

## SKILLS & ENVIRONMENT

**CESA:** Controlled emergency swimming ascent; this should be done with all equipment in place. The diver should ascend at a rate not to exceed 18m/min and have his right hand above his head, his left hand held up covering the deflate button on the LPI, looking up and making a continuous 'aaah' sound exhaling through the ascent.

**Signals:** You should know the meaning of the 25 PADI standard diving signals.

The signals are as follows:

Meaning of signal	Description
Stop	Hand held upright, palm out
Something is wrong	Hand held out flat horizontally and swiveled from side to side
OK, OK?	Tips of index finger and thumb held together, fingers straight.
OK, OK? (with gloved hand)	Tips of all fingers and thumb held together forming an "O"
Distress, Help	Waving arm up and down
OK, OK? (on surface at a distance)	Arms forming an arc above the head tips of finger together
OK, OK? (one hand occupied)	Arm forming an arc with tips of fingers on head
Danger	Clenched fist held straight out
Go up	Thumb pointing up
Go down	Thumb pointing down
Low on air	Clenched fist punched against chest
Out of air	Slashing motion across throat with flat hand
Buddy breathe or share air	Cupped hand moved back and forth towards mouth
Come here	Arm held out, palm flat then, brought up in a beckoning motion
Me, or watch me	Finger pointing at the chest
Under, over or around	Arm held out palm down and moved in direction required
Level off, this depth	Hand held out palm down and moved from side to side
Go that way	Point thumb in direction you want to go
Which direction?	Clenched fist with thumb held out and swiveled back and forth
Ears not clearing	Finger pointed at ear
I am cold	Arms hugging oneself
Take it easy, slow down	Arm held out, palm down and moved slowly up and down
Hold Hands	Hands clenched together
Get with your buddy	Index fingers held together, rest of fingers clenched
You lead, I'll follow	Pointing with index fingers of both hands, one behind the other

**Buoyancy check:** The diver should enter water too deep to stand up in wearing all equipment. The diver should float at eye level while holding a normal breath and no air in his BCD.

*On PADI questions* the answer is always at eye level regardless of whether it is at the beginning or end of the dive.

Overweighting causes extra drag, puts the diver in the wrong position and should never be done. Lazy instructors overweight their students ! DO NOT DO THIS !

### **First Aid:**

With an unconscious diver in the water the steps are as follows:

- Establish buoyancy
- Check for breathing
- Call for help
- Give 2 slow breathes
- Protect airway and give one breath every 5 seconds
- Tow to shore or boat while removing equipment (breaths take priority).

You cannot perform CPR in the water therefore you assume pulse with a non-breathing diver. As soon as he is on a boat or back to shore you can perform a circulation check and administer CPR if necessary.

When performing CPR the ratio of compressions to breaths is 30:2

The rate of compressions should be 100 per minute.

First aid for DCI has already been discussed in previous questions. One point though, NEVER TRY TO PUT A DIVER BACK IN THE WATER TO RECOMPRESS HIM.

Also if you run out of oxygen you can use any nitrox mix available which is better than air. Obviously, the higher the percentage of oxygen in the nitrox the better it is for the diver.

In the case of a near drowning victim, one who has been resuscitated and recovered, they should always be taken to medical care as secondary drowning can occur later – even if they say that they feel fine.

*Note: Even in questions on DCI the PADI answer is always take the patient to the nearest medical facility, not the nearest recompression chamber. The rationale behind this is that the patient needs medical back up as well as recompression.*

Marine life injuries can cause varying degrees of stinging, itching and pain and sometimes respiratory arrest and cardiac arrest (death).

Protocols are as follows:

With jellyfish and coral stings apply vinegar.

Wash and disinfect any wound that has broken the skin.

With lionfish, scorpionfish and stonefish stings apply heat to the wound with hot (not boiling) water for at least 30-90 minutes; this will cook the protein in the poison and stop it from spreading.

With other injuries you would follow your primary assessment, and provide the indicated care.

### **Environment:**

To protect the aquatic environment the diver should be correctly weighted and maintain good buoyancy control. Look but don't touch. Avoid contact with the bottom. Make sure that no hoses are dangling. Do not feed fish.

### **The sea:**

Waves are directly caused by wind.

Waves break when the depth of the water is about the same as their height.

A *rip current* moves out to sea (*seaward*).

A *long shore current* moves along the shore.

Sand *ripples* generally run *parallel* to the shore.

Tides are primarily caused by the moon and the sun. When the moon and the sun are in line or opposite each other we have spring tides. When the moon and the sun are at right angles to each other we have neap tides. The strongest currents will appear during spring tides.

The *geographical features and topography* of an area dictate the *range and duration of tides* as well as the gravitational pull of the moon and the sun.

The best time to dive is at *high slack water*. This will produce the least current and the best visibility.

Oceanic currents are caused by *wind and the rotation of the earth*.

This is known as the *Coriolis Effect*.

In the northern hemisphere the currents move clockwise.  
In the southern hemisphere the currents move anti-clockwise.

### **Search and recovery:**

Never try to lift an object that weighs more than 4-7 kilograms without a lifting device.

When deciding on a search pattern and method take the following factors into account:

- Current
- Visibility
- Experience of divers
- Underwater topography
- Size of the object.

### **Compass navigation:**

To return on a reciprocal heading rotate the bezel 180 degrees.

To complete a triangle rotate the bezel 120 degrees for each leg.

To complete a square/rectangle rotate the bezel 90 degrees for each leg.

### **Equipment:**

An alternate air source should be placed in the triangular area between your chin and the lower corners of your rib cage.

A weight belt should have a quick release, requiring the use of only one hand.

A buddy check should be made before every dive:

B - Begin	BCD
W - With	Weights
R - Review	Releases
A - And	Air
F - Friend	Final OK

**Enriched air divers should personally verify their cylinder contents before diving and check computers are set correctly.**