

MASTER THESIS OFFER (2012-2013) MER

TITLE	DESCRIPTION (5-10 lines)	SUPERV. (Name; Contact e-mail)	LOCATION (Res Grp; Lab, Dept, Inst, City)	FUNDING (if available)	REQUISITES / NAME (if needed /if agreed)
Effects of acidification on mussel gamete viability	The present work aims to study the effects of acidification on mussel gamete development and viability. It is known that acid environments can disrupt fertilization and embryo development in shellfish such as sea urchins. Mussels, used worldwide as sentinel organisms of marine ecosystem health, offer a good opportunity to study acidification processes. Recently, transcriptome level changes have been reported in mussels subjected to acidic environment. Together with assessing gamete development and quality, core health status biomarkers will be studied to evaluate adult stress after exposure to acidic environment. This work offers the opportunity on learning on fertility and fecundity techniques together with introducing the student on the evaluation of changes in the environment to marine organisms.	Urtzi Izagirre (urtzi.izagirre@ehu.es) & Maren Ortiz-Zarragoitia (maren.ortiz@ehu.es)	Cell Biol in Environ Toxicol (CBET) Dept. Zool and Cell Biol, UPV/EHU, Leioa.	Lab costs (K-Egokitzen)	MER (30 ECTS; 5-6 mo): . X...
					CTA (21 ECTS; 4-5 mo): .X...
Development of a tissue-array for biomarkerS.	The aim of the present research work is the development of a tissue-array, a new histological method for the assessment of histochemical and tissue-level biomarkers and histopathological verifications in mussels and fish. These new method could also be useful in immuno-histochemical analysis due to 60 samples could analyzed together, taking in advance of the resources. Samples of mussels store in the BBEBB (Biscay Bay Environmental Biospecimen Bank) from different experiments previously performed in the laboratory will be analyzed. Different fish species collected in a Biscay bay Oceanography campaigns will be also studied. Results obtained in the present work are planned to be published in international scientific journals.	Larraitz Garmendia (larraitz.garmendia@ehu.es) and Urtzi Izagirre (urtzi.izagirre@ehu.es)	Cell Biol in Environ Toxicol (CBET) Dept. Zool and Cell Biol, UPV/EHU, Leioa.	Lab costs (K-Egokitzen)	MER (30 ECTS; 5-6 mo): . X..
					CTA (21 ECTS; 4-5 mo): .X...
Measuring Marine Diversity	In other to implement the ecosystems approach to govern fisheries and their surrounding environment, multidisciplinary indicators are need. One of these indicators, which may be useful to measure the health of an ecosystem, is diversity. Thus, firstly this master thesis proposal deals with defining, measuring and comparing alternative marine diversity index. The result of this first objective is the derivation of complement measures of diversity index for a large enough time period. Secondly, aiming to understand the data generation process, a time series analysis would be undertaken in order to identify the variables, events and/or policies that may have influenced on the evolution of the proposed diversity index.	Ikerne del Valle Erkiaga. Email: Ikerne.delvalle@ehu.es	Fisheries Economics Research Group. Dep. Appl UPV/EHU. Bilbao.	-	Statistics. Notions of Ecology
					MER (30 ECTS; 5-6 mo):X
Seasonal variability in lysosomal biomarkers in mussels exposed to pollutants	Biomarker responses to Cd exposure in mussels. Laboratory experiments with mussels in different stages of their reproduction cycle. Organism sensitivity against environmental stress related gender and reproduction stage	Ionan Marigomez Email: ionan.marigomez@ehu.es	Cell Biol in Environ Toxicol (CBET) Dept. Zool and Cell Biol, UPV/EHU, Leioa.	Lab costs (K-Egokitzen)	CTA (21 ECTS; 4-5 mo): .X...
					MER (30 ECTS; 5-6 mo):X

