Máster Universitario en Conservación Marina. (MCONMARI).

(www.unioviedo.es/mcm/)

15 de Septiembre de 2021.

Por la presente se publica, por parte de la comisión académica, el Calendario para la elaboración y defensa de los trabajos fin de máster en el curso 2021-2022 en el Máster Universitario en Conservación Marina (MCONMARI)

a) Fechas de recepción de temas propuestos de TFM.
20 de Septiembre 2021 - 1ro de Octubre de 2021.

b) Fechas de publicación de la relación de tutores-temas igual o superior al número de estudiantes con derecho a realizarlos en cada curso académico, incluyendo el número de estudiantes que pueden escoger cada tema de manera individual o grupal.
4 de Octubre 2021

c) Fechas de solicitud por parte del estudiante del tema y tutor del TFM.
5 de Octubre 2021 -12 de Octubre 2021.

d) Plazos de asignación del tema y del tutor para la realización del TFM.
13 de Octubre 2021- 18 de Octubre 2021

e) Fecha límite en la que se notificará al estudiante la adjudicación provisional del TFM.
19 de Octubre 2021

f) Fechas de presentación y resolución de reclamaciones contra la adjudicación provisional y adjudicación definitiva.
20 de Octubre 2021 – 25 Octubre 2021

g) Plazos para el depósito de los TFM y el nombramiento de tribunales.

1ra Convocatoria TFMs Junio 2022.
Nombramiento tribunales: 27 de Mayo 2022
Depósito TFMs: 20 de Junio 2022.
Fecha Defensa: 24 de Junio 2022.

2da Convocatoria TFMs Julio 2022.
Nombramiento tribunales: 27 de Mayo 2022.
Depósito TFMs: 16 de Julio 2022.
Fecha Defensa: 22 de Julio 2022.

Prof. Yaisel J. Borrell
Coordinación MCONMARI.
Comisión académica.
04 de Octubre de 2021.

MCONMARI

Thesis/Practices TOPIC OFFERS

08/10/2021

24 OFFERs- Research lines for External Practices-TFMs.

Course 2021-2022.

(Ecology-Zoology (10) + Education (2) + Genetics (10) + Pollution (2))

Ecology-Zoology (10)

1. **"Current situation and biology of the sea anemone (*Anemonia viridis*) as marine resource from the Cantabrian Sea".**
   "Situación actual y aspectos biológicos de la anémona de mar (*Anemonia viridis*) como recurso pesquero en el mar Cantábrico".
   The main objective of this Master thesis is to study the relationship between different abiotic factors and the variations of the *Anemonia viridis* catches per unit of effort in the Cantabrian Sea. Furthermore, it aims as well to analyze the significance of variations in the composition of the different morphs of *A. viridis* and their potential usefulness as a fishing tool.
   Universidad de Oviedo. Biología de Organismos y Sistemas. Zoología. + Centro de Experimentación Pesquera, Principado de Asturias.
   Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
   Availability: 1 position
   Supervisors: Andrés Arias (Zoología-UNIOVI) / Belén Chicharro (CEP)
   Contact: "ANDRES ARIAS RODRIGUEZ" <ariasandres@uniovi.es> / "BELÉN CHICHARRO" <BELEN.CHICHARROBENITO@asturias.org>
   Alumn@: ----

2. **"Bycatches in the MSC certified sustainable octopus fishery in the western Asturian coast: the *Charonia lampas* case study".**
   "Capturas incidentales en la pesquería de pulpo sostenible certificada por el MSC en la costa occidental de Asturias: *Charonia lampas* como caso de estudio"
   In this year 2021, after exceeding the first 5 years of its initial certification, the common octopus (*Octopus vulgaris*) fishery in western Asturias achieved the recertification of the MSC ecolabel. This new certification period will expire in August 2026, the date on which the fishery must be reassessed. The 2021 fishery assessment detected a series of weaknesses, that is, aspects in which they must advance over the next few years to obtain a new recertification. The first of the recommendations refers to the *Charonia lampas* species and is the following: "The evaluation team recommends the client to make the necessary changes in the ETP species management strategy, establishing measures in the OFMP in order

