



CMAS

CONFÉDÉRATION MONDIALE
DES ACTIVITÉS SUBAQUATIQUES

WORLD UNDERWATER FEDERATION

**CMAS Scientific & Sustainability
Committee**

**Marine Biology Course
(MBC)**

2018

The non-professional CMAS Scientific Specialty Courses (SSC) combines the expertise of marine and freshwater scientists, underwater geologists and archaeologists, diving officers, administrators, legislators, individual divers, from different parts of the world scientific diving community. Therefore we revised the last version with the colleagues in the CMAS Scientific & Sustainability Committee (SC) mentioned below, who helped to produce this new standards, and acknowledges the help and advice given by many other people through letters or oral comments.

CMAS Scientific & Sustainability Committee, 2018

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Marine Biology Course

Minimum 2 days

6 theoretical teaching units (TTU)

6 practical teaching units (PTU)

2-4 dives

1.1. **Aim of course**

- to introduce divers to marine life and marine sciences
- to increase awareness for marine life
- to promote the idea of sustainable diving and to create multipliers for these ideas
- to introduce important marine animal and plant groups and their biology
- to increase the everyday personal experience of divers for marine ecosystems on the background of better knowledge on the interrelationships of its parts

1.2. **Student performance objectives**

By the end of the course the diver should

- be familiar with basic marine biological and oceanological processes in the sea
- be able to identify important animal and plant groups
- dive sustainably due to his/her more comprehensive understanding of marine life

1.3. **Prerequisites for participants**

- age of 14 years
- CMAS * or equivalent
- valid medical certificate

1.4. **Instructor/student ratios in open water**

- depending on the visibility and diving level

1.5. **Instructor requirements** (see SC administrative text)

- CMAS** diving licence and 100 dives
- academic background in marine biology, or
- several years' professional experience in marine biology
- teaching abilities
- a high sensibility for sustainable diving

1.6. **Speciality Course requirements:**

- adequate lecture place
- adequate dive site
- identification books for marine organisms
- marine biology presentation
- marine biology scripts or text books

1.7. Theoretical teaching units (the instructor sets thematic emphases)

- general information about the sea and its organisms
- an introduction (incl. size, depth, currents, chemistry)
- plankton, nekton, benthos, mesopsammon
- life cycles of marine organisms
- coral reefs - distribution and zonation
- mechanisms of nutrient access (e. g. symbiosis, filtration, sediment feeding, predators)
- symbiosis, parasitism, commensalism
- ecological, economic and social importance of sea grass meadows and mangroves
- nutrient cycle, nutrient pyramid (production, consumption as processes)
- biotope-biocoenosis / interrelationships and dependence of the living and non-living
- anthropogenic impacts to marine ecosystems (climate change, sea level rise, acidification, debris, litter, ghost nets, fishing long lines, aquacultures, marine mining, oil drilling, toxic chemicals, offshore wind turbines)
- neobiota and invasive species
- sustainable diving
- organismal biology (algae, protozoa, plants, sponges, cnidarians and worms, molluscs, crustaceans, fishes, reptiles, mammals, birds) according the local conditions

1.8. Practical teaching units

- observations and sampling depending on the dive site

1.9. Certification

- control of success by the instructor
- all divers having successfully completed all components of the course will be issued with the appropriate CMAS Marine Biology Course Card
- the brevet is valid permanently

All questions should be addressed to the
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