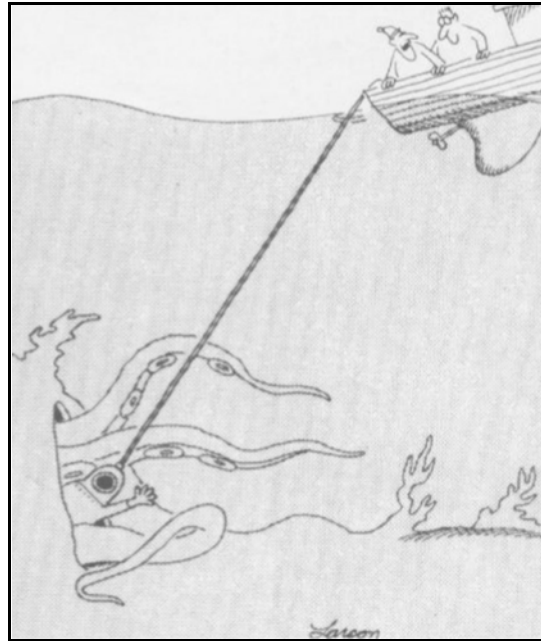


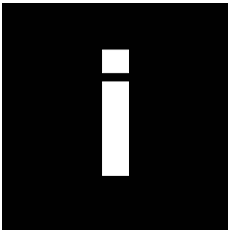
Preface and Introduction



"Now wait a minute. ... He said two jerks means 'more slack' and three meant 'come up' ... but he never said nothin' about one long steady pull."¹

¹ Copyright © The Far Side, Last Impressions, 2002, Larson. (Stolen and used without permission!)





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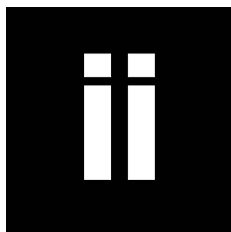
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PREFACE

OVERVIEW

■ ADAS

The Australian Diver Accreditation Scheme (ADAS) is a not-for-profit diver training and accreditation scheme developed under the auspices of the Petroleum Sub-Committee of the Australian and New Zealand Minerals and Energy Council (ANZMEC). It is administered by the Commonwealth Department of Industry, Tourism and Resources (DITR) on a cost-recovery basis.

ADAS has obtained official recognition of its courses under the Australian Qualifications Framework up to Diploma level. ADAS is a Registered Training Organisation with approval to issue nationally recognised qualifications. The Advanced Diploma, Diploma and Certificate IV are comprehensive diving qualifications, which qualify the holder to work in a wide range of areas requiring specialist diving skills and in particular the supervision and management of dive operations. This manual has been developed for the Certificate IV course, which is a recognised qualification for onshore dive supervisors.

The course incorporates specialist streams and multiple exit and re-entry points to enable participants to pursue a career in a variety of fields. These include: aquaculture, marine science, police diving, underwater construction, television/film making and oil field industry (some of these fields require completion of additional units of competency).

Contact details for ADAS and for Diver Training Establishments are given in the appendices.

■ ONSHORE DIVE SUPERVISOR'S MANUAL

This manual has been specially developed for the ADAS onshore dive supervisor's course. It is intended for use both as a training manual and as the basis for developing a reference manual for the practising dive supervisor. There is also a workbook with study questions and exercises.

The manual should be used in conjunction with AS/NZS 2299.1 and the diving organisation's operations manual. Every dive supervisor should own a copy of AS/NZS 2299.1.

In training, the operations manual used will be provided by the Diver Training Establishment (DTE). In the workplace, the operations manual of the employer should be used.

Each section is one module and has an associated list of study questions and exercises in the workbook. It is designed to comply with the requirements for accredited courses to be delivered in modular format. The modular format means that in some modules a topic may only be referenced briefly, as it is expanded on fully in another module.

The module titles are shown in the table of contents. A summary of the learning outcomes for each module are given below. The modules are best taught or studied in the order given, so that the background theory is taught before practical application to dive planning and conduct of dive operations.



■ SUMMARY OF ONSHORE DIVE SUPERVISOR COMPETENCIES

MODULE NAMES AND LEARNING OUTCOMES



- 6.1 Role of the onshore dive supervisor in Australia and New Zealand.
 - 1. Describe the role and responsibilities of the dive supervisor.
 - 2. Describe the regulatory framework for occupational diving within Australia and New Zealand.
 - 3. Abide by legal requirements in all activities associated with working as a supervisor in the diving industry.
- 6.2 Implement and monitor occupational health and safety programs.
 - 1. Provide information to the workgroup about the organisation's occupational health and safety policies, procedures and programs.
 - 2. Implement and monitor the organisation's procedures for identifying hazards, assessing risks and controlling risks.
 - 3. Implement the organisation's procedures for dealing with hazardous events and equipment.
 - 4. Implement and monitor the organisation's procedures for maintaining occupational health and safety records.
- 6.3 Diving physics, physiology and associated calculations.
 - 1. Ensure safety of others in a hyperbaric environment, in changing pressures and in an underwater environment.
 - 2. Ensure safety of others in working underwater, in relation to buoyancy, light, sound and thermal conductivity underwater and their implications for the diver.
 - 3. Perform calculations relating to breathing gases, buoyancy and lifting.
- 6.4 Manage diving illnesses and medical emergencies.
 - 1. Ensure recognition of all diving related illnesses, injuries and medical emergencies likely to occur in a dive operation within area of responsibility.
 - 2. Ensure appropriate treatment of all diving related illnesses, injuries and medical emergencies likely to occur in a dive operation within area of responsibility.
 - 3. Keep up to date with developments in first aid and medical equipment and procedures applicable to diving.
 - 4. Ensure appropriate qualifications and/or training of personnel prior to use of any first aid or medical equipment or procedures.
- 6.5 Manage risk associated with dive operations.
 - 1. Apply risk controls for general diving risks.
 - 2. Undertake site and task-specific risk assessment and select appropriate risk control measures.
 - 3. Apply standard air, surface decompression and therapeutic tables in planning and conducting dive operations.
 - 4. Undertake contingency planning.