to protect these species. We also recommend that the client make the necessary efforts to improve the monitoring and analysis of the information collected in the voluntary logbooks, with the aim of providing UoA total volumes and catch areas of *C. lampas*". It must be taken into account that *Charonia* shells are always caught and returned to the sea alive as discards (data from on-board sampling). In addition, the regulations that control the fishery already establish that "specimens of any species that are caught alive and discarded must be released immediately and without causing damage". Any study related to this species (taxonomy, genetics, ecology, survival ...) could fit into the MSC recommendations. We consider necessary to have data that should be analyzed if, as the evaluators say, it is necessary to make changes in the management strategy of the octopus fishery to guarantee the conservation of *Charonia* and, if so, seek for those changes. We will use data from samplings on board of professional vessels and from voluntary contribution of some patrons of the fishery guilds since the 2014/2015 campaign, data from surveys of the artisanal fleet in Asturias scheduled for autumn 2021 and it will be possible to take samples from the wild for taxonomical and genetic studies and to analyze the species behavior in captivity. This is research is part of the ECOSIFOOD Project (MCI-20-PID2019-108481RB-I00).

Universidad de Oviedo. Biología Funcional y BOS, UNIOVI, y Centro de Experimentación Pesquera, Principado de Asturias.

Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).

Availability: 1 position

Supervisors: Yaisel J. Borrell (Genética-UNIOVI) / Andrés Arias (Zoología-UNIOVI)

Colaboración: María del Pino Fdez (CEP).

Contact: "YAISEL JUAN BORRELL PICHS" <borrellyaisel@uniovi.es>, "ANDRES ARIAS RODRIGUEZ" <ariasandres@uniovi.es>, María del Pino Fdez <mariadelpino.fernandezrueda@asturias.org>

Alumn@: ---

3. **"Identification and classification of invertebrates present in aquarium substrates and their influence on the species exhibited in aquariums".**

"Identificación y clasificación de invertebrados presentes en los sustratos de los acuarios y su influencia sobre especies en exhibición".

It is intended to assess the life cycles of invertebrates present in the aquariums and determine whether they are species that can affect the fish of the aquarium or on the contrary are free living, saprophytes, etc.

Acuario de Gijón (18 + 12 ECTS. Experimental).

Availability: 1 position

Supervisors: Susana Acle (Acuario de Gijón) / Andrés Arias (Zoología-UNIOVI).

Contact: "Susana Acle (Gijon)" <susana.acle@acuariodegijon.es> / "ANDRES ARIAS RODRIGUEZ" <ariasandres@uniovi.es>

Alumn@: ----

4. **"Environmental enrichment of marine species at Bioparc Acuario de Gijón".**

"Enriquecimiento ambiental de especies marinas en el Bioparc Acuario de Gijon".

The objective of this project is to work on an organized plan of environmental enrichment for some species of the Aquarium and the assessments of the response of the animals to environmental enrichment protocols.

Acuario de Gijón (18 + 12 ECTS. Experimental).

Availability: 1 position
Supervisors: Susana Acle (Acuario de Gijón) / Andrés Arias (Zoología-UNIOVI).
Contact: "Susana Acle (Gijon)" <susana.acle@acuariodegijon.es> / "ANDRES ARIAS RODRIGUEZ" <ariasandres@uniovi.es>
Alumn@: ----

5. **"Spatial distribution and seasonality of Man'o'War (*Physalia physalis*) beaching events."**
"Distribución espacial y estacional de las arribazones de Carabelas Portuguesas (*Physalia physalis*)"
In this Thesis, the students will compile news reports of *P. physalis* beaching events and will apply data analysis to model their patterns of spatial and seasonal distribution. The thesis requires reasonable command with R.
Universidad de Oviedo. Biología de Organismos y Sistemas. Ecología.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisor: José Luis Acuña (Ecología-UNIOVI)
Contact: "JOSE LUIS ACUÑA FERNANDEZ" <acuna@uniovi.es>
Alumn@: ----

