

THE GUIDE TO SPEARFISHING

IN NEW SOUTH WALES



5 Metres

10 Metres

AN ESSENTIAL HAND-BOOK
WRITTEN BY DIVERS FOR DIVERS

20 Metres



Australian Government
Department of Agriculture,
Fisheries and Forestry



25 Metres

WORDS FROM AN AMBASSADOR



Underwater fishing is a sport that attracts a wide variety of people to the aquatic environment because of the many gratifying things the ocean and its creatures have to offer, and the coastal waters of New South Wales are amongst the best.

I was fascinated when I first stepped into the sea in 1952 and from that point forward was totally consumed by its mystical surroundings. There was something new around every corner and

it has since provided me with a lifetime of enjoyment, being also responsible for my marriage to Valerie who continues to

be my life long dive buddy and companion.

Every spearfisher can be an ambassador for the sport simply by adhering to the morals and ethics prescribed in this handbook. Every time you interact with a member of the public or other marine user group, is your opportunity to do your part in presenting a responsible mindset and attitude through your actions.

I wish you many exciting years of safe and pleasurable diving and hope that in some small way these words provide you with the inspiration to become an advocate for your sport and the natural world.

Ron Taylor

Former World Spearfishing Champion
Underwater Photographer and
Marine Expert
Member of the Order of Australia



CONTENTS

Message From the Hon. Ian Macdonald.	3
Preface.	4
Your Association.	5
Background to Spearfishing.	6
Caring for the Marine Environment.	8
Marine Environment Checklist.	10
Spearfishing & Conservation.	12
Code of Conduct for Spearfishing	13
Code of Conduct for Grey Nurse Sharks.	14
Code of Conduct for Threatened & Protected Species.	16
Marine Protected Areas.	18
Spearfishers & other Marine user groups.	20
Safety Rules.	22
Basic Equipment.	24
Spearfishing Basics.	26
Essential knowledge.	28
Physiological dangers.	30
Marine Hazards.	32
Weather & Sea Conditions	38
Dealing with Emergencies.	44
Planning Trips.	46
Common Species in NSW Waters.	48
Looking after your Catch	54
Bag Limits & Legal Sizes	56

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DISCLAIMER

The purpose of this publication is to provide a guide to people interested in participating in the sport. Participants should not rely solely on the information provided herein and understand that many outdoor activities possess inherent risks that should be carefully considered beforehand.

Although the Underwater Skindiver's and Fishermen's Association (USFA) has made every effort to ensure accuracy at the time of publication, USFA, its contractors, members, contributors and agents involved in the preparation of this publication shall not be liable to any person for any loss or damage of any kind (including indirect or consequential loss) arising from any errors or omissions or from reliance placed upon any advice, statement, opinion or conclusion in all or any part of the contents of this publication or any related Uniform Resource Locators (URLs).



PREFACE

Most people attain their first interest in spearfishing from their experience with and passion for angling. Many of the skills are transferable and both disciplines share similar attributes, the obvious difference being one is above the water and the other is below.

In either instance, the affinity for the recreational marine environment afforded by New South Wales waters is universal.

In skindiving, typically what retains the interest of participants to the sport is the strong bond with the underwater world. Similarly, the challenge of becoming a competent freediver provides rewards that in the minds of participants are often unmatched.

As you read this there are several thousand others in New South Wales that have already commenced the journey. From the Underwater Skindivers and Fishermen's Association (USFA), we wish you words of encouragement and trust that from the moment you decide to involve yourself in the sport that it provides the same personal satisfaction our many members enjoy today.

The guide to Spearfishing in New South Wales is a handbook that aims to provide a reference and companion for safe, legal & enjoyable diving. The spirit of this guide is to make underwater fishing accessible, responsible and a means of taking pleasure in the aquatic environment.

ACKNOWLEDGEMENTS

The USFA would like to thank all those that participated in the development of this important publication.

Special mention goes to Mr Adrian Wayne, immediate past Chairman of the NSW Spearfishing & Freediving Association, now known as the USFA, for the vision, resolve and many hours contributed and ongoing dedication to make our sport accessible.

Special appreciation and credit also goes to the following and to all those that provided support and contribution:

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·Naomi Kiely	
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And, many others not mentioned, the sport is grateful for your assistance in making this guide booklet a reality.



YOUR ASSOCIATION



The Underwater Skindiver's & Fishermen's Association Inc. (USFA) has been serving its members for 60 years and is the peak body for spearfishing in New South Wales. USFA is devoted to the development, promotion and protection of Spearfishing as an ecologically sustainable method of fishing.

The USFA is affiliated with the Australian Underwater Federation (AUF) which is the national governing body for underwater sports, including recreational spearfishing. The AUF is an associate member of Recfish Australia and is committed to working strategically together with all recreational fishers. The mission of the AUF is to; bring sport, conservation and awareness to the underwater world www.auf-spearfishing.com.au

The Role of the USFA

The objective of the USFA is to ensure that amateur divers and underwater enthusiasts can continue to enjoy spearfishing activity and access to the waters of New South Wales.

The USFA Mission is to achieve this through the following actions:

- Provide literature that educates participants.
- Accreditation of all NSW Spearfishers.
- Issue media statements to convey information to the public.
- Work proactively with all stakeholder groups and regulatory authorities.
- Conduct and assist with relevant surveys or research.
- Promote the positive and sustainable nature of spearfishing.
- Provide rules, codes, regulations and policies for spearfishing.
- Work with other similar recreational groups to increase awareness of our activities and attract new members.
- Strongly oppose any limits to be placed on our sport that are deemed unreasonable.
- Offer diver education programs and provide an avenue for members to participate in the safest manner possible.
- Encourage independent and social divers to join and have a representative stand for any issues or suggestions.
- Offer Internationally accredited snorkel coaching programs and freedive instruction.
- Conduct events and networking opportunities.
- Provide tournaments for divers to compete.
- Recognise excellence in achievements.
- Represent member interests on advisory councils established by authorities. Committees such as LOBMAC, ACORF and ABMAC.
- Engage legal resources to contest matters that affect the interests of members.

USFA Member Benefits

When you join the USFA:

- You are part of a united group and collective voice.
- You are part of a representative organised body that can deal at both the Federal and State levels.
- You are entitled to claim official State and National spearfishing records and have your name accredited.
- You are covered by a personal injury policy by the NSW Sporting Injuries Insurance Scheme.
- You are covered by a comprehensive public liability insurance policy.
- You receive a membership card and discounts on gear.
- You are invited to attend meetings and have your say.
- You are automatically doing your part for the cause by simply being a member.
- You are automatically affiliated with the AUF.
- You get regular communications.
- You have the opportunity to be involved and contribute back to the spearfishing community.
- You get access to dive buddies, events and new skills.



CONTACTS: See the USFA website for contacts and office bearers. Enquiries may be directed to the Chairman, the Secretary or Public Affairs Officer www.usfa.com.au

HOW TO JOIN USFA: Simply contact memberships@usfa.com.au or download a membership application at www.usfa.com.au. As at time of printing, annual membership is only \$48



BACKGROUND TO SPEARFISHING

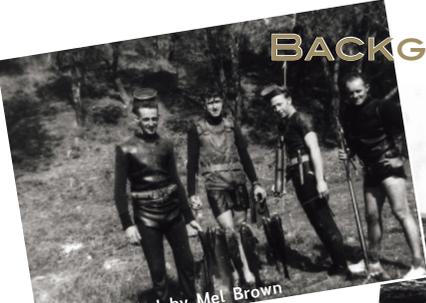


Photo supplied by Mel Brown
1950 Excursion to Seal Rocks

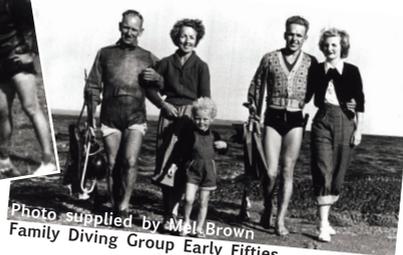


Photo supplied by Mel Brown
Family Diving Group Early Fifties

Spearfishing in its modern form commenced early last century in 1917 and those hardy participants braved the elements using vastly antiquated equipment.

The sport rapidly developed over the years and in 1948 the Underwater Spearfishing Association of NSW now the USFA was formed by a small group of dedicated divers at Long Reef in Sydney.

Competition diving commenced around this time and numerous clubs were formed right along the NSW coastline. In those early days spearfishing and scuba divers were as one and worked together just as they do now in New Zealand and New Caledonia.

In the formative years the USFA made a decision to ban spearfishing using self contained breathing apparatus (scuba). The sporting spirit shown back then has shaped skin diving into one of the most personally challenging and physically demanding recreational pursuits that exists.

BENEFITS OF SKIN DIVING

- Promotes good health.
- Engenders a non-smoking lifestyle.
- Avenue for exercise doing something enjoyable.
- Not a passive activity like computer games.
- Outdoor activity.
- Part of Australian culture.
- Opportunity to obtain fresh seafood for one's immediate needs.

SPEARFISHING EVENTS

Spearfishing like any other sport contains individuals who desire to test their skill against other individual's and that is why we have spearfishing events. From the very beginning of competition in NSW the controlling body led the way in setting standards that guarantee the protection of the environment.

No other form of fishing promotes the concept of taking only one of each type of fish in an event.

These rules have been developed to minimise the impact spearfishing has on the environment and all fish taken are required to be used for human consumption.

Continuing this trend, modern spearfishing tournaments are underpinned by standards that promote environmental, social, economic and safety criteria. NEATfish otherwise known as the Standard for National Environmental Assessment of Tournament Fishing is one example. "Film fishing" is yet another initiative.

WHERE TO GO SPEARFISHING

The NSW coastline has many exciting places to go spearfishing:

- Headlands
- Reefs
- Offshore islands
- Fishing aggregating devices (FADs)
- Ship wrecks
- Underwater features
- Bluewater

Please note however that, many entrances, coastal lagoons and estuaries and other tidal waters are closed to spearfishing, as are some areas within aquatic reserves and marine parks. It is your responsibility to check with your local DPI Fisheries office or call DPI on 1300550474. For marine park information consult www.mpa.nsw.gov.au



Photo supplied by Alastair Cooke

INFORMATION

The internet provides aspiring spearfishers with an abundance of information. You can find:

- Spearfishing supplies.
- Links to NSW spearfishing forums where you can ask questions, learn and exchange ideas.
- Pictures and videos.
- Research on key topics.



Photo supplied by Alastair Cooke

CARING FOR THE MARINE ENVIRONMENT

As spearfishers we get to explore many parts of the magnificent NSW coast from lush beds of seagrass in our estuaries to isolated rocky bays and spectacular offshore reefs as well as traveling out to the edge of the continental shelf seeking the warm Eastern Australian Current and the range of pelagic species that ride it.

These wide ranging journeys give spearfishers a unique opportunity to observe and care for our diverse marine environments. There are many practical ways that spearfishers can increase their contribution to caring for the marine environment. Each year many divers participate in “Clean up Australia day” by removing tonnes of rubbish from our waterways - check with your local spearfishing club to join in the fun. Clean up days are a great social event and an excellent way to improve your dive fitness.

Introduced marine pests pose a threat to our native biodiversity. Spearfishers can assist the effort to combat these invaders by reporting sightings of pest species to the NSW DPI - Aquatic Biosecurity. Any suspected sightings can be reported on the 24 hour recorded hotline 02 49163877 or email aquatic.pests@dpi.nsw.gov.au

Spearfishers occasionally get to observe threatened or protected species such as grey nurse sharks and black cod.



