

GENERAL INFORMATION

This advanced course that will be held from the **13th to the 17th June 2011** at the University of Porto, Portugal, will cover emerging issues in Marine Ecotoxicology and Risk Assessment of oils and hazardous and noxious substances spills. It will provide updated knowledge and training on new and more classic approaches for assessment of ecotoxicological and ecological effects, long-term monitoring, and ecological risk assessment of marine and estuarine pollution, with emphasis on chemical spills. Case studies using integrated approaches in tropical, temperate and Northern regions will be discussed, also addressing the difficulties introduced by confounding factors such as historical pollution, ecosystem dynamics, and alterations resulting from global climate changes.

This course is especially dedicated to PhD and MSc students in the area of Marine and Environmental Sciences, scientists and other professionals from Academia, Government and Business involved in the management, conservation and sustainability of marine and estuarine ecosystems.

Lecturers are leading scientists with different backgrounds providing a broad and multi-angle overview on the effects and risks of the exploration, transformation, long-range transport and uses of oil and other chemicals to the marine environment (open sea, estuarine and coastal ecosystems).

All lectures and training sessions will be held in English. The course is limited to 20 participants.

THEMATICS

- Introduction to Marine Ecotoxicology and Ecological Risk Assessment (ERA) of oils and Hazardous and Noxious Substances (HNS) to the marine environment.
- Laboratory assays and field approaches to assess biological and ecological effects of oils and other chemicals in estuarine, coastal and open sea ecosystems.
- Effects of oils and selected HNS: from the molecular to the ecosystem level.
- Confounding factors in ecological risk assessment of oils and other chemical spills.
- Toxicological interactions of oil components with HNS, emerging contaminants of concern, common environmental contaminants and other stressors resulting from global climate changes, and their potential ecological consequences.
- Assessing the effects of oils and HNS spills in the marine environment: discussion of case-studies in different ecosystems and regions (e.g. North Seas, temperate and tropical regions).
- Data analysis, calculation of ecotoxicological parameters, and risk assessment.

LECTURERS

- Prof. Dr. Dick Vethaak, Deltares & VU University of Amsterdam, The Netherlands
- Prof. Dr. James W. Readman, Plymouth Marine Laboratory, UK
- Prof. Dr. Josep M. Bayona, IDAEA-CSIC, Barcelona, Spain
- Prof. Dr. Ketil Hylland, University of Oslo & Norwegian Institute for Water Research, Norway
- Dr. Kevin Thomas, Norwegian Institute for Water Research, Norway
- Prof. Dr. Ricardo Beiras, University of Vigo, Spain
- Prof. Dr. Lúcia Guilhermino, ICBAS & CIIMAR, University of Porto, Portugal (Coordinator)
- Dr. Carlos Gravato, CIIMAR, University of Porto, Portugal
- Dr. Laura Guimarães, CIIMAR, University of Porto, Portugal
- Dr. Luís R. Vieira, CIIMAR, University of Porto, Portugal
- Dr. M. Miguel Oliveira, CIIMAR, University of Porto, Portugal

PROGRAMME

13th June

- 09:00 – 10:30h Introduction to Marine Ecotoxicology – L. Guilhermino
10:30 – 11:00h *Coffee break*
11:00 – 13:00h The assessment of marine pollution from chemical contaminants. Shipping incidents. Case study: the evaluation of an HNS spill. J. W. Readman
13:00 – 14:00h *Lunch*
14.00 – 16:00h Fate of oils in the marine environment – J. M. Bayona
16.00 – 16:30h *Coffee break*
16.30 – 18:00h Ecological risk assessment (ERA) for oils and HNS spills in the marine environment – K. Thomas

14th June

- 09:00 – 10:30h Laboratory assays to assess the biological effects of oil spills – R. Beiras
10:30 – 11:00h *Coffee break*
10:30 – 11:00h Field approaches to assess biological effects of environmental contamination resulting from oil & gas exploration - experience from the North Sea - K. Hylland
11:00 – 13:00h *Lunch*
13:00 – 14:00h Assessment of the effects of an oil to marine phytoplankton – L. Vieira (practical session)
14.00 – 16:00h *Coffee break*
16.00 – 16:30h Calculation of ecotoxicological parameters – L. Guimarães (practical session)
16.30 – 18:00h