6. **"Evaluation of the stock of European bass (*Dicentrarchus labrax*) in Cape Peñas using generalized depletion models "**
"Evaluación del stock de lubinas (*Dicentrarchus labrax*) en Cabo Peñas mediante el uso de modelos de deplección generalizados"
In this thesis, the students will use fish sales data as a proxy for catch rates to produce estimates of biomass of European bass at the Cape Peñas (Asturias) region. The thesis requires good command with R.
Universidad de Oviedo. Biología de Organismos y Sistemas. Ecología.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisor: José Luis Acuña (Ecología-UNIOVI)/ Ruben Roa Ureta (freelance researcher)
Contact: "JOSE LUIS ACUÑA FERNANDEZ" <acuna@uniovi.es> / Rubén Roa Ureta <ruben.roa.ureta@mail.com>
Alumn@: ----

7. **"Detection of exotic seaweeds potentially invasive in *Gelidium corneum* (ocle) fields in Asturias".**
"Detección de algas exóticas potencialmente invasoras en campos de *Gelidium corneum* (ocle) en Asturias".
The exploitation of ocle (*Gelidium corneum*) along the Asturian coast has an important economic and cultural component in Asturias. Through the extraction methods of hand plucking underwater and collection of cast seaweed, the ocle contributes to the livelihoods of many individuals within the region. Nonindigenous species (NIS) and, particularly, invasive alien species (IAS) pose a serious threat to biodiversity in marine ecosystems (e.g., Chown et al., 2015) in most biogeographical regions (Thomsen, Wernberg, South, & Schiel, 2016). Main aim here is the use of morphological and genetic identification techniques for assessing the presence of *Codium fragile* and other exotic seaweed species that may be

present in *G. corneum* fields. This is research is part of the ECOSIFOOD Project (MCI-20-PID2019-108481RB-I00).
Universidad de Oviedo. Biología de Organismos y Sistemas, Ecología, y Centro de Experimentación Pesquera, Principado de Asturias.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Paloma Peón Torre (CEP, Gobierno del Principado de Asturias) / José M. Rico (Ecología-UNIOVI).
Contact: "PALOMA PEÓN TORRE" <paloma.peontorre@asturias.org> / "JOSÉ M. RICO" <jmrico@uniovi.es>.
Alumn@: ----

8. **"Studies on benthic macroinvertebrate communities of the Cantabrian and Atlantic coast."**
"Estudio de las comunidades de macroinvertebrados bentónicos de la costa Cantábrica y Atlántica".
TAXUS has been sampling marine benthic macroinvertebrates for more than 12 years to know the ecological status of coastal and transitional water masses of the Cantabrian and Atlantic coast. During all these years we have generated a large amount of data on the presence / absence and relative abundance of many groups of benthic macroinvertebrates as well as the physicochemical values of each sampling point. These data are very valuable and would allow testing many hypotheses such as a possible evolution of macroinvertebrate communities in relation to physicochemical conditions or the existence of a community gradient on the east-west axis.
For this reason, we present a joint proposal of internships and TFM. The TFM will consist of data processing for the validation of different hypotheses and the practices will be developed, among other activities, taking and analyzing samples of the seabed where we will find the different species of macroinvertebrates. The student will become familiar with the identification and calculation of different indices to determine the ecological status of each of the bodies of water analyzed, obtaining complete knowledge about the monitoring tasks in the field and the subsequent taxonomy tasks in the laboratory, with the that the necessary information will be generated to develop the TFM.This TFM involves work in bioinformatic processing and field work.
TAXUS MEDIO AMBIENTE® (http://www.taxusmedioambiente.com/)
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Javier Granero Castro (TAXUS) / José M. Rico (Ecología-UNIOVI).
Contact: "JAVIER GRANERO" <jgranero@taxusmedioambiente.com> / "JOSÉ M. RICO" <jmrico@uniovi.es>.
Alumn@: ----

