

THE WORLD AS IT IS

A PROFILE OF THE QUEENSLAND OCCUPATIONAL DIVING INDUSTRY

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TABLE 1

DIVING EMPLOYEES

Key Words

Diving industry, diver numbers, occupational diving

Introduction

This paper has been assembled from information supplied by, or solicited from, Associations, Organisations, Government Department and individuals known to be engaged in diving activities. Draft sector profiles or complete drafts were circulated to organisations and individuals from all sectors of the diving industry and 43 written responses were received and collated. It was widely agreed that the draft profile reflected each industry sector, the sum of which comprise the full spectrum of the Occupational Diving Industry in Queensland.

Industry	Part time	Full time	Total
Aquaculture		5	5
Aquarium collectors	58	117	175
Beche-de-mer	300	80	380
Pearl shell	10	20	30
Crayfish	100	60	160
Construction	70	30	100
Scientific	570	30	600
Recreational	650	1,350	2,000
Film, TV and stills photography	50	20	70
Marine aquariums	20	30	50
Police	15	15	
Transport Department		8	8
Queensland Rail		6	6
Other		20	20
Total	1,828	1,791	3,618

What is occupational diving?

Occupational diving is the activity, by which many dissimilar types of work are conducted in a fluid, non-respirable environment at pressures greater than 1 atmosphere. For some people it is a full-time profession and for others an adjunct to their normal duties. Occupational diving activities in Queensland have been classified as the following sectors:

- Aquaculture, fish collecting and harvesting;
- Construction;
- Scientific (research) diving
- Recreational
- Film, television and stills photography
- Marine aquariums
- General occupational

Diving is not defined as an industry under the Australian Standard Industrial Classification (ASIC). The numbers of divers employed in the various occupational diving activities are shown in Table 1.

Occupational diving training

There is currently a number of instruments which relate to training in the Occupational Diving industry

AS 2815 (parts 1, 2, 3 and 4) covers the training of all occupational divers using compressed air. These standards, when developed, were primarily designed for

“commercial” divers and were not intended to apply to other types of occupational diving. That said, the majority of the curriculum of parts 1 and 2 is relevant to all forms of occupational diving, specifically with regard to the physiology and physics of diving.

The Australian Diver Accreditation Scheme (ADAS), is a scheme which results in the issue of diver certification to AS 2815 and the quality controls put in place by the scheme mean that the certification is recognised internationally.

However to be certified to AS 2815 a diver does not require certification under ADAS. Some training establishments, principally in New South Wales (NSW) issue their own certification. Workcover in NSW accepts these certifications for Occupational Diving.

There are no formal Standards for Occupational Diving training other than AS 2815.

In the Recreational Diving industry, instructors and divemasters/dive supervisors are trained to individual standards developed by training agencies whose incomes are derived from the training of these occupational divers. There are no controls on the standard or quality of training of employees other than those quality assurance (QA) programs developed by the agencies themselves.

Operational Procedures

Worksafe Australia and Standards Australia have jointly developed a Draft National Standard for all Occupational Diving. This was sent out for public comment in December 1993. This comment is currently being reviewed and a set of Common Essential Requirements (CERs) which apply to all Occupational Diving is being drawn up by Worksafe. Standards Australia will then formulate a number of industry sector-specific Standards which will address all issues not covered by the CERs. At the current rate of progress it is not anticipated these will be complete before 1999.

AQUACULTURE, FISH COLLECTING AND HARVESTING

Aquaculture

There are some 250 aquaculture operations in Queensland. They are oyster farming, prawn farming, freshwater crayfish farming, barramundi farming and perch farming. They do not employ divers except on a contract basis on infrequent occasions.

One industry which is a potentially large employer of divers in the future is open water cage fish culture. This industry will employ divers on a similar basis to the tuna and salmon farms of South Australia and Tasmania.

Diving is the main method for collecting pearls, trochus shell, beche-de-mer (sea cucumber), rock lobster and live fish for the aquarium market. The harvesting of these marine organisms is primarily authorised by the issue of a licence or permit under the Queensland Fisheries Act 1976-89 or in the case of the Torres Strait, by Commonwealth Legislation allowing fishing and collecting to be carried out commercially under community fishing rights with no licence required for a dinghy (one diver and one driver).