15th June

- 09:00 – 10:30h Integrated assessment of endocrine disrupting effects – D. Vethaak
10:30 – 11:00h *Coffee break*
11:00 – 13:00h Ecological risk assessment of oil spills in temperate and tropical ecosystems: historical pollution, multi-stress exposure, ecosystems dynamics and other confounding factors – L. Guilhermino
13:00 – 14:00h *Lunch*
14.00 – 18:00h Acute bioassay with the prawn *Palaemon serratus*: assessment of lethal and behavioural effects (practical session) – C. Gravato

16th June

- 09:00 – 10:30h Old and emerging contaminants in the marine environment and potential interaction with oil and HNS risk assessment – expert from Business (to be confirmed)
10:30 – 11:00h *Coffee break*
11:00 – 13:00h Cancer and other diseases in marine organism associated with exposure to oil and HNS – D. Vethaak
13:00 – 14:00h *Lunch*
14.00 – 16:00h Assessment of neurotoxic effects: acetylcholinesterase activity in marine organisms (practical session) – L. Guimarães
16.00 – 16:30h *Coffee break*
16.30 – 18:00h Determination of ecotoxicological parameters and PNEC values (practical session) – L. Guimarães

17th June

- 09:00 – 10:30h Assessment of genotoxic effects in fish (practical session) – M.M. Oliveira
10:30 – 11:00h *Coffee break*
11:00 – 13:00h The role of international organisations in marine environmental monitoring and assessment – past, present, future – K. Hylland
13:00 – 14:00h *Lunch*
14.00 – 15:00h Risk Assessment of oil & HNS in the marine environment – round table discussion of case studies (K. Hylland, D. Vethaak, L. Guilhermino)
15.00 – 15:30h
16.30 – 18:00h *Coffee break*
Evaluation (optional)

REGISTRATION, FEES AND OTHER INFORMATION

- Registration fee: **€ 500** (includes attendance to all lectures, training sessions, and course documentation).
- Reduced fee for SETAC members: **€ 400**
- Reduced fee for SETAC student members, CIIMAR members and students of the University of Porto: **€ 300**
- Certificates: certificate of attendance for all the participants; certificate of approval, including the final mark obtained in a written exam at the end of the course will be provided upon request at the registration form (bellow)
- Application: candidates should fill in the *registration form* and send it to Prof. Dr. Lúcia Guilhermino by e-mail (lguilher@icbas.up.pt) before the **25th May 2011**.
- Registration: after acceptance by e-mail, candidates will have **5 days to process fee payment** by Bank Transfer (details of Bank Account will be provided in the acceptance e-mail); if the transfer is not processed during this period the acceptance will be cancelled.
- Accommodation and travel: each participant is responsible for his/her accommodation and travelling.

REGISTRATION FORM

Name _____

Title _____

Institution _____

Postal address _____

Postal code _____ City _____ Country _____

Telephone _____ Fax _____

Email _____

Normal fee (500 €) _____ Reduced fee (400 €) _____ or (300€) _____

Exam YES _____ NO _____

Invoice to

Name _____

Postal address _____

Postal code _____ City _____

Country _____

NIF / VAT number _____

To be send by e-mail to: Prof. Dr. Lúcia Guilhermino (lguilher@icbas.up.pt) before the **25th May 2011**.

