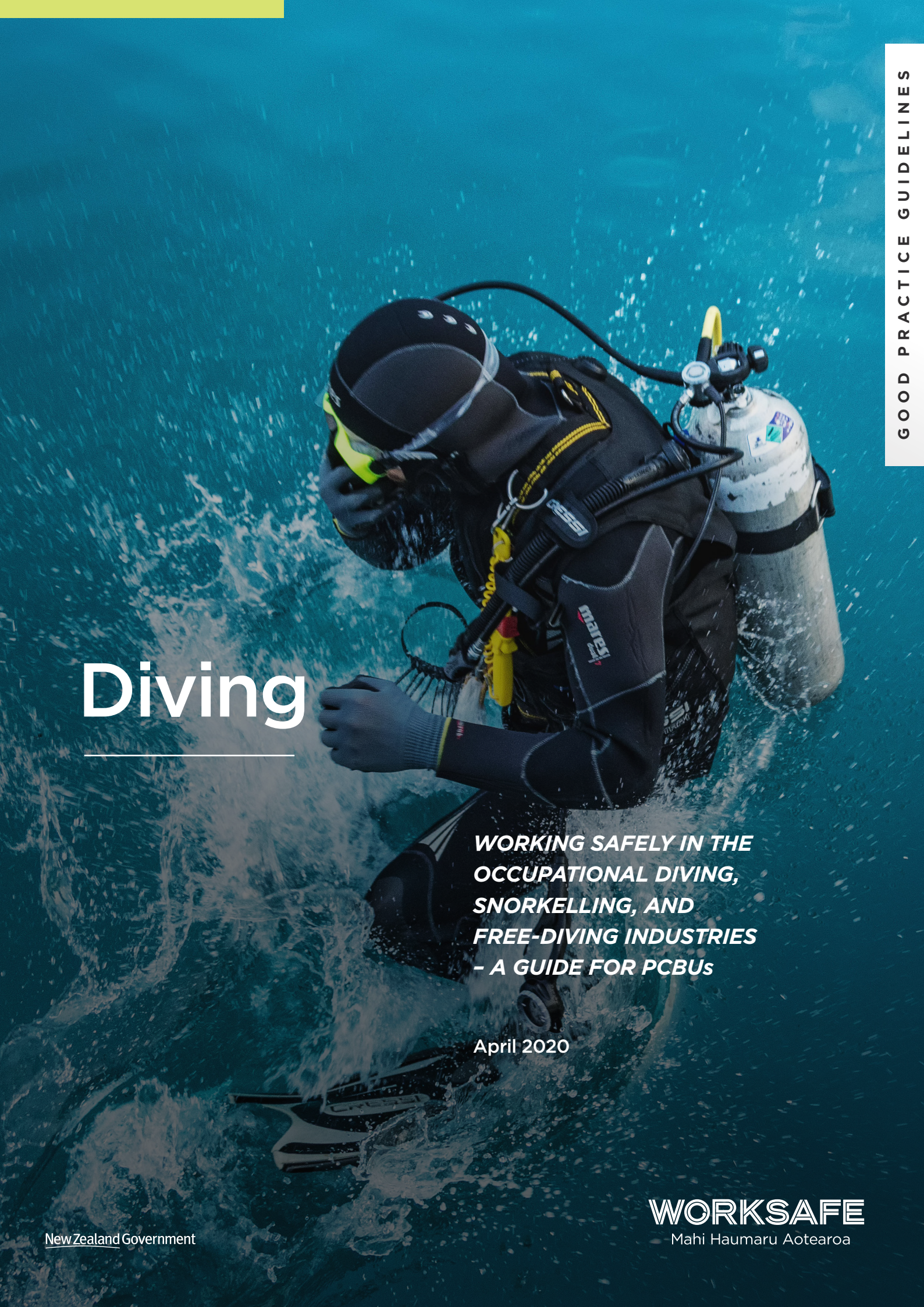
GOOD PRACTICE GUIDELINES



Diving

WORKING SAFELY IN THE OCCUPATIONAL DIVING, SNORKELLING, AND FREE-DIVING INDUSTRIES – A GUIDE FOR PCBUs

April 2020

New Zealand Government

WORKSAFE
Mahi Haumaru Aotearoa

These guidelines offer advice to PCBUs on safe occupational diving activities using compressed gas underwater, and safe occupational snorkelling and free-diving.

ACKNOWLEDGEMENTS

WorkSafe New Zealand would like to acknowledge and thank the stakeholders who have contributed to the development of this guidance.

Working safely in the occupational diving, snorkelling and free-diving industries

KEY POINTS

- Every person working in occupational diving, snorkelling and free-diving has health and safety duties.
- Everyone should clearly understand their roles and responsibilities when carrying out diving work.
- The diving environment can change at any time. Make sure everyone on the dive team, including participants and visitors to the dive site know about the risks, how they can change and what they need to do keep themselves safe.
- Engage everyone in the dive team when planning how to manage risks.

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1.0 Introduction

IN THIS SECTION:

PCBUs must ensure the health and safety of their workers.

This guideline is aimed at persons conducting a business or undertaking (PCBUs) in the occupational diving, snorkelling, and breath hold (free-) diving industries, to inform them of their duties under the Health and Safety at Work Act 2015 (HSWA). PCBUs are required to ensure the health and safety of their workers as far as is reasonably practicable, and to eliminate or minimise risks.

This guideline includes:

- an explanation of how health and safety legislation applies to occupational diving, snorkelling, and free-diving, including certificates of competence
- a PLAN-DO-CHECK-ACT approach to managing the risks associated with working as an occupational diver
- advice on setting up a safety management system which includes policies and processes for dive safety.

1.1 Scope

This guidance is for persons conducting a business or undertaking (PCBUs). This includes divers who work for themselves, or who have other people (including trainee divers) working for them.

When you see 'you' in these guidelines, it refers to PCBUs.

You should share this guidance with your workers to enable them to work safely. Everyone in the dive team has a responsibility to look after their own health and safety, and to make sure that their actions don't put anyone in danger. All persons have a right to be kept healthy and safe by the PCBU.

You should use this information together with any industry guides and standards to help you conduct diving, snorkelling or free-diving operations safely, and to make sure you are doing everything you can, so far as is reasonably practicable, to ensure the health and safety of your workers.

1.2 Definitions

For the purposes of this guideline:

Diving is defined as an activity taking place underwater where the diver is exposed to pressures greater than atmospheric pressure, and is using compressed gas techniques (for example,via SCUBA/CCBA or SSBA).

Occupational diving covers all diving carried out at a place of work.

Snorkelling involves swimming on the surface of water using a snorkel, mask and swimming aids such as fins. The difference between snorkelling and diving is that snorkellers don't use underwater breathing apparatus. Occupational snorkelling can also include breath hold diving (free-diving) work.

Free-diving involves a diver holding their breath until they return to the surface, instead of using snorkelling or diving equipment. Free-diving includes both breath-hold diving and apnea activities where the diver doesn't use a breathing device.

Diver is defined as any person undertaking activities using snorkelling, breath hold or compressed gas techniques.

2.0
HSWA duties

IN THIS SECTION:

2.1 Who has health and safety duties?

HSWA is New Zealand's key work health and safety legislation. Under HSWA, everyone at a workplace has health and safety duties. There are four groups of duty holders; PCBUs, officers, workers and other persons at workplaces.

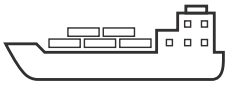
For more information on duty holders and their duties, see our special guide: Introduction to the Health and Safety at Work Act 2015

All work and workplaces are covered by HSWA unless specifically excluded. The definition of workplace includes vessels, water, the sea bed, or anything floating above it. This means PCBUs involved in occupational diving, snorkelling and free-diving are responsible for the health and safety of workers and other people.

Wartime or gazetted military operations are excluded from HSWA. The New Zealand Defence Forces are also required to comply with the Defence Act (1990) and the New Zealand Book of Reference (NZBR) 45 – NZDF Diving Instructions.

Diving, snorkelling and free-diving work can involve working off a New Zealand registered or foreign vessel. Maritime New Zealand administers HSWA for work on board vessels, and where vessels are places of work. If your work involves diving activities from a vessel you will also need to ensure that this vessel complies with the Maritime Transport Act 1994 and all relevant Maritime Rules. For more information visit the Maritime New Zealand website: www.maritimenz.govt.nz

You have responsibilities under HSWA if:



You own, operate, or work on a New Zealand registered vessel. This applies even if you are working in foreign waters.

You work on a foreign flagged vessel in New Zealand waters.

FIGURE 1: Application of HSWA to vessels

2.2 Managing risks under HSWA

Risks to health and safety arise from people being exposed to hazards (anything that can cause harm).

A PCBU is expected to manage work risks effectively. You must understand how to manage any changes to work processes or organisational changes that may increase risks, and make sure any new risks are managed. You must engage with your workers and their representatives when identifying risks and making decisions on how to manage them.

Under HSWA, risks must be eliminated so far as is reasonably practicable. If a risk can't be eliminated, it must be minimised so far as is reasonably practicable.

'Reasonably practicable' means doing what is reasonably able to be done to ensure health and safety, having taken into account and weighed up all relevant matters, including:

- how likely the hazards or risks are to occur
- how severe the harm that might result from the hazard or risk could be
- what a reasonable person knows or ought reasonably to know about the risk and the ways of eliminating or minimising it
- what measures exist to eliminate or minimise the risk (control measures)
- how available and suitable are the control measures(s).