					CTA (21 ECTS; 4-5 mo): .X...
Winkle attachment assay: a tool for screening general physiological condition in intertidal gastropods	One important effect of the Prestige oil spill in coastal animals was the loss of attachability in intertidal limpets. Thus, limpets were detached from the substrate and died as a result of mechanical forces or of accessibility to predators (e.g. crabs, ...). The large impact in the limpet populations was not necessarily the direct result of a toxic effect. Enhanced detachment could be the result of alterations in muscle, nervous system, mucous production or simply weakening of the individuals results from reduced food intake. WE therefore decided to develop a laboratory assay to determine the effects of model pollutants on the attachment capacity of intertidal gastropods. Due to difficulties in maintaining limpets in the lab, winkles of the species <i>Littorina littorea</i> are used as test model organisms.	Ionan Marigomez Email: ionan.marigomez@ehu.es	Cell Biol in Environ Toxicol (CBET) Dept. Zool and Cell Biol, UPV/EHU, Leioa.		MER (30 ECTS; 5-6 mo):X CTA (21 ECTS; 4-5 mo): .X...
Caracterización de fondos marinos mediante sensores remotos	Multi-beam data will be processed by means of specific software. The data will be integrated with sea bed characteristics information to perform a description of the Basque continental shelf seabed and make progress on the classification of habitats.	Ibon Galparsoro (aduriarte@azti.es)	AZTI tecnalia Pasaia		Knowledge of Windows OS and Geographic Information Systems MER (30 ECTS; 5-6 mo): . X... CTA (21 ECTS; 4-5 mo):
Aplicación de muestreadores pasivos para evaluación del impacto ambiental producido por compuestos orgánicos en las aguas costeras y estuáricas	European directives refer to the total dissolved fraction of organic compounds in the water column, as one of the indicators of the chemical status of water bodies. However, the concentrations required by the European Community, on occasions, are located on the edge of the conventional analytical techniques or even below them. This means that we have no knowledge of the real concentration in many bodies of water, and just know that it stays below the detection limits. However, it is well known that chemical compounds can have great ecotoxicological relevance even if its concentration in the environment is very low. Some of the limitations of sampling and subsequent analysis by the conventional analytical techniques, could be overcome through the use of passive samplers:	Maria Jesús Belzunce (aduriarte@azti.es)	AZTI tecnalia Pasaia		Chemist or Biologist or environmentalist with solid chemistry background MER (30 ECTS; 5-6 mo): . X...

	concentrations of organic compounds integrated in time and being more representative of rich media (e.g. estuaries), preconcentration of samples and therefore a greater sensitivity, whilst avoiding the contamination of the samples, greater representativity of the fraction of major ecotoxicological, etc.				CTA (21 ECTS; 4-5 mo):
Aplicación de un modelo de distribución vertical de hueva de anchoa para la optimización de las campañas del MPDH	Collation of vertical distribution profiles of anchovy roe in 2010 and 2011, during Bioman fieldwork stations, following the model developed by Boyra et al. (2003) and others (Petitgas et al., 2006). Obtaining of anchovy abundance estimates in those stations, integrating the profiles of the vertical distribution model, scaled through CUFES (Continuous Underway Fish Egg Sampler) data. Validate the model by comparing abundances estimated by means of the CUFES-model and those provided by the vertical Pairovet samples. Optimization of DEPM (Dayly Egg Production Method) campaigns by replacement or combination of vertical samples with continuous CUFES sampling.	Unai Cotano (aduriarte@azti.es)	AZTI tecnalia Pasaia		knowledge of statistics and notions of programming (R or MATLAB) MER (30 ECTS; 5-6 mo): . X... CTA (21 ECTS; 4-5 mo): .X...
Study of the toxicity of sediments from Urdaibai and Abra estuaries in the polychaete worm Nereis diversicolor.	Description (5-10 lines): The present work is integrated within the OKAMET research project (UNESCO p09/23). In the master thesis sediments coming from 3 different sites in Urdaibai and 2 different sites in the Abra estuary will be collected and transported to the lab. Then, polychaete worms Nereis diversicolor will be put in contact with the sediments for 29 days. Physico-chemical parameters of the sediments, metal concentration of sediments and worms, survival, changes in the weight of worms and different cell and tissue level alterations are going to be measured in order to determine the toxicity of the sediments in the worms.	Urtzi Izaguirre and Beñat Zaldibar. (urtzi.izaguirre@ehu.es; benat.zaldibar@ehu.es)	Cell Biol in Environ Toxicol (CBET) Dept. Zool and Cell Biol, UPV/EHU, Leioa.		MER (30 ECTS; 5-6 mo): . X... CTA (21 ECTS; 4-5 mo): .X...
Estimation of the net physical transport and residence times for contrasting estuaries of the Basque coast using box models	The residence time of water is an important physical control on ecological processes in estuaries. However, the full potential of residence time as an explanatory variable in estuarine ecology has most likely not been realized because of the challenge of estimating it at the appropriate time and space scales. The aim of this work is to develop reasonably simple models that has been used to estimate physical transport and spatially resolved residence times in the estuaries of Bilbao and Urdaibai. These models are fundamental to analyse the dynamics of relevant water-quality factors such as the dissolved oxygen and other no conservative elements in these estuaries.	Fernando Villate Email: fernando.villate@ehu.es	Dept of Plant Biology and Ecology UPV/EHU, Leioa.		MER (30 ECTS; 5-6 mo): . X... CTA (21 ECTS; 4-5 mo): .X...
Extraction of heavy metals from moss and lichen samples using focused ultrasound technology	Moss and lichen has been frequently used to monitor atmospheric pollution in both remote and urban areas. The extraction of pollutants from these samples is usually attempted by acidic digestion in a microwave oven. Alternatively, other techniques may be used to accelerate the process, such as focused ultrasound energy. The work aims to optimise a method to quantitatively extract heavy metals of environmental interest (As, Cd, Cr, Cu, Ni, Pb, Zn,...) from moss and/or lichen samples using ultrasound energy focused in a glass tip.	Alberto de Diego (alberto.dediego@ehu.es)	Department of Analytical Chemistry, Faculty of Science and Technology, Leioa	Extraction of heavy metals from moss and lichen samples using focused ultrasound technology	Knowledge of Basque language. Preferably, with good background in chemistry MER (30 ECTS; 5-6 mo): . X...

