

EUROPEAN VOLUNTEER RESCUERS MANUAL

An expanded
manual
for **volunteer
rescuers**





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RESCUE DIVER

Preface

The Rescue Diver course represents one of the most important phases in a diver's training. This manual aims to provide the theoretical and operational knowledge necessary to prevent, recognize, and manage diving emergencies, both on the surface and underwater. The goal is to train responsible, aware divers who are able to intervene effectively in emergency situations, ensuring the safety of themselves, their buddies, and the dive group.



Chapter 1 - Fundamentals of Underwater Rescue

1.1 Role of the Rescue Diver

A Rescue Diver is an experienced diver trained not only to prevent and recognize problems, but also to actively manage emergencies effectively and safely.

His role is central to every dive group, as he represents a point of reference for safety, communication and management of unexpected events.

A Rescue Diver must be able to:

Quickly assess an emergency situation.

Act without risking your safety.

Manage your partner and the group in a calm and coordinated manner.

Apply codified and standardized intervention protocols.

1.2 Principles of Diving Safety

The concept of security is based on three fundamental pillars: prevention, situational awareness and safe intervention.

Prevention remains the main rescue tool: a well-trained Rescue Diver rarely intervenes, because he recognizes and corrects problems before they become emergencies.



1.3 Rescue Psychology

Managing stress and panic is crucial. Rescuers must understand that, in diving emergencies, human behavior can become unpredictable.

Recognizing early signs of stress, maintaining distance, and communicating calmly are essential skills.

1.4 Ethics and Responsibilities of the Rescuer

The rescue diver must operate according to principles of safety, ethics and legality.

Each intervention must respect one's own capabilities and current regulations.

It is essential to understand that underwater rescue is never mandatory if it involves excessive risks for the operator.

1.5 Underwater Communication and Leadership

During emergencies, communication must be clear, concise, and universal.

The Rescue Diver must know the standardized hand signals and ensure that they are shared before the dive.

Leadership manifests itself in calmness, decisiveness and the ability to inspire confidence in the group.

1.6 Continuing Education

The Rescue Diver must keep his skills up to date through periodic training, BLS and AED courses, practical simulations and equipment checks.

Continuous training ensures automatic, precise and safe reactions in every operational context.

Summary of Chapter 1:

The Rescue Diver is the first link in the diving safety chain. His strength lies not only in technique, but in calmness, awareness and leadership.

Prevention and preparedness are the most effective weapons against emergencies.

The rescue diver is a key figure in diving safety management. Their training is based on an understanding of human behavior, the ability to assess risks, and the ability to respond quickly and in a coordinated manner to emergency situations. Role of the Rescue Diver: assist, prevent, intervene and coordinate.

Chapter 2 – Prevention of Diving Accidents

2.1 Prevention Principles

Prevention is the first and most important line of defense in diving safety. An accident avoided is an unnecessary rescue. The Rescue Diver must develop the ability to analyze risk and adopt preventive measures during all phases of the dive: planning, execution, and debriefing. The main risk categories are: human, environmental, and technical factors. The rescuer must learn to recognize the warning signs of a possible emergency and to intervene before the accident occurs.

2.2 Dive Planning

Proper planning reduces the likelihood of unforeseen events and ensures effective resource management.

Key elements include:
environmental analysis,
logistics,
human,
equipment,
emergency plan.

The key rule is: “Plan the dive and dive according to the plan.”

2.3 Buddy Management (Buddy System)

The buddy system is the operational basis of dive safety. Every diver is responsible not only for himself, but also for his partner.

The Rescue Diver checks the buddy's equipment, cross-checks it, maintains visual contact, and monitors for signs of stress or fatigue.

2.4 Human Factors and Risk Management

Many accidents result from human error.

The Rescue Diver must be aware of the behavioral factors that influence safety:

excessive confidence

peer pressure

failure to communicate

altered psychophysical conditions.

Apply the "Stop - Think - Act" rule: stop, evaluate, act.

2.5 Equipment Maintenance and Inspection



Equipment is a life support system. It is essential to inspect it before each dive, carry out periodic checks and check the configuration of the alternative systems. Signs of wear or anomalies must cause the dive to be suspended until a technical inspection has been carried out.

2.6 Specific Accident Prevention Strategies

In case of disorientation, maintain visual references and a compass. In case of rapid ascent, check trim and breathing. Current or reduced visibility accidents: plan in close pairs. Heat stress injuries: Use adequate protection and stay hydrated.

2.7 Safety Culture

Prevention is a shared culture. The Rescue Diver must promote a proactive attitude towards safety in the group.

No diving is mandatory; personal safety is the top priority.

Summary of Chapter 2:

Preventing diving accidents is based on planning, awareness and collaboration.