Photo supplied by James Sakker

The threatened species Black Cod

As these species are hard to study spearfishers' reports provide a valuable source of data to assist with their management. NSW DPI have an ongoing threatened, protected and pest species sighting program and a handy booklet with pictures and information about these species. Contact the “Threatened Species Unit” at NSW DPI on 02 49163877 to get a copy of the booklet or report sightings on line at www.dpi.nsw.gov.au.

If you suspect illegal fishing activity you can report it to your local fisheries office or phone the 24 hour Fishers' Watch phone line 1800043536.

Marine mammal strandings and entanglements can be reported to the Department of Environment and Climate Change (DECC) on 131555.

Pollution such as oil spills and illegal dumping threaten our marine environment. Spearfishers can report pollution incidents in NSW to DECC on 131555.

The NSW coast has many shipwrecks some of which have yet to be discovered. You can help protect and enjoy these sites by reporting them

to the Heritage Branch of the NSW Department of Planning phone 02 98738500. The Department has produced a set of four free booklets about diving on shipwrecks which can be ordered via the website www.heritage.nsw.gov.au

As underwater hunters we have the unique opportunity to be selective in our catch and care for our special marine environment. Responsible spearfishers abide by the AUF code of conduct and:

- Conserve our fish stocks by taking only what they need.
- Obey all fishing, boating and Marine Protected Area (MPA) regulations.
- Report illegal activity to the appropriate authorities.
- Respect and assist other waterway users.
- Always carry and use the appropriate safety gear.
- Act as ambassadors for our sport to maintain and enhance our public image.



Photo: Craig Bond
Forrester's Beach

MARINE ENVIRONMENT CHECKLIST

Ways in which spearfishers can help protect the marine environment include:

- Never leave litter or other pollution behind, whether it is yours or somebody else's.
- Dispose of fish waste responsibly, preferably at a fish cleaning station or in a garbage bin.
- Correctly maintain your boat and its engine to minimise the escape of any oil or other pollutants.
- If spearing or boating in an area infected by the pest alga *Caulerpa*, always check your equipment carefully upon leaving the area and dispose of any fragments in a garbage bin.
- Spearfishers can assist in the eradication of *caulerpa* by reporting sightings to the NSW DPI Aquatic Biosecurity Unit on the 24 hour recorded hotline 02 4916 3877 or email aquatic.pests@dpi.nsw.gov.au
- Dive and anchor carefully in fragile aquatic ecosystems.
- Keep diving skills up to date with continued education and training.
- Use your knowledge and expertise to help others still novice.

- Understand and respect underwater life.
- Obey the regulations and observe bag and size limits.
- Become involved in local environmental activities and issues.
- Always be a role model for other divers and the public.
- Respect the rights of other water users and always obey the instructions of statutory officials.
- Report any actions or events that you feel may be detrimental to our sport or the environment.

Respect these principles and communicate them to others.

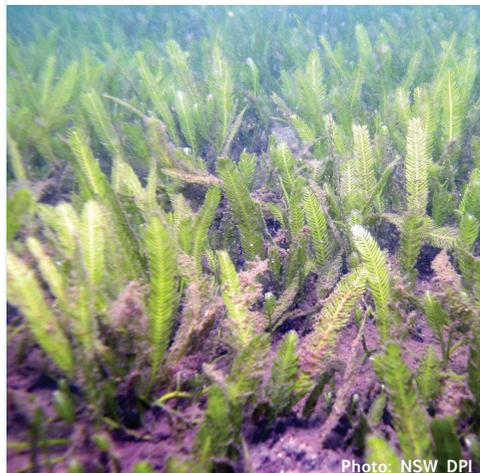


Photo: NSW DPI
The noxious introduced marine seaweed *Caulerpa taxifolia*

Please remove litter that you find



Photo: Paul Miller



SPEARFISHING AND CONSERVATION

Spearfishing is an ally to the environment. By its very nature the sport is physically challenging and allows target species equal if not better chances of evading the underwater hunter than does any other form of marine harvesting.

Overall, spearfishing has negligible impact to the aquatic environment.

- No by-catch
- No pollution
- No contamination
- No nets
- No rubbish or debris

Only one fish at a time can be targeted. There are also other natural constraints including; the physical capacity of the individual, the weather and the sea conditions. Regardless of these limitations it is essential that divers act responsibly and fish conservatively.

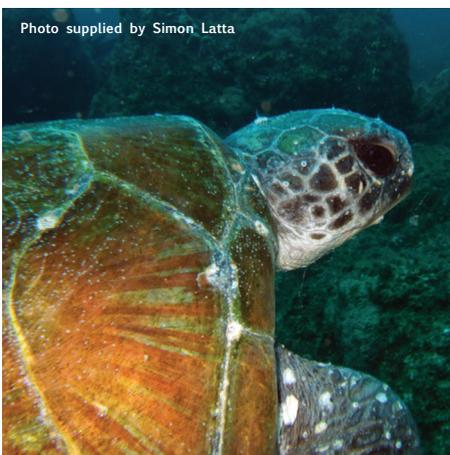


Photo supplied by Simon Latta



Photo: Antony Judge

It is for this reason that the USFA has developed several Codes of Conduct. The USFA, your fellow divers and the public of NSW rely on individuals to understand and adhere to these Codes.

Another key initiative designed by the USFA to uphold responsible and conservative conduct is Diver Accreditation. The aim of this scheme is to certify participants as having demonstrated the required knowledge to safely and responsibly partake in the sport.

Like any other sport you are encouraged to become a member of the governing body, in this case the USFA. As a member you will be provided access to information as Diver Accreditation is implemented and be part of a community of friends that share the same interests as you.

The following Codes of Conduct and rules exist to protect the interests of the environment and future generations wishing to experience the wonder of spearfishing.

CODE OF CONDUCT FOR SPEARFISHING

The Code of Conduct for spearfishing in NSW and information about caring for the environment has been developed as a minimum standard. The aim is to ensure that all spearfishers are aware of the high standard of behavior expected.

Preservation of the marine environment and the sport are mutual objectives. This code applies to all members of the USFA. It is intended to discourage certain types of unacceptable behavior which may discredit the sport of spearfishing. Serious cases, such as members willingly engaged in illegal activities, may result in penalties including suspension or expulsion. Please become familiar with this handbook and the Codes of Conduct.

- Consider the safety of yourself and other people at all times.
- Know and at all times practice the Spearfishing and Freediving safety rules and principles in this booklet.
- Respect our marine life by never taking more game than for your immediate personal needs.
- Respect our marine life by never killing unwanted game.
- Know and at all times obey boating regulations including:
 - Carrying required safety equipment
 - Navigating safely at all times
 - Care when anchoring
- Know and at all times obey NSW fisheries regulations including:
 - Hold a current NSW recreational fishing fee receipt
 - Size limits for certain species
 - Bag limits
 - Bans on the taking of protected species
 - Ban on the sale of fish by recreational fishermen
 - Closure of certain areas to spearfishing & other forms of fishing
- Guard our seas from law breakers by reporting suspicious or illegal activity to the proper authorities.
- Always co-operate with regulatory authority officers performing their duty.
- Show consideration towards other water users pursuing their own recreation.
- Clean your catch at a designated cleaning area or away from general public areas.
- Whenever you go diving never leave your rubbish behind.
- Never act in a way which results in public disfavour towards our sport or our organisation.
- Maintain 50 metres distance from anglers, where it is safe to do so.

Photo: Simon Latta
Grey Nurse Sharks



CODE OF CONDUCT FOR GREY NURSE SHARKS

Reported sightings indicate that the population of Grey Nurse Sharks may be on the increase.

To protect the species for future generations of divers to enjoy, please adhere to the USFA Code of Conduct for Grey Nurse Sharks.

This code represents the minimum standards of behaviour and actions required when Spearfishing in proximity to Grey Nurse Sharks. The code is part of the membership commitments to the Underwater Skindivers and Fishermen's Association (USFA). It also serves as the default standard for all NSW Spearfishers.

When spearfishing near where Grey Nurse Sharks congregate:

- Keep a minimum distance of five (5) metres at all times.
- Do not knowingly allow sharks to steal catches.
- Refrain from all forms of flashlight photography of sharks.
- When sharks move to within five (5) metres discreetly retreat avoiding the projected path of the shark. If the sharks appear agitated, move out of the area.
- Assist in any scientific research in conjunction with NSW DPI personnel. (This may include the tagging process to establish movements or initiatives such as the Great Australian Shark count) www.auf.com.au
- Maintain and share records of shark populations to be able to ascertain whether they may be increasing or decreasing over periods.
- When operating in Grey Nurse Shark locations, try to limit direct interaction.
- Educate other spearfishers who may not be aware of, or otherwise regulated by the USFA code.



Grey Nurse Sharks are best recognised by their almost equally-sized dorsal fins and are not normally dangerous. Grey nurse sharks are a critically endangered species and protected by law



Photo: Darryl Bullock



Photo: Simon Latta

CODE OF CONDUCT FOR THREATENED AND PROTECTED SPECIES

Rules governing protected species apply to all recreational fishers. This code of conduct for protected species aims to further enforce these regulations within the spearfishing community and similarly educate divers on the importance of preservation.

NSW DPI have an Action Programme which includes a Protected Species sighting form www.dpi.nsw.gov.au

Ongoing evidence is required on the quantities and areas where Grey Nurse Sharks abound in order to assess their current threatened species status.

Members are encouraged to report any sightings of protected and threatened species.

Information includes:

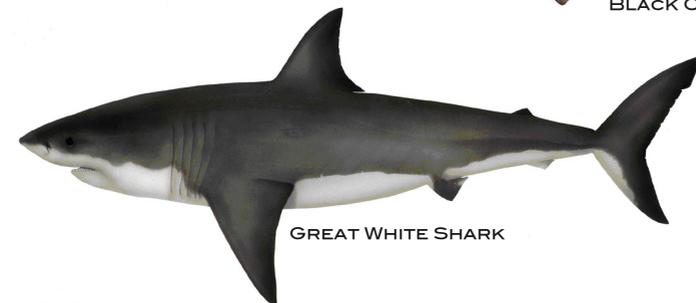
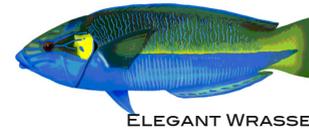
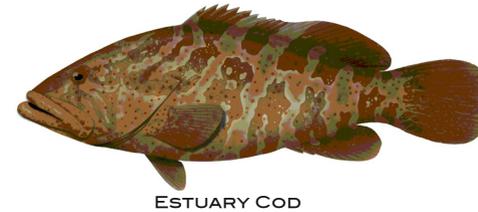
- Specie, sex and number sighted.
- Locality (specific as possible).
- Date and time.
- Sea and Weather Conditions.
- Water depth, visibility & temperature.
- Size and behaviour.

This code of conduct applies to all USFA members.

Members will make themselves familiar as to what species are “protected” in NSW and classified as “threatened” (i.e. vulnerable or endangered) according to the provisions of the NSW DPI Management Act 1994. See NSW DPI www.dpi.nsw.gov.au

Members will not knowingly disturb protected or threatened species or their habitat.

Members will try to educate those who may not otherwise be aware of the regulations.





MARINE PROTECTED AREAS

There are four main types in NSW: Marine Parks, Aquatic Reserves, Fishing Closures and Intertidal Protected Areas.