Lastly, what is the cost of eliminating or minimising the risk and is it grossly disproportionate to the risk. Cost can only be used as a reason not to do something when it is grossly disproportionate to the risk.

For further information, read WorkSafe's fact sheet *Reasonably practicable*.

2.3 What is a PCBU?

A PCBU is a 'person conducting a business or an undertaking'. It's a broad concept used throughout HSWA to describe all types of working arrangements.

- Businesses are usually conducted to make a profit – for example, a company or self-employed person.
- Undertakings are usually not profit-making or commercial – for example, a community centre or charity hospice.

The PCBU normally hires or contracts divers to undertake a range of work.

A PCBU's duty is to ensure, so far as is reasonably practicable, the health and safety of workers while at work, and that no other people are put at risk by the PCBU's work. This is called the 'primary duty of care'. An effective health and safety management system (HSMS) can help you to make sure that everyone comes home from work healthy and safe.

PCBUs also have a duty to provide information, supervision, training and instruction to workers. This is so that workers understand the risks they are being exposed to, and how those risks are to be managed.

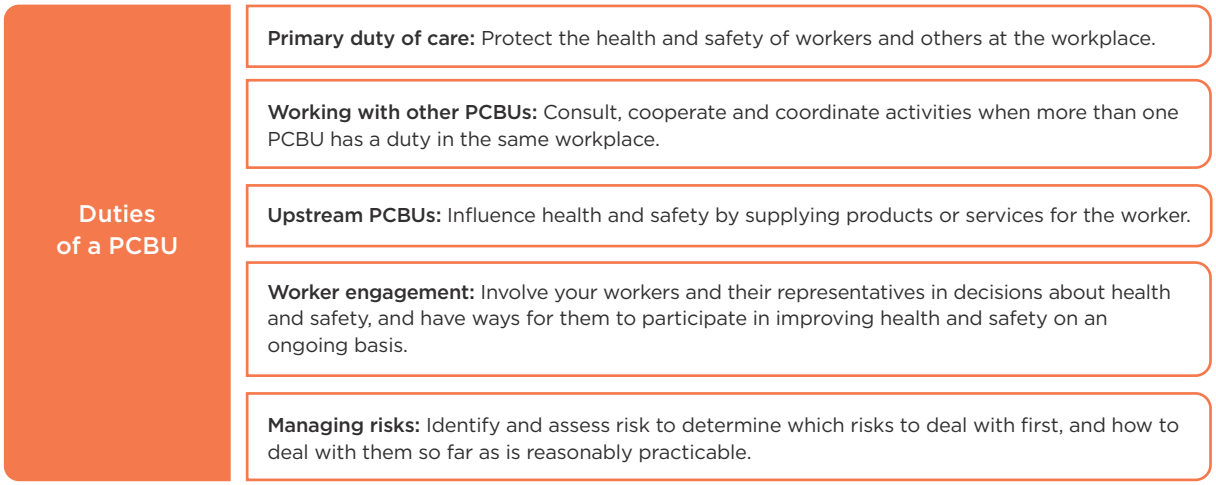


FIGURE 2: Duties of a PCBU

2.4 Working with other PCBUs

More than one PCBU can have a duty in relation to the same matter (overlapping duties). This might happen when different PCBUs work:

- on the same site (for example, a marine farm may hire workers from a construction diving company to work on their site)
- in a contracting chain (for example, a helicopter underwater escape training (HUET) training company that contracts divers from a local dive school and hires space in a commercial swimming pool).

PCBUs with overlapping duties must, so far as is reasonably practicable, consult, cooperate and coordinate activities with other PCBUs so that they can all meet their joint responsibilities. PCBUs do not need to duplicate each other's efforts.

For example, you may work with other PCBUs to:

- coordinate emergency procedures
- share first aid facilities
- provide safety information to participants
- talk to workers to get their input on health and safety matters
- identify health and safety risks
- agree on how you will manage these risks.

No one can contract out of their duties under HSWA, but can enter reasonable agreements with other PCBUs to meet duties. However, all PCBUs retain the responsibility to meet their duties. The PCBUs should also monitor each other to ensure everyone is doing what they agreed.

The extent of the duty to manage risk depends on the ability of each PCBU to influence and control the matter.

2.5 Upstream PCBUs

There are further duties for PCBUs (called upstream PCBUs) who:

- design plant, substances or structures
- manufacture plant, substances or structures
- import plant, substances or structures
- supply plant, substances or structures
- install, construct or commission plant or structures.

Upstream PCBUs influence and sometimes eliminate health and safety risks through, for example, designing or manufacturing products that are safe for the end user. Upstream PCBUs must consider potential health and safety risks of their products that could reasonably be expected to be used at a workplace.

Upstream PCBUs have duties under HSWA around testing, analysis, and information provision. For example, an upstream PCBU must provide information on how to use the structure, substance, or plant in a way that is safe and healthy to each person they provide it to. Upstream PCBUs have a duty to ensure their products they design, manufacture, import, install, build or commission are without risk to health and safety before they are used in a workplace.

2.6 Officers

An officer is a person with a specific role in an organisation (such as a company director) or a person with the ability to exercise significant influence over the management of the business or undertaking. Organisations can have more than one officer.

Officers have a duty to exercise due diligence to ensure the PCBU complies with their duties under HSWA. As part of this duty, officers must ensure the PCBU has appropriate systems in place to meet their health and safety duties, including proper delegation of officer responsibilities to appropriate and competent persons.

Officers could include:

- board members, directors, trustees and senior managers
- governance groups reviewing incidents, signing off initiatives, or otherwise leading the work (for example, a science diving 'Dive Control Board')

A person who only advises or makes recommendations to an organisation's officer is not an officer.

2.7 Workers

A worker is an individual who carries out work in any capacity for a PCBU, and includes employees, contractors, sub-contractors, apprentices and trainees, and volunteer workers.

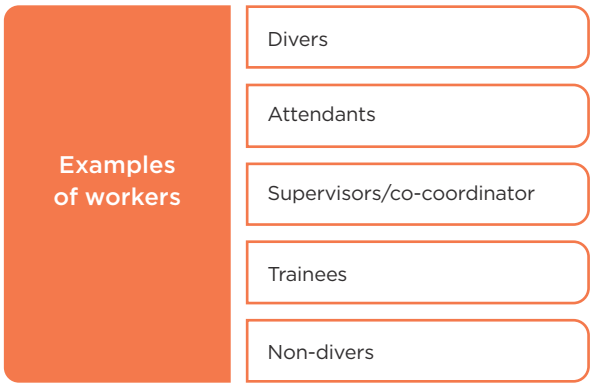


FIGURE 3: Workers in occupational diving, snorkelling and free-diving

Workers' responsibilities include:

- taking reasonable care of their own health and safety
- taking reasonable care what they do (or fail to do) does not cause harm to any other person
- cooperating with any reasonable health and safety policy or procedure of the PCBU
- complying, so far as reasonably able, with any reasonable instruction given by the PCBU, so the PCBU can comply with the law
- and, in relation to personal protective equipment (PPE):
  - using or wearing PPE in accordance with any information, training or reasonable instruction given by the PCBU
  - not intentionally misusing or damaging the PPE
  - telling the PCBU when they become aware the PPE is damaged or defective, or when it needs to be cleaned or decontaminated.

Workers are entitled to work in environments where the risks to their health and safety are properly controlled, and where they have access to adequate facilities, such as toilets, washing facilities and first aid. PCBUs must provide sufficient training, information and support to workers, as well as the personal protective equipment (PPE) they need to do their job safely.

Your workers also have a right to stop the dive, or refuse to carry out the dive if they believe that carrying out the dive would expose them, or anyone else to a serious health and safety risk. For example, if a diver feels unwell, fatigued, or feels that the environmental conditions are unsafe due to rough seas, unusual tides or currents or other adverse conditions, they can refuse to dive.

If your diver has stopped work, they need to let you know as soon as possible.

If a dive is called off, don't resume the activity until you and the diver are satisfied that risks to health and safety have been managed effectively.

Workers are responsible for reporting issues when they see them. Always ask your workers for input when identifying health and safety risks, and when choosing solutions. People are more likely to take responsibility and make good choices if they've been involved in the conversation.

2.8 Other persons

Other people at a workplace must take reasonable care of their own health and safety and ensure that they do not compromise others' health and safety.

Other people at a workplace potentially at risk from work activities include volunteers, customers, passers-by, visitors, other PCBUs, or workers of another PCBU.

Volunteer workers

A volunteer worker is a volunteer who carries out integral work for the PCBU:

- with the PCBU's knowledge or consent
- on an ongoing and regular basis.

This does not include a volunteer who is:

- participating in a fund-raising activity
- assisting with sports or recreation for an educational institute, sports club or recreation club
- assisting with activities for an education institute outside the educational institution.

Volunteer workers have the same duties as other workers and must:

- take reasonable care for their own health and safety at work
- ensure they don't adversely affect the health and safety of others
- wear the PPE provided to them
- comply with any reasonable instructions
- cooperate with any reasonable health and safety policies and procedures.

Young persons

Under HSWA there are specific restrictions around work and young people under the age of 15. Workers under 15 years old cannot be in areas that involve construction or hazardous substances. They cannot work with machinery, drive a vehicle, fill dive cylinders, or ride on a vehicle with something attached (for example, a trailer).

Young workers also have responsibilities, to:

- take reasonable care for their own health and safety at work
- ensure they don't adversely affect the health and safety of others
- wear the PPE provided to them
- comply with any reasonable instructions
- cooperate with any reasonable health and safety policies and procedures.