The Rescue Diver is not just a rescuer, but a safety advocate at



every stage of the dive. Prevention is the foundation of diving safety.

Recognizing risk factors and adopting preventative measures can dramatically reduce the likelihood of accidents.

Dive planning must include analysis of environmental conditions, equipment, and group capabilities.

The pre-dive check must be systematic and shared with your buddy.

Chapter 3 - Stress and Emergency Management

3.1 Introduction to Underwater Stress Management

Stress is one of the main factors that can lead to a diving accident.

The Rescue Diver must be able to recognize, prevent and manage stress and panic reactions, both in himself and in other divers.

Stress can have physical, psychological, or environmental origins, and managing it requires self-control, awareness, and practice.

3.2 Physiology of Stress and Panic

When a diver panics, the body releases adrenaline, accelerating breathing and reducing thinking ability.

Underwater, this reaction can lead to hyperventilation, loss of buoyancy control, and an uncontrolled ascent.

The Rescue Diver must recognize these early signs and act

before full-blown panic develops.

3.3 Stress Prevention Techniques

1. Thorough briefing: An informed group is a calmer group.
2. Equipment check: Perceived safety reduces anxiety.
3. Controlled breathing: Inhale slowly and deeply, exhale completely.
4. Clear planning: Know the route and timing of the dive.
5. Experienced company: Dive with reliable partners.

3.4 Recognizing Stress in Your Companion

Warning signs: lack of response to signals, sudden movements, rapid breathing, isolation from the group.

Recommended actions: Establish visual contact, signal **“OK?”**, reduce speed or ascend to a comfortable depth, abort the dive if necessary.

3.5 Diving Emergency Management

When an emergency occurs, the Rescue Diver must maintain

calm and operational priorities.

Basic rule: **“Stop – Think – Act”**.

Operational phases: recognition, evaluation, intervention, communication and debriefing.

3.6 Managing Rescuer Stress

The rescuer must maintain control and clarity. Strategies: slow breathing, measured movements, awareness of one's own limitations, and requesting support if necessary.

After the emergency, it is helpful to address any emotional reactions with discussion and rest.

3.7 Communication in Crisis Situations

Use clear, standardized signals, maintain eye or touch contact, and communicate in a calm and assertive manner.

On the surface, use acoustic or visual aids to attract attention.

3.8 Debriefing and Post-Emergency Analysis

After each emergency or drill, the Rescue Diver must analyze the event to identify strengths and areas for improvement.

Reflected experience becomes expertise.

Summary of Chapter 3:

Stress and emergency management is a psychological and technical skill.

The effective Rescue Diver maintains a clear head, communicates calmly, and acts methodically.

Prevention begins in the mind and is consolidated through ongoing training. Underwater stress can arise from physical, environmental, or psychological factors.

The Rescue Diver must be able to recognize signs of stress in his buddy, take preventative measures and intervene before the situation evolves into panic.

Key techniques: empathetic communication, eye contact, reassurance, and posture control.



Chapter 4 - Surface Rescue Procedures

4.1 Introduction

Surface rescue operations represent the most visible and critical phase of the Rescue Diver's intervention. The rescuer must quickly assess the situation, ensure his or her own safety, and apply standard procedures for recovering, assisting, and transporting the diver in difficulty.

4.2 Scene Evaluation

Before intervening, the Rescue Diver carefully analyzes the environment to avoid additional risks.
Procedure: Observe the scene, assess weather and current conditions, locate a safe point of entry, and request assistance.
Operating principle: "Don't become a victim yourself."

4.3 Approaching the Diver in Distress

Conscious: Maintain visual contact, approach from behind or from the side, communicate calmly, and provide buoyancy.



Unconscious: Signal to the surface, approach cautiously, and maintain buoyancy control.

4.4 Managing a Diver on the Surface

Conscious: Provide buoyancy support, remove ballast, check mental status and breathing. Unconscious: Inflate BCD, maintain an open airway, check breathing, initiate ventilation if necessary, and head for the surface or boat.

4.5 Rescue Breaths in Water

Procedure: Place the victim supine, maintain an open airway, slowly deliver one breath every 5 seconds, continue during transport.

Stop only if personal safety is compromised.

4.6 Recovery and Removal of Equipment

Reduce drag and facilitate extraction: inflate the BCD, remove unnecessary weights and straps, and always check the victim's body.

4.7 Transport of the Victim to the Surface

Techniques: towing with a neck hold, towing with a BCD or tank hold, alternating towing with ventilation.
Keep the victim's mouth out of the water, maintain a steady pace and operate calmly.

