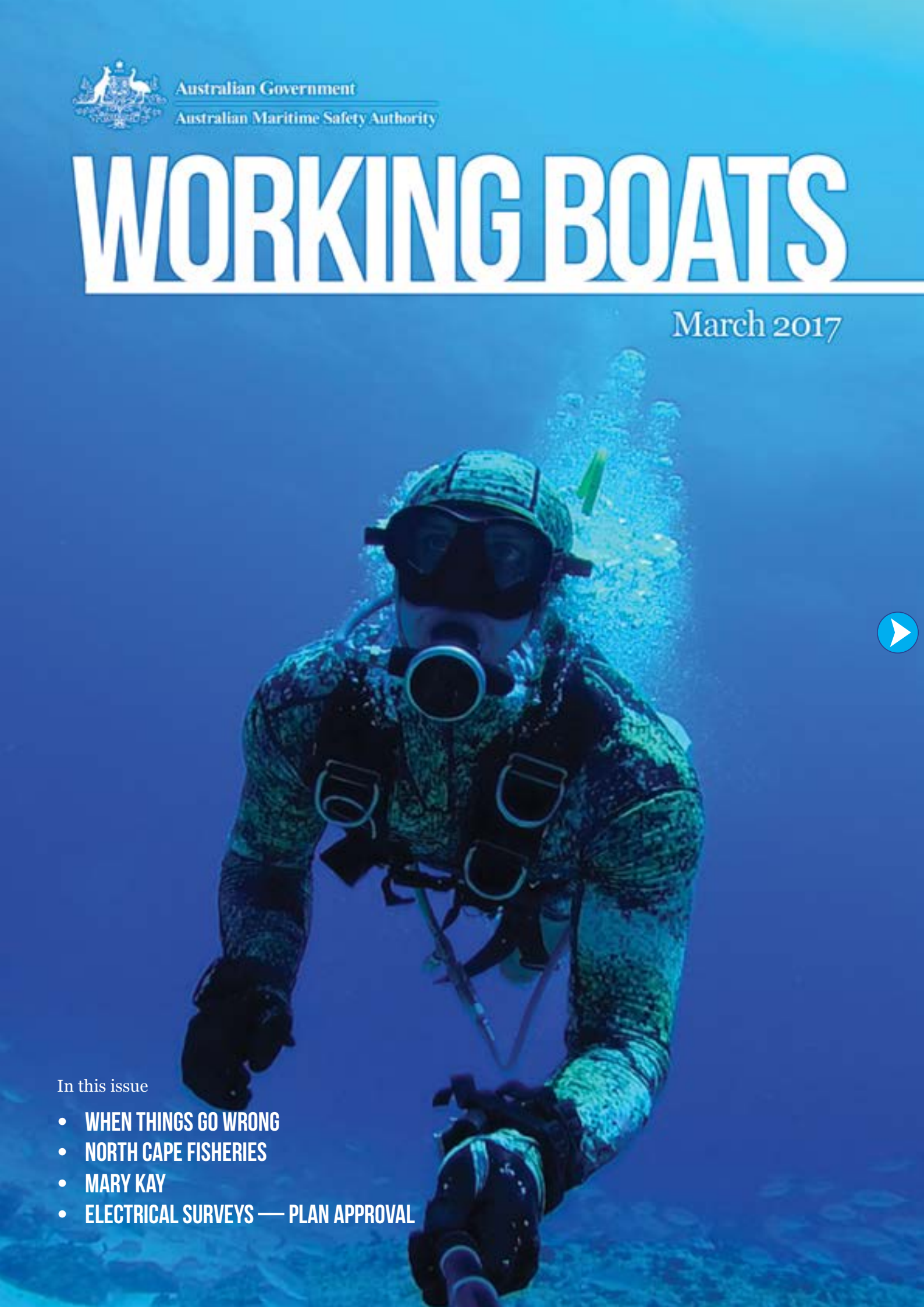
Australian Government
Australian Maritime Safety Authority

WORKING BOATS

March 2017



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FORGING THE FUTURE WITH INDUSTRY

During 2016 we focused heavily on working with industry to improve operational safety for commercial vessels. The national system for Australian working vessels means safety lessons learned in one part of the country can be shared nationwide and we can target areas of concern and support operators to improve onboard practices.

We rolled out our first targeted safety campaign in October last year, which saw AMSA people team up with partner agencies to ramp up safety awareness among Queensland's dory fishermen.

The risks associated with dory operations are well known and the tragic death of Glenn Wilson is a sad example of just how serious the consequences of a lack of operational safety can be.

In this edition we give you some simple tips for reducing risks in dory operations and showcase some of the great work being done to develop and maintain a safety culture at North Cape Fisheries in Innisfail.

AMSA has also put the spotlight on electrical safety. We all know marine electrical systems present unique dangers, yet it was another tragic death, that of young deckhand Ryan Donoghue in 2013, which showed our industry has much more work to do. This edition examines common risks and offers some simple steps you can take to keep you and your crew safe from electrical incidents.

During 2016 we asked industry for input to proposals to set up the Australia-wide cost recovery model for fee and levy charges. The feedback you provided was loud and clear — industry did not support the proposals and wanted to be more involved in shaping the way forward.

In November 2016 at a meeting of transport ministers from all Australian governments — federal, state and territory — the start date for a move to full service delivery by AMSA was extended until 1 July 2018, to allow time for all parties to work together to come up with an acceptable model.

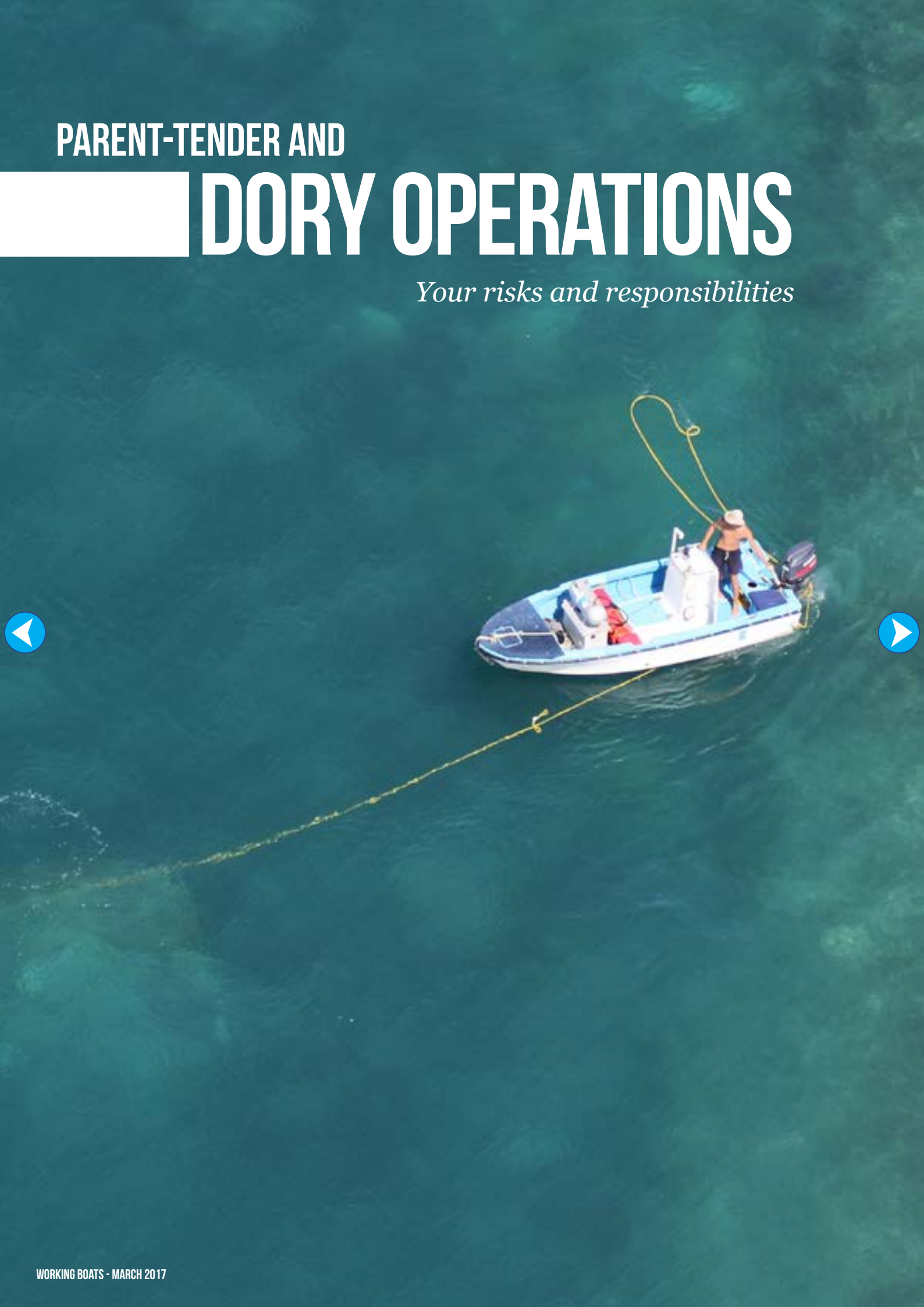
AMSA is working with state and territory marine safety agencies to ensure people can continue to access the services they need in the interim, and to keep them directly informed of any changes which affect how they access core services — such as certificates of competency, operation and survey.

