

# Model Work Health and Safety Regulations for Diving Work - Review

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Consultation Regulation Impact Statement

August 2016

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# 1 Executive Summary

This Consultation Regulation Impact Statement (RIS) has been prepared to gather written submissions on options for reviewing the model Work Health and Safety (WHS) Regulations for diving work (Part 4.8). The Consultation RIS sets out and analyses options to address identified problems with the model WHS Regulations for diving work.

Chapter three sets out the context for regulation of diving work in Australia. It is estimated that between 9,000 and 10,000 workers in Australia perform diving work annually with varying frequency due to seasonal peaks in some sectors such as aquaculture and tourism. The risks of diving work are described and safety performance discussed. The model WHS Regulations seek to improve safety by requiring diver competency, medical fitness and risk management through appointment of a dive supervisor and use of dive plans and safety logs.

Chapter four provides the 'case for change' by identifying and defining the problems that need to be solved. Where possible, evidence of the magnitude of the problems is estimated. The main problem identified with the model WHS Regulations is regulatory confusion arising from poor construction of the regulations associated with the categories of diving work, competency requirements and reference of superseded Australian Standards. Problems associated with regulatory burden arising from competency, supervision and medical certification requirements are also identified.

Chapter five outlines the objectives which have informed development of the three options detailed in chapter six. The options are:

1. Status quo
2. Amend the current model WHS Regulations to streamline and clarify the categories of diving work and relevant competencies
3. Replace prescription in the model WHS Regulations with risk management provisions.

Given the main problem is one of regulatory confusion; this Consultation RIS has mainly focussed on qualitative assessment of the impacts. Where possible, compliance costs have been estimated. These are discussed in chapter seven, along with the sectors impacted by each of the options.

The costs associated with the model WHS Regulations for diving work are minimal given the prescribed practices are already undertaken by most sectors. The nature of diving means a mature and well-established system of managing risk is routinely applied to diving work. Overall, the RIS concludes that Option 2 would have the greatest likely net benefit primarily based on the lesser transitional impacts associated with amending the current regulatory framework in those areas where specific problems were identified.

The final chapters outline the consultation undertaken to develop this RIS, and the implementation and review arrangements applying to the model WHS laws and guidelines.

## 2 Introduction

Safe Work Australia, with the assistance of NERA Economic Consulting, has prepared this Consultation RIS. Its purpose is to consult on proposed changes to the diving work provisions in the model Work Health and Safety Regulations 2011 (model WHS Regulations). The Consultation RIS follows the Council of Australian Governments' *Best Practice Regulation: A Guide for Ministerial Councils and National Standard Setting Bodies*<sup>1</sup> by:

- describing the problem this reform is seeking to address and establishing why action is needed
- identifying policy options that would address this problem
- determining the net benefits of the policy options
- describing who was consulted on the options, how they were consulted and setting out the issues raised
- suggesting a preferred option from those discussed, and
- setting out the process for implementation and evaluation of the preferred option.

### 2.1 How to provide comments

Written submissions are invited from interested stakeholders on the problems, options and impacts set out in this consultation RIS. Submissions will be used to prepare a Decision RIS for consideration by Ministers with responsibility for WHS so they can decide on the best option for revising the model WHS Regulations for diving work. The questions asked throughout this Consultation RIS are intended to assist stakeholders provide comment on the options and impact analysis.

#### *Data and the problem statement*

- Can you provide any additional data to improve the information in the Consultation RIS about the size of the diving industry and the number of illnesses, injuries and deaths resulting from diving work?
- Do you agree with the description of problems with the model WHS Regulations for diving work?
- What is the extent and impact of the current problems with the model WHS Regulations for diving work?

#### *Impact assessment*

- Do you agree with the description of the impacts that are anticipated for each option?
- Can you provide any comments or data that would help measure the costs and benefits of each option?
- How would the proposed changes to supervision requirements for general diving impact compliance costs and safety outcomes?

#### *Evidence of competency*

- What other measures should be considered to establish a diver's competency for diving work?
- What are the anticipated costs and benefits of your suggested alternative?

#### *Recreational diving work*

- What would be the impact of amending the model WHS regulation to reference ISO 24801-3 instead of AS/NZS 4005.2:2000?
- What other measures should be considered to address withdrawal of AS/NZS 4005.2:2000?
- What are the anticipated costs and benefits of your suggested alternative?

#### *Guidance material*

- Who do you prefer author, issue and update the guidance material, for example Safe Work Australia, industry or another party? And why?
- What should be covered in guidance material to assist duty holders understand their obligations under the model WHS Regulations for diving work?
- What format of guidance material would best support industry to comply with the model WHS Regulations, for example, fact sheets, codes of practice, videos or another mode of communication?

#### *Options and implementation*

- Which of the three proposed options do you support, and why?

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<sup>1</sup> [Best Practice Regulation: A Guide for Ministerial Councils and National Standard Setting Bodies](#) – pdf, COAG website.

- Are there any alternative options that should be considered?
- What considerations should be taken into account during the implementation process if amendment of the model WHS Regulations is supported?

Submissions can be made at the [Safe Work Australia's submission website](#).

Written submissions must be made by no later than 5.30pm on **Friday, 30 September 2016**.

If you have any questions about the submission process, please email [diving@swa.gov.au](mailto:diving@swa.gov.au).

### 3 Context

This chapter describes the nature of occupational diving in Australia, including the risks associated with occupational diving and the current approach to regulating diving work in the model WHS laws.

In this chapter we would like to know:

- Can you provide any additional data to improve the information in the Consultation RIS about the size of the diving industry and the number illnesses, injuries and deaths resulting from diving work?

#### 3.1 Occupational diving

Occupational diving is submersion of a person in a liquid to carry out tasks for profit or reward. Diving can be considered as both an industry in its own right and as an activity that may be undertaken across many different industries. The occupational diving industry is often identified as including the following sectors:

- construction diving
- salvage, search and recovery diving
- boat, mooring and marina inspection and maintenance
- offshore oil and gas diving
- defence diving
- police diving
- aquaculture-related diving for example, tuna and salmon farming
- wild-catch related diving for example, abalone, crayfish and pearl diving
- tourism and occupational recreational diving for example, dive teachers or leaders
- scientific and archaeological diving, and
- aquarium diving.

The environment, conditions, tasks and equipment applying to each sector requires divers to have specific skills and experience.

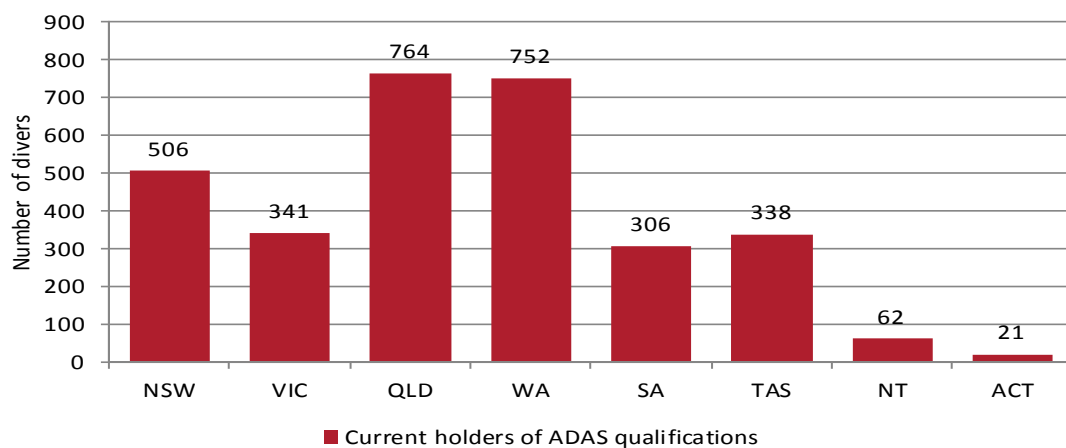
##### 3.1.1 Size of the occupational diving sector

Due to the sometimes blurred lines between diving as an industry of its own and as an activity undertaken within another industry, it is difficult to find reliable data about the overall number of occupational divers. Data from the Australian Bureau of Statistics (ABS) 2011 Census of Population and Housing showed that 1,044 people reported their main occupation as "diver". However, this figure is likely to understate the number of occupational divers, as respondents to the census may have reported their occupation as being related to their main industry, for example fisherman, construction worker, police officer or engineer, rather than identifying as a diver. The data is also unlikely to capture workers who only occasionally undertake diving as part of their employment.

Other information collected for this Consultation RIS shows the industry is likely to be much larger. For example, data provided by the Australian Diver Accreditation Scheme (ADAS) show there are approximately 3,000 Australian divers who hold current ADAS qualifications. As Figure 01 shows, these divers are located in all states and territories, with the largest numbers located in Queensland and Western Australia.

The ADAS figures do not include the large number of occupational divers who hold diving qualifications issued by other Vocational Education and Training (VET) providers or recreational sector qualifications, for example, dive leader, dive master or dive instructor. There are various estimates of the size of the recreational diving sector. One study from 2009 estimated that recreational snorkelling and diving employed between 7,100 and 11,500 people.<sup>2</sup> However, not all of these people would be divers. Estimates provided by the main recreational diver training organisations suggest there may be up to 10,000 divers in Australia who hold professional-level recreational qualifications. These figures may over-state the size of the industry, as there are known to be a large number of people who hold diving qualifications who are not currently working in the industry.

Figure 01: Current ADAS qualification holders, by state and territory (2016)



Source: Calculated from figures provided by ADAS

Overall, it is estimated that there are around 9,000 to 10,000 occupational divers undertaking diving work across all sectors. The estimated size of each sector is described in the table below.

Table 01: Estimated size of the occupational diving industry, by sector

Industry sector	Estimated number of divers	Notes about the figures used
Construction diving (including salvage, search and recovery)	1,500	Estimate based on the number of current ADAS qualification holders with relevant qualifications.
Offshore oil and gas diving	300	Note: this group are regulated separately from the model WHS Regulations for diving
Boat mooring and marine inspection and maintenance	300	Estimate based on consultations with regulators and the diving industry. There is likely to be some overlap between participants in this sector and construction.
Defence diving	300	Estimate based on figures provided to Safe Work Australia by the Royal Australian Navy.
Police diving	100	Estimate based on figures provided to Safe Work Australia by the police forces of each state and territory.
Aquaculture-related diving	750	Estimate based on figures provided to Safe Work Australia by industry participants and regulators.
Wild-catch (including abalone, crayfish and pearl diving)	500	Estimate based on figures provided to Safe Work Australia by abalone and pearl industry associations, advice from regulators and fisheries industry output figures.

<sup>2</sup> Great Barrier Reef Marine Park Authority (2009) *The recreational dive and snorkelling industry in the Great Barrier Reef: profile, economic contribution, risks and opportunities* (p. 20)

Industry sector	Estimated number of divers	Notes about the figures used
Scientific and archaeological diving	1,250	Estimate based on figures provided to Safe Work Australia by universities and other research institutions (includes diving by students and overseas/visiting academics).
Recreational diving sector	5,000	Estimate based on figures provided by participants in the recreational diving sector, including the main training recreational training organisations.
<b>Total</b>	<b>10,000</b>	

Diving industry responses to a Safe Work Australia questionnaire in 2015 indicates that there are considerable differences in the frequency that occupational divers actually undertake diving work. This depends on the sector of the diving and ranged from multiple dives per day, every day to infrequent diving.

It is understood that divers in the construction, recreational and aquaculture sectors typically undertake the most frequent diving work all year round, with multiple dives per day. The frequency of wild-catch diving varies depending on the species, with abalone divers usually working 60-80 days of the year undertaking 2-3 dives per day, while the pearl industry undertakes the most diving during the period from March to September. Police and defence diving is undertaken year round, but with a frequency that varies depending on operational requirements. Divers who work in the scientific and archaeological sectors typically undertake less diving than the other sectors. Many dive for only a few weeks each year.<sup>3</sup>

### 3.1.2 Types of businesses that undertake diving

The types of organisations that undertake diving work include a mix of government, not-for-profit and commercial organisations of varying scale. In some cases occupational diving is undertaken by large organisations, but is only a minor component of their operations, for example a large aquaculture business that uses divers to maintain pens. Many of the other organisations who undertake diving are small businesses, such as small tourism operators or abalone licensees. Because diving is an activity undertaken across many industries rather than industry itself, there is no available dataset on the number or size of diving businesses.

## 3.2 Risks associated with diving work

Diving is a hazardous activity. All divers enter a non-respirable environment, often at increased pressure, which puts them at risk of a number of injuries and illnesses.

The risks associated with diving work are primarily borne by the diver. The specific types of injuries or illnesses that can affect occupational divers include:

- **Drowning** – Water and all other liquids are non-respirable and their inhalation may lead to drowning syndromes resulting in injury or death. Drowning may result whenever a person becomes incapacitated, for example through fatigue, panic or another injury.
- **Decompression illness** – This can result when excessive nitrogen in the body starts to form bubbles in the blood vessels and tissues as the diver ascends. The bubbles can cause tissue damage and block blood vessels, obstructing blood flow to vital organs.
- **Barotrauma** – An injury brought about because of pressure differences between air-containing cavities of the body and the environment. Examples of air-containing cavities at risk of barotrauma include the ears, sinuses, lungs and the face-mask cavity, which can be damaged in a diver's ascent.

<sup>3</sup> Many of the proposed changes in the RIS affect requirements directed at individual divers, which is why the RIS has focussed on the number of divers in each sector. Some changes affect diving practices, but these are often limited to particular circumstances of a dive (e.g. below certain depth, diving alone) and very little information could be found to quantify the frequency of the affected dives.



- **Breathing contaminated air** - Contaminants can cause a range of injuries and illness including narcotic effects, convulsions, loss of consciousness and death. Even small amounts of contamination can affect divers and the effects of most contaminants increase with the depth of the dive. Possible contaminants include carbon monoxide, oil and excessive water.
- **Nitrogen narcosis** – This can result from breathing nitrogen under pressure. It can affect reasoning, judgement, memory, perception, concentration and coordination. It can lead to over confidence, anxiety or panic. Survival instincts and responses may be suppressed.
- **Task or environment specific hazards** - Examples of task or environment specific hazards known to have caused significant risks to divers include:
  - exposure to different pressures including leaks in dams, intakes, inflow and outflow pipes and sea chests under ships
  - exposure to running gear of vessels when undertaking hull cleaning and work under ships
  - diving in low and zero visibility conditions
  - penetration diving, diving in a confined space or other diving in an overhead environment without vertical access to the surface
  - the use of high pressure water jets, cutting or electrical tools and other surface powered plant
  - diving in extreme temperatures
  - marine predators
  - diving in contaminated water and at contaminated sites
  - diving where there is risk of entanglement
  - diving in significant currents or fast flowing creeks, rivers and drains
  - diving associated with setting of weights or moorings
  - work in high boat traffic areas
  - night diving
  - diving deeper than 30 metres, and
  - diving using gases other than air.

These risks have given rise to specific regulation for diving work and have also resulted in the development of a mature system of safety measures to protect divers discussed below.

### 3.2.1 Evidence about the nature of diving risks

By its very nature diving is undertaken in non-respirable and hazardous environments. As a result, the consequences of diving incidents are more likely to be fatal to the diver involved. Safe Work Australia has collected data from the Traumatic Injury Fatalities Database, which shows that there have been five occupational diving fatalities in Australia since the model WHS Regulations were introduced in 2011, or one death per year.

Table 02: Occupational diving fatalities - workers

Year	State	Gender	Age	Mechanism	Narrative
2011	SA	Male	45-54	Bitten by animal	The deceased and his partner were fishing with each other under a professional Abalone Licence held by the other person. The deceased was attacked by two great white sharks.
2012	WA	Male	15-24	Drowning	Diver appears to have had difficulty with his air supply and swallowed sea water. He surfaced and pushed his air supply from his mouth and sank below the water. Other divers recovered him and administered CPR but were unable to revive him.
2013	NSW	Male	35-44	Drowning	A self-employed diver drowned on a dive for aquarium fish
2013	NSW	Male	35-44	Drowning	The deceased was instructing two other divers in use of a closed-circuit rebreathing device. He experienced oxygen toxicity due to inaccurate equipment readings, and drowned after suffering a seizure at depth.
2015	NSW	Male	45-54	Drowning	Trainee professional diver sustained fatal injuries while undertaking underwater construction diving training.

Source: *Traumatic Injury Fatalities Database*

Clients of diving businesses or undertakings, such as tourists or students, may also be owed a duty as 'others at a workplace'; however obtaining reliable data on these fatalities is difficult. Data provided to Safe Work Australia by the Diver Alert Network indicates there may have been approximately 20 'other' fatalities between 2011 and 2015, or approximately two deaths per year.

By comparing the estimated size of the diving industry in Table 01 and the fatalities figures in Table 02, it is possible to make a general estimate of the annual rate of fatalities for the industry, which equates to 10 per 100,000 divers (assuming the size of the industry has stayed constant over the last 10 years). By comparison, this rate is lower than the 13.6 fatalities per 100,000 workers in the agriculture, forestry and fishing industry, but is considerably higher than the 1.6 fatalities per 100,000 workers across all industries.<sup>4</sup>

Safe Work Australia also captures and reports on claims made under Workers' Compensation for serious illness and injury which are generally relied upon to give an indication of the effectiveness of safety measures operating in an industry at a point in time. However, due to the small and diverse nature of the diving sector it has not been possible to reliably report on injury and illness using this data set.

Other sources of data for illness and injury were investigated, such as medical data from hyperbaric treatment facilities. These proved unsuitable as they include both occupational and recreational diving without the ability to differentiate between the two categories. Additionally, a number of ethical considerations make accessing and using medical data difficult.

### 3.3 WHS Regulation of Diving Work

Prior to the introduction of the model WHS laws diving work was regulated in a variety of ways. Queensland had the most comprehensive laws covering general and construction diving work, and recreational diving. New South Wales, SA and WA regulated construction diving work by requiring the work be performed in accordance with *AS/NZS 2299.1 - Occupational diving operations – Standard operational practice*. Tasmania and the NT addressed general diving work only.

The Commonwealth, Victoria and the ACT did not specifically regulate diving work, although the ACT had specific requirements for air-supplied respiratory equipment. Duty holders in these jurisdictions still needed to meet their primary obligations under their Occupational Health and Safety Acts when carrying out diving work.

The model WHS Regulations for diving work were primarily based on the comprehensive regulations applying in Queensland prior to harmonisation. However, the model WHS Regulations cover recreational diving performed as part of a business or undertaking, for example as part of a tour, but do not cover snorkelling or recreational diving performed for pleasure.

The Commonwealth, ACT, NSW, NT and Queensland implemented the model WHS laws on 1 January 2012. South Australia and Tasmania implemented the laws on 1 January 2013.

