



# RESEARCH

with a Post-Doc Position at IIM-CSIC

Contact by 10th January 2021

## Juan de la Cierva

Financial Aid 2020



The Institute of Marine Research ([IIM-CSIC](#)) offers 8 Research Topics (see below) to apply with us for post-doctoral contracts within the Spanish Research Agency's Financial Aid programme Juan de la Cierva (JdC) 2020. There are 2 types of contracts you can apply to depending on your PhD experience:

- The [Juan de la Cierva Training call](#) for PhDs finished between 2019 and 2020. It offers two-year contracts for recent doctors to give them a first post-doctoral experience.
- The [Juan de la Cierva Incorporation call](#) for PhDs finished between 2016 and 2018. It offers three-year contracts to strengthen the research skills of young doctors at a Spanish research organisation.

## Why the IIM?

The Institute belongs to the [Spanish National Research Council \(CSIC\)](#), the main research organization in Spain, the third in Europe and the seventh in the world.

The IIM-CSIC is one of the top marine research institutes in Spain, with a truly diverse research activity and its own transversal support services of Internationalization and Public Engagement. We offer a lively research environment to foster researchers' careers, widening their collaborative networks & increasing their impact on society.

### CSIC | A framework for excellent research



120 Institutes (6 in Marine Science)  
research projects | >12.5 M€



4 Research Vessels  
1 Antarctic Base



> 10.000 Researchers +  
Support Staff

### The Institute of Marine Research (IIM-CSIC) | Numbers for 2019



87 Research Projects  
>12M€ Funds  
(57% International)



> 30 R&D Contracts  
with Industry



148 Research Articles  
> 200 Scientific Communications  
>100 Outreach Activities



> 200 Researchers  
+ Support Staff

# The research you want, with a global perspective

AT THE IIM, WE GENERATE KNOWLEDGE...

OCEAN AND  
COASTAL SYSTEMS

MARINE LIFE AND ECOSYSTEMS

BIOLOGICAL PROCESSES  
AND SYSTEMS

CO<sub>2</sub> and acidification  
Ocean currents  
Nutrient cycles  
Phytoplankton and pigments  
Metals and rare earth elements

Sustainable fishing  
Sustainable aquaculture  
New aquaculture species  
Vulnerable species  
Fish and shellfish diseases

Food safety  
Quality and traceability  
Bioactive compounds  
Bioprocess engineering  
Systems biology

...TO ACHIEVE OUR GOALS

The IIM-CSIC is a multidisciplinary research centre which aims to contribute to the UN Sustainable Development Goals through 3 Core Research Lines which structure our work, responding to global challenges and to local concerns:

1. Oceans and Climate to predict climate change and develop actions to combat or mitigate its impacts.
2. Marine biodiversity and conservation to sustainably use the ocean and marine resources.
3. Food, bioproducts and health to achieve food security, improved nutrition, healthy lives, and well-being.



These 3 Core Research Lines contribute to other transversal goals of the IIM related to talent development, knowledge, and technology transfer, as well as engagement with society for sustainable development and ethical values.



## Application process & project themes

Contact the supervisor with your CV by Sunday, 10<sup>th</sup> January 2021.

Click here  
for + info

[iim.csic.es](http://iim.csic.es)

Check the research topic summaries below and contact the supervisor with your CV to start the application process by Sunday, 10<sup>th</sup> January 2021.

Beware that, once the candidate has contacted their potential supervisor and if selected, they will have to discuss, write & submit a final application together to the Spanish Research Agency. We advise you to contact your potential supervisor as soon as possible.

Check [our website](#) for more details on the different themes.

## Ocean acidification and greenhouse gases

The CO<sub>2</sub> research line works with relevant international researchers to enhance the assessment of the anthropogenic CO<sub>2</sub> fraction in the ocean, their rates of change and consequences. Their main research interests are:

- Ocean Acidification trends and their drivers in the Open Ocean, coastal systems and national parks.
- Improvement of the analytical and methodological techniques in anthropogenic CO<sub>2</sub>/N<sub>2</sub>O estimation.
- Technological developments for surveillance acidification in coastal systems.
- Contribution to international evaluation of the global and regional CO<sub>2</sub>/N<sub>2</sub>O/CH<sub>4</sub> cycle assessment and processes.
- Development of numerical techniques with neural networks for the study of ocean and coastal acidification.
- Development of automatic laboratory systems for the observation of the response of marine species to future scenarios.
- Biogeochemical modelling.

### Supervisors

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## Spatial ecology and behaviour of coastal elasmobranchs

A holistic understanding of the spatial ecology of marine populations is essential to inform marine conservation initiatives. The Fisheries Ecology research group at IIM has a long experience on spatial ecology and behaviour of marine animals.