1. Marine Parks are designed to protect marine habitats and biological communities. They form a network, which when complete will provide protection of representative samples of each of the marine habitats and their associated biological communities found along the NSW coastline.

The network of Marine Parks is based on broad-scale bio-regions. Similar systems of bio-region based Marine Parks found right around the Australian coastline.

Each Marine Park is large, typically taking in many 10s of km of coastline.

Currently Marine Parks exist at Byron Bay, Solitary Islands, Port Stephens, Jervis Bay and Batemans Bay.

There are three main types of zoning in Marine Parks: Sanctuary Zones (no take); Habitat Protection Zones (limited take); and General Use Zones (few restrictions).

When spearfishing in Marine Parks, be careful to observe zone boundaries, and in particular the Sanctuary Zones. Also check local restrictions that may apply in Habitat Protection Zones (such as limited species lists for fish that can be speared).

2. Aquatic Reserves are designed to protect 'iconic' sites and marine habitats or communities perceived to be under pressure, threatened or vulnerable to over-exploitation.

Smaller than Marine Parks, they are typically a few km in extent. Numerous examples occur in the Sydney Region, plus several elsewhere up and down the NSW coastline.

Current Aquatic Reserves include Long Reef Aquatic Reserve and North Harbour Aquatic Reserve.

Most allow spearfishing, but some have no-take zones that prohibit spearfishing. Some others allow spearfishing but prohibit the taking of common invertebrates taken by skin divers, such as squid and sea urchins.

3. Fishing Closures exist for a range of reasons, including, sustainable fishing, public safety, user conflict and local habitat protection. Most don't apply to spearfishing, but some do - like Port Hacking. Also, numerous lakes and estuary entrances are closed to spearfishing, so its best to check with the local DPI Fisheries office.

4. Intertidal Protected Areas (IPA's) are designed to protect intertidal invertebrate communities from over harvesting and do not directly affect spearfishing. For more information on fishing closures or IPA's check out www.dpi.nsw.gov.au

POINTS TO NOTE

- Before spearfishing in an unfamiliar area, check with NSW DPI and/or the Marine Parks Authority regarding any restrictions that might apply.
- Any local fishing closures can be checked at your local DPI office or call DPI 1300550474.
- For more information about Marine Parks or Sanctuaries, contact your local Marine Parks Authority NSW or Department of Environment and Climate Change (DECC) office.
- Some people may not always fully understand local restrictions associated with MPAs - and may, for example, believe that fishing is not allowed off an Intertidal Protected Area. This may lead them to question a spearfisher about his or her catch. Calm discussion is the best way to manage such situations.
- If possible refer the person to nearby signs and/or the NSW DPI or MPA.

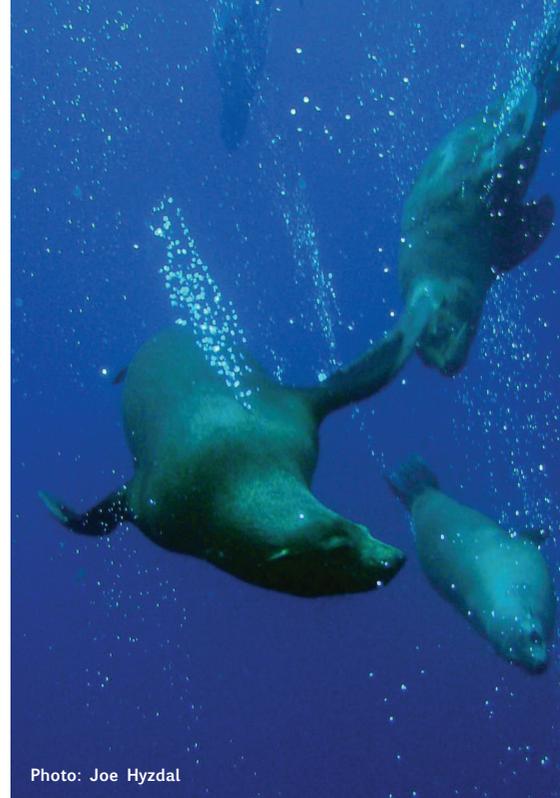


Photo: Joe Hyzdal



Photo: Alastair Cooke

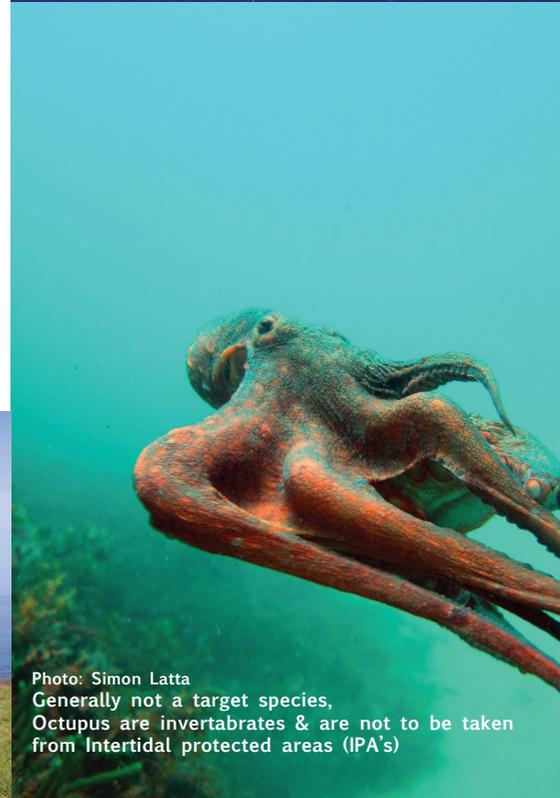


Photo: Simon Latta
Generally not a target species, Octopus are invertebrates & are not to be taken from Intertidal protected areas (IPA's)



SPEARFISHERS AND OTHER MARINE USER GROUPS

Our beaches, headlands, reefs and harbours are extremely popular with a wide variety of user groups, including anglers, swimmers, surfers, SCUBA divers, picnickers, walkers and local residents. While spearfishers have the same rights of enjoyment as everyone else, they also have a responsibility to be considerate of other user groups in choosing when, where and how to go diving.

Community views on spearfishing tend to be highly polarised, and while there will always be plenty of people who will admire a successful spearfisher as he or she wades ashore, there will also be others who take a less positive view – and it tends to be only the complaints that receive attention. Remember, a single complaint can easily outweigh the good of many compliments.

Here are some specific tips on how to behave around other user groups:

- Always follow the ‘first in first served’ principle and respect the right of anglers, swimmers, other users or spearfishers who are in an area before you arrive.
- If you think there may be a potential conflict, talk to the other users if possible. Often a quick courteous conversation can avoid misunderstanding and ill feeling.

- Keep well away from SCUBA divers. They are there to enjoy the fish life, but are limited in how far they can travel underwater – you can always spearfish somewhere further along the reef.
- Never intrude on the fishing activity of any land or boat-based anglers. If you need to swim past some anglers on the shore, try to establish how they are fishing, and swim past or around them accordingly. If in doubt, ask them. They might be fishing in close for luderick or drummer, in which case you can swim wide around them without spooking the fish; conversely if they are casting wide, they probably won't mind you passing beneath their feet.
- Do not enter the water close to other boats already around the FAD and be prepared to take turns to accommodate new arrivals. Check out the DPI FAD's Code of Conduct at www.dpi.nsw.gov.au
- Keep well clear of areas crowded with swimmers or surfers regardless of what fish might be also there. If you must pass through such areas, always unload your gun and cover your spearhead.
- Never interfere with other's fishing gear, equipment or catches – and this includes lobster pots, fish traps and fish farm cages.



Your wetsuit is your “uniform”, your behaviour is a reflection of how other spearfishers will be judged in future. Please be courteous & considerate towards others.

- Avoid, where possible, ‘in your face’ behaviour when spearfishing or when entering or leaving the water.
- Try to be an ambassador for the sport – always be courteous to anyone who approaches you, even if their views do not agree with your own. Never ever show aggression or deliberately intimidate others.

User perception is very important to the future of spearfishing. By adopting the above practices and spreading the word, you can help ensure that the sport has a viable future. The message for spearfishing is simple:

“Be responsible or be gone.”

Whilst spearfishing, try to maintain 50 metres distance from anglers. If you must pass closer, cease spearing and move through the area quickly and quietly so as to not disturb their fishing.



Photo supplied by Wayne Judge
Diver with Snapper

BASIC EQUIPMENT



The equipment required to begin diving is not extensive. However it is important to ensure you are properly equipped to venture in to the ocean.

Below is a list of the essential elements of gear:

- Dive mask
- Snorkel
- Dive fins
- Gloves
- Float-line
- High visibility float
- Regulation dive flag
- Wetsuit
- Knife
- Weight belt
- Speargun, handspear or camera

NB: (Spears may only be propelled by human, rubber or pneumatic forces)

A torch is only permissible for searching without a spear. Crayfish or lobsters may only be extracted with bare or gloved hand, it is not permissible to spear crayfish in NSW.



WHERE TO BUY YOUR GEAR

For the beginner or budget conscious you may find some items that are fit for entry level purpose in the second hand market, be it in a shop or on-line. Due to the interest in the sport over recent years, many specialized suppliers are well stocked with a large range of dive gear suitable for all levels. As you progress, the gear you will require to match your skill level will advance. In addition to some of the other gear listed, experienced divers typically use the following gear:

- Open cell wetsuit with hood.
- Free-diving fins (longer & stiffer)
- Low volume dive mask.

You will find by graduating to this type of kit that your time in the water will be more enjoyable and productive.



PHOTOGRAPHY: Luke Downie, Paul Miller, Extreme Spearfishing, OMER Australia & CRESSI SUB

An **open cell wetsuit** has key advantages such as superior warmth and comfort.

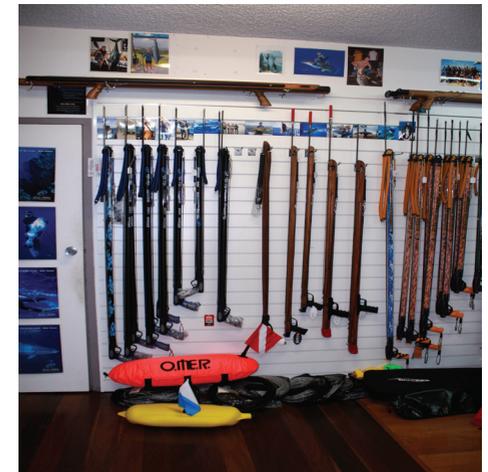
Longer fins are generally more efficient and allow for deeper diving or more powerful swimming.

Low volume masks reduce drag in the water and require less precious air to equalise when submitted to water pressure caused by depth. Almost all quality dive masks are now manufactured from silicone as the comfort and seal is generally superior.

Spearguns are many and varied. In the formative years of the sport, hand-spears were common as was the home-made speargun. Today, there is little need to engineer your own equipment, although some people still prefer to make their own gear for personal satisfaction.

Spearguns can be purchased in a multitude of lengths, material and configurations. Keeping it simple is the key to trouble free diving. Most people start out with a speargun around 1100mm in length. Such a device is suitable for fish from small reef species through to pelagic fish potentially up to 20kg given the right circumstances.

Generally pelagic hunters will favour a speargun no less than 1300mm using thicker (20mm) latex rubber, or multiple rubbers, for more range in open water. However, if you are starting out, the consensus of experienced divers is to begin with a 1000mm to 1100mm speargun with moderate power latex rubber initially.





