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€25 waged; €12.50 unwaged

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## ENVIRON2005, IT Sligo

The 15th Irish Environmental Researchers' Colloquium, ENVIRON2005, was held at Institute of Technology, Sligo, in January. The colloquium brought over 300 delegates to Sligo from all HEIs in the state, as well as academics from England, Wales, Scotland, Northern Ireland, France, United States, Canada, Austria and Denmark. Other organisations represented included Meath Co Council, Teagasc, the Marine Institute, the North Western Health Board, Coillte, the EPA, Met Éireann, the Botanic Gardens, the Department of Agriculture and Food, the Central Fisheries Board, the National Museum, the Ulster Museum, the Irish Prisons Service, the Irish Concrete Federation, the Irish Doctors' Environmental Association, the Irish Whale and Dolphin Group and the Breifne Group.

There were approximately 130 papers and 60

posters presented, representing the work of over 500 environmental scientists and covering topics from ecology and biodiversity to pollution, sustainability and environmental science and society. The keynote speaker was Dr Pádraig Larkin, Deputy Director General of the EPA, who spoke about the challenges that faced the EPA during its development and the challenges facing the country in the years to come.

If one message could be taken from the meeting, it would be that substantial evidence is now being generated by the research community on the increasing rate of environmental degradation in Ireland and the failure of decision-makers to consider this evidence in major developments. The number of papers on biodiversity and the challenges facing Irish ecosystems were testament to this.



Illegal fly-tipping is rife in the countryside

## Attitudes to waste

There is a paradox between householders' values and their behaviour

### Abigail O'Callaghan-Platt

A three-year EPA/ERTDI study entitled 'Environmental attitudes and behaviour: values, actions and waste management' used a variety of methods to investigate householders' relationship with waste, involving a diverse selection of respondents within four local authority regions.

Quantitative research established baseline information on householders' attitudes and actions to domestic waste, and qualitative means were employed to further explore the paradox uncovered between values and behaviour. The research investigated obstacles to improved waste management activities and ways to facilitate a greater appreciation of waste management

options, incorporating practical methods to realise these. The project is currently in the final stages and will be completed this summer, along with the final reports from the research. Initial reports are available at [http://www.tcd.ie/Geography/Abt\\_06\(EPA\).html](http://www.tcd.ie/Geography/Abt_06(EPA).html).

The study was conducted by the Department of Geography, Trinity College, Dublin, and the research team involved Dr Anna Davies and Prof David Taylor, principal investigators; Frances Fahy, EPA PhD scholar; and Honora Meade, research assistant. For further information on the project, contact Abigail O'Callaghan-Platt in the Department of Geography, Trinity College (e-mail: aocalla@tcd.ie).

## Copper as a tracer of seawater movement

Sarah Knight, winner of the student award at ENVIRON 2005, describes her postdoctoral research



Sarah Knight

I am two years into a PhD in Chemical Oceanography, co-supervised by Dr Rachel Cave in the Department of Earth and Ocean Sciences and Dr Dónal Leech in the Department of Physical Chemistry, at NUIG.

The three main objectives of my project are (a) to develop a system for on-site measurement of dissolved trace metals in surface seawater, (b) to deploy this system (which is based on an electrochemical technique) and measure total dissolved copper in surface seawater off the west coast of Ireland, and (c) to assess the potential of dissolved copper as a tracer for the movement

of different water masses in coastal and offshore waters.

The tasks demanded of me are extremely diverse. The development phase of the project was very hands-on, working with Dr Nicholas Morley (then of the Department of Earth and Ocean Sciences, NUIG) on designing and building all of the supporting instrumentation. The fieldwork has been quite physically demanding. Initially the system was used aboard the Marine Institute's research vessel *Celtic Voyager*, which for one research survey saw us working shifts 24-hours a day for the best part of six days to obtain 240 real-time measurements of total dissolved copper in coastal surface seawater between the Shannon estuary and Galway Bay. In the second phase of the fieldwork, I went on to deploy the system from various shore-based sites around Galway Bay, to monitor total dissolved copper over a 13-hour tidal cycle. Copper is an important metal to measure in coastal waters because it can be toxic to marine life. The back of a Ford Transit van was turned into a "clean" working space with the help of sheets of polyethylene and two Hepa filters. All of the instrumentation was set up inside this space and operated by a generator. These days were long – with between 18-20 hours required to set up the lab, monitor copper over the tidal cycle and dismantle the equipment for the journey home. There has also been a

laboratory component, for optimising the instrumentation and to analyse individual water samples. Desk work – reading, writing, analysing data and learning relevant computer programs – has also of course played a large role in the project. I am fortunate to be funded through an EMBARK scholarship from the Irish Research Council for Science, Engineering and Technology (IRCSET), which also provides funds for me to present my work at conferences at home and abroad, an important part of learning to be a scientist. This funding enabled me to attend ENVIRON 2005, providing me with the personal highlight of this important award.

