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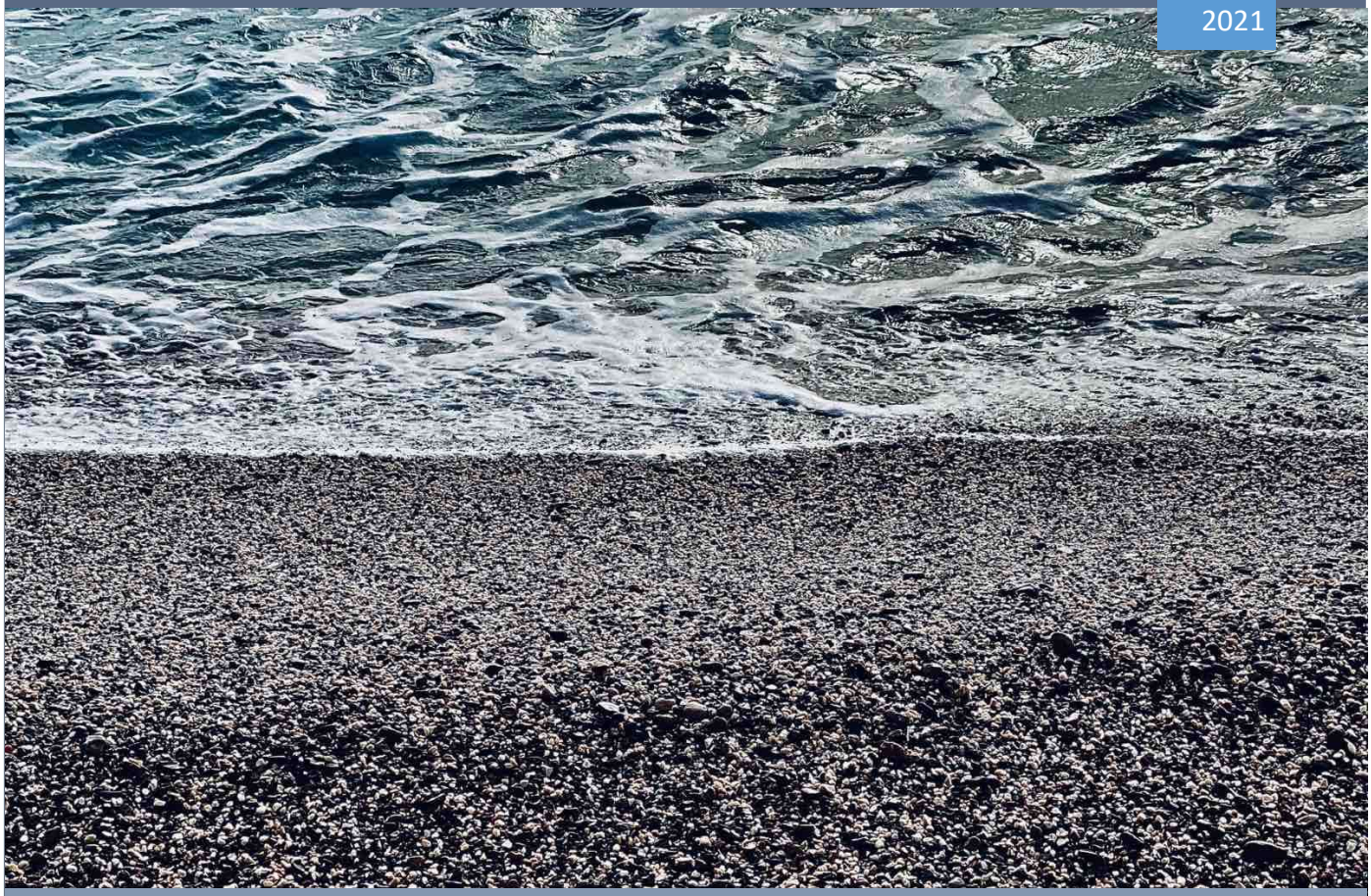

# MINUTES

## WP 1 STATE OF THE ART ON MARITIME ENVIRONMENTAL PROTECTION AND MANAGEMENT

### DEV 1.1 OVERVIEW OF MSC PROGRAMS IN FIELD OF MEP&M AT EU HEIS

The meeting was organized by the Universidad de Cádiz

DEVELOPMENT OF REGIONAL JOINT MASTER PROGRAM IN MARITIME ENVIRONMENTAL PROTECTION AND MANAGEMENT
619239-EPP-1-2020-1-ME-EPPKA2-CBHE-JP | www.mepm.ucg.ac.me

Co-funded by the Erasmus+ Programme of the European Union

# Development of Regional Joint Master Program in Maritime Environmental Protection and Management – MEP&M

Project no. 619239-EPP-1-2020-1-ME-EPPKA2-CBHE-JP

## Online Meeting
## Overview of MSc programs in field of MEP&M at EU HEIs (WP1)

## 18-19 May 2021
## Organized by: Universidad de Cádiz, España

This document reflects the content and the main conclusions associated with the presentation meeting of an in-depth analysis of the Masters from the University of Cádiz related to the MEP&M project. The event was organized, coordinated and executed under the direction of the head of the MEP&M Project at the University of Cádiz, Prof. Dr. Ana Macías Bedoya.

## List of Participants

**Tuesday, 18nd May 2021**

1. Danilo Nikolić, University of Montenegro, Faculty of Maritime Studies Kotor
2. Maja Škurić, University of Montenegro, Faculty of Maritime Studies Kotor
3. Špiro Ivošević, University of Montenegro, Faculty of Maritime Studies Kotor
4. Lidija Šćepanović, Nature and Environmental Protection Agency
5. Brunilda Coti, General Maritime Directorate
6. Goran Pervan, Eco Center Delfin, Kotor, Montenegro
7. Radmila Gagić, University of Montenegro
8. Tomor Harizi, General Maritime Directorate
9. Salmir Bocaj
10. Martela Kurti
11. Kristofor Lapa, University of 'Ismail Qemali' Vlora
12. Srdjan Redzepagic, Université Côte d'Azur
13. Marko Papić, University of Ljubljana (UL)
14. Rezarta Sinanaliaj, University 'Ismail Qemali' Vlore
15. University 'Ismail Qemali' Vlore
16. Ana Pešić, University of Montenegro

**Development of Regional Joint Master Program in Maritime Environmental Protection and Management – MEP&M**

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**Online Meeting**
**Overview of MSc programs in field of MEP&M at EU HEIs (WP1)**
**18-19 May 2021**
**Organized by: University of Cadiz, Spain**