SPEARFISHING BASICS

Trust your gear and learn to use it. It is important to familiarise yourself with the function of your gear. Target practice on a submerged plastic bottle out on the sand is a good way to become acquainted with loading, discharging and handling your equipment. Remember, spearguns are not toys and you risk serious injury if you ignore the potential energy contained within a loaded speargun.

Note, it is an offence to load a speargun out of the water. Anyway, fish are found in the water. The effective range of most spearguns is very limited owing to water density. It is therefore crucial to improve your physiology and skills in the quest for improved catches.

GETTING STARTED

You may be wondering which location to begin your diving. It won't be long though till you have a range of preferred locations. The idea is to try new areas and you can do this by joining a club or simply buddy up with someone else.

Generally speaking, experienced divers travel extensively and dive with many different people to build their local knowledge and diving skills.

It is suggested that you start diving in sheltered areas and move out as skill and confidence improves.



The length of time it takes to become confident is dependent on the individual and whether or not you are diving with experienced buddies.

Diving can be roughly categorised into two kinds:

1. **Shore diving**
2. **Boat diving**

Most people begin with shore diving and even experienced divers who dive regularly from boats, find shore diving to be extremely rewarding.

1. **Shore diving** as the name suggests, implies entering and exiting the water at the shoreline.

You must stay within 20 metres of rock headlands adjacent to ocean beaches when entering and exiting the water. As this is the case, many divers choose to enter and exit via the rocks. This can however be very dangerous and even in moderate sea conditions it takes judgment and practice.

Photo: Simon Latta

Join a club (see directory at www.usfa.com.au) – see also buddy boards on spearfishing websites, or consult your local dive store.

Find a location that allows you to calmly enter the water and swim safely to desired areas. Above all, plan your dive in advance remembering that tides and sea conditions can change the dynamic of the shoreline.

The objective before you get in the water is to have a plan of where you intend to exit the water. Always inspect the location carefully beforehand, note key landmarks if necessary and always tell someone on shore of your plan and when you expect to return.

2. **Boat diving** can add a new dimension to your spearfishing as a boat allows flexibility. As is often the case, sea conditions such as visibility, patches of cold water, bluebottles and other factors impose obstructions to your dive.

Boat diving has the advantage of mobility, hence allowing the divers to quickly change to a more favourable or safer location.

When a boat is mobile around divers

in the water, skippers require experience and need to be ever vigilant of divers' proximity to the vessel. Always take the boat out of gear and preferably turn the engine off briefly whilst the diver climbs aboard.



Anchoring the boat is normal practice for groups of divers. It is crucial that sufficient distance is left between rocks or obstacles and that you check the hold of the anchor prior to venturing off.

A regulation dive flag for the boat is mandatory and will help you see your vessel from where you are in the water in the event it was to break anchor. In any case you should look back at regular intervals and be aware also of any wind or tide changes that may affect the lay of your anchor. A key advantage of boat diving is the ability to immediately remove your fish from the water, both to preserve it and to avoid predators. A boat also enables you to carry spare gear, food, water and dive buddies, all of which can make for more pleasurable diving.



ESSENTIAL KNOWLEDGE

EQUALISING EAR PRESSURE

When taking up diving it is necessary to learn how to “equalise your ears”. As water is much heavier than air, the deeper you descend the more pressure is brought to bear on your body. At approximately 10 metres the pressure is equal to two atmospheres.

The water pressure on your ears as you descend is usually painful and can cause damage. However there is a simple solution. From the back of one’s throat up to the ear cavities exist two fine tubes. These are called the “Eustachian tubes”. Their purpose is the equalisation of pressure. When one ascends in an aircraft the pressure change is adjusted with these tubes, usually with minor movements

of the jaw. However in diving the pressure change is often very sudden and unless these tubes are working well the ears will suffer pain and inhibit descending.

The first thing to know is NEVER force yourself through pain to get deeper in the water. Many people have damaged their ear drums by doing this. If there is pain you must ascend. To equalise or “clear” one’s ears it requires you to hold onto your nose while you descend and as soon as any pressure is felt a gentle blow into your now-blocked nose will push air up these Eustachian tubes and bring the pressure in the ear cavities up to the outside water pressure. Dive masks are made so it is possible to take hold of your nose with your fingers.



- Never wait for pain or strong pressure to clear ones ears. It is good practice to clear them once or twice a metre starting from the surface, especially when new to the practice.
- If you have a cold or excess mucus in the head these tubes often get blocked. You are better off not diving than risking damage to the ear drums. Using excess force to clear your ears often enflames the tubes and prevents diving for a much longer period.

Photo: Wayne Judge

- If there is difficulty equalising, try moving your jaw up and down and side to side while clearing. This often has the effect of allowing air through these tubes.
- When new to diving it may take some time and gradual improvements to get these tubes operating well. It varies from individual to individual.
- Certain foods and drinks are mucus forming depending on individual reactions. Good results are often obtained from removing these foods from your diet. It can take a bit of experimenting to locate these. Milk, cheese, wine and beer are some of the more common mucus forming foods that when omitted or limited in ones diet can benefit the clearing of ears.

With a working knowledge and a gentle approach the chance of your diving being interrupted by major ear trouble is very minimal.

THE BUDDY SYSTEM

We have all heard the advice, “Don’t dive alone”. This is good advice, however it needs to be expanded to be really effective. Add to the above, “Ensure you and your dive buddy have the knowledge and are drilled on how to handle a blackout or samba situation”. Good freediving/spearfishing clubs will educate their members and it is a major reason why joining a club is beneficial. In addition to this it is important to adopt or develop a buddy system of diving that stresses safety.

This is vital when the diving depth is increased. When diving in deep water, one diver up and one diver down, with the surface diver constantly watching his buddy is a good start. If the diving depth exceeds the water visibility level, then the safety diver would need to follow the diver’s float rope. When the diver below returns to the surface they are watched until at least 10 seconds after taking their first breath to ensure they are fully ok.

Buddy systems break down only when there is insufficient communication between partners. A dive partner should know what the other diver is doing so they can coordinate actions. Dive buddies should be of similar abilities and purpose. For example, if one partner cannot exceed 10 metres depth they shouldn’t be watching out for someone diving 20 metres.

Your safety and life may well rest in your partner’s hands and vice versa, so make a point on ensuring you and your dive buddy know what to do in an emergency and have practiced it.

HYPERVENTILATION

One of the most dangerous practices for a diver is hyperventilation. This is the major cause of blackouts. The term means: breathing at an increased rate or depth than what is required by the body. It is done by divers in a false hope that they will get more oxygen. They take rapid or many long deep breaths before diving.

In general living the oxygen level in the blood stream is around 98% saturated. To bring this up to 100%



PHYSIOLOGICAL DANGERS

it usually requires 3 – 4 long deep breaths. When a diver hyperventilates he quickly reaches the full saturation of oxygen and as he continues he now lowers the level of carbon dioxide. It is an increased level of carbon dioxide in ones blood that triggers the body to breathe not a low level of oxygen. So if you lower the carbon dioxide level the natural trigger mechanism is impaired and it is likely that you will not get sufficient warning that you are at your limit. Decreased carbon dioxide can make the dive more comfortable as the body may not be contracting and telling the diver that he has to get to the surface. A diver that hyperventilates is taking a serious risk.

BLACKOUTS

Shallow water blackout has been recognised as a major hazard for spearfishers for years. The facts of the matter confirm that blackouts are the most dangerous hazard that spearfishers have to face. Blackouts from diving are caused by one thing: lack of oxygen. There are three observable levels of blackouts.

1. Loss of Motor Control is the least severe form of blacking out. This is also called a “Samba”. It can be as mild as a flickering of the eyes or slight trembling of the body or at the other end of the scale it can be a complete loss of control with the body violently shaking. A samba happens when the diver arrives at the surface,

or during his first breath or up to 8 – 10 seconds later. (It takes that time from the first breath for the oxygen to reach the brain.) It is a partial blackout and in most cases the diver will be able to recover unassisted. However in a severe samba, the diver might not be able to hold their head above the water and would drown if unassisted.

See Sambas and Blackouts briefings at www.usfa.com.au

2. Shallow Water Blackout is called this because it occurs close to the surface. The biggest change of pressure happens in the top 10 metres of water. When ascending, this pressure change can have the effect of reducing the oxygen level in the blood and when someone has dived past their safe limit it causes a blackout. Unassisted, it is very unlikely a diver will survive a shallow water blackout.

3. Deep Water Blackout occurs when a diver has exceeded his limit by a long way making it possible for him to blackout even before he reaches the 10 metre danger zone. This does not happen often. Blackouts and Sambas all occur because a person exceeded their safe limits. These events become fatal if the diver doesn't have a competent diving partner who knows what to do in an emergency.

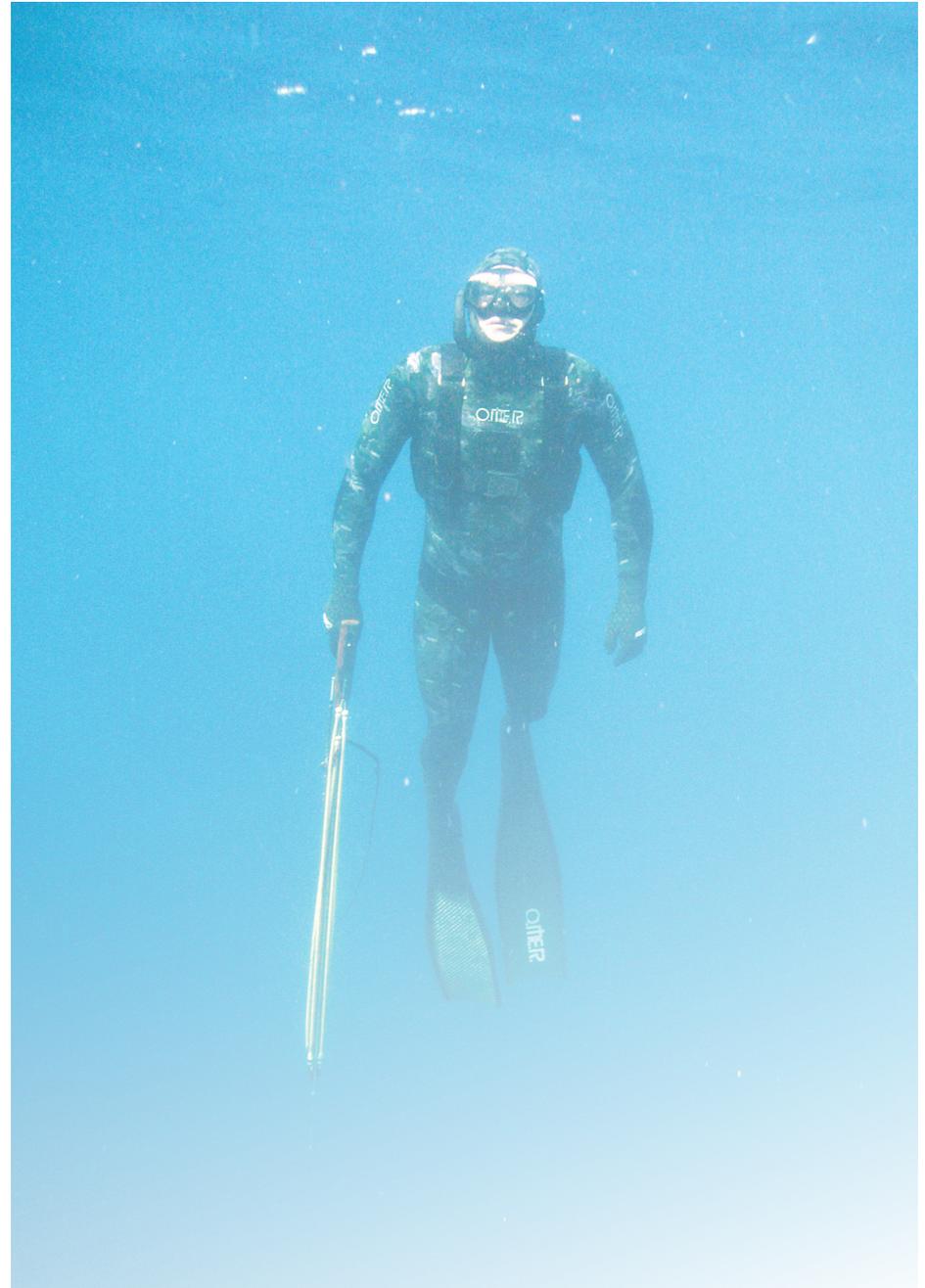


Photo: Paul Miller



MARINE HAZARDS

Spearfishing in NSW is generally very safe. However, there are some potentially harmful marine creatures to look out for. These include sharks, rays, venomous fish, jelly fish, blue bottles and sea urchins. Problems can almost always be avoided by taking a few simple precautions:

Sharks are the most cause for fear normally for anyone venturing into ocean waters however they are probably the least of any danger encountered by most spearfishers.