9. **"Diversity of gastropods (Mollusca) from the Central Cantabria Sea and the Aviles Canyon System".**
"Diversidad de gasterópodos (Mollusca) del mar Cantábrico Central y del Sistema de Cañones Submarinos de Avilés".
Molluscs are one of the most dominant benthic groups from marine bottoms worldwide. This study aims to study the diversity of gastropods from the Central Cantabrian Sea and the Avilés Canyon System. This study represents a wide chance of research to further explore both on the possibility of commercial purpose of several species and ecosystem conservation.

Universidad de Oviedo. Biología de Organismos y Sistemas. Zoología.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 0 positions.
Supervisors: Andrés Arias (Zoología-UNIOVI).
Contact: "ANDRES ARIAS RODRIGUEZ" <ariasandres@uniovi.es>
Alumn@: Ricardo López Alonso

10. **"Morphology and Reproductive biology of *Eunice norvergica* from the Cantabrian Sea deep-water coral outcrops ".**
"Morfología y biología reproductora de *Eunice norvergica* en bancos de corales de aguas frías del mar Cantábrico".
The bristle worm Eunice norvergica is one of the most enigmatic animals associated to North Atlantic cold water corals. It has been considered as one of the responsables of the coral branching, however despite its ecological importance little is known about its reproductive biology. This study aims to unravel the reproductive strategy of the species as well as other important reproductive features.
Universidad de Oviedo. Biología de Organismos y Sistemas. Zoología.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 0 positions.
Supervisors: Andrés Arias (Zoología-UNIOVI).
Contact: "ANDRES ARIAS RODRIGUEZ" <ariasandres@uniovi.es>
Alumn@: Esteban Pascual Parra

Education (2)

11. **"Design of educational materials on sustainability and protection of the marine environment".**
"Diseño de materiales educativos sobre la sostenibilidad y protección del medio marino".
Taking as a reference the educational level of the target population (ordinary people, nursery, primary, secondary, or undergraduate students ...), online games/tasks will be designed (like, escape room, Jigsaw or similar) with the aim of providing knowledge and learning about sustainability and protection of the marine environment. This is research is part of the ECOSIFOOD Project (MCI-20-PID2019-108481RB-I00).
Universidada de Oviedo. Departamento de Ciencias de la Educación.
Master Thesis-12 ECTS (Didactics/Educational).
Availability: 1 position
Supervisors: Eduardo Dopico
Contact: "EDUARDO VICENTE DOPICO RODRIGUEZ" <dopicoeduardo@uniovi.es>
Alumn@: ----

12. **"Do you really know the ocean? Young citizens' perception of marine ecosystems".**
"¿Conoces realmente el océano? Percepción de los ecosistemas marinos a través de jóvenes ciudadanos".

The main aims will be 1) to identify how young citizens perceive the marine environment, 2) to enumerate the main problematics/topics they can identify and 3) to describe recommendations for future marine conservation plans based on the compiled information.
Ecohydros, Enviromental Genetics Dpt. + Universidad de Oviedo, Biología Funcional, Genética
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental, fluent in Spanish recommended).
Availability: 1 position
Supervisors: Laura Miralles (Ecohydros) / Yaisel J. Borrell (Genética-UNIOVI)
Contact: Laura Miralles <lml.miralles@gmail.com> / "YAISEL JUAN BORRELL PICHS" <borrellyaisel@uniovi.es>
Alumn@: ----

Genetics (10)