4.8 Extraction by Boat or from the Shore

From shore: Drag to bottom, lay supine, initiate BLS. From boat: Remove bulky equipment, use lifting devices, keep the victim's head above water.

4.9 Transition to Advanced Rescue

Once out of the water: assess consciousness, breathing, and circulation; initiate BLS and administer oxygen if trained; contact emergency services.

Summary of Chapter 4:

The success of a surface rescue depends on the calm, judgment and confidence of the rescuer. Every action must be planned and controlled. Effectiveness comes from training, preparation, and teamwork. Surface rescue begins with a safe approach. The diver must assess the scene, avoid personal risk, and calmly approach the diver in distress. Towing techniques must be performed while maintaining control of the airway and equipment. Once the diver reaches the shore or boat, the equipment is removed and the primary assessment is performed.



Chapter 5 – Underwater Rescue

5.1 Introduction

Underwater rescue represents the most complex phase of a Rescue Diver's activity. It requires self-control, mastery of buoyancy, precision of movement, and the ability to intervene in a three-dimensional environment.

The goal is to recognize, approach, assist, and bring a diver in difficulty to the surface as quickly and safely as possible.

5.2 Basic Principles of Underwater Rescue

Every intervention must be guided by three fundamental principles:

personal safety,
assessment
check.

The Rescue Diver must maintain calm, regular breathing and stable trim even in critical situations.

5.3 Identification of the Diver

in Distress

Visual signs: irregular breathing, disorganized movements, failure to respond to signals, abnormal positioning, uncontrolled ascent, or immobility.

Upon recognition, the Rescue Diver must activate the underwater rescue protocol.

5.4 Approach and Evaluation

Assess environmental safety, maintain observation distance, approach from the side, establish eye contact and signal “OK?”. If you receive no response, proceed to safe recovery.

5.5 Handling a Panic Diver

A panicked diver can be dangerous.

Guidelines: Maintain distance, communicate calmly, offer flotation or an alternate regulator, immobilize only from behind, and stabilize buoyancy.

5.6 Recovery of an Unconscious Diver

Procedure: Grab from behind, check mask and regulator, partially inflate the BCD, maintain neutral buoyancy, ascend at

a controlled rate (≤ 9 m/min), equalize regularly, and monitor depth. Do not remove the regulator during ascent.

5.7 Victim Ascent Techniques

- *Controlled assisted ascent*: for a conscious but diver in difficulty.

The rescuer adjusts the buoyancy.

- *Ascent with unconscious diver*: The rescuer controls the BCD and air source while maintaining constant speed and safety.

5.8 Surface Management

Once on the surface: inflate the victim's BCD, remove ballast, maintain an open airway, signal and request assistance. If not breathing, begin rescue breaths during transport.

5.9 Rescuer Safety

Avoid direct contact with an agitated diver, monitor your air supply, and do not exceed your depth or visibility limits. Personal safety is a priority.

5.10 Operational Debriefing

After each intervention:

analyze decisions,
evaluate reaction times,
identify critical issues,
share the experience with the group or instructor.

Summary of Chapter 5:

Underwater rescue requires training, composure, and technical mastery.

Each phase, from identification to ascent, must be carried out methodically and in compliance with safety procedures.

A trained Rescue Diver is able to save lives without compromising his own. Diving emergencies require rapid and precise intervention. The Rescue Diver must be trained to recover an unconscious diver, manage a controlled ascent, and maintain the safety of himself and his group.

Procedures include: assisted ascent, use of alternative regulators and buoyancy control.



Chapter 6 – Underwater Medical Emergencies

6.1 Introduction

Underwater medical emergencies represent the most critical point in the care of a diver in difficulty.

A Rescue Diver must quickly recognize symptoms, assess the severity of the condition, and initiate first aid and advanced management procedures until qualified medical personnel arrive. The main goal is to maintain life, prevent worsening, and facilitate subsequent treatment.

6.2 Types of Underwater Emergencies

- Lung overexpansion syndrome (LES): caused by uncontrolled ascent with air trapped in the lungs. Symptoms: immediate loss of consciousness, paralysis, convulsions, difficulty breathing.

Actions: Maintain open airway, administer 100% oxygen, initiate medical evacuation.

- Decompression sickness (DCS): caused by the formation of gas bubbles in the tissues. Symptoms: joint pain, tingling, dizziness, weakness.

Actions: Administer pure oxygen, position horizontally, hydrate if conscious, contact hyperbaric treatment center.



- Barotrauma: affecting the ears, sinuses, lungs, and gastrointestinal tract. Symptoms: pain, dizziness, bleeding.

Actions: Abort dive, provide oxygen, and monitor.

- Hypoxia and Hypercapnia: deficiency or excess of respiratory gases. Symptoms: confusion, labored breathing, loss of consciousness.