I intend to have my PhD finished by October of this year. I am preparing a couple of papers for submission to journals, and then I plan on focusing on writing my thesis. I have one more field trip planned for the spring and a research cruise in Canadian coastal waters in the summer, so I will be glad for the odd distraction from the desk. Overall, my PhD experience has been an amazing one. It has been at times very intense and challenging, with the odd moment of wavering motivation, but these have been outweighed by moments of inspiration. Certainly, conjuring up an image of a school of dolphins playing in the wake of the bow of the *Voyager* always make me realise how fortunate I have been in my choice of career.

## Endocrine-disrupting chemicals in the environment

Antoinette Reid, poster competition winner at ENVIRON 2005, describes her postdoctoral research

I am in the latter stage of my PhD on 'Hormone modulating substances in the Irish midlands' Shannon catchment; extraction, analysis and quantification.' The overall objective of my work is to analyse a variety of environmental matrices with a probability of exposure to hormonally active endocrine-disrupting chemicals and to quantify the existing levels of a selection of these substances in an Irish context. The sites and matrices examined were chosen carefully, taking into account their importance in terms of anthropogenic activity, and targeting sewage treatment plants, landfills, urbanised locations, boating areas and the immediate surroundings of these locations. Various extraction methods were employed in the study to both isolate and pre-concentrate targeted analytes in the minimum amount of solvent, hence making extractions more environmentally friendly! Influent, effluent and sludge from treatment plants in the immediate vicinity of the Shannon

catchment were tested, as was concentrated leachate, leachate in groundwater, surface water and sediment, and also including a number of locations along the length of the Shannon including its tributaries. An extremely sensitive liquid chromatographic method for analysis was developed with limits of detection in the ng/L range. The extraction procedures were optimised to the greatest extent possible and for complex samples such as sewage, extensive clean-up procedures were required. The results obtained were correlated with parameters which would influence levels present, such as rainfall, temperature and suspended or dissolved solids. Over twenty chemical species, including phthalates, alkylphenols, metals and both natural and synthetic oestrogens, were tested for extensively in each matrix over a period of time and results were



River Shannon at Athlone Weir

compiled to give a picture of the levels and types of contaminants present. The pre-concentration techniques include solid phase extraction, solid phase microextraction, accelerated solvent extraction and digestion methods. Parallel studies are being carried out to demonstrate both the *in vivo* and *in vitro* effects of these chemicals at the levels detected.

Antoinette Reid, Dept of Life & Physical Sciences, School of Science, Athlone Institute of Technology, Dublin Rd, Athlone, Co Westmeath.

## Environmental Change Institute launched

New research institute at NUI Galway tackles global environmental issues



Environmental Change Institute, NUI Galway

The Environmental Change Institute at NUI Galway was officially launched on 24 September 2004 by Senator Jim Higgins MEP.

The ECI was established in September 2000 as a result of successful bids by NUI Galway to obtain funding (€10.62m) under Cycles II and III of the Government's Programme for Research in Third Level Institutions (PRTL).

Amongst the research projects being undertaken at the Environmental Change Institute is a unique study by an Irish university into the uses and functionality of biodiesel, which is the only alternative fuel that can be used directly in any existing, unmodified diesel engine. Biodiesel is a renewable fuel derived from vegetable oils and animal fats. It has low impact on global warming and can limit dependence on foreign-derived fuel supplies.

Speaking at the launch, John Simmie, Professor of the Department of Chemistry and ECI, said, "With global oil reserves severely threatened, we must seek alternative methods of fuel production. The situation is extremely serious. Fifty-two out of 99 oil-producing countries have now depleted their oil reserves and we estimate that oil will be globally extinct by 2030. Research into alternative methods of fuel is vital if we are to maintain energy levels going forward."

Professor John Simmie stated that the Government must take immediate measures to curb the amount of carbon dioxide being discharged by Irish consumers and suggested that biodiesel represents a realistic alternative, producing approximately 80% less carbon dioxide emissions and almost 100% less sulphur dioxide. Based on tests, biodiesel also

provides a 90% reduction in cancer risks. While the research is at the initial stages, the Environmental Change Institute estimates that biodiesel could be a reality in Irish vehicles quite soon. Biodiesel also replaces the exhaust odour of petroleum diesel with the pleasant smell of popcorn or chips.