Aquarium Fish Collecting

There are 67 permits to collect aquarium fish issued by Queensland Fisheries Management Authority (QFMA) and a number of these operators also hold permits to collect coral. There are about 14 self-employed divers operating full-time and a further 53 operators who can employ up to 2 divers per permit dependant on demand and weather conditions. There are in addition a further 8 permits issued to individuals for the collection of coral. This indicates an absolute maximum of 175 divers employed in the industry.

There are no training standards or operational procedures currently documented for this industry sector and a large percentage of collectors operate singly and without surface support. Equipment used is almost

exclusively surface supply "hookah" (a petrol driven air compressor, usually with a small reservoir, supplying air to the diver through a long hose). The industry is made up of self-employed persons who solo dive and who employ divers who are required to solo dive. It is the firm belief of this industry that they would become commercially unviable if any standard requiring diving teams was to be imposed on them.

Beche-de-Mer

In 1995, an exceptional year, over 1,400 tonnes of Beche-de-Mer were collected. 1,150 tonnes were collected by hand from reef flats at low tide in the Torres Straits and the remaining 250 tonnes were collected by divers. Collections to date indicate that only some 450 tonnes will be collected in 1996.

There are between 12 and 15 licensed operators at any given time. Each of these operators can use up to 6 collectors at any time. The vast majority of Beche-de-Mer collection by these operators is done by hand collection or breath-hold diving. Currently (May 1996) up to 300 part-time and 80 full-time divers work in this industry.

There are no training standards or operational procedures currently documented and a large percentage of collectors operate singly and without surface support using hookah diving equipment. They hold similar views to Aquarium Collectors

Pearl shell

This is a small industry sector with only 7 active vessels employing 4 to 6 divers each. Diving methods used to collect shell is almost exclusively hookah with some breath-hold diving. There are no training standards or operational procedures currently documented for this industry sector. Normally hookah is used almost exclusively. They hold similar views to Aquarium Collectors.

Crayfish

Torres Strait Islanders can carry out traditional fishing for their own use and can work commercially without a permit if they are collecting individually without equipment from one dinghy. All other fishing is carried out from vessels holding permits.

There are up to 300 Islander people involved in commercial fishing for crayfish. Of these, 200 do not use equipment and the remainder use hookah. Approx 30-40% of these islanders collect on a full-time commercial basis the balance (60-70%) collect on an irregular basis

There are usually 16-20 vessels with permits and these carry an average of 3 divers each. Most divers provide and maintain their own equipment and travel to the work-site aboard a vessel holding a permit. This allows the vessel's owner to classify them as self-employed. Currently 4-5 of the operators directly employ divers who collect from their vessels. A total of 60 divers operate from vessels holding permits.

Diving methods used include scuba and hookah. There are no training standards or operational procedures currently documented for this industry sector. They hold similar views to Aquarium Collectors.

CONSTRUCTION

There are currently 10 companies employing full-time construction divers. A further 35 self-employed divers also actively seek construction diving work in the industry. The main centres for construction diving operations in Queensland are Brisbane, Cairns, Townsville, Mackay, the Whitsundays, and Gladstone. The construction industry undertakes various activities including, underwater photography, jack-hammering, cutting and welding, pipeline repairs, chain and block work, as well as surveys for Lloyd's Insurance.

The Maritime Union of Australia has advised that it has a membership of approximately 100 employees actively engaged in construction-related diving in Queensland. The largest operator is located in Brisbane and employs up to 10 full-time divers.

Construction divers are trained to various parts of Australian Standard AS 2815 and work to the requirements of AS 2299.

SCIENTIFIC (RESEARCH) DIVING

Research diving is centred in and around Townsville in North Queensland, which is an international centre for tropical marine research. 65% of Queensland research divers live and work in North Queensland with most of the diving activity taking place on the Great Barrier Reef (GBR). There are approximately 600 research divers employed in Queensland. However, only a small proportion of these divers are engaged in full-time diving activities. Approximately half of these, are employed in Queensland State workplaces, with the remaining half being Commonwealth employees who are covered by the Occupational Health and Safety (Commonwealth Employment) Act 1991.