Actions: terminate dive, provide oxygen.

- Hypothermia: caused by prolonged exposure to cold.

Actions: Remove from water, pat dry, cover, and reheat gradually.

- Heat stroke and dehydration: due to excessive exertion or heat.

Actions: hydrate, cool, protect from the sun.

6.3 Primary Medical Evaluation

ABC Sequence:

1. Airway: Make sure it is clear.
2. Breathing: Control your breathing.
3. Circulation: Check pulse and signs of life.
4. Oxygen: Administer 100% O₂ with a continuous flow.
5. Emergency: activate rescue and arrange evacuation.

6.4 Oxygen Administration

Oxygen is the primary treatment for almost all diving conditions. Use high-flow systems (>15 L/min), apply a demand mask or non-rebreather, continuously monitor breathing, and record the onset time.



6.5 Management of the Victim While Waiting for Help

While waiting: keep the diver lying down, do not remove the wetsuit in cold conditions, note symptoms and times, reassure and prepare the logistics for transport.

6.6 Post-Emergency Communication and Reporting

Provide a detailed report: the diver's identity and condition, dive depth and duration, symptoms observed, interventions performed, and oxygen therapy times. This information is vital for hyperbaric personnel.

6.7 Prevention of Medical Emergencies

- Plan dives within safe limits.
- Avoid excessive exertion and dehydration.
- Maintain proper hydration and nutrition.
- Check your equipment regularly.
- Respect safety stops and no-decompression limits.

Summary of Chapter 6

The Rescue Diver must quickly recognize and respond to

underwater medical emergencies. Prompt oxygen administration and prompt rescue are essential to the survival and recovery of the injured diver.

Diving accidents can cause physical trauma and serious medical conditions such as barotrauma, decompression sickness, hypoxia, and drowning.

The rescuer must know the principles of underwater physiology and first aid techniques.

It is essential to know how to administer emergency oxygen and quickly activate specialized medical assistance.



Chapter 7 - Rescue Planning and Simulations

7.1 Introduction

Rescue planning and simulations are essential components of a Rescue Diver's training.

Through structured exercises, the student develops the ability to apply procedures in a coordinated manner, improving reaction times, communication, and stress management.

The goal is to prepare the diver to handle any emergency with safety and competence.

7.2 Planning Objectives

Planning serves to ensure safety, define standard procedures, coordinate roles, optimize resources, and simulate emergency situations to consolidate operational skills.

7.3 Fundamental Elements of Planning

1. Analyze the environment: depth, currents, visibility, temperature, access and escape routes.

2. Define roles: rescuer, assistant, communicator.
3. Prepare equipment: oxygen, first aid, communications, lifting systems.
4. Communication procedures: manual, acoustic, and visual signals.
5. Assess risks and prepare countermeasures.

7.4 Types of Rescue Simulations

- a) Confined water simulations: basic training on attitude control, approach, and ventilation.
- b) Open water simulations: comprehensive exercises with management of stress, currents, and reduced visibility.
- c) Complex simulations: combining panic, loss of consciousness, and operational difficulties, testing leadership and decision-making skills.

7.5 Structure of an Operational Simulation

Each simulation follows this sequence:

1. Briefing: objectives, roles, safety limits.
2. Practical execution: application of rescue techniques.
3. Debriefing: analysis of effectiveness and critical issues.
4. Feedback: evaluation by the instructor.

7.6 Evaluation Tools

During the simulations, the following are assessed: decision-making ability, personal safety, communication, technical precision, and emotional management.

These parameters measure the diver's educational growth.

7.7 Common Mistakes in Simulations

- Failure to assess the scene.
- Incorrect or too rapid approach.
- Ineffective communication.
- Incorrect ventilation.
- Failure to initiate effective rescue operations in a controlled environment.

7.8 Debriefing and Post-Exercise Analysis

Debriefing allows you to transform the experience into learning: analysis of phases, evaluation of times, strengths and improvements.

Each simulation must be documented for educational use.



7.9 Benefits of Simulation-Based Training

- Increased operational trust.
- Improved team collaboration.
- Consolidation of procedural memory.
- Reduced real-time response times.
- Increased risk awareness.

Summary of Chapter 7

Planning and simulating realistic scenarios allow the Rescue Diver to transform theory into operational skills. Continuous training ensures effectiveness, safety and readiness in a real underwater rescue.

Chapter 8 - Psychological and Post-Emergency Aspects

8.1 Introduction

Diving rescue is not only a technical process, but also an emotionally complex event.

The Rescue Diver must learn to manage his own and others' psychological stress, maintaining clear decision-making during an emergency and dealing with the subsequent emotional consequences in a healthy way.