Speaking at the official opening of the ECI, Emer Colleran, Director of ECI, said, "We are very excited about the wealth of research projects being undertaken at the Environmental Change Institute. We are working hard to make a significant and positive contribution to tackle global environmental issues and to the very challenging field of Environmental Change Research."

"The development of the ECI has been made possible through PRTL funding, which enables us to adopt an interdisciplinary approach to this research, where we can bring together a pool of experienced researchers and postgraduate students in a state of the art facility. NUI Galway is renowned for the quality of its work internationally and we look forward to the development of the ECI and the positive impact that the findings of the Institute's research will have on making significant environmental change across the globe."

Other areas of research at the ECI include a study by Dr Vincent O'Flaherty and student Niamh Breathnach into levels of contamination in Irish drinking water, which will result in recommendations to the Environmental Protection Agency on how best to treat contaminated drinking water.

Research is also being undertaken into

marine environmental modelling by Dr Michael Hartnett, which is a study into the transport of pollutants discharged into the coastal waters and seas surrounding Ireland.

Professor Emer Colleran is undertaking a study into reducing the effects of landfill gas emissions and the resulting effect on global warming.

## News in brief

### Irish Naturalists' Journal

*The Irish Naturalists' Journal* is a non-profit-making journal that has published issues every year since 1925. It is unique in scope and content, covering all aspects of natural history, and is the official journal of the established Irish field clubs. Academic institutions, government bodies and museums sponsor the journal.

This scientific journal publishes short papers and notes on a wide range of topics relating to the natural environment of Ireland, including botany (e.g. rare species, plant communities), zoology (e.g. invertebrates, fish, mammals, birds), geology (e.g. hard rock, quaternary, palaeontology), obituaries and book reviews.

Authors include staff and researchers at universities and colleges, as well as members of field clubs and independent amateur naturalists. All contributions are peer reviewed. *The Irish Naturalists' Journal* is distributed to libraries around the world, as well as the contents being abstracted and quoted in other journals.

• If you wish to contribute an article to the journal, please contact: Dr Robin Govier, Department of Botany, National University of Ireland, Galway (robin.govier@nuigalway.ie).

• For subscription enquiries, please contact: Dr Brian Nelson, Ulster Museum, Botanic Gardens, Belfast, BT9 5AB (brian.nelson.um@nics.gov.uk).

• The *INJ* is currently looking for an assistant treasurer. If you are interested, please contact: Dr Brian Rushton, School of Environmental Science, University of Ulster, Coleraine, BT52 1SA (BS.Rushton@ulster.ac.uk).

### Collaboration with IEEM?

We are in contact with the Republic of Ireland section of IEEM to discuss possible collaboration. We would like ESAI members' views on this. Please contact Shirley Gallagher (shirleygallagher@eircom.net).

# ESAI Conference 2005

## ENVIRONMENTAL SAMPLING

Clarion Hotel, Cork, 18<sup>th</sup> November 2005

The Water Framework Directive and local regulation has raised the profile of the environmental measuring and monitoring industry and the production of reliable, high-quality data. Concerns have been raised about the first step in the process: environmental sampling. **Environmental Sampling: ES2005** is being organised by the ESAI to allow meaningful discussion on the subject and provide focus for users and suppliers. Sampling has changed and developed over the past number of years, and the conference objective is to focus on current best practice and future improvements.

Delegates will gain a wealth of information from the speakers and the participating exhibitors on legislation, compliance, instruments, services, consultancy and standards.

### Advertising and Sponsorship

Company stands will be on display throughout the day. For more information on stand availability, contact Shirley Gallagher (shirleygallagher@eircom.net). Advertisements from all exhibitors will be included in the conference folder (and will be put on the website).

For further details see [www.esaiweb.org](http://www.esaiweb.org)

### Keynote speaker

'Jake' Norman E Peters of the US Geological Survey is project chief of the Panola Mountain Research Watershed, Georgia. From 1995 to 2001, Jake was president of the international commission on water quality of the International Association of Hydrological Sciences, and organised many water-quality workshops and symposia, many of which focused on the impacts of human activities. He has collaborated with international water scientists, managers and policy-makers on the design and implementation of a global initiative with the goal of providing knowledge for the development of appropriate watershed management and policy – an initiative called Hydrology for Environment, Life and Policy (HELP), supported (primarily) by UNESCO.