Victoria has indicated they will not adopt the model WHS laws at this time.

Western Australia (WA) introduced the Work Health and Safety Bill 2014, which is broadly based on the model WHS laws, into their parliament on 23 October 2014. The draft Bill was released for public comment until 30 January 2015. A discussion paper on proposed regulations for WA was released on 1 June 2016 for public comment by 31 August 2016.<sup>5</sup>

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<sup>4</sup> Safe Work Australia (2015), *Work-related Traumatic Injury Fatalities*, Australia, 2014, p.18

<sup>5</sup> [Public comment - Work Health and Safety regulations](#), Department of Commerce website.

Transitional arrangements were put in place to assist duty holders comply with the new requirements. Only Tasmania has maintained transitional arrangements delaying commencement of requirements for medical certification, dive plans and dive safety logs until 1 January 2017.<sup>6</sup>

Two jurisdictions modified the model WHS Regulations when they were implemented. The Commonwealth modified application of the regulations to Defence personnel carrying out diving work, and SA removed perceived duplication around dive safety logs for the abalone industry.

### 3.3.1 Current regulatory approach

Part 4.8 of the model WHS Regulations sets out the additional WHS requirements that apply to diving work. The purpose of this Part is to impose duties on a person conducting a business or undertaking (PCBU) to ensure:

- the fitness and competence of persons carry out diving work
- the health and safety of persons carrying out diving work, and
- the health and safety of other persons at workplaces where diving work is carried out.<sup>7</sup>

The model WHS Regulations define the types of diving work that can be undertaken. They also set out the medical fitness requirements for divers; competency requirements for divers and supervisors; and other risk management requirements for undertaking diving work. The key features of these requirements are described in Appendix A.

In addition to the model WHS laws, separate legislation applies to diving work in the Australian offshore petroleum and minerals mining industries. This includes mandatory requirement for ADAS certification under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.

## 4 Statement of the Problem

This chapter provides the 'case for change' by identifying and defining the problems that need to be solved. Where possible, evidence of the magnitude of the problems is estimated.

In this chapter we would like to know:

- Do you agree with the description of the problems with the model WHS Regulations for diving work?
- What is the extent and impact of the current problems with the model WHS Regulations for diving work?

### 4.1 Overview

The focus of this Consultation RIS is on evaluating the approach to regulating diving work in the model WHS Regulations, where there is evidence of a 'regulatory failure'. The issues identified with the current approach include regulatory confusion and unnecessary regulatory burden.

There is evidence that the current approach has resulted in unclear regulatory requirements for diving work. This was apparent during consultations to develop guidance material supporting the model diving work regulations and to prepare this RIS. Industry representatives generally had a strong understanding of the hazards and risks inherent in diving work including how to address these, but were not clear on what had to be done to comply with the WHS laws. Inconsistent advice from regulators across jurisdictions was also reported. Many industry representatives reported the regulations were not sufficiently flexible to accommodate the diversity of diving work.

Most of the confusion centres around the categories of diving and how they are defined, and requirements in the model WHS Regulations for diver competency, which business claim do not provide sufficient clarity or certainty for them to implement the WHS laws effectively.

<sup>6</sup> [WHS law changes](#), Work Safe Tasmania website.

<sup>7</sup> R.167 of the model WHS Regulations

The model WHS laws have introduced requirements which have imposed an additional compliance burden on some Australian businesses. The total value of this compliance burden is difficult to estimate given a lack of available data. However, 40 per cent of responses from the diving industry to a questionnaire distributed by Safe Work Australia in late 2015 reported no increase in safety from the WHS Regulations for diving work; 30 per cent reported an increase in cost, particularly associated with meeting competence requirements.

There is also concern that some of the requirements in WHS laws may not be feasibly implemented in remote areas where access to facilities is limited. Examples include requirements to obtain a certificate of medical fitness from a registered medical practitioner with training in underwater medicine. The requirement to appoint a supervisor and to be present for all dive work may not be feasible for smaller diving operations.

Stakeholders have also advised that restrictions placed on visiting scientific divers to either meet the competency requirements for general divers or limit their diving to a maximum of 28 days in a six-month period may have the effect of deterring overseas scientists from conducting research in Australia.

## 4.2 Problem 1 – Regulatory confusion

Diving industry stakeholders and WHS Regulators have raised concerns that the model WHS Regulations for diving work are poorly drafted and are confusing. The model WHS Regulations also contain errors and omissions which make them difficult to reliably implement. Particular areas of confusion are described below.

### 4.2.1 Categories of diving work

The model WHS Regulations divide diving work into two main categories, high risk diving work and general diving work. General diving work is further subcategorised into 'incidental' and 'limited scientific' diving work which only allow 'limited diving' to be undertaken.

Stakeholders have reported that the categories used, and the way in which the competencies apply under the categories, are difficult to interpret and implement and do not always suit the type of diving work carried out. Inconsistent advice from regulators contributes to the stakeholder confusion and is further evidence of the lack of clarity in the regulations.

#### 4.2.1.1 High risk diving

High risk diving work is currently defined in the model WHS Regulations as work carried out underwater or in any other liquid while breathing compressed gas, which involves any of the following activities:

- construction work
- maintenance, testing or repair of a structure
- inspection worked carried out to determine whether the above listed work is necessary, or
- recovery or salvage of a large structure or plant for commercial purposes.

The high risk diving work definition excludes minor work that involves cleaning, inspecting, maintaining or searching for a vessel or mooring in the sea, a bay or inlet or at a marina.<sup>8</sup>

Use of the term 'high risk', which requires the application of *AS/NZS 2299.1:2007 Occupational diving operations - Standard operational practice*, is causing confusion primarily because diving operators expect the definition to include a list of environmental conditions and other activities that they consider to be high risk.

While the application of AS/NZS 2299.1:2007 to the activities listed in the high risk diving work definition has not been raised as a significant issue, an updated version of this Standard was released in late 2015.

Some diving sectors are of the view that AS/NZS 2299.1:2007 should be mandated for all types of diving work whereas others believe this would be too onerous and impractical. However, the current model WHS Regulations do

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<sup>8</sup> R.5 of the model WHS Regulations

not prevent persons carrying out general diving from applying this Australian Standard or parts of it to comply with their health and safety duties.

#### 4.2.1.2 *Incidental Diving*

The model WHS Regulations classify diving work as 'incidental' where the diving is not part of the business or undertaking's usual activities and involves limited diving.<sup>9</sup>

Stakeholders have highlighted that:

- work being incidental to the business should not be a reason for lowering the competency standards for a diver or limiting the work the diver can perform, and
- diving conducted infrequently makes competence gained through formal training even more important to maintain safety.

Also causing confusion is an error in the model WHS Regulations in which the additional knowledge and skills are both included<sup>10</sup> and excluded<sup>11</sup> from application to incidental diving. Stakeholders have also questioned the relevance of the experience requirements and the link to improved safety outcomes.

#### 4.2.1.3 *Limited Scientific Diving*

Limited scientific diving may be used to undertake scientific or archaeological research.

The model WHS Regulations exclude<sup>12</sup> the additional knowledge and skills from application to limited scientific diving but include<sup>13</sup> those same provisions for divers who are not Australian residents.

Stakeholders have expressed confusion over application of scientific diving to overseas visitors only, particularly as the regulations are silent on the competency requirements for Australian scientific divers and students. Where local scientific divers are applying the general diving provisions, stakeholders have advised some institutions are requiring recreational diving qualifications, whereas others are requiring occupational diving competencies. The AS/NZS 2815.6:2013 sets out the competencies for restricted SCUBA diving. This Standard is relevant to scientific, archaeological and natural resource management diving work.

#### 4.2.1.4 *Limited Diving*

Both incidental diving and limited scientific diving only allow 'limited diving' as defined in the model WHS Regulations.

Stakeholders have questioned how diving for less than 28 days in a period of six months should be applied in practice. Those that have applied this provision in Queensland since its introduction in 2010 advise they are unable to discern a safety benefit. Scientific diving stakeholders have reported that the limit is unnecessarily onerous for some overseas visitors who want to undertake longer 'sabbatical' research and have significant diving experience.

Concerns were also raised with provisions in the definition that prevent use of buoyancy lifting devices and plant powered from the surface during limited diving as these are usually small scale, commonplace and the safest practical option for the work performed.

### 4.2.2 *Diving Competencies*

Competencies for general diving work in the model WHS Regulations primarily rely on the AS/NZS 2815 series. This series currently has six standards which have been specifically developed to address training and certification of occupational divers, including SCUBA, surface supplied and bell diving, as well as dive supervisor training.

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<sup>9</sup> R.5 of the model WHS Regulations

<sup>10</sup> R.172(1)(a) of the model WHS Regulations. "A person must not carry out incidental diving work unless the person has the training, qualification or experience referred to in regulations 171A."

<sup>11</sup> R.171A(2) of the model WHS Regulations. "This regulation does not apply in relation to... incidental diving work."

<sup>12</sup> R.171A(2) of the model WHS Regulations. "This regulation does not apply in relation to... limited scientific diving work."

<sup>13</sup> R.173(1)(a) of the model WHS Regulations. "A person must not carry out limited scientific diving work unless the person has the training, qualification or experience referred to in regulations 171A."

Stakeholders have reported confusion over which of the series should be applied and which VET courses meet these requirements to determine if a diver is competent to perform diving work. An amendment to the model WHS Regulations made in 2014 allows regulators to specify particular courses as compliant with the laws; however none of the regulators have specified courses at this time.

The model WHS Regulations allow AS 4005.2:2000 to be applied to the relevant work as determined by the PCBU. It addresses training and certification of occupational recreational divers. This has caused confusion and concern that safety standards are being reduced. This Standard was withdrawn in 2015 following a review of Aged Standards.<sup>14</sup>

There is also concern about mandating a withdrawn standard and uncertainty about what should be referenced instead. The competency requirements in the AS/NZS 2815 series are considered prohibitively high for some sectors, including recreational diving work. Many recreational diving training organisations have advised that they apply International Standards competencies; however, these are not directly equivalent to the previous Australian Standards. Stakeholders have also advised that the International Standards competencies are deficient in risk and hazard analysis, dive accident management and record keeping.

### 4.3 Problem 2 – Regulatory burden

Responses from the diving industry to a questionnaire distributed by Safe Work Australia in late 2015 indicated operators had observed an increase in compliance costs as a result of the WHS Regulations without an appreciable increase to safety. These costs fall into four main categories and are outlined in Table 03:

- competency requirements
- supervision requirements
- attending medical fitness examinations, and
- meeting additional risk-management requirements, including complying with documentation requirements.

There is some overlap between the problems in that the regulatory confusion has contributed to some compliance costs, particularly for competency in the general diving categories.

Table 03 – Examples of costs associated with compliance

Cost category	Example of cost
Competency	<ul style="list-style-type: none"> <li>▪ Time spent determining which competencies are relevant to the diving work</li> <li>▪ Cost and time spent travelling to training.</li> <li>▪ Cost of required training.</li> <li>▪ Time spent undertaking training.</li> <li>▪ Time spent locating and providing evidence of skills and experience.</li> </ul>
Supervision	<ul style="list-style-type: none"> <li>▪ Cost of training a dive supervisor.</li> </ul>
Medical fitness	<ul style="list-style-type: none"> <li>▪ Cost and time spent travelling to appointment with a doctor who has necessary experience in underwater medicine.</li> <li>▪ Cost of appointment.</li> </ul>
Additional risk management measures	<ul style="list-style-type: none"> <li>▪ Time spent preparing dive safety plan.</li> <li>▪ Time spent preparing dive log.</li> <li>▪ One off cost of establishing systems to manage documentation.</li> <li>▪ Cost of storing documentation.</li> </ul>

<sup>14</sup> Standards Australia does not undertake further work to maintain or update a withdrawn Standard. Standards Australia advises that it is still possible for a withdrawn Standard to be used within an industry, community or by a government if they choose to do so. One reason for this may be because there are no replacement technical documents readily available.



#### 4.3.1 Competency requirements

Questionnaire respondents generally reported that the WHS Regulations for diving work had not changed the way diving work is carried out. Administrative and recruitment practices have changed to meet the competency requirements.

Stakeholders have also reported costs associated with time spent finding qualified divers and delays to projects as a result of protracted searching.

Costs can also be attributed to the time taken to understand provisions governing competency, including dealing with errors and out of date references. The WHS Regulators and business have expressed concern that the requirements do not set an objective measure for compliance and as a result are not being applied consistently by either duty holders or regulators across jurisdictions.

#### 4.3.2 Supervision requirements

Responses in the questionnaire varied on the estimated cost of using a dive supervisor. Some claimed to have incurred no costs as the requirement to have a dive supervisor applied in their jurisdiction prior to introduction of the model WHS laws. Other stakeholders estimated significant once-off and ongoing costs. This was particularly the case for the abalone industry where harvesting work is generally performed by a lone diver and a sheller who also pilots the boat. These costs were attributed to annual salary for an additional worker. In some cases, stakeholders also suggested they would need to purchase a larger vessel to accommodate the supervisor.

The model WHS Regulations require a competent person be appointed to supervise general diving work. The competent person supervising general diving work must have experience, and qualifications under either AS/NZS 2815 or AS/NZS 4005.2:2000, relevant to the work being undertaken including their supervisory duties. However, the regulations are silent on the whether a supervisor must be physically present to observe the diving work. In the absence of clarifying guidance material, some have interpreted the current regulations as meaning an additional worker is required to be present for the diving work. Supporting this is data from ADAS which demonstrates an initial increase in completion of supervisor training as the model WHS Regulations came into effect.

#### 4.3.3 Medical fitness

The model WHS Regulations require occupational divers to hold current certificate of medical fitness that has been issued by a "registered medical practitioner with appropriate training in underwater medicine".<sup>15</sup>

Concerns have been raised around availability of trained medical practitioners to provide certification, particularly in WA where the time and cost of travel to access a trained medical practitioner was thought to be prohibitive. The South Pacific Underwater Medicine Society (SPUMS) maintains a list of registered medical practitioners with training in underwater medicine on its website. While SPUMS membership is not required by the model WHS Regulations, this website provides a convenient way to locate medical practitioners with the necessary training. Currently only four SPUMS members are listed for the NT where annual medical assessments were required under pre-harmonised WHS laws. The ACT also has four SPUMS members listed. All other jurisdictions have nine or more members listed.

The frequency of medical assessments was also raised as an additional cost. The model WHS Regulations do not set the frequency of medical assessments for general diving, simply requiring that the certificate be current, that is issued in the last 12 months and not expired or revoked. The AS/NZS 2299.1 requires annual medical assessments; this currently applies to high risk diving work under the model WHS Regulations.

#### 4.3.4 Dive plans and dive safety logs

The majority of responses to the questionnaire reported little or no impact arising from requirements in the model WHS Regulations for preparation of a dive plan and a dive safety log for each dive. Completing similar documents

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<sup>15</sup> R.168 – 170 of the model WHS Regulations

are an accepted practice in all diving operations. Some negligible transitional costs to update templates and learn what information to provide were incurred.

Tasmania, however, has maintained transitional arrangements to delay commencement of requirements for dive plans and dive safety logs for the abalone industry. As with the supervision requirements, these are considered onerous because abalone collection is usually performed by one diver accompanied by a boat operator/sheller.

## 5 Objectives of Review of the model WHS Regulations for diving work

The objective of the review is to ensure the model WHS laws for diving work improve safety without imposing unnecessary compliance burden on diving operators.

The objective of the proposed options is to ensure the WHS laws applicable to diving work are consistent with regulatory best practice and are proportionate to the risks associated with occupational diving.

The principles for regulatory best practice are set out in the COAG Best Practice Regulation Guide and include:

- adopting an option that generates the greatest net benefit for the community
- ensuring government action is proportional to the issue being addressed, and
- providing effective guidance to relevant regulators and regulated parties in order to ensure that the policy intent and expected compliance requirements of the regulation are clear.

The principles of best practice regulation require that regulatory frameworks do not impede productivity or diminish safety for Australian businesses.

## 6 Options

A RIS is required to identify a range of viable options, including non-regulatory, self-regulatory and co-regulatory options where these are deemed appropriate. To address the problems identified with the model WHS Regulations for diving work, three viable options are proposed in this RIS:

- maintaining the status quo
- amending the model WHS Regulations for diving work to streamline and clarify the categories of diving work and relevant competencies, and
- replacing prescription in the model WHS Regulations for diving work with outcome based provisions and detail in guidance material.

This chapter describes these options. A table comparing the options is at Appendix B.

### 6.1 Option 1 – Status Quo

Option 1 involves maintaining the current approach to regulating diving work, as set out in Part 4.8 of the model WHS Regulations. This will involve no change to the model WHS Regulations for diving work and a continuation of efforts to develop national guidance material through Safe Work Australia. This option is required to be included in all RISs for decision maker consideration and to cost the baseline.

#### 6.1.1 Description of the option

Key features of this option are to retain:

- The categories of high risk diving and general diving, including the subcategories of incidental diving and limited scientific diving.
- The process for identifying the appropriate competency for general diving work and its subcategories, except for where jurisdictional WHS regulators choose to specify a training course as compliant with the regulations for particular general diving work.



- The requirement to appoint a competent person to supervise diving work and complete a dive plan and a dive safety log.
- The requirement to obtain evidence of medical fitness and competency before diving work can be performed and to retain that evidence for 12 months after the diving work is complete.

The supporting guidance material will need to be finalised with input from stakeholders and be agreed by Safe Work Australia, noting work on the material has been suspended pending the outcome of this review.

## 6.2 Option 2 – Amend the WHS Regulations for diving work to address identified problems

Option 2 primarily involves addressing problems identified with requirements covering competency and types of diving work in the model WHS Regulations. The overarching regulatory framework for occupational diving will be retained, with amendments to clarify their operation. The intention is to maintain the framework that diving operators have become familiar with and minimise transitional impact of the changes, while addressing issues that are impeding effective operation.

### 6.2.1 Description of the option

#### 6.2.1.1 *Diving categories*

The categories of diving work would be simplified to cover limited diving, general diving and ‘specified’ diving work. General diving would be defined as work carried out underwater while breathing compressed gas and would include limited diving as a sub-category of general diving.

