CMAS

CONFÉDÉRATION MONDIALE DES ACTIVITÉS SUBAQUATIQUES

WORLD UNDERWATER FEDERATION

CMAS Scientific & Sustainability Committee

Advanced Freshwater Biology Course (AFBC)

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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Advanced Freshwater Biology Course

Minimum 5 days
15 theoretical teaching units (TTU)
15 practical teaching units (PTU)
4-8 dives

1.1. Aim of course

- to provide the diver a advanced personal experience of freshwater sciences
- to give comprehensive information on freshwater animal and plant taxa as well as their ecology
- to educate qualified multiplicators for the idea of protection of freshwater life
- to teach methods of freshwater sciences which can be used by sports divers
- to increase the access to the complex interaction and the "tiny life" in the freshwater
- to enable the diver to investigate and evaluate water quality and its changes

1.2. Student performance objectives

By the end of the course the diver should

- be familiar with the general biological and ecological processes in the freshwater
- be able to identify animal and plant groups and their biology and interrelationships
- have worked on a freshwater biology task (project)
- have written a report on the project he/she had practically worked on

1.3. Prerequisites for participants (minimum requirements)

- age of 16 years
- CMAS ** or equivalent
- valid medical certificate

1.4. Instructor/course participant ratios in open water

- depending on the visibility and diving level

1.5. Instructor requirement (see SC administrative text)

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

1.6.

- **Speciality Course requirements:**
- adequate lecture place
- adequate dive site
- identification books for freshwater organisms
- freshwater biology presentation
- freshwater biology scripts or text books

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

- advanced knowledge of aspects taught in the Freshwater Biology Course - - -
- mechanisms of nutrient access (e. g. symbiosis, filtration, sediment feeding, predation)
- symbiosis, parasitism, commensalism
- pollution
- freshwater bioindication and bioindicators
- survival strategies like dormance, desiccation, subitan eggs
- water chemistry
- evaluation of the trophic status of lakes and running waters

1.8. Practical teaching units (proposals)

- to study benthic and pelagic filter feeders and their anatomy
- to monitore depth distribution of animals
- to study settlement pattern of benthic organisms
- to study predator-prey interrelationships
- to use aquatic plants as bioindicator (macrophyte index)
- to use macroinvertebrates as bioindicatos (saprobial index)
- to monitore zonation of aquatic plants
- to collect samples from different depths for investigations of the trophic status of the ecosystems
- to monitore anthrophogenic impacts of the benthos of river and lake shores
- to stratificate lakes using depth-sounder, thermocline, water plants, nutrients and oxygen
- to study the daily plankton migration
- to study mating, spawning and larval developing areas of aquatic organisms
- to determine the age of the fish community using otoliths

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 Freshwater Biology Speciality Card
- the brevet is valid permanently

All questions should be addressed to the
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