**Link for the meeting:** https://meet.google.com/pvn-yrur-nst

## Agenda

**Tuesday, 18nd May 2021 – Moderator: Prof. Dr. Javier García Sanabria**

| | |
|---|---|
| **9:30 – 10:15** | **University of Cádiz (UCA): Official opening** |
| 9:30 – 9:40 | Initial greeting and presentation of authorities (Moderator) |
| 9:40 – 10:00 | Prof. Dr. José Antonio Perales - Dean of the Faculty of Marine and Environmental Science. Prof. Dr. Vanesa Durán – Director of the School of Marine, Nautical and Radioelectronic Engineering |
| **10:00 – 10:15** | **WP1/DEV 1.1 UCA Lead partner**: **Presentation of the event and the day** |
| **10:15 – 11:00** | **Master's Degree in Integrated Coastal Zone Management** (first part)<br>Prof. Dr. Javier G. Sanabria - In representation of the Master Coordinator<br>Prof. Dr. Alfredo Fernández; Prof. Dr. Giorgio Anfuso, Prof. Dr. Javier G. Sanabria; Prof. Dr. Miriam Hampel; Prof. Dr. Laura del Río - Responsible for contents on MEP&M |
| **11:10 – 11:30** | **Discussion.** Doubts and questions about the Master |
| **11:30 – 12:00** | COFFEE BREAK |
| **12:00 – 13:30** | **Master's Degree in Integrated Coastal Zone Management** (second part)<br>Prof. Dr. Alfredo Fernández; Prof. Dr. Giorgio Anfuso, Prof. Dr. Javier G. Sanabria; Prof. Dr. Miriam Hampel; Prof. Dr. Laura del Río - Responsible for contents on MEP&M |
| **13.30 - 14.00** | **Discussion.** Doubts and questions about the Master |
| **14.00 - 16.00** | LUNCH BREAK |
| **16.00 – 16:30** | **Master's Degree in Conservation and Management of Natural Environment**<br>Prof. Dr. Gonzalo Muñoz (Master Coordination) |
| **16:30 – 16:40** | **Discussion.** Doubts and questions about the Master |
| **16.40 - 17.40** | **Project Management Board (PMB) meeting**<br>Lead partner: University of Montenegro |
| **17:40 - 17:50** | **Closure of the day.** Organizational aspects for tomorrow |

**Development of Regional Joint Master Program in Maritime Environmental Protection and Management – MEP&M**

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## Agenda

**Wednesday, 19nd May 2021 – Moderator: Prof. Dr. Javier García Sanabria**

| | |
|---|---|
| **9:30 – 9:40** | **WP1/DEV 1.1 UCA Lead partner.** Presentation of the day |
| **9:40 – 10:10** | **Master's Degree in Maritime Transport**<br>Prof. Dr. Emilio Rodríguez – Professor of the Master<br>Prof. Dr. Vanesa Durán – Director of the School of Marine, Nautical and Radioelectronic Engineering |
| **10:10 – 10:30** | **Discussion.** Doubts and questions about the Master |
| **10:30 – 11:00** | **Master's Degree in Aquaculture and Fisheries (ACUIPESCA)**<br>Prof. Dr. Manuel Alejandro Merlo – Coordinator of the Master<br>Prof. Dr. Remedios Cabrera – Professor of the Master |
| **11:00 – 11:20** | **Discussion.** Doubts and questions about the Master |
| **11:30 – 12:00** | COFFEE BREAK |
| **12:00 – 12:40** | **Doctorate Program in Management and Conservation of the Sea**<br>Prof. Dr. Laura Martín - Coordinator of the Program |
| **12:40 – 13:00** | **Discussion.** Doubts and questions about the Doctorate Program |
| **13:00 – 13:45** | **General discussion.** Conclusions and Meeting closure. Feedback of the event |
| **13:45 – 14:00** | **University of Cádiz (UCA): Official meeting closure** |

# REPORT ON THE MEETING

**Tuesday, 18nd May 2021, day I**

**University of Cádiz (UCA): Official opening. Initial greeting and presentation of authorities.**
*Speakers: Prof. Dr. Javier García Sanabria - In representation of the WP1 Representative, University of Cádiz (Prof. Dr. Ana Macías Bedoya); Prof. Dr. José Antonio Perales - Dean of the Faculty of Marine and Environmental Science; Prof. Dr. Vanesa Durán – Director of the School of Marine, Nautical and Radioelectronic Engineerin.*

**The University of Cadiz and the sea:**

The province of Cádiz, where the University is located, has a historical relationship with the sea. Cádiz province, named after the city founded 3.000 years ago by Phoenicians as a strategic trade port, has a remarkable link with the sea currently reinforced with three shipbuilding factories in the bay of Cádiz, and one of the main European maritime ports in the bay of Algeciras.
From the 15th century there were in Cádiz a College of Pilots, followed by the creation of the Nautical Cathedra in 1682. Between 1717 and 1818 were created the Academy of Marine Guards Knights, the Astronomical Observatory, the Royal Navy College of Surgery and the first School of Commerce of Spain. The UCA was founded in 1979 having 6.000 students. Nowadays, they are 22.000, organized through four Campuses focused in two bays, Cádiz and Algeciras.

The University of Cádiz (UCA) is the coordinator of the European University of the Seas. Along with Universities from Bretagne, Kiel, Gdansk, Split, Malta, and 32 associated partners, the SEA-EU unifies 68 faculties, 117 research institutes and three International Clusters of Excellence in one of the world´s leading institutions for marine environment management.
The UCA also coordinates the Campus of International Excellence of the Sea (CEI-Mar), composed by seven Andalusian, Portuguese and Moroccan universities located around the Strait of Gibraltar, together with seven research institutions.

**Andalusian Higher Center for Marine Studies:**

Located on the Puerto Real Campus, it was created in 1992 bringing together three schools and faculties related to the sea in the University of Cádiz: Naval Technical Engineering, Nautical Sciences, and Marine and Environmental Sciences. Here, four MEP&M-related masters are delivered.

**WP1/DEV 1.1 UCA Lead partner: Presentation of the event and the day**
*Speaker*: *Prof. Dr. Javier García Sanabria - In representation of the WP1 Coordinator, University of Cádiz (Prof. Dr. Ana Macías Bedoya).*
The postgraduate programs identified at the University of Cádiz related to MEP&M were the following:

1. Master's Degree in Integrated Coastal Zone Management (ICZM)
2. Master's Degree in conservation and management of the nature environment
3. Master's Degree in nautical science and maritime transport
4. Master's Degree in Aquaculture and Fisheries
5. Doctoral Program in Management and Conservation of the Sea

All of them are developed in Puerto Real (Cádiz), in the Andalusian Centre for Advanced Marine Studies (CASEM), Faculty of Marine and Environmental Sciences, and in the School of Marine, Nautical and Radio-electronic Engineering.

**Master's Degree in Integrated Coastal Zone Management** (first part)

**General information:**
Speaker: *Prof. Dr. Javier García Sanabria, in representation of the Master Coordinator, University of Cádiz (Prof. Dr. Ana Macías Bedoya)*

The Master's Degree in Integrated Coastal Zone Management (ICZM) is one of the oldest master in the University of Cádiz (17 years). It came from a European Project, similar as it is trying to be done with MEP&M project. In this case it was a LIFE European Project, focused on training coastal and marine managers. After the project, the Master was consolidated as an official postgraduate program.

It is associated with the Faculty of Marine and Environmental Sciences.
For access to the postgraduate program, certain criteria must be met, such as having a minimum previous training: There are degrees with direct access. High Preference: Marine Sciences; Environmental Sciences; Geography; Biology. Medium preference: Geology; Law; Economy; Chemistry; Sociology; Political Science; Engineering; Business Administration and Management. Other qualifications: If the applicant meets the established legal requirements, the decision is subjected to the criterion of the Postgraduate Studies Commission of the University of Cadiz.
The transversal content of this interdisciplinary Master's degree means that the students are always from very diverse disciplines, and also happens with teachers. It is a challenge, but at the end this enriches the process with the exchange of different points of view and perspectives.