I look forward to working with you in 2017 as we continue to build a safe and sustainable future for our industry and for working boats around the country.

Mick Kinley
AMSA Chief Executive Officer

PARENT-TENDER AND DORY OPERATIONS

Your risks and responsibilities



WHAT IS A PARENT-TENDER VESSEL OPERATION?

In parent–tender vessel operations tender vessels are used to support the operation. The function of the tender depends on the type of operation. For example, in a dory operation tenders are used to fish independently from the parent vessel in a designated area.

Other uses for tenders include transporting passengers from the larger charter vessel to points of interest before returning to the parent vessel, or to transport goods and supplies between a vessel and the shore.

In a dory operation, tenders are used to fish independently from the parent vessel in a designated area.

WHAT CAN GO WRONG?

Parent-tender vessel operations can be particularly dangerous due to a number of things, often including:

- an inability to contact the parent vessel when an incident occurs
- lack of safety equipment or understanding of how to use the equipment
- lack of standard operating procedures and emergency procedures
- the use of old, or heavily modified vessels that are not fit for purpose.

The regulations for domestic commercial vessels work to improve safety by requiring operators and crew to do things that will reduce the chance of incidents. For example, each operation must have a certificate of operation and a certificate of survey with conditions to ensure the vessel is operated within its capacity and is crewed appropriately.

The regulations also require each vessel to have a safety management system, which shows the risks in the operation and how the owner, master and crew reduce or remove the likelihood of those risks turning into reality. If the vessel is a tender, it can be included in the safety management system for the parent vessel or the tender can have its own.

Although AMSA aims to increase safety through regulations, it's up to each operator and crew member to foster a culture of safety in the everyday workings of an operation.

AMSA is focusing on increasing safety in these operations by talking to operators about being proactive about safety and assisting operators to identify and control the risks in their operation.

ASSESS AND CONTROL THE RISKS IN YOUR OPERATION

By following a basic four-step process an owner (with the assistance of the crew or third party) can easily assess the risks of both the parent vessel and the tenders. The risks associated with the tenders will be different to those of the parent vessel.

1. Identify the hazards. Some common hazards are mentioned adjacent (i.e. the tender loses sight and contact with the parent vessel).
2. Think about what issues the hazard could cause. For example, if a tender gets separated from the parent vessel, this could result in the operator being exposed to weather conditions, and lack of food and water for extended periods. If there is no communication channel with the parent vessel this could result in the launch of a search-and-rescue operation. If the tender operator needed medical assistance, how would they get help?
3. Think about what you can do to remove or reduce those risks and implement those methods.
4. Periodically revise the hazards and risks in your operation and update your safety measures.

Some hazards and risks common to all types of operation are shown below. Remember that each operation is different, which is why you need to think about what hazards and risks you and your crew face and address those risks.

COMMON HAZARDS

Some common hazards in parent-tender vessel operations include:

The tender or dory getting separated from the parent vessel with no way of getting in contact.

Simply getting back to the parent vessel is an issue if you have lost sight of it and can't raise contact. In an emergency like a person overboard or injury when you need to get help quickly, you are left isolated and unprepared, especially when operating alone.

Weather conditions.

Bad weather can cause a range of issues, such as vessel damage or loss, equipment being lost overboard or even a person overboard. Weather conditions can change suddenly, leaving you unprepared. You also need to think of changing marine conditions as you move between sheltered and unsheltered waters.

Fatigue, drugs and alcohol.

Operators need to be alert in order to be aware of what's going on around them and to avoid incidents. Being tired, or under the influence of drugs or alcohol seriously impairs judgment and increases the likelihood of incidents. AMSA strongly recommends a zero-tolerance approach from vessel owners regarding drugs and alcohol within a commercial operation.

Marine life and underwater obstructions.

Some bites and stings from marine animals can cause serious impairment or loss of life. Collisions with larger marine life can cause serious vessel damage and injury to those on board, as well as to the animal. Other underwater structures like coral and rocks can also cause issues, like a stuck anchor or vessel grounding (see article *When things go wrong* on page 9).

POSSIBLE RISKS ARISING FROM THESE HAZARDS

The risks are the issues that could come about as a result of the hazard. Some risks associated with the hazards may be:

- exposure to the elements (i.e. water, cold, heat, sun) without appropriate protection and supplies
- injury or loss of life
- loss of equipment or product
- vessel damaged or destroyed
- man overboard
- reduced business or damaged reputation
- avoidable search-and-rescue activation*.

For example, if a tender gets separated from the parent vessel, this can result in the operator being exposed to weather conditions, with lack of food, water and shelter for extended periods.

If there is no communication channel with the parent vessel this could result in the launch of an avoidable search-and-rescue operation. If the tender operator needs medical assistance, and can't get help, this could result in the injury having greater impact or loss of life.

That's why it's so important to know the risks and implement ways of reducing or removing those risks.

* If two-way communications are not available, then a distress beacon should be activated in situations of grave and imminent danger.