Though a Young Person may be qualified to act as a diver or a snorkeller, an occupational diving medical requires the subject to be at least 18 years of age. Any PCBU employing occupational snorkellers should be mindful of these medical requirements and ensure that suitable precautions are taken to ensure occupational snorkellers under the age of 18 have suitable psychological and physical maturity to undertake their tasks.

At no time should someone under the age of 18 be left as a supervisor, lookout, or rescue diver during Occupational Diving, Snorkelling or Free-diving operations.

2.9 Worker engagement, participation, and representation

Everyone at a workplace can help to make it a healthy and safe place to work. All PCBUs must involve their workers and health and safety representatives in workplace health and safety matters by:

- engaging with workers on health and safety matters that may directly affect them
- having worker participation practices that give workers reasonable opportunities to participate effectively in improving health and safety on an ongoing basis.

Having worker representatives is one way for workers to participate. Well established ways to do this include having Health and Safety Representatives (HSRs), Health and Safety Committees (HSCs) and unions. Other representatives can include community or church leaders. HSRs should be elected by the workers and workers should be involved in deciding how worker engagement and representation should be organised.

Engage with your workers and their representatives to:

- finding out how health and safety issues affect how they organise, manage, and carry out their work
- sharing information and taking worker views into account
- involving them in the decision-making process when you are identifying, assessing, and deciding how to deal with work risks
- encouraging them to share ideas about what should be included or updated in health and safety documents
- including people with a range of technical, clinical, and operational knowledge and experience.

For more information on worker engagement, participation and representation see:

- WorkSafe's good practice guidelines *Worker Engagement, Participation and Representation*
- WorkSafe's interpretive guidelines *Worker Representation through Health and Safety Representatives and Health and Safety Committees*.

2.10 Other regulations

The Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 (GRWM regulations) sit under HSWA and outline the health and safety requirements for workplaces that all PCBUs must meet, including providing adequate facilities, personal protective equipment (PPE) and first aid.

For more information on the GRWM Regulations, see our interpretative guidelines on our website: worksafe.govt.nz

If you are providing diving, snorkelling, or breath hold diving services (such as dive guiding, teaching or underwater tourist activities) to divers or snorkellers for a recreational or educational purpose, you may be subject to the Health and Safety at Work (Adventure Activities) Regulations 2016. This means you'll need to pass a safety audit and be registered with WorkSafe.

Safety audits only apply to adventure activity operators, but councils or school boards may have their own audit system. We recommend you contact them for advice.

For more information on whether these Regulations apply to you, see the adventure activities page on our website: worksafe.govt.nz

The Health and Safety in Employment Regulations 1995 (HSE Regulations) set out the requirements for divers using compressed gas techniques to gain the certificate that allows them to work. All such divers must:

- have a thorough knowledge of the practices of diving, and know how to conduct a dive safely.
- have received training, and have experience in the type of dive they are conducting.
- be medically fit for diving.

You have a duty to make sure that workers undertaking occupational diving only carry out the type of dive they're certified to do (see Section 2.11 for more information).

All gases under pressure must comply with the relevant sections of the Health and Safety at Work (Hazardous Substances) Regulations 2017. The Regulations cover a range of matters relating to gases under pressure, including controls on gas cylinders.

For more information on managing hazardous substances safely, see our website: worksafe.govt.nz

Offshore diving work in the oil and gas sector (including closed bell and saturation diving) must comply with the Health and Safety at Work (Petroleum Exploration and Extraction) Regulations 2016.

For further guidance and information on these Regulations, see our website: worksafe.govt.nz

Hyperbaric chambers are pressure equipment, and as such must comply with the Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations 1999 (PECPR).

For more information on PECPR, see our website: worksafe.govt.nz

2.11 Certificates of competence

The Health and Safety in Employment Regulations 1995 (HSE Regulations) require that occupational divers using compressed gas have a Certificate of Competence (CoC) for the type of diving work they are doing. CoCs are issued by WorkSafe.

FIGURE 4: Requirements for a certificate of competence in occupational diving

To apply for a CoC, divers must hold a current certificate of medical fitness and demonstrate competence in the type of diving they'll be doing.

Divers with certain medical conditions such as asthma, heart disease, diabetes, high blood pressure and cholesterol, or who have a family history of heart attack or stroke may not be able to work as a diver, or may be issued with a conditional medical certificate, which may limit the type of diving work they can do.

Divers must obtain a CoC in the category of diving they intend to do. More complex diving work carries a higher level of potential risk. The most hazardous diving work has a greater likelihood of catastrophic injury or death if there are no controls or the controls fail. This category includes offshore divers undertaking closed bell or saturation diving in open ocean environments.

Aside from holding a current CoC, divers using compressed gas must also hold a current certificate of medical fitness.

Trainee divers

Trainee divers working towards a CoC can carry out diving work if they are supervised by a supervising diver. The supervising diver must hold a CoC in the same category of diving that the worker is training in, and should be within visual contact of the diver they are supervising at all times so they can help in an emergency.

Trainee divers should not carry out any diving work using SSBA or surface powered tools.

3.0 Risk management

IN THIS SECTION:

Strong risk management means constant monitoring for new or different risks.

You have a duty to manage all health and safety risks with occupational diving. This means you must manage the risk involved in every dive. Identify all risks before starting any diving work and put control measures in place. Involve workers in this process. Make sure workers understand the risks and how the control measures should be used.

We encourage you to use the PLAN-DO-CHECK-ACT approach described in Figure 5 when managing risks arising from any diving activity. The information in this chapter provides a general overview of this risk management approach.

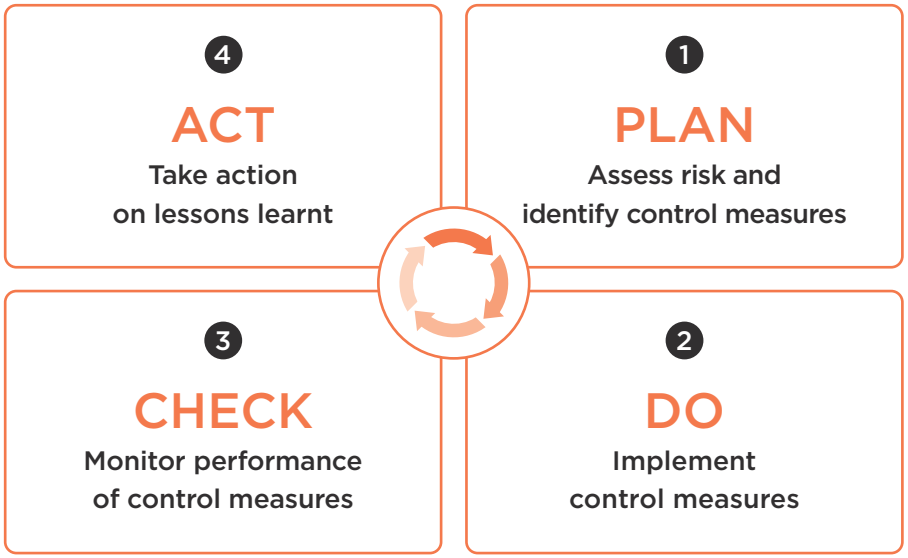


FIGURE 5:
The PLAN-DO-CHECK-ACT approach

3.1 Plan: Identifying and assessing risks

Planning involves:

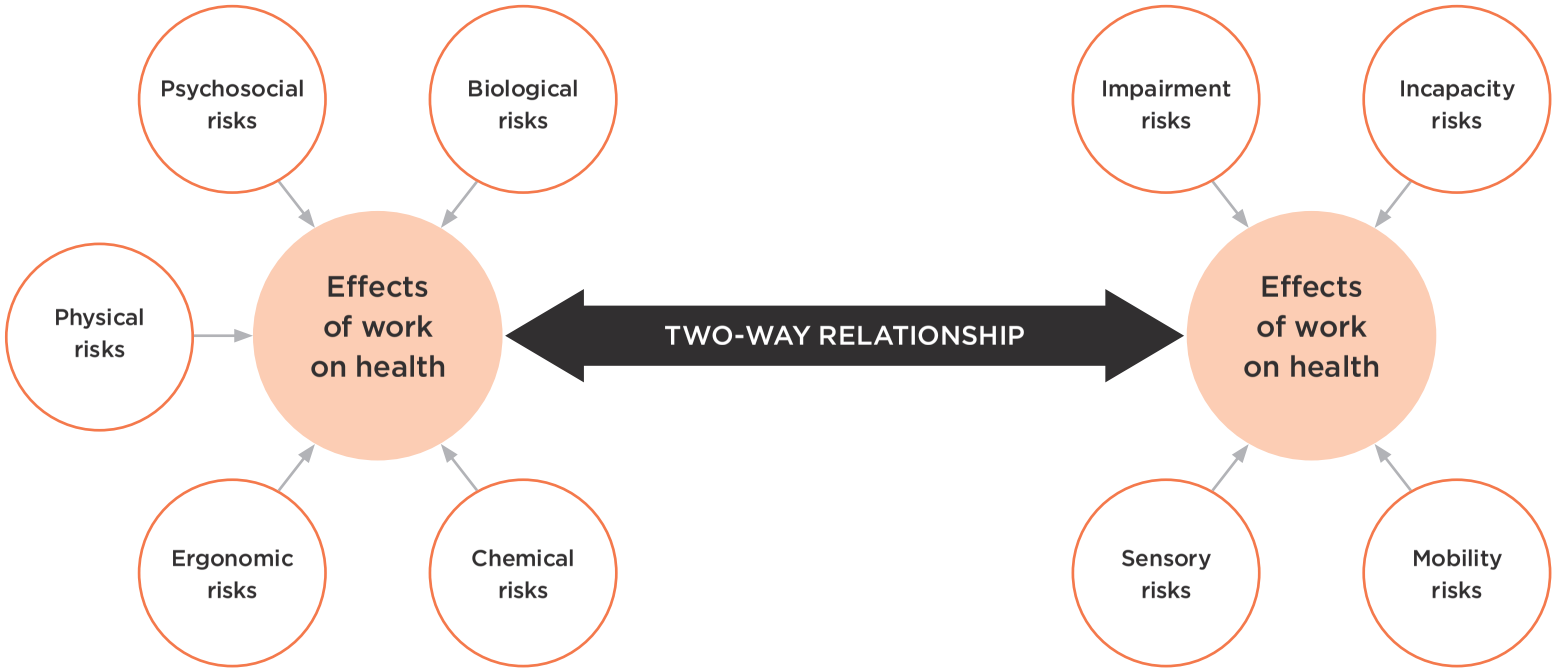
- thinking about the risks and how they will be managed before the work starts
- making sure workers and visitors to the site are well informed about the risks and how to manage them
- consulting with workers about changes that could affect health and safety.