### Conference Programme:

9:00-9:30	Registration	
9:30-10:00	Opening address <b>Jake Peters</b> United States Geological Survey (USGS) <i>Spatial &amp; Temporal Variability in Environmental Sampling – Misunderstanding Cause and Effect</i>	
	<b>Parallel Session I</b> Procedures for Environmental Sampling	<b>Parallel Session II</b> Policy on Environmental Sampling
11:30-12:00	<b>Leo Geary</b> Reagecon <i>Practical Considerations for Sampling</i>	<b>Stuart Newstead</b> Newstead Consulting <i>MCERTS: A Quality Measurement Infrastructure for Environmental Monitoring</i>
12:30-13:00	<b>Peter Dumble</b> Waterra <i>Groundwater Monitoring &amp; Sampling</i>	<b>Paul Wiggins</b> Environment Agency UK <i>MCERTS and the Water Industry in the UK</i>
14:00-14:30	<b>John Breslin</b> Marine Institute <i>Marine Sampling for the Water Framework Directive aboard the 'Celtic Voyager'</i>	<b>Anthony Gravell</b> Environment Agency UK <i>Pharmaceuticals and Veterinary Medicines in the Environment</i>
14:30-15:00	<b>Carmel Brennan</b> White Young Green <i>The Role of Biological Indicators in implementing the Water Framework Directive in Ireland</i>	<i>Law &amp; Legislation</i>
15:30-16:00	<b>David Lenihan &amp; Denis O'Connor</b> Kerry County Council <i>From Field to Web-managing Environmental Monitoring Data – A Local Authority Experience</i>	<b>Peter Webster</b> EPA <i>Environmental Sampling – A Regulatory Perspective</i>
16:30-17:00	<b>Michael O'Brien</b> Cork City Council <i>Cork City Council's Role in Developing Lifetime Lab</i>	<b>Jim Moriarty</b> EPA <i>Conducting Waste Investigations</i>

## News in brief

### ESAI website improved

**Adrian Corcoran**

We have redeveloped the ESAI website as a visually-striking, informative site with a nature-centred theme. Containing a wealth of information, we chose a simple yet elegant design for the site which would allow ease of navigation for the user. All the nature photos used are originals taken specifically for the site by Adrian Corcoran and his partner Karen.

The site ([www.esaiweb.org](http://www.esaiweb.org)) contains an automatically-updating link to new career positions and vacancies posted on the ESAI listserver, and is updated regularly with information on upcoming conferences and environmental events.

The recent launch of the Directory of Expertise on the site now allows all ESAI members to securely log in and upload their personal details for perusal by other ESAI members and the general public. The integrated search engine allows quick and easy retrieval of member information based on search categories such as name, specialty or location. The directory has attracted positive feedback from a number of organisations and has boosted visitor numbers to the site by about 500%. The continuing expansion of the site will ensure that it remains a valuable resource for environmental groups.

- Contact [adrian@ak-photos.com](mailto:adrian@ak-photos.com)

### ENVIRON2006: call for papers



The School of Biological and Environmental Science, UCD, will host the 16th Irish Environmental Researchers' Colloquium, **ENVIRON2006**, from Friday 27th to Sunday 29th January 2006. The colloquium is now well-established in our calendar of events and is an ideal forum for postgrads to present and discuss their research findings or ongoing projects. Students will also have the option of submitting their paper for publication by ESAI following peer review. We will be accepting oral and poster presentations from all areas of environmental research from biodiversity through to sustainable development. For registration and other details consult [www.ucd.ie/environ2006](http://www.ucd.ie/environ2006) or contact [environ2006@ucd.ie](mailto:environ2006@ucd.ie).

ESAI awards prizes for the best presentation and best poster each year. We would ask students presenting in **ENVIRON2006** to let us know when registering if they wish to be considered for a prize.

So, good luck with the preparations and we look forward to seeing you in UCD in January.

**NOTE:** We are looking for suitably qualified persons to act as referees in their area of expertise and would ask them to contact the administrator Sinead Macken at [jbres@indigo.ie](mailto:jbres@indigo.ie) with subject matter referring to Refereed Short Communications.

**NOTE:** We are looking for a host venue for **ENVIRON2007** and would ask interested parties to contact Sinead Macken at [jbres@indigo.ie](mailto:jbres@indigo.ie).