13. **"Traceability tools for food control strategies in the commercialization of marine invertebrates from artisanal fisheries in Asturias, Bay of Biscay".**
"Instrumentos de trazabilidad para estrategias de control alimentario en la comercialización de invertebrados marinos procedentes de la pesca artesanal en Asturias, Golfo de Vizcaya".
The lack of traceability studies of commercial marine species has been reported as a global problem. This much more pronounced when we talked about commercialized marine invertebrates. Recent global analyzes reveal that, on average, 30% of seafood worldwide is poorly described or mislabeled (Pardo et al. 2016). Selling seafood with misleading labels or descriptions hinders the progress of sustainable, certified fisheries and can allow illegal and unregulated fishing practices to go unnoticed.In this context, the use of DNA provides a vital tool to study the different marine species, discourage the commercialization of those vulnerable or in danger of extinction and prevent the fraud of seafood products (Cuéllar-Pinzón et al. 2016, Lo & Shaw 2018). Main aim will be to identify case studies of marine invertebrate's species that can be affected by commercial fraud and to develop molecular techniques for detecting these fraudulent practices. This is research is part of the ECOSIFOOD Project (MCI-20-PID2019-108481RB-I00).
Universidad de Oviedo. Biología Funcional. Genética.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Yaisel J. Borrell (Genética-UNIOVI) / M. Trinidad Pérez (Genética-UNIOVI).
Contact: "YAISEL JUAN BORRELL PICHS" <borrellyaisel@uniovi.es> / "MARIA TRINIDAD PEREZ MENDEZ" <pereztrinidad@uniovi.es>
Alumn@: ----

14. **"The eDNA detection and quantification of valuable marine invertebrates being targeted by artisanal fisheries in Asturias".**
"El uso de ADN ambiental para la detección y cuantificación de especies con alto valor comercial capturadas mediante pesquerías artesanales en Asturias".
Environmental DNA techniques represent a new tool for the monitoring or follow-up of species. They are based on the fact that all living beings release their DNA into the environment (through epithelial cells, secretion of fluids or mucus, excrement, gills, etc.), which can be extracted directly from a sample

of water or sediment and allows monitoring the species present in the ecosystem (Goldberg et al. 2014). The development of the environmental DNA method to quantify the absolute abundance (biomass) of marine populations is a revolutionary tool for fisheries and population management (Eichmiller et al., 2016). More recently, intraspecific diversity assessments have even been carried out in several species (Tsuji et al. 2018, Elbrecht et al. 2018, Parsons et al. 2018, Alves et al. 2019). This is challenging. The use of eDNA could allow detections, quantifications and estimates on diversity with minimal sampling efforts. Main aims will be a) developing a qPCR/ddPCR tool for detection and quantification of species. b) Calibrating eDNA detection/quantification tools in these species. This is research is part of the ECOSIFOOD Project (MCI-20-PID2019-108481RB-I00).
Universidad de Oviedo. Biología Funcional. Genética.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Laura Miralles (Ecohydros) / M. Trinidad Pérez (Genética-UNIOVI) / Yaisel J. Borrell (Genética-UNIOVI)
Contact: Laura Miralles <lml.miralles@gmail.com> / "MARIA TRINIDAD PEREZ MENDEZ" <pereztrinidad@uniovi.es> / "YAISEL JUAN BORRELL PICHS" <borrellyaisel@uniovi.es>
Alumn@: ----

15. **"Developing a molecular methodology for the detection of the *Anguillicola crassus* pathogen in eels".**
"Desarrollo de una metodología molecular para la detección de *Anguillicola crassus* en anguilas".
The *Anguilla anguilla* species is one of the main resources in exploitation in the Cantabrian region. It is a resource with a high commercial value and that, for more than a decade, has supported the way of life of entire communities in the region. There are previous data in Asturias where it is mentioned that there could be high levels of prevalence (percentage of infected eels) and intensity of infection (number of parasites per swim bladder) of the parasite *Anguillicola crassus* in the *Anguilla anguilla* species. This parasite does not produce great mortalities in the eel's life stage in rivers, however it is decisive in the long return journey of the eels to spawn in the Sargasso Sea; during this trip the swim bladder regulates hydrostatic pressure. Recent studies have shown that eels travel during the day at depths of up to 600 meters and at night on the surface (Pelster B. 2015), this vertical migration is greatly hindered when the swim bladders are occupied by *A. crassus*. So much so that this parasite is considered to be the most relevant factor in the decline of the populations of European Eel. Main aim will be developing an eDNA, qPCR/ddpCR tool for detection and quantification of this pathogen.
Universidad de Oviedo. Biología Funcional. Genética.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Yaisel J. Borrell (Genética-UNIOVI) / Sara Fernández (Genética-UNIOVI).
Collaboration: Isabel Márquez (Serida y Centro de Experimentación Pesquera, Principado de Asturias)
Contact: "YAISEL JUAN BORRELL PICHS" <borrellyaisel@uniovi.es> /"Sara Fernández" <sara_ff9@msn.com>
Alumn@: ----