8.2 Stress in the Diver

Stress is a physiological and mental response to situations perceived as threatening.

It can result from fatigue, technical problems, disorientation or social pressure.

Effects include rapid breathing, impaired judgment, and panic. The Rescue Diver must be able to recognize the early signs of stress.

8.3 Managing Rescuer Stress

During an emergency, the rescuer can also experience acute stress.

Control strategies include mindful breathing, focusing on procedures, clear communication, and constant self-assessment.

Progressive training prepares you for real-world stress management.

8.4 Psychological Aspects of the Victim

A victim may show shock, guilt, or fear.

The rescuer must show empathy, reassurance and calm.

Controlled behavior promotes the emotional stabilization of the rescued diver.

8.5 Post-Emergency: Reactions and Emotional Processing

After a rescue, the rescuer may feel anxious or exhausted.

It's important to talk about the event, analyze it rationally, avoid isolation, and seek support if symptoms persist.

These reactions are normal and part of the recovery process.

8.6 Team Psychological Debriefing

Debriefing allows the team to share emotions, normalize reactions, and strengthen cohesion.

This is a crucial phase for the mental health of the group and for improving future responses.

8.7 Psychological Prevention in Training

During training, it is helpful to include realistic simulations, relaxation techniques, and assertive communication.

Developing mutual trust and self-control helps prevent operational stress.

8.8 Ethics and Responsibilities of the Rescuer

The rescuer must maintain professionalism, confidentiality and respect towards the victim, avoiding comments or judgments. Ethics strengthen the Rescue Diver's credibility and reliability.

8.9 Reintegration into



Activities After an Emergency

Before returning to diving, a period of reflection, review with the instructor and a gradual reintroduction to the water is recommended.

This restores trust and psychological stability.

Summary of Chapter 8

Psychological preparation is essential for the Rescue Diver. Managing emotions and stress allows you to act with clarity and maintain mental well-being after a rescue.

A balanced diver is an effective and safe rescuer. After a diving accident, it is essential to manage the psychological aspects of the rescuer and the team. The Rescue Diver must know the basics of post-traumatic support and contribute to the team's emotional stability.

Maintaining an accurate post-accident report is an integral part of safety procedures.



Appendices

A. Underwater and surface emergency signals

A/1 IMAGES

B. Rescue intervention checklist

C. Communication protocol with the authorities

D. Glossary of technical terms

E. Bibliography and regulatory references (WRSTC, CMAS, DAN)



APPENDIX A – Underwater and Surface Emergency Signals

A.1 Introduction

Communication is an essential component of any rescue effort.

In an underwater environment, where speech cannot be used, visual and manual signals are essential for coordinating operations, communicating emergencies, and ensuring safety.

A.2 General Principles of Underwater Communication

- Clarity: simple and visible signals.
- Confirmation: every signal requires a response.
- Standardization: use coded signals.
- Visibility: in low light, use torches or flashing lights.

A.3 Underwater Emergency Hand Signals

Closed fist: problem or attention (fig. 1)

Flat hand swing: bad or emergency (fig. 2)

Circle with thumb and index finger: all OK (fig. 3)

Thumbs up: let's go up (fig. 4)

Thumb down: let's go down (fig. 5)
Hand on chest: I (fig. 6)
Pointing hand: you (fig. 7)
Hands together: Boat on the surface (fig. 8)

Specific signals:

Throat-cutting gesture: without air (fig. 9)
Show the dispenser: request or supply of air (fig. 10)

A.4 Signals with Torch or Light

- Circle with light: OK.
- Forward/backward movement: Caution.
- Rapid flashes: Emergency.

A.5 Underwater Sound Signals

- Single shot: watch or follow me.
- Rapid series: emergency.
- Multiple shots: attention.

A.6 Surface Signals with Arms

- Arms in a "O" shape: all OK (fig. 11)
- Arms in a "Y" shape: help! (fig. 12)
- Arm shaking: be careful (fig. 13)
- Arms crossed on the chest: end of immersion (fig. 14)

A.7 Surface Visual Signals

- SMB (Surface Marker Buoy): diver's position during ascent (fig. 15)
- Reflective mirror: visual emergency (fig. 16)
- Whistle: surface acoustic signal (fig. 17)
- Strobe light: night signal (fig. 18)

A.8 Signals from Boat or Shore

For signaling divers, at approximately 300 m, both options are considered correct:

- Red flag with white diagonal stripe (fig. 19)
- White and blue flag (flag "Alpha" of the International Code of Signals) (fig. 20)
- Red buoy with white diagonal stripe (fig. 21)
- White and blue buoy (flag "Alpha" of the International Code of Signals) (fig. 22)

A.9 Communication in Real Emergencies

1. Keep calm and signals clear.
2. Get visual confirmation.
3. Adjust signals to visibility.
4. Maintain constant communication.

