



Australian Government

SISOSCB005 Complete underwater search and recovery dives

Release: 1

SISOSCB005 Complete underwater search and recovery dives

Modification History

Not applicable.

Application

This unit describes the performance outcomes, skills and knowledge required to use a systematic and methodical approach to finding and retrieving lost submerged objects up to 45 kilograms during or after recreational dives. This unit is not intended for use by commercial recovery divers.

It applies to dive leaders, usually known as divemasters or instructors who work independently in the field using discretion and judgement to manage problems when they arise.

This unit applies to any type of organisation that delivers SCUBA diving activities and dive instruction including commercial, not-for-profit and government organisations.

No occupational licensing, certification or specific legislative requirements apply to this unit at the time of publication.

Pre-requisite Unit

SISOSCB001 SCUBA dive in open water to a maximum depth of 18 metres

Competency Field

SCUBA Diving

Unit Sector

Outdoor Recreation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes

1. Plan underwater search and recovery.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1. Identify size, weight and other characteristics of lost object.
- 1.2. Assess probable and possible location of lost object and define search area.
- 1.3. Identify and assess site characteristics and hazards that impact the search and recovery operation.

- 1.4. Determine suitable search methods and patterns according to situation.
 - 1.5. Determine suitable recovery methods according to size, weight and depth of object to be recovered.
 - 1.6. Select search and recovery equipment according to requirements.
 - 1.7. Confirm diver roles and protocols for communications between buddy and crew through a pre-dive briefing.
2. Conduct search.
 - 2.1. Use surface techniques and above water landmarks to assist in locating position of submerged objects before descent.
 - 2.2. Establish boundaries of underwater search area, after descent, and mark starting point with appropriate equipment.
 - 2.3. Follow underwater patterns of travel to locate lost objects.
 - 2.4. Utilise search lines to assist navigating patterns of travel.
 - 2.5. Communicate with buddy and others throughout search using appropriate signals.
 - 2.6. Mark position of submerged objects for later retrieval if required.
3. Recover objects.
 - 3.1. Retrieve small items by hand, stow in bag and secure for ascent.
 - 3.2. Mark location of heavy objects with buoy and line, in case of sinking during retrieval.
 - 3.3. Rig lift bag using appropriate knots or clips and check security.
 - 3.4. Inflate lift bag gradually to achieve appropriate buoyancy of object, and free object from obstructions as required.
 - 3.5. Swim to surface with lift bag or allow to rise independently, assuming safe position in relation to bag.
 - 3.6. Secure lift bag at surface and retrieve from water.
 - 3.7. Retrieve all markers on search and recovery conclusion.

Foundation Skills

Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here, along with a brief context statement.

DESCRIPTION

SKILLS

- Oral communication skills to:
- use clear and unambiguous verbal and non-verbal communications to make intent known with diving buddy and support crew.
- Numeracy skills to:
- estimate angles for landmarks as navigation aids and for underwater swimming patterns
 - complete basic calculation of weights to select lift bags of appropriate ratings.
- Teamwork skills to:
- pro-actively and cooperatively work within teams to determine location of lost objects, solve arising problems and effect efficient recoveries.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume Implementation Guides -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1ca50016-24d2-4161-a044-d3faa200268b>

Assessment Requirements for SISOSCB005 Complete underwater search and recovery dives

Modification History

Not applicable.

Performance Evidence

Evidence of the ability to complete tasks outlined in elements and performance criteria of this unit in the context of the job role, and:

- plan and complete four search and recovery dives
- across the four dives, collectively recover objects of these different weights:
 - small objects of minimum 1kg and maximum 5 kgs by hand without lift bags
 - objects of minimum 10kgs and maximum 45 kgs using lift bags
- across the four recovery dives, use one of the following compass search patterns:
 - U search
 - expanding square
- across the four recovery dives, use one of the following search patterns utilising search lines and reels:
 - circular
 - semi-circular
 - jackstay
- during each dive consistently:
 - safely negotiate hazards
 - communicate effectively with buddy diver using underwater signals.

Knowledge Evidence

Demonstrated knowledge required to complete the tasks outlined in elements and performance criteria of this unit:

- differences between commercial and recreational search and recovery divers, at a basic level of understanding
- roles and responsibilities of different recreational divers and support crew in search and recovery operations
- different types of search and recovery dives
 - searching for specific lost items
 - searching for non-specific items of interest and reasons for not retrieving items of cultural or heritage significance
 - recovering harmful debris
- how site characteristics of recovery dives may differ from optimum recreational diving conditions and how the following affects search and recovery techniques:

- bottom topography and composition
- water movement – current, tides and surge
- hazards and risks associated with underwater search and recovery operations and techniques used to safely negotiate these:
 - sharp objects and debris
 - entanglement
 - low visibility
 - currents
 - falling objects
 - boating traffic
- steps in planning search and recovery dives and why these are important:
 - defining the dive objective
 - collecting and analysing all available information; environmental conditions and hazards, characteristics of any lost objects, equipment required
 - selecting diving mode, search and recovery techniques
 - selecting diving buddy and other team members
 - briefing
- techniques used on the surface to assist with location of submerged items:
 - tracking sinking items from the shore using landmarks as navigation aids
 - tracking sinking items from the water or on a boat using landmarks as navigation aids
 - taking compass bearings and using a slate for recording
- for the following underwater and shore based search patterns, suitability for different circumstances, effectiveness and limitations:
 - U search
 - expanding square
 - circular
 - semi-circular
 - jackstay
 - shore walk
 - snorkeller led
- for the above search patterns
 - how to mark starting points and searched areas
 - how to execute
 - how to use a compass in conjunction, as appropriate
 - how to secure and use search lines as appropriate
- communication protocols, specific to search and recovery operations:
 - underwater line (rope) signals used between buddy divers
 - underwater line signals used between divers and surface crew
- features, functions and operation of search and recovery equipment:
 - underwater compasses

- buoys and anchors
- bottom markers
- slates
- underwater reels and search lines
- features, functions and operation of commercial lift bags:
 - advantages over home-made lift bags
 - weight ratings of different lift bags up to 45kgs
 - air sources for lift bags and techniques used to inflate both underwater and at the surface to achieve effective buoyancy
- when different knots are used with lift bags, advantages and disadvantages, and how to tie them:
 - bowline
 - sheet bend
 - two half-hitch
- dangers of using buoyancy control devices as lift bags
- safe position of divers in relation to lift bags throughout recovery operations.

Assessment Conditions

Skills must be demonstrated in an open water site. Dives can be completed from either boats or from the shore.

During assessment:

- direct vertical access to the surface must be possible; aquatic plants are not considered an overhead obstruction
- the following resources must be available to replicate industry conditions of operation:
 - first aid equipment
 - oxygen equipment
 - communication equipment for emergency response
 - diver flags of a type and size that meet local maritime regulator requirements.

Assessment must ensure use of:

- a diving buddy with whom the candidate can dive
- fins
- masks
- snorkels
- cylinders and valves
- buoyancy control devices with low pressure inflators
- regulators with submersible pressure gauges
- alternative air source
- weight ballast systems
- exposure suits, gloves and booties suitable for conditions

- timing devices
- depth gauges
- underwater compasses and slates
- surface floats and markers
- anchors and bottom markers
- underwater reels with search lines
- commercial quality lift bags and rope
- objects weighing a minimum 1kg and maximum 45kgs, with at least some objects weighing 10kgs.

Assessors must satisfy the Standards for Registered Training Organisations requirements for assessors, and:

- be an individual who is currently certified and sanctioned by an industry authorised organisation to teach and assess underwater search and recovery skills.

Links

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