Limited diving would be redefined by:

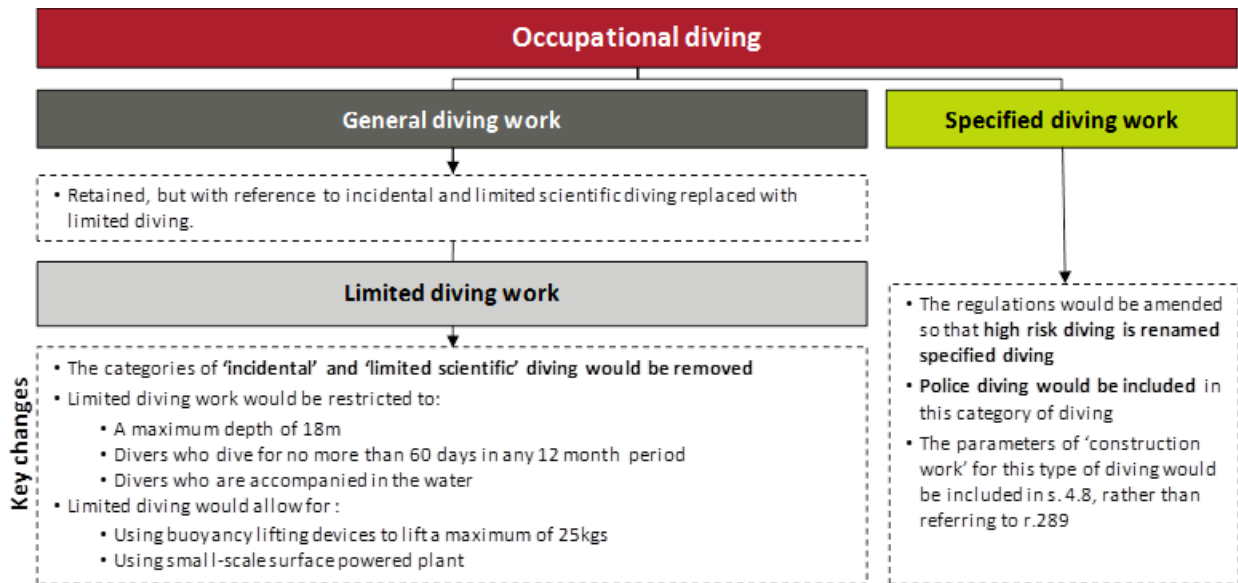
- changing the maximum depth for limited diving to 18 metres consistent with the new minimum competency
- permitting use of one buoyancy lifting device to lift no more than 25kg
- permitting use of small scale surface powered plant defined by examples such as a low pressure garden hose
- clarifying that limited diving work may not involve diving for more than 60 days in any 12-month period, and
- requiring workers performing limited diving to be accompanied in the water<sup>16</sup> by a competent and experienced general diver.

High risk diving would be redefined as ‘specified diving’ and will capture diving work undertaken for the purposes of construction, salvage and recovery of items over a stated size as well as diving work undertaken by police. This is diving work which the model WHS Regulations will specify must be conducted in accordance with AS/NZS 2299.1:2015. The competency and medical certification requirements set out in AS/NZS299.1:2015 will also apply. A definition of specified diving work will be drafted to minimise cross references to other sections of the model WHS Act and regulations. The key changes to diving categories are set out in the figure below.

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<sup>16</sup> Accompanied in the water is different to supervised. The supervision requirements will be the same for all general diving under this option in that they would be based on the risk assessment performed by the PCBU.

Figure 02 – Option 2 - Key changes to diving categories



### 6.2.1.2 Competency and medical fitness

Option 2 would require all general divers to have a minimum level of knowledge and skill which would be equivalent to the competencies in the VET unit *SISOSCB306A – Perform diver rescues*<sup>17</sup>.

This would involve adding the following to the current list of skills in regulation 171A:

- Recognising and responding to diver stress and panic
- In-water rescue breathing protocols including self-rescue, and
- Devising and applying underwater search and rescue methods to enable initial response to diving emergencies.

The diver will need to provide evidence of meeting the knowledge and skill requirements via a certificate issued by a training organisation as is currently the case. In the case of non-residents, certification can be from an equivalent overseas training organisation. In addition, a diver must have a minimum diving experience of 15 hours or more, of which at least 8 hours and 20 minutes must be at or below the planned maximum dive depth. Divers with this minimum competency (i.e. skills, knowledge and experience) will only be allowed to perform limited diving work.

To perform general diving beyond limited diving, a worker must have, in addition to the minimum competency, competencies drawn from AS 2815 series or ISO 24801-3:2014 relevant to the general diving work to be undertaken. Which general diving competencies are relevant would be determined by the PCBU through the risk assessment of the diving work, unless a regulator specifies a course or courses for certain general diving work.

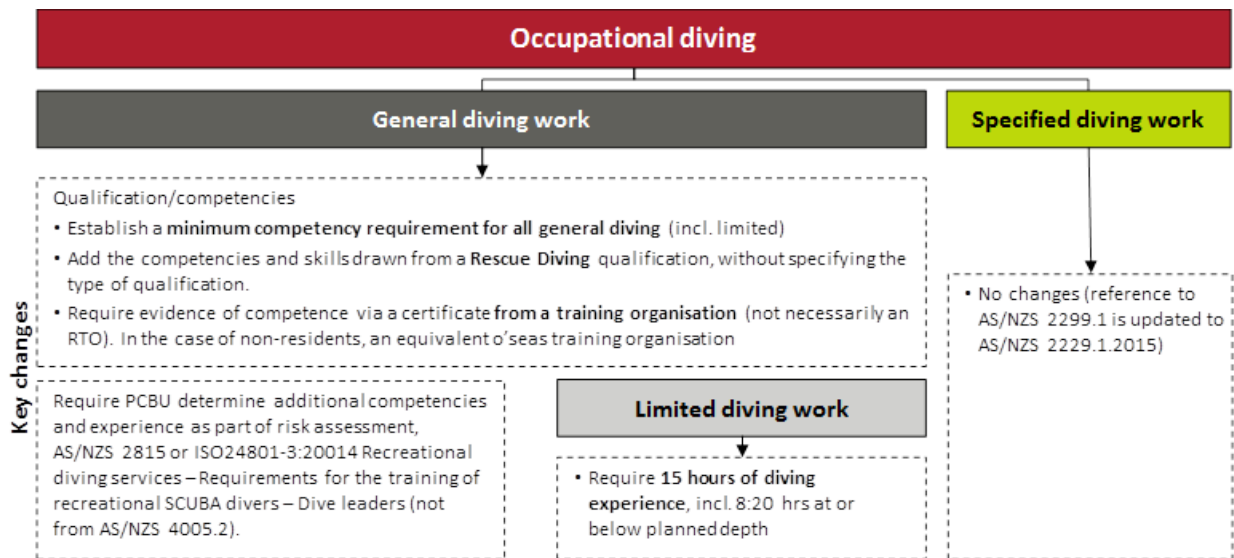
Evidence of general diving competency will not change in that a certificate from a training organisation will be acceptable.

Option 2 would retain current requirements for all divers to hold a current certificate of medical fitness issued by a registered medical provider with training in underwater medicine. However, non-resident divers undertaking diving work would be allowed to provide a medical certificate indicating fitness to dive from an overseas medical practitioner.

<sup>17</sup> See the [SISOSCB306A Perform diver rescues document](#). Note this unit allows diver to perform diving rescues to 18 meters. This has been reflected in the definition of limited diving.

Guidance material will make it clear SPUMS membership is not required, only the training in underwater medicine, to perform medical assessments and issue certificates for fitness to dive. The material will also provide guidance on when overseas medical certificates are acceptable, and when a local medical practitioner should be approached.

Figure 03 – Option 2 - Key changes to the competency requirements



### 6.2.1.3 Risk management

Option 2 would continue to require a written risk assessment and the appointment of a competent person to supervise diving work, prepare a dive plan and verify details in the dive safety log.

In controlling risks, the regulations would specify that consideration must be given to the conditions applying at the dive site as well as the competency and experience necessary for divers to perform the work safely. The conditions will be the:

- physical environment
- workplace environmental conditions that may affect the work or the worker performing it
- equipment, materials and substances used
- work tasks and how they are performed, and
- work design and management.

The regulations would clarify that the dive supervisor must directly supervise the work unless the risk assessment deems this to be unnecessary and other suitable controls are in place, such as the dive supervisor being accessible and another person able to assist the diver in an emergency is present.

Option 2 would retain current requirements for preparing dive plans and dive safety logs.

### 6.2.2 Summary of changes

The key changes under this option are amendments which:

- simplify the diving categories under general diving by removing incidental and limited scientific diving
- redefine limited diving work and high risk diving work
- establish a minimum competency level at which limited diving can be undertaken
- correct errors and references to withdrawn standards associated with competency requirements, and
- specify the factors that must be considered in controlling risks.

Option 2 also envisages supporting guidance material being developed by Safe Work Australia with input from industry representatives.

### 6.3 Option 3 – Rely on a risk management approach

Option 3 is a less prescriptive approach which relies on the written risk assessment as a basis for the PCBU to determine the controls that best suit the diving work being undertaken.

Construction, recovery and salvage as well as police work will be regulated by requiring that AS/NZS 2299.1:2015 is applied to the conduct of the work, medical fitness and competency.

This option is intended to introduce a more flexible regulatory framework that can be easily applied across the diverse diving sectors. It also addresses concerns that the model WHS Regulations have increased costs without improving safety for a proportion of diving operators.

#### 6.3.1 Description of the option

##### 6.3.1.1 Diving categories

Option 3 would not be broken down into specific diving categories. Instead, the regulations would apply to all diving work, defined as work carried out on the surface or underwater or any other liquid while breathing compressed gas.

##### 6.3.1.2 Competency and medical fitness

Option 3 would simply require the PCBU to ensure that a worker who carries out diving work is competent and medically fit to undertake that type of diving work. The regulations would not specify the competencies nor prescribe details for medical certificate requirements.

##### 6.3.1.3 Risk management

Under this option, a competent person will be required to complete a written risk assessment which must be used to determine the type of control measures that need to be implemented to undertake the diving work safely, including the competencies needed by workers who will carry out the diving work.

In controlling risks, the regulations would specify that consideration must be given to the conditions applying at the dive site as well as the competency and experience necessary for divers to perform the work safely. The conditions will be the:

- physical environment
- workplace environmental conditions that may affect the work or the worker performing it
- equipment, materials and substances used
- work tasks and how they are performed, and
- work design and management.

Where the risk assessment identifies that work tasks will include construction, salvage and recovery of items over a stated size or police diving work, the model WHS Regulations will specify that the diving work must be conducted in accordance with AS/NZS 2299.1:2015. The competency and medical certification requirements set out in AS/NZS 2299.1:2015 will also apply to the divers performing the dive work.

Option 3 would not prescribe any requirements relating to the appointment of a competent person to supervise the diving work, the preparation of a dive plan and dive safety log.

#### 6.3.2 Summary of changes

The key changes under this option are:

- removal of the diving categories
- less prescriptive provisions for competency and medical fitness
- removing requirements for preparing dive plans, dive safety logs and keeping records
- control measures are determined by the risk assessment, including level of competency and supervision, and

- where the risk assessment identifies the diving work tasks will involve construction, salvage, recovery or police diving work, AS/NZS 2299.1:2015 would be applied in carrying out the diving work.

Option 3 envisages diving sectors working collaboratively with Safe Work Australia to develop their own guidance material relevant to their diving activities. Safe Work Australia may also develop high level generic material outlining ways to comply with the model WHS Regulations for diving work.

## 7 Costs and benefits of the options

This chapter sets out an initial assessment of the costs and benefits of each of the options identified in Chapter 6 to determine the option with the greatest net benefit to the community.

In this chapter we would like to know the following:

- Do you agree with the description of the impacts that are anticipated for each option?
- Can you provide any comments or data that would assist to measure the costs and benefits of each option?

### 7.1 Approach to measuring the impacts

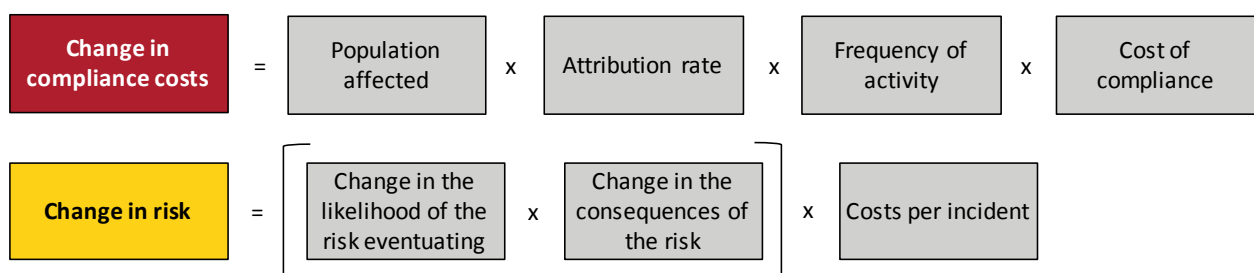
The approach used to assess the options is a Cost-Benefit Analysis (CBA). CBA is an analytical tool that can be used to measure the economic and social impact of government action and measure the 'net social benefits' that action might produce. CBA requires that all major costs and benefits of a proposal be quantified in monetary terms. This allows the outcomes for a range of options to be translated into comparable terms in order to facilitate evaluation and decision making.

For this RIS, the CBA has focussed on producing an estimate of the change in compliance costs and level of risk associated with each of the options that were identified in the previous chapter. These have been estimated for the base case (Option 1) and for each of the alternative options for regulating occupational diving (Options 2 and 3).

#### *Quantitative assessment*

Where possible, the effects of the options have been quantified. The quantification of compliance costs has focussed on areas of difference between the options. The analysis of risks has focussed on how the proposed options may contribute to either an increase or a decrease in risks associated with occupational diving. The diagram below provides an overview of the approach to quantifying the costs and benefits proposed in the options.

Figure 04 – Approach to quantifying changes in compliance costs and risks for the RIS



#### *Qualitative assessment*

Due to an absence of data, it has not been possible to quantify many of the impacts of the proposed options. This has made it necessary to undertake a qualitative assessment of some of the impacts of the options. The two main areas that have been assessed qualitatively are the extent the option contributes to a reduction in regulatory confusion, which was identified as a key problem with the current regulations (see Chapter 4), and the safety impacts of each component of the options.

## 7.2 Key assumptions

This section sets out some of the key assumptions used to inform the calculations in the CBA.

### 7.2.1 Population affected

The key groups impacted by the regulatory requirements for diving are the businesses that undertake occupational diving and the divers themselves. Chapter 3 provided some details about the diversity of the diving industry and the size of its various sub-sectors. The table below sets out the numbers used in the CBA to estimate the impacts of the proposed options.

Many of the regulatory requirements in section 4.8 of the model WHS Regulations are determined based on how the regulations categorise the diving work being undertaken (e.g. high-risk, general, limited scientific, incidental). The table below sets out the assumptions about the type of diving undertaken by each sector. This has been used to determine the number of divers/businesses affected by each of the changes proposed under Option 2 and 3.

Table 04 – Type of work undertaken by the diving industry

Industry sector	Number of divers	Types of diving work undertaken (based on the current regulatory categories)
Construction diving (including salvage, search and recovery)	1,500	The sector mainly undertakes high-risk diving work
Boat mooring and marine inspection and maintenance	300	This sector mainly undertakes general diving work, but may also undertake some high-risk work (e.g. search and recovery of large moorings)
Defence diving	300	The sector mainly undertakes high-risk diving work, but may also undertake some high-risk work (e.g. demolition work)
Police diving	100	The sector mainly undertakes general diving work
Aquaculture-related diving	750	This sector mainly undertakes general diving work, but may also undertake some high-risk work (e.g. construction of fish pens)
Wild-catch (including abalone, crayfish and pearl diving)	500	The sector mainly undertakes general diving work
Scientific and archaeological diving	1,250	The sector mainly undertakes general diving work, but also undertakes some incidental and limited scientific diving work, as well as some work that meets the current definition of high-risk work (e.g. construction of underwater structures used in excavations). Based on industry feedback, around 300 divers in this sector are assumed to be limited divers.
Recreational diving sector	5,000	The sector mainly undertakes general diving work
<b>Total</b>	<b>9,700</b>	

### 7.2.2 Compliance costs

The options are likely to impact the compliance costs of occupational divers as a result of amendments to the following requirements: minimum competency requirements, obtaining medical certifications, and complying with other risk management requirements under the regulations. The key assumptions about the compliance costs associated with the three options are set out below.

#### 7.2.2.1 Costs associated with meeting training requirements

The training pathways for occupational divers are diverse. However, most occupational divers have completed the same introductory diving courses as recreational divers, before going on to undertake occupational training specific to their sector. These initial qualifications usually begin with an introductory diving course and progress to open water diving, advanced open water diving, and rescue diving.

Figure 05 – Example of a training pathway for recreational divers



These courses have been developed by diving certification agencies such as the Professional Association of Diving Instructors (PADI), RAID International (RAID) and SCUBA Schools International (SSI). They are usually delivered by instructors working out of dive-shops, dive schools and universities. The costs of these courses are approximately \$500 each (they may be more if they include a greater number of dives) and around \$600 for rescue diving courses.

Generally, the rescue training provided by these organisations is consistent with proposed minimum competency standard for Options 2 and 3 (SISOSCB306A – Perform rescue dives). The main recreational training organisations all have relationships with RTOs, which allows them to deliver diving courses in a VET context. This can be done through a Certificate II or III in Outdoor Recreation (SCUBA diving) or a Certificate III in Outdoor Recreation (SCUBA diving) and a number of other sector-specific certificate level courses. However, to deliver VET recognised courses, the instructor must hold a Certificate IV in Training and Assessment.

This proposed change will only affect divers who currently undertake incidental or limited scientific diving work, as other divers are already required to have training exceeding the minimum standards (under either AS/NZS 2815 or AS/NZS 4005.2.2000). The majority of divers in these categories are assumed to already hold an advanced open water certificate, so the additional cost of the training is assumed to be \$600, plus two to three days to complete the additional course.

Consideration was also given to whether evidence of competencies should always be from a RTO. However, this option was not considered further because it was likely to result in significant registration costs for non-RTO training providers and instructors without the necessary Certificate IV in Training and Assessment. There was also evidence that it may restrict the availability of training in some areas.

#### 7.2.2.2 *Costs of obtaining medical certification*

The cost of obtaining a medical certificate is approximately \$150 and medical certificates must be obtained every 12 months. Where the diver is already in permanent employment, this cost is usually met by a diver's employer (or PCBU) and the worker is paid for the time they spend undertaking the medical examination. However, divers commencing employment are generally expected to already have a current certificate of medical fitness.

A lack of available medical practitioners trained in underwater medicine has been raised as a cost by some industry participants, particularly in regional areas. The model WHS Regulations require the assessment to be undertaken by a practitioner trained in underwater medicine and these may not be readily available in all areas.<sup>18</sup>

#### 7.2.3 *Frequency of activities*

In this RIS, frequency refers to the number of times that a regulatory cost is incurred which varies depending on the requirement. Most diving training costs are one-off, medical certification is an annual cost, and (as noted in Chapter 3) risk-assessments, the completing of dive plans and log-books are required for every dive, but both risk assessments and dive plans can be re-used for similar dives.