Summary of Appendix A

Understanding signals is vital for the Rescue Diver. In the water or on the surface, effective communication coordinates rescue efforts and saves lives.



Each signal must be known and practiced by the entire dive team.



A1 IMAGES - Underwater Emergency Hand Signals



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



FIGURE 7



FIGURE 8



FIGURE 9



FIGURE 10

A1 IMAGES - Surface Signals with Arms



FIGURE 11



FIGURE 12



FIGURE 13



FIGURE 14

A1 IMAGES - Surface Visual Signals



FIGURE 15



FIGURE 16



FIGURE 17



FIGURE 18



A1 IMAGES - Signals from Boat or Land



FIGURE 19

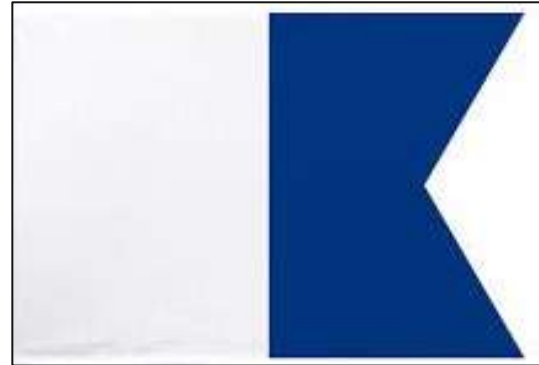


FIGURE 20



FIGURE 21



FIGURE 22

APPENDIX B – Rescue Intervention Checklist

B.1 Introduction

The rescue checklist is an essential operational tool for every rescue diver. It ensures that no critical step is overlooked during a diving emergency. A systematic approach, based on proven procedures, increases safety, reduces human error, and improves rescue efficiency.

B.2 Principles of Use of the Checklist

Simplicity: It must be short, clear and easy to remember.

Logical order: the timeline of the intervention follows.

Adaptability: can be modified according to the operating context.

Sharing: All team members must know and apply it.

B.3 Phase 1 – Scene Evaluation

Goals: ensure the safety of the rescuer and analyze the situation.

Checklist:

Assess environmental safety (waves, current, visibility, traffic).

Identify immediate risks to the rescuer.

Locate the victim's location.

Determine whether the intervention should be conducted from the surface or underwater.

Ask for assistance or alert the emergency services (staff, boat,

dive center).

B.4 Phase 2 – Approaching the Victim

Goals: establish safe contact and prevent panic.

Checklist:

Observe the victim from a safe distance.

Establish visual or gestural communication.

Approach with caution, maintaining trim control.

Assess the victim's condition (conscious, panicked, unconscious).

Be ready to dive or intervene from the surface.

B.5 Phase 3 – Surface Management

Goals: stabilize the victim and begin primary care.

Checklist:

Remove the dispenser if necessary and ensure a clear airway.

Support the head to keep the airway open.

Perform rescue breaths in water, if trained and confident.

Remove weights from both people.

Report position to surface or support vessel.

B.6 Phase 4 – Transport to the Surface or Safe Point

Goals: take the victim to the extraction area or to a boat.

Checklist:

Choose the most suitable towing technique (for neck,

equipment or underarm).

Maintain ventilation if necessary.

Constantly monitor the victim's consciousness.

Avoid sudden movements or loss of eye contact.

Clearly signal the request for help to the surface.

B.7 Phase 5 – Extraction and First Aid on the Ground

Goals: provide life-saving assistance until help arrives.

Checklist:

Extract the victim using safe techniques (avoiding spinal trauma).

Place the person supine on a stable surface.

Assess consciousness, breathing, and pulse.

Perform CPR or administer oxygen if necessary.

Remove wetsuits and equipment only if they do not impede ventilation.

Cover the victim to avoid hypothermia.

Continue assistance until qualified help arrives.

B.8 Phase 6 – Communication and Debriefing

Goals: provide clear information to emergency services and analyze the intervention.

Checklist:

Please provide details about:

Dive time and depth.

Time to find and recover.

Treatments already performed.

Fill out the accident report.

Participate in psychological and technical debriefing.

B.9 Phase 7 – Equipment and Documentation Restoration

Goals: analyze and maintain operational efficiency.

Checklist:

Check equipment used in rescue.

Replace damaged or contaminated components.

Record the intervention in the dive log.

Update periodic first aid and CPR training.

Summary of Appendix B

The rescue checklist is a practical guide to ensure order and safety during a rescue. The Rescue Diver must memorize the sequence, adapt it to the context, and apply it calmly and precisely. Only constant training allows theory to be transformed into effective action.