The Master is structured in 3 modules organized in one complete course: a basic module, a specific module and an applied module. In total there are 60 study credits, which are equivalent to 1.500 hours of student work. The content of these modules is as follows:

Basic module (40 credits - common subjects for all students):
- Integrated Management for the Sustainability of Coastal Areas.
- Structural Elements and Processes of ICZM.
- ICZM Plans and Projects: Models, Formulation and Design.
- Ecosystem Approach to ICZM.
- Natural Coastal Risk Assessment.
- Geographic Information System (GIS) Applied to ICZM.

Specific module (10 credits - students have to choose between two specialties or orientations):
- Integrated management of anthropized coastal areas: Integrated Management of Beaches and Coastal Tourism Areas (I and II).
- Integrated management of the natural marine and coastal management: Marine Spatial Planning; Integrated Analysis and Diagnosis of Pollution in Coastal Areas.

Application module (20 credits - students have to choose between two possible paths):
- Research profile: allow students to develop a research project under the orientation of a professor of the master.
- Professional profile: allow students to develop internships with public administrations or private institutions related to coastal management.

**Main subjects related to MEP&M: Basic module - Geographic Information System (GIS) Applied to ICZM**
*Speaker: Prof. Dr. Alfredo Fernández Enríquez, professor of the subject, University of Cádiz*
It is focused in the practical use of GIS in the ICZM "learning by doing" as a tool with high potential for the integration of information related to land management. The content goes from basic introduction exercise to start with the tool to more advanced exercises. After COVID-19 situation,

the classes have new resources, as step by step tutorials and video tutorials that allows students self-learning in combination with face to face classes, supported at a computer room and online, via Google Meet. The "Moodle system" is used to construct a Virtual Campus to organize all the information. The GIS software used is ARCGIS® along with QGIS, which is open source software. It is used an open source free software: QGIS. Exercise examples and other information can be seen in the related recorded intervention. Students just needs a basic level of computer management to allow them to start with this subject, to provide them basic GIS skills, with the most advanced tools. Students can improve their GIS skills in the Master's thesis development process. One of the main challenges in this subject is the differences in the GIS background level of students at the beginning. The variety of resources and exercises used try to lead with this.

**Discussion. Doubts and questions about the Master**

Prof. Maja Skuric opened the discussion session. She asked about the enrolment process (the kind of bachelor degrees necessary to allow students to enroll in the master) and if it is possible for the students abroad to enroll the master. Also asked about the practical lessons and the relationship with private sector, and what about the student's professional opportunities after the Master. Prof. Javier Sanabria answered the question with the different degrees to access and the different priorities (Marine Sciences; Environmental Sciences; Geography; Biology); the master's degree is attended by people from different countries, especially Latin Americans, because classes are taught in Spanish. The master has a practical module, as it is explained on the description screen.

Prof. Danilo Nikolic asked about the level of the subject Geographic Information Systems and the previous preparation level of students. Prof. Alfredo Fernandez and Prof. Laura del Río answered that students should need basic computer skills but in GIS they start from a very low level to a high level at the end. This implies difficulties and exceptional efforts. The master thesis allows students to develop more issues about GIS.

Prof. Maja Skuric asked about the multidisciplinary characteristics of the master and if the teachers are from different areas of spatiality. Prof. Javier G. Sanabria answered about the wide range of professor's qualifications. Prof. Danilo Nikolic summarized the preliminary list of subjects of the joint master. Prof. Javier Sanabria made some suggestions about it.

**Master's Degree in Integrated Coastal Zone Management** (second part)

**Main subjects related to MEP&M: Basic module - Natural Coastal Risk Assessment**

*Speaker: Prof. Dr. Giorgio Anfuso, coordinator of the subject, University of Cádiz*

It is focused in topics related with coastal morphology, dynamic, sensivity/vulnerability and risk management. Main content could be summarized in those themes:

- Wave energy and extreme conditions; wave currents, sediment transport, erosion and over wash processes, wash-over fun formation; coastal flooding associated with storm events; coastal erosion on sandy coasts; coastal sedimentation problems; methods and technics to investigate those topics.
- Rocky coasts (cliffs) characterization and evaluation; coastal subsidence and sea level rise processes; tsunami characteristics and impacts; civil protection organization in Spain.

Those themes are applied in fieldtrips, real exercises and computer room with specific software. A list of this software could be provided to MEP&M project coordination.

**Main subjects related to MEP&M: Specific module - Orientation on Integrated management of anthropized coastal areas: Integrated Management of Beaches and Coastal Tourism Areas – subjects related with coastal morphology**

*Speaker: Prof. Dr. Giorgio Anfuso, coordinator of the subject related with coastal morphology, University of Cádiz*

Main content related with coastal morphology could be summarized in those themes:

- Coastal sensitivity and vulnerability, mitigation strategies; dunes characteristics and sensitivity; sensitivity of coastal lagoons and salt marshes; coastal lagoons: relevance and impacts of climate change related processes.
- Beaches and dunes nourishment methods; risk linked to coastal pollution from industrial, domestic and fish-farm activities; beach oiling: environmental sensitivity maps; coastal landscape classification; climate change related impact.

**Main subjects related to MEP&M: Specific module – Orientation on Integrated management of the marine-coastal natural environment: Integrated analysis and diagnosis of pollution in coastal areas**

*Speaker: Prof. Dr. Miriam Hampel, coordinator of the subject, University of Cádiz*

Learning results searched are to provide students with the skills, knowledge and tools to distinguish pollution phenomena, to know about integrated methods and their application, and to quantify environmental quality. Some student's competences, the implementation strategy and the evaluation system of the subject is also explained.

Main content could be summarized as follows: Marine Strategy Framework Directive; legislation on coastal pollution; types of pollutants in coastal environments and their associated risks; distribution and reactivity of contaminants in aquatic systems; contaminant distribution models in aquatic systems; assessment of exposures effects to pollutants; bases of integrated pollution analysis in coastal areas; integrated methodologies in the analysis and management of pollution in coastal areas; design and quantification for integrated analysis of pollution in coastal areas; integrated pollution analysis and diagnosis in coastal areas; design, valuation and execution of projects.

In relation with the MEP&M Program, it is highlighted the importance to differentiate pollution processes in coastal areas and in the open sea, with dilution, different sources of contamination, and the importance of plastics and shipping (transport/tourism) related problems.

**Main subjects related to MEP&M: Basic module - Integrated Management for the Sustainability of Coastal Areas; Structural Elements and Processes of ICZM; ICZM Plans and Projects: Models, Formulation and Design; Ecosystem Approach to ICZM**

*Speaker: Prof. Dr. Javier García Sanabria, in representation of the subjects' coordinators, University of Cádiz.*

This set of subjects are of high importance to the ICZM Master Degree with two main objectives:
1) Understanding the issue: ICZM, Frameworks and methods, Ecosystem approach…
2) ICZM, "making it happen": Strategic and operative tools (plans, projects…).
In the first part, the content is focused on the object of ICZM: The coastal system; the environmental subsystem; the social and economic subsystem; the jurisdictional –administrative subsystem; and the problems of coastal areas and its resources. In a second part, the content is focused on the objective of ICZM: Formal issues; methodological issues; strategic issues; operative and instrumental issues; technical issues. In the subject "ICZM Plans and Projects" technicians and employees from Public Administrations and private companies share their experiences with the students, connecting them to real problems and solutions.