Before any diving work takes place, assess the dive site to identify any hazards that could give rise to work-related and health-related risks. This includes assessing both the natural environmental conditions, and any human-made risk factors. Even if you use the dive site regularly, assess the site before every diving, snorkelling or free-diving operation. Identify hazards which could injure or harm anyone during any stage of the dive.

Workers are an important part of the dive team. Everyone has a responsibility towards health and safety. Engage workers, HSRs (if you have them), and other PCBUs you may share the site with to work on identifying hazards. You should also engage with other PCBUs or divers who may be familiar with the site. They may identify hazards that are not immediately obvious.

Work-related health risks and health-related safety risks

Work can affect health, just as health can affect a worker's ability to work safely. You should consider both of these when managing risks.



EFFECTS OF WORK ON HEALTH					EFFECTS OF HEALTH ON WORK			
Physical risks	**Chemical risks**	**Biological risks**	**Ergonomic risks**	**psychosocial risks are now risks to mental health**	**Sensory risks**	**Impairment risks**	**Mobility risks**	**Incapacity risks**
Exposure to harmful noise levels from working with noisy tools or equipment can lead to noise induced hearing loss (NIHL).	Exposure to hazardous substances can lead to long term health effect such as cancer.	Exposure to bacteria if working in contaminated environments may lead to sudden and severe illness.	Repeated lifting and carrying of heavy items may lead to low back pain.	For example, bullying at work may lead to work-related stress.	Changes in a worker's eyesight may prevent them from reading signals underwater correctly.	For example, fatigue may lead to reduced concentration.	Lack of physical fitness may prevent a diver from carrying out certain tasks.	For example, an unknown or poorly controlled heart condition may lead to a diver suddenly losing consciousness at any stage of the dive.

FIGURE 6: Work-related health model

Identify the hazards

When identifying hazards take into account:

- natural environmental hazards (for example, weather, water conditions)
- workplace environmental hazards (for example, moving vessels)
- biological hazards (for example, contaminated water, bacteria)
- chemical hazards (for example, hazardous substances)
- mental health hazards (for example, bullying, fatigue, stress factors).

Walk around the dive site. What are the work-related and health-related hazards? Think broadly, as health hazards can be invisible. Often, they take years to impact on a diver's health.

- Look at work processes, equipment used, and workers' activities.
- Ask your workers about the hazards they notice.
- Identify the workers that may be more at-risk.
- Seek help from a health and safety professional.
- Review incidents, accidents and near misses at your dive site, or other sites.

Assess the risk

Once you've identified the hazards, you need to decide which work risks need to be dealt with first and choose effective control measures to manage them. Think about:

- who might be exposed to the hazard
- the potential consequences of harm (for example, what severity of injuries or ill-health could result)
- how likely the consequences are.

Use this information to plan which risks you will manage first. You should manage the risks which are most likely to cause chronic effects to workers' health, serious injury or death first, or those with a high likelihood of occurring first. Take the views of your workers and their representatives into account when deciding how to assess and manage risks.

Human factors

Understanding 'human factors' can improve both performance and safety. Most accidents and adverse events in diving are not caused by technical failures, but more likely a breakdown in communication, poor decision-making or a lack of situational awareness. Understanding these factors is crucial in risk management.

It is often thought that a newly qualified diver may be the most at risk when starting work. However, though their experience is low, their awareness of recent training may make them highly observant of the situation around them.

More experienced divers may run through pre-dive checks quickly, without checking each requirement.

On the other hand, an experienced Police or Rescue Diver can often assess an accident scene better than a new member of the team, and is more able to determine when conditions may not be conducive to a recovery attempt. Pressure from family or cultural sensitivities around the location or those involved could push a new team member to undertake the recovery even though they know conditions are questionable.

Understanding and acknowledging the significance of human factors is a part of risk management. Specific training in human factors can help you and your workers understand them, and create system and processes to reducing poor decision making in any occupational diving or snorkelling activity.

3.2 Do: Putting control measures in place

After you have assessed the risks, you need to put the most effective control measures in place. The hierarchy of controls ranks control measures from most to least effective. You must give your workers opportunities to engage with you before you make decisions about the ways you will eliminate or minimise the risks.

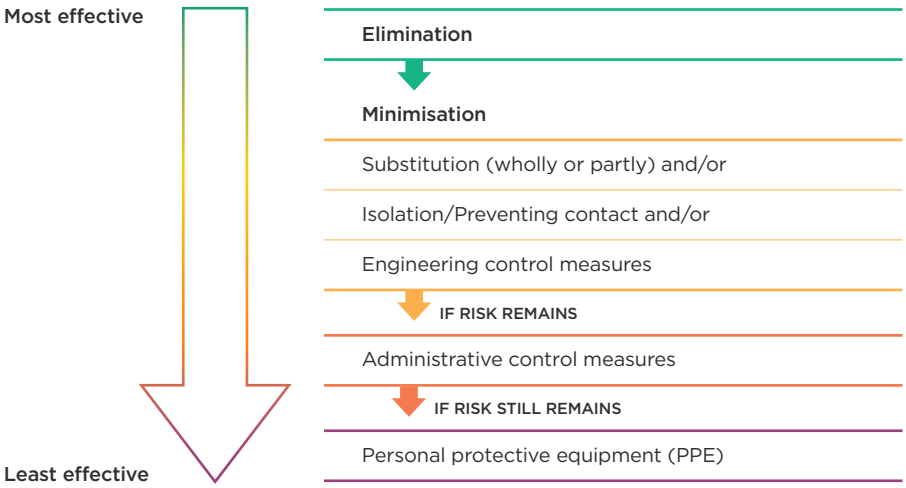


FIGURE 7: Hierarchy of controls

Elimination

The first step in the hierarchy of controls is to eliminate the risk so far as is reasonably practicable. In some instances, you can do this by making simple changes, such as waiting for environmental conditions to change before a dive is carried out, or doing the work remotely with a remotely operated underwater vehicle (ROV). This is the preferred option, but where this is not reasonably practicable, lower hierarchy controls should be used.

Minimisation

If elimination is not reasonably practicable, choose one or more minimisation controls that are the most appropriate and effective way to control the risk:

	ACTION	EXAMPLE OF CONTROL MEASURE
Minimising	**Substitution**	– Choose a lower risk dive, like SSBA instead of SCUBA.
	Isolating (preventing contact or exposure to the risk)	– Isolate the diver by having them work in a cage if they are at risk of attack by marine animals. – Isolate the site by using signals, ropes or floats from nearby vessels. Wait for slack tide so the dive is carried out in calm waters.
	Engineering control measures	– Install guards on the vessel's propeller if the diver is working from a moving vessel. – Use a frame to attach equipment to lift the diver out from a confined space, such as a storage tank.
	Administrative control measures (safe methods of work, processes of procedures)	– Make sure your divers have the proper training and qualifications for the type of diving, snorkelling or free-diving activity. – Change work schedules so that divers can perform their tasks without fatigue or overstressing. – Develop a policy for alcohol and drug use
	Using personal protective equipment (PPE)	– Provide the correct equipment for the environmental conditions (for example, wetsuits, hot water suits, dry suits or gloves). – Provide training on PPE use and ensure that it fits properly.

TABLE 1: Examples of minimisation control measures (if elimination is not possible)

There may be other control measures that are not identified in these tables. You still need to identify and assess health and safety risks arising from your own work.

Industry Standards and those published by Standards New Zealand offer some ideas of what good practice may look like. They do not necessarily cover all requirements and are should always be considered along with other control measures.

Controls for hazardous substances

Hazardous substances have specific controls you need to apply to manage the risk they pose depending on its classification. The controls vary depending on the risk of the hazardous substance, its hazardous properties, how much of it there is and how it is used. The simplest way to find out the key controls that apply to your substance is to enter its name into the Hazardous Substances Calculator

Personal protective equipment (PPE)

PPE is essential for dive safety – diving, snorkelling and free-diving equipment is PPE by definition. As well as higher hierarchy controls, the use of PPE must be considered when setting up control measures.

PPE includes:

- equipment worn by divers
- safety gear used by non-diving members of the dive team such as high-vis vests, hearing protection, safety glasses.

