

ENVIRONMENT



RAIDTM 

**OPEN WATER FREEDIVER +
FOUNDATION FREEDIVER**

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INTRODUCTION TO THE ENVIRONMENT

This manual covers different diving conditions, how to assess them and other factors that could influence your diving. There are many varied environments in which you can freedive, from inland lakes, quarries and other bodies of water to coastal locations accessible from the shore and open ocean areas accessible by boat. Each environment offers different opportunities for freediving, for example inland bodies of water can be excellent locations for training, and for when weather prevents diving in the ocean. Coastal locations can be good places to dive recreationally, for example reef systems accessible from the beach / shore. Diving further away from land can offer the opportunity to freedive with larger pelagic species, such as sharks, whales and rays.

WIND AND WAVES

Waves can affect visibility by churning up silt and sand. They also make diving more difficult by disrupting the relaxation stage of the dive. As it becomes harder to keep your airways above the water it can be helpful for your buddy to shield you during your pre-dive relaxation stage, and hinder water from entering your snorkel.

Waves can also make it difficult for boats and other divers to find you on the surface. In some areas wind may affect water temperature by moving the warmer surface water toward or away from shore.

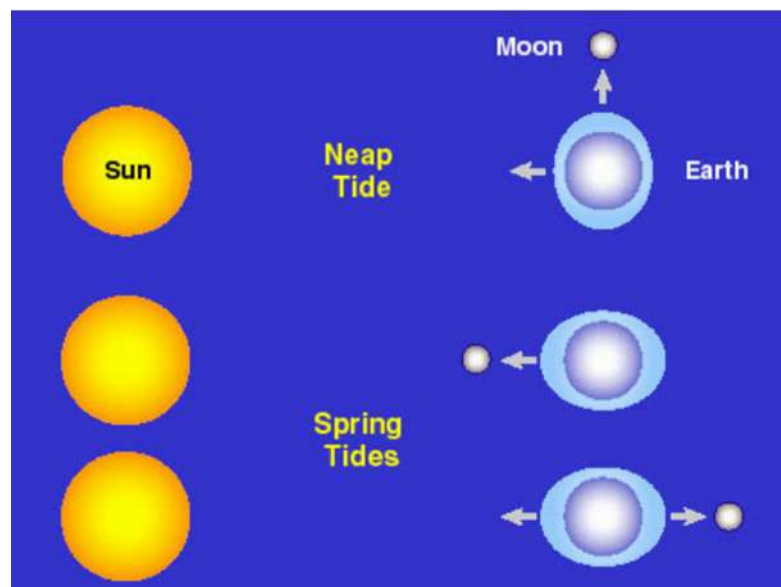
Along with churning up waves, wind draws heat from our bodies. It can also create currents, requiring physical effort to counteract and affecting breath-holds and recovery times.

Waves and wind effect not only the ocean but can also affect large inland bodies of water.

TIDES

Tides are currents caused by the gravitational pull of the moon. As the moon rotates around the earth it pulls the water towards it. High and low tides come at different times each day.

This website is a good source for tide forecasts in your area: <https://www.tide-forecast.com/>



As the tide comes and goes there is always a current that goes with it. Some areas are affected much more than others by current. Often areas with a narrow channel such as estuaries, or gaps between coral reefs, are affected much more than large sections of open water. Using tides to time your entry into and exit from the water can help you save energy getting to and from the dive site.

Slack water is a short period where there is minimal movement of water, i.e. minimal current. It occurs before the direction of the tidal stream reverses. The time of slack water is dependent on the area in which you are diving and does not necessarily occur at high or low tides. In some locations, the ebb can run for several hours after the water level starts to rise. Similarly, the flood may run for several hours after the water starts to fall.



RIP CURRENTS

RAID Tip: Check with nearby dive centres for local knowledge on tides, and entry and exit points for dive sites

At slack water, visibility may be improved due to less water movement. It also makes it easier to stay on course during ascent and descent and, overall, greatly reducing your energy expenditure.

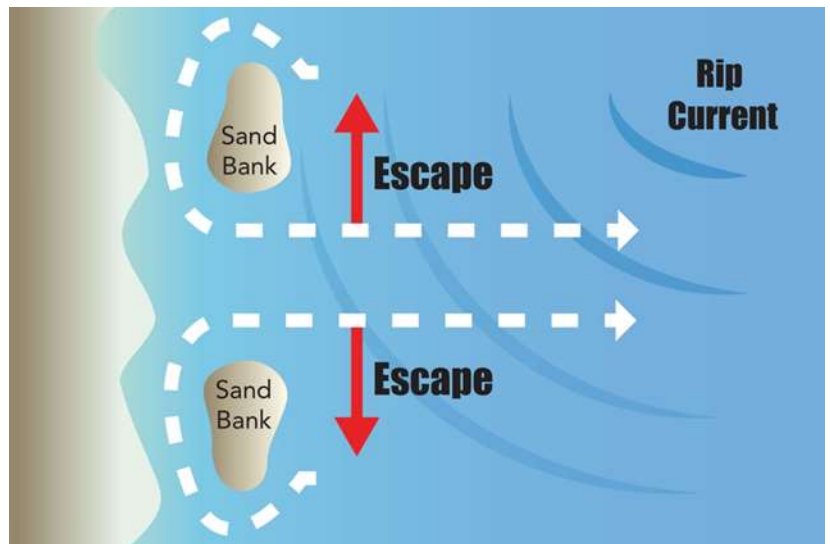
Tides can also cause variations in depth. If you are diving for depth you might want to choose slack water at high tide. If you are diving recreationally then you might want to choose slack water at low tide so you can more easily reach the attractions underwater.