CONTROLLING RISK

Some effective ways of controlling risk include:

- making sure tenders are fit for purpose and seaworthy
- having standard operating procedures
- making sure crew are inducted, trained and competent to operate the tender and that a suitable number of crew are on board
- establishing a no-drug-and-alcohol policy
- all crew are trained in emergency procedures and safety drills
- having appropriate safety equipment and communication equipment on all vessels including each tender. At a minimum all vessels should have a communication channel such as VHF radio, lifejackets, flares, first aid kit, emergency position indicating radio beacons (EPIRBs) or PLBs as well as sufficient provisions
- regular inspection and maintenance of the vessel, including its machinery and equipment
- operating tenders in a buddy system so operators can keep an eye on each other and provide help if needed
- using a parent vessel's radar system to monitor the positions of the tender vessels. (this is particularly effective if a radar reflector is fitted)
- using a kill switch and lanyard when operating a tender
- keep checking the weather forecast ahead of time. The Bureau of Meteorology's website (bom.gov.au) will tell you about current weather warnings, any marine weather conditions affecting safe navigation, wind trends, wave conditions as well as high and low tides.

See page 12 for more ways of controlling risk.

HOW PREPARED ARE YOU?

Do you have a safety management system?

When you write and update your safety management system, do a risk assessment which identifies things like:

- daily tasks performed by all crew members
- the risks associated with each task
- suitable crew for the vessel
- who's responsible for identifying and preparing for risks. This includes risks to do with the state of the vessel, crew being tired or under the influence of drugs and alcohol, engine break down, and fuel loss.

Your safety management system outlines how you control the risks you have identified.

Make sure your tender boat crew follow the safety management system

Do inductions for crew on both parent and tender vessels. This includes training to make sure crew members are competent to operate the vessel safely.

Know where the tenders or dories are at all times

As the master of a parent vessel, it is your responsibility to make sure you can locate your tenders at all times. You might even use radar for monitoring purposes and VHF radios for continuous communications.

Does everyone know how to respond in an emergency?

Your safety management system must include information on how you and your crew respond in an emergency.

AMSA'S COMPLIANCE APPROACH

We believe that most cases of non-compliance are a result of operators not being aware of their requirements and the value of operating safely.

With this in mind, our focus is on improving safety by collaborating with operators to help them understand safety-management-system requirements and to make sure that their safety management system is practical for the risks and hazards of their operation.

We also carry out compliance operations around Australia to identify and address unsafe operations that know the rules and deliberately avoid meeting their obligations. In these situations, Marine Safety Inspectors can use:

Improvement notices — allowing a person to operate while fixing an issue by a certain time.

Direction notices — requiring a person to take certain steps within a given timeframe. The person may not be able to do certain activities until the issue is fixed.

Prohibition notices — where there is risk to the safety of a person or the environment, prevents a person from conducting an activity until the risk that has been identified has been removed.

Detention notices — detaining a vessel.
In some cases, and as a last resort, Marine Safety Inspectors may recommend that AMSA take stronger action, including:

Suspension or revocation of certificates — preventing a person from being able to work, or a vessel from operating, either temporarily or permanently.

Infringement notices — where a person has committed an offence or breach under the National Law, an infringement notice may be issued and paid as an alternative to prosecution.

Criminal prosecution — the Commonwealth has the power to prosecute breaches of the law, and will particularly consider this option in relation to continuing non-compliant behavior or when non-compliance gives rise to extreme risk.

FOR MORE INFORMATION

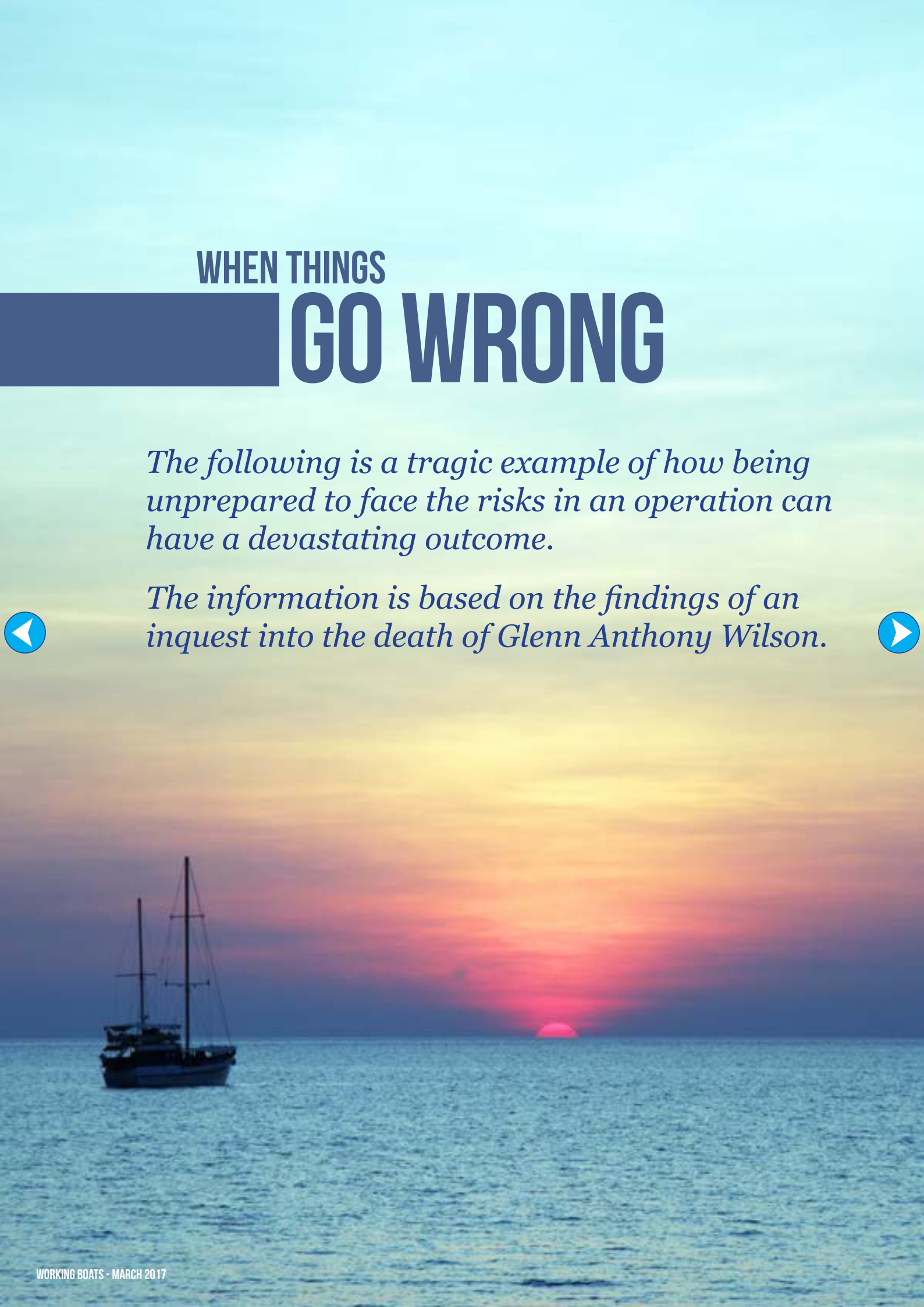
- Speak to your local AMSA Liaison Officer (call **AMSA Connect 02 6279 5000** to be forwarded to your local officer)
- Read the factsheets and guidance notices about the general safety duties and safety management systems, available at **amsa.gov.au/domestic > Forms and Publications > Guidance Notices and Fact Sheets**
- View sample safety management systems at **amsa.gov.au/domestic > Operations**
- Visit your local marine safety agency.

For the latest news about parent–tender vessel operations, subscribe to *Domestic Vessels e-News* and *Working Boats* magazine at **amsa.gov.au/domestic > Forms and Publications > Publications**

WHEN THINGS GO WRONG

The following is a tragic example of how being unprepared to face the risks in an operation can have a devastating outcome.

