

Module Handbook
Management of Marine Resources and Blue Growth

Scheme & Program	M.Sc. Shipping Management		
Module Title	Management of Marine Resources and Blue Growth		
Module Code			
Module Start Date/ Cohort	2021-22		
Module Level	Level 7	Credit Rating	[5 ECTS credits]
Total study time	24 hours academic directed time 3 hours lecture per week	Hours of independent Learning and time for assessments	125 hours of teaching and independent learning and time for assessments
Module Leader & Lecturer:	Prof. Anastasios Tselepides		
Email:	tselepi@unipi.gr & ttse@hcmr.gr		
Room:			
Office Hours:			
Seminar Tutor(s):			
Program Director:	Professor Angelos Pantouvakis		
Administrator contact:	Mrs. Maria Varoucha, 2104142504		
Administrator e-mail:	shipman@unipi.gr		
Lecture day & time:	Weekdays 18.00-21.00		
Seminar day & time:			

1. Welcome Note

Welcome to the Management of Marine Resources and Blue growth course of the M.Sc. Shipping Management Program, University of Piraeus. This module helps students learn and understand the fascinating realm of marine ecosystems and how to manage them sustainably. The main focus of the course is on issues regarding ecosystem based management, maritime environmental issues, international ocean governance and the main blue growth sectors.

2. Module aims

- To explain fundamental theoretical and empirical topics regarding marine ecosystem structure and function
- To critically evaluate the most pressing environmental issues in the marine environment
- To focus on maritime environmental issues and the evolving legislative framework
- To explore management options regarding international ocean governance always within the framework of an ecosystem approach
- To analyze the most important blue growth sectors and their economic potential
- To help students develop critical thinking and evaluation on all the above.

3. Learning Outcomes—what you will gain from taking the module:

By the end of this module, students should be able to:

1. understand critical issues regarding environmental impacts of the shipping industry
2. build upon a concise framework that integrates ecosystem based management and ocean governance
3. understand the value of marine ecosystems and the economic potential of the various blue growth sectors
4. learn the existing and future environmental legislative framework as expressed by IMO and other governing bodies

4. Indicative Module Content:

The main focus of this course is to analyze and study in depth important issues regarding the conservation and management of marine ecosystems, always within the context of an ecosystem approach. Pressures being exerted on the ocean ecosystems through maritime transportation, pollution, over-fishing and overexploitation of natural resources, environmental and climate change are increasing. In particular, emphasis is given to the anthropogenic disturbances exerted on Marine Ecosystems (including pollution from various maritime activities), as well as the impacts of climate change and environmental degradation. Management solutions are sought through the recommendations given by the European Union, the European Environmental Agency, IMO, the World Health Organization and the United Nations Environment Program.

The structure and study material of the course relies on a number of reports from well known international bodies and agencies (IMO, EMB, EEA, JRC, WHO, UNEP, FAO, ICES etc.), as well as on important research papers and reviews (ie. Journals of Marine Policy, Frontiers in Marine Science etc.).

1. How the module is taught, attendance and the teaching schedule:

The module will utilize flexible, responsive and interactive learning environments using a combination of lectures, seminars, and analyses of important recent environmental documentaries, in order to promote the ability of students to think critically and creatively.

a. Teaching Schedule per every one of the 6 weeks	
Lecture Date	Topic
Week 1	<p>Value and vulnerability of Oceans and Coasts</p> <ul style="list-style-type: none"> • Ocean Biomes • Key ecosystem services <p>Reading Material:</p> <ul style="list-style-type: none"> • Heather M. L. et al. (2012): Why value the oceans? Discussion paper prepared by UNEP/GRID-Arendal and Duke University's Nicholas Institute for Environmental Solutions in collaboration with the UNEP TEEB Office and the UNEP Regional Seas Programme. • EEA Report / No2/2015. State of Europe's seas • Kaiser M. et al (2006). Marine Ecology. Processes, Systems and Impacts. Oxford Univ. Press.

Week 2

Marine Conservation

- Marine Biodiversity
- Sustainable management of marine resources
- UN First Global Integrated Marine Assessment

Reading Material:

- Group of Experts of the Regular Process. (2016): The First Global Integrated Marine Assessment of the United Nations..
- Heip C. & McDonough N.. (2012): Marine Biodiversity, a science roadmap for Europe. Marine Board Future Science Brief 1, European Marine Board, Ostend Belgium.