RIP CURRENTS

Rip currents can be particularly dangerous if you don't know what they are, what they look like, and how to deal with being caught in one. They are strong, localized, narrow currents that form near shore where waves break. You can sometimes see them from shore as calmer, flatter areas surrounded by waves. They can be difficult to see unless you know what to look for, check with a more experienced diver if you have concerns and, if possible, avoid rip currents.

Experienced swimmers can use rip currents to their advantage. It is possible to use them to get past wavey conditions, out to the area where you want to dive. Once you are in line with the area you want to dive in, you can swim sideways out of the rip.

If you find yourself caught in a rip current, avoid fighting it. Rip currents will not pull downward, but rather outward away from shore. Fighting one will leave you extremely tired. Instead, when you recognize you've been pulled into a rip current, don't panic. Swim parallel to the shore until you are out of the rip. You will then be able to swim back to the shore.



The standard surface current can often be predictable and normally flows in the same direction every day, regulating climates around the world. They are driven by the wind. Understanding the prevailing winds can help you understand where and when surface currents are likely.

OTHER ENVIRONMENTAL FACTORS TO CONSIDER

Other environmental factors to consider when planning a dive session include:

DEPTHS

Consider how much depth you need for the session and whether that is available. Familiarize yourself with the tides, and their effects on depth and current. Check nautical charts for depths and bottom contours.

BOTTOM STRUCTURE

Depth can vary greatly with a sloping, sandy bottom, coral structures, rock formations and even plant matter. Nautical charts and talking with local divers and boaters will help you learn what to expect in a new location.

AQUATIC LIFE

Some marine life can be hazardous, others can be damaged by contact. Give space to territorial animals and respect that you are in their environment.



RAID NOTE: The golden rule is to not touch any marine life

RESPECTING THE ENVIRONMENT

Try to have as little impact on the environment as possible. If possible, leave the dive site in better condition than when you started.

- Be a role model
- Remove litter, unless there is something living in it
- Never leave anything in the water
- Touching coral can destroy it. In shallow water above coral, avoid treading water vertically. Contact with your fins, or the strong current they create can be very destructive.
- Do not touch any marine life.
- Wear reef safe sunscreen and cosmetics



WATER TEMPERATURE

The colder the water, the thicker the wetsuit you will need. In extremely cold water, be aware of how long you have spent in the water. Hypothermia is a real threat and must be avoided. Keep track of your energy level and plan for the swim back to shore.

It is possible to become hypothermic even in tropical waters; the body loses heat twenty-five times faster in water than it does in air. Progressive hypothermia can occur if you are freediving over a period of days. If you are on a freediving trip and notice that the time spent in the water is decreasing before you feel cold or start shivering, then you are probably experiencing progressive hypothermia. Make sure you fully warm up between sessions.

PLANNING A DIVE SESSION

Drinking hot drinks and eating cooked and hot food will help this, as well as a hot bath and sleeping under sufficient covers. In warmer waters bear in mind dehydration and sun exposure. Use a reef-friendly sunscreen to avoid harming delicate corals and other marine life.

WEATHER CONDITIONS

Air temperature, wind, and sunlight can affect how warm you are in the water. Be aware of the impact of changes in these conditions on your energy levels.

DISTANCE FROM SHORE

As mentioned earlier, distance from shore is an important factor. Make sure you are confident with longer swims and possibly even towing another diver. Head back to the shore before you are too tired.

ENTRIES AND EXIT POINTS

These can be affected by the tide, the waves, and the wind. Just because it was easy to get in the water, does not mean it will be easy to get out. Conditions can change during a diving session. Be sure you are confident with your exit plan.

SALT WATER VS. FRESH WATER

As we mentioned in the safety manual, salinity affects your buoyancy. Adjust your weighting accordingly.

RAID NOTE: Refer back to the *'Correct Weighting'* section of the **Rescue** manual for more information on this.

VISIBILITY

Visibility can change from day to day and even hour to hour. If you have a freediving line, wear a lanyard in low visibility conditions. If you are diving without a line, make sure the diver is always in sight of the buddy and/or attached to a personal float.

PLANNING A DIVE SESSION

Let's look at two different examples of diving conditions and think about how to appropriately plan for each of them. Always know the local emergency number and have quick access to a phone.

EXAMPLE 1

The first example is a tropical climate. The water temperature is 28°C/82°F, and you'll be using a boat to get to and from the dive site.

Though the water is very warm, you will still need protection from the sun and the cold. During passive surface intervals you will lose body heat quickly. A 0.5mm to 3mm full body wetsuit will give you both sun and thermal protection. Consider taking a bottle of water on the buoy with you to prevent dehydration.



PLANNING A DIVE SESSION

Agree on an exit strategy in case of emergency. How long does it take to return to the land, where is the nearest medical facility and what is the local emergency number? If the journey to land and a medical facility takes a while, be mindful of your energy level and dive conservatively. If possible, have oxygen available on the boat.

Talk to the locals and understand the possible currents. These are not always predictable so be sure to reassess conditions once you are on site.

EXAMPLE 2

The second example is a cold water situation. You are diving in an inland quarry. The water temperature is 21°C/70°F on the surface but there is a thermocline (drop in temperature) at 10 meters/ 33 feet.

In an enclosed body of water, you do not need to worry about currents. The water temperature is quite cold, so a 5mm or thicker wetsuit is necessary. Be aware of the exit point, where the oxygen supply (if available) is and who to ask for help in an emergency.

Be aware how much time you spend in the colder water at depth. Consider limiting your warmup dives to depths above the thermocline to avoid becoming too cold before your deeper dives. Monitor your temperature throughout the session and finish the session before you get too cold.



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LICENSE AGREEMENT

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ACKNOWLEDGEMENTS

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