Sharks predate fish and other marine creatures and generally when in the presence of humans will shy away.

If you see a shark this is a check list of what to do:



1. Firstly try to identify the species – it is likely not to be dangerous.
2. Keep calm.
3. Keep facing in the direction of the shark.
4. If possible raise your hand or speargun to signal your boat driver that you require pickup.

5. If you have just speared a fish, release hold of it, or hold it clear of the water via the spear shaft.
6. If the shark is considered a dangerous species, leave the water and move to another area.

There are a number of known dangerous sharks that inhabit NSW waters, these include the Great White Shark, Tiger Shark, Bull Shark, Hammerhead and Whaler species. Divers who venture into much deeper water offshore or “blue” water, may also encounter Mako, Silky Whaler, Blue Shark or Oceanic White Tip. All these sharks are considered highly dangerous and again you should immediately leave the water.

Apart from Grey Nurse Sharks two other sharks common to NSW waters generally not posing a risk to divers are the Port Jackson Shark and Wobblygong Shark. It is recommended



Photo: www.bwhi.com.au
Great White

that divers do not interfere with the Wobblygong as their raked and needle point teeth are very real and they have the ability to reach their own tail if provoked from behind. All sharks deserve respect.



- Seek local advice about shark risk if diving in an unfamiliar area.
- If sharks are likely, try to remove your fish from the water as quickly as possible or consider using a large float that can support your catch out of the water. At the least, tether your catch well away from your body.
- Dive with a buddy if possible, so that you can look out for each other.
- Protective devices such as “Shark Shield” are available, and these work by creating an shark-repelling electric field around the wearer.
- Places to be wary include seal colonies and offshore islands and pincacles.
- Murky estuarine waters are especially risky, particularly in the northern half of NSW during the warmer months.

- Avoid close contact with wobblygong sharks; always watch where you lie on the bottom and don't reach into holes and cracks blindly when searching for crayfish.
- If a large shark is seen, remain calm and observe its behaviour. Often the shark will show no interest and soon move on. If the shark becomes agitated (short jerky movements, rapid changes of direction, arched back and or downward pointing pectoral fins) back away immediately – often such behaviour is a warning that you have encroached on a shark's territory.
- If a shark makes you feel uncomfortable, move quickly but quietly from the area.
- Avoid spearing any fish when a large potentially dangerous shark is nearby – the struggles of a speared fish will quickly excite almost any shark and could suddenly turn a controlled situation into a very awkward one.

Photo: Brett Vercoe
Grey Nurse Shark



Photo: www.bwhi.com.au
Blue Shark



Photo: www.bwhi.com.au
Hammerhead



Photo: Brett Vercoe





MARINE HAZARDS

Rays are very common on sandy bottoms. They range in size from the diameter of a small plate to around 2 metres across. Most rays bear one or more serrated venomous spines near their tail, and will not hesitate to jab them into a diver or wader who accidentally lands or steps on them. Apart from the effects of the venom, the larger rays can inflict serious, possibly life-threatening wounds. Fortunately, rays normally only sting people as a last resort in self-defence – they will usually retreat from a person at the first opportunity. A special type of ray is known as the electric ray or ‘numbfish’. If touched, this species will deliver a unpleasant electric shock, although this is not normally dangerous.



- Always look very carefully when landing on a sandy bottom – rays are often half-buried making detection more difficult.
- Be especially careful in murky water, whether diving to the bottom or wading in shallow water.
- If wading where rays are likely, never lift your feet. Instead, slide your feet along the bottom with each step. Any rays that you bump into will normally retreat harmlessly.



Photo: Brett Vercoe

VENOMOUS FISH

NSW waters contain a wide variety of fish that have venomous spines. While none of these are deadly, they can certainly ruin your day, cause you much pain and possibly necessitate a trip to hospital. Venomous fish commonly encountered by spearfishers include catfish, spinefoot (black trevally), red rock cod, lionfish and flathead. Most of the venomous fish have venomous spines in their dorsal fin (i.e. along their back). However, the flathead has them at the side of its head.

- All venomous fish only use their spines in self-defence – such as when a person handles one or when a diver swims into one.
- Always allow for wave action and currents when swimming close to venomous species such as lionfish, red rock cod and catfishes

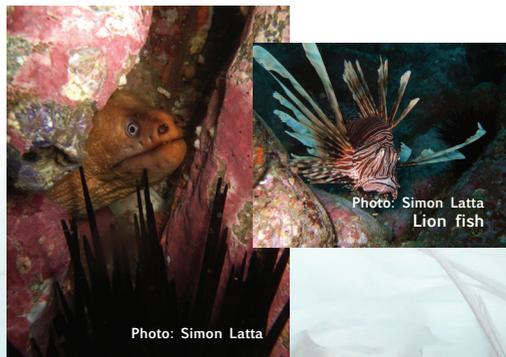


Photo: Simon Latta
Lion fish

Photo: Simon Latta



Photo: Simon Latta
Red Rock Cod

- these species won't go to much trouble getting out of your way.
- Take great care when handling a speared fish that has venomous spines. Remember that spines can remain dangerous long after a fish has been captured.
- The venom in these fish does not effect their eating qualities as it is destroyed by heat and in any case is contained in discrete 'venom sacs' rather than in the flesh. Some venomous species (such as the red rock cod and the dusky flathead) are excellent eating.

FISH GENERALLY

Apart from those fish that have venomous spines, there are many other common species that can cause serious injury if carelessly handled. Some fish have sharp teeth and/or gill rakers, while even non-venomous spines can easily cause infection and considerable discomfort. Crustaceans such as crabs and crayfish can also cause injury with their nippers and/or sharp body spines.



- Always wear proper gloves when spearfishing or when cleaning your catch. Gloves will give good protection against most spines, teeth and gill rakers, and will make handling a slippery fish much easier. Gloves also make handling crayfish and crabs much less painful.
- Species that have very large teeth (e.g. longfinned pike and Spanish mackerel) must always be handled with extreme care – gloves are unlikely to help much if you get bitten.

JELLYFISH

Jellyfish are soft-bodied animals related to sea anemones and corals. They normally bear a number of tentacles trailing behind a pulsating bell-shaped body. Each of the tentacles (and there may be a few or several hundred depending on the species) comes armed with large numbers of small stinging cells called 'nematocysts'. These activate on contact with prey or an unfortunate swimmer, each firing a tiny venom-laden dart into the victim. The body and tentacles of jellyfish are often pale and/or translucent – making them difficult to see, especially if the water is a bit murky. While the jellyfish found in NSW are

Photo: Simon Latta
Be careful when searching for crayfish. Eels have very sharp teeth & know how to use them



Photo: Brett Vercoe



MARINE HAZARDS CONTINUED ...

not considered deadly, some of them can give a nasty sting – especially if any tentacles are sucked down a diver's snorkel.

Jellyfish are often unpredictable in their occurrence. However, they are commonly encountered where currents cause large amounts of plankton and scum to accumulate. Jellyfish should not be confused with the harmless 'comb jellies', which also have a clear or translucent body but lack tentacles. Common jellyfish found



in NSW and known to sting people include the jumble (often found in calm warm water), the little mauve stinger (often found amongst concentrations of plankton) and the lion's mane hair jelly (quite common in Jervis Bay).

BLUE BOTTLES

Blue bottles (also known as 'Portuguese man o'war') are

related to jellyfish and also come armed with masses of nematocysts on each of their long tentacles. However, unlike the jellyfish, the blue bottle is actually a colony of organisms – one of which forms the distinctive gas-filled float. Other individuals in the colony make up the tentacles – which can be up to several metres long. Blue bottles cannot swim. They instead float passively, driven by wind and currents. Blue bottle stings cause an immediate sharp burning pain but are not normally dangerous. However, cramps may follow and if tentacles are swallowed, the resultant swelling may interfere with breathing.

TIPS

- Blue bottles live on the open ocean. They are blown towards land during onshore winds and away from land during offshore winds.
- During onshore winds, blue bottles can often be avoided by diving at sites that face away from the wind (for example, during a south or south easterly wind chose a site that faces north or north east)
- Onshore winds can sometimes cause blue bottles to accumulate in heavy concentrations just below steep cliffs. This occurs because the wind is effectively blocked, leaving nothing to push the blue bottles onto the rocks. Do not attempt to dive where this is happening.

There are a variety of other hazards that spearfishers need to avoid. These include waves, currents, exposure to cold, sunburn, rocks, equipment, plus boats and other watercraft. Problems with these hazards can be avoided by always having the correct equipment and the knowledge and ability to use it properly.



NOTE: If jellyfish or blue bottles are likely to be a problem where you plan to dive, wear extra protection such as a full suit, hood and gloves.

SEA URCHINS

Sea urchins are extremely common amongst rocks, particularly in shallow water. While most species are non-venomous, they usually do have very sharp spines that can break off in the skin very easily. Embedded spines are often very painful, are difficult to remove and can cause infection.

TIPS

- If wishing to collect sea urchins for their edible qualities, always use a suitable knife and wear a pair of gloves.
- Only collect the common sea urchin species. Avoid the rare 'exotic looking' ones, as these may be venomous or have

extremely sharp spines that can even penetrate gloves.

- Be especially careful when diving in surge-affected shallows: avoid being pushed against rocks and watch where you grab the bottom.
- Also be careful when getting into and out of the water: bad injuries can result from stepping on a sea urchin.



Photo: Antony Judge



Photo: Matthew Poulton
Spanish Mackerel possess dangerously sharp teeth



WEATHER AND SEA CONDITIONS

Waves are caused by the action of wind on water. Waves can be generated locally, causing short steep 'seas', typically characterised by a rough choppy ocean with lots of white caps. Alternatively, they can be generated many hundreds of kilometres away, arriving as long powerful 'swells', which can rear up and break heavily in shallow water even when the ocean itself looks calm. Along the NSW coastline, potentially dangerous swells prevail most of the time, meaning that spearfishers need to choose the timing and location of their dives carefully.