A post-doctoral project is offered to investigate how the interaction between natural and anthropogenic factors affect the spatial ecology of populations of coastal elasmobranchs and their impact on conservation around the *Illas Atlánticas de Galicia* National Park (NPIAG). Using acoustic telemetry observations, the candidate will depict (i) social connectivity of coastal species and their role in conservation. (ii) role of trophic position on spatial ecology of coastal fish and (iii) individual variation of fish behavioural traits and their drivers.

### Supervisor

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## Environmental, fisheries and life history spatio-temporal interactions shaping recruitment in Flemish Cap

Atlantic cod and redfish stocks are highly relevant for fisheries and demersal ecosystems at the Flemish Cap fishing ground.

The Fisheries Ecology research group at IIM is offering a postdoc position to disentangle the mixed effects of fisheries and environment in population dynamics of these key species. Using long time series (33 years) on biological data and key life-history parameters related with mortality, growth, maturation and productivity, as well as dendrochronology techniques, the spatial & temporal variations will be linked with habitat use and trophic web, but also with fisheries and environmental pressure. Regime shifts will be estimated, as well as the vulnerability of the species to provide a better understanding of the resilience of the exploited species.

### Supervisor

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## Application of DNA HTS methodologies to fisheries ecology studies

Fish stock assessment is crucial for fisheries management. The Fisheries Ecology research group at IIM is working on the implementation of DNA High Throughput Sequencing (HTS) methodologies to complement traditional methods for fisheries management.

These methodologies include the close-kin mark-recapture (CKMR) method which provides a new way to estimate abundance - and other key demographic parameters - using genetics to affordably and reliably identify parent-offspring pairs (POPs; and conceivably other types of kin) and then analyse the number and pattern of pairs in a mark-recapture framework.

Novel HTS methods offer as well the possibility to infer other important parameters, including stock boundaries and connectivity or fine-scale population structure and molecular sexing, which are essential for fisheries management.

The post-doctoral candidate will join the research group to explore different applications of DNA-HTS to fisheries ecology studies.

### Supervisors

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## Effects of ocean waves on the immune condition of mussels & clams in the Rías Baixas upwelling system

The Marine Molecular Pathobiology Group at IIM is offering a research topic within the framework of the STRAUSS Project. The objective is to analyse the impact that waves have on mussels and clams in order to manage them in future Climatic Change scenarios. For mussels, their performance relies on the ability to attach on culture ropes. For clams, turbulence may be significant for the sea bed where these molluscs are harvested. For mussels, specific gene expression of foot protein 3 will allow inferring risk assessments for biomass maintenance. For clams, histological analyses will evaluate pathogen alterations. For both mussels and clams, an evaluation of the immune condition will be carried out to establish the relation between waves and the cellular stress response.

*Supervisor*

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## Q-Risk assessment for consumption of ready to eat foods contaminated by *L. monocytogenes* biofilm-cells following an integrated value chain approach

The research group of Microbiology and Technology of Marine Products is offering a research topic framed within the project ASEQURA. The project intends to assess quantitatively the risk from consumption of Ready-To-Eat (RTE) foods contaminated by *Listeria monocytogenes* at processing plants following an integrated value chain approach.

The study will cover the identification and characterization of current high-risk scenarios; the characterization of bacterial communities in polymicrobial biofilms, as well as the evaluation and quantification of cross-contamination risk and its implications for food safety following a food chain approach. Finally, risk management measures will be suggested to be implemented in the future to reduce the incidence of listeriosis at hot-spots in processing chains of high-risk foods

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## Implementation of Epigenetic Tools to Improve the Common Octopus Aquaculture

The Marine Molecular Pathobiology Group at IIM is offering a research topic within the framework of the OCTOMICS project (*Octopus aquaculture: searching for a successful production driven by nutrigenomic and epigenetic interaction studies*).

The general objective of the project is to characterize the epigenetic marks associated with different developmental stages of the early development. Several tasks within the project will address the impact of incubation temperature of embryos, as well as the culture temperature and diet of paralarvae to the DNA methylation status of the early developmental stages of the common octopus, which can change the epigenome.

The use of the RRBS (Reduced Representation Bisulfite Sequencing) high-throughput method for DNA methylation analysis (methylome), can be used in the common octopus and might offer new insights to the identification of epigenetic marks affecting the expression of genes that could be triggered by environmental and nutritional stimuli, which could be useful biomarkers to be used to the improvement of the octopus' aquaculture.

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## Proteomics and structural-based systems biology of fish allergy in raw and processed seafood

The Chemistry of Marine Products research group is offering a research topic within the frame of the project SYS-ALLERGOMICS.

The development of fish allergies are not fully understood yet. The aim of this project will be to study the intracellular mechanism of T-cell activation in response to different forms of fish allergens to (i) set valid peptides for their use as vaccines & (ii) develop a fish product as a potential hypoallergenic seafood product. It will involve Proteomics & Mass Spectrometry analysis of fish & mice samples.

*Supervisors*

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