16. **"Environmental DNA tools for the evaluation of stocks related with hake fishing resource".**
"Herramientas de ADN ambiental para la evaluación de poblaciones relacionadas con la merluza como recurso pesquero"

The main objective of this work will be to develop and apply a panel of species-specific eDNA markers for detection and biomass quantification of stocks important for hake fisheries such as Merluccius species and their preys. During the practice the student will choose species of relevance and develop the species-specific markers in silico, then test their specificity and sensitivity in laboratory conditions. The TFM work will include: design of sampling, acquisition of water samples, DNA extraction and PCR amplification of the markers. Results will be interpreted considering biological and environmental factors.

Universidad de Oviedo. Biología Funcional. Genética.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Alba Ardura Gutiérrez (Genética-UNIOVI) and Eva García Vázquez (Genética-UNIOVI)
Collaboration with the Asturias Federation of Fishers Guilds
Contact: "ALBA ARDURA" <arduraalba@uniovi.es> / "EVA GARCIA VAZQUEZ" <egv@uniovi.es>
Alumn@: ----

17. **"Study of gene expression in cultured turbot fed with experimental functional diets".**
"Estudio de la expresión de genes en rodaballos de cultivo alimentados con dietas funcionales experimentales"
The analysis of the expression of lipid metabolic pathway genes and genes related to immunity will be carried out in different tissues (kidney-head, liver and muscle) of turbot grown in an aquaculture plant. These turbot have been fed for 6 months with functional diets in which part of the oil and fish liver has been replaced by micro and macro algae. The student will carry out all the analysis from the isolation of the RNA of the samples, going through the qPCR reactions to finish with the statistical analysis of the results. The results obtained will be, together with other results of the project, included in a publication in an indexed scientific journal. This work is included within the ALGADIET II project (https://www.programapleamar.es/proyectos/algadiet-ii-desarrollo-y-optimizacion-de-nuevos-piensos-funcionales-basados-en-el-uso-de).
Instituto Español de Oceanografía. CN IEO-CSIC, Centro Oceanográfico de Gijón.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Alma Hernández de Rojas (IEO), M. del Carmen Castro Pérez (IEO), M. Trinidad Pérez (Genética-UNIOVI).
Contact: "ALMA HERNANDEZ" <alma.hernandez@ieo.es>, "MARIA TRINIDAD PEREZ MENDEZ" <pereztrinidad@uniovi.es>.
Alumn@: ----

18. **"Genomics tools applied to the identification and conservation of economically relevant fish: Hake".**
"Herramientas genómicas aplicadas a la identificación y conservación de peces con relevancia económica: Merluzas".
Hake (*Merluccius* genus) is of great interest due to its high economic value and is one of the most consumed fish in Europe, especially in Spain, This genus comprises 12 species distributed along the Atlantic and the West and Southern part of the Pacific Ocean. Total amount of hake landings pass the million tonnes per year. Declines in their stocks have reported since the 1990s in several species (Pitcher & Alheit, 1995). Many of the hake species overlap their range of distribution with at least another

