



# CMAS

CONFÉDÉRATION MONDIALE  
DES ACTIVITÉS SUBAQUATIQUES

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WORLD UNDERWATER FEDERATION

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# CMAS

# EXTENDED RANGE NITROX DIVER

INCLUDING ACCELERATED DECOMPRESSION

# STANDARDS AND REQUIREMENTS

( VERSION 2006/00 )

# Course Outline

## PART 1 : STANDARDS & REQUIREMENTS

### 1. Course Classification (Type and level)

#### 1.1 Classification

This CMAS Extended Range Nitrox Course, including accelerated decompression is an advanced speciality course, which can only be undertaken after satisfying the entry standards as set out below.

#### 1.2 Qualification term

This CMAS qualification has no expiry date, subject to National Standards (including medical status).

#### 1.3 Qualification Limits

Graduates are qualified to dive:

- a. With so-called no-standard Nitrox breathing mixtures and where appropriate may accelerate the decompression.
- b. To a maximum operating depth (MOD) of 54metres (or to the maximum depth permitted by National Standards), subject to a ppO<sub>2</sub> maximum of 1.4bar at the MOD.
- c. Using Nitrox and /or oxygen for decompression purposes, subject to a maximum ppO<sub>2</sub> of 1.6bar.

***Nothing in this Standard supersedes any National Standard or National Limitation.***

#### 1.4 Course documentation

Instructors will provide all necessary course documentation.

### 2. Aims & objectives of the training

- 2.1 To provide the candidate with a clear understanding of subject matter relating to Extended Range Nitrox diving including accelerated decompression methods with practical use of the additional diving and associated equipment.
- 2.2 To provide a clear understanding of the physical and physiological aspects of advanced Nitrox diving and accelerated decompression procedures.
- 2.3 To provide a clear understanding of the extensive dive planning required for Extended Range Nitrox diving, including Risk Assessment, equipment selection, equipment configuration, back-up gas, escape routes, accelerated decompression and support teams.

### 3. Course entry qualifications

Candidates will:

- 3.1 be a Minimum 18-years of age.
  - 3.2 be a CMAS 2 Star Diver or equivalent.
  - 3.3 hold an Advanced Nitrox Diver qualification.
  - 3.4 have Logged a minimum of 50 Nitrox dives.
  - 3.5 provide a medical declaration of medical fitness to dive, as set out by their National Federation.
- Candidate will provide all necessary diving equipment to complete this course (see list below).

### 4. Instructor / candidate Ratio:

**Theory/classroom:** Instructor / Candidate ratio: 1:8

**Practical/open water:** Instructor / Candidate ratio: 1:2

### 5. Requirements for instructors

#### 5.1 Course Leader/Instructor

- a. Minimum 18 years of age.
- b. CMAS 2 Star Instructor or equivalent.
- c. Extended Range Nitrox Diver or Advanced Nitrox Instructor accelerated decompression endorsement, or equivalent.
- d. Trained a minimum of 15 Nitrox Divers.
- e. Logged a minimum of 50 Nitrox dives, including 25 Extended Range Nitrox dives or 25 Trimix dives or a combination of both.

#### 5.2 National Qualifications

The instructor must have a valid instructor classification according to the requirements of his/her National Organisation or CDC.

#### 5.3 Assistants

According to the assessment of the Course Leader, Assistants may be either a fully qualified Extended Range Nitrox Instructor or Extended Range Nitrox candidates who have completed all the necessary theoretical and practical Extended Range Nitrox Instructor training but still require hands-on experience instructing at this level. Equally, the Course Leader may have a mix of fully qualified instructors and undergraduate instructor assistants.

## **6. Personal Equipment**

- 6.1 Candidates will only provide diving equipment that they are familiar with (Important Note: This is not a course for experimentation with new equipment).
- 6.2 All equipment used must be well maintained and fit for the purpose.
- 6.3 Oxygen Service: Candidates will provide certification to prove:
  - a. That all equipment for use with gas mixtures other than air is in "oxygen service",
  - b. All dive cylinders are in "test".
- 6.4 Candidates will pay the cost of all the breathing gases that they use or store in their dive cylinders.

### **Recommended Equipment list**

One Twin cylinder set; two stage-decompression cylinders including harnesses; one twin bladder Buoyancy Control Device (BCD) (when diving in dry-suit single bladder BCD is sufficient); one run-time underwater slate /wet notes; one Demand Valve (DV) with standard inter-stage hose and one DV with 1.5metre long inter-stage hose plus two-decompression DVs, all with submersible contents pressure gauges; one primary underwater torch and one back-up underwater torch; two small very sharp knives (or small sharp knife and a line-cutter); two face masks; two decompression reels each with 100metres of line; one Red Delay Surface Marker Buoy (DSMB) and one Yellow DSMB these may be inflated either by their own mini-cylinders or from a gas-gun supplied via one of the diving (not deco) DVs; dive-suit to accommodate the expected water temperature (dry-suit to have a separate suit inflation system; two depth gauges or two suitable personal decompression computers (PDCs) or timing devices, and a Jon-line.

## **7. Course Facilities**

- 7.1 A Classroom suitable to match the needs of the course and number of candidates.
- 7.2 Open water diving locations suitable for training needs:
  - a. One shallow for practising skills (20-metres maximum).
  - b. One deep for qualifying dives (50-metres maximum, subject to local conditions).

The course requires candidates to satisfactorily complete four open water dives, with a minimum of 100 minutes bottom time plus the appropriate decompression time. The first dive using air or Nitrox, with a maximum depth of 20-metres, shall be used for practising Extended Range Nitrox diving skills. The second pair of dives, to a maximum of 40-metres, should be Nitrox dives again practising skills and run-times etc. The final pair of dives should be an Extended Range Nitrox Dive to a maximum of 50-metres. All four dives must be performed with the candidates and Instructor(s) configured for Extended Range Nitrox diving.

All dives must be limited to an upper ppO<sub>2</sub> limit of 1.4bar. The maximum ppO<sub>2</sub> at stage-stop decompression level must not exceed 1.6bar.

Safety requirements: On this course, candidates must be under the direct supervision of a CMAS Extended Range Nitrox Instructor at all times.

## **8. Aims of the participants**

At the end of the course, the candidate must provide proof of their knowledge and skills related to Extended Range Nitrox diving, including accelerated decompression as follows:

- 8.1 Sit and pass the Extended Range Nitrox diving including accelerated decompression theory examination.
- 8.2 Demonstrate, through application, a thorough understanding of the dive planning process {ie all trainees will plan their own dives, which will be assessed}.
- 8.3 Complete all the Extended Range Nitrox diving, including accelerated decompression in-water Skills to the satisfaction of the CMAS Extended Range Nitrox Course Leader.

## **9. Minimum course duration**

**Theory/practical lectures** 7 hours

**Open water dives** Four dives, with a minimum of 100 minutes bottom time plus the required decompression. No more than two dives per day.

## **10. Quality Assurance**

For the sake of quality assurance, CMAS highly recommend that Extended Range Nitrox including accelerated decompression authorised Federations use only high quality equipment that meets National equipment standards.

Federations are also commended to ask candidates to complete quality assurance feed-back questionnaires which can be used to analyse training courses.