Choose PPE carefully to make sure it is suitable for the:

- dive site conditions
- water temperature
- type of dive being carried out
- duration of the dive.

The design and use of PPE should meet the needs of each diver, taking it into account how comfortable and practical it is to use, and how compatible it is with other equipment your divers may be required to use. Divers may need specific training to use some PPE such as closed circuit breathing apparatus (CCBA) or SSBA helmets.

PPE can create a secondary hazard if it is not appropriate for the job. For example, divers may get too cold if their wetsuit is lightweight and doesn't offer suitable thermal protection, or divers may be exposed to bacteria or chemicals if their dry suit isn't made out of the right material.

Who can provide PPE?

PPE can be provided by:

- you
- another PCBU (costs could be shared)
- the worker (if they voluntarily choose to provide their own PPE).

If workers provide their own equipment, always check that it's fit for the type of diving work and the conditions.

Make sure workers know how to wear, use and care for their PPE correctly before they begin the dive. See Section 4.4 of these guidelines for more information on how to clean, maintain and store PPE correctly.

3.3 Check: Monitoring performance of control measures

Monitoring involves setting up a system to review how well your control measures and processes are working, and whether changes are needed to improve diver and participant safety.

Review your control measures regularly and whenever:

- there's a significant change to the environmental conditions at the dive site
- there is an incident or near miss
- workers, HSRs or other PCBUs request a review
- a new hazard or risk is identified.

Make sure you have processes to check for worker exposure to substances hazardous to health, processes to monitor worker's health, and checks to make sure you are acting when monitoring shows health risks are not being managed.

Consult a range of workers when reviewing your controls, particularly those who have used the control measures. Set up a system for workers to actively make suggestions, ask questions, or raise health and safety concerns. Schedule regular checks to make sure all processes and systems of work are being followed correctly, and are still fit for purpose.

3.4 Act: Take action on lessons learnt

Where monitoring indicates your control measures aren't working as effectively as they should be, take action to improve them. This includes:

- implementing the result of any exposure and health monitoring
- reviewing all diving, snorkelling or free-diving related health and safety incidents
- talking to workers to identify the situations or behaviours that may affect your controls
- using the results of your reviews and investigations into incidents to improve control measures
- seeking expert advice from a health and safety professional.

For more information on risk management, see our guidance:

Identifying, assessing and managing work risks

How to manage work risks

Reasonably practicable

Personal protective equipment – a guide for businesses

Health risks guidance for business leaders

4.0 Safety management systems

IN THIS SECTION:

Health and safety should be a fully integrated part of your business management systems.

A safety management plan can help eliminate (remove) or minimise (reduce) any health and safety risks. It should be integrated into all aspects of your business. The first step in setting up a safety management system (SMS) involves developing some high level policies for:

- providing the right facilities
- making sure the dive site is safe for use
- rules and procedures for specific tasks
- drug and alcohol use
- selecting and checking PPE
- selecting, training, inducting and assessing workers and volunteers
- screening and assessing participants
- preparing a dive plan
- emergency plan and procedures
- systems for monitoring worker health.

Engage with workers when developing the SMS. Your SMS should be flexible so that changes in processes, site conditions, equipment and new training can be factored in. Allocate responsibilities within your SMS to workers who have the knowledge, skills and level of authority to help make it effective. Once you have policies in place and roles and responsibilities distributed, you can establish standard operating procedures and processes to follow in daily work.

Every SMS needs regular reviews. The review process should take into account:

- advances in technology
- incident reports
- any new hazards or risks identified
- new industry guidelines
- effectiveness of control measures
- exposure monitoring results
- worker health monitoring results.

4.1 Staffing

Hiring

When hiring new workers, check that they have the appropriate competence, training, and certification for the work they will be doing. All new workers should be given an induction into the business processes, including safety practice and equipment use. Keep induction and training records, and review them regularly to help you identify opportunities for ongoing training.

When hiring divers, make sure they have suitable knowledge of the dive practices you are planning to undertake and COCs appropriate to working in the situations they may have to deal with.

Snorkellers and free-divers don't need to have a COC to carry out occupational snorkelling and/or free-diving, but, they still need to have the right skills. When hiring snorkellers or free-divers check that they have the right skills and experience for the job.

Fitness for work

The physical demands on a diver can change throughout the day depending on the weather, environmental conditions and the type of work. Divers should have the strength, physical fitness, and mental health to complete each task.

Divers using compressed gas need a certificate of medical fitness so you should be aware of any pre-existing conditions that may affect their ability to do the work safely.

If you provide dive training services or run a dive training school, make sure you let those intending to pursue a career in occupational diving know about the requirements to get a diving medical clearance before they start their training.

Snorkellers and free-divers also need to be physically and mentally fit. If workers are feeling stressed or fatigued, or if their health changes, check that they are still fit enough to snorkel or free-dive safely without putting others at risk.

Even if your divers have been medically cleared to dive, you must make sure they are fit for diving on a day-to-day basis. Dive fitness can be affected by external factors such as:

- fatigue and stress
- dehydration
- drug and alcohol use
- use of prescription and non- prescription medication
- psychological and emotional issues.

If any of these factors will impact your diver's ability to work safely, you must eliminate or minimise the risk, so far as is reasonably practicable. Pregnant workers should not dive.

Example

You have a duty to eliminate or minimise factors causing worker fatigue. Develop a policy for dealing with fatigue. A fatigue policy should cover:

- recovery times between dives and regular rest days (for example, schedule shifts so divers rest for 12 continuous hours in a 24 hour period, and keep diving work to a maximum of 8 hours).
- procedures for reporting fatigue
- procedures for managing fatigued divers, such as rotating tasks
- systems for workers to resume their dive-related tasks
- Include details of this policy in your workers induction.

Workers should:

- let you know if their certificate of medical fitness has been suspended due to a change in their health, and when the certificate will be reinstated. Divers will need to get an updated medical clearance before they can resume any occupational diving work
- seek medical advice if they suffer an accident, illness or any traumatic event, or if they are unsure of their fitness to dive
- recognise any symptoms of factors that can compromise their ability to dive safely, and report these to their HSR or management
- stay hydrated.

Divers are responsible for keeping themselves fit. Dive fitness can be maintained through exercise, regular dives and maintaining personal health. Different types of diving require varying levels of fitness. However, as a minimum, divers should be able to comfortably:

- swim 200m non-stop on the surface using any stroke or using mask, snorkel and fins
- float on the surface for 10 minutes, either in a wetsuit or drysuit
- walk 30m in a wetsuit or drysuit carrying standard gear.

Training

You have a primary duty to provide information, supervision, training and instruction to your workers. This is so that workers understand the risks they are being exposed to, and how those risks are to be managed. You must give workers information so they can properly engage on health and safety matters, and engage with them when making decisions about providing information and training.

The training and information workers receive should be appropriate to the type of diving and environment they work in. For example, divers working for the NZ Police must have completed training to at least AS2815.1, or equivalent, and hold all relevant qualifications required by the Police. Divers holding recreational rescue diving qualifications cannot undertake Police diving work.

Support workers whose native language is not English and workers with learning disabilities by providing additional resources which translate key messages in their native language, or use visual aids such as photographs, diagrams or signs.

FIGURE 8:
Diver competencies

One way of demonstrating competence is through nationally recognised qualifications, or components of them. NZQA's New Zealand and National Certificates and Diplomas recognise skills that meet nationally endorsed unit and achievement standards.

For more information on diver training and qualifications needed to get a CoC, see our website: worksafe.govt.nz

Depending on the sector of diving you are working in, you may need to be accredited to one of the following levels:

- AS2815 series, or equivalent (for example, by ADAS, HSE, IMCA, etc)
- Recreational Scuba Training Council (RSTC), (for example, PADI, SDI, SSI, etc)
- American Academy of Underwater Science (AAUS) or equivalent.

Training is needed:

- at the start of employment (even if they've done similar work elsewhere they still need a site-specific induction)
- when new equipment is introduced
- when the work is more specialised or work practices change
- periodically throughout employment. Even the most experienced workers need their knowledge and skills refreshed.
- when a new risk is identified
- after an incident or near miss.

Training is only effective if it is understood by your workers. When workers have completed their training, get them to explain and demonstrate their understanding before assigning them a role on the dive team.

TRAINING REGISTER

A training register records the training that your workers have had. A register is a good way to keep track of what training your divers have received, who provided the training, when refresher training is needed, and who has specific skills.

The training register should record the worker's name, the equipment or task they have been trained on, the training date, the provider, and the person's signature to confirm that they had the training. If certificates have an expiry date, record it in the register so you can check to see if people are up-to-date. See Appendix 2 for an example training register.

Drug and alcohol policy

Alcohol and drugs affects a person's ability to work (or participate) safely. Workers may be less mentally and physically alert if they have been drinking alcohol or taking drugs. This includes both prescription and non-prescription drugs.

Establish a drug and alcohol policy that has clear guidelines for alcohol and drug use before and after a dive. Make sure your workers understand this, and if you provide diving services, make sure this is also communicated to participants. Your policy should also outline ways to test and monitor alcohol and drug use amongst your workers, and what action to take if a diver is suspected of being under the influence.

Discuss the policy with your workers during induction, training or during staff meetings. Make sure you involve your workers when reviewing the policy, or when making decisions about how risks from alcohol and drug use will be managed.

Alcohol and drugs don't mix with any diving, snorkelling or free-diving activity. If one of your workers has been using alcohol or drugs they shouldn't dive or be part of the dive team.