congeneric species (e.g. *Merluccius polli/M. senegalensis* in northern Africa; *M. bilinearis and M. albidus* in North America), being generally caught in mixed-stock fisheries. Due to the overlapping range of distribution and their similar morphology, accidental mislabelling occurs between sympatric species (Garcia-Vazquez et al., 2011; Machado-Schiaffino et al., 2008). Moreover, introgressive hybridization has been detected between closely related species of the Merluccius genus (Machado-Schiaffino et al. 2010; Miralles et al. 2014). Further work is necessary to study in much more detail the population structure of these species in order to provide useful information for the sustainable management and conservation of these stocks. Therefore, the main aim of this study is to develop species-specific and population-specific markers (SNPs) by using a combination of genomics tools (Sanger sequencing and ddRAD-seq). Working with several thousand markers will allow not only to identify species or populations but also to better infer key demographic parameters (e.g. connectivity, effective population sizes) that are crucial for the conservation of these species.The student will acquire the ability to extract DNA using different methods, DNA Quantification, DNA amplification by PCR, Sanger Sequencing, genomic library preparation as well as to analyze and interpret genetic data using state of the art software. The student will be able to write a scientific report in English, to collaborate in a research environment and to present the results to a general audience.
Universidad de Oviedo. Biología Funcional. Genética.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Gonzalo Machado Schiaffino (Genética-UNIOVI)
Contact: "GONZALO MACHADO" <machadogonzalo@uniovi.es>
Alumn@: ----

19. **"Genetic tools for the study of resident cetaceans in the Macaronesian islands".**
"Herramientas genéticas para el estudio de los cetáceos residentes en las islas de la Macaronesia".
The main aim will be to identify any possible genetic population structure of resident pilot whales or dolphins in different archipelagos from the Macaronesian region.
Ecohydros, Enviromental Genetics Dpt. + Universidad de Oviedo, Biología Funcional, Genética
Prof. Practices + Master Thesis=18 + 12 ECTS (Experimental, Laboratory).
Availability: 1 position
Supervisors: Laura Miralles (Ecohydros) / Yaisel J. Borrell (Genética-UNIOVI)
Contact: Laura Miralles <lml.miralles@gmail.com> / "YAISEL JUAN BORRELL PICHS" <borrellyaisel@uniovi.es>
Alumn@: ----

20. **"Forensic DNA analysis for the study of illegal trade of eels"**
"Análisis forense utilizando ADN para el estudio del comercio ilegal de anguilas".
Tons of smuggled glass eels are seized in Europe every year, in what is considered Europe's largest wildlife crime: illegal trade of the European eel. The student will apply DNA markers to identify the species and lineage of glass eels in samples confiscated to smugglers in north Spain.
Universidad de Oviedo. Biología Funcional. Genética.
Collaboration: Almudena Alvarez, Centre of Fisheries Research (Asturias Government)
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).

Availability: 1 position
Supervisors: Gonzalo Machado Schiaffino (Genética-UNIOVI) and Eva García Vázquez (Genética-UNIOVI)
Contact: "GONZALO MACHADO" <machadogonzalo@uniovi.es> / "EVA GARCIA VAZQUEZ" <egv@uniovi.es>
Alumn@: ----

21. **"Insights on spatial and temporal differences in glass eel recruitment in north Spain"**
"Perspectivas sobre las diferencias espaciales y temporales en el reclutamiento de anguila en el norte de España"
Some diadromous fish species exhibit different migratory behaviour, temperature-driven, at the west and east of Cape Peñas in southcentral Bay of Biscay. For sustainable management of the critically endangered European eel, it is especially important to understand temperature-related variability of its life-history traits in this moment of global change. Using DNA and physical markers the student will investigate differences in recruitment waves of glass eels at both sides of Cape Peñas.
Universidad de Oviedo. Biología Funcional. Genética.
Collaboration: Almudena Alvarez, Centre of Fisheries Research (Asturias Government)
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Gonzalo Machado Schiaffino (Genética-UNIOVI) and Eva García Vázquez (Genética-UNIOVI)
Contact: "GONZALO MACHADO" <machadogonzalo@uniovi.es> / "EVA GARCIA VAZQUEZ" <egv@uniovi.es>
Alumn@: ----