**Main subjects related to MEP&M: Specific module - Orientation on Integrated management of the marine-coastal natural environment: Marine Spatial Planning**

*Speaker: Prof. Dr. Javier García Sanabria, coordinator of the subject, University of Cádiz*

The professor highlights a scientific paper that recommends main content in MSP to higher education, all of it already incorporated in ICZM Master: MSP experiences, MSP processes and methods, maritime governance frameworks, maritime industries and environmental concerns, marine sciences, terrestrial and coastal planning and management, international and national policy update, history and concept of MSP. Some examples are shown.

The specific content of this subject could be summarized as follow: Introduction: marine uses and activities, problems, necessities and urgency; the rules and singularities of marine management - marine management area; tools for zoning, the coastal and marine planning scope; marine protected areas; procedures and mechanisms for public participation and coordination; frameworks for marine management; international and European framework to marine management; UNESCO MSP process; international projects on MSP: UK, USA, Australia, Spain, NU, MarSP European Project; tools for marine sustainability: the Ecosystems Millennium Assessment.

Some transversal student skills are specially developed during the subject: group work, communication skills, planning skills, research skills, critical thinking. It is also highlighted the importance of some specific teach technics to a MSP subject, like applied content (exercises, real examples, fieldtrips, simulation games, applied lectures and seminars.

**Main subjects related to MEP&M: Applied module of the ICZM Master**
*Speaker: Prof. Dr. Laura del Río Rodríguez, Coordinator of the module*

Students have to choose between two profiles (Research or Professional Profile), and after the subject, they have to present and defend a thesis master related with this previous work.

- *Subjects of the "Research profile":* Methods of scientific research in ICZM; introduction to research. Those subjects allow students to learn and practice about scientific writing, search of information from different sources, develop hypothesis and research methods, and to affront the description of results, to critically analyze them in the discussion and summarize the main conclusion and develop oral presentations of those research processes.
- *Subjects of the "Professional profile"*: Innovative projects and business creation; internship in companies/institutions. The internship is work placement in a private company or public body related to ICZM, with the objective of direct training on daily work in coastal management and to contribute to integration into professional life. It allows students to work with business models, business plans, to undertake a project. The duration is 300 hours (8-12 weeks) with a company supervisor and an academic supervisor. It is managed through web platform (https://practicas.uca.es/practicas.php) and the assessment is made by supervisors via web platform survey. The Master have a wide range of companies/institutions with educational cooperation agreements and new are signed every year. Some examples: environmental consultancy companies; municipalities (beach management, emergency management); regional administration offices (coastal/water/environmental management); conservation areas/Natural Parks; associations/NGOs related to coastal protection (in Spain, but also in other countries). The students have to sign confidentially agreements with companies to allow them to use their information. Cooperation agreements between UCA-Companies usually are renewed every 5 years. It is possible to send MEP&M Coordination a basic model of these documents.
- *Final Master Thesis* (based on the scientific research in the research profile and on the internship in the professional profile): Individual work supervised by a lecturer, implies the development of an original project/analysis/study on ICZM. Duration: 4-6 months. It allows students the integration of knowledge and competencies learned through the Master. At the end they have to do a presentation and defense before an evaluation panel. The

structure of thesis document is different in the research profile and the professional profile. Here, the supervisor must be just from the academic area.

**Discussion. Doubts and questions about the Master**

Prof. Nikolić opened the discussion session. He asked Prof. Anfuso about the modeling software used to predicting pollution and about the level that students are taught in his subject. Prof. Skuric also asked Anfuso about the kind of equipment provided by the University to the students. Prof. Anfuso answered that as the master is not specialized in pollution, the level is basic. Prof. Anfuso also explained the fieldtrips that are organized and about the computer rooms used. He offers Prof. Nikolic and Skuric to send them the name of the models and software used.

Prof. Nikolic and Prof. Hampel discussed about different teaching topics and sources of marine pollution. Prof. Skuric also asked her about diagnosis pollution methods, boats and laboratories used in Cadiz and if students have to present a final scientific work (and publish it or send to a congress), which was answered in detail by Prof. Hampel.

Prof. Nikolic asked to Prof. Sanabria about simulation used in MSP Subject. Prof. Sanabria answered that Master's professors developed their own simulation game. Prof. Skuric asked How many professors teach about legislation and Prof. Sanabria answered that not too much, because students should have a minimum underground, but it is a transversal topic to the hole Master.

Prof. Nikolic asked about the internship and the willing of companies to share information with students. Prof. Laura del Río answered that until now there have been none problems. Companies signed with University agreements about that.

Prof. Kristofor Lapa also asked about the cooperation agreements with companies for internships and the obligation of those companies. Those agreements use to be for a period of 5 years, automatically renewable, without obligation for contract or pay the students, as prof. Del Río answered.

**Master's Degree in Conservation and Management of Natural Environment**

*Speaker: Prof. Dr. Gonzalo Muñoz Arroyo - Coordinator of the Master's Degree*

**General information:**

It is primarily intended for researchers and graduate students related to environmental sciences.

It is aimed to develop advanced training in the field of conservation of the natural environment, both terrestrial and marine and to provide the competences and skills for the development of an integral knowledge-based management. It also considers socio-economic and legal information. It is mainly designed to prepare graduates for a PhD Program in order to begin a research career.

However, the training received in this MSc also enables students to develop a professional career in different fields: Conservation and management of the natural environment and resources; development of activities of conservation and management of the natural environment based on knowledge in public or private entities; entrepreneurship activities in the field of natural environment management, etc. Some examples of the possible professional opportunities offered by the master's degree, include lines of research at universities or at other research center; state bodies with environmental management capacity; public companies related with nature management; International Bodies related to biodiversity conservation and management (UICN, Europarc, etc.); non-governmental organizations working with environmental conservation (ADENA WWF; SEO/Birdlife; etc.) or Private companies of Environmental Management (e.g., environmental consultancy). In the Master, social networks are used as tools to promote and disseminate the work and progress done by students and professors.

A typical subject of the Master has 5 credits ECTS (each ECT means 8h of work) distributed in 40 hours' classroom sessions and 85 hours of autonomous work along 2 weeks. Those 40 hour are also

distributed in different techniques: lectures, practical sessions, fieldwork, student's presentations. The 85 hours of autonomous work are used for students for reading, preparing exercises and evaluation processes. The Master is structured in 3 modules organized in one complete course: a basic module, a specific module and an application module. In total there are 60 study credits, which are equivalent to 1500 hours of student work. The content of these modules is as follows:

Basic Module (25 credits):
- Ecosystem based management of the natural environment.
- Species conservation and management.
- Management of Natural Protected Areas.
- Environmental management and the socio-economic context.
- Soil and geodiversity management.

Specific Module (15 credits, distributed over three subjects):
- Management and conservation of terrestrial Mediterranean ecosystems.
- Management and conservation of continental water ecosystems.
- Management and conservation of marine and coastal ecosystems.

Applied Module (20 credits):
- Methodological tools for the Environmental Conservation and Management (2,5 credits).
- Entrepreneurship and innovative projects (2,5 credits).
- Master's project (15 credits).

***Main subjects related to MEP&M:*** **Basic module - Ecosystem Based Management of the natural environment; species conservation and management; management of Natural Protected Areas; environmental management and the socio-economic context; Management and conservation of marine and coastal ecosystems**

The ecosystem approach is the core framework of the master. Here are set the fundamental principles for an adaptive management based on knowledge from an ecosystem-based approach, with compulsory subjects related to biotic environment (species, ecosystems and protected spaces), abiotic aspects (soil and geodiversity), socio-economic (settlement and territory, economic development and public use) and legal and administrative aspects.