The information is based on the findings of an inquest into the death of Glenn Anthony Wilson.



On 26 July 2013, dory operator Glenn Wilson tragically died when he fell into the sea wearing wet-weather gear and his legs became ensnared in his fishing line.

At the time he was attempting to pull up the anchor which was stuck in the reef. He used the power of the outboard and a shortened anchor line to try to dislodge the anchor, but in the process, the dory capsized.

Both the coronial inquest and our investigation into the circumstances leading to Glenn's death have revealed a set of factors that could have been identified and avoided.

In a bid to improve safety in operations involving tender vessels, we remind operators that they must meet their general safety duties, including creating, implementing and maintaining a safety management system.

THE CIRCUMSTANCES AROUND GLENN'S DEATH

The dory that Glenn had been operating on the day he died, was one of five operating within a five-nautical-mile radius of the parent vessel *Norlaus* — a live coral trout fishing vessel.

Glenn was fishing from a fibreglass commercial fishing dory constructed around the late 1990s. It was five metres in length with a 1.8-metre beam. Each dory was fitted with a CQR anchor, a length of chain and a length of synthetic line.

At about 5.30 pm, another of the dory operators finished fishing and was returning to *Norlaus* when he came across Glenn's dory upside down with the leg of the outboard sticking up and the anchor float in front of the bow.

He couldn't see Glenn so he went back to *Norlaus* to raise the alarm, as there was no means of communication to allow contact between the dories and *Norlaus*.

When his fellow fishermen arrived back at the overturned dory, orange wet-weather gear floating about 20 feet from the stern of the overturned dory helped them locate Glenn, who was floating face down and motionless, with fishing line tangled around his lower-right leg.

Although a later safety check by Water Police found that the dory was equipped with lifejackets (amongst other safety and navigation equipment), Glenn was not wearing one.

As stated in the coronial report, later analysis of the circumstances leading to the incident indicated that both the dory's state of disrepair and a lack of safety measures contributed to the circumstances leading to Glenn's death.

As the National Regulator for Domestic Commercial Vessels, we can change regulations to enforce safety, but we know that regulation alone cannot eliminate every risk. Owners, masters and crew need to truly understand the benefits of operating safely, and to integrate a culture of safety in their everyday practices.

NORLAUS' LEVEL OF SAFETY PREPARATION

The Coroner's investigation revealed that the safety practices implemented by *Norlaus*' owner and master were lacking.

Norlaus' safety management system should have identified and planned for the risks associated with this particular fishing operation, but our investigation found that it had been based off a template provided to assist operators.

Owners and masters were expected to modify the examples in the template to address the hazards and risks in this particular operation, yet there was evidence that very little modification had been made to adapt the safety management system template to the operation.

The coronial investigation revealed that in *Norlaus*' safety management system there was:

- no evidence to show that the owner and master had identified and planned for the risks associated with the operation of *Norlaus* or the dories
- no clear communication link between *Norlaus* and the dories, such as a radio
- no evidence that safety training, or emergency drills were carried out
- no description of the crew levels and training required for the operation, or duties and responsibilities of the dory skippers
- no evidence of the safety management system being reviewed annually by *Norlaus*' owner and skipper, and
- no planned inspection and maintenance schedule for the dories.

Since 2009, under Queensland state legislation, all commercial vessel operations of vessels over 10 metres have been required to create, implement and maintain an SMS, including a range of proactive measures to identify risks associated with the operation.

Since 2013, the requirement to create, implement and maintain a safety management system has been extended to all commercial operations with smaller vessels.

IDENTIFYING AND ASSESSING RISK

The process of creating a safety management system specific to an operation involves identifying the hazards, assessing the risks associated with each hazard, selecting appropriate control measures to reduce or eliminate those risks, then implementing and reviewing the effectiveness of these control measures.

The owner then considers the likelihood of those hazards having an impact; and issues that each hazard could cause (read more about this process on page 5).

If a risk assessment had been carried out, a stuck anchor may have been identified as a hazard and it would have exposed the risks of capsize, the dory operator entering the water, and the possibility of drowning.

Possible ways of controlling these risks include:

- wearing a lifejacket at all times while operating the dory
- using a personal locator beacon that can be attached to the lifejacket
- operating in a buddy system with other dory operators to provide assistance when needed or raise the alarm
- installing VHF two-way radios so dory operators can call for help. Implement an operational procedure for the dory operator and parent vessel to check in with each other periodically
- using anchor types with self-release devices for use on the reef
- thinking about techniques of freeing the anchor before having to use force
- making sure the vessel is stable enough when freeing an anchor using force
- thinking about the best way to rig the anchor line to the dory in order to minimize capsize
- carrying pumping or bailing equipment.

Other common hazards and risks in parent-tender and dory operations are outlined on page 5.

INCREASE SAFETY IN YOUR OPERATION

A number of resources are available to assist you identify and prepare for the risks in your operation:

- Read the article on page 3 about parent–tender and dory vessel operations.
- Go to **amsa.gov.au/domestic > Vessels and operations > Operations** to learn more about developing a safety management system for your operation.
- Your local AMSA Liaison Officer can provide guidance on how to develop a safety management system for your operation. Contact your local AMSA Liaison Officer by calling **AMSA Connect 02 6279 5000** and asking to be put through to your local officer.

Owners, masters and crew need to truly understand the benefits of operating safely, and to integrate a culture of safety in their everyday practices.

NORTH CAPE FISHERIES

Actively managing safety

Photo: North Cape Fisheries

Based in Innisfail, North Cape Fisheries operates in Queensland waters, from Lizard Island in the north to the bottom of the Swain Reefs in the south, and a large portion of the Coral Sea. They have three main vessels, each working with up to four dories used by the divers to gather sea cucumber (or bêche-de-mer, a delicacy in China).

When a vessel leaves port, it is often at sea for weeks at a time, venturing to areas that are a long way from assistance if something goes wrong.

General Manager Sandra Posar, whose focus has been on developing the operation's safety management system, explained that they have mechanisms in place to reduce the chance of risk becoming reality, and drills and safety equipment in case something does go wrong.

'It's imperative that the safety management system is maintained well and meets all the safety requirements,' Sandra said.

'New risks present themselves and we need to make sure they're addressed in the safety management system,' she said.

A safety management system is where an operator identifies the risks associated with their operation. It outlines all the mechanisms in place to manage those risks, including safety equipment, policies, drills and training. For more information, read *Parent–tender and dory operations* on page 3.

'Our safety management system book is quite simplistic so it's an easy system to follow. Given the fact they are in the dories the majority of the day, it's imperative that they are maintained well and meet all the safety requirements.'

Vessel Master at North Cape Fisheries Rhys Bennett explains that their focus on staff safety starts even before recruitment. Not only does each new person in the operation have to hold the right accreditation for the job, they also undergo further training with North Cape Fisheries.

'To get the job in the first place people have to have the relevant tickets, including elements of shipboard safety, a marine licence, a rescue divers ticket and a marine radio operator certificate,' he said.

'On top of that we do our own diver and driver training. We'll take an extra person out, so they're just a third wheel for one or two trips, to ensure that they are supervised at all times until we can tick them off and say that they are capable of operating a dory unsupervised,' Rhys said.

Rhys explained that their safety gear is also a critical part of their safety management system and the crew know how to use it.