LECTURERS INFORMATION

Prof. Dr. Lúcia Guilhermino

Professor at the Institute of Biomedical Sciences of Abel Salazar (ICBAS) and Member of the Board of Directors of the Centre of Marine and Environmental Research (CIIMAR) of the University of Porto, Portugal. Head of the Laboratory of Ecotoxicology and Ecology of CIIMAR, with a staff of 35 researchers (12 PhD holders). Fields of expertise in relation to the course: marine ecotoxicology, ecology and ecological risk assessment; tropical ecotoxicology, oil and other chemical spills; biological and ecological effects of environmental contaminants and other stressors; combined effects of pollution, climate changes and invasive species on estuarine and coastal ecosystems. Scientific expert in the areas of Marine and Environmental Sciences of several international and national institutions. Member of the Working Group on the Biological Effects of Contaminants of the International Council for the Exploration of the Sea. More than 100 full papers in international peer reviewed journals, several book chapters and more than 350 communications in scientific meetings. Associate Editor of *Biomarkers* and Member of the Editorial Board of *Environmental Toxicology and Chemistry*; regular reviewer of more than 25 journals, several in the area of marine sciences. Coordinator of the PhD Programme on Marine and Environmental Sciences of the Universities of Porto and Aveiro, Portugal, coordinator of several courses on Ecotoxicology, Ecology and Toxicology included in PhD and MSc programmes.

Prof. Dr. Ketil Hylland

Professor at the Department of Biology, University of Oslo and senior scientist at the Norwegian Institute for Water Research (NIVA). Head of the Integrative Biology research group and Toxicology strategic programme. Has been and is member of various international working groups within ICES, OSPAR, OECD, JRC/EU and has chaired ICES and OSPAR working groups. Has authored or co-authored in excess of 100 papers in scientific journals in the fields of toxicology, marine ecology and ecotoxicology. Main research interests in biomarker development and use in field and experimental studies, sediment ecotoxicology, oil ecotoxicology, linking molecular to population responses to stressors and interactions between environmental factors in their effects on processes in marine ecosystems. He co-ordinated the international BECPELAG project (Biological effects of contaminants in pelagic ecosystems) and currently co-ordinates ICON (Integrated assessment of contaminants in coastal and offshore ecosystems in the North Sea).

Prof. Dr. Dick Vethaak

Dick Vethaak is a senior specialist in the Ecosystem Analysis and Assessment Department of Deltares in Delft, The Netherlands, and holds a professorship in Ecotoxicology at the VU University of Amsterdam, Institute for Environmental Studies. He received his PhD in biology from the University of Amsterdam and is a registered toxicologist with the Dutch Society of Toxicology and EUROTOX. His research includes the study of the effects of (emerging) contaminants on aquatic organisms, food web transfer and effects, endocrine disruption, development and application of bioassays and biomarkers, and integrated monitoring and assessment methods, and his interests include toxicological pathological studies in fish and studies to resolve cause-and-effect problems in aquatic organisms and birds. Vethaak initiated and coordinated several long-term research projects, (inter)national workshops and participated in various EU-funded projects (a.o. FIRE). He has been project leader of the nationwide survey on xeno-estrogens in the aquatic environment of the Netherlands (LOES), chair of the advice committee on "Hormone disruptors in ecosystems" of the Health Council of the Netherlands, and external advisor to the Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE) of the European Commission. Vethaak has long been involved in various expert groups and committees of the International Council for Exploration of the Sea (ICES), including a member of the Advisory Committee on the Marine Environment (ACME) and the Science Committee (SCICOM). He is also a member of the Advisory Committee for the Postgraduate Education in Toxicology (PET) and a member of the editorial boards for Comparative Hepatology and Integrated Environmental Assessment and Management. He is (co)editor of 4 books and 3 symposium proceedings and (co)author of about 80 peer-reviewed articles and more than 200 reports, conference contributions and other articles on subjects related to fish pathology, environmental quality, hazard and risk assessment of environmental contaminants. His citation Hirsh's h-index in Scopus is 27.