## Bumblebee decline

Bumblebee biodiversity on Irish farmland is declining. **Veronica Santorum and Dr John Breen, University of Limerick, report.**



A queen bumblebee on a hellebore flower in spring

The Ag-Biota research programme, funded by the Environmental Protection Agency, is based at University College Dublin under Dr Gordon Purvis.

One Ag-Biota project is investigating the effect of farm management on biodiversity in grassland. Veronica Santorum with supervisor Dr John Breen at the University of Limerick is studying the populations of "aesthetic arthropods" such as bumblebees, large moths and hoverflies.

International research has shown that, globally, bumblebees have been hit hard by changes in agriculture over the last 50 years. Part of the Ag-Biota research project is investigating how bumblebee populations are faring on Irish farms under a range of management. Veronica uses transects, which are similar to the techniques used by ornithologists, and yellow pan traps, for this part of her study. Her results have highlighted some worrying absences. There are few bumblebees flying on farms; on average, only three bees per 100 metres of hedgerow, and these tend to be of only one or two widespread and common species – the stripy ones of children's books (*Bombus terrestris* group) and a foxy-brown bee (*Bombus pascuorum*), whereas we actually have 18 bumblebee species altogether in Ireland. Speaking at the EPA/Ag-Biota conference on Biodiversity at UCD on the 31st of March 2005, Veronica reported that "on average, you would count

less than 20 bumblebees in an hour on a typical farm, compared to 70 in the Burren, and these would tend to be of only two species."

A particular surprise was to find that the red-tailed bumblebee, *Bombus lapidarius*, familiar to many older country people, seems to be missing altogether from most farms yet is still common in places with lots of flowers, where farming is not intensive, such as the Burren. Older farmers and bee-keepers are familiar with this missing bee (some refer to it as the "one with the red arse"), so it must have been common enough on farms at one time. This highlights a problem: there is no historical information available that tells us what the situation was for bees on farms in the past.

This research provides a baseline for bumblebees on farms against which future bumblebee changes can be monitored, and against which the effects of agri-environmental schemes such as REPS can be monitored into the future. Ongoing research aims to provide recommendations for the conservation of these important insects in the agricultural landscape so that they will retain their place as a part of Ireland's wildlife.

Contact: [veronica.santorum@ul.ie](mailto:veronica.santorum@ul.ie)

## Marine environmental monitoring using seaweeds

**Liam Morrison and Dagmar B Stengel of the Martin Ryan Institute, NUI Galway, report.**

Recent research at the Department of Botany, Martin Ryan Institute, NUI Galway, funded by the Higher Education Authority's Programme for Research in Third Level Institutions (Cycle II), for the Environmental Change Institute, NUI Galway, has used active and passive biomonitoring approaches using seaweeds as biomonitors for metal contamination in the Irish marine environment.

The advantage of biological indicator species – as opposed to direct analysis of seawater for metal pollution – is that they provide information on the bioavailability of metals or metal species and allow integration over space and time.

Research at NUI Galway has shown that overall metal levels in Irish seaweeds are low in comparison with the more industrialised coastal regions of Europe. It is reported that Irish rivers contain low background levels of metals, reflecting the natural geochemical weathering of soils in their respective catchment basins, and the concentrations of metals in Irish marine waters do not pose any threat to the ecology of these waters. An exception is the Avoca River, Co Wicklow. NUI Galway research has shown that elevated levels of metals continue to leach from the abandoned mines at Avoca, suggesting that the Arklow intertidal sites adjacent to the mouth of this river have also been impacted by acid mine drainage, resulting in elevated levels of Zn in seaweeds from this region.

Although at low levels many trace metals including Fe, Cu, Zn, Co, Mn, Cr, Mo, V, Se, Ni and Sn are known to be essential micronutrients for living organisms, at higher concentration they become toxic to many marine biota, accumulate in the

food chain and, therefore, may threaten ecosystem biodiversity and even human health. The monitoring of marine contamination plays a central role in its control and, in the past, the primary approach to monitoring was based on the analysis and characterisation of specific targeted contaminants in water or sediments. Seaweeds should be employed in the monitoring of contaminant levels in the marine environment as they offer a reliable and cost-effective approach to assessing the degree of bioavailable contaminants that can potentially accumulate in the food chain.

Research at NUI Galway has shown that overall metal levels in Irish seaweeds are low in comparison with the more industrialised coastal regions of Europe. It is reported that Irish rivers contain low background levels of metals, reflecting the natural geochemical weathering of soils in their respective catchment basins, and the concentrations of metals in Irish marine waters do not pose any threat to the ecology of these waters. An exception is the Avoca River, Co Wicklow. NUI Galway research has shown that elevated levels of metals continue to leach from the abandoned mines at Avoca, suggesting that the Arklow intertidal sites adjacent to the mouth of this river have also been impacted by acid mine drainage, resulting in elevated levels of Zn in seaweeds from this region.