There is a lack of data available to estimate the frequency of diving activity and this has limited the extent to which the proposed regulatory changes can be quantified.

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<sup>18</sup> Medical training in Australia is provided by the South Pacific Underwater Medicine Society (SPUMS). A comprehensive course is delivered in Adelaide, Sydney and Tasmania and an introductory course is delivered in Townsville and Perth. It takes a doctor approximately 60 hours to complete the comprehensive course and 25 hours for the introductory course and costs approximately \$3 000. Refresher courses are usually undertaken every five years.



Other assumptions about the frequency of impacts are set out in the tables under each option.

#### 7.2.4 Attribution rate

In this RIS, the attribution rate refers to the extent that a change in compliance costs for one of the proposed options can be attributed to the change in regulations. Based on consultation with industry stakeholders, it has been assumed that it is common in the diving industry for divers and diving organisations to exceed the requirements in the regulations and therefore a change in the regulatory requirement may not result in a change in the regulatory cost for all industry participants. Examples of this include:

- divers holding higher levels of qualifications than they are required to by the regulations
- organisations imposing safety controls that exceed the requirements of the regulations,
- organisations applying the AS/NZS 2299 standards (mandatory for high-risk diving) for work defined as general diving work.

The assumptions about whether a change in compliance costs should be attributed to a proposed change in the regulations is set out in the tables under each option.

#### 7.2.5 Safety impacts

Safe Work Australia has collected data from the Traumatic Injury Fatalities Database, which shows that the fatality incident rate for occupational diving in Australia is approximately one death per year. If client fatalities are included, such as tourists and students diving with a business or undertaking, the incident rate would be approximately three deaths per year. Workplace deaths can have a significant impact on the worker's family friends and community, beyond what can be adequately described in a CBA.

Safe Work Australia has undertaken research focussed only on the economic costs of workplace injuries and fatalities, which has identified the following types of costs:

- **production disturbance costs** – short term costs incurred until production is returned to pre-incident levels
- **human capital costs** – long run costs, such as loss of potential output, occurring after a restoration of pre-incident production levels
- **medical costs** – costs incurred by workers and the community to treat injured workers
- **administrative costs** – costs to administer compensation schemes, investigate incidents and legal costs
- **transfer costs** – deadweight losses associated with administration of taxation and welfare payments, and
- **other costs** – includes costs not otherwise classified, such as the cost of carers, aids and modifications.

This research found that the average economic costs associated with a workplace fatality are in the order of \$1.6 million, with costs borne by employers, the community and workers themselves. Other research, undertaken by the Office of Best Practice Regulation (OBPR), has used 'willingness to pay' methods to estimate the value of a statistical life at \$4.2 million for each avoidable death. This is the figure suggested for use in cost-benefit analyses when changes to regulations are proposed.

As indicated in Chapter 3, there is limited reliable data available to show the number of serious injuries resulting from diving work. Part of the reason for this is because of the way that hospitals and worker's compensation schemes collect data, which makes it difficult to identify diving related incidents.

Two jurisdictions, Tasmania and Western Australia, were able to provide data on the cost of occupational diving related injuries and illnesses. The Tasmanian data relates to the aquaculture and marine fishing industries. The regulator has identified the types of injuries and illnesses that are likely to relate to diving incidents. This data shows an average of almost 100 workplace injuries in these industries each year over the five years to 2013, with an average workers compensation cost \$5,400 per incident. This might provide an indication of the typical workers compensation costs of a diving injury or illness. However, the data lacks sufficient detail to be sure that all of the incidents were directly related to diving activities.



The Western Australian data relates more specifically to diving work by using the ANZSCO Occupation classifications '399911 Diver' and '452311 Diving Instructor'. This data showed an average cost per claim of \$33,600 for the period from 2009-10 to 2014-15. Other information provided with the Western Australian data shows that the figures are more specific to the diving industry and it is therefore considered more realistic of the costs of diving related injuries and illnesses.

### 7.3 Option 1

Option 1 involves a continuation of the existing regulatory arrangements. As part of this option, Safe Work Australia will also continue to develop material to support understanding of the model WHS Regulations for diving work. The supporting material may include fact sheets, guides, a model code of practice or a combination of these and would be finalised with input from stakeholders and be agreed by Safe Work Australia.

#### 7.3.1 Assessment of Option 1 impacts

Option 1 is the base case against which all other options are assessed. Option 1 involves maintaining the current approach to regulating diving work, as set out in Part 4.8 of the model WHS Regulations.

While the regulations would not be amended to address the confusion, the development of guidance material could be used to clarify:

- the definition of high risk diving work and implications for determining if diving work is general or high risk
- the types of general diving work, specifically incidental diving and limited scientific diving
- interaction of WHS Regulations for diving work and Australian Standards, and
- competency requirements for general diving work.

Option 1 will not fully address the problem of regulatory burden. It does not involve any amendments to the regulations, as such, there would be no change to the compliance burdens associated with:

- the categories of diving in the model WHS Regulations
- competency requirements for general diving work
- medical fitness requirements for general divers, and
- requirements to appoint a competent person to supervise diving work, complete a dive plan and safety log.

As Option 1 involves a continuation of the current regulatory framework with enhanced clarity through guidance material, it is expected to have a small positive outcome in terms of reducing risks associated with any inadvertent non-compliance.

### 7.4 Option 2

Option 2 involves addressing the problems of regulatory confusion and some of the regulatory burdens identified. The overarching regulatory framework for occupational diving will be retained, with amendments aimed at streamlining and clarifying the categories of diving work and relevant competency requirements.

#### 7.4.1 Changes to categories

The proposed changes to the diving categories and definitions are expected to benefit all occupational divers by providing greater clarity and reducing the current confusion identified in the problem statement. Stakeholders have stated that the current definitions can inhibit work, for example needing to seek regulator's interpretation of requirements before undertaking work; and could be reducing safety standards in some instances, for example where the regulations are silent on the competency requirements for Australian scientific divers and students. It has not been possible to quantify the impact of the proposed changes because the effects would vary significantly across each organisation and there is insufficient data to develop a reasonable estimate.

The table below provides an assessment of the expected impacts of the proposed changes to the diving definitions by identifying the groups of occupational divers that will be impacted, the frequency of the impacts, and the likely compliance and safety impacts.

Table 05 – Impact of Option 2: Changes to diving definitions

<b>Proposed change: Changing the name of 'high-risk' diving to 'specified diving'</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>▪ PCBUs involved in general diving work.</li> <li>▪ Stakeholders reported frequently experiencing confusion over whether diving work was high risk, particularly when work tasks or conditions at a dive site changed.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Address the confusion caused by the current definition of high risk diving which focusses on construction work instead of factors that contribute to diving risk.</li> <li>▪ Correct misperception that AS/NZS 2299.1:2015 cannot be applied to other types of diving work.</li> <li>▪ Allow PCBU's to focus on safety outcomes, rather than compliance, which may improve risks management.</li> </ul>
<b>Proposed change: Inclusion of police diving in 'specified diving'</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>▪ Approximately 100 Police divers.</li> <li>▪ Infrequent increase in compliance measures for a small number of diving operations anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Police diving operations would need to be carried out in accordance with AS/NZS 2299.1:2015 including for fitness and competence.</li> <li>▪ No or minimal impact is anticipated as police advise they are already compliant with this standard, however, additional supervision or other control measures may be needed for some activities.</li> </ul>
<b>Proposed change: Limited diving use of a buoyancy lifting device to lift up to 25kg</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>▪ Approximately 300 current limited scientific divers.</li> <li>▪ Unknown frequency. Scientific and archaeological divers reported frequently using lift bags to move small objects such as tools, specimens or artefacts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduce compliance costs associated with using more qualified divers to operate small buoyancy lifting devices.</li> <li>▪ The risks associated with using buoyancy lifting devices include uncontrolled ascent, falling objects, and loss of breathing gas</li> <li>▪ These risks are mitigated by the limit of 25kgs that would apply. The existing requirements that the diver has relevant diving experience (see r.172 and 173) would also continue to apply.</li> </ul>
<b>Proposed change: Limited diving use of small scale surfaced-powered plant</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>▪ Approximately 300 current limited scientific divers.</li> <li>▪ Unknown frequency. Small scale surface powered plan such as hoses is frequently used to clear sand from objects underwater.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduce compliance costs associated with using more qualified divers to operate small scale surface powered plant.</li> <li>▪ Risks are mitigated by only permitting low-risk tools to be used and the existing requirements that the diver has relevant diving experience (see r.172 and 173).</li> <li>▪ May decrease risk associated with lowering additional cylinders to power small plant; a method used by some to perform work in compliance with the current restriction on surface powered plant.</li> </ul>
<b>Proposed change: Limited diving to a maximum depth of 18m instead of 30m</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>▪ A small subset of current incidental or limited scientific divers.</li> <li>▪ Unknown frequency. Scientific and archaeological divers reported infrequently working below 18m.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Aligns the maximum depth for limited diving with the new minimum competency requirements.</li> <li>▪ Affected limited divers would need to restrict their diving to 18m or meet the competency requirements for general diving. Otherwise a diver meeting the general diving competency requirements would need to carry out the work.</li> <li>▪ Anticipated decrease in risk for limited diving.</li> </ul>

<b>Proposed change:</b> Limited divers to be accompanied in the water by a general diver	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>Approximately 300 current limited scientific divers.</li> <li>Infrequent impact anticipated as scientific divers advise very little diving work is conducted alone.</li> </ul>	<ul style="list-style-type: none"> <li>This is a consequential change arising from merging incidental and limited scientific diving which had differing requirements.</li> <li>May increase compliance costs if an additional general diver is required.</li> <li>May reduce the risks associated with diving unaccompanied, particularly in if something goes wrong while diving and immediate assistance is required.</li> </ul>
<b>Proposed change:</b> Limited diving allowed to be undertaken for 60 days in any 12 months instead of 28 days in six months	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>A small subset of current incidental or limited scientific divers.</li> <li>Unknown frequency. Scientific and archaeological divers reported only a small subset of diving exceeds 28 days in six months.</li> </ul>	<ul style="list-style-type: none"> <li>Reduces compliance costs associated with staggering work to comply with current limit, particularly for divers from overseas who may incur additional travel and accommodation costs.</li> <li>Permits a maximum of 4 additional days diving in any 12 months.</li> <li>Minor increase in risk, offset by limiting diving to 18m and requiring the diver be accompanied.</li> </ul>

#### 7.4.2 Changes to competency requirements

The proposed changes to the competency requirements are expected to benefit all occupational divers by providing greater clarity and certainty with regards to which standards must be followed, what qualifications are required and what training providers/courses are acceptable (identified in the problem statement). The intent of the proposed change is to provide a clear minimum competency requirement for diving work. This will affect some occupational divers who currently use the incidental and limited scientific diving categories, but will not affect other divers, who are already expected to hold qualifications that are more advanced than the proposed minimum requirements.

In this section we would like to know the following:

- What would be the impact of amending the model WHS regulation to reference ISO 24801-3 instead of AS/NZS 4005.2:2000?

Table 06 – Impact of Option 2: Changes to competency requirements

<b>Proposed change:</b> Establish a minimum competency for all general diving which includes the VET recreational rescue diving competency	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>Approximately 300 current incidental or limited scientific divers.</li> <li>Unknown frequency. Limited to a small subset given many Universities already require a minimum qualification of rescue diving</li> </ul>	<ul style="list-style-type: none"> <li>Increase in compliance costs estimated to be around \$600 and two to three days for training to upgrade from an open-water qualification.</li> <li>Where current training can be mapped to the VET Rescue Diving unit, certificates of compliance can be issued for a fee of around \$75. This will also assist international divers.</li> <li>All other occupational divers will have completed rescue diving training as part of their qualifications under either AS/NZS 4005.2 or AS/NZS 2815, so would be unaffected by the change.</li> <li>A reduction in risk is anticipated as divers will have a better capacity to identify and respond to diving incidents.</li> </ul>

<b>Proposed change: Require minimum experience of 15 hours for limited diving</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>Limited scientific divers who are not residents of Australia.</li> <li>Unknown frequency however, it is expected to be low.</li> </ul>	<ul style="list-style-type: none"> <li>This is a consequential change arising from merging incidental and limited scientific diving which had different requirements. The lower of the two thresholds has been applied.</li> <li>Reduces compliance costs associated with performing and providing evidence of 60 hours diving experience.</li> <li>No or minimal safety impact anticipated given most visiting divers are reported to exceed the minimum.</li> </ul>
<b>Proposed change: Requirement for the PCBU to determine additional competencies for divers from the ISO 24801-3 instead of AS 4005.2:2000 for general diving.</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>Up to 5 000 divers working in recreational, wild catch or aquaculture diving who are believed to use recreational diving qualifications for diving work.</li> <li>Unknown frequency.</li> </ul>	<ul style="list-style-type: none"> <li>This option proposes referring to competencies from ISO 24801-3 (Dive leaders) instead of the withdrawn AS/NZS 4005.2. This ISO standard is broadly equivalent to the level of AS/NZS 4005.2. However, the requirements to demonstrate the competencies that make up the standard are less detailed and therefore could lead to a reduction in minimum training standards.</li> <li>Further feedback is particularly sought on this proposal.</li> </ul>

#### 7.4.3 Changes to risk management requirements

The proposed changes to the risk management requirements are expected to benefit all occupational divers by providing greater clarity and certainty as to the regulatory requirements for risk management (identified in the problem statement). It is assumed that most occupational divers already take into account the environmental conditions when undertaking their risk assessments and conduct diving with direct supervision; hence this change is not expected to have a significant impact on compliance costs but may have a marginal impact on safety outcomes.

In this section we would like to know the following:

- How would the proposed changes to supervision requirements for general diving impact compliance costs and safety outcomes?

Table 07 – Impacts of Option 2: Changes to risk management requirements

<b>Proposed change: Specifying conditions to be considered in the risk assessment</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>All organisations conducting general diving work.</li> <li>Required each time a written risk assessment is compiled.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in certainty as risk assessments address the main factors influencing diving risk. Change is not expected to be significant as most occupational diving risk assessments already include the specified elements; however, some written risk assessments may require updating to ensure all elements are covered.</li> <li>A reduction in risk is anticipated as PCBU focus is appropriately directed to risks and control measures, rather than determining categories of diving work.</li> </ul>
<b>Proposed change: Clarification of direct supervision requirements and appropriate alternatives</b>	
<b>Population and frequency</b>	<b>Anticipated Impacts</b>
<ul style="list-style-type: none"> <li>All organisations conducting general diving work.</li> <li>Unknown frequency. Many stakeholders reported they were requiring direct supervision of diving work when they believe it was not necessary for safety.</li> </ul>	<ul style="list-style-type: none"> <li>Anticipated reduction in compliance costs where performing diving work with only one diver is common, such as abalone diving.</li> <li>It is not anticipated to result in major changes to the level of supervision that currently occurs.</li> <li>An increase in risk may occur if PCBUs underestimate risks and do not provide adequate supervision or alternatives.</li> <li>Further feedback is particularly sought on this proposal.</li> </ul>

Proposed change: Clarifying use of overseas medical certification of fitness to dive	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>▪ Divers who obtained medical certification of their fitness to undertake diving work overseas</li> <li>▪ Unknown frequency. A small proportion of general divers, including limited scientific divers.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Anticipated reduction in compliance costs associated with obtaining a second medical certificate in Australia. This usually costs around \$150, plus travel.</li> <li>▪ Safety impacts can be minimised by providing PCBUs with guidance on accepting overseas medical certificates.</li> </ul>

#### 7.4.4 Development of guidance materials

For Option 2, guidance materials would be developed by Safe Work Australia to support the PCBU to understand the model WHS Regulations for diving work. This would address the problem of regulatory confusion. The industry would benefit from the greater regulatory clarity that the materials would provide on how they could comply with regulations.

Table 08 – Impacts of Option 2: Development of guidance materials by Safe Work Australia

Proposed change: Development of guidance materials by Safe Work Australia	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>▪ All organisations and divers conducting general diving work.</li> <li>▪ Impacts would be transitional, for example, to understand new guidance material, and ongoing.</li> </ul>	<ul style="list-style-type: none"> <li>▪ This would reduce confusion by providing a consistent set of supporting materials across all states and territories and all sectors of the dive industry.</li> <li>▪ Flexibility is also retained in that PCBUs can choose to comply with a technical standard or an industry-specific standard, if it provides an equivalent or higher standard of work health and safety.</li> <li>▪ A reduction in risk is also anticipated from clear, authoritative guidance on how to comply with the model WHS Regulations for diving work.</li> </ul>

#### 7.4.5 Summary of Option 2 impacts

Option 2 is expected to reduce many areas of confusion associated with the current model WHS Regulations for diving, by either removing areas of confusion or providing more prescription in the regulations. Ambiguities in the model WHS Regulations have resulted in some parts of the diving industry spending a considerable amount of time understanding their current requirements under the model WHS Regulations, including consulting with Safe Work Australia and WHS regulators to determine what these requirements are and how to comply with them. This time comes at a cost to the industry, but also results in an undue focus on regulatory compliance rather than addressing areas of risk or improving safety outcomes. In aggregate, the changes proposed for this option are expected to result in a reduction in the amount of time the industry spends understanding their regulatory requirements, allowing for an increased focus on safety outcomes. Outcomes for specific sectors of the diving industry are discussed below.

##### ***Key impacts to scientific diving***

Many of the proposed changes in Option 2 will predominantly affect the scientific diving sector. Removing the separate categories for incidental and limited scientific diving (to be replaced by limited diving) and establishing a consistent minimum competency requirement for all general-diving work will make it much simpler for this sector to understand the competency and other regulatory requirements for their diving work.

The majority of the proposed changes will only affect a sub-set of about 300 scientific divers with qualifications below the levels of AS/NZS 2815 or AS/NZS 4005.2 (i.e. those currently using the incidental or limited scientific diving categories in the regulations). These divers would need to ensure they meet the minimum competency requirements for rescue diving, which is likely to cost around \$600 and require 2-3 days of additional training.

There may be some additional compliance costs associated with restricting less highly-qualified divers to a maximum diving depth of 18 metres and requiring them to be accompanied in the water at all times. However, this is

understood to be largely consistent with current industry practices. Offsetting this, there are likely to be cost savings from allowing the use of small buoyancy lifting devices and surfaced-powered plant, which are low-risk activities that are frequently undertaken by scientific and archaeological divers.

Making it clear that overseas medical certificates are an acceptable form of evidence of medical fitness will reduce the compliance costs for a significant number of international scientific and archaeological divers visiting Australia.