22. **"Invasive species rapid detection techniques using environmental DNA (eDNA) techniques in the port of Gijón"**
"Aplicación de técnicas de detección rápida de especies invasoras mediante técnicas de DNA ambiental (eDNA) en el puerto de Gijón".
In recent years, eDNA-based molecular techniques have been making it possible to quickly detect the presence of invasive species in aquatic ecosystems. At TAXUS we want to apply these techniques to the study in parallel to the traditional collection of samples and the morphological identification of these species in the port of Gijon. For this reason, we present a joint proposal of internships in company and TFM. Which will consist of a complete process from the taking of samples and their processing to the analysis of the results and their publication. The student will become familiar with the complete process from the hand of our experts, obtaining knowledge and carrying out the work of taking samples in the field and the subsequent laboratory work, with which the necessary information will be generated to develop the TFM and a subsequent publication. This TFM involves work in bioinformatic processing and field work.
TAXUS MEDIO AMBIENTE® (http://www.taxusmedioambiente.com/) + Universidad de Oviedo. Biología Funcional. Genética.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Javier Granero Castro (TAXUS) / Yaisel J. Borrell (Genética-UNIOVI).
Contact: "JAVIER GRANERO" <jgranero@taxusmedioambiente.com> / "YAISEL JUAN BORRELL" <borrellyaisel@uniovi.es>.

Alumn@: ----

Pollution (2)

23. **"Microplastics in marine macrophytes in the asturian coast".**
"Microplásticos en macrofitas marinas de la costa asturiana"
The objective of this work is to quantify microplastics from red algae of the genus Gelidium, an important resource in the Cantabric Sea for the jelly industry. During the practices the student will assay different protocols of microplastics quantification in algae, and adapt the best suited for easy, rapid and accurate surveys of this genus. During the TFM the student will apply the protocol of choice for the analysis of algae samples sampled from different sites of the Asturias coast. The microplastics will be chemically analysed and the pollution sources inferred from their location and composition.
Universidad de Oviedo. Biología Funcional. Genética.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 1 position
Supervisors: Alba Ardura Gutiérrez (Genética-UNIOVI) and Eva García Vázquez (Genética-UNIOVI)
Collaboration: Paloma Peón (Centro de Experimentación Pesquera, Principado de Asturias)
Contact: "ALBA ARDURA" <arduraalba@uniovi.es> / "EVA GARCIA VAZQUEZ" <egv@uniovi.es>
Alumn@: ----

24. **"Traceability implications for heavy metal risks in commercial seafood".**
"Implicaciones de trazabilidad para riesgos de metales pesados en mariscos comercializados"
Mislabeling in commercial products encompasses not only damages for the resource but also risks for human consumers, when the substitute species contains pollutants like heavy metals. The objective of this work will be to determine the species in commercial samples using DNA barcodes. Selected samples of target and substitute species from different regions will be analyzed for a suite of 8 heavy metals. During the practices, the student will collect samples from different stores, restaurants and fishmongers, analyze the labels, and perform DNA analysis to identify the species. During the TFM, the student will analyze heavy metals in correctly labeled and substitute species, and assess health risks derived from mislabeling using current WHO indices like provisional tolerable weekly intake (PTWI), target hazard quotient (THQ) and hazard index (HI).
Universidad de Oviedo. Biología Funcional. Genética.
Prof. Practices+ Master Thesis=18 + 12 ECTS (Experimental).
Availability: 0 positions
Supervisors: Alba Ardura Gutiérrez (Genética-UNIOVI) and Eva García Vázquez (Genética-UNIOVI)
Contact: "ALBA ARDURA" <arduraalba@uniovi.es> / "EVA GARCIA VAZQUEZ" <egv@uniovi.es>
Alumn@: Marta Moriano Ortiz