'We keep all our safety gear up to date: two or three lifejackets per vessel (good SOLAS-approved lifejackets); up-to-date flare kit; a signal mirror and V-sheet for day-time signalling; and an up-to-date 406 EPIRB (emergency position-indicating radio beacon), registered and within its battery life. We keep all that where it's easily accessible in a good-quality grab bag,' he said.

'We have a compass on board as well, in case the GPS malfunctions, and we also keep a good-quality VHF radio.'

Another important part of North Cape Fisheries' risk management is a strict maintenance program for each of their vessels, to reduce the chance of mechanical issues out on the water.

North Cape Fisheries Fleet Master Riley Simpson explained, ‘After every two trips that a main boat does, someone meets the boat wherever it is (i.e. Mackay; Gladstone; Cooktown) to do a maintenance schedule on it. I have a full checklist. All the safety gear gets pulled out — anchor, everything’.

‘We replace our motors every four years. Once they get a few hours up, it’s cheaper for us to unbolt them and use them for parts,’ he said.

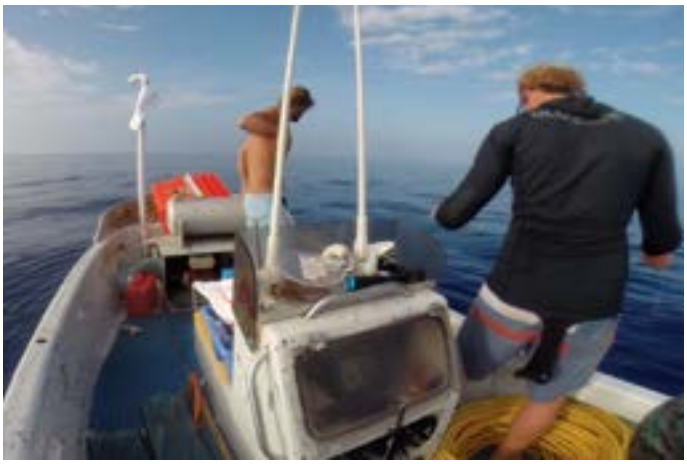
During the mechanical maintenance they also keep an eye out for wear and tear caused by the specific work they do out on the reefs.

‘We check the hull for cracks; working out at Swain Reefs a lot is pretty hard on the dories. Dirty fuel is usually the biggest problem we have — water in the fuel.’

‘Water in the fuel can prevent the motor from operating, and the tender might not be able to return to the main vessel. If the tender goes adrift, it could end up on the reef,’ said Riley.

‘To check if the fuel has water in it, you can look into the sight glass on the fuel filter. If the fuel is contaminated we empty the bottom of the fuel filter. To prevent these problems from occurring the fuel tanks for the tender are emptied out regularly and the fuel filters are changed every one hundred hours.’

Rhys says that a really important part of their safety guidelines is to keep everybody’s mindsets right for the job by being sober.



‘At North Cape Fisheries we have a very strict no-drug-and-alcohol policy. Within our company employment contract we actually reserve the right as a master, to search our crew’s possessions in cabins, to make sure they stick to these guidelines,’ he said.

‘You could have an accident in town and help can be 10–15 minutes away. Whereas offshore we’re out of helicopter range a lot of the time. It takes a helicopter an hour and a half to reach us and it takes us 2–3 hours to steam into helicopter range. That’s a long time if you have a serious injury. You mightn’t survive that long if the incident’s bad, so you need to be one hundred per cent sober and alert at all times when you’re on the water, I believe,’ Rhys said.

Riley added that they also have a strong culture of working together towards the shared goal.

‘The way our system works is that we each get a percentage of the catch, so it’s in everyone’s best interest to work together. Communication is key. If one dory isn’t catching, everyone’s losing,’ he said.

This has the added benefit of being a sort of ‘buddy system’ where they keep an eye on each other.

‘A lot of the reefs we work are small and you can see the other dories. You might be flat out but you’re always glancing up, looking over and keeping an eye on where everyone is as much as you can.’

Lastly, we asked Rhys what safety precautions he would use if he worked a dory, alone.

‘Basically if I was operating a dory on my own, I would wear a lifejacket — preferably those comfortable self-inflating styles. Some people don’t like them because they do have a tendency to go off if you get a lot of spray on you, or if they’re not properly maintained. Maintained, I think they work pretty well,’ he added.

‘Also, when you’re running around, wear your kill switch. You can get thrown off balance so easily and go overboard and your dory could disappear on you and you wouldn’t have time to tell anyone you’re in trouble then.’

MARY KAY

The First Lady of Smithton Radio Base

With a father who served in the Royal Navy during WW1 and an emigration to Australia that involved a Sunderland Flying Boat, overnight stops throughout the Middle East, snake charmers, a sunset over a glass palace and a bird's-eye view of the hundreds of tribes arriving to the first Middle East Conference in October 1947, Mary Kay is not easily rattled. An excellent quality to possess when you're the founder of Smithton Radio Base, the coastal radio network around Tasmania, covering half of the north and west coasts — from Badger Head, near Georgetown, to the Pieman River on the rugged west coast of Tasmania.

The day after Mary's family landed in Australia in 1947, they flew to Tasmania to set up a working farm in the remote community of Nabageena, aboriginal for 'Sunny Hills'.

'My father had decided to take up farming, that is how we came to live at Circular Head… It was a big cultural shock for me, I went from a school of a couple of hundred children to nine children!', Mary said.

Mary began her (entirely voluntary) career in radio 20 years ago when her husband purchased a yacht and gave her two old VHF radios. She got her 'start' when the local yacht club asked her to take their times as they raced. From there, fishermen began letting her know when they were out fishing on the harbour and it grew from there. It quickly became apparent that, due to bad VHF reception, the radios needed to be replaced.

After a lot of lobbying, Mary received a $32,000 grant from the Tasmanian Government to install a repeater station on Three Hammock Island with Marine and Safety Tasmania (MAST) installing it for use. The resulting communications improved service and the safety rate across the whole district.

With the new radios came more responsibility and an increased workload. Mary began broadcasting weather reports and observations for the west coast, including any active warnings. This generated quite a following with the locals, leading many people to speak with Mary about the weather conditions before launching their boats for the day.

She began to work with Australian Customs and take part in all search and rescue operations in the area saying, 'I think the organisation of search and rescue in Tasmania is amazing. We have an efficient unit with the Westpac Rescue helicopters, the Marine Search and Rescue Police units.'

Mary has been part of too many rescues to list but there are some that have struck a chord with her. She was part of the rescue of three elderly men who got into trouble in their yacht in the middle of Bass Strait. Being no strangers to marine rescues — these men had been rescued no less than three times previously — they contacted Mary to advise their boat was taking on water.

Mary immediately called the rescue service in Victoria who made it to the men at the very last minute rescuing them as their yacht sank beneath them. It was their last big trip together, preferring solid ground after their latest misfortune. A few months after the rescue, one of the men's sons rang to advise Mary that his father had passed away. Before passing he had made a specific request to contact Mary at Smithton Radio to thank her for all her assistance during his rescues over the years.

Drew Oakden, a Westpac Helicopter Service Search and Rescue Officer, has worked with Mary on countless occasions over the past 10 years. He recalls the time when 50 sperm whales got stranded at the mouth of the Duck River, perishing despite repeated attempts to rescue them and push them further out to sea.

Mary presided over the flotilla of vessels that went both in aid of the stranded whales and to look at the unusual and sad spectacle. He recalls, 'Mary remained a constant, steady force on the radio both during the events unfolding and in the weeks after.'