Table 9 – Summary of Option 2 impacts for scientific diving

Proposed change	Compliance costs	Change in risk
Development of guidance materials by industry	Moderate savings	Decrease
Applying a maximum depth of 18m for limited divers	Minor increase	Decrease
Allowing limited diving to be undertaken for 60 days in any 12-month period	Minor savings	No change
Requirements for limited divers to be accompanied in the water	Minor increase	Decrease
Use of buoyancy lifting devices up to 25kgs	Minor savings	Minor increase
Use of small scale surfaced-powered plant	Minor savings	No change
Establish a minimum competency for general diving including the VET rescue diving competency	Moderate increase	Decrease
Minimum hours diving experience	Minor savings	No change
Allowing greater use of overseas medical certificates	Moderate savings	No change

***The proposed changes affecting all general diving work***

The changes proposed as part of Option 2 will also reduce areas of regulatory confusion associated with general diving work. Specifying the conditions to be considered in diving risk assessments will reduce confusion about the scope of these assessments, without any significant increase in compliance costs.

The proposed minor amendments to supervision requirements are not expected to result in significant changes to current practices and will make the current requirements clearer. However, if PCBUs underestimate the risks and do not put in place sufficient supervision, there may be negative safety impacts from this amendment.

Changes to minimum competency requirements will not affect the vast majority of general divers, who already exceed these minimum requirements.

Replacing the reference to the widely used, but withdrawn AS/NZS 4005.2 standard with the similar ISO 24801-3 will address confusion associated with the regulations currently referring to a withdrawn standard. However, the ISO is generally less prescriptive than the standard it replaces and feedback is sought from stakeholders on potential safety impacts of this proposed change and any alternatives approaches that should be considered.

Diving associations developing guidance material on health and safety for their particular type of diving work will have an impact in terms of resources to develop, maintain and disseminate the guidance. However, the benefit should be significant in that dive operators will have meaningful guidance on health and safety that is specific to their work and operating environments. This will assist with compliance and increase safety outcomes.

Table 10 – Summary of Option 2 impacts for general diving

Proposed change	Compliance costs	Change in risk
Development of guidance materials by Safe Work Australia	Moderate savings	Decrease
Establish a minimum competency for general diving including the VET rescue diving competency	No change	No change
Requirement for the PCBU to determine additional competencies for divers from the AS/NZS 2815 series or ISO 24801-3	No significant changes	To be confirmed through consultation
Specifying conditions to be considered in the risk assessment	Possible minor increase	Possible decrease
Changes to supervision requirements	No significant changes	Possible increase
Allowing greater use of overseas medical certificates	Moderate decrease	No change



### *The proposed changes affecting high-risk diving work*

The naming of the high-risk diving category has caused confusion across the diving industry about the causes of risk in diving work and the standards that should be applied to that work. This will be addressed by renaming the category 'specified diving'.

There are few other changes to the regulatory requirements for the high-risk diving category. References in regulations to AS/NZS 2299.1:2007 will be updated to the 2015 version of this standard and police diving will be included in the new category, reflecting the risks associated with that type of diving and consistent with the standards to which police divers already operate.

Table 11 – Summary of Option 2 impacts for high-risk diving

Proposed change	Compliance costs	Change in risk
Inclusion of police-diving within the category of 'specified diving'	Possible minor increase	Possible decrease

## 7.5 Option 3

Option 3 involves addressing the problems of regulatory confusion and many of the regulatory burdens identified. Option 3 involves a less prescriptive regulatory framework for diving work which focuses on the written risk assessment as a basis for the PCBU to determine the controls that best suit the diving work being undertaken. Construction, recovery or salvage, or police work will continue to be regulated by requiring that AS/NZS 2299.1:2015 is applied to the conduct of the work, medical fitness and competency.

### 7.5.1 Adopting a self-regulatory approach based on risk assessment

Option 3 is much more of a self-regulatory approach, with most of the prescriptive aspects of the regulations removed from the regulations and replaced with a requirement that the PCBU, using the risk assessment process, identify the risks associated with diving work and put in place appropriate control measures. This option would provide PCBUs with much greater discretion to determine the competence, experience and medical fitness requirements of divers, and whether to use dive plans, dive logs and diver supervision.

Much of the diving industry is highly safety conscious, complying with or choosing to exceed the current regulatory requirements. For many, the increased flexibility provided under this option would not result in substantial changes to their current operations. However, this option would provide greater flexibility for PCBUs manage risk in a way that is more suited to the specific nature of the diving work they are undertaking. This approach is expected to address problems identified by the industry, which arise from applying the more prescriptive current regulations, to the diverse range of diving work undertaken across the different sectors of the diving industry. The increased flexibility is expected to reduce compliance costs for the industry.

In consultations, regulators and some members of the diving industry have raised significant concerns with adopting a more self-regulatory approach. This includes concerns that some diving operators will not put in place adequate risk management controls – some industry participants and regulators have expressed concern that greater flexibility could encourage the industry to effectively undercut one another on safety and that the small number of diving operators who are known to have compliance issues would use a more flexible approach to under-assess the risk associated with diving work and therefore not employ adequate control measures.

There are also concerns about potential problems with compliance and enforcement – regulators have also expressed a concern that it would be harder to hold the industry to account for their safety practices without those practices being prescribed in regulation and codes of practice preserved in some jurisdictions.

The impact of an outcomes based approach to diving regulations can only fully be considered in combination with the other changes proposed for this option. These are discussed further below.

### 7.5.2 Changes to categories

By removing the categories of diving, this option removes some of the regulatory triggers for additional competency requirements or regulatory controls, instead the risk assessment process will allow for the PCBU to determine when these are required. Stakeholders consider this approach will benefit industry by better reflecting the way that diving operators approach their risk management. Risks associated with diving work exist on a continuum and there is no one point on that continuum that provides a natural trigger point for either an additional level of regulatory controls or a higher level of qualification from divers.

Table 12 – Impacts of Option 3: Changes to diving definitions

Proposed change: Not using categories of diving work	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>▪ All organisations conducting diving work.</li> <li>▪ Impacts would be transitional, for example to understand the new regulatory framework</li> </ul>	<ul style="list-style-type: none"> <li>▪ Anticipated minor reduction in compliance costs as PCBU's will not have to determine a category of diving work as a step to deciding on appropriate controls.</li> <li>▪ The impact on risk of having no categories of diving work is likely to be negligible.</li> </ul>

### 7.5.3 Changes to competency requirements

Option 3 allows the PCBU to determine the competency and experience requirements for divers without any prescribed minimum competency requirements, standards or levels of experience. This will provide the industry with greater flexibility around the training and experience needed by divers, which may reduce compliance costs.

Table 13 – Impacts of Option 3: Changes to competency requirements

Proposed change: PCBU to determine relevant diver competencies	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>▪ 85-90% of all occupational divers (i.e. all except construction, salvage and police divers)</li> <li>▪ Required each time a written risk assessment is compiled or reviewed.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Anticipated reduction in compliance costs associated with more flexibility in determining the competencies needed for occupational diving work as these could be drawn from any standard or from supporting material such as fact sheets, guides, codes of practice, or a combination of these.</li> <li>▪ Concerns have been raised by the diving industry and by regulators that this approach could result in some industry operators under-assessing the requirements of a task and using divers without the appropriate competencies. This could increase the likelihood and/or consequences of an incident occurring.</li> </ul>
Proposed change: Remove diver experience threshold	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>▪ Current incidental and limited scientific divers.</li> <li>▪ Unknown frequency however, it is expected to be low.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No impact or minor reduction in compliance costs arising from greater flexibility around using divers with less than a threshold amount of diving time.</li> <li>▪ It is difficult to measure the risks associated with this approach as the intention of this measure is to manage the risks associated with diver inexperience through the risk assessment processes, rather than through a prescriptive approach that specifies a minimum number of hours of diving experience.</li> </ul>

### 7.5.4 Changes to risk management requirements

As noted above, removing many of the regulatory requirements for diving would not result in changes to current risk management practices for much of the industry. However, if a minority of the industry chooses to not undertake these risk management activities, it is possible there could be a reduction in safety outcomes. The construction and police diving sectors would be largely unaffected by these changes, as they will need to meet the AS/NZS 2299.1 standard.



Table 14 – Impacts of Option 3: Changes to risk management requirements

Proposed change: Specifying conditions to be considered in the risk assessment (As for Option 2)	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>All organisations conducting general diving work.</li> <li>Required each time a written risk assessment is compiled.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in certainty as risk assessments address the main factors influencing diving risk. Change is not expected to be significant as most occupational diving risk assessments already include the specified elements; however, some written risk assessments may require updating to ensure all elements are covered.</li> <li>A reduction in risk is anticipated as PCBU focus is appropriately directed to risks and control measures, rather than determining categories of diving work.</li> </ul>
Proposed change: Using risk assessment to determine when to apply AS/NZS 2299.1:2015 controls	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>10-15% of all occupational divers (i.e. all construction, salvage and police divers) and any other diving work determined by the PCBU</li> <li>Required each time a written risk assessment is compiled or reviewed.</li> </ul>	<ul style="list-style-type: none"> <li>Based on consultation undertaken to-date, it is assumed that most organisations already implement AS/NZS 2299.1:2015 controls to manage risks when appropriate, hence the compliance costs are not expected to be significant.</li> <li>No impact is expected for construction or salvage diving work, and only a minor increase for police diving work as described in Table 05.</li> <li>Reducing regulatory confusion will allow PCBU's to focus more on safety outcomes, rather than compliance, which may contribute to a reduction in the overall risks faced by the industry.</li> </ul>
Proposed change: Removing requirements for supervision, a dive plan, dive safety log and record keeping	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>85-90% of all occupational divers (i.e. all except construction, salvage and police divers)</li> <li>Each time a dive plan would have been compiled or reviewed.</li> <li>Each dive where a dive safety log was completed.</li> </ul>	<ul style="list-style-type: none"> <li>This measure is key to a self-regulatory approach.</li> <li>Some savings are expected arising from reduction in the time taken to prepare dive plans and fill out dive logs, costs associated with storing records and with the appointment of a competent person to supervise diving work. However, as noted previously, it is assumed that most diving operators would continue to undertake these activities.</li> <li>As discussed in 7.5.1, the impact on risk is unknown. Some consider the flexibility of self-regulation will enhance safety; while others are concerned smaller sectors may not receive sufficient support leading to underestimation of risk and poor controls.</li> <li>In the event of a diving related death or injury, an absence of proper records could impede investigations by police or WHS regulators and may also make it more difficult for PCBUs to demonstrate they had met their obligations.</li> </ul>
Proposed change: Remove detailed requirements for medical fitness	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>85-90% of all occupational divers (i.e. all except construction, salvage and police divers)</li> <li>Annual frequency or when starting a new diving work.</li> </ul>	<ul style="list-style-type: none"> <li>Minor cost reduction for those divers who no longer have an annual medical assessment by a doctor trained in underwater medicine, such as those working in remote areas or from overseas. In practice, it is assumed that most will continue to obtain annual certification of medical fitness from a doctor trained in underwater medicine.</li> <li>Minor risk increase where divers or PCBUs extend the length of time between examinations.</li> </ul>

#### 7.5.5 Development of guidance materials

As part of this option, Safe Work Australia would support industry associations to develop industry-specific guidance materials on the Model WHS Regulations. Safe Work Australia may also issue information sheets or short guides on

key issues to assist those industries without specific guidance to comply. The benefits of an industry-led guidance is that they can be tailored to each sector, taking account of the differences between the types of diving activities and risks associated with each sector and will be written in industry-specific language.

Table 15 – Impact of Option 3: Development of guidance materials by industry

Proposed change: Development of guidance materials by industry	
Population and frequency	Anticipated Impacts
<ul style="list-style-type: none"> <li>All organisations conducting diving work.</li> <li>Impacts would be transitional and ongoing, for example, to develop and implement industry guidance material and maintain its currency over time.</li> </ul>	<ul style="list-style-type: none"> <li>Overall, the high levels of regulatory compliance evident in the diving industry mean that industry developed guidance materials would replicate many of the current regulatory requirements, meaning this approach is unlikely to impact compliance costs.</li> <li>For industry associations costs may increase as they would be expected to develop, issue and maintain guidance material for their members on WHS if they have not already done</li> <li>For PCBUs, industry authored guidance may address inflexibility associated with more generic laws.</li> <li>Where developed, industry guidance is expected to have a positive impact on safety outcomes for that industry. Operators report better understanding of and closer adherence to industry developed guidance material.</li> </ul>

#### 7.5.6 Summary of Option 3 impacts

Like Option 2, the intention of Option 3 is to address problems with the model WHS Regulations for diving that have resulted in regulatory confusion and burden for the industry. It does this by allowing a flexible regulatory framework that can be easily applied across the diverse diving sectors. Much of the detail that is currently in the regulations (or would be under Option 2) would be set out in supporting materials to be developed by the industry. These supporting materials may include information sheets, guides, model codes of practice, other supplementary communication tools like short videos and phone apps, or a combination of these.

#### *The proposed changes affecting all general diving work*

By adopting an outcomes based approach to regulation, the diving industry is expected to benefit from a reduction in compliance costs as a result of PCBU's having the flexibility to determine the controls they put in place to manage the risks they have identified, as opposed to following the prescriptive requirements in the regulations. Due to the diversity of the activities undertaken by different parts of the diving industry, this approach may address some of the significant problems with the current regulations identified by stakeholders. To some extent, these concerns can be addressed by providing the additional details in guidance materials to be developed by Safe Work Australia.

Table 16 – Summary of Option 3 impacts for general diving work

Proposed change	Compliance costs	Change in risk
Adopting a more self-regulatory approach	Decrease	Possible increase
Development of guidance materials by industry	Upfront cost Moderate savings	Decrease
Not using categories of diving work	Decrease	Possible increase
Specifying conditions to be considered in the risk assessment	Possible minor increase	Possible decrease
Using risk assessment to determine when to apply AS/NZS 2299.1:2015 controls	Possible minor increase	Possible decrease
Removing requirements for supervision, a dive plan, dive safety log and record keeping	Possible decrease	Possible increase
Remove detailed requirements relating for medical fitness	Possible minor decrease	Possible increase

Proposed change	Compliance costs	Change in risk
PCBU to determine relevant diver competencies	Possible decrease	Possible increase
Remove diver experience threshold	Possible minor decrease	Possible minor increase

### *Impacts on high-risk diving work*

Although this option would remove the separate category in the regulations for high-risk diving work, the regulations will continue to prescribe the use of AS/NZS 2299.1 for the conduct of the work and the fitness and competencies of the persons carrying out the work in relation to construction and salvage work. Hence there will be no change in the regulatory requirements for these types of diving work. As with Option 2, police diving work would also be subject to these controls.

Table 17 – Summary of Option 3 impacts for high-risk diving work

Proposed change	Compliance costs	Change in risk
Using risk assessment to determine when to apply AS/NZS 2299.1 controls	No change	No change
Inclusion of police-diving within the category of 'specified diving'	Possible minor increase	Possible decrease

## 8 Competition effects

Principle 4 of the Guide to Regulation requires that, in accordance with the Competition Principles Agreement, legislation should not restrict competition unless it can be demonstrated that the benefits of the restrictions to the community as a whole outweigh the costs and the objectives of the regulation can only be achieved by restricting competition. In practice, this is demonstrated by completing the competition assessment checklist, shown in the table below.

An initial assessment of the competition impacts of the proposed options in this Consultation RIS raise some competition issues, including the potential for aspects of the options to alter the costs of some suppliers relative to others, which need to be assessed further through consultation with affected stakeholders.

The key issue identified in the initial assessment is the proposed requirement for a minimum VET rescue diver competency for all general divers, delivered through an RTO. This has not been proposed in the options though feedback has been sought. If public comment prefers the model WHS Regulations require training be certified by an RTO, they may change the costs of some diver-rescue training providers relative to others, depending on whether their current courses meet the VET competency requirements and whether the deliverers of their training have the Certificate IV in Training and Assessment, required to deliver RTO training.

Table 18 - Competition assessment checklist

Question	Answer	Significance
<b>Would the regulatory proposal affect the number and range of suppliers?</b>		
Grant exclusive rights for a supplier to provide a good or service?	No	Not applicable (N/A)
Establish a licence, permit or authorisation process as a requirement of operation?	No	N/A
Affect the ability of some types of firms to participate in public procurement?	No	N/A
Significantly alter costs of entry or exit to a supplier?	No	N/A
Create a geographic barrier to the ability of businesses to supply goods or services, invest capital or supply labour?	No	N/A

Question	Answer	Significance
<b>Would the regulatory proposal change the ability of suppliers to compete?</b>		
Control or substantially influence the prices at which a good or service is sold?	No	N/A
Alter the ability of suppliers to advertise or market their products?	No	N/A
Set standards for product/service quality that is significantly different from current practice?	No	N/A
Significantly alter costs of some suppliers relative to others?	Possibly	To be determined through consultation with affected stakeholders
<b>Would the regulatory proposal alter supplier' incentives to compete vigorously?</b>		
Create a self-regulatory or co-regulatory regime?	No	N/A
Impact on the mobility of customers between suppliers?	No	N/A
Require/encourage the publishing of information on company outputs/price, sales/cost?	No	N/A
Exempt an activity from general competition law?	No	N/A

## 9 Consultation

In accordance with Principle 5 of the Australian Government Guide to Regulation, Safe Work Australia will carry out a comprehensive consultation process so that stakeholders can contribute to the policy development process. The consultation strategy used for review of the model WHS Regulations for diving work is outlined below.

### 9.1 Objective of consultations

The objectives of the consultation process on proposed options for change of the regulation of diving work are to:

- Gather information on the effectiveness of the current regulatory requirements and their impact on businesses and regulators to gain an understanding of the real-world risks involved in diving work
- Gain an understanding of the current regulatory burdens experienced by businesses involved in diving work and understand the implications of retaining the status quo
- Collect data and other evidence to validate assumptions and inform the cost benefit analysis of the proposed options, and
- Provide stakeholders with an opportunity to input into the development of reform options to achieve greater productivity while managing risk and to state their preferred solutions for regulatory reform.

### 9.2 Consultations undertaken to date

Prior to the development of this Consultation RIS, Safe Work Australia conducted an initial series of consultations, focussed on identifying issues with the current regulatory arrangements, feasible policy options to address these issues and collecting data and information to inform the initial analysis of these options.

A summary of the consultations undertaken during the review so far are listed in Table 20. A list of the external organisations consulted is at Appendix C.