Main content of the subject **"Ecosystem Based Management of the natural environment"** could be summarized as follows: Fundamentals of Ecosystem Based Management (EBM); analysis of management experiences from an ecosystem approach; strategies for generating information; general guidelines for the treatment and integration of information; ecosystem structure; ecosystem classification; energy distribution; variability scales of the environmental forcing drivers and control over producers and consumers; case study presentation; spatial and temporal scales and patterns of biodiversity geographical distribution; field practice: ecological and biogeographical analysis of plant communities; ecological and biogeographical analysis of plant communities: laboratory analysis and information analysis; distribution models of species and communities (treatment of spatial information, applications).

Main content of the subject **"Species conservation and management"** could be summarized as follows: Geographical, ecological and phylogeographical basis for species conservation; conservation genetics: Importance and genetic factors that affect endangered species and communities; conservation of genetic resources in large populations; genetic conservation of undersized populations. Genetics in species; reintroduction programs. Genetic identification in species smuggling; legal framework for the protection of flora and fauna; crimes against protected flora and fauna: case studies; The IUCN Red List of threatened species; priority index in conservation: case study; invasive alien species control; exotic species: case study; debate session:

active species management, reintroduction of species, overpopulation and pest species; debate session: active species management; ex situ species conservation.

Main content of the subject **"Management of Natural Protected Areas"** could be summarized as follows: Protection of natural areas: from RENPA to NATURA 2000; practical workshop on Red Natura 2000; international and European legal framework for the management of protected natural areas; legal framework for the management of natural protected areas in Spain; challenges for the management of natural protected areas – foundations for the RENPA master plan (Network of natural protected areas in Andalusia); AN+20 reflections. Science-Management interface; management plans for protected natural areas: theoretical framework; management plans for protected natural areas: case studies; definition of management models and tools for Natura 2000 areas; handling efficiency in natural areas: indicator designs; handling efficiency in natural areas: logical framework; practical session. Evaluation of the handling efficiency; Natura 2000 management in Andalusia. Green list of protected areas; practical workshop: how to develop a management plan for Natura 2000.

Main content of the subject **"Environmental management and the socio-economic context"** could be summarized as follows: Spatial planning and the natural environment; land as a socio-ecological system. Millennium Ecosystem Assessment; public participation workshop; human welfare sustainability; the ecological footprint; land use and activities in coastal ecosystems. Related problems; land use and activities in forest ecosystems. Related problems; Natural Protected Areas as tools for protection and development; plans for sustainable development; fundamentals of social marketing; social marketing applied to environmental protection; socio-environmental marketing; campaign design for the protection of areas and species; natural capital assessment methods; public-private partnership in the conservation and management of ecosystems.

Main content of the subject **"Soil and geodiversity management"** could be summarized as follows: Introduction to soil management. Example of the categorical assessment of soil in a practical session; definition of geodiversity. Study and dissemination methods; soil assessment. Example of the parametric assessment of soil in a practical session; concepts, functions and services of the geological heritage. Geological heritage protection. Geoparks; soil conditions in Europe and main challenges; management of stratigraphical and tectonic heritage; soil in the context of climate change; benefits of soil as an atmospheric carbon sink. Case study. Estimation of carbon stock; soil management: desertification and geodiversity; active erosion processes in semiarid environments: analysis and assessment; management of the mineralogical and petrological heritage; management of the paleontological and archaeological heritage; urban geotourism and tourist usage of geological heritage in cities; geological points of interest. Geology-biology relation in the management of natural areas. Geoecology; management of the geomorphological heritage. Case study: attributes/landscape impacts matrix; geodiversity management: practical exercise.

***Main subjects related to MEP&M:***

**Specific module - Mediterranean terrestrial ecosystems management.** Main content could be summarized as follows: Biogeography and biodiversity of the Mediterranean mountains; ecology and biodiversity of Mediterranean anthropogenic landscapes; agroecosystem management; reforestation and ecological restoration of Mediterranean ecosystems; legal framework and crimes related to hunting and fishing; criminal responsibility in wildfires; debate session. Wildfires: natural process or ecological disaster? Effects of wildfires on soil. Management of wildfires in Andalusia; debate: Management of fire and wildfires; prevention methods for agricultural erosion; restoration of degraded agro systems: fight against desertification; management of livestock and big herbivores; forestry management and usage of the resources provided by the Mediterranean

mountains; debate session. Hunting and population management. Big game hunting and small game hunting. Hunting planning and management in Andalusia.

**Specific module - Continental aquatic environments.** Main content could be summarized as follows: Introduction to hydrological planning; hydrological and hydrogeological characteristics of wetlands; international and European legal framework for the management of inland waters; legal framework for the management of inland waters in Spain; identification of a hydrological control network related to a wetland; conservation and management of fauna in rivers and inland wetlands; ecological conditions of aquatic systems; #SOSDoñana: Towards a Safe Operation Space for iconic wetlands; conservation and management of wetland ecosystems; ecological restoration of inland wetlands. Standards and case studies. the water footprint. Case study; new approaches for the management of watercourses and riversides; chemical Water Quality Standards. Wastewater treatment; monitoring of the chemical water quality of natural waters in Andalusia; physical and chemical monitoring of a body of water. Visit to the wastewater treatment plant; case study: Hydrology of Wetlands.

**Specific module - Marine and coastal environments.** Main content could be summarized as follows: Conservation and management of marine biodiversity; international and European legal framework for the management of marine and coastal environments; legal framework for the management of marine and coastal environments in Spain; introduction to integrated management of coastal areas; towards an integrated management of the marine environment: analysis of a new conceptual and methodological framework; case study: marine spatial planning; practical session: marine strategy in Spain; restoration of tidal marshes; beach management; practical session: assessment and characterization of coastal dunes; management of mineral and energetic marine resources.

**Applied module of the Conservation and Management of Natural Environment Master**

- *Methodological tools for the Environmental Conservation and Management.* Here are used GIS tools and other research tools. Main content could be summarized as follows: Library session: information resources for science and technology; GIS applications in the management of the natural environment; application of the scientific method: structure of a scientific study. Introduction; formulation of the hypothesis and objectives, results and discussion; introduction to the processing and analysis of scientific data: case study.
- *Entrepreneurship and innovative projects***.** Main content could be summarized as follows: Introduction to the entrepreneurial phenomenon; creativity and recognizing opportunities; business modelling with Canvas; business plan; presentation of business plans and round table.
- *Master's project (thesis).* The master's project requires an original and in-depth research into a topic. The thesis will be defended by the candidate in an oral examination before the examining committee. The supervisor is a professor of the Master. Research Internships at University of Cádiz or another public and private Institutions, Companies or Research Centers can be done during the thesis research period (not mandatory but highly recommended). In this case, a professional training report is issued by the professional mentor an endorsed by the academic tutor

**Discussion. Doubts and questions about the Master**

Prof. Nikolić opened the discussion session. He asked Prof. Gonzalo Muñoz about the different ecosystems the master is focused on. Prof. Muñoz answered that the Master is particularly focused on conservation and management of these ecosystems occurring in our geographical context, particularly on the conservation and management of Mediterranean Ecosystems, and also on the conservation and management of marine and coastal ecosystems, as corresponding to the long tradition of the UCA in marine and coastal studies.