It is this constant and steady nature that people have come to know and appreciate. Over time she has been the recipient of multiple awards, marking her service to the marine industry over the past 20 years. She was named Australian of the Year, Tasmania, Local Hero in 2015 and has been named in the Who's who of Australian Women in 2010, 2011, 2012, 2013, 2014 and 2015. She was also named on the honour roll for Tasmanian Women in 2015.

Mary has written three books on the history of her local area with one of her books, *Tin Can Heroes: Max Grey's Story as told to Mary Kay* being on display at the Australian War Memorial.

Along with all of her marine achievements, she has maintained a family and helps run the family's dairy and beef farm — a farm that has been in her husband's family for five generations. She works there with her husband, two sons and grandson, along with having a daughter living and working in Hobart.

Mary is characteristically blasé about her achievements over the years, rising at 6 am every day to oversee the day-to-day running of the farm and Smithton Radio. Her proudest achievement to date is the belief that there are 10 men alive today who wouldn't be had it not been for her.

'The way I look at it, I'm like a link in a chain, sometimes you play a small part, sometimes it's a large part. You are not just one individual performing on your own, we are all links in a chain which makes a successful team effort. We are all aiming for the same result, which is the safety of the people we are trying to rescue.'

DON'T BE SHOCKED

Protect yourself and your crew from electrical risks

There are a number of hazards associated with using electrical power tools on board domestic commercial vessels (DCVs). One of the most significant risks is electric shock as a result of water coming into contact with the electrical components, or faulty wiring.

WHAT IS A RESIDUAL CURRENT DEVICE?

A residual current device (RCD) is an electrical safety device. It is designed to immediately switch off the power when electricity is 'leaking' to earth at a level that is harmful to a person. RCDs are designed to operate within 10 to 50 milliseconds.

RCDs only work in an electrical system that uses a Multiple Earth Neutral. If the vessel uses an Isolated Earthing system an RCD won't work.

If a power tool is plugged into a power socket protected by an RCD, the operator is unlikely to receive a fatal electric shock if the power tool, the electrical cord or the socket happen to get wet.

RCDs are only effective if maintained correctly. They must be regularly tested and tagged, according to the requirements of the AS/NZS 3760:2010 — a standard created by Standards Australia that outlines how and when electrical appliances must be tested.

This is also a requirement in all states and territories under workplace health and safety legislation and is common industry practice.

HOW OFTEN DO RCDS HAVE TO BE TESTED?

RCDs have to be tested every 12 months to make sure they stop the electrical current when triggered.

In addition, Portable RCDs must undergo a push-button test at least every three months and fixed RCDs every six months.

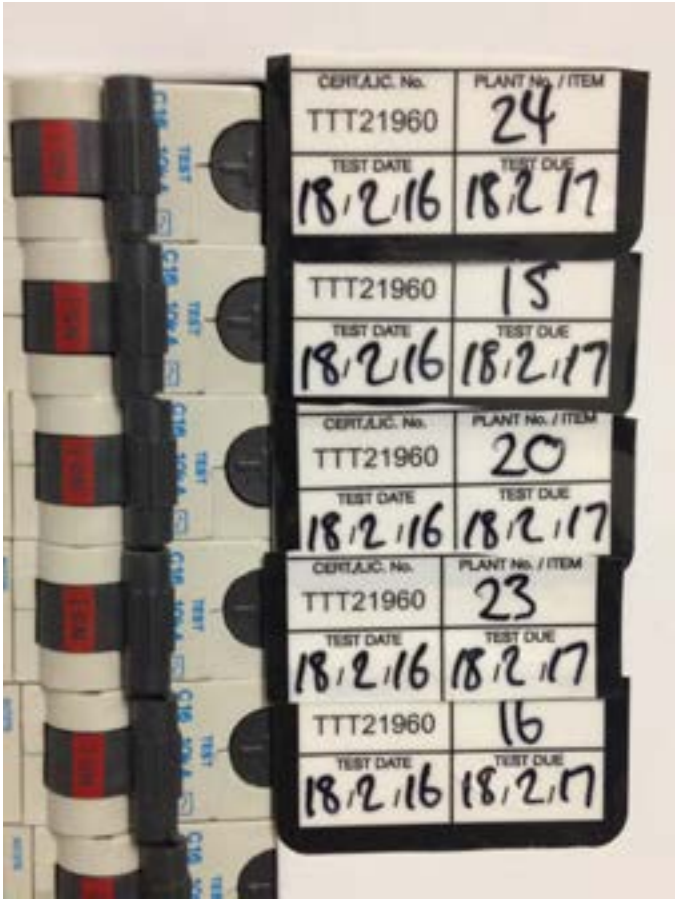
A record of testing (other than daily testing) must be kept until the device is next tested or disposed of.

WHO CAN INSPECT AND TEST AN RCD?

Push-button testing can be done by anyone.

Twelve-monthly inspections and testing of RCDs must be done by a competent person in electrical in-service inspection and testing.

This includes licensed electricians and accredited marine surveyors with accreditation in the appropriate electrical survey categories.



PROTECT YOUR CREW

1. Do a risk assessment (as a part of your general safety duties) to:
    - check portable power equipment is designed to be used in a marine environment
    - identify safety risks and hazards associated with the equipment
    - assess the significance of the risks and hazards
    - identify ways to reduce or eliminate the risks, including whether the job may be done using a non-electrical tool instead.
2. Implement ways to control those risks. For example:
    - supply appropriate personal protective equipment (PPE) and make sure the master and crew wear it when using power equipment
    - train the master and crew on using portable power equipment safely
    - install RCDs on all electrical circuits used to supply electricity to portable electrical equipment
    - make sure that portable RCDs are used when using 240-volt electric power tools (if the socket outlet is not already RCD-protected)
    - use battery-powered or pneumatic power tools instead of 240-volt portable tools where possible.
3. Only use portable electrical equipment that is designed for use in a marine environment or in places where they will not come into contact with water, including wave spray and deck flooding.

TRAGIC EXAMPLES

2013

A deckhand working on a fishing vessel operating in the Gulf of Carpentaria died while working in November 2013.

At the time of the incident the deckhand was operating a 240-volt portable angle grinder, connected via an extension lead to a power socket within the vessel.

The power socket was not protected by an RCD. Water from a wave made contact with the angle grinder and its plug. The deckhand was not wearing any personal protective equipment.

Coronial findings confirmed that the death was caused by electrocution. The Coroner agreed with findings from an earlier coronial involving a similar incident, which found that if an RCD had been fitted to the power socket, or if the deckhand had been wearing suitable personal protective equipment, the death may have been avoided.

2000

In 2000, a deckhand was using a 240-volt portable angle grinder to modify a steel stabiliser board on the rear deck of a prawn trawler.

The angle grinder was connected to the 240-volt AC electricity supply via an extension lead to a socket outlet in the vessel's galley.

The extension lead connecting the angle grinder to the power supply was lying on the vessel's deck and exposed to salt water.

A large wave forced water through the scuppers (self-drainers) and flooded the deck where the deckhand was working.

It appears that the portable angle grinder and its plug became wet and the deckhand received a fatal electric shock.

No risk assessment was carried out when the angle grinder was introduced on the vessel, and no controls were introduced to ensure it was used safely.

The portable angle grinder was not suitable for use in a marine environment and the power outlet that was used was not protected by an RCD.