Table 19 – Summary of review consultations

Method & When	About	Who
Questionnaire sent to targeted stakeholders Oct – Nov 2015	The questionnaire sought information on: <ul style="list-style-type: none"> <li>▪ types, frequency, duration and conditions of diving work undertaken in Australia</li> <li>▪ competency qualifications</li> <li>▪ medical fitness</li> <li>▪ use of Australian Standards, and</li> </ul>	Thirty responses received from: <ul style="list-style-type: none"> <li>▪ government</li> <li>▪ commercial</li> <li>▪ research and education</li> <li>▪ recreational, and</li> <li>▪ representative</li> </ul>

Method & When	About	Who
	<ul style="list-style-type: none"> <li>current diving regulations, including solutions or alternatives to issues.</li> </ul>	organisations.
Industry workshop April 2016	<p>An industry workshop with two identical sessions sought feedback and input on:</p> <ul style="list-style-type: none"> <li>categories of general diving</li> <li>general diving competencies</li> <li>the definition of high risk diving work; and</li> <li>guidance material required by duty holders and occupational divers to assist in meeting work health and safety obligations.</li> </ul>	Twenty industry representatives participated in each session.
WHS Regulators' Teleconference May 2016	<p>Issues discussed were the:</p> <ul style="list-style-type: none"> <li>outcomes of the consultations so far</li> <li>high risk work definition</li> <li>role of supervisors, and</li> <li>competencies.</li> </ul>	Seven jurisdictional WHS regulators
Phone interviews conducted by NERA May 2016	Consultation with a range of stakeholders to assist with the development of the cost benefit and impact analysis sections of the Consultation RIS.	Various dive industry sectors and WHS regulators

The key issues raised with the model WHS Regulations for diving work during these consultations have been documented in the problem statement of this Consultation RIS.

### 9.3 Stakeholder suggestions

In discussing the problems with the model WHS Regulations for diving work, stakeholders suggested measures for consideration. For example, to address regulatory confusion some stakeholders advocated replacing the current regulatory framework with one similar to that applying in the United Kingdom (UK). The stakeholders particularly liked the UK's Approved Codes of Practice, and the list of international competencies assessed as equivalent to the UK's domestic competencies for diving work issued by their Health and Safety Executive. Suggested solutions to problems in specific areas of the model WHS Regulations are outlined below.

#### 9.3.1 Diving categories

Stakeholders suggested a wide range of solutions primarily based on preferences for their own industry sector. These included:

- retaining the current categories
- including a category for all scientific diving
- reducing the categories, usually to just high risk and general diving sometimes renamed, or
- removing all categories.

All stakeholders indicated a need to clarify the differences between the categories that are used and how they should be applied. Below are the suggestions to amend the current categories.

##### 9.3.1.1 High risk diving work

In particular, stakeholders called for an improved definition of high risk diving work if the category is retained. There was a view that general diving work can become 'high risk' depending on the environment or conditions while diving and a concern that the current definition does not take these factors into account.

Hazardous diving conditions have been listed in AS/NZS 2815.6.<sup>19</sup> These include:

- a. Risk of entanglement – diving in and around nets and cages, multiple ropes and lines, tree branches, man-made underwater structures such as shipwrecks, sunken vehicles, or other sunken material.
- b. Diving in an overhead environment, without vertical access to the surface.
- c. Highly limited or zero visibility.
- d. Work near outflow or inflow to pipes.
- e. Diving in currents or fast flowing creeks, rivers and drains.
- f. Diving associated with setting of weights or moorings or use of lifting devices for anything other than fish or shellfish.
- g. Work in high boat traffic areas such as navigation channels, entries to marinas, operational ports.
- h. Use of plant powered from the surface.
- i. Decompression diving.
- j. Diving deeper than 30 metres.

Most diving operators claim to apply this or a similar set of criteria when assessing risk and to determine what controls should be applied to diving work. They suggest these may provide a better set of criteria for determining diving work that may be of higher risk instead of the current definition. However, expanding the definition to include the above conditions would increase the types of dives that would require application of AS/NZS 2299.1 under the model WHS Regulations. This may reduce flexibility for some sectors. Using only hazardous conditions to define high risk diving work may mean some construction and salvage diving work is no longer be captured by the definition.

Drafting a stand-alone definition that does not reference already defined terms such as construction and structure was also suggested. The definition of construction diving work used in pre-harmonised WHS laws of Queensland could form a basis for a replacement definition of high risk diving work. That is:

*Underwater diving work to assemble, construct, demolish, dismantle, install, clean, inspect, maintain, remove, repair, salvage, sample, search for, photograph, film, video or make a sound recording of a thing, or part of a thing.*

*The things are as follows—*

- a. *a building;*
- b. *a bridge;*
- c. *a pile or a structure supported by piles;*
- d. *a jetty, pontoon, wharf, mooring or slipway;*
- e. *a navigational aid;*
- f. *a pipe, cable or tunnel;*
- g. *scaffolding, whether or not for use with a building;*
- h. *a drilling rig;*
- i. *an oil or gas well platform;*
- j. *a weir or the structure or machinery of a dam or other artificial water storage, other than a swimming pool or aquarium;*
- k. *a craft or vehicle for use in, on or above water or land.*

*It is immaterial whether or not a thing is floating or wrecked. It can include underwater diving work associated with dredging, reclamation of land or other earthworks.*

This definition also excluded underwater diving work for inspecting, sampling, photographing, filming, videoing or making a sound recording when this was done for the entertainment or publishing industry, tourism, or genuine scientific research; and underwater diving work done in a marina or the ocean for cleaning, inspecting, maintaining or searching for a vessel or mooring solely or mainly used in the tourism industry.

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<sup>19</sup> AS/NZS 2815.6:2003 – Training and certification of occupational divers, Part 6: Restricted occupational SCUBA diving, page 4

There were also requests from police service representatives for the definition of high risk diving work to include police diving, given this work is frequently performed in hazardous conditions. Union stakeholders also suggested aquaculture and off shore oil and gas diving is included. Off shore oil and gas diving is already covered under alternative legislation. Aquaculture diving is too broad to clearly establish who would be subject to the definition.

#### 9.3.1.2 *General diving, including limited scientific, incidental and limited diving*

Stakeholders requested an improved definition of general diving work; however, no workable suggestions were made for what an amended definition would be.

It has been suggested the model WHS Regulations should have a separate category for scientific diving as it differs significantly from other diving work. Some stakeholders have advocated international models for self-regulation or overseas recognition schemes so that scientific diving in Australia is not adversely impacted. Stakeholders did not identify a national organisation that would lead a self-regulatory system for scientific diving in Australia.

There were also requests for limited diving to be amended to allow use of small buoyancy lifting devices, small surface powered plant and to clarify the number of days diving work that may be performed. Scientific divers also requested the limitation of 28 days diving in six months be increased to 60 days to match the usual duration of most scientific diving projects.

No suggestions were made for incidental diving.

### 9.3.2 Competency and medical fitness

#### 9.3.2.1 *Minimum competency for general diving*

The majority of stakeholders supported introduction of minimum competencies for diving work of VET recreational rescue diving. The ability to recognise diver distress and respond accordingly to avert incidents, as well as what to do if an incident occurs, was seen as essential for diving work. Recreational rescue diving alone would not sufficiently equip occupational divers for the majority of diving work tasks, thus additional competencies and further limitations on the diver would be necessary to ensure, as far as reasonably practicable, the health and safety of the worker. There are also issues of consistency that would need to be addressed. For example, the VET recreational rescue diving unit only allows for diving to 18 meters.

#### 9.3.2.2 *Evidence of competency*

In this section we would like to know:

- What other measures should be considered to establish a diver's competency for diving work?
- What are the anticipated costs and benefits of your suggested alternative?

The model WHS Regulations currently require the diver hold a certificate from a training organisation as evidence of their competency to perform diving work. Some stakeholders suggested this should be amended to require certification by Registered Training Organisations (RTOs) under the VET system. Key to this suggestion was the belief this would contribute to consistent competencies issued by organisations that were subject to external standards and auditing. The suggestion was opposed by others who felt this would limit the availability of acceptable training providers with little increase in safety outcomes.

Recreational diver training organisations were mainly opposed to this suggestion. While they are RTOs, they have advised that less than half of their instructors hold the necessary Certificate IV which would enable them to issue VET certificates. This means requiring certification by an RTO would either limit the availability of training or impose a cost on recreational diving instructors to obtain the qualification necessary to issue the certificates.

It was also suggested that the model WHS Regulations could set out the competencies diving instructors must meet to be able to issue certificates as a way of ensuring the standard of instruction without referencing RTOs. This was seen as unnecessarily duplicating the existing VET system.



### 9.3.2.3 Recreational competencies for general diving

In this section we would like to know:

- What other measures should be considered to address withdrawal of AS/NZS 4005.2:2000?
- What are the anticipated costs and benefits of your suggested alternative?

Most suggestions in this area centred on options to deal with withdrawal of AS/NZS 4005.2:2000. These included only referencing the AS/NZS 2815 series, or referencing ISO 24801-3:2014 titled *Recreational diving services – Requirements for the training of recreational SCUBA divers Part 3: Level 3 – Dive Leader* instead.

Only referencing occupational diving standards (i.e. AS/NZS 2815 series) was seen as removing confusion by applying the same safety standards to all diving work. However, this would involve major retraining costs particularly the tourism and recreational diving sector.

Opinion on referencing the ISO was also divided. Feedback from stakeholders suggests that the withdrawn Australian Standards for training of recreational divers provided a higher safety standard than the ISO. This is presumably because the Australian Standards contained training objectives to establish the competency that should be demonstrated whereas the International Standards do not.

Additionally, some stakeholders would like the model WHS Regulations to specify the work recreational diving competencies can be applied to, for example, occupational recreational diving work or scientific and archaeological diving work. This is done in the UK. The majority of stakeholders indicated they would prefer to be able to use the risk assessment process to determine which competencies should apply to the diving work.

### 9.3.2.4 Medical fitness

It has been suggested the approach to medical certification of fitness to dive used in New Zealand could be applied here. This system requires a medical examination every five years supplemented by annual self-assessments. Removing detail from the regulations to allow flexibility in compliance was also advocated. The SPUMS organisation also suggested a non-regulatory solution whereby training in underwater medicine could be delivered in remote areas to groups of medical practitioners if there was sufficient interest. Each of these solutions is aimed at addressing the perceived problem of limited access to trained medical practitioners.

For visiting divers, the ability to use medical certification of medical fitness obtained overseas was requested. Non-regulatory parameters to reduce the risk of allowing this flexibility were also proposed. These included advising:

- the diver should only be performing short term general or limited diving work
- the certificate must contain equivalent detail to that required in Australia, and
- the PCBU to refer the diver to a local medical practitioner with training in underwater medicine if there is any doubt about the certificate or the diver's fitness to undertake the diving work.

### 9.3.3 Risk management

No changes were suggested for requirements governing written risk assessments, dive plans or dive safety logs. Stakeholders advised that these measures were consistently applied as standard procedure for all diving work. Most stakeholders additionally advised they use the conditions listed in AS/NZS 2815.6 to determine appropriate controls for diving work.

It was suggested that the model WHS Regulations should allow for circumstances where the appointed supervisor does not need to be present; instead the supervisor could be contactable or accessible as is recommended for isolated and remote workers in other WHS guidance. Others have pointed out that diving work is hazardous and should not be performed without an experienced supervisor or at the very least, an attendant to assist during the diving work and particularly in the case of an emergency.



### 9.3.4 Guidance Material

In this section we would like to know:

- Who do you prefer author, issue and update the guidance material, for example Safe Work Australia, industry or another party? And why?
- What should be covered in guidance material to assist duty holders understand their obligations under the model WHS Regulations for diving work?
- What format of guidance material would best support industry to comply with the model WHS Regulations, for example, fact sheets, codes of practice, videos or another mode of communication?

Stakeholders were asked what they believed would be the optimum format and content of guidance material to support understanding and consistent implementation of the model WHS Regulations for diving work. Most comments, however, focussed on who should develop the material with a preference for industry to produce guidance for operators in their own sector.

Given the diversity of sectors performing diving work this would have benefits in terms of tailoring the material to the needs of the operators. It would also entail draw backs associated with accuracy and consistency of information across sectors and costs to industry in developing and maintaining the material over time. Some also warned that smaller sectors may not have the expertise or infrastructure to develop and issue their own material leading to gaps in coverage.

## 9.4 Proposed future consultation

The following consultations are planned:

- Publish the Consultation RIS on a dedicated webpage for public consultation and request written submissions are made via the webpage by 30 September 2016.
- Conduct further targeted consultations with diving sector participants and representatives and regulators.

All submissions received during the public consultation period will be taken into account when developing the Decision RIS and forming a final recommendation for consideration by Ministers with responsibility for WHS.

## 10 Conclusion

In this chapter we would like to know:

- Which of the three proposed options do you support, and why?
- Are there any alternative options that should be considered?

The analysis presented in this Consultation RIS indicates that diving operators are generally experienced and capable at identifying and controlling risk associated with diving work, however, they are not always clear on whether they comply with the model WHS Regulations for diving work. Many concerns raised about the model WHS Regulations for diving work can be attributed to the complexity of the current categories and competency requirements, drafting errors and regulatory burden associated with supervisors and documentation provisions for some sectors. While finalising the supporting guidance material as part of the Option 1 retaining the status quo will go some way to addressing the confusion, it will not address the errors or regulatory burden.

Assessment of Option 2 predicts an overall minor reduction in costs and an overall decrease in risk for both limited diving and general diving, noting that the impact of referencing ISO 24801-3 for recreational diving has yet to be fully assessed. It addresses many of the identified problems related to regulatory confusion and some of the regulatory burdens.

This is achieved by:

- retaining a simplified framework that is familiar to duty holders which involves few categories of diving and consistent competency requirements to reduce current confusion on these matters
- addressing errors in the current model WHS regulations to reduce regulatory confusion and burden arising from trying to work out which competencies apply
- introducing greater flexibility for limited divers balanced with appropriate measures to contain potential increases to risk
- introducing greater flexibility for overseas divers obtaining a medical certificate so they may perform diving work in Australia in compliance with the regulations
- requiring PCBUs to consider certain matters in their written risk assessment to ensure the risk assessment addresses the main factors which impact on risk during diving work to further address confusion arising from whether diving work is high risk or not
- providing a mechanism for PCBUs to decide when a supervisor must be present to address current misinterpretation and confusion leading to some instances of over-compliance, and
- continuing to rely on supporting guidance material developed by Safe Work Australia to provide duty holders with assistance on how to comply to address any remaining confusion.

Assessment of Option 3 predicts an overall decrease in compliance costs with a potential increase in risk due to poor risk management, except for construction, salvage and recovery diving which will continue apply AS/NZS 2299.1. It addresses the identified regulatory confusion and concerns with inflexibility in the current provisions.

This is achieved by:

- providing only a single category and definition for diving to reduce duty holder confusion over which diving categories apply
- replacing prescription in the model WHS Regulations with a more self-regulatory model by employing guidance material developed by industry to allow flexibility and address confusion and regulatory burden caused by use of generic WHS laws to address the diversity of diving work in Australia
- as with Option 2, requiring PCBUs to consider certain matters in their written risk assessment to address current confusion arising from whether diving work is high risk or not
- protecting safety by regulating construction, salvage and police diving by applying AS/NZS 2299.1:2015 to diving operations and the fitness and competency of persons carrying out the work, and
- introducing greater flexibility and removing regulator confusion by allowing PCBUs to determine whether a worker is competent to undertake that type of diving work and whether a supervisor needs to be present.

This option relies on the diving industry to effectively self-regulate by applying less prescriptive regulations supported with guidance material developed by industry. Some upfront costs for industry will be incurred to develop and implement supporting guidance material not required under Options 1 or 2. However, the option but may introduce new points of confusion, gaps in coverage of guidance material and an overall increase in risk. No single national body for diving work in Australia currently exists to support a self-regulation, and WHS Regulators have also expressed concern that Option 3 will be difficult to enforce.

Subject to public comment, the analysis in this Consultation RIS indicates that Option 2 provides the greatest likely net benefit in that it involves a smaller transitional impact by retaining a similar regulatory framework while addressing the identified problems, and decreasing risks.

As this is a Consultation RIS, additional comments, information and data is sought from stakeholders to assist with developing the Decision RIS. If information of sufficient quality and volume can be obtained from submissions, it will be used to conduct further impact analysis on the proposed options. This may result in a different conclusion.

## 11 Implementation and Review

In this chapter we would like to know:

- What considerations should be taken into account during the implementation process if amendment of the model WHS Regulations for diving work is supported?

A Decision RIS will be developed taking into account the submissions made during the public consultation period. This will be considered by Safe Work Australia's tri-partite membership to determine a preferred option. The preferred option will be recommended to Ministers with responsibility for WHS for their collective decision. -Based on current timelines, Safe Work Australia will determine a preferred option by the end of 2016. Ministers will consider Safe Work Australia's recommendation in the first half of 2017.

Once a majority of Ministers have provided policy approval for the preferred option, amendments to the model WHS Regulations will be drafted, if required, and work will recommence on developing national material to support duty holders understanding of the model WHS laws for diving work. National material is developed in consultation with stakeholders.

Once the model WHS Regulations are amended, if required, they can be adopted into the WHS laws in each jurisdiction. Timing of this process is a matter for individual jurisdictions. Transitional arrangements may be applied by each jurisdiction at their discretion. These arrangements usually allot an appropriate time for duty holders to adjust to the changes.

Safe Work Australia has developed a program to evaluate the model WHS laws with a full review planned every five years. The program evaluates the impact of the model WHS laws over time to determine if they are achieving their intended outcomes using qualitative and where possible, quantitative methodologies. If amendments are made to the model WHS Regulations, they are likely to be implemented during 2017. Therefore a meaningful impact assessment and evaluation of these changes may not be possible during the next planned review.

Safe Work Australia will continue to monitor the model WHS Regulations for diving work and address issues raised by stakeholders as they arise.

Safe Work Australia also reviews national supporting material, such as model Codes of Practice, five years after publication date or sooner if there are changes to legislation or work practices relevant to the publication.

