



## **Module Specification**

### **Marine Ecosystems**

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## Part 1: Information

**Module title:** Marine Ecosystems

**Module code:** USSK55-15-3

**Level:** Level 6

**For implementation from:** 2024-25

**UWE credit rating:** 15

**ECTS credit rating:** 7.5

**College:** College of Health, Science & Society

**School:** CHSS School of Applied Sciences

**Partner institutions:** None

**Field:** Applied Sciences

**Module type:** Module

**Pre-requisites:** None

**Excluded combinations:** None

**Co-requisites:** None

**Continuing professional development:** No

**Professional, statutory or regulatory body requirements:** None

## Part 2: Description

**Overview:** This module introduces a range of marine environments and the types of organisms that live in them. A combination of practical field and lab work together with interactive will enable you to understand how to survey marine environments, understand how organisms are adapted to survive in these often harsh environments and critically evaluate the mitigation approaches to conserving these important ecosystems.

**Features:** Not applicable

**Educational aims:** The module aims to enable students to:

use a range of survey techniques to generate data from the marine environment;

develop identification skills for a range of marine organisms;

to use a range of resources to critically evaluate the anthropogenic impacts on marine ecosystems.

**Outline syllabus:** Formation of marine ecosystems: The formation and evolution of estuarine and marine ecosystems. Classification of marine provinces. Biological features of the marine environment. Properties and function of estuarine, neritic, oceanic and abyssal ecosystems.

Marine plankton: Classification of marine plankton including marine phytoplankton, zooplankton, meroplankton and holoplankton. Seasonality of phytoplankton communities the impacts of climate change. Factors affecting the distribution and abundance of zooplankton. Methods for sampling plankton.

Marine Nekton: Introduction to nektonic organisms. Biology and ecology of fishes. Nekton taxonomy. Fish communities of estuaries. Commercial species and the fishing industry. Environmental Impact of commercial fishing techniques - trawling, long lining and gill nets. By-catches and over fishing. Identification and feeding strategies of wading birds.

Marine benthic communities: Types and characteristics of substrata. Classification of benthic communities. The measurement and causation of benthic diversity. Feeding and nutrients - deposit, suspension, filter feeders, bioturbation and biodeposition. The ecology of rocky shores. Factors affecting zonation on shores. Intertidal plants. Factors which influence settlement and colonisation. Introduction to the deep sea and adaptations of deep sea organisms.

Tropical marine ecosystems: Introduction to tropical marine ecosystems. Ecology and importance of sea grass meadows and mangroves. Natural and anthropogenic

influences on tropical marine ecosystems and mitigation strategies.

Marine resources: Threats to marine resources at the local and global level. The importance of marine biodiversity and conservation approaches, including Marine Protected Areas (MPAs). The potential role of mari-culture in future food security.

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** A variety of learning approaches will be used to allow students to develop both field and laboratory techniques in addition to acquiring contemporary in-depth knowledge in the field of marine ecology from the materials provided and the timetabled interactive sessions.

Lectorials will provide contexts and discussion opportunities with peers and staff and will help guide student-centred learning. Practical sessions will provide opportunities to examine marine organisms to demonstrate biological traits or ecological theory discussed in lectorials. Tutorial sessions provide opportunities for data handling and interpretation, and discussions with academic staff. The module includes work with an emphasis placed on undertaking and learning ecological survey techniques, including identification of marine organisms. Team-working skills will be promoted through group work. Expert opinion will be accessed via site visits and communication with statutory and non-governmental marine organisations.

**Module Learning outcomes:** On successful completion of this module students will achieve the following learning outcomes.

**MO1** Undertake a range of practical field survey, analytical techniques and research methods to collect and interpret biological and physico-chemical data.

**MO2** Critically discuss factors that affect diversity and productivity of different marine ecosystems and current theories in marine ecology.

**Hours to be allocated:** 150

**Contact hours:**

Independent study/self-guided study = 82 hours

Face-to-face learning = 68 hours

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ussk55-15-3.html) via the following link <https://uwe.rl.talis.com/modules/ussk55-15-3.html>

## Part 4: Assessment

**Assessment strategy:** Assessment 1: Presentation

The assessment is an Academic Discussion (10 minutes) based around work completed in advance; a scientific poster of analysed field trip data and a scientific illustration of a marine organism from one of the lab practical classes.

The scientific poster will present the results of analysed data, collected during the field trip, interpretation and key conclusions.

The illustration will be of a chosen marine organism with key adaptations labelled.

The scientific discussion will initially be based around both pieces of work then move on to focus on a chosen marine ecosystem, the threats and mitigation approaches that could be used to conserve the ecosystem. Discussion will be led by the academic and students will be expected to demonstrate critical discussion and evaluation of the content. The discussion will provide students with an opportunity to demonstrate their ability to research, interpret datasets and formulate well-structured and evidenced discussions.

Formative feedback is available to students throughout the module through group discussions that occur repeatedly during the residential field course and during tutorials and practical sessions. Students are provided with formative feed-forward prior to the Academic Discussion.

### Assessment tasks:

#### Presentation (First Sit)

Description: 10 minute academic discussion

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

### **Presentation (Resit)**

Description: 10 minute academic discussion

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

## **Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Wildlife Ecology and Conservation Science [Zoo] BSc (Hons) 2022-23

Integrated Wildlife Conservation {Top-Up} [Frenchay] BSc (Hons) 2024-25

Environmental Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2020-21

Environmental Science [Sep][SW][Frenchay][4yrs] BSc (Hons) 2021-22

Environmental Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

Environmental Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2020-21

Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Frenchay][6yrs]  
MSci 2020-21

Wildlife Ecology and Conservation Science [Sep][SW][Frenchay][5yrs] MSci 2021-22

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Frenchay][5yrs]  
MSci 2021-22

Environmental Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2021-22

Environmental Science [Sep][SW][Frenchay][5yrs] MSci 2021-22

Biological Sciences [Frenchay] BSc (Hons) 2022-23

Biological Sciences [Sep][SW][Frenchay][5yrs] MSci 2021-22

Biological Sciences {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2020-21

Biological Sciences {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2021-22

Biological Sciences [Frenchay] MSci 2022-23

Biological Sciences {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2020-21

Biological Sciences [Sep][SW][Frenchay][4yrs] BSc (Hons) 2021-22

Biological Sciences {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2021-22

Wildlife Ecology and Conservation Science [Sep][SW][Zoo][4yrs] BSc (Hons) 2021-22

Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Zoo][4yrs] BSc (Hons) 2021-22

Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Zoo][5yrs] BSc (Hons) 2020-21

Wildlife Ecology and Conservation Science [Frenchay] MSci 2022-23

Environmental Science [Frenchay] BSc (Hons) 2022-23

Environmental Science [Frenchay] MSci 2022-23