Research diving is carried out for a range of purposes, from pure scientific research and underwater archaeological excavation to the monitoring and survey of

natural and cultural resources. Underwater work in research diving can include simple observation, note-taking, underwater photo/videography, direct measurement, sampling, specimen/artefact collection and manipulation of marine biota. Some project work can involve the use of light power driven equipment or assembly of lightweight structures such as fish traps and survey grids

There are currently a number of Codes of Practice drawn up by individual sections of the scientific diving community. None has been adopted by any regulatory authority. Recently when "construction" type diving has been conducted this has been done to AS 2299 using correctly trained and certified divers.

A wide range of training standards are used within this diving sector, ranging from minimum recreational standards to AS 2815 certification

RECREATIONAL DIVING INDUSTRY

A number of diving activities are undertaken within this section of the industry. These range from recreational diving instruction, to underwater "memory" video production. Employees diving in the recreational workplace are recognised as occupational divers.

A recent study undertaken by the Great Barrier Reef Marine Park Authority¹ shows that, in round numbers, 1,900,000 tourists visit the GBR each year, 1,300,000 dives are conducted on the GBR each year, furthermore 130,000 resort courses are conducted and 36,500 people taught to dive each year. The industry contributes over \$450,000,000 to the Queensland economy.

From a number of studies and from information provided by this industry, it is calculated that the total number of diving instructors in the recreational area is between 600-700, of whom approximately 450 are employed full-time. The remainder are employed on a regular part-time basis. It is accepted that for each full-time diving instructor there are 2 divemasters, making a total dive personnel of approximately 2,000.

Diving instructors and dive supervisors in the recreational workplace are mainly employed by owners of dive operations who also market training packages supplied and supervised by a number of training agencies. A number of dive supervisors, instructors and divemasters are also employed by companies operating resort islands such as Heron Island and Lizard Island Lodge. These would total in excess of 100 employees.

Occupational divers in the recreational sector are trained and certified to recreational diving standards established by a number of training agencies (this includes

memory videographers etc). Non-employees are trained to AS 4005 Part 1.

All recreational diving at a workplace in Queensland is covered by the Code of Practice for Recreational Diving and Snorkelling at a Workplace (under review).

FILM, TELEVISION AND STILLS PHOTOGRAPHY

The film and television industry is of major importance to the Queensland economy. The total value of all film production in Queensland is accepted to exceed \$200,000,000. Overseas film companies are attracted to Queensland predominantly because of the ease and relatively low cost of production, combined with the existing infrastructure, the good weather conditions, and, where underwater filming is required, the proximity to the Great Barrier Reef.

At the last count there were five individual production/service companies working in Queensland on a full-time basis who employ 12 full-time divers. They are concerned with the production of feature films, film documentaries and advertising. Staffing levels vary when a production is underway. For example, an average of 5-10 major productions such as "Flipper" and "Ocean Girl" are shot each year in Queensland. Up to a maximum 30 divers could be used in these features films for periods ranging from 2 weeks to 6 months (of which about 30 days would be spent in the water).

In addition approximately 30 documentaries are shot each year and between 3 to 5 divers may be used for periods ranging from 1 day to 1-2 weeks on each production. The total value of under water film production in Queensland is reliably estimated at \$20,000,000.

A number of interstate and international companies visit Queensland for the production of television series or productions, commercials, and documentaries. These companies usually employ divers from the Queensland companies as well as their own staff.

Queensland television stations occasionally use their own staff for underwater filming of news and current affairs type programs. The numbers of divers used are minimal

There are currently no training standards in place in this industry. Some employees are trained to the requirement of the relevant part of AS 2815 for the work being undertaken. Others rely on training to recreational standards. It should be noted however that on numerous occasions the recreational diver training agencies have recommended against this practice as they maintain their standards are not suitable for the training of occupational

divers other than those undertaking training or supervision of recreational divers.

A Code of Practice has been developed by the Underwater Visual Producers Association of Australia (UVPAA) but this has neither been implemented nor recognised by any regulatory authority to date. Diving methods used include scuba and surface supplied breathing apparatus (SSBA) which includes hookah.

MARINE AQUARIUMS

There are a number of marine Aquariums in Queensland such as Sea World or Underwater World. They employ divers for a wide range of tasks including research, fish collecting, underwater maintenance and public appearances in glass fronted display tanks.