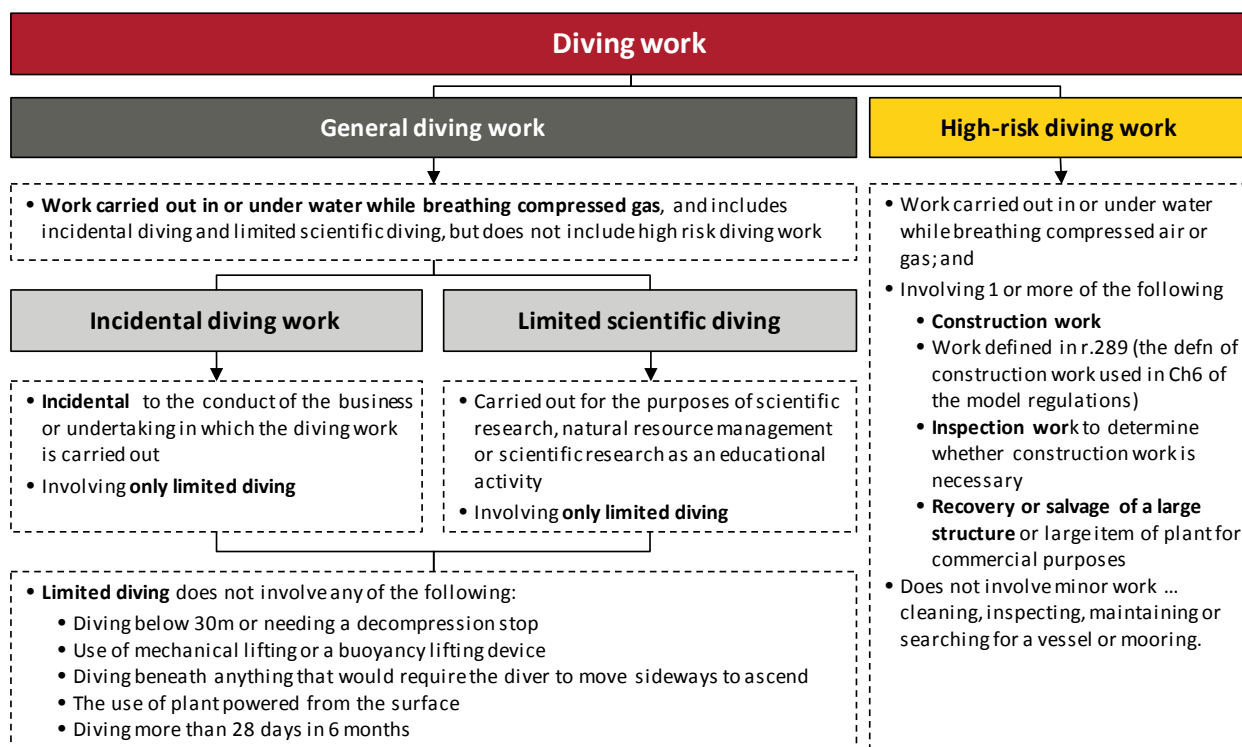
## Appendix A: Regulation of Diving Work

### Model WHS Regulation

#### Categories of diving work

The model WHS Regulations classify occupational diving into two main categories, 'general diving work' and 'high-risk diving work'. Within the general diving work category there are two further categories of 'incidental diving work' and 'limited scientific diving work'. Both the incidental and limited scientific diving categories are restricted to undertaking 'limited diving'. The definitions of each category of diving work and of limited diving are set out in the diagram below.

#### How the model regulations categorise and define diving work



#### Managing risks of general diving work

The model WHS Regulations require the PCBU to manage the risks associated with general diving work by having a written risk assessment for the work that has been compiled by a competent person. Additional controls for diving work are mandated by the model WHS Regulations. These require appointment of a competent person to supervise the diving work, compile and apply a dive plan, and complete a dive safety log.

#### Dive Supervisors

To manage risks associated with general diving work, the model WHS Regulations require one or more competent persons to be appointed to supervise diving work at a workplace. This position is generally referred to as the 'dive supervisor'. The dive supervisor must also prepare the dive plan and verify entries in the dive safety log.<sup>20</sup>

#### Dive plan

The model WHS Regulations state that a dive plan must be developed by the dive supervisor for all dives. Plans can be reused for similar dives.<sup>21</sup>

<sup>20</sup> Other guidance for diving operations describes broader duties for the dive supervisor, however, these do not form part of the model WHS regulations for general diving work.

<sup>21</sup> R.178(1) of the model WHS Regulations

The dive plan should set out how the general diving work will be undertaken including arrangements to ensure workers' health and safety. At a minimum, the model WHS Regulations specify the dive plan must state:

- a. the method of carrying out the diving work
- b. the tasks and duties of each person involved in the diving work
- c. the diving equipment, breathing gasses and procedures to be used in the diving work
- d. estimated dive time, bottom times, and decompression profiles
- e. known hazards for the diving work and measures to control the risks associated with them, and
- f. emergency procedures.

The dive supervisor must prepare and discuss the dive plan with workers prior to the diving work commencing. So far as is reasonably practical, the diving work must be conducted in accordance with the dive plan.<sup>22</sup>

### *Dive safety log*

As an additional measure to manage risk, the model WHS Regulations state that a dive safety log must be completed for each dive carried out by a worker.

At a minimum, the dive safety log must capture the following information:

- Names of the diver, the diver supervisor and any other person performing the diving work with them.
- The date, location and maximum depth of the dive.
- Any incident, difficulty, discomfort or injury that occurs or is experienced during the dive.
- The time each diver enters and leaves the water and the dive time if a dive computer was used.
- If the dive was carried out using dive tables -- the repetitive dive group, if available and either the bottom time or dive time.
- Any surface interval and repetitive factor, if these occur.
- The oxygen content and maximum operating depth where enriched air nitrox (EANx) is used.
- The oxygen content and nitrogen content (if any) of mixed gas used, as well as the associated minimum and maximum operating depths.

The dive safety log must also record the:<sup>23</sup>

- return of each diver, and
- the number of workers and other persons on a vessel from which diving work is carried out, before the diving work commences and before the vessel leaves the location after the diving work is completed.

This must be verified by the diver and the dive supervisor as soon as possible after the return.

If a notifiable incident occurs, the dive plan and risk assessments must be kept for at least two years after the incident. In the absence of notifiable incident occurs, dive plans must be kept until the diving work is completed and risk assessments must be kept for 28 days after the diving work is completed.

### **Competency requirements for general diving work**

The model WHS Regulations require all people undertaking or supervising occupational diving work to have the relevant knowledge and skills to safely perform their work. Workers must demonstrate their competence prior to commencing diving work.<sup>24</sup>

The model WHS Regulations permit divers to demonstrate their competency in a number of ways that take into account the varied nature of diving work and different entry pathways into this sector:

- Training requirements (i.e. requirement for a certificate from a training organisation).
- Minimum levels of experience.

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<sup>22</sup> R.179 of the model WHS Regulations

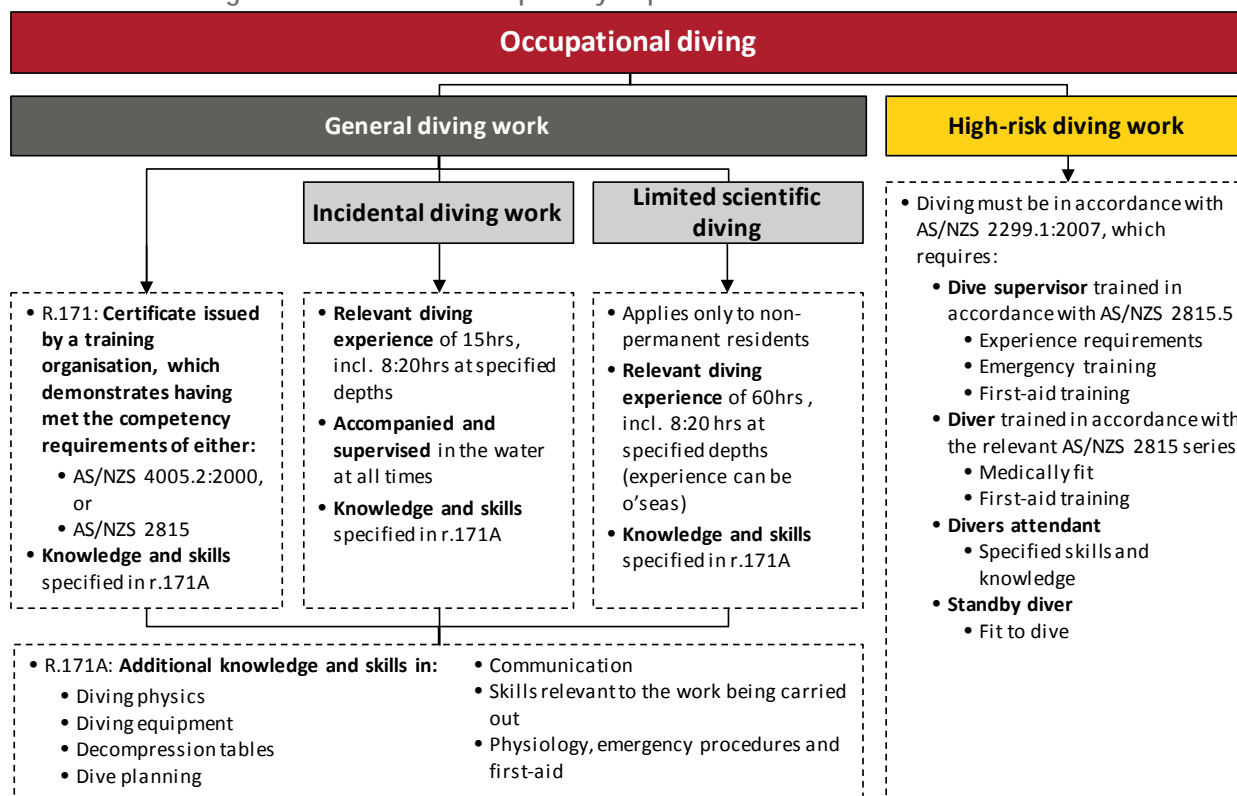
<sup>23</sup> R.181 of the model WHS Regulations

<sup>24</sup> R.175 of the model WHS Regulations

- Specific knowledge and skills.

As shown in the figure below, these requirements vary depending on the type of diving work being undertaken and whether that is high-risk, general, incidental or limited scientific diving work.

#### Link between diving classifications and competency requirements



#### General diving competency

All divers undertaking general diving work must demonstrate they have acquired sound knowledge and skill in each of the following areas:<sup>25</sup>

- the application of diving physics
- the use, inspection and maintenance of diving equipment including emergency equipment and air supply type to be used in the proposed general diving work
- the use of decompression tables or dive computers, preferably industry approved
- dive planning
- ways of communicating with another diver and with people at the surface during general diving work
- how to safely carry out general diving work of the type proposed to be carried out, and
- diving physiology, emergency procedures and first aid.

Divers who undertake general diving work other than incidental or limited scientific diving must also hold a certificate from a training organisation showing the diver has competencies relevant to the diving work they will perform. The competencies must be consistent with those set out in AS/NZS 4005.2:2000<sup>26</sup> - *Training and certification of recreational divers* or AS/NZS 2815 - *Training and certification of occupational divers*<sup>27</sup> which has six parts covering competencies for a range of diving equipment, depths and roles.

The WHS Regulators may also prescribe a VET course or courses for general diving work competency; however no courses have been prescribed by regulators at this time.

<sup>25</sup> R.171A of the model WHS Regulations

<sup>26</sup> The AS/NZS 4005 series has been withdrawn; however, withdrawn Standards may be referenced where appropriate.

<sup>27</sup> R.171 of the model WHS Regulations

Written evidence of diver competency for general diving work including incidental and limited scientific diving, must be kept for at least one year after the diving work is carried out.<sup>28</sup>

#### *Dive supervisor competency*

The requirements for general diving work competencies also apply to dive supervisors. The AS/NZS 2815.5:2006 contains competencies for dive supervisors. The dive supervisors must also have experience with the dive work they are supervising.<sup>29</sup>

Written evidence of competency to supervise general diving must be kept for at least one year after the last occasion on which the appointment was performed.<sup>30</sup>

#### *Incidental diving competency*

General diving work is considered to be 'incidental' where diving is not part of the organisation's usual activities and involves only limited diving work.

The model WHS Regulations include an error which makes it unclear what competency requirements apply to incidental diving work.<sup>31</sup> The intent was for incidental divers to demonstrate they have competence through:<sup>32</sup>

- the knowledge and skills in the listed areas for all general diving work, and
- relevant diving experience that is at least 15 hours of diving of which at least 8 hours and 20 minutes were spent diving between 10 meters above and any depth below the maximum depth at which the diving work is to be carried out.

Divers performing incidental diving work must also be supervised and accompanied in the water by a person who has the qualifications and experience to undertake general diving work.

#### *Limited scientific diving competency*

Limited scientific diving is general diving work that is carried out for the purposes of professional scientific research, natural resource management or scientific research as an educational activity. As with incidental diving, it can only involve limited diving which is discussed in the next section.

To be competent for limited scientific diving work, a non-Australian resident diver must demonstrate they have:<sup>33</sup>

- the knowledge and skills in the listed areas for all general diving work, and
- relevant diving experience that is at least 60 hours of diving, of which at least 8 hours and 20 minutes were spent diving between 10 meters above and any depth below the maximum depth at which the diving work is to be carried out.

The relevant diving experience may have been obtained outside Australia.

An error in the model WHS Regulations for diving work mean the competency requirements currently set out for Australian residents undertaking limited scientific diving work are unclear.<sup>34</sup> However, the primary duty of care in the model WHS Act requiring the PCBU to provide adequate information, training and supervision continues to apply.

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<sup>28</sup> R.175(3)(a) of the model WHS Regulations

<sup>29</sup> R.174 of the model WHS Regulations

<sup>30</sup> R.175(3)(b) of the model WHS Regulations

<sup>31</sup> See r.171A(2) and r.172(1)(a) of the model WHS Regulations both include and exclude incidental diving from application of the competency requirements listed for all diving work. The exclusion provision is an error.

<sup>32</sup> R.172 of the model WHS Regulations

<sup>33</sup> R.173 of the model WHS Regulations

<sup>34</sup> See r.171(2), r.171A(2) and r.173 -of the model WHS Regulations exclude limited scientific divers from application of the competency requirements listed for all diving work. This is an error.



### Limited diving work

Both incidental and limited scientific diving work may only involve limited diving. The model WHS Regulations define limited diving as diving that does not involve any of the following:<sup>35</sup>

- a. diving to a depth below 30 metres
- b. the need for a decompression stop
- c. the use of mechanical lifting equipment or a buoyancy lifting device
- d. diving beneath anything that would require the diver to move sideways before being able to ascend
- e. the use of plant that is powered from the surface, and
- f. diving for more than 28 days during a period of six months.

If the work is to be performed without these limitations, the relevant competencies for general diving must be met. Placing limits on the type and duration of the diving work that may be performed is intended to manage the risk associated with the lower competency threshold set for incidental and limited scientific diving.

### Medical fitness for general diving work

The model WHS Regulations require a worker to hold a current certificate of medical fitness issued by a registered medical practitioner trained in underwater medicine before undertaking diving work or diving training.<sup>36</sup> The certificate must state the person's name, period of currency, fitness details, any conditions relevant to diving work, and if the person is under 18 years of age, any particular age related conditions.<sup>37</sup>

The certificate must be kept for one year after the general diving work is carried out.<sup>38</sup>

The model WHS Regulations do not specify how often certification needs to be obtained but rather requires the certificate to be current. A current certificate is one that has been issued within the past 12 months, and has not expired or been revoked. This allows the medical practitioner to determine when a follow up assessment should be carried out based on the health and fitness of the diver at the time.

### Managing risks in high risk diving

The model WHS Regulations require high risk diving work to be carried out in accordance with AS/NZS 2299.1:2007. The medical fitness and competency requirements of this standard are applied to high risk diving work.<sup>39</sup>

High risk diving work is defined in the model WHS Regulations as work carried out underwater or in any other liquid while breathing compressed gas, which involves one or more of the following:

- construction work
- maintenance, testing or repair work of a minor nature carried out in connection with a structure
- inspection worked carried out to determine whether the above listed work is necessary, or
- recovery or salvage of a large structure or item of plant for commercial purposes.

The high risk diving work definition excludes minor work that involves cleaning, inspecting, maintaining or searching for a vessel or mooring in the sea, a bay or inlet or at a marina.<sup>40</sup>

*Construction work*<sup>41</sup>, *structure*<sup>42</sup> and *plant*<sup>43</sup> are subject to further definition in the WHS Act and Regulations.

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<sup>35</sup> R.5 of the model WHS Regulations

<sup>36</sup> R.168 of the model WHS Regulations

<sup>37</sup> R.169 of the model WHS Regulations

<sup>38</sup> R.170 of the model WHS Regulations

<sup>39</sup> R.183 of the model WHS Regulations

<sup>40</sup> R.5 of the model WHS Regulations

<sup>41</sup> R.289 of the model WHS Regulations

<sup>42</sup> R.290 of the model WHS Regulations and s.4 of the model WHS Act

<sup>43</sup> S.4 of the model WHS Act

## Guidance material

Safe Work Australia commenced work on national material to provide guidance on the model WHS Regulations for diving work in 2013. Work on the material has been suspended pending the outcome of this review.

Tasmania has preserved its Code of Practice for the Tasmania Abalone Industry. South Australia has also preserved an Approved Code of Practice for Tuna Farming. The Commonwealth has developed a *Defence High Risk Diving Work Standard*. Queensland has comprehensive guidance material for diving work. They have preserved Codes of Practice for *Occupational Diving Work* and *Recreational Diving, Recreational Technical Diving and Snorkelling*. They also provide compliance checklists covering high risk diving, general diving and recreational diving and snorkelling. Victoria has issued guidelines for recreational SCUBA diving and snorkelling.

Various voluntary industry codes of practice and guidance material have been developed. For example, the Western Australian Fishing Industry Council and other representative bodies including the WA Pearling Association have developed guidance for their sectors. These documents are not publically accessible. We are advised they are based around AS/NZS 2299.1 but are specific to each sector and, in some cases, regions of the WA coast. The Northern Territory Seafood Council has issued Aquarium Fish Collecting Diving Guidelines to assist with managing risks while conducting diving work including training and competence, medicals, risk assessment, emergency plans and recording keeping.

## International standards – Diver competencies

Some dive training organisations have advised that they apply International Standards for recreational diving. The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies whose purpose is to develop and publish international standards. The ISO has a number of Standards on recreational diving training. Implementation of Australian and International Standards is voluntary unless they are called up in legislation.

The International Standards for recreational diving training in ISO 24801 series addressing 'Recreational diving services -- Requirements for the training of recreational SCUBA divers'. The parts are:

- ISO 24801-1:2014 Level 1 – Supervised diver
- ISO 24801-2:2014 Level 2 – Autonomous diver, and
- ISO 24801-3:2014 Level 3 -- Dive leader

Requirements for the training of SCUBA instructors are covered in ISO 24802 issued in two parts respectively addressing training for Level 1 and Level 2 SCUBA instructors.

There is one standard for diving service providers, that is ISO 24803:2007.