					CTA (21 ECTS; 4-5 mo): .X...
Effects of seasonal variations in the transcription profile of housekeeping genes: validation of a normalisation procedure	It is widely assumed that for the normalisation of qPCR data, genes reflecting the basal cell activity is required, the so-called housekeeping genes. However, natural factors may alter the transcription profile of such genes leading us to erroneous interpretations of target expression profiles. Thus, in order to validate a universal tool for the normalisation of gene transcription measurements in qPCR assays in fish, we aim to study seasonal dependent transcription of commonly used housekeeping genes in comparison with novel tools based on cDNA direct quantification. Results of the present work could offer a revolutionary improvement for the assessment of qPCR assays.	Maren Ortiz (maren.ortiz@ehu.es); Eider Bilbao (eider.bilbao@ehu.es)	Cell Biol in Environ Toxicol (CBET) Dept. Zool and Cell Biol, UPV/EHU, Leioa.	Effects of seasonal variations in the transcription profile of housekeeping genes: validation of a normalisation procedure	MER (30 ECTS; 5-6 mo): . X...
					CTA (21 ECTS; 4-5 mo): .X...
Characterization of histopathological alterations in the liver of thicklip grey mullet (<i>Chelon labrosus</i>) from the Basque Country.	Liver is a key metabolic organ in fish. Effects of contaminants could lead to histopathological alterations in hepatocytes and changes on key biological responses measured by histochemical tools. The present work aimed to characterize the presence of histopathological alterations in the liver of thicklip grey mullet <i>Chelon labrosus</i> , collected in the Basque coast. Thicklip grey mullet is an important sentinel species in estuarine and coastal areas, inhabiting highly polluted to clean areas.	Maren Ortiz (maren.ortiz@ehu.es); Urtzi Izagirre (urtzi.izagirre@ehu.es)	Cell Biol in Environ Toxicol (CBET) Dept. Zool and Cell Biol, UPV/EHU, Leioa.	Characterization of histopathological alterations in the liver of thicklip grey mullet (<i>Chelon labrosus</i>) from the Basque Country.	OLALLA TORRONTEGI
					MER (30 ECTS; 5-6 mo): . X...
Characterization of a potentially toxic <i>Gambierdiscus</i> sp. (Dinophyceae) strain	Toxic benthic dinoflagellates are a potential threat to various marine resources. One of the most important genera is <i>Gambierdiscus</i> , which is considered responsible of the ciguatera poisoning. Many of the known species were described from tropical waters and an increasing searching effort in other areas is showing some of them are also present in warm-temperate waters. One <i>Gambierdiscus</i> strain was isolated from the Balearic Islands. This strain will be characterized by: morphology (cell shape and thecal plates); molecular (sequencing and phylogenetic analysis); toxin analysis and toxicity bioassays; physiological characterization	Aitor Laza (aitor.laza@ehu.es); Emma Orive (emma.orive@ehu.es)	Dept of Plant Biology and Ecology UPV/EHU, Leioa.	Lab. costs	MER (30 ECTS; 5-6 mo): . X...
					CTA (21 ECTS; 4-5 mo): .X...
Phytoplankton community diversity in the Antarctic area	The Antarctic area has a very diverse phytoplankton community investigated since the XIX century with traditional methods (microscopy). The currents present in this area represent an extraordinary complex ecosystem, with different areas in terms of production. The investigation of the composition of the phytoplankton community using different techniques such as electron microscopy and molecular proofs could contribute to the knowledge of the abundance and distribution of the phytoplankton community in this area.	Aitor Laza-Martinez (aitor.laza@ehu.es); Emma Orive (emma.orive@ehu.es); Sergio Seoane (sergio.seoane@ehu.es)	Dept of Plant Biology and Ecology UPV/EHU, Leioa.	Lab costs	MER (30 ECTS; 5-6 mo): . X...
					CTA (21 ECTS; 4-5 mo): .X...
Development of alternative methods for genotoxicity biomarkers	Micronucleous (MN) test has been widely used in order to determine genotoxic effects of pollutants in molluscs. As alternative to the MN	Beñat Zaldibar (benat.zaldib	Cell Biol in Environ Toxicol	Lab costs: BMW	