Prof. Skuric asked also the number of students that assist the master and about the students aboard. Prof. Muñoz answered that an average of 20 student have being attending the Master during last editions, and approximately 10 – 15% of them were foreign students.

**Project Management Board (PMB) meeting**
*Speaker: Prof. Dr. Danilo Nikolić - Project coordinator, University of Montenegro*

There were several topics on the table: the WP 5 activities, work of QA body and PMB, etc.
Prof. Lapa introduced the presentation of WP5. It included the sustainable, promotional and dissemination plan of the activities in the project. He also nominated their team members responsible for each WP. Some basic information for UV on WP 6 were presented. The main aim is to reach the target audience. Communication tools were elaborated including social networks and project website. The dissemination and exploitation plans will be prepared soon, concluded Prof. Lapa.

Prof. Nikolic indicated that referring QA body, AMUD prepared a survey on two topics and will be elaborated further (DEV4.2). On the other hand, the UoM has already started the tendering procedure for the creation of project website. The PMB also agreed on the joint tendering procedure regarding equipment procurement, as Ms Skuric informed.
This board emphasized UV to create social media accounts. The representatives of the partner institutions agreed on the work of DEV1.1: structure and directions of creation the report. It will be led by the UCA_F.

The PMB meeting was concluded with the information on possible travels and in-vivo meetings due to COVID 19 pandemic situation.

**Closure of the day**
*Speaker: Prof. Dr. Javier García Sanabria - In representation of the WP1 Representative, University of Cádiz (Prof. Dr. Ana Macías Bedoya);*

Prof. Dr. Javier García Sanabria thanked the participants for attending and said goodbye to them until the next day.

## REPORT ON THE KICK-OFF MEETING

**Wednesday, 19nd May 2021, day II**

**Master's Degree in nautical science and maritime transport**
*Speaker: Prof. Dr. Emilio Rodríguez – Professor of the Master*

**General information:**
The master's degree in Nautical Science and Maritime Transport is developed at the School of Marine, Nautical and Radioelectronic Engineering and is coordinated by the Maritime Navigation Department. It aims to provide high-level skills in the knowledge areas linked to nautical engineering and maritime transport: the structure and behavior of ships at sea, maritime transport logistics and environmental management. The main goal is to train futures captains and chief engineers.

The students use to spend several months onboard on a vessel or a ship, for the internship of different School of Marine, Nautical and Radioelectronic Engineering Degrees. In order to facilitate the formation of those future seaman officers, the Master offers a complete semester via online teaching, allowing them to follow the studies directly from the ships or the maritime company. This

online teaching is done through the use of a Virtual Campus (Moodle), with one subject also supported with virtual classes videos. The other semester is face to face teaching system.

In the nautical Degree different simulators are used, but the Master has a more applied approach; because the strategic situation (near the port of Algeciras and the Strait of Gibraltar), it has a high rank of students who find employment upon completion (usually in shipping companies).

The Master is an Official Degree recognized by Minister of Education degree´s register. In total there are 60 study credits, which are equivalent to 1500 hours of student work, through one academic year, divided in two semesters: fall Semester is online teaching; spring semester is face to face. The structure of the master is related to this division:

Fall semester (20 credits, online teaching):
- Maritime Administration.
- International Maritime Conventions.
- Maritime Inspection and Control.
- Ship´s Energy Efficiency Plan.
- Logistics and Management of Maritime and Intermodal Transport.
- Leadership and Management of Maritime Industries.

Spring semester (35 credits, face to face teaching):
- Maritime Law.
- Maritime and Commercial English.
- Management of the Maritime Port Business.
- Maritime Charter Management.
- Project Management.
- Maritime Transport Economy.
- Bridge Procedures.
- Management of Integrated Systems. Safety, Environment and Quality.
- International Maritime Dangerous Goods Code (IMDG) and Stowage.

Master Thesis (5 credits).

**Main subjects related to MEP&M:**

**Fall semester - International Maritime Conventions**

This subject goes around the Conventions related to the International Maritime Organization (IMO). The European policy and law context is also analyzed here. Main content of the subject could be summarized as follows: Origins, formation and evolution of the Law of the Sea (UNCLOS); the International Maritime Organization (IMO) and other international organizations related to maritime transport; the International Agreements: proposals, projects and Conference for their elaboration; forms of amendment; structure and contents of the IMO Conventions: SOLAS, MARPOL, STCW and other related conventions and codes; the International Labor Organization (ILO): international regulation of maritime labor; structure and content of the MLC Convention, 2006; regulations relating to Maritime Security: from national policies to the SUA Convention and the ISPS Code; international actions on Piracy; the High Seas: limitations on freedom of navigation; maritime-port environmental policy within the European Union.

**Fall semester - Maritime Inspection and Control**

Main content of the subject could be summarized as follows: Control instruments from the double perspective of the public (Administration of the Flag State or the Governing State of the Port) and private (Recognized Organizations, Commissioners of breakdowns): types of public inspections; the maritime industry in the field of inspection; investigation and origin of the cause of the claims;

documentation, inspection and certification in the field of maritime-port security, prevention of maritime pollution, training and certification and labor legislation; audits in the field of ISM and ISPS Codes; Maritime Commissions in the investigation of accidents and incidents. Types of private inspections; the role of Classification Societies in the control and certification of ships; vetting inspections; basic and general principles of insurance; inspections by independent breakdown commissioners; claims and breakdowns in the transport sector; general average, valuation of damaged goods, claims, breakdowns and valuation in the field of maritime transport; terminology, technology, valuations, inspections and preparation of expert reports.

**Fall semester - Ship´s energy efficiency plan**
Main content of the subject could be summarized as follows: Environmental Policy of the International Maritime Organization (IMO) on air pollution, energy efficiency and greenhouse gas emissions (greenhouse gas): saving fuel and promoting better energy efficiency (MEPC.229-65); optimization of operations (EEDI index); maintenance of the hull and propulsion systems; WHR plants; energy management (SEEMP plan); emission control.

**Spring semester - Maritime Law**
Main content of the subject could be summarized as follows: International Maritime Law: International Law and European Law on the maritime territory; the European Union and the Area of Freedom, Security and Justice, its scope at sea and the external maritime borders; administrative Maritime Department: The legal regime of maritime security; administrative legal protection of the marine environment; commercial Maritime Law: statute of the Captain of the Merchant Marine (technical, public and commercial functions; responsibility); concept and delimitation of the general average act; the boarding; liability for boarding damage; the obligation to indemnify; maritime rescue; Liability for marine pollution; marine insurance; maritime Labor Law: applicable regulations on the international and European employment relationship; the intermediation systems in recruitment, with express attention to the practices of recruitment agencies (Manning Agencies); the incidence of socio-labor policies on equality.

**Spring semester - Management of the maritime port business**
Main content of the subject could be summarized as follows: Introduction to the Maritime-Port Sector: ship-port interface; ship services (pilotage, towing, mooring, maritime signaling and beaconing service, loading and unloading of the ship, stowage and unloading service, MARPOL waste removal service); commercial port services (Consignees, Freight Forwarders, Customs Agents, Animal and Vegetable Health and SOIVRE); contracts: ship management; crew management; ship consignment; contract for loading and unloading; maritime trailer; pilotage; other

**Spring semester - Maritime transport economy**
Main content of the subject could be summarized as follows: Basic economic concepts; analysis of the current world and national economic situation; transport in the economy: concepts, typology and role of maritime transport; analysis of the supply and demand of maritime transport; the ports: economic importance and objectives; ports and economic growth; port administration and management models based on public-private participation and the level of development and integration; types of ports depending on the type of traffic; port areas and infrastructures; ports in logistics chains; port competition and competitiveness; port efficiency.