# enviroNews



MAGAZINE OF THE ENVIRONMENTAL SCIENCES ASSOCIATION OF IRELAND - AN ASSOCIATION FOR PEOPLE WORKING IN THE ENVIRONMENTAL AREA

ESAI web address: [esaiweb.org](http://esaiweb.org)

## Introduction

The ESAI is primarily a networking organisation for environmental professionals in Ireland. We try to give the bigger picture. We promote professional development through education and we cater for all levels from 2<sup>nd</sup> level through to professional level.

As a voluntary organisation, we have grown in the last ten years and our future looks bright. The ESAI council is enthusiastic and committed but recognises that there is only so much that can be achieved voluntarily. So we are looking for funds to increase our activities across the board.

Our focus is on establishing a professional membership and providing a network that is useful to everyone concerned or interested in the environment. Future plans include using ESAI as an independent body that can assess, grade and monitor professionals practising to ESAI's code of practice.

Many members find their way to ESAI through the **ENVIRON** research colloquium, which is hosted each year by a different institution. For these members, it is often the first stepping stone to discussing their research with peers and others interested in their area.

In the 10 years since ESAI was formed the term 'environmental sciences' has become too restrictive, as environmental professionals now come from all backgrounds. The field is interdisciplinary, encompassing sciences, engineering, law and commerce. Each of these disciplines can be subdivided again and again, taking into account the intricacies and range of knowledge from archaeology to zoology.

ESAI plans to become a professional organisation that has a continuing professional development (CPD) programme for all its

members, and we are creating a directory of expertise where anyone can look for qualified personnel to meet their requirements. The directory of expertise (DoE), designed by Adrian Corcoran and myself, is at an early stage of development, but it should prove useful to members, other professionals and the general public. I would ask all members to log on to the ESAI website and complete their details, or else ask the webmaster to remove their name.

Each member has been designated their own username and password to ensure security. The search facility is useful for networking, and we would be delighted to receive feedback and suggestions about it. We are seeking funds to increase its usefulness and have a number of ideas that we are currently developing. The directory will be officially launched at the upcoming ESAI programme of events launch in Heineken Brewery, Cork, on 24th October 2005 (see below).

ESAI is holding a conference on environmental sampling in the Clarion Hotel, Cork, on 18th November 2005. This event is targeted at policy-makers and personnel working in this field. For further details, see back page.

We are looking for a student to represent the ESAI's student membership population. Elections will be held at the ESAI AGM at **ENVIRON2006** in UCD, Dublin, in January.

Council is always interested in new ideas and welcomes any initiative shown by members. Information or suggestions should be sent to the ESAI Administrator, Sinead Macken, at [jbres@indigo.ie](mailto:jbres@indigo.ie).

**Shirley Gallagher**  
Vice-Chair, ESAI

## Invitation

You are cordially invited to attend the launch of the ESAI Programme of Events for 2005-2006 at The Klin, Heineken Ireland, Murphy Brewery, Leirim Street, Cork on Monday, October 25th 2005, at 6:00pm.

We'd be delighted if you could attend. We will use this opportunity to officially launch our:

- New-look ESAI website by webmaster Adrian Corcoran
- Directory of Expertise
- Calendar of Events
- Directory of Courses

You can also meet our Summer Bursary Winners 2005 and meet some new members and renew old friendships. We look forward to meeting you on the night.

**Dr Shirley Gallagher**  
ESAI Vice-chair

RSVP by 12th October 2005 to: [shirleygallagher@eircom.net](mailto:shirleygallagher@eircom.net)

Reception kindly hosted by Heineken Ireland

**ESAI : Promoting Professional Development through Education**

### PROFILE: John Breen

ESAI intends to carry brief biographies of each of its council members in **ENVIRONNEWS**. We begin with a profile of the current chairman of ESAI, Dr John Breen of the University of Limerick.

John Breen is a zoologist with a PhD from UCC. He spent an academic year at the University of Bergen, Norway, and was a post-doc at TCD before moving in 1979 to what is now the University of Limerick, where he is a Senior Lecturer in Environmental Biology. His research interests range from heavy metals in invertebrates to aspects of biodiversity – especially ants, bees and wasps.



John Breen

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