Coronial findings confirmed that the death was caused by electrocution, and the Coroner noted that if an RCD had been fitted to the power socket, or if suitable personal protective equipment had been worn, the death may not have occurred.

The Coroner also found that the deckhand was not supervised correctly and had not received any training in the use of electrical tools at his induction.

FOR MORE INFORMATION

- Read Safe Work Australia's *Managing Electrical Risks in the Workplace* Code of Practice (July 2012)
- Read Safe Work Australia's *Managing the Work Environment and Facilities* Code of Practice (December 2011)
- Read Safe Work Australia's *How to Manage Work Health and Safety Risks* Code of Practice (December 2011)
- Read AMSA's *Electrical safety — an evaluation of electrical hazards* (March 2016)
- Read the *Inquest into the death of Ryan Harry Donoghue*
- Contact your local work, health and safety agency
- Call **AMSA Connect 02 6279 5000**.

COMMON ELECTRICAL ISSUES

Our officers have identified some common electrical hazards on vessels, which don't meet the requirements of the National Standard for Commercial Vessels (NSCV) and pose a severe safety risk to those on board or near the vessel.

BATTERIES IN COMPARTMENTS ALSO CONTAINING SOURCES OF IGNITION

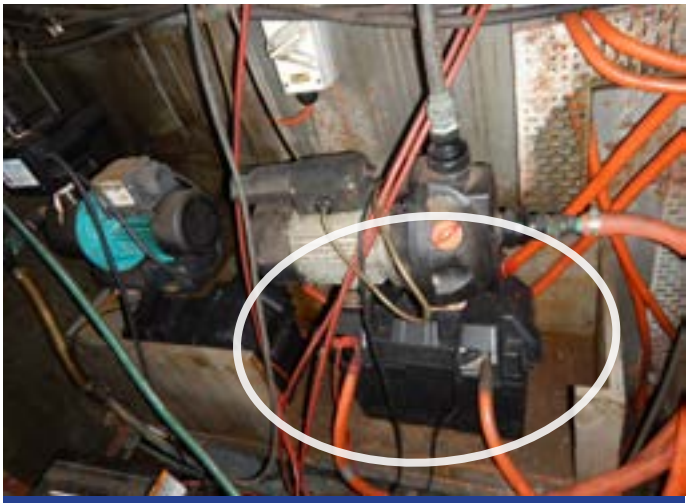
This combination results in a serious risk of explosion, so sources of ignition must always be kept outside of the battery compartment. Sources of ignition include circuit breakers, switches, electrical and electronic components.

Lead-acid batteries are particularly dangerous because they vent hydrogen, which is highly flammable.

Lithium-ion batteries should also be in a suitable container. This is because large increases in cell temperature can cause venting of gases or chemicals, with corrosive or flammable vapours leading to a fire or explosion. Gases vented by lithium-ion batteries can include hydrogen, carbon monoxide, carbon dioxide, halogens and methane, among others.

In this example, switch gear and trim tab controls are located within the same compartment as the batteries, causing a risk of explosion. The electrical components were subsequently relocated out of the battery compartment and the batteries were placed into battery boxes.
The transom area has since been redesigned by this manufacturer to provide a dedicated battery compartment, removing the source of ignition (engine wiring) from the battery.

Here, large unsupported wiring is seen running next to fuel filters. Above these filters is a capstan winch, which is a source of ignition and could have ignited the filters and caused an explosion. The filters were subsequently relocated into a compartment that was free of an ignition source.



The battery is directly below a source of ignition.

LACK OF MECHANICAL PROTECTION AROUND THE BATTERY

Batteries must be contained in a suitably-sized and well-secured battery box with a fitted lid and adequate ventilation.

Batteries can also be kept in a dedicated battery compartment (or room) that protects the battery from mechanical damage, exposure to moisture, and the possibility of short circuit due to accidental contact with loose metal tools and other conductive articles.

In this photo the battery is contained within a battery box, which is secured with the terminals covered. Ventilation is the key issue — the battery box is not sealed with external ventilation so if for some reason the battery vents it will discharge volatile gasses within a confined enclosure that contains numerous sources of ignition.

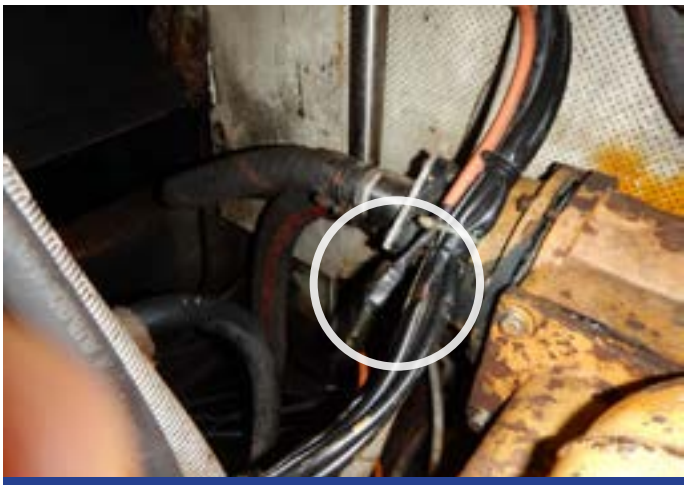
No cover on the battery box means the terminals are exposed and the possibility of the battery shorting out is high, which could lead to a battery explosion or a vessel fire.

This battery is not contained within a battery box or adequately secured. Wing nuts are not considered adequate terminations for battery connection.

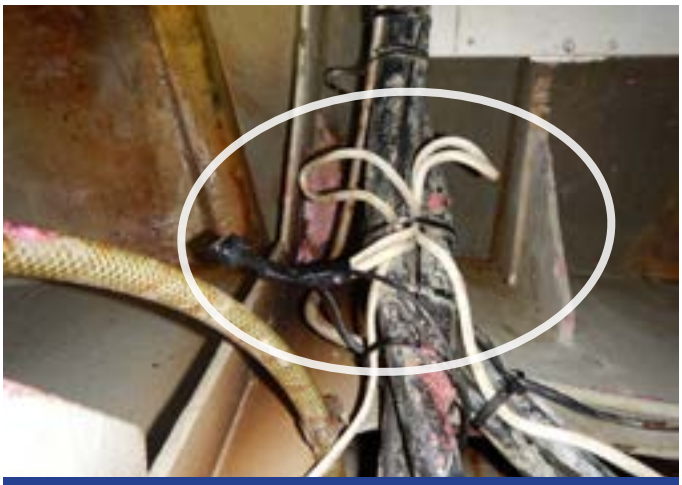
The battery box is not secure and allows possible venting of hydrogen gas to the ignition source on the water pump above.

MESSY WIRING AND UNPROTECTED CONNECTIONS

Other commonly seen hazards include unsecured wiring, connections that are not protected in a junction box and incomplete cable entries.

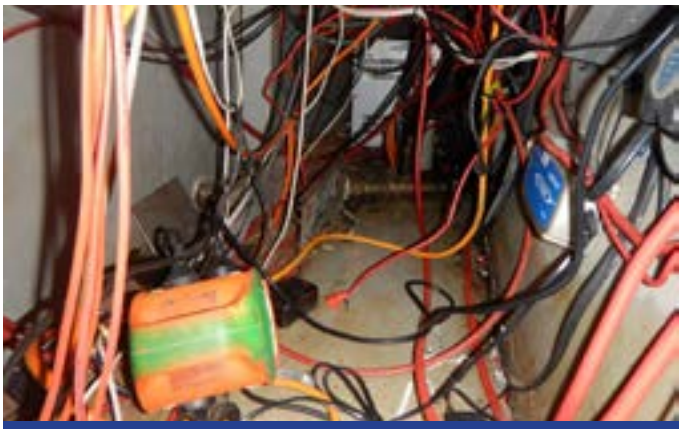


Repairing wires with tape is not considered adequate protection. The connection should be contained within a junction box.



