universities of Southampton, UEA, Aberdeen and Bangor (and funded by NERC Macronutrients (£393k) and NERC/DEFRA Shelf Sea Biogeochemistry Programmes (£188k)) has led to new insights into sediment-water interaction
- *Ford* is currently PI to a large (£338k) NERC grant developing biomarkers for endocrine disruption in Crustacea in collaboration with the University of Cardiff, and has an EU

Interreg (PeReNE, £238k) on neuroendocrine disruption in crustaceans.

Biodiversity and Evolution

- *Willis*' collaboration with 10 research groups worldwide has led to a recent *Nature* letter describing a new global analysis of reef fish and identifying new hotspots in functional diversity.

Environmental Microbiology and Biotechnology

- *Cragg* Multi-disciplinary work funded by BBSRC (£446k as part of a £2M consortium) with teams at the University of York and the US National Renewable Energy Lab (supported by a £33k BBSRC Partnering Grant) is developing novel methods for biofuels leading to two papers in PNAS. This work is being expanded with the same collaborators plus University of Cambridge through a £2.7M (£570K to UoP) strategic long and large grant (start: April 2014) plus a PhD studentship (£100K from BBSRC).
- *Hellio* Work on new antifouling paints funded by EU Interreg (GIMS project, £194k) and FP7 (LEAF, £166k) has included collaboration with the University of Rouen and the CNRS, France, and the University of Goteborg, Sweden.

Natural Resource Management and Modelling

- *Wattage* has been actively involved in five international cross-disciplinary projects and networks; for instance Project Cafe (Capacity, Fishing Mortality and Effort) has led to better EU decision-making on sustainable catch levels based on appropriate vessel capacities.

Crustal Evolution

- *Fowler* leads the high Ba-Sr magmatism group in IGCP 599 "The Changing Early Earth" and his and Storey's work in collaboration with the NERC Isotope Geosciences Laboratories contributed to the award of the NERC grant "When on Earth did modern plate tectonics begin?" (£404k). Storey's Collaboration with St Andrews (Hawkesworth, Cawood) and Bristol (Dhuime) has led to a paper in Science on evolution of the continental crust and resulted in key review papers on the subject.

Interdisciplinary research within the University is supported by the Research Development Fund, awarding grants for pilot studies specifically targeted at cross-discipline and cross-department collaboration. National and international external research collaboration is supported by departmental travel funds, and by a programme of external speakers and visitors. We regularly host and convene conferences in earth and environmental sciences including: Building Strong Continents, 2013; ECOFLOR, 2013 convened by *Barrales* at University of Seville; COGER Environmental Radioactivity, 2012; Pollinator mediated selection in Floral Evolution 2011 convened by Armbruster in Turin; Molecular and Microbial Ecology, 2011; Siluria Revisited, 2011; Marine Biogeochemistry Forum, 2011; Extractive Industry Geology 2010;Geological Society Fermor Meeting 'Rodinia', Edinburgh, 2009 convened by *Strachan* in Edinburgh.

Twelve out of 28 submitted staff have given international invited and keynote lectures since 2008, including: American Society for Limnology and Oceanography (*Hayes*); "Chernobyl – 25 years on", 2011, Udine, Italy (*Smith*) and American Geophysical Union 2010, San Francisco (*Storey*).

Other examples of national and international recognition since 2008 include:

- Four staff (*Benson*, *Fones, Storey, Watson*) are members of the NERC Peer Review College; *Fones* has recently been appointed to Core Panel membership.
- *Storey* is a member of NERC Edinburgh Ion Microprobe Facility Steering Committee and of the NERC Services Review Group and *Smith* was a member of the NERC "Radioactivity and the Environment" programme Expert Group. *May* was a Commissioning Panel member of the AHRC/EPSRC Science and Heritage Programme, 2008-2013.
- *Armbruster* is a member of the *U.S. N*SF Grants Panel on Evolutionary Processes
- *Allen* is a member (2008-) of the Steering Commitee of the EU HYMEX (Hydrological Cycle in the Mediterranean) programme and *Fones* was a member of the Defra ME5301 Seabed Integrity steering group
- *Wattage* is an adviser for the International Foundation for Science (IFS), Sweden.
- *Hayes:* President of the Phycological Society of America (2010); currently President of the British Phycological Society and (2011-2013) a council member of the European Federation of Microbiological Societies
- *Lloydell* is Vice-President of the Palaeontographical Society and Britain's only voting member of the International Subcommission on Silurian Stratigraphy
- *Cragg* is Vice- President of Malacological Society of London
- *Smith* is Chair of the UK Coordinating Group on Environmental Radioactivity and a member of the IAEA Chernobyl Cooling Pond Expert Group
- *Storey* is (since 2012) Vice-President of the Mineralogical Society of Great Britain and Ireland (2012-13) and Chair of its Personnel Committee
- Watson is Vice-president of the International Society of Invertebrate Reproduction and Development.
- *Fones* is currently Chair of the Marine Biogeochemistry Forum (Challenger Society for Marine Science) and was a member of the American Geophysical Union (AGU) Meetings Committee 2008-2010.
- *Hellio* is vice-President of the European Society for Marine Biotechnology (2012-date)
- Journal Editorships: Monographs of the Palaeontological Society (*Lloydell*); J. of the Geological Society (*Strachan*); Associate Editorships: J. Phycology (*Hayes*, 2008-12); Proc. Roy. Soc B (*Armbruster*, 2011-date); Mineralogical Magazine (*Storey*); Int. J. Energy and Natural Resources (*Wattage*); Int. J. Ecology and Development (*Hellio*); Special edition guest editor: Aquatic Toxicology (*Ford*)
- *Benson* received the European Geophysical Union EMRP Division Outstanding Young Scientist Award, 2011 and *Strachan* was awarded the Coke Medal of the Geological Society, 2012.