- 6.6 Plan dive operations.
 - 1. Apply legislation, regulations and guidance directly applicable to diving operations.
 - 2. Identify scope of dive operation, based on client requirements and with reference to the requirements of relevant diving standards and guidelines.
 - 3. Organise physical and human resources for the dive operation.
 - 4. Describe the roles and responsibilities of each dive team member.
 - 5. Prepare a written dive plan.
- 6.7 Conduct dive operations.
 - 1. Supervise and coordinate dive operation activities according to dive plan.
 - 2. Conduct briefings/debriefings.
 - 3. Identify and analyse problems and emergencies.
 - 4. Respond to problems and emergencies, according to organisational policies and procedures.
 - 5. Conclude dive operation, according to organisational policies and procedures.
- 6.8 Plant, equipment and maintenance procedures.
 - 1. Supervise the application and safe use of plant and equipment utilised in a dive operation within area of responsibility.
 - 2. Ensure equipment is maintained and serviced under a planned maintenance program with appropriate documentation.
 - 3. Keep up to date of developments of new plant and equipment, and procedures associated with their use.
 - 4. Ensure appropriate qualifications and/or training of personnel prior to use or maintenance of any plant or equipment.
- 6.9 Manage People.
 - 1. Apply organisational policies and procedures and demonstrate awareness of employment law in selection of dive team members, disciplinary procedures and handling grievances.
 - 2. Communicate effectively with key stakeholders.
 - 3. Resolve conflicts within the work team.
 - 4. Monitor performance and provide feedback to team members.
 - 5. Select and use written communication styles appropriate to the task and the situation.
 - 6. Present information concisely and clearly.
- 6.10 Supervise use of tools and explosives in a dive operation.
 - 1. Supervise the application and safe use of all tools utilised in a dive operation within area of responsibility.
 - 2. Supervise the application and safe use of explosives in a dive operation.



3. Keep abreast of developments in tools, explosives and methods applicable to underwater work.
4. Ensure appropriate qualifications and/or training of personnel prior to use of any tools, explosives or related underwater work methods.

6.11 Supervise on site chamber operations.

1. Describe compression chamber operation and use.
2. Describe potential risks and risk control measures for compression chamber use.
3. Supervise the use of a twin-lock (two-compartment) compression chamber in a remote location to conduct a therapeutic recompression.

6.12 Supervise wet bell diving.

1. Supervise the application and use of all wet bell diving equipment and procedures utilised in a wet bell dive operation.
2. Keep up to date with developments of new wet bell dive equipment and procedures.
3. Ensure appropriate qualifications and/or training of personnel prior to use of any wet bell dive equipment or procedures.
4. Apply wet bell emergency procedures in a simulation of an emergency during a dive operation.

Assessment Conditions	Assessment Methods	Weighting
Learner will be provided with the ADAS Onshore Dive Supervisor's manual	Individual workbook – All modules.	20%
Learner will be provided with a workbook with questions to be completed and assessed as well as classroom exercises. Learner will be provided with access to AS/NZS 2299.1:1999 Examination will be conducted under standard academic examination conditions with access to relevant information, such as tables from AS/NZS 2299.1.	Examination 1 – Chapter 1, 2, 3, 4 (Requires a pass mark of 70% minimum).	20%
	Examination 2 – Chapters 5, 6, 7, 8, 9, 10, 11, 12 (Requires a pass mark of 70% minimum).	20%
	Written dive plan.	10%
	Written report for client.	10%
	Oral questioning and participation in classroom activities.	10%
	Observation in practical exercises.	10%

ACKNOWLEDGEMENTS

■ GENERAL

The manual was developed by Active Learning Partners on behalf of ADAS with extensive reference to the operations and training manuals of the Diver Training Establishments (DTEs).



The co-operation and support of the DTEs is acknowledged as a key success factor in providing a comprehensive and useful training and reference manual.

The ADAS Onshore Dive Supervisor's manual will assist in consistency of teaching throughout Australia and New Zealand.

The ADAS Onshore Dive Supervisor's manual will be continually improved as new information is gathered. Your comments would be most gratefully received for improvements to the manual. Please forward all comments to the National Manager ADAS (contact details in the appendices).

