



PhD in SCIENCE, TECHNOLOGY AND POLICY FOR SUSTAINABLE CHANGE - 38th cycle

THEMATIC Research Field: SPATIALLY-EXPLICIT MODELS FOR SUSTAINABLE FISHERIES MANAGEMENT UNDER CLIMATE CHANGE

Monthly net income of PhDscholarship (max 36 months)
€ 1400.0
In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	<p>Conserve and sustainably use the oceans, seas and marine resources for sustainable development is one of the sustainable development goals (SDG 14) set by the United Nations, and has among its specific targets the achievement of sustainable fishing. Fisheries sustainability must reconcile biodiversity conservation and socioeconomic viability, but fisheries management design is made challenging by the complex spatiotemporal interactions between fish and fisheries. In the context of the European research project ζSEAwise (Shaping ecosystem based fisheries management)ζ, this PhD research aims to develop spatially explicit mathematical models based on Earth Observation Data to support sustainable fisheries management under climate change.</p>
Methods and techniques that will be developed and used to carry out the research	<p>The candidate will</p> <ol style="list-style-type: none"> 1) develop dynamic metapopulation models for selected fish stock in multi-species/multi-fleet fisheries contexts; 2) design area-based management policies and 3) assess them with suitable indicators of biological conservation and fishery productivity under different environmental scenarios, including climate change; 4) develop decision methods and optimization algorithms to prioritize management policies from a multi-criteria perspective
Educational objectives	<p>The doctoral program offers advanced training organized</p>



	<p>in three pillars:</p> <ul style="list-style-type: none"> - Basic Research, which includes methodological courses related to key aspects of theoretical and applied research in science, policy, and technology of sustainable change; - Specific Research, designed to strengthen candidates' knowledge on specific topics aligned with their research interests and increase their presence in the international scientific community through participation in conferences and presentation of their scientific work in academic contexts. - Development of the Doctoral Thesis, which allows candidates to develop leading-edge research competencies and produce original scientific work on a topic that contributes to scientific debate and has societal impacts. <p>A period of study in worldwide most recognized research institutions is supported by the doctoral school and the supervisor.</p>
Job opportunities	<p>The PhD graduates will be equipped with distinctive skills and advanced trans-disciplinary knowledge that open up career opportunities as analysts, researchers, or planners at universities, international research centers, public and international institutions, R&D departments, regulatory authorities, policy institutions, and other public bodies.</p>
Composition of the research group	<p>1 Full Professors 2 Associated Professors 0 Assistant Professors 1 PhD Students</p>
Name of the research directors	<p>Prof. Paco Melià</p>

Contacts
<p>paco.melia@polimi.it</p>

Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad



Amount monthly	700.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

A desk in the Department premises will be provided over the duration of the PhD programme. Teaching assistantship opportunities will be available over the triennium; the PhD student is encouraged to take part in teaching activities, within the limits allowed by the regulations. The PhD student will be directly involved in the SEAwisE project (2021-2025), funded by the H2020 EU framework programme. SEAwisE aims to address the key challenge preventing implementation of a fully operational European Ecosystem Based Fisheries Management: the need to increase fisheries benefits while reducing ecosystem impact under environmental change and increasing competition for space. The SEAwisE network of stakeholders, advisory bodies and scientists will codesign key priorities and approaches to provide an open knowledge base on European Social-Ecological Fisheries Systems.