A wide range of diver certifications (from recreational to AS 2815 Part 2) and procedures are needed to suit the various job specifications and risk assessment. Approximately 30 full-time and 20 part-time divers are employed in this industry.

GENERAL OCCUPATIONAL DIVING

Police Diving

The role of police divers is predominantly for underwater search and recovery of objects ranging from small articles of jewellery to vehicles, vessels and aircraft. Police are also required to recover the bodies of deceased persons and conduct investigations for the coroner into diving related fatalities.

The 15 members of the Queensland Police Diving Squad are based in Brisbane, but can be called on to perform tasks in any body of water in the State. Police diving work is currently performed using scuba equipment and is conducted in accordance with AS 2299-1992.

Transport and storage

The Harbours and Marine Division of the Transport Department operates a navigational aids section. Eight divers are employed in a mobile capacity along the Queensland coastline. They construct and repair beacons and buoys and search for underwater obstructions. They work to the requirements of AS 2299.

Queensland Rail employs 6 divers as timber bridge carpenters to perform underwater inspection and repair of railway bridges. Although they are based in Townsville they form a mobile unit working throughout the State. They dive in accordance with AS 2299, and are qualified to AS 2815

Part 2. Queensland Rail also undertakes some diving work on a sub-contract basis.

Communications

Austel and Telecom employ contract divers to conduct underwater work from time to time. These divers are trained to various parts of Australian Standard AS 2815 and work to the requirements of AS 2299.

Electricity, gas and water

Divers are used in the water supply and treatment industry to inspect sewage treatment plants, water reservoirs and dams. The majority are not directly employed by local authorities but are hired on a contract basis.

The Gold Coast City Council employs 7 occupational divers. These divers are trained to various parts of Australian Standard AS 2815 and work to the requirements of AS 2299.

Other occupational diving

Many of the major tourism operators on the Great Barrier Reef employ occupational divers either directly or under sub-contract to provide diving services. These divers inspect moorings, and vessel hulls as well as undertake other occupational diving related activities. Other diving activities in this field include the collection of golf balls from dams and water courses on golf-links.

Acknowledgments

Unfortunately space is not available for individual recognition of the 29 organisations, 6 Trades Unions and 27 people the author would like to thank for their input. This report would not have been possible without their help.

References

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AUSTRALIA AND NEW ZEALAND HYPERBARIC MEDICINE GROUP (ANZHMG)

ADDENDUM TO STATEMENT ON THE USE OF HYPERBARIC OXYGEN THERAPY AT SITES OTHER THAN PUBLIC HOSPITALS (OCTOBER 1995).

PHYSICIAN REQUIREMENTS AND TRAINING

Key Words

Hyperbaric facilities, hyperbaric oxygen, qualifications, treatment.

Introduction

This addendum is designed to further elaborate the position of this group with regard to appropriate training and qualifications for physicians who intend to practice Hyperbaric Medicine.

The ANZHMG wishes first to state that, as presently constituted, it has no regulatory or accreditatory status with regard to hyperbaric facilities or the physicians who may staff them. This paper represents the consensus view of this group and is offered as such in response to a number of requests for advice on these matters. It is our understanding that those matters are currently under review by appropriate State and Federal authorities.

Appropriate training for medical officers in “non-comprehensive” hyperbaric facilities

The question has arisen as to the appropriate training for physicians who wish to work with hyperbaric facilities of a more limited nature than those 24-hour facilities currently operating in public hospitals. Such facilities are proposed by a number of groups and a small number are already in operation in Australia. Typically they propose to limit treatment pressures to two atmospheres absolute (2 ATA, 2 bar or 101 kPa gauge pressure) and to treat only uncomplicated and non-critically ill patients. Proponents of such facilities argue that because of their limited nature, full training, as described in section 4 of our statement of October 1995,¹ is both inappropriate and impractical.

The ANZHMG acknowledges this argument and intends in this addendum to outline our view of the minimum requirements with respect to physician training and expertise in relation to such proposed non-comprehensive hyperbaric facilities.

Our view is outlined in the full statement of October 1995 with respect to the technical, operator, attendant or other minimum requirements for the safe practice of Hyperbaric Medicine. Specifically, we maintain that any