Prof. Dr. James W. Readman

Professor Readman is based at the Plymouth Marine Laboratory (UK). He leads fundamental research into the composition/cycling of organic material and the behaviour and impact of pollutants in estuarine and coastal environments. His most recent research relates to emerging contaminants and nanoparticles. He has gained professional experience in academic, Governmental, industrial contract research and United Nations laboratories. From 1999 to 2001, he was Head of Pollution Research for the UK Centre for Coastal & Marine Sciences. From 1996-1999, he was Head of Biogeochemistry at the Plymouth Marine Laboratory and prior to that, for seven years was employed by the United Nations as Head of the Organic Chemistry Unit at the International Atomic Energy Agency - Marine Environment Laboratory based in the Principality of Monaco. Professor Readman has published over 100 refereed papers relating to environmental science and analytical chemistry in Journals including: Nature, Environmental Science and Technology, Marine Chemistry, Marine Ecology Progress Series, the Science of the Total Environment, Marine Pollution Bulletin, Organic Geochemistry, Chemosphere, Aquatic Toxicology, The Analyst, Analytica Chimica Acta, International Journal of Environmental Analytical Chemistry and the Journal of Chromatography. These papers have, collectively, been cited over 2500 times, and generate an h-index of 30. In addition to these publications, he has written, compiled and edited numerous technical reports. Professor Readman has organised, chaired and participated in numerous (approximately 250) International Symposia and United Nations meetings and conferences on environmental pollution. During recent years, he has provided expert comment on pollution issues for the BBC and several popular newspapers and journals.

Prof. Dr. Josep M. Bayona

Research Professor at IIQAB-CSIC, Spain. One of his main fields of expertise is oil spills, particularly the fate of oils in the marine environment and oil fingerprint. Specialization: (i) main field: environmental analytical chemistry; (ii) other fields: environmental chemistry, sample preparation and processing, (iii) current research interests: Development of analytical techniques for environmental analysis; Fate of organic contaminants in wetland systems; Development of molecular markers to trace urban pollution. Member of the Editorial Board of Analytical Chemistry (2003-2005) (A-Pages) and International Journal of Environmental Analytical Chemistry (2002- present). Supervisor of 13 PhD Thesis. 13 Specialized technical international courses. Consultant of the FAO, UNEP and WHO. International evaluation panel for the SEINE-AVAL project (1999-2000). Member of the Committee AEN/CTN 77/SC 5 (waste characterization). Member of the American Chemical Society. Environmental and Analytical Divisions. International Association of Water Quality (IWA). Member of the Spanish Society of Chromatography and related technologies. Steering Committee of Institute of Catalan Studies. Chemistry Section. 1998-2000. Evaluator for ANEP and AGAUR (Spain), Research Council for Earth and Life Sciences in the Netherlands (ALW) (2000-02), Research Grant Council of Hong Kong (2004) and Ministero dell'Università e della Ricerca Scientifica e Tecnologica (Italy). Current reviewer of the following journals: 1) Anal. Chem., 2) Environ. Sci. Technol., 3) J. Chromatogr. A, 4) Ind. Eng. Chem. Res., 5) Intl J. Environ. Chem, 6) Chemosphere, 7) Environ Pollut, 8) Mar Pollut Bull, 9) ABC, 10) Arch Environ Contam Toxicol, 11) Fresenius J. Anal. Chem., 12) Mar Environ. Res., 13) Chromatographia, 14) Fuel, 15) Talanta, 16) Cont Shelf Res, 17) Mar Chem, 18) Wat Res, 19) Agric Food Chem. 177 papers in refereed journals, 34 book chapters and 290 presentations in international meetings.

Dr. Laura Guimarães

Laura Guimarães is Assistant Researcher at the Laboratory of Ecotoxicology and Ecology, Interdisciplinary Centre for Marine and Environmental Research, University of Porto. Her main research interests are the development of methods and the experimental and field assessment of the effects of chemical contamination on aquatic organisms, and the analysis of complex data sets. From her research she published 3 book chapters, 16 research papers in SCI journals, seven papers in conference proceedings and more than 60 communications in scientific meetings.

Dr. Carlos Gravato

Assistant Researcher at the Interdisciplinary Centre of Marine and Environmental Research (CIIMAR) of the University of Porto (Portugal). Has authored or co-authored 28 full papers in international peer reviewed journals, 1 book chapter and more than 120 communications in scientific meetings. Regular reviewer of several journals in the fields of toxicology and ecotoxicology. Main research interests in biomarker development and their use in field and experimental studies, ecotoxicology, linking responses induced by pollutants at the molecular and biochemical levels to the effects on animal behaviour and growth.