**Spring semester - Maritime charter management.**
Main content of the subject could be summarized as follows: Introduction to the contracts of operation of the ship; leasing of ships; types of charter contracts (bareboat charter, time charter by demise, voyage charter; TMRC bill of lading); parties involved in the charter contract (charterers

charterer broker; the operator; crewing manning; ship management); special charters (ro-ro ships; lo-lo charter; oil tanker charter; chemical tanker charter; bulk carrier charter; heavy lift charter); the passenger transport contract and the passenger contract on cruise ships; the transport of goods under the bill of lading; type policies according to the type of cargo (solid and liquid bulks; car-carrier); International freight market.

**Discussion. Doubts and questions about the Master**

Prof. Skuric opened the discussion session. She emphasized about the similarities of this Master with some Degrees in her country. She asked about the simulators used by the students, the kind of practical exercises prepared for them and the kind of companies that receive the students graduated in the master. Prof. Rodríguez answered that simulators are more used in the related Degree, but not in the Master. There are some fieldtrips prepared in the Master. After the Master, students used to work in different shipping companies and they also have some internship opportunities. Prof. Skuric also asked about the Department involved in the Master.

**Master's Degree in Aquaculture and Fisheries**

*Main speaker: Prof. Dr. Manuel Alejandro Merlo Torres – Coordinator of the Master's Degree*
*Other speaker: Prof. Dr. Remedios Cabrera Castro – Professor of the Master*

**General information:**

The main objective of the Master's Degree in Aquaculture and Fisheries is to train researchers and higher technician and specialists to be able to approach the study and management in aquaculture and fisheries in an integrated manner. The Master's Degree provides students a specialized view and training at the highest level in both, basic and applied knowledge in fundamental aspects such as the biology of marine species, fisheries, aquaculture, controlled production, environmental management, sustainability, legislation...

The Master's Degree structure allows students to develop work in Centers, Institutions and Companies with different point of view in aquaculture and fishery scopes.

For access to the postgraduate program, certain criteria must be met, such as having a minimum previous training: There are degrees with direct access. High Preference: Marine Sciences; Environmental Sciences; Biology; Veterinary Sciences. Medium preference: Biotechnology; Physics; Geology; Mathematics; Chemistry, Biochemistry; Molecular Biology; Food Science and Technology; Oenology. Low preference: any undergraduate degree; Technical Architecture or Engineering; Teacher; any bachelor's degree; Architecture; Engineering. Other qualifications: If the applicant meets the established legal requirements, the decision is subjected to the criterion of the Postgraduate Studies Commission of the University of Cadiz. The average number of students who take the master each year is 20 students, with a maximum number of 30.

Some particularities of this master are that it has a high participation of external professors (from other universities, Public Research Institutions, companies, administrations, …) and a wide list of collaborating Institutions. Labs are used to support some activities for the subjects related to aquaculture, with all the necessary equipment to the technical needs like biology, genetic, pathology (PCR, electrophoresis system, microscopes…). In the subjects related with fisheries resources, practical activities are supported with specific software.

The Master is structured in 2 modules organized in one complete course: a basic module and an applied module. In total there are 60 study credits, which are equivalent to 1500 hours of student work. The content of these modules is as follows:

Basic module (40 credits – mandatory and common subjects for all students):

1) Fisheries-related subjects.
- Fishery resources.
- Assessment and management of fishery resources.

2) Aquaculture-related subjects.
- Physiological bases of aquaculture.
- Reproduction and biosecurity in aquaculture.
- Aquaculture techniques.

3) Transversal subjects.
- Current situation of the fisheries and aquaculture activity.
- Management and conservation of genetic resources.
- Commercialization of the fisheries and aquaculture products.

Applied module (20 credits – a subject to choose between two options, and a final compulsory master's thesis):
- Scientific methodologies and tools in aquaculture and fisheries. This subject it is recommended for research profile. Allows students to follow a research line in the thesis carried out in the Departments of UCA or other research centers
- Creation of innovative companies and projects. This subject it is recommended for professional profile. It allows students to develop the Master Thesis during curricular practices. The Master have a wide list of collaborating institutions, with a Collaboration Agreement signed previously with the University of Cádiz
- Final master thesis.

**Main subjects related to MEP&M:**

**Basic module - Current situation of the fisheries and aquaculture activity.** This is a transversal subject, set to begin the master. It is possible to divide it in the follow topics of interest:

1. Current situation of fishing activity and aquaculture. The aim is to provide students with the competences, skills, knowledge and tools that will enable them to understand and study the general aspects of aquaculture and fishing processes.
   A. Fisheries: The conditioning aspects of extractive fishing are highlighted. Artificial reefs. Improvement of fishing stocks: Fishing Reserves and Marine Protected Areas. Importance of fisheries governance.
   B. Aquaculture: Contribution of aquaculture to food. Trends and production models in aquaculture.

2. Impact of fishing and aquaculture activities. The main problems of both activities are addressed, mainly social, economic and environmental impacts. As well as the interaction between the two activities (e.g. use of small pelagic fish for fishmeal).

3. Regulatory and legislative aspects directly related to these sectors. The application of regulations (local, regional, national and European) to specific cases in the fisheries and aquaculture sectors is addressed through the use of practical cases.

**Basic module – Fishery resources.** It is a more specific and technical subject, with the next main topics: A) Understanding and studying the population dynamics of fishery resources, the selectivity of fishing gears and the mapping of fishery resources by equipping students with the competences, skills, knowledge and tools necessary for their understanding. B) Providing the basis for systematic conservation planning and its implementation through different case studies and an ecosystem approach.
Main content of the subject could be summarized as follows: Introduction to fishery resources; fishery biology: concepts and basic methods; ecosystem oceanography; marine natural resources: oceanographic principles; basic concepts: abundance, mortality and recruitment; fishing gear selectivity (trawl nets, gillnets, hooks); biology, ecology and fisheries of cephalopods; biology,

ecology and fisheries of fish; biology, ecology and fisheries of bivalve mollusks; Andalusian fish production data; mapping of fishery resources.

**Basic module - Assessment and management of fishery resources.** It has the next topics of interest: A) Development and analysis of fishery resource assessment methods. It provides students with knowledge for the sustainable management of fisheries and, as a goal, pursues fisheries management. B) Fisheries resource assessment. This includes any scientific study aimed at determining the state and productivity of a fishery resource as well as the impact of fishing on that resource. It allows students to acquire as real a knowledge as possible of the state of exploitation and evolution of the resource. C) Understand the dynamics of the populations subject to exploitation. It allows us to know the past, present and even predict the future of these stocks depending on the fishing strategy adopted.

**Basic module – Commercialization of the fisheries and aquaculture products.** It is another transversal subject, with next topics of interest: A) Current market situation and management of the commercialization of fishery and aquaculture products. This topic stands out the necessity of know the market types, dynamics and strategies, such as the European strategy of the Common Markets Organization (CMO). B) Current regulations on marketing and traceability of fishery and aquaculture products. The knowledge of the legislative framework contributes to students having a real vision of the situation, which is important for management.