- Always assess conditions carefully before beginning a dive. If in doubt, don't go out.
- If conditions are too rough at your intended site, it may be possible to find a nearby site with much calmer conditions – for example in a harbour or estuary



Photo: Paul Miller

- or perhaps along a section of coastline that is better protected from the prevailing swell direction.
- If possible, check weather reports, surf reports or on-line waverider buoy data before going out – but always remember to allow for local conditions when considering reports or forecasts.
- Be very careful when diving in close amongst the 'white water'. This is where the surge is particularly strong and it can easily push you onto sharp barnacle-encrusted rocks. The best technique is to stay close to the bottom, holding on if necessary with one hand.

CROSSING COASTAL BARS

Take particular care when taking a boat across an 'ocean bar'. These areas, typically at the entrance of estuaries and rivers, can be extremely dangerous. You should remember the following in relation to crossing bars:

- Ensure everyone on board wears a lifejacket (it's the law).
- Make sure your boat's engine(s) are working perfectly before going to sea across a bar.
- Get local advice about a bar if in any doubt.
- Consider doing a bar crossing course.
- The best time to cross a bar is on a rising tide, close to the top of the tide.
- Run-out tides will usually increase the height of any waves on a bar and cause them to break in deeper water.



Always check the forecast. Visit "Coastal waters Forecast for New South Wales" www.bom.gov.au

- A freshening summer afternoon sea breeze pushing against a big run-out tide is a common but very hazardous scenario – that is best avoided.

SKIPPERING AND WAVES

Great care is also needed when anchoring or manoeuvring a boat close to rocks. Waves can rear up and break with little warning. When using a boat close to the rocks you should:

- Always err on the side of caution by remaining well beyond any white water or breaking waves, especially if the water is shallow. By remaining well clear, you give yourself a margin of safety should a set of bigger than usual waves suddenly come through.
- Keep a sharp eye on the ocean at all times, and be prepared to react quickly.
- Pay particular care when anchoring. Always allow for possible wind or current changes that might push your boat into dangerous water or expose the stern of your boat to waves.
- Preferably have a person remain on board at all times when diving. If this is not possible, try to remain close to your boat.
- When dropping off or picking up divers make sure that you remain well clear of any danger. It isn't much good dashing in close for that quick pick-up if your boat ends up being swamped!



Photo: Alastair Cooke

Weather is variable & can quickly change sea conditions

When travelling between sites by boat, you should follow these tips:

- Always match your speed to the conditions. Travelling too fast for the prevailing waves not only gives you an uncomfortable pounding, but can cause injury to passengers or damage to your boat or equipment.
- If driving into waves causes excessive pounding, reduce speed. You can also try attacking the waves at an angle – but only if this is safe for your particular boat in the conditions prevailing at the time.
- When driving in the same direction as the waves, be very careful not to let breaking waves catch up to your boat and make sure you don't lose control coming down the face of a wave.
- If inexperienced, first practice driving your vessel in good conditions and consider taking a more experienced person along for advice until you are fully comfortable with the handling of your vessel in a range of conditions.

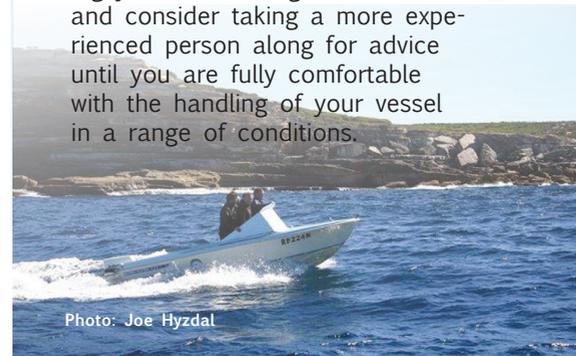
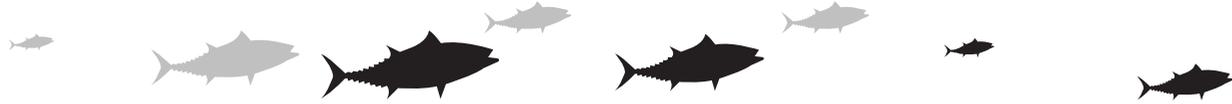


Photo: Joe Hyzdal



WEATHER AND SEA CONDITIONS CONTINUED...

CURRENTS

Currents occur when water is moving from one place to another. They can be caused by tides, breaking waves or broad ocean circulation. In some situations, currents can be quite dangerous. However, they can sometimes give a diver a welcome push, and even concentrate fish in a particular location.

- Tidal currents primarily affect harbours and estuaries, and are predictable – with normally two high tides and two low tides in any 24 hour period.
- Tidal currents are normally strongest when the tide is about half way out or about half way in; they are normally weakest at the top and bottom of the tide (ie so-called ‘slack water’)
- They are usually stronger where there is a narrowing or constriction in a waterway – for example, near the ocean entrance to a large lake, off the end of a prominent headland within a harbour or where shallows intervene between deeper areas.
- When diving in an unfamiliar harbour or estuary, seek local advice about the tides. In some locations, it is only safe to dive during the ‘slack water’ at the top or bottom of the tide. At other places, it may

pay to plan your dive so that the tide initially takes you one way and then back the other way once it turns.

- High tide generally brings clearer water.

Breaking waves generate so-called ‘rip currents’. For spearfishers, the most important type of rip is the ‘headland rip’. This occurs because waves normally attack a beach at a slight angle, according to wind and/or swell direction – resulting in a pronounced movement of water along the beach. When this moving water reaches a headland, it is deflected seawards.

Headland rips can give a diver a useful ride. However, they can make the return trip much more difficult. If caught by a headland rip when trying to get back to the beach, one of the following strategies may help:

- Exiting nearer the end of the headland (if safe) and walking back.
- Swimming back by keeping very close to the rocks, where the water is often relatively calm and shallow and the current less strong - hold on to the bottom as the current pulls against you and swim forward whenever a wave surges towards the beach.
- Swimming away from the headland and along the beach a short dis-

tance until the rip is no longer felt – at which time it should be easy to swim straight into the beach (taking special care to avoid any swimmers or board riders).

Other small rips occur off the rocks, wherever water pushed ashore by waves is funnelled back out to sea. These rips, which are usually revealed by a degree of whitewater, can easily be avoided by swimming out and around. They often provide excellent fishing opportunities for divers willing to get down under the whitewater.

The broad ocean circulation off NSW is dominated by a series of large ‘eddies’ that move down the coast from Queensland – the so-called East Australian Current (EAC). The EAC essentially remains out beyond the continental shelf. However, in combination with prevailing winds, it causes variable and unpredictable currents in coastal waters – particularly off the ends of headlands and out at deeper reefs, pinnacles and FADs.

While these ‘broad ocean currents’ might not be as strong as tides or rips, they are potentially very dangerous as they occur over large areas and can affect divers in places where the shoreline or other relief is not available.

These currents can also bring in the keenly sought ‘blue water’, with warm temperatures, excellent visibility and good fish. Sustained southerly winds coinciding with an active EAC close offshore give the best chance of the blue water coming all the way into the rocks. Conversely, sustained north easterly winds tend to cause upwellings of cold ‘green water’ along the coast and the displacement of any clearer blue waters to well offshore.

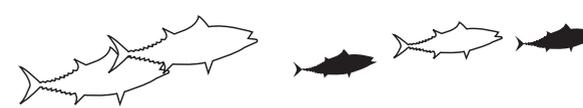
The up-current side of a reef will often hold lots of baitfish, and is a good place to seek large pelagic species if conditions allow.

If the current is strong consider the following tips:



- If shore diving seek out a cove or sheltered bay.
- If diving from a boat, have someone remain on board and follow the divers as they drift with the current – make sure that each diver has a clearly visible float and flag, and ideally a whistle and mirror.
- If you feel strong enough to swim into a current, make sure that you only have to do this on the way out – and not on the way back, when you will have less energy.





WEATHER AND SEA CONDITIONS CONTINUED...

SUNBURN



This is a very common but easily preventable condition.

- Always use a good quality broad spectrum sunblock, shirt, sunglasses and hat when outdoors during the day.
- Be especially careful when boating or near the water, as the sun's reflections will greatly increase the risk of sunburn.
- Cloud does not appreciably decrease the risk of sunburn unless it is very heavily overcast. Unless diving very early or late in the day, consider wearing a hood or applying sunblock to the ears, scalp and any other exposed parts of the body.

HYPOTHERMIA

Hypothermia (also known as exposure) occurs when the body's core becomes too cold. Diving carries with it a significant risk of hypothermia because water draws heat away from the body many times faster than air of the same temperature. Early stages of hypothermia can be subtle and occur without a person realising – with signs such as poor decision-making, reduced co-ordination and delayed reactions.

- Always wear an adequate wetsuit for the conditions, and if necessary a hood. A 5mm thickness full length wetsuit with hood is generally adequate for central and northern NSW during winter, while

a 7mm suit might be required in the south. However, individual requirements will vary. Most divers will be comfortable in a 3mm suit during summer.

- A great deal of heat loss occurs through the head – and a hood will make a big difference.
- If diving without a wetsuit, only do so when the water is very warm, and always remain close to your exit or boat.
- Shivering is an early warning sign that your body's core is starting to cool. Don't ignore it – get out of the water as soon as possible and refrain from further diving until properly re-warmed.
- Re-warming is best achieved by seeking shelter (especially from the wind), getting dry and having some energy-dense food and/or warm drinks. Preferably stay out of the water until you can raise a slight sweat with light exercise.
- Occasionally very cold waters affect the NSW coast even in the middle of summer. This is most likely to occur after a sustained period of north easterly winds. In extreme cases, the water temperature can revert to August levels even in January. The sudden cold shock that occurs upon entering the water should not be confused with hypothermia.

Cold water, can still be dangerous to an unprotected person, as it causes rapid involuntary breathing and therefore possible loss of airway control immediately after entering the water.

ROCK HOPPING

Rock hoppers have to be careful with waves too, particularly when entering or exiting the water. When rock hopping always remember to:

- Watch the waves for as long as possible at your intended spot before entering – ideally for 20 minutes or so.
- Plan your exit before getting in the water, and have at least one alternative exit (it is often easier to get in than get out!)
- Always allow for changes in the tide and weather.
- Be alert for strong surges and sudden fluctuations in water level when entering or leaving the water.
- If conditions are tricky, try timing your entry so that you can push off into a small or medium-sized wave just as it reaches the water's edge. This will usually give you an immediate but controlled boost across the break zone, and allow you several seconds to reach deeper water before the next wave hits.
- When exiting in tricky conditions, it might be useful to time your final swim so that a medium-sized wave literally lifts you up onto the rocks. Again, this will give you several seconds to grab your gear and scramble further up the rocks before the next wave arrives.
- Watch out for any less experienced divers in your group, especially when exiting the water.

It is often difficult to see approaching waves while still in the water. If it is rough, it may be best for the most experienced person to exit first and call the others in during a gap in the waves.



Photo: Paul Miller



DEALING WITH EMERGENCIES

Emergency Call Service Dial Triple Zero (000) in a life threatening emergency situation from any telephone (landline, mobile or payphone).



All divers should attend an appropriate first aid course to learn more about the recognition and correct management of these and other situations.