Health and exposure monitoring

Health monitoring is used to identify changes in workers' health, and exposure monitoring is used to check how well your control measures are working to reduce worker exposure. Monitoring is carried out by a suitably qualified health and safety professional with the knowledge, skills and experience to carry it out. They will interpret the results for you, and tell you what they mean.

You must get your workers' consent before carrying out biological exposure and health monitoring. If the monitoring results show your workers are at risk, re-evaluate your control measures, and make changes if necessary. Decide what actions you will immediately take to eliminate or minimise the health risks to your workers. Your monitoring provider should be able to help you with this.

Monitoring can be done for:

- decompression sickness
- hearing loss
- gas toxicity (gas toxicity gives both short and long term effects – carbon monoxide toxicity can affect a diver for many hours after exposure)
- air quality (breathing air should not be contaminated, for example from oils, engine exhausts or compressor overheating)
- vibration disorders from heavy plant and hand-held vibrating tools
- body stressing from lifting (the constant lifting of tanks, compressors or carrying heavy dive gear up and down ladders)
- biological exposure to contaminants (for example mycobacterium marinum in aquaculture or giardia in freshwater sites)
- chemical exposure to hazardous substances (for example in contaminated dive sites).

Carry out regular medical checks of your divers and other workers to ensure their long term health. Encourage workers to report changes in their health to their GP.

Remember, monitoring does not replace your need to implement measures to manage any work-related risks to health and safety.

4.2 Facilities

PCBUs should provide access to:

Hot showers

Clean drinking water

Hand washing facilities

Toilets

Lockers

Areas for eating

Facilities should be clean, accessible, and well maintained. Ask workers for their feedback about the facilities you provide. Keep entry and exit points at the worksite clear to allow easy access an emergency.

4.3 Equipment

Good equipment management should include processes for preparation, use, and maintenance. At the start of each dive, check that you have all the required equipment, and that the equipment is working correctly.

Cleaning

Thoroughly rinse and dry the equipment at the end of each day of diving, snorkelling or free-diving. If dive equipment is left damp, it creates an environment where fungi, yeasts, viruses and bacteria thrive, and exposure to these can be harmful to health.

- Make sure divers' helmets, mouthpieces, oral and nasal masks and any piece of equipment which allows a direct path into the diver's airway are thoroughly cleaned.
- Use a disinfectant recommended by the manufacturer to minimise the risk of bacterial growth.
- When cleaning rebreathers check that the full breathing loop including mouthpiece, hoses and counterlungs are cleaned.
- When cleaning umbilicals or masks/regulators used to deliver 100% oxygen, follow the industry standard for cleaning equipment with oxygen enriched mixtures.
- Heat, humidity and higher ambient temperatures promote bacterial growth, so equipment will need to be cleaned more frequently in warm or humid climates. If equipment is shared between members of a dive team (such as during training or shared SSBA helmets), clean it between uses to minimise the risk of infection.
- Use clean, fresh water for rinsing. If you are unsure of the quality of the water, use sterile or bottled water.
- After rinsing, allow all gear to dry in an enclosed, clean, and well ventilated area before storing.
- Keep dive cylinders pressurised when not in use to prevent internal moisture damage.
- Cylinders that aren't used regularly shouldn't be stored full as the temperature and pressure can lead to damage.
- Don't store sensitive equipment with wetsuits or dive bags for long periods of time.
- If you hire out dive equipment, make sure it's serviced regularly and sanitised after each use to minimise the risk of infection. You also need to give those hiring your equipment instructions on how to use it safely.

Storage

Store equipment in a clean, dry environment with protection against extreme temperatures, dust, and dirt.

Maintenance

All equipment should be maintained and tested according to the manufacturer's instructions, or relevant industry standards. Most diving equipment, including buoyancy control devices (BCDs) should be serviced annually. Other equipment such as umbilicals and helmets should be serviced six monthly or when indicated by wear or reported fault. Check your pressure gauges and dive computers for accuracy every year. Get a competent person to check your equipment every 12 months.

A maintenance record contains the details of the maintenance of your equipment, machinery or tools. A record can help you keep track of when maintenance is scheduled. Use invoices from the manufacturer or technician, or if you've done your own maintenance, record details about what work was done, or what part was replaced.

Replacing and upgrading

Unsafe equipment is a hazard and should not be used. Check your equipment for signs of leaks and cracks, and replace it if it shows signs of damage. Keep a record of when equipment needs to be maintained or replaced.

Equipment used in guiding or training

Anyone doing any guided or training activity also needs the right equipment.

For example, Snorkellers need to be positively buoyant at all times, so you'll need to provide them with the right wetsuit depending on the water temperature.

Before starting each snorkelling activity, check that:

- the wetsuit fits properly
- the snorkel is attached to the mask
- the seals are fitted.

Think about what rescue equipment the trainer or guide might need, such as:

- floatation aids
- ropes
- surfboards.

The person leading the snorkelling activity should carry a whistle to help them communicate with other snorkellers, and get snorkellers' attention when they are in the water.

These considerations also apply to free-diving and diving activities that may be offered.

Can someone use their own equipment?

A Worker or Participant can provide their own equipment if that is their preference and within your policy, but you'll need to check it's suitable and fits properly.

4.4 Communication

Ensure that all procedures are understood by your workers. Ensure that all safety information including training material is easily accessible for workers.

Take extra care with divers, snorkellers, workers and participants whose first language is not English, or those who have learning difficulties. Have ways to engage with participants so you know they have understood the safety training.

There are different methods of communicating on or underwater. See Section 5.5 for more detail.

4.5 Emergency planning

You must have an emergency plan. The plan should include information about how to rescue people in trouble or distress, how to notify emergency services (if needed), and how to monitor for signs of injury or illness. A plan makes sure all the information you and your workers need to respond to an emergency is in one place and everyone can access it.

The plan should include:

- the actions to take for each emergency scenario
- the resources (workers, equipment, and training) you need
- information for workers and participants on what to do in emergency situations
- information on the contact details of offsite emergency services (including the NZ Divers Emergency Service, the closest hyperbaric treatment facility and

the local designated diving doctor)
- emergency contacts
- inventory and location of the emergency oxygen equipment, first aid kit and automated external defibrillator (AED)
- how many minutes of oxygen are available at the dive site
- estimate response time for emergency services to reach the site.

Note: There are specific requirements relating to emergencies involving hazardous substances. For more information on preparing an emergency plan for your hazardous substances, see our website: worksafe.govt.nz

All workers should be trained in the emergency plan. The plan should be available and accessible to the people who need it. Coordinate your emergency plan with the other PCBUs who share health and safety duties with you (for example, the harbour master if working at a port). Make sure everyone is clear on their roles in an emergency.

Involve your workers when developing your emergency plan. Workers who have had previous experience in emergency work such as volunteer rescue service or first aiders can help you identify emergencies and the response procedures needed. To remain effective, the plan needs to be maintained, regularly tested, and reviewed whenever there are changes to diving procedures or safety systems.

If a diver needs to be rescued, make sure the rescuers don't put themselves at risk. Emergency protocols for diver separation rescue and recovery should be covered in training, and communicated to all workers. Make sure you also regularly practise emergency procedures.

> Test your emergency plan yearly, and review it whenever there are changes to procedures or safety systems. Make sure you consult with your workers when making decisions about emergency plans.

You must notify WorkSafe when certain work-related events occur. More information on notifiable events can be found on our website: worksafe.govt.nz

Make sure you also have ways for workers to report any incidents or concerns that affect the safety of them or participants. You can use these as learning opportunities to identify how safety procedures can be improved.

First aid

You must provide adequate first aid facilities on site, and trained first aiders who can:
- provide treatment for any diving emergency causing injury or illness including marine stings, water inhalation and decompression sickness
- control bleeding
- administer oxygen
- care for an unconscious diver, or a diver who is having difficulty breathing
- carry out cardiopulmonary resuscitation (CPR)
- administer a defibrillator.

Dive supervisors should meet these basic first aid requirements, and be trained in recognising and managing diving related medical emergencies, and in communicating with emergency services or medical professionals. First aid, oxygen administration and CPR training should be refreshed at least every two years.

First aid equipment

Diving first aid kits should include oxygen equipment capable of supporting a diver until medical services can arrive. Keep spare oxygen on site, and make sure there are always people available who are trained in administering it.

It's also a good idea to have an automatic external defibrillator (AED) on site.

Keep a record of trained first aiders and the emergency equipment you have on site, and make sure the records are up to date.

Offshore diving emergency planning

Under the Health and Safety at Work (Petroleum Exploration and Extraction) Regulations 2016, operators carrying out offshore diving work must:

- prepare a major accident prevention policy (MAPP) to identify potential major incidents and major incident hazards and the controls you will use
- have and test a detailed emergency plan, which includes information on how to react in an emergency were to occur, and what actions to take
- have a dive plan jointly prepared by the duty holder and the diving operator.

You must submit a copy of your emergency response plan to WorkSafe at least 30 days before starting your offshore diving operation. You can find more information about where to send your plan, and what information it should contain on our website: worksafe.govt.nz

4.6 Incident reporting

Investigate every injury, incident or reported near-miss. Make a record of what happened. Work with the team to prevent incidents recurring. Involve your workers in discussions about ways to manage risk.

An accident and near miss report is a useful tool for recording incidents and near-misses. This means you have a record of things that have gone wrong and what actions were taken to prevent the accident from happening again in the future.