**Basic module – Management and conservation of genetic resources.** It is a transversal subject, with next topics of interest: A) Conservation of genetic resources. The objective is to make known the importance of genetic resources and genetic variability in order to manage fishery populations from a genetic point of view. B) Analysis of genetic diversity. To give genetic tools for evaluating genetic diversity and species identification, important for the traceability and management of the fishery products. C) Population genetics. To know the population structure and interrelation, which provides important information about the migratory patterns of interest for fishery management.

**Master results:**

**Applied module - Master's project (thesis):** List of examples of Master's project as a result of the learning process:

- "Approaching experience to the sustainability aquaculture" (2014-2015).
- "Technical support for the creation of the marine reserve of fishing interest of Cabo Roche" (2014-2015).
- "Discards characterization in the decapod crustaceans fishery in Mauritania. Towards an ecosystem approach in the fisheries management" (2015-2016).
- "Study for the elaboration of a Comprehensive Management Plan for the purse seine fishery in the Gulf of Cádiz" (2016-2017).
- "Proposal for a tool for assessing the sustainability of a fishery, based on principles 1 and 3 of the Marine Stewardship Council (MSC) fisheries standard" (2016-2017).
- "Analysis of the well-being of the artisanal fishing communities of Rota and Chipiona for a sustainable management of fishing" (2017-2018).
- "Discard management plan in the fish market of Sanlúcar-Bonanza" (2018-2019).
- "Preliminary study of recreational fishing in the Gulf of Cádiz" (2018-2019).
- "Evaluation of the effect of climatic and economic components on small pelagic fisheries production in the Gulf of Cádiz under a macroecological approach" (2019-2020).
- "Comparative analysis of the minimum sizes and the first maturity sizes of eight species of bivalves of fishing interest" (2020-2021).

**Discussion. Doubts and questions about the Master**

Prof. Skuric opened the discussion session. She asked about laboratories and equipment used for the Master and the collaboration between institutions and departments and the connection with business actors. Prof. Merlo answered that most of the time expended in laboratories are for the subjects related to aquaculture. The Master collaborates with different institutions (public administrations, research centers…) and also different private companies.
Prof. Ana Pesic asked how the master organize the practical part of fishery related subjects. Prof. Merlo tells about the different software used in those practices. Prof. Tomor Harizi asked about the registration process and the bachelor degree necessaries to access the master. Prof. Merlo answered that the majority of students come from Biology and Marine Sciences. Prof. Scepanovic asked if the master shares the results with other institutions.

**Doctoral Program in Management and Conservation of the Sea**
*Speaker: Prof. Dr. María Laura Martín Díaz – Coordinator of the Doctoral Program DPMCS*

**General information:**
Although it is not a master as well, it is interesting for MEP&M to know the academic option prepared by the University of Cádiz after the end of a Master Degree, in a research carrier profile.

In 2011, the University of Cadiz (UCA) got the project for the creation of the International Campus of Excellence in Marine Science CEI·MAR. This project involved different universities and research institutions, coordinated by the University of Cádiz. In the framework of CEIMAR it was created the International Doctoral School in Marine Studies (EIDEMAR). One of the PhD Programs of this School is the DPMCS:

- Doctorate Program in Management and Conservation of the Sea.
- Doctorate Program in Marine Resources.
- Doctorate Program in History and Marine Archeology.
- Doctorate Program in Marine Science and Technology.

This International School has been also related to another project: The European University of the Seas (SEA-EU), with six university of Europe, that implies the interchange of students and professor between PhD Programs. There are 15 places offered PER YEAR with a duration of 3 years (or 5 years in part-time)

For access to the program, certain criteria must be met, such as having a minimum previous training. The qualifications required or the recommended entry profile corresponds to students with a Bachelor's degree or diploma in the field of Science, Engineering and Technology and at least one Official Master's degree in the same field, which qualifies for 300 credits or more, of which at least 60 must be at Master's level. The official masters of the UCA that give access to the doctorate program in Management and Conservation of the Sea are: The Master in Integrated Management of Coastal Areas, the Master in Integrated Water Management, the Erasmus Mundus Master in Water and Coastal Management, the Master in Port Management and Logistics, the Master in Oceanography, the Master in Aquaculture and Fishing: Marine Resources and Sustainability and the Master in Environmental Education.

Along the PhD Program, the student will be able to develop some courses, some of them interesting for develop some skills. Those activities are count in hours, that must be recognized by the PhD Academic Commission, in order to cover the 600 hours asked to pass the Program. There are some mandatory activities: to publish at least a scientific article published in a high impact journal; the student has to complete at least 100 hours of training activities. All activities must be accepted/authorized by the tutor, the mentors and the academic commission and every year, the academic commission assure the evaluation was well done and that all activities are recognized.

The PhD is structured in 3 research areas:

1. Biodiversity, conservation and management of species and habitats: Study of biodiversity, as well as in the evaluation and planning of the different coastal systems and the species they harbor.
2. Anthropogenic impacts, environmental protection and global change: Pollutant analysis techniques to assess the environmental impact of all types of pollutants. Monitoring and ecotoxicology of emerging pollutants.
3. Transport and maritime law, port management, logistics and international law of the sea: Integrated study of the management of the sea in the field of Maritime Law, Navigation, Transport and Maritime safety as well as all activities involved in port management.

The three research areas that comprise the Program are characterized by their highly-multidisciplinary scope. Researchers from various fields of science, such as biology, biochemistry, analytical chemistry, organic chemistry, environmental technologies, law, management, mathematics and economy are committed to the Program's development. All of these lines are organized by an Academic Committee. The Doctorate Program in Management and Conservation of the Sea, and the lines of research associated with it, is the ideal tool for training doctors in this area of specialization.

The PhD Program has interchange agreements with universities and research centers all over the World, so students and professors can develop internships outside from Spain.

There also infrastructures that provides support to the development of the different researchers. Some of them are properly from the University of Cádiz, but also from other institutions from CEIMAR and there are some internal infrastructures (like databases or labs).

The Program support the students not only with infrastructures, but also with research funding (to internships with foreign universities, to assist to international congress, to do some courses…). Some of these funding are related to the Erasmus+ project.

**Discussion. Doubts and questions about the Doctorate Program**

Prof. Skuric opened the discussion session. She asked if PhD. candidates outside the European Union are received, about the payment of the program and if it is mandatory to publish a research paper, and how the supervisor assess the student work. Prof. Martin answered that they receive those students if they meet all the mandatory conditions. The cost of the PhD. is not very high, and students can ask for scholarships and grants. There is a complex assessment system of the students, helped by a specific process and an online registration system.

**General discussion. Conclusions and Meeting closure. Feedback of the event**

Prof. Skuric opened the discussion session. She made a general comment about the opportunity of hearing all the professors and coordinators that talked during the meeting. She also gives a general thanks and congratulates the organization of the meeting for the organization and for the information offered. Prof. Sanabria made a comment about the important and big challenge in the development of the joint MEP&M Master and remember that all presentations and sessions were recorded and will be available to all in the Google Drive of the Master.

**University of Cádiz (UCA): Official meeting closure**

*Speaker: Prof. Dr. Javier García Sanabria - In representation of the WP1 Representative, University of Cádiz (Prof. Dr. Ana Macías Bedoya).*

Prof. Dr. Javier García Sanabria thanked the participants for attending and said goodbye to them.