■ **DISCLAIMER**

ACCURACY OF CONTENT

This manual was compiled from a number of sources, references and websites. It is not always possible to verify the accuracy and validity of the information sourced. In addition, things can change rapidly with regard to legislation and technology.

While every endeavour is made to supply useful, relevant, accurate and up to date information, ADAS makes no promise, express or implied, that the information contained herein is the latest and most accurate information available.

LINKS OR REFERENCES TO WEBSITES

Throughout the course, links or references to websites are provided for guidance or illustration.

The materials in this training resource and in linked or referenced websites may be the opinions or recommendations of third parties. ADAS cannot guarantee their accuracy, currency, reliability or completeness.

ADAS does not necessarily endorse these third party opinions or recommendations or any associated organisations, products or services found on these websites.

Similarly, the absence of a link to a third party website should not be seen as a criticism or comment by ADAS on the provider or content of that website.

It is sometimes possible for a third party website to have been subjected to an unauthorised redirection to an inappropriate website. All websites were checked at the time of course development. ADAS cannot be held responsible for any such redirection or the results thereof.

Should you discover any non-functional or inappropriate websites, please notify ADAS immediately (contact details are in the appendices).

■ **SPECIFIC ACKNOWLEDGEMENTS**

Whilst we have added footnotes throughout the text acknowledging the specific contribution of others as they appear, ADAS acknowledges with grateful appreciation and thanks the following for contributing material to this text:

- ✓ Ian Milliner, The Underwater Centre Fremantle.
- ✓ Des Walters, Descend Underwater Training Centre.
- ✓ Stephen Clark, The Underwater Centre Tasmania.
- ✓ Col Hodson, The Dive Bell.





- ✓ Russ Gately, Gray Diving Centre.

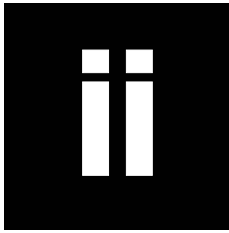
Other References used:

- ✓ NOAA Diving Manual, James T Joiner ED, Best Publishing Company, Flagstaff, 2001.
- ✓ Commercial Diving Manual, Third Edition. Richard Larn and Rex Whistler, David & Charles, 1993.
- ✓ US Navy Diving Manual.
- ✓ DCIEM Diving Manual, Department of National Defence, Canada, 1992.
- ✓ The Professional Diver's Handbook, David Sisman ED. Submex, London, 1982.

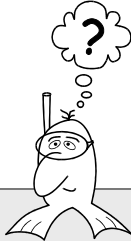
Websites:

- ✓ <http://www.mariscope.de/Chilena/Productos/Pommec/Corte/br-22.htm>
- ✓ <http://www.brocoinc.com/>
- ✓ <http://www.oceancorp.com/>
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- ✓ <http://www.oceanbrite.com/>
- ✓ <http://e-nekton.com>
- ✓ <http://www.kmdsi.com/products.html>
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- ✓ <http://www.rlssa.org.au/wa/products/resuscitation/resusp10.jpg>
- ✓ <http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/P/PNS.html>
- ✓ <http://faculty.washington.edu/chudler/cells.html>





ICONS



NTK!

We use icons to highlight important information and make the text more interesting. They point to things that are hard to remember and easy to forget!

KEEP AN EYE OUT FOR THESE ICONS

As you read these notes, you will periodically notice a number of different icons in the left-hand margins. These icons are standard throughout all ADAS texts.



Meet Enzo² He appears throughout the text where ever there is an important point to make.



Technical Information³ This icon alerts you to additional technical information. Stuff that's nice to know.



Stop!² This is an important safety point. The information contained next to the icon will hopefully prevent something disastrous happening.



It's the Law!³ Miss this one and you could end up in a lot of trouble. The icon will generally be found next to a standard, regulation or law specific to diving.



Time to start writing² Feel free to use the blank page opposite to take notes during class.



Emergency Management³ Found next to the first aid, or accident management procedures recommended for the different type of diving problems.



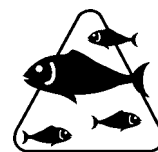
Maintenance tips² This icon will be found next information on the care and maintenance of diving and associated equipment.



Further Reading³ This icon alerts you to additional sources of information.



NTK?² The need to know. Why you need to know about this information to be a safe effective diver. The value of the information.



Environmental Issues³ This symbol highlights information or a specific diving technique that allows you to more harmoniously interact with the aquatic environment.

² "Enzo" the icon used here was first designed by Marian Lloyd and Ian Milliner for the NASDS publication "Safe Scuba", NASDS 1995, ISBN 1 875 355 030. Subsequent versions were drawn by Ian Milliner.

³ These icons were drawn by Ian Milliner from clip art supplied by Corel Ventura (Version 5).





Major Hazard⁴ As the icon implies, miss the hazard detailed next to this icon and you will probably end up severely injured or worse. It differs from the “Safety Icon” above. Where the “safety” icon details a preventative measure, the “Major Hazard” icon details the dangerous situation to be avoided.

⁴ These icons were drawn by Ian Milliner from clip art supplied by Corel Ventura (Version 5).