APPENDIX C – Communication Protocol with the Authorities

C.1 Introduction

During a diving accident, timely and accurate communication with the relevant authorities is essential to ensure effective, coordinated intervention that complies with current regulations. While not a public safety worker, the Rescue Diver must know basic communication protocols to provide clear and useful information to professional rescuers.

C.2 Objectives of the Protocol

Ensure rapid transmission of information.
 Avoid the dispersion of incorrect data or testimonies.
 Facilitate the activation of medical, maritime, and public safety assistance.
 Protect the safety of the dive team and the victims involved

C.3 Competent Authorities to Contact

Type of Emergency	Authority / Body	Contact Channel
Underwater medical emergency	118 / Single number 112	Telephone / radio
	Coast Guard / Harbor	VHF Channel 16 or



Type of Emergency	Authority / Body	Contact Channel
Lost at sea / lake	Master's Office	1530
Emergency in inland waters	Fire Brigade – Diving Unit	Number 115
Emergency in a private area or diving	Dive Center Management	Direct communication
Event with multiple people involved	Coordination with the Prefecture or Civil Protection	According to local protocol

C.4 Communication Operational Sequence

1. Immediate alert

Assess the scene and make sure it is safe.

Immediately alert the competent authorities (112 or 118).

Specify:

Type of emergency (diving accident, disappearance, illness).

Number of people involved.

Precise location (GPS coordinates or nautical reference).

Current conditions of the ongoing rescue.

2. On-site coordination

Designate a person responsible for communicating with emergency services.

Maintain contact with staff by radio or telephone.

Avoid redundant communications from other operators.



3. Transmission of clinical and technical data

Communicate concisely but comprehensively:

Victim's name or identifier.

Dive time and maximum depth.

Symptoms observed (loss of consciousness, difficulty breathing, etc.).

Treatments performed (oxygen, CPR, ventilations).

4. Receiving instructions

Strictly follow the instructions provided by the coordination center (Capitaneria or 118).

Do not take any additional, unsolicited actions.

5. Final report

At the end of the emergency, prepare a written report containing:

Accident data.

Actions performed.

Main times (start of rescue, arrival of rescue, outcome).

Testimonials and notes from the team.

C.5 Standard Radio Communications (VHF / CB / UHF)

International Emergency Channel VHF 16

Basic communication formula:

"MAYDAY MAYDAY MAYDAY

- This is [name of vessel or diving center]
- Position [coordinates or reference]
- Type of diving emergency
- Number of people involved
- Immediate request for assistance
- Over."

Important:

Speak slowly, spelling out the numbers.

Repeat critical messages twice.
Keep calm and use a professional tone.

C.6 Post-Emergency Communication

Inform the Diving Center or Center Manager.
Collaborate with the authorities in collecting statements.
Do not disclose information to third parties or the media without authorization.
Prepare an internal written report for incident analysis and future training.

C.7 Ethics and Confidentiality

The Rescue Diver is required to:
Maintain the confidentiality of personal and health data.
Avoid speculation or sharing sensitive details.
Always cooperate with respect towards the authorities involved.

Summary of Appendix C

Communications management is an integral part of rescue. Speaking clearly, providing accurate data, and collaborating in a disciplined manner helps reduce response times and improve the chances of survival. The Rescue Diver must know the procedures, numbers, and emergency channels, and be able to apply them with skill and clarity.



APPENDIX D - Glossary of Technical Terms

Term	Definition	Notes / context of use
ARA (Autonomous Respiratory System)	Self-contained underwater breathing system consisting of a cylinder, first stage, regulator, hoses, and pressure gauge	The term "scuba" is also often used
Buoyancy / Trim	State of equilibrium between weight and buoyancy of a diver	Positive = tends to rise; negative = tends to fall; neutral = remains stable
Barotrauma	Tissue injury caused by pressure changes in air-filled spaces (e.g., ear, lungs)	It should be prevented by compensating frequently
DEA / AED (Automated External Defibrillator)	Device that delivers electric shocks to restore heart rhythm	Used on land or on boats after recovery
DEC (Decibel)	Unit for measuring sound pressure level	It can be useful for acoustic signals during rescue
Decompression / Decompression Stop	Phase in which gas bubbles are allowed to rise from the tissues during ascent	Request if no-decompression limit is exceeded
Regulator (Regulator / Second stage / First stage)	Device that reduces the pressure of the air in the cylinder to make it breathable	First stage connects to the tank, second stage is the mouth you breathe into
BCD (Buoyancy Control Device)	Inflatable vest that allows you to add or remove air to control buoyancy	It has valves for loading and unloading air