Dr. Kevin Thomas

At the present he is Research Manager, Ecotoxicology and Risk Assessment Section, at NIVA, Oslo, Norway, with over fifteen years of experience on environmental research, specialising in the characterisation and effects of contaminants. Project Management / Programmes Direction Oversees the research and consultancy conducted within the NIVA section for Ecotoxicology and Risk Assessment. This covers a broad range of activities from the arctic to the equator. Extensive experience of successfully managing complex projects for the Norwegian Research Council (NFR), Norwegian State pollution Control Authority (SFT), EU, UK Department for the Environment, Environment Agency, Health and Safety Executive, Department for Trade and Industry, Northumbrian Water, Solutia PLC, Corus PLC, UK Offshore Operators Association, the Research Council of Norway, Daiwa Foundation, Ecosea, Water Research Centre, Posford Haskoning Ltd., Shell PLC, Bayer HealthCare, Rohm & Hass, Pfizer and industrial consortia. Currently manager of a NFR Strategic Institute Programme (Pharmatreat) and sub-project manager for EU FPVI Project MODELKEY (www.modelkey.org) as well as numerous smaller programmes. **Areas of Research Interest:** Toxicity identification evaluation (EDA/TIE)- Novel contaminant identification. Direct toxicity assessment of effluent discharges. Toxicity tracking and reduction of effluent discharges. Novel contaminant surveys (e.g. pharmaceutical products, antifouling compounds, oil production chemicals). Water quality issues (e.g. problems at bivalve shellfish hatcheries). Fate and effect studies (e.g. degradation, bioaccumulation, toxicity etc.). Contaminant persistence. Bioavailability of contaminants (e.g. copper and organics). In-situ monitoring. Assessment of the risk posed by emerging contaminants to the aquatic environment.

Prof. Dr. Ricardo Beiras

Professor at the University of Vigo and Head of the ECIMAT Marine Science Station, Spain. Frequent chairman in SETAC Europe meetings. Member of the panel of advisors for the Spanish call for proposals on accidental marine pollution. Spanish Advisor for the Prestige Commission of the Galician Parliament. Advisor of IEO at ICES meetings. Expert under contract for evaluation rounds of RTD Proposals for the European Commission. He was researcher at University of Antwerp, Belgium, Institut français de recherche pour l'exploitation de la mer (IFREMER), France, and Plymouth Marine Laboratory, U.K. Main field of research: biological assessment of marine pollution. More than 70 papers in international scientific journals and several presentations at international meetings.

Dr. M. Miguel Oliveira

Miguel Oliveira is a post-doc researcher at the Laboratory of Ecotoxicology and Ecology at the Interdisciplinary Centre for Marine and Environmental Research (CIIMAR). In his scientific career, he has been working in the field of toxicology/ecotoxicology. He did his PhD on the genotoxic and biochemical effects of xenobiotics on aquatic organisms. His research interests include the study of the effects of contaminants and climate changes on aquatic organisms (fish and bivalves) in terms of endocrine disruption, biotransformation, oxidative stress and genotoxicity. (Co)author of about 30 peer-reviewed articles on subjects related to effects of environmental contaminants on aquatic organisms, he is also invited reviewer of over 10 indexed journals.

Dr. Luís R. Vieira

Post-doc researcher at the Interdisciplinary Centre of Marine and Environmental Research (CIIMAR) of the University of Porto (Portugal). He has seven published papers in international journals, 1 book chapter and more than 40 communications in scientific meetings. Teaching experience in ecotoxicology and marine ecology. His main research interests and expertise fields are on the effects of environmental contamination in estuarine zooplankton, biomarkers in wild fish populations, and laboratory bioassays with estuarine algae and fish to assess the toxic effects of environmental contaminants.

FCT Fundação para a Ciência e a Tecnologia

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR



UNIÃO EUROPEIA

Fundo Europeu de
Desenvolvimento Regional



Project “**RAMOCS – Implementation of Risk Assessment
Methodologies for Oil and Chemical Spills in the European
Marine Environment “**

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