SITUATION	LIKELY SIGNS / SYMPTOMS	FIRST AID
Drowning or near-drowning	Collapse; lack of breathing; unconscious; bluish skin (especially around lips); no pulse	Clear and open airway; mouth-to-mouth resuscitation (EAR) or, if no pulse, cardiopulmonary resuscitation (CPR). Urgently seek medical assistance. Have someone remain with casualty at all times. Even if casualty appears to have recovered, they need to be taken to hospital for assessment – near drowning can lead to serious lung complications.
Serious cuts, lacerations or bites	Profuse bleeding; shock (weak rapid pulse, cold clammy skin, rapid breathing, faintness and/or pale skin); collapse	Control bleeding (apply pressure/ cover with dressing). Lie casualty down if possible, with head and chest slightly lower than rest of body. Keep casualty warm. Avoid moving casualty unless necessary. Seek urgent medical assistance.
Head injury	Wounds to the scalp or face; headache; loss of consciousness; loss of memory; altered or abnormal responses to commands and touch; blood or fluid escaping from the nose or ears; unequal pupils and/or blurred vision	Place casualty in comfortable position with head and shoulders slightly raised. Avoid unnecessary movement. If unconscious, place in recovery position and monitor breathing and circulation. Control bleeding, but do not apply pressure to skull if fracture suspected. Even in cases of apparently minor head injury, the casualty should always seek medical aid.
Venomous fish/ stingray stings	Severe pain; local swelling/ redness at site of sting; possible collapse and/or shock in severe cases.	Remove any remaining stings or barbs. Apply hot water (checking that it is not too hot). Seek urgent medical aid if general symptoms appear or if injury is extensive.
Jellyfish or bluebottle stings	Severe burning pain; red marks at point of contact; in severe cases breathing difficulties and/or cramps.	Carefully pick off any remaining tentacles with tweezers or fingers. Apply cold pack or ice. Seek urgent medical attention if general symptoms occur, if casualty stung in mouth or throat or if breathing becomes difficult.
Sea urchin spine injuries	Pain and tenderness at site of injury	Remove spines with tweezers. Clean wound and guard against infection.
Sunburn	Reddened skin; blisters in severe cases	Apply cold water and give cool drinks. Seek medical aid if blistering occurs.
Hypothermia	Feeling cold/ shivering; clumsiness; slurred speech; apathy; irrational behaviour; slow and weak pulse; loss of consciousness	Immediately get casualty out of the water/ wind/ cold. Remove wet clothing. Gently dry and warm casualty. Avoid excessive movement. Give warm (non alcoholic) drinks if conscious.



PLANNING TRIPS

Trips away with dive buddies, family and friends can provide lasting memories. NSW has many interesting and outstanding dive destinations along the entire coast, offering the marine adventurer with many options.

Planning is the key to successful and enjoyable excursions. Some considerations that you should take into account are as follows:

- Time of year (peak versus off peak “holiday season”, water temperature and target species)
- Weather outlook
- Sea state
- Water visibility
- Local knowledge
- Which fish are ‘on’
- Tides
- River entrances if boating
- Coast guard contact details
- Fall back plans – safe havens or general tourist activities



Photo: Adrian Wayne
Steve Wayne, Jim Coulter (the late) and Adrian Wayne. Fine Mulloway & Kingfish taken over Christmas break at Port Stephens

CHECKLIST OF KEY ITEMS

- Accommodation
- Linen
- Food
- Water
- Ice box & ice
- Plastic bags
- Filleting knife
- Towel
- Sunblock
- Hat
- Camera
- Spearfishing equipment
- Spare tackle and gear
- Weighing scales
- Fish measure
- Bag and size limits table
- Tide chart
- Nautical charts
- Marine Parks information
- NSW recreational fishing fee receipt



The sea surface temperature can be easily checked by visiting: “Latest NSW Coast Satellite Image”
<http://mhl.nsw.gov.au>

Photos: Alastair Cooke



COMMON SPECIES IN NSW WATERS

This is a guide to some of the key species encountered in NSW waters that have excellent table qualities. Given the latitudinal span and coastal terrain of the NSW shoreline, water temperature varies considerably from areas in the North of the state compared to those in the Southern regions. For that reason, certain species tend to be mainly found in either warmer water whereas other species inhabit cooler waters. Seasonality can also determine the time of year you are likely to encounter certain species, again with water temperature playing a key role.

Abalone are found clinging to rocks mostly in shallow rocky areas generally in proximity to weed or kelp. Be conscious of bag limits and restrictions.



Bastard Trumpeter, (“Tassie” or “Silver Trumpeter”) is usually found on rocky reef adjacent to sandy areas typically in depths below 10 metres.



Blackspot Goatfish can be found over rocky reef systems adjacent to sandy areas often in less than 5 metres.



Boarfish (Giant Boarfish and Long Snout species) appear cyclically on the top of the tide around small boulders often near the sand line.



Bonito usually hang wider out on headlands or offshore reef systems and cruise in large schools.



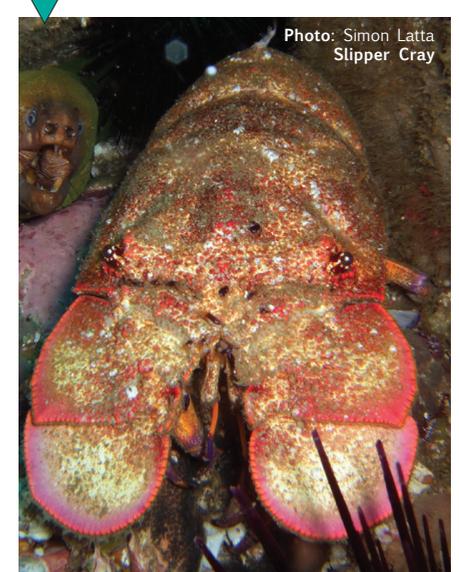
Bream can be found around most rocky areas typically from the surf zone to the extremity of the reef or, commonly in estuarine systems open to spearfishing.



Cobia are common in warmer waters either around islets, sandy patches amongst reef or traveling in schools with large round stingrays or sharks.



Crayfish and Slipper Crayfish inhabit rocky holes and crevices typically in shallow water. Be conscious of bag and size limits as well as collection method.



A torch is only permissible when searching without a spear



COMMON SPECIES IN NSW WATERS CONTINUED..

Eastern Australian Salmon school in large numbers in protected coastal bays and around headlands throughout NSW.



Kingfish frequent offshore reefs and headlands where there is dynamic vertical structure and often travel in schools. Large specimens can often cruise alone.



Flathead usually lie in wait amongst intermixed rock and sand in bays, estuarine systems or sometimes headlands.



Leatherjacket (pictured: Sixspine Leatherjacket) are common throughout central to southern regions around rock and kelp covered reefs.



Luderick or "Blackfish" tend to school in pockets of turbulent water on headlands or amongst boulders.



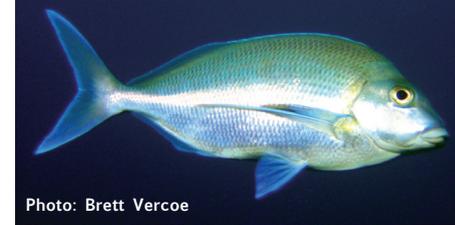
Mangrove Jack favour boulders, overhangs and offshore reefs. They can often be found in the proximity to Sawtail Surgeon fish as can be seen.



Mulloway or "Jewfish" can be found year round along headlands in turbulent shallow water, offshore reefs or structure.



Morwong come in three main species (Red, Silver and Banded) and can be found hugging the sand line or reef structure itself.



Rock Blackfish or "Drummer" can be found year round on most headlands generally close to rocks, under wash or at the entrances of rocky caverns.

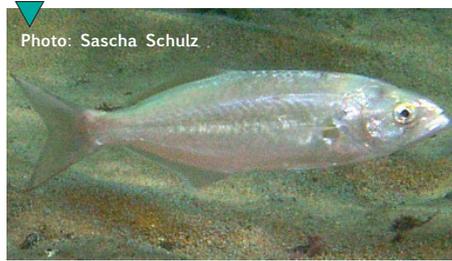


COMMON SPECIES IN NSW WATERS CONTINUED...

Silver Trevally is a schooling species more common in southern NSW, adjacent to rocky reef and near drop-offs.



Tailor frequent rocky headlands and sandy patches often schooling in large numbers. Large specimens are more commonly singular and move quickly.



Snapper can be found in a variety of depths usually out in the open where sand meets reef.



Tarwhine look and behave like bream and are principally ocean or bay dwellers preferring to inhabit large boulders and crevices.



Spanish Mackerel tend to cruise flat reef areas where sandy patches and baitfish exist.



The New South Wales Recreational Saltwater Fishing Guide is the primary reference for all State fishing regulations. It contains additional details of NSW species. See also www.dpi.nsw.gov.au

BLUE WATER SPECIES

Mahi Mahi prefer warm water generally some distance offshore in blue water and aggregate around floating objects such as buoys or debris.



Yellowfin Tuna arrive in cooler months and are mainly a distant offshore species requiring a specialised approach that entails teamwork and cubing pilchards for results.



Wahoo roam warm ocean currents and predate baitfish around sharp rises in offshore reef structure, around islands or fish aggregating devices (FADS).



Image: NSW DPI

Publications that provide more detailed information about habitat, eating quality, distribution and characteristics of Australian fish can be a valuable source of reference.



LOOKING AFTER YOUR CATCH

One of the biggest rewards of spear fishing is the ability to catch a vast array of seafood. As spearfishers we have a moral and ethical obligation to make the best use out of what we catch. It is our responsibility to decide in advance of capture whether we are going to eat that fish.

It follows that it is important to look after your catch properly. As soon as a fish dies bacteria starts to grow and multiply within the flesh and internal organs. This is a natural process that allows living organisms to be broken down and recycled in our environment.

To inhibit bacteria growth and improve eating quality fish should be chilled, bled and cleaned as soon as possible.

Once a fish has been captured despatch it immediately with a spike to the brain (iki-jime) using a knife or other sharp implement. Not only will it stop the fish from thrashing which is a safety issue, but it also improves fish quality. Iki-Jime is only affective while the fish is still alive and limits the amount of time that the fish is stressed. The correct spot for Iki-Jime is approximately one eye width back and slightly above the centre line of the eye. The position can vary from specie to specie though usually not by much.

Effective bleeding will reduce discoloration of the flesh, spoilage and bruising.

To bleed your fish make a cut just behind the gill membrane which will sever the main artery as opposed to

the standard method of cutting all the way through the gill latch to the spine.

Next, either freeze or refrigerate your catch.

Ideally all seafood should be eaten fresh within 48 hours of capture to maximize flavour and nutritional value. Fish can be frozen for periods up to generally 3 months, however it differs from specie to specie with oily fish not keeping as well.

When out on the water the next best option is to place the fish in an ice slurry. If this is not available place your catch in straight seawater or at least cover with a wet towel and keep in the shade. The best slurry can be made from four parts of normal ice mixed with one part of fresh seawater. Slurries should be maintained as close to freezing (0°C) as possible, but not below, as partial freezing will occur and bleeding will not be as effective. Saltwater ice is not recommended as it can cause partial freezing of the fish. It has been found that partial freezing (between -1°C and -6°C) will encourage spoilage. This makes it important not to add salt to the slurry, as this will make it freeze.

It is possible to fillet fish that have not been gutted making the process quicker but care should be taken not to puncture the gut cavity.

A diagonal cut is made as close to the pectoral fin as possible. Next the knife is run from the head to the tail just under the skin close to the dorsal fin. Just before the tail push the knife all

the way through and run along the spine until the tail section is free.

Next return to the head and slice along the bones heading towards the tail. Repeat this process until you reach the pin bones. Cut through these but not the ribs. Continue cutting along ribs until fillet is free from the frame. Repeat on other side. Before skinning make a cut through the flesh but not the skin on either side of the pin bones. Next skin the fillet starting at the tail end gently working the knife between the skin and flesh keeping the knife near parallel to the cutting board. Once the skin is free the pin bones can be easily removed. If the fillets have lots of blood or scales on them then they can be washed in seawater but try and avoid freshwater as it will leach out nutrients and flavour from the fish. Fish should be dried with paper towel before packaging.