## Comparative approaches to WHS regulation of diving work

During consultation, diving stakeholders frequently mentioned the approach used by the Health and Safety Executive in the United Kingdom (UK) to regulate diving work as an alternative to the model WHS Regulations for diving work. The New Zealand Government has recently introduced new WHS laws based on the model WHS legislation applying in Australia. However, New Zealand has not adopted the model WHS Regulations for diving work; instead they continue to apply a system of regulation similar to that operating in the UK. It is noted however, that both of these countries have one national jurisdiction and a smaller geographic area for their work health and safety laws.

### United Kingdom

The UK's Health and Safety Executive (HSE) has specific regulations for diving – Diving at Work Regulations 1997 (the UK Regulations) which operate under the *Health and Safety at Work etc. Act 1974*. The regulations are supported with information on how to comply in Approved Codes of Practice (ACOPs) for the following categories:

- Commercial diving projects offshore
- Commercial diving projects inland/inshore
- Recreational diving projects
- Media diving projects, and
- Scientific and Archaeological diving projects.

The ACOPs do not cover the detailed technical aspects of controlling the risks from diving at work. Separate, non-statutory guidance published by HSE provides detailed technical advice on assessing and minimising the risks. These include guides, information sheets, videos and checklists.

A highly regulated scheme of training, medical assessment and registration of occupational divers is centrally managed by the HSE. To undertake diving work in the UK, divers must hold a qualification for diving approved by the HSE and a valid certificate of medical fitness to dive. The HSE issues diving qualification cards and has endorsed 13 diver competency assessment organisations which deliver one or more of four HSE approved training courses. First aid training is also required.

The HSE issues a list of Approved Diving Qualifications which has UK qualifications and their international equivalents from countries including Australia, Canada, France, South Africa and Norway.

Annual medical assessments for fitness to dive must be conducted by a HSE Approved Medical Examiner of Divers, who are trained in underwater medicine.

### New Zealand

The New Zealand Health and Safety in Employment Regulations 1995 are also high level and outcome based. Like the UK, they are supported by a highly regulated scheme of training, medical assessment and registration of occupational divers.

WorkSafe New Zealand has issued the Guidelines for Occupational Diving to provide information about the administrative procedures for occupational divers and persons involved in occupational diving activities to comply with the requirements of the Regulations. The guidelines reference technical or operational standards including AS/NZS 2299 Parts 1, 2 and 3.

The NZ Regulations require that occupational divers hold one of two certificates of competence for the category of diving work they are performing which is valid for five years. This includes a *Divers certificate of competence*, which is for construction diving. Police, military, customs and specialised search and rescue diving groups are considered part of this category due to the highly hazardous nature of this underwater work and the frequent involvement in construction diving activities.

Training and qualifications for a *Divers certificate of competence* is achieved through training by an ADAS-accredited diver training establishment and obtaining relevant ADAS qualifications.

Other work is performed under a *Limited certificate of competence* including:

- Scientific
- Recreational instruction/tutor
- Tourism
- Aquaculture, and
- Film and photographic.

To obtain a *Limited certificate of competence* for any of the above categories of diving work, five vocational education training units must be successfully completed by the diver including diver rescue, night dives, deep dives, navigation dives and search and recovery dives. Additional training and qualifications are required for some of the limited categories such as scientific, recreational instructor/tutor and aquaculture.

The divers must also have completed at least 100 dives, including at least 15 hours of supervised underwater diving time accumulated over a minimum of 20 dives in the category of diving work to be performed. Evidence of experience is provided through a dive log book showing the number and types of dives completed.

Medical assessments for fitness to dive must be conducted by a registered medical practitioner who is authorised by the NZ Diving Hyperbaric Medicine Service and listed with the New Zealand Department of Labour as a Designated Diving Doctor. A full medical must be completed every five years, with an annual self-check medical questionnaire completed by the diver annually.

## Appendix B: Comparison of the options

In these tables proposed changes are shown in **bold text**.

Definitions			
Terms	Option 1. Status Quo	Option 2. Amend to address identified issues	Option 3. Replace with risk management approach
General diving	General diving is defined as work carried out underwater while breathing compressed gas, including incidental and limited scientific diving work, but not high risk diving work.	General diving is defined as work carried out underwater while breathing compressed gas, including <b>limited diving work</b> , but not high risk diving work.	<b>Diving work</b> is defined as work carried out underwater while breathing compressed gas.
Incidental diving	Defined as general diving work that is incidental to the conduct of the business or undertaking. May only do limited diving under supervision.		
Limited scientific diving	Defined as general diving work carried out for the purpose of professional scientific research, natural resource management or scientific research as an educational activity. May only do limited diving but may do so unsupervised.		
Limited diving	Defined as diving that does <u>not</u> involve: (a) diving deeper than 30 meters (b) the need for decompression stops (c) mechanical lifting equipment or a buoyancy lifting device (d) diving beneath anything that would require the diver to move sideways before ascending (e) plant powered from the surface, or (f) diving for more than 28 days during a period of six months.	Defined as diving that does <u>not</u> involve: (a) diving deeper than <b>18 meters</b> (b) the need for decompression stops (c) mechanical lifting equipment (d) <b>use of more than one</b> buoyancy lifting device to <b>lift items weighing more than 25kg</b> (e) diving beneath anything that would require the diver to move sideways before ascending (f) plant powered from the <b>surface other than small scale surface powered plant, for example a low pressure garden hose</b> (g) diving for more than <b>60 days</b> during <b>any</b> period of <b>12 months</b> , or (h) <b>diving unaccompanied in the water</b> .	
High risk diving	Defined as work carried out underwater or in any other liquid while breathing compressed gas which includes one or more of the following: (i) construction work (as defined under r.289) (ii) testing, maintenance, or repair work of a minor nature carried out in connection with a structure (as per r.289(3)(d)) (iii) inspection work to determine if the above work is necessary (iv) recovery or salvage of a large structure or large item of plant for commercial purposes, but does not include minor work involving cleaning,	<b>Replace with 'specified diving work'</b> defined as work carried out underwater or in any other liquid while breathing compressed gas which involves one or more of the following: (a) <b>construction work (without cross reference to r.289)</b> (b) <b>testing, maintenance, or repair work carried out in connection with a structure</b> (c) inspection work to determine if the above work is necessary (d) recovery or salvage of a structure or item of plant for commercial purposes <b>over a specified size</b> (e) <b>police work</b> ,	

Definitions			
Terms	Option 1. Status Quo	Option 2. Amend to address identified issues	Option 3. Replace with risk management approach
	inspecting maintaining or searching for a vessel or mooring.	but does not include minor work involving cleaning, inspecting, maintaining or searching for a vessel or mooring.	

Duties			
Regulations	Option 1. Status Quo	Option 2. Amend to address identified issues	Option 3. Replace with risk management approach
Risk management	The PCBU must manage risk in accordance with Part 3.1, using a written risk assessment completed by a competent person.	The PCBU must manage risk in accordance with Part 3.1, using a written risk assessment completed by a competent person.  <b>In determining the control measures the PCBU must have regard to all relevant matters, including:</b> (a) physical work environment (b) environmental conditions that may affect the work or the diver performing it (c) equipment, materials and substances used (d) work tasks and how they are performed (e) work design and management, and (f) relevant competencies and experience necessary to undertake the diving work.	A PCBU must manage risks to health and safety associated with diving work in accordance with Part 3.1.  A PCBU must ensure that a written risk assessment is completed by a competent person for the purposes of the regulation above.  <b>In determining the control measures the PCBU must have regard to all relevant matters, including:</b> (a) physical work environment (b) environmental conditions that may affect the work or the diver performing it (c) equipment, materials and substances used (d) work tasks and how they are performed (e) work design and management, and (f) relevant competencies and experience necessary to undertake the diving work.
Supervisor	The PCBU must appoint one or more competent persons to supervise general diving work, complete the dive plan for the work and verify elements in the dive safety log.	The PCBU must appoint one or more competent persons to supervise general diving work, complete the dive plan for the work and verify elements in the dive safety log.  <b>The appointed person must be present while the diving work is being performed, unless the risk assessment deems this not to be necessary and other controls are in place.</b>  These controls will include but are not limited to: (a) the appointed person being accessible during the diving work, or (b) another person with experience in the diving work being undertaken and emergency procedures attends the worker performing the diving work.	
Dive plan	(r.178) The PCBU must not allow diving work to be carried out unless a dive plan has been prepared by the appointed dive supervisor.  Dive plans prepared earlier for similar dives may be reused.	Same as Option 1	

Duties			
Regulations	Option 1. Status Quo	Option 2. Amend to address identified issues	Option 3. Replace with risk management approach
	<p>(r.179) The dive plan must state the following:</p> <ul style="list-style-type: none"> <li>(a) the method of carrying out the diving work</li> <li>(b) the tasks and duties of each person involved</li> <li>(c) the diving equipment, breathing gases and procedures to be used</li> <li>(d) as applicable, dive times, bottom times and decompression profiles;</li> <li>(e) hazards and measures to be implemented in the control of risks associated with those hazards;</li> <li>(f) emergency procedures.</li> </ul> <p>(r.180) The appointed dive supervisor must instruct workers in the dive plan before work commences. The dive plan must be complied with as far as is reasonable practicable.</p>		
Dive safety log	<p>(r.181) The PCBU must keep a dive safety log about each dive carried out by workers. The dive safety must contain the following:</p> <ul style="list-style-type: none"> <li>(a) divers' names</li> <li>(b) name of others with whom the dive is carried out</li> <li>(c) dive supervisor name</li> <li>(d) the date and location of the dive</li> <li>(e) the time each diver enters and leaves the water</li> <li>(f) the maximum depth of the dive</li> <li>(g) any incident, difficulty, discomfort or injury that occurs or is experienced during the dive</li> <li>(h) if a dive computer was used—the dive time</li> <li>(i) if dive tables were used —the repetitive dive group, if available, and either the bottom time or the dive time</li> <li>(j) if the repetitive group and surface interval result in a repetitive factor—the surface interval and the repetitive factor</li> <li>(k) if the dive is carried out using EANx: <ul style="list-style-type: none"> <li>(i) the oxygen content of the EANx, and</li> <li>(ii) the maximum operating depth of the EANx</li> </ul> </li> <li>(l) if the dive is carried out using mixed gas: <ul style="list-style-type: none"> <li>(i) the oxygen content and the nitrogen content (if any) of the gas, and</li> <li>(ii) the maximum operating depth of the mixed gas, and</li> <li>(iii) the minimum operating depth of the bottom mix.</li> </ul> </li> </ul> <p>(r.181) The dive safety log must be used to verify return of the divers, including a head count if diving from a vessel. The</p>	Same as Option 1	

Duties			
Regulations	Option 1. Status Quo	Option 2. Amend to address identified issues	Option 3. Replace with risk management approach
	head count must be performed before the dive work commences and again before the vessel leave the dive site.		
Diving work that must be performed in accordance with AS/NZS 2299.1	(r.183) The PCBU must ensure high risk diving work is carried out in accordance with AS/NZS 2299.1:2007 including fitness and competence requirements.	The PCBU must ensure <b>specified diving work</b> is carried out in accordance with AS/NZS 2299.1:2015 including fitness and competence requirements.	If the risk assessment identifies that the diving work tasks will include construction and salvage of large items (including structures or plant) or police work, then AS/NZS 2299.1:2015 must be applied to the conduct of the work, and the fitness and competency of persons carrying out the work.
Record keeping	(r.170) PCBU must keep a medical certificate for 1 year after the diving work is carried out. (r.175(3)) PCBU must keep evidence of competency for 1 year after the diving work is completed. (r.182) The PCBU must keep the risk assessment for 28 days after the diving work is completed, and dive plan until the work to which it related is completed. Both must be kept for at least 2 years after an incident if one occurs. The record must be accessible to any worker carrying out the work, and made available for inspection.	Same as Option 1	

Competency and fitness			
Regulations	Option 1. Status Quo	Option 2. Amend to address identified issues	Option 3. Replace with risk management approach
Competency	(r.171A) A person must not carry out general diving work unless the person has, through training, qualification or experience, acquired sound knowledge and skill in relation to the following: (a) the application of diving physics (b) the use, inspection and maintenance of diving equipment (including emergency equipment) and air supply of the type to be used in the proposed general diving work (c) the use of decompression tables or dive computers (d) dive planning (e) ways of communicating with another diver and with persons at the surface during general diving work (f) how to safely carry out general diving work of the type proposed to be carried out (g) diving physiology, emergency procedures & first aid.	A person must not carry out general diving work unless the person has, through training, qualification or experience, acquired sound knowledge and skill in relation to the following: (a) the application of diving physics (b) the use, inspection and maintenance of diving equipment (including emergency equipment) and air supply of the type to be used in the proposed general diving work (c) the use of decompression tables or dive computers (d) dive planning (e) ways of communicating with another diver and with persons at the surface during general diving work (f) how to safely carry out general diving work of the type proposed to be carried out (g) diving physiology, first aid, <b>emergency management and procedures, including:</b> (i) <b>recognising and responding to diver stress and panic</b>	A PCBU must ensure that a worker who carries out diving work is competent to undertake that type of diving work.



Competency and fitness			
Regulations	Option 1. Status Quo	Option 2. Amend to address identified issues	Option 3. Replace with risk management approach
		(ii) in-water rescue breathing protocols including self-rescue, and (iii) devising and applying underwater search and rescue methods to enable initial response to diving emergencies	
Relevant diving experience for limited diving	(r.172(2)) Incidental divers must have logged 15 hours of diving, of which at least 8 hours and 20 minutes must have been below or 10m above the planned dive depth. (r.173(2)) Limited scientific divers must have logged 60 hours of diving, of which at least 8 hours and 20 minutes must have been below or 10m above the planned dive depth.	<b>Limited divers</b> must have logged 15 hours of diving, of which at least 8 hours and 20 minutes must have been below or 10m above the planned dive depth.	
Additional Competency and experience	(r.171) For general diving work, the diver must hold a certificate, issued by a training organisation, which demonstrates that the person has acquired the relevant competencies for that type of general diving work. The relevant competencies means the competencies specified in or AS/NZS 2815 (Training and certification of occupational divers) AS/NZS 4005.2: 2000 (Training and certification of recreational divers) that are relevant to the type of general diving work.	For general diving work, the diver must hold a certificate, issued by a training organisation, which demonstrates that the person has acquired the relevant competencies <b>identified in the risk assessment for the diving work.</b>  The relevant competencies mean the competencies specified in or AS/NZS 2815 (Training and certification of occupational divers) or ISO 24801-3:2014 ( <b>Requirements for the training of recreational scuba divers — Dive leader</b> ) that are relevant to the type of general diving work.  <b>In the case of non-residents, certification can be from an equivalent overseas training organisation.</b>	
Regulator can specify a course	A jurisdictional note on r.171 allows regulators to specify VET courses for general diving work.	Same as Option 1	Same as Option 1
Ensure fitness	PCBU must not direct or allow worker to train or carry out diving work unless the worker holds a current certificate of medical fitness. Any conditions on the certificate must be complied with. (r.168) A current medical certificate is one that was issued within the past 12 months and has not expired or been revoked. (r.5)	Same as Option 1	<b>A PCBU must ensure that a worker who carries out diving work is medically fit to undertake that type of diving work.</b>
Medical certificate	The medical certificate must be issued by a registered medical provider with training in underwater medicine. It must state: the worker's name, issue and expiry dates, details of fitness to carry out diving work including any conditions placed on the type of diving work which may be performed including for divers under 18 years old. (r.169)	The medical certificate must be issued by a registered medical provider with training in underwater medicine. It must state: the worker's name, issue and expiry dates, details of fitness to carry out diving work including any conditions placed on the type of diving work which may be performed including for divers under 18 years old. (r.169)  <b>Equivalent medical certificates indicating fitness to dive</b>	

<b>Competency and fitness</b>			
<b>Regulations</b>	<b>Option 1. Status Quo</b>	<b>Option 2. Amend to address identified issues</b>	<b>Option 3. Replace with risk management approach</b>
		issued by medical practitioner residing overseas will be allowed.	

	<b>Option 1. Status Quo</b>	<b>Option 2. Amend to address identified issues</b>	<b>Option 3. Replace with risk management approach</b>
<b>Development of Guidance Material</b>	<p>Safe Work Australia will develop material to support understanding of the model WHS Regulations for diving work.</p> <p>The supporting material may include information sheets, guides, a model code of practice or a combination of these.</p>	<p>As with Option 1, Safe Work Australia will develop material to support PCBU understanding of the model WHS Regulations for diving work.</p> <p>The supporting material may include information sheets, guides, a model code of practice or a combination of these.</p>	<p>Diving industry associations will be encouraged and supported to develop guidance on the model WHS Regulations for that industry.</p> <p>Safe Work Australia will provide advice to industry on the consistency of their guidance material with the model WHS laws during development.</p> <p>Safe Work Australia may prepare information sheets or short guides on key issues to assist diving sectors that will not have an industry developed guide.</p>

## Appendix C: Organisations consulted

Abalone Council of Australia  
Abalone Industry Association of South Australia  
Abalone Industry Association of Western Australia  
Aquaculture Council  
Association of Marine Park Tourism Operators  
Australasian Institute for Maritime Archaeology  
Australian Chamber  
Australian Council of Trade Unions  
Australian Diver Accreditation Scheme  
Australian Industry Group  
Australian Marine Science Association  
Australian Museum  
Cairns Marine  
Cherax (Cray)  
Consulting Environmental Engineers  
CSIRO - Oceans and Atmosphere  
Department of Defence  
Department of Parks and Wildlife Western Australia  
Department of Primary Industries and Regions South Australia  
Flinders University  
Gem Pearls  
Great Barrier Reef Marine Park Authority  
Griffith University  
Heritage Victoria - Maritime Archaeology  
Huon Aquaculture Group Limited  
Indepth Video  
James Cook University  
Live Crays  
Macquarie University  
Maritime Union of Australia  
Merlin Entertainments Group  
Murdoch University  
New South Wales Police Force  
Oysters South Australia  
Pacific Marine Group  
Parks Victoria  
Paspaley Pearling Company  
Pearl Producers Australia  
Port Lincoln Diving Services  
Professional Association of Diving Instructors - Asia Pacific  
Professional Divers Training Academy  
Projects Global  
Queensland Police Service  
Quicksilver Group  
RAID – training agency  
Reef Check Australia  
Royal Australian Navy  
South Australian Mussel Growers Association  
South Australian Tuna Farm Boat Owners  
South Australian Water Corporation  
South Australia Police  
South Australian Oyster Growers Association  
South Pacific Underwater Medicine Society  
Tasmania Police  
Tassal Group  
Tuna Boat Owners Association  
University of New South Wales  
University of Queensland  
University of Sunshine Coast  
University of Sydney  
University of Tasmania  
University of Technology Sydney  
University of Western Australia  
Western Abalone Divers Association  
Western Australia Police