<p>Week 3</p>	<p>Marine Protected Areas in Europe</p> <ul style="list-style-type: none"> • Understanding marine protected areas and their networks • Regional Sea Conventions • EU policy framework for marine protected areas <p>Reading Material:</p> <ul style="list-style-type: none"> • Reker J. et al. (2015): Marine Protected Areas in Europe’s Seas. An overview and perspectives for the future. EEA Report no 3/2015.
<p>Week 4</p>	<p>Maritime Environmental Issues</p> <ul style="list-style-type: none"> • Environmental concerns and the role of IMO • Atmospheric emissions • Oil Pollution <p>Reading Material:</p> <ul style="list-style-type: none"> • Shipping and the Environment. Improving Environmental Performance in Marine Transportation (2016). Springer. • Environmental Effects of Marine Transportation (2019). World Seas, an environmental evaluation. Vol.III, ecological issues and environmental impacts. Chpt. 30. Elsevier. • OECD. (2016): The Ocean Economy in 2030, OECD Publishing, Paris • Endresen O. et al. (2008). The Environmental Impacts of Increased International Maritime Shipping. OECD/ITF Global Forum on Transport and Environment in a Globalising World report. • McGuire C & Perivier H. (2011): The Nonexistence of Sustainability in International Maritime Shipping, issues for consideration. J. Sust. Development v. 4, no 1.

<p>Week 5</p>	<p>Marine Litter (microplastics) and Marine Noise</p> <ul style="list-style-type: none"> • Types of marine pollution • Microplastics as a global threat • Human footprint in the abyss <p>Reading Material:</p> <ul style="list-style-type: none"> • Reker J. et al. (2015). State of Europe’s seas. EEA report no.2 • Albaiges R. P. et al. (2011): Chemical Pollution in Europe’s Sea, Practices and Priorities for Research, European Marine Board Position Paper 16. Marine Board-ESF, Ostend Belgium. • Andrady I. A. (2011). Microplastics in the marine environment. Marine Pollution Bulletin. 62, 1596-1605. • Erbe et al. (2019). The effects of ship noise on Marine Mammals – A review. Frontiers in Marine Science. Vol. 6, article 606. •
<p>Week 6</p>	<p>Climate Change Impacts</p> <ul style="list-style-type: none"> • Role of oceans in climate variability • Physical and biological responses and impacts • Socio-economic implications <p>Reading Material:</p> <ul style="list-style-type: none"> • OECD. (2016): The Ocean Economy in 2030, OECD Publishing, Paris • Anadon R. et al. (2007). Impacts of climate change on the European Marine and Coastal Environment. European Marine Board Paper 9. • Heip C. et al. (2011). Synthesis of European Research on the effects of climate change on Marine Environments. European Marine Board Special Report.

<p>Week 7</p>	<p>Ocean Governance</p> <ul style="list-style-type: none"> • International Ocean Governance • Marine Governance in the Mediterranean Sea • Sustainable use of the oceans <p>Reading Material:</p> <ul style="list-style-type: none"> • OECD. (2016): The Ocean Economy in 2030, OECD Publishing, Paris • Kimball L. E. (2003). International Ocean Governance. Using international law and organizations to manage marine resources sustainably. IUCN, Gland, Switzerland and Cambridge, UK. • Gilek M., Kern K. & contributors (2015). Governing Europe's Marine Environment: Europeanization of Regional Seas or Regionalization of EU policies? Ashgate Publishing.
<p>Week 8</p>	<p>Blue Growth</p> <ul style="list-style-type: none"> • Blue growth and ocean governance • The Blue Economy Concept • Blue Growth Sectors <p>Reading Material:</p> <ul style="list-style-type: none"> • OECD. (2016): The Ocean Economy in 2030, OECD Publishing, Paris • Ehlers P. (2016). Blue growth and ocean governance-how to balance the use and the protection of the seas. WMU J Marit Affairs, 15, 187-203. • European Marine Board (2013). Navigating the future, Position paper 20.. European Marine Board Paper, Ostend, Belgium.

2. Assessment

The module will be assessed on the basis of two components:

A) Individual performance (30%): class participation, assignments, cases, exercises, tests

B) Written exams (70%): A 2-hour written exam test.

Assessment Title and Brief Description	Word count/ Hrs where applicable	Weight	Submission deadline	Submission method	Feedback date	How feedback is provided
Individual performance (class participation, assignments, cases, exercises, tests)	-	30%	Continuous	In class	TBD	-
Written exams	2hrs	70%	TBD	In class	TBD	-

Any changes to the assessment schedule will be communicated by e-mail and/ or announcement on the module's E-College pages.

3. Recommended Reading

1. Main Textbook for the Course:

- Kimball L. E. (2003). *International Ocean Governance. Using international law and organizations to manage marine resources sustainably.* IUCN, Gland, Switzerland and Cambridge, UK.

2. Support Textbooks:

- OECD. (2016): *The Ocean Economy in 2030*, OECD Publishing, Paris.
- Gilek M., Kern K. & contributors (2015). *Governing Europe's Marine Environment: Europeanization of Regional Seas or Regionalization of EU policies?* Ashgate Publishing..
- Endresen O. et al. (2008). *The Environmental Impacts of Increased International Maritime Shipping.* OECD/ITF report at the *Global Forum on Transport and Environment in a Globalising World.*

Additional Course Material:

- Lectures Outline
- Course Slides and Documentaries
- Selected Problems Review
- Academic Papers