Record:

- minor incidents, near misses and equipment failures
- key information about injury events, including the nature of the injuries, the hazards present in the setting where the injuries occurred, the tasks being performed at the time of injury and what equipment was used
- what remedial actions you took to prevent the incident from happening again, any training required, or new schedules for equipment maintenance

You must notify WorkSafe in the case of any:

- death
- notifiable illness or injury
- notifiable incident occurs as a result of work.

You must notify WorkSafe of all notifiable events even if Emergency Services attend. You may also need to contact Maritime New Zealand if it's a maritime accident or incident. Be aware that decompression sickness is a notifiable event to the department of Health; for more information go to: www.health.govt.nz

To notify WorkSafe, ring 0800 030 040 or complete the online notification form on our website: worksafe.govt.nz

5.0 Safe operating procedures

IN THIS SECTION:

5.1 Dive team

Ensure you have enough members in the dive team to carry out tasks with minimal risks to their safety. The minimum number of divers depends on the type of work, the environmental conditions and the experience and skill levels of the divers. When deciding on your dive team, think about what water and surface support you need.

As a minimum we recommend you have one person who is:

- in charge of the operation (the dive supervisor)
- a lookout or attendant to keep an eye on the divers in the water
- a standby diver or buddy ready to respond to any diving emergency. Depending on the dive, the standby diver and attendant or lookout can be the same person.

Always carry out a risk assessment before the dive to determine staffing needs. If the work is more complex, you may need additional support. For example, for some construction diving work you may need a dogman if a crane is needed at the dive site, and if the work involves using recompression chambers, you may need additional support divers.

Assign dive team responsibilities to people who have the right knowledge and skills to do the job effectively. Check that everyone in the dive team is clear about their role before the dive starts.

Dive supervisor

Nominate someone to be in charge of the safety of the diving operation. This person should be an experienced diver, who has the right training and qualifications for the particular activity, and the equipment which will be used. They are responsible for:

- consulting with the divers on and preparing the dive plan, and communicating this to everyone on the dive team
- checking that divers are fit and competent for the dive
- keeping a record of the dive
- making sure a suitable emergency management system is in place
- assessing the dive site
- making sure there is enough surface support for the divers.

5.2 Site assessment

Before any diving work starts, you need to make sure the dive site and its facilities are safe for use.

Site access and safety

- Consider weather, sea and tidal conditions expected during the dive.
- Does the dive site have clear boundaries marked by signs, flags or buoys?
- If the work involves diving from or near a vessel, is a site-specific traffic management plan needed?
- Are entry and exit points clear to allow access in an emergency?
- Do any divers need special assistance using the entry and exit methods?
- Will visitors have access to the site?
- If so, how will they be protected from health and safety risks arising from the work?
- How will the site be protected from unauthorised access (such as after hours)?

Other PCBUs on site

See Section 2.4 of these guidelines.

- What other PCBUs will be on site?
- How will the PCBUs – so far as is reasonably practicable – consult, cooperate and coordinate activities with other PCBUs (for example, to manage risks from shared activities)?
- What potential risks may arise from other work being carried out onsite?

Permits, consents and notifications

- Are there other requirements you need to follow (for example, Maritime Act if working off a vessel)?
- Are permits or consents required?
- Does the work need to be notified to WorkSafe?
- Are there others who should be notified about the intended work activities? For example, other PCBUs at the site.

5.3 Dive plan

A dive plan sets out the procedures for the dive. Use the dive plan to help you decide what control measures you need to eliminate or minimise the risks you identified during your risk assessment. If the risks of the dive vary, for example, if workers are completing more than one task or activity during a single diving operation or the environmental conditions change, you may need more than one dive plan.

A dive plan should be prepared before any diving, snorkelling or free-diving takes place. Holding a pre-dive briefing is one way to ensure everyone in the dive team is aware of their roles and responsibilities.

A dive plan should include:

- the objective of the dive
- details of the location of the dive
- surface and underwater conditions and hazards
- the maximum depth
- intended bottom time
- decompression schedules if required
- the equipment and gas required
- duties of every worker involved, and
- the actions to take in an emergency.

When preparing the dive plan, make sure you engage with your divers and anyone who will be participating with the dive, and their representatives. If you are working with other PCBUs, cooperate, coordinate and consult with them so far as is reasonably practicable. Get everyone to agree on the dive plan before starting the dive.

Why is a pre-dive assessment important?

A pre-dive assessment is important because of the changeable nature of the environment and its risks. Divers need to be aware of the conditions and forecast so they know how to react if the conditions change and how to amend their dive plan if needed.

If you and your workers take the time before beginning any activity to assess the dive site, you're less likely to miss any hazards.

5.4 Participant safety

If you're providing diving, snorkelling or free-diving services to others (such as guides, tours or school trips), make sure all participants have been assessed for their fitness to participate. When developing your safety management plan, establish ways you can ask your participants for information to assess their suitability for the activity. This will help you ensure you provide them with the right level of supervision, and give them enough information to dive safely.

Factors that you should consider when assessing participants suitability include:

- their age, experience and ability
- any medical conditions
- the level of risk involved in the particular activity
- the experience of your workers and their ability to supervise at-risk participants
- the equipment you have available
- the environmental conditions
- their dive history to see if they have recently completed a dive in a similar environment.

You also need to make sure your participants are fully briefed on health and safety before they enter the water. The information you provide your participants should be consistent, and be outlined in your safety management plan. Have a variety of ways of providing information, especially if English is not their primary language. Keep a record of all safety training, including participant assessments, and have ways to engage with participants so you know they have understood the safety training.

Making sure participants have been assessed for their fitness is important for safety. Before participants get in the water:

- Assess the experience of your participants. This can help you identify any at-risk snorkellers, and the level of supervision you'll need to provide in the water.
- Ask your participants for background information to check if they have the right skills for the activity.
- Brief your participants on health and safety. You can do this by:

Holding a safety talk

Using pictures

Showing short films

Asking about medical conditions

Having buddies for less experienced participants

Translating information for non-English speakers

Encouraging everyone to stay within their ability

5.5 Communications

Communication involves thinking about how:

- divers will communicate with each other in the water
- you will communicate and keep your divers and other visitors to the site up to date about new risks that will affect them
- to manage them safely.

Diver communication

The most effective way for divers to communicate with other divers in the water, other users of the dive site and emergency services is by using their voice. Other communication methods include:

- natural signals (for example, nodding to indicate 'yes')
- wired or wireless voice communication systems
- hand or tether signals to give instructions or provide information about the dive
- light or touch signals for low visibility or night diving
- mechanical or electronic communication devices (for example, VHF radios or cell phones) for contacting emergency services
- surface signalling devices (for example, marker buoys)
- diver recall systems to alert a diver to return to the surface.

Establish your communication system in the dive plan, and make sure that all divers are trained in using and understanding the agreed set of signals. Review all signals and their meanings at the start of each dive. Even if your divers are experienced, there is still a risk of confusion.

When deciding on what communication system to use, think about:

- the location of the dive site (for example, is it in a geographically isolated or inaccessible area?)
- if your workers will be working in environments where communication is difficult
- if divers will be alone underwater
- the type of diving, snorkelling or free-diving activity.

Workers must be able to raise the alarm in an emergency. A communication system that has gaps in coverage or cannot be used or understood in an emergency is unlikely to be effective.

Communicating risks

Risk management is only effective if it is up-to-date. The best way to make sure this happens is to talk about the risks and make sure new ones are noted. Sometimes there are sudden changes due to equipment, diver health or weather/environmental conditions. We recommend you have a system for these to be recorded and promptly managed.

If you identify a new risk, think about how you will make sure that everyone on the site who needs to know is aware, and what control measures you will implement.

A written record can be a good way of making sure communication is the same for everyone.

Another way of communicating risks is by having a dive site hazard map. This is an easy way to show the layout of your dive site, and mark where the hazards are. Continue updating the map if you identify a new hazard giving rise to risk.

5.6 Post-dive

After every dive your divers should:

- avoid any strenuous or heavy work that could cause an injury
- avoid drinking alcohol, taking drugs and smoking
- hydrate well.

Standard post dive procedures should include checking site safety, diver health, and equipment.

Ask yourself:

- Has everyone has left the water and no one is left behind?
- Have you secured the dive site from unauthorised access? Consider using barriers or warning signs.
- Have you cleaned up all machinery after use?
- Is any diver showing signs of ill health? Your divers should immediately report any health concerns to you.
- Is your equipment in the same condition as it was before the dive?
- Have you cleaned and stored your equipment correctly?

Record keeping

Every occupational diver is expected to maintain professional records of their dives and the activities undertaken. Update the dive log after each dive. An update should include date, time, dive number, location, depth, length of dive, ascent/stops, gas/air used, student names or buddies, dive skills completed or activities/work undertaken, surface and water conditions, and any incidents or deviations from the dive plan that occurred. The dive log is also where control measures used on the dive should be recorded. Dive logs are often signed by the dive supervisor.

PCBUs and dive supervisors should also keep logs to record the days dive activities. Electronic records should be consistent with paper records.

6.0 Monitoring and audits

IN THIS SECTION:

6.1 Ongoing self-monitoring

Control measures should be checked daily, and when environmental conditions change to make sure they are still effective. You can do this by carrying out a daily site assessment.

Every day before anyone enters the water, check:

- the weather report and tidal conditions
- the site is properly set up. This includes checking the entry and exit points, and making sure any flags, markers or buoys to mark the dive site.
- there is a lookout in place to monitor everyone in the water, and check if anyone is in distress or needs rescuing
- everyone has the right equipment
- your workers are prepared and ready
- for any participants that need close supervision.