Next they should be wrapped tightly in clingwrap or placed in zip lock bags. Try to remove all air and ideally use a vacuum sealer if one is available.

Processing your catch usually involves filleting or cleaning your catch to the extent that it is ready for immediate consumption or packaging for long term storage. The two most

Photo: ICEY-TEK



Photo: Craig Shephard

common ways to prepare fish is to fillet/cut into pieces (cutlets etc) or to keep whole. Fish to be kept whole need to be cleaned thoroughly. If scaling is required it is much easier to do so before gutting. To clean your fish run a knife all the

way from the anal opening to the gill latch. The intestines are then removed along with all other internal organs including the gill rakers. It is important to clean the gut cavity well as this is where most bacteria are present. Make sure that you also remove the blood line that runs along the spine at the top of the gut cavity. Special gut brushes are available that make the job much easier.

If looked after properly, seafood is delicious and very healthy for you, just make sure that you don't take more than you need so that there is plenty to catch in the future.



BAG LIMITS AND LEGAL SIZES

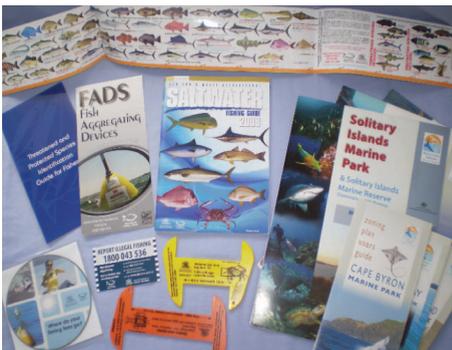
NSW DPI have free guides and brochures available which detail the current size and bag limits for certain species.

We remind persons that these regulations may change from time to time.

REGULATIONS

The USFA encourages the taking of small quantities of a number of different species rather than bag limit catches of individual species. By being selective and keeping well within the bag limits, we help preserve fish stocks.

In terms of fishing regulations including licensing, the NSW Recreational Saltwater Fishing Guide is the essential companion to the Guide to Spearfishing in NSW waters. Please ensure you ask for a copy at places where you find this guide.



For NSW Fishing advisory information or to obtain resources call 1300550474 or visit www.dpi.nsw.gov.au

Legal Sizes & Bag Limits

Saltwater Varieties	Min Size	Bag Limit
Abalone	11.7	2
Australian Bass	■	●
Australian Salmon	na	5
Bream (All Species)	25	20
Balmain Bug	10	20
Cockles, Mussels, Pipls	na	50
Crab (Black Mangrove & Mud)	8.5	5
Crab (Blue Swimmer)	6	20
Crab (Spanner)	9.3	10
Cunjevoi	na	20
Deep Sea Fish		
(Hapuka, Bar Cod, Bass Groper, Gem Fish, Blue Eyed Cod)	na	□
Estuary Perch	■	●
Eel (Short & Long Finned)	30	20
Flathead (Dusky)	36	10
Only 1 over 70cm		
Flathead (All other)	33	20
Groper (Blue, Red/Brown)	na	<
Hairtail	na	10
Kingfish	60	5
Lobster (Eastern Rock)	10.4	} 2
Maximum Size 20cm		
Lobster (Southern Rock)		
Male	11	
Female	10.5	
Lobster (Painted)	na	2
Lobster (Slipper, Flat)	na	2
Luderick	25	20
Mackerel (Spanish, Spotted)	na	5
Mangrove Jack	na	5
Marlin	na	#
Morwong (Banded)	na	5
Morwong (Jackass, Rubberlip)	28	20
Morwong (Red)	25	5
Moses Perch	na	5
Mullet (Bully, Sea)	30	20
Mullet (Poddy)	na	20
Mulloway (Jewfish)	45	5
Only 2 over 70cm		
Oysters	na	50
Pearl Perch	na	5
Prawns	10 Ltrs	
Rock Black Fish	30	10
Sailfish	na	2
Scallops	na	50
Sea Urchins	na	10
Sharks & Rays	>	5
Snapper	30	10
Spearfish	na	2
Surgeon (Sawtail)	na	5
Swordfish	na	2
Tailor	30	20
Tarwhine	20	20
Trevallies	30	20
Tuna (90cm or more)	na	2
Tuna (less than 90cm)	na	5
Turban Snails	7.5	20
Wahoo	na	5
Whiting	≡	20

■ Only 1 fish over 35cm
 ● 2 per day - 4 in possession
 □ 5 total - Only 2 Gemfish
 ◆ Live Bait Only - Less than 15cm
 # Limit of 2 - by species
 < Limit of 2 - by line only
 > 91cm - School Shark only
 ≡ 27cm - Sand Whiting only
 Correct at time of publication 1 July'08

Protected Species
 Queensland Groper • Eastern Blue Devil Fish
 • Estuary Cod • Elegant Wrasse • Black Cod
 • Great White Shark • Grey Nurse Shark
 • Herbs Nurse Shark • Ballina Angel Fish
 • Green Saw Fish • Weedy (Common) Seadragon

All sizes in centimetres

Photo: Paul Miller

References to key publications:

- Underwater Fishing in Australia and New Zealand (A 200 page book providing a comprehensive overview of spearfishing containing information specific to New South Wales ~ ISBN 0-646-40642-6. - books@motpub.com.au
- International Freediving and Spearfishing News ~ subs@motpub.com.au
- Spearfishing Downunder Magazine

USFA Affiliated Clubs and Contact Details

SPEARFISHING CLUBS

- Tweed Heads (tweed@usfa.com.au)
- Evans Head (evans@usfa.com.au)
- Coffs Harbour (coffs@usfa.com.au)
- Port Macquarie (port_m@usfa.com.au)
- Newcastle (hunter@usfa.com.au)
- Port Stephens (port_s@usfa.com.au)
- Central Coast (ccoast@usfa.com.au)
- Sydney (mosman@usfa.com.au)
- Sydney (northshore@usfa.com.au)
- Sydney (revesby@usfa.com.au)
- Sydney (sanssouci@usfa.com.au)
- Sydney (stgeorge@usfa.com.au)
- Batemans Bay (bbay@usfa.com.au)
- South Coast (scoast@usfa.com.au)

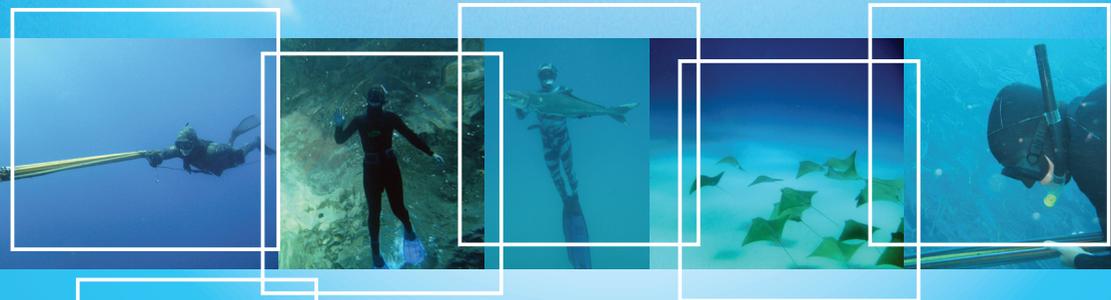
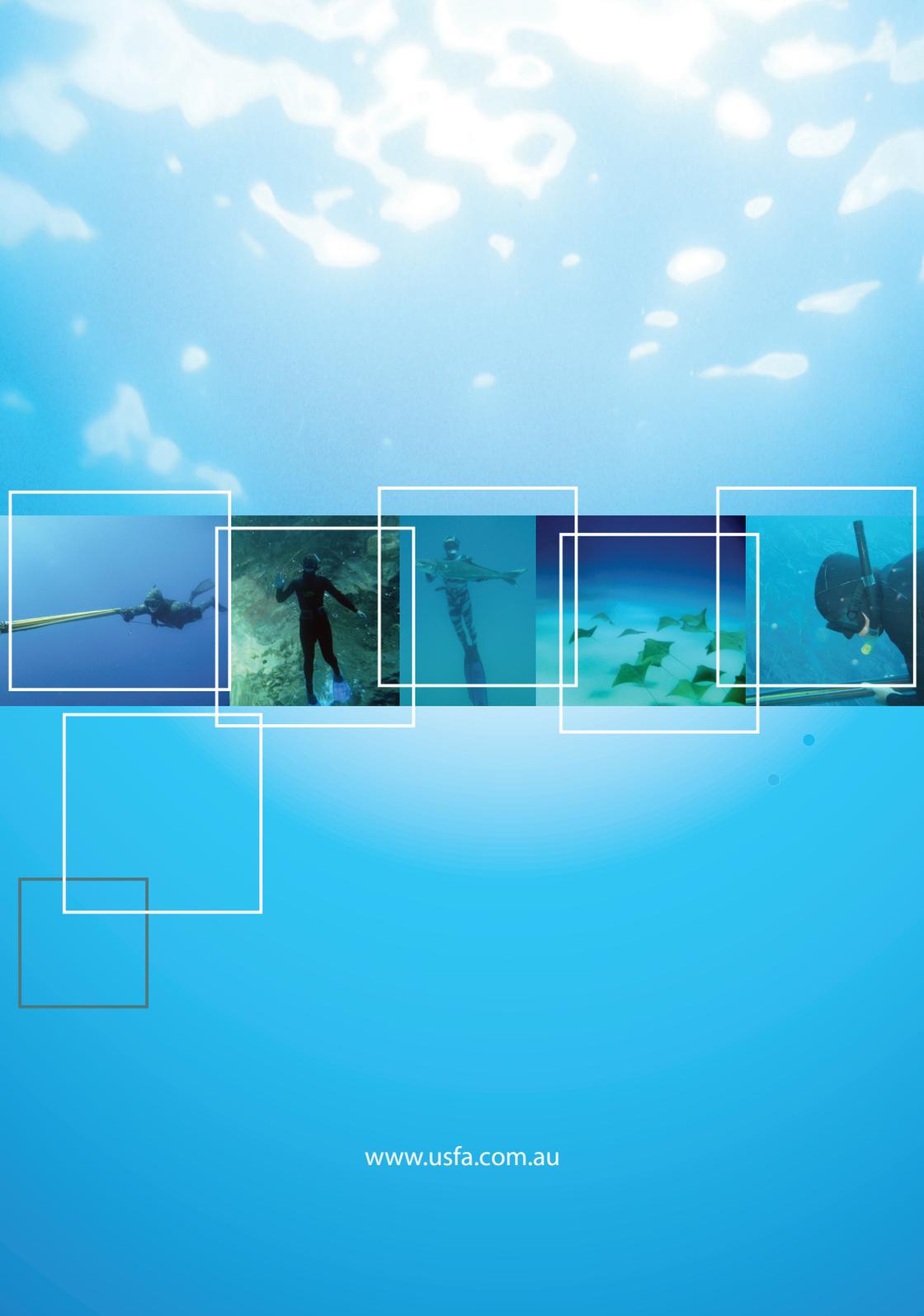
SOCIAL DIVERS NSW

Social USFA Members (memberships@usfa.com.au)

FREEDIVING CLUBS Sydney

sydneyfreedivers@usfa.com.au

Photo: www.bwhi.com.au



www.usfa.com.au