in mussels	test and aimed at facilitating processing in the field (and on board in case of offshore caging or fish samples) 8-oxo-dG immunohistochemistry will be applied for genotoxicity assessment in mussel hemocytes. Baseline studies will be performed in order to determine variations in the genotoxicity at different natural situations such as, for instance: tide-mark level (low, medium, high) in localities with different levels of pollution (Arriluze, Mundaka); the effect of the age (0.5-1.5; 1.5-2.5; 2.5-3.5; 3.5-4.5; 4.5-5; >5 cm shell length).	ar@ehu.es)	(CBET) Dept. Zool and Cell Biol, UPV/EHU, Leioa		MER (30 ECTS; 5-6 mo): . X...
					CTA (21 ECTS; 4-5 mo): .X...
Contaminant analyses of recycled fibre-based paper for food contact	Food-contact materials, including paper and carton board, have to comply with a basic set of criteria concerning safety. This means that paper for food contact should not give rise to migration of components with can endanger human health. The identification of contaminants (heavy metals, mineral oils and photoinitiators) present in different types of recycled paper and carton board, representative of those used in food packaging, is projected.	María Elizalde maria.elizalde@ehu.es	(Res Grp; Lab, Dept, Inst, City) Analytical Chemistry Department UPV/EHU Leioa		MER (30 ECTS; 5-6 mo): . X...
					CTA (21 ECTS; 4-5 mo): .X...
Development of phytoplankton composition indicators for the assessment of eutrophication in marine waters, within the European directives	Eutrophication of marine ecosystems is of concern worldwide. The reduction of its impacts is within the objectives of the European Water Framework Directive and the Marine Strategy Framework Directive. These legislations consider the composition of the phytoplankton among the several aspects to be evaluated, following an integrated approach. However, most Member States rely only on chlorophyll measurements, due to the high cost of collecting information on phytoplankton composition and the difficulties establishing pressure-impact relationships. This investigation aims to develop a phytoplankton composition indicator to be applied in the Basque coast. Taxonomy data collected since 2002 and information on nutrient pressure in these waters will be used.	Marta Revilla mrevilla@azti.es	Marine Research Division, AZTI-Tecnalia, E-20110 Pasaia, Gipuzkoa	No funding is necessary for this study, as it would use the data already available in AZTI (from the project "Red de Calidad").	Bachelor degree in Biology or Environmental Sciences.
					MER (30 ECTS; 5-6 mo): . X...
					CTA (21 ECTS; 4-5 mo):
Development of molecular tools for species identification	"A correct identification of the species an individual belongs to is crucial in numerous marine research applications. This task is especially difficult in morphospecies and/or at early developmental stages (egg, larvae forms); indeed, the classical visual identification method used for this purpose can be tedious and requires years of experience in each species morphology. Alternative molecular techniques based on standard or quantitative PCR and immunodetection have been proposed, but a thorough comparison of their suitability and cost-effectiveness is lacking. The objective of the present project is to evaluate PCR and immunodetection based techniques to discriminate species of relevant case studies"	Naiara Rodríguez-Ezpeleta	Marine Research Division, AZTI Tecnalia, Sukarrieta	From ATAME, IZATEK, MACKSG, otros de biología molecular (no será un proyecto muy caro)	MER (30 ECTS; 5-6 mo): . X...
					CTA (21 ECTS; 4-5 mo): .X...
Acoustic abundance estimation of anchovy and sardine with day and night data	The objective of the project is the development of a methodology for acoustic estimation of abundance of Bay of Biscay anchovy and sardine using the acoustic data collected in the Daily Egg Production Method survey, "Bioman". These data differ from the typical acoustic data for abundance estimation in several aspects. First, the data are collected 24 hours a day, thus, about half of the acoustic data are collected during the night, when schooling aggregations disappear and fishes disperse increasing the difficulty of discriminating them from the plankton. Therefore, for the species discrimination, in addition to the typical pelagic	Guillermo Boyra; gboyra@azti.es	AZTI-Tecnalia, Marine Research Dept, Pasaia.		Graduated in Science, familiarity with matlab or R programming languages, statistics, English spoken
					MER (30 ECTS; 5-6 mo): . X...

	<p>trawls, a masks based in the different frequency response different organisms will be configured and applied to separate acoustic echoes in coarse taxonomic groups. Also, the anchovy and sardine eggs collected for the DEPM will be used to help to delimitate the positive areas of each species. Most of the work will be based on the data of year 2012. Nevertheless, the work may include also the participation in the Bioman 2013 cruise in charge of the acoustic data collection and processing.</p>				<p>CTA (21 ECTS; 4-5 mo):</p>
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