No one should enter the water until the supervisor has checked the appropriate control measures are in place.

Review incidents and events where solutions have failed. Then take action, for example, by:

- reviewing incidents that have resulted in harm to workers or participants
- talking with your workers to identify the situations or behaviours that may affect your controls
- using the results of incident reviews and investigations to decide what changes are needed
- seeking expert advice from a health and safety professional.

6.2 Safety audit standards

If you are an adventure activities operator, your safety management system must comply with the safety audit standard. This involves working with a registered audit provider who will check that you are meeting the requirements set out in this standard, and you have measures in place to minimise risks when providing adventure activity services.

You'll need to pass this audit before you can be registered as an adventure activities operator.

7.0 More information

WorkSafe guidance

Special guide

Introduction to the Health and Safety at Work Act 2015

Quick guides

Health and safety at work
Overlapping duties
First aid

Fact sheets

Workplace and facilities requirements
How to manage work risks
Volunteers

WorkSafe position

Involving workers

Other WorkSafe resources

Hazardous Substances toolbox

Adventure activities

List of adventure activities operators registered with WorkSafe

Managing drug and alcohol related risks in adventure activities

Safety management plan

Safety audit standard

Use these safety management templates to help you prepare for audit.
You can customise the template to suit your business needs:
supportadventure.co.nz

Resources for participants

The Adventure Safety website has information for the public on staying safe when snorkelling in New Zealand waters: supportadventure.co.nz

New Zealand legislation

All legislation including Acts and regulations are available on the New Zealand Legislation website: www.legislation.govt.nz

Australia New Zealand Standards

- Parts 1–4, AS/NZ 2299.1 series: Occupational diving operations
- Parts 1–6, AS/NZ 2815 series: Training and certification of occupational divers
- Other Standards – 2030.1, 2030.5

International Standards

- ISO Standards
- WRSTC Standards

Industry guidelines that you may find useful

New Zealand Aquaculture Industry Diving Good Practice Guidelines

The Support Adventure website has more information on the Adventure Activities Regulations 2016, templates for developing a safety management system, and an Activity Safety Guideline for Recreational Diving: supportadvanture.co.nz

The International Marine Contractors Association (IMCA) has a range of guidance and resources on good practice in the offshore diving industry. You can also find the International Code of Practice for Offshore Diving on their website: www.imca-int.com

Local council

Your council might have additional rules that need to be met.
Check with your local council for specific rules that apply in your region.

Appendix

IN THIS SECTION:

Appendix 1: Glossary

TERM	DEFINITION
Apnea	The practice of breath-holding for the purpose of being able to free-dive or be submerged underwater without breathing.
Control measure	A way of eliminating or minimising risks to health and safety.
Closed bell diving	See Saturation diving.
Decompression	Decompression is required when the inert gas (usually nitrogen) absorbed by a diver is greater than that which allows a safe return to the surface and the diver must make a series of stops during the ascent.
Eliminate	Remove a hazard (source of harm)
Engagement	A PCBU (see explanation below) has to engage with its workers on health and safety matters. A PCBU engages by: – sharing information about health and safety matters so that workers are well-informed, know what is going on and can have a real say in decision-making – giving workers reasonable opportunities to have a say about health and safety matters – listening to and considering what workers have to say – giving workers opportunities to contribute to the decision-making process relating to a health and safety matter – considering workers' views when decisions are being made – updating workers about what decisions have been made – involving any HSRs. If workers are represented by an HSR, engagement must involve that representative.
Free-diving	The practice of undertaking a dive to depth that relies on breath-holding until resurfacing rather than the use of breathing apparatus.
Hazard	An actual or potential cause of harm, including an object, activity or event. Includes a person's behaviour where that behaviour has the potential to cause death, injury, or illness to a person (whether or not that behaviour results from physical or mental fatigue, drugs, alcohol, traumatic shock, or another temporary condition that affects a person's behaviour).
Health and Safety at Work Act 2015 (HSWA)	New Zealand's key work health and safety legislation is the Health and Safety at Work Act 2015 (HSWA) and regulations made under that Act. All work and workplaces are covered by HSWA unless specifically excluded.
Health and safety committee (HSC)	An HSC supports the ongoing improvement of health and safety at work. An HSC enables PCBU representatives, workers and other HSC members to meet regularly and work co-operatively to ensure workers' health and safety.
Health and safety representatives (HSR)	HSRs are workers elected by members of their work group to represent them in health and safety matters.
Health monitoring	Involves testing workers' health to identify potential signs of harm to their health arising from work and any changes on an ongoing basis.
Hookah	A system where the gas supply is located on the surface and is supplied via a breathing hose or 'airline' fitted directly to the diver's mask or regulator. This hose is fed up to a boat or integrated float that houses a Cylinder or small compressor.
Minimise	Reduce the risk of a hazard occurring when workers are exposed to it, if eliminating or isolating it is not possible.
Near miss	An incident which did not result in injury, illness or damage, but potentially could have.
Notifiable events	A notifiable event is when any of the following occurs as a result of work: – a death – notifiable illness or injury (see below) – a notifiable incident (see below). Under the Health and Safety at Work Act 2015 (HSWA) you must notify WorkSafe when a notifiable event occurs.

TERM	DEFINITION
Notifiable injury or illness	An injury or illness that requires the person to have immediate treatment (other than first aid). For example, a serious head injury, a serious burn, an injury or illness that requires, or would usually require, the person to be admitted to a hospital for immediate treatment or to have medical treatment within 48 hours of exposure to a substance.
Notifiable incident	A notifiable incident means that someone has been exposed to a serious or immediate risk to their health and safety because of an unplanned or uncontrolled work incident.
Overlapping PCBU duties	When more than one PCBU has health and safety duties in relation to the same matter.
PCBU	PCBU stands for 'Person Conducting a Business or Undertaking'. In most cases a PCBU will be a business entity, such as a company. However, an individual carrying out business as a sole trader or self-employed person is also a PCBU.
Personal protective equipment (PPE)	Anything used or worn by a person (including clothing) to minimise risks to the person's health and safety. In occupational diving, snorkelling and free-diving, PPE means everything a diver wears to protect them from the risks of being in an underwater environment.
Plant	Includes: a. any machinery, vehicle, vessel, aircraft, equipment (including personal protective equipment), appliance, container, implement, or tool; and b. any component of any of those things; and c. anything fitted or connected to any of those things.
Primary duty of care	A PCBU must ensure, so far as is reasonably practicable, the health and safety of workers, and that other people are not put at risk by its work.
Rebreathers (CCBA/CCR/SCR)	Rebreathers circulate the breathing gas in a closed or semi-closed loop, removing carbon dioxide and replacing the oxygen. Depending upon the nature of operations these can be referred to as CCBA (Closed Circuit Breathing Apparatus), CCR (Closed Circuit Rebreathers) or SCR (Semi Closed Circuit Rebreathers) and can be either electronically or mechanically controlled.
Reasonably practicable	'Reasonably practicable' means what is or was reasonably able to be done to ensure health and safety taking into account and weighing up relevant matters including: – the likelihood of the risk concerned occurring or workers being exposed to the hazard – the degree of harm that might result – what the person concerned knows, or ought reasonably to know, about: - the hazard or risk - ways of eliminating or minimising the risk - the availability and suitability of ways to eliminate or minimise the risk.
Risk	Risks arise from people being exposed to a hazard (a source of harm).
Risk assessment	Involves considering what could happen if someone is exposed to a hazard and the likelihood of it happening.
Saturation diving	In saturation diving divers live in a pressurised environment (either at the surface or at depth) and the diving is done from a closed pressurised diving bell, also called Closed Bell diving.
SCUBA	Self-Contained Underwater Breathing Apparatus, where the gas supply is carried by the diver independent from the surface; usually consisting of a Cylinder, BCD and Regulators but can also include the use of any diver carried system such as a rebreather.
SSBA	Surface-supplied diving is diving using full head helmet and equipment supplied with breathing gas using a diver's umbilical from the surface, either from the shore, a diving support vessel or indirectly via a diving bell.
Worker	A worker is an individual who carries out work in any capacity for a PCBU. A worker may be an employee, a contractor or sub-contractor, an employee of a contractor or sub-contractor, an employee of a labour hire company, an outworker (including a homeworker), an apprentice or a trainee, a person gaining work experience or on a work trial, or a volunteer worker. Workers can be at any level (for example, managers are workers too). Workers have their own health and safety duty to take reasonable care to keep themselves and others healthy and safe when carrying out work.

TERM	DEFINITION
Workplace	A workplace is a place where a worker goes or is likely to be while at work, or where work is being carried out or is customarily carried out. It includes a vehicle, vessel, aircraft, ship or other mobile structure, and any waters and any installation on land, on the bed of any waters, or floating on any waters.
WorkSafe New Zealand (WorkSafe)	WorkSafe is the government agency that is the work health and safety regulator. WorkSafe also issues certificates of competence (CoC) for compressed gas diving, which authorises the holder to dive in a specified category of diving.

Disclaimer

This publication provides general guidance. It is not possible for WorkSafe to address every situation that could occur in every workplace. This means that you will need to think about this guidance and how to apply it to your particular circumstances.

WorkSafe regularly reviews and revises guidance to ensure that it is up-to-date. If you are reading a printed copy of this guidance, please check worksafe.govt.nz to confirm that your copy is the current version.

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