Term	Definition	Notes / context of use
Hypoxia	Condition in which tissues do not receive sufficient oxygen	It may be caused by a malfunction of the dispenser or excessive effort
Hypercapnia	Excessive accumulation of CO ₂ in the blood	It can manifest itself with a sense of confusion, shortness of breath
Hypoventilation	Insufficient breathing	Can lead to CO ₂ accumulation
Pressure Isozone	Area in which pressure, density and environmental conditions are uniform	Useful in planning dives with stratification
Nitrogen Narcosis (deep intoxication)	Narcotic effect of nitrogen at high pressures	It manifests itself with confusion, euphoria or mental slowness
No-Decompression Limit (NDL)	Maximum time allowed to stay at a certain depth without having to make decompression stops	Table / dive computer allows calculation
Octopus / Second alternative regulator	"Spare" regulator often with a yellow hose, used in air-sharing situations	It must be easily accessible
Reserve (air reserve / safety reserve)	Amount of air to maintain for emergencies during the dive	It is used to be able to recover if something unexpected happens
Safety Stop	Mandatory stop generally at ~5 meters for 3–5 minutes during the ascent	Helps reduce blisters in tissues
Trimix / Breathing Mixtures		Used in advanced technical diving



Term	Definition	Notes / context of use
	Mixture of breathable gases with variable percentages of oxygen, nitrogen and helium	
Overpressure Valve (OVD / Relief Valve)	Valve that allows excess pressure in the BCD to be released	Prevents uncontrolled inflation
Visibility	Maximum distance at which a diver can clearly distinguish objects underwater	Critical condition in planning and rescue
Wet Contacts	Electrical contacts that only work when immersed	Used in communications systems or underwater computers

APPENDIX E

Bibliography and Regulatory References (WRSTC, CMAS, DAN)

E.1 Introduction

All underwater rescue activities must be based on internationally recognized training standards. This chapter lists the main reference organizations, regulatory documents, and technical publications that form the educational basis of the Rescue Diver course.

E.2 World Recreational Scuba Training Council (WRSTC)

The WRSTC (World Recreational Scuba Training Council) is the international body that defines the minimum standards for the training of recreational divers and professionals in the sector. Its main objectives are:

- Establish uniform guidelines for training courses.
- Ensure safety and compatibility between training programs from different agencies.
- Promote mutual recognition between certification bodies.

Reference documents:

- WRSTC International Diver Training Standards and Procedures (latest available revision).
- Guidelines for Rescue Diver Certification – Level 3B.
- Medical Statement and RSTC Diving Medical Guidance.



E.3 CMAS – World Confédération des Activités Subaquatiques

CMAS is the World Confederation of Underwater Activities, founded in 1959 under the aegis of Jacques-Yves Cousteau. It is the recognized international body for the standardization of diving, sports, and technical certifications.

Reference regulations:

CMAS International Diver Training Standards – Level 3: Rescue Diver.

CMAS Technical & Rescue Procedures Manual.

CMAS Manual for Diving Safety and Incident Management (2024 National Edition).

Key principles:

Safety and accident prevention.

International coordination between federations.

Training in individual and team responsibility.

E.4 DAN Europe – Divers Alert Network

DAN Europe is a non-profit organization specializing in hyperbaric medicine, diving safety, and rescue training. It is considered the leading medical and scientific source for managing diving emergencies.

Publications and reference materials:

DAN Emergency Management Protocols for Divers.

Oxygen First Aid for Scuba Diving Injuries Manual.

DAN Field Guide to Diving Emergencies.



Guidelines for Oxygen Administration and Management of Diving Trauma (2023).

Main collaborations:

WRSTC for the definition of international medical protocols.

CMAS for the standardization of Rescue Diver programs.

PADI, SSI, NAUI, RAID and other training agencies to standardize rescue teaching.

E.5 European Reference Norms and Standards

Regulatory Body	Document	Object
EN 14413-2:2017	Scuba Training – Rescue Diver Level	Minimum requirements for emergency management training
EN 14153-3:2017	Training standards for recreational diving	Definition of levels from Open Water to Rescue Diver
ISO 24801-3:2014	Recreational diving services — Requirements for the training of dive leaders	International basis for the equivalence of certifications
ISO 13289:2012	Training of recreational scuba instructors	Standards for teaching and operational competence
UNI EN 250:2020		Safety requirements for regulators and cylinders



Regulatory Body	Document	Object
	Compressed air breathing apparatus for diving	

E.6 General Bibliography

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Summary of Appendix E

Rescue Diver skills are based on a solid regulatory and scientific framework. Knowledge of WRSTC, CMAS, DAN, and European standards allows you to operate in compliance, ensuring safety, responsibility, and international recognition of certifications.