A junction box is required and the wiring needs to be tidied up and secured correctly.

This photo shows untidy, bare conductor terminals. All connections need to be contained within junction boxes.



This photo shows unlabelled, unsecured mixed voltage wiring (a mixture of extra low voltage [ELV] and low voltage [LV] wiring) in disarray. In the event of a fault needing investigation, the messy collection of wiring would expose the person carrying out the inspection to the risk of electrocution. Any redundant wiring should be removed to make it easier to find a fault and the remaining wiring needs to be tidied up.

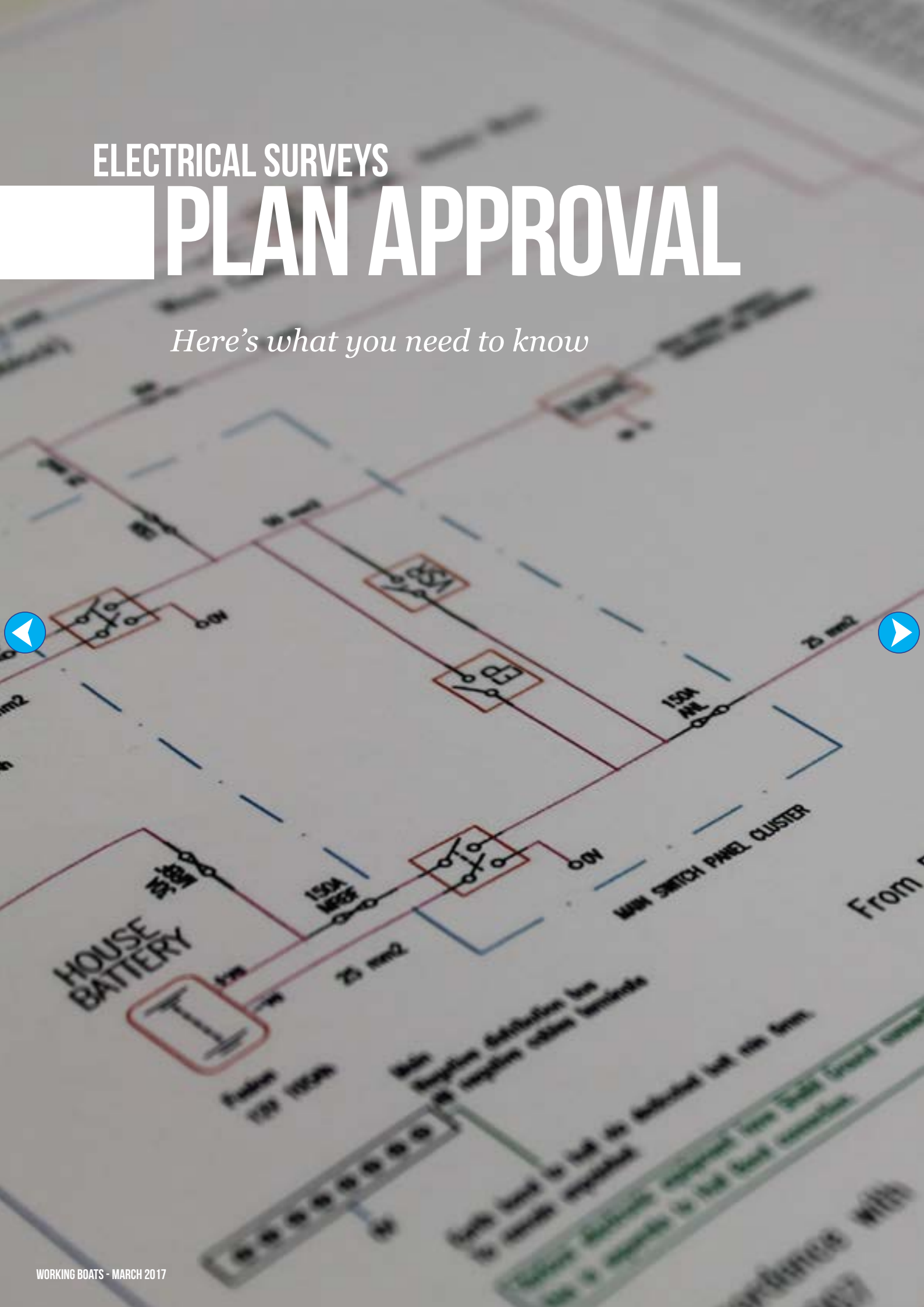
Cable entries need to be completed correctly, and conduits need to be supported to prevent stress on the wiring.

This sub board is unsuitable for its location. There is no cover on the circuit breakers, exposing them to the environment within the engine room, such as people walking past and possible leaks from the manifold directly opposite it.

ELECTRICAL SURVEYS

PLAN APPROVAL

Here's what you need to know



Electrical plan approval is required for all new vessels as well as existing vessels that will have major alterations to electrical generation or distribution systems.

'Major alterations' include replacement of the main switchboard, upgrading the power-generating system to increase capacity, or extensive rewiring due to damage.

Electrical plans must be approved and signed by a Marine Surveyor who is accredited in category (a) 'Initial Survey – Plan Approval Electrical', with the condition Low Voltage or High Voltage.

When submitting electrical plans and schematics, make sure you provide the following information:

1. Schematic diagrams of the main power and lighting systems, including emergency power and lighting systems.
2. A description of the type of electrical systems.
3. Ratings of generators, transformers, batteries, charging sources, inverters, and semi-conductor converters.
4. Electrical supply wiring (feeder) to each switchboard.
5. Insulation type, size, and current loadings of feeder and final sub-circuit cables.
6. Manufacturer, model, serial number and protection characteristic curve, prospective short circuit and over-current ratings of all circuit breakers and fuses.
7. Simplified diagrams of generation circuits, battery charging, interconnector circuits, and feeder circuits.
8. Arrangement and location plans of main and emergency switchboards, plus any distribution boards.
9. General arrangement plan showing the location of the main and emergency sources of power, radio battery, inverters, and battery chargers.
10. Electrical-load calculations used to determine the capacities of main and emergency generators and battery banks.
11. Circuit diagram(s) of electrically powered bilge pumps, plus bilge-level alarms and pump-monitoring systems.
12. Circuit diagrams of electrically powered navigation lights, controls, and monitoring.
13. Voltage-drop calculations of each of the following:
    - main power-feeder circuit
    - navigation-light circuit
    - bilge-pump circuit.
14. Ingress-protection (IP) rating of electrical equipment (must be shown on schematics).
15. Schematics must indicate where penetrations are required and type (e.g. fire/smoke tight and/or watertight).

Keeping a copy of the approved plan for the life of the vessel makes it much easier for you to identify the cause of a malfunction.

MORE INFORMATION

- Use AMSA's My Boat application to help you understand what requirements apply to your vessel. Go to **apps.amsa.gov.au/MyBoat**.
- Speak to your local AMSA Liaison Officer (call **AMSA Connect 02 6279 5000** to be forwarded to your local officer).

The rules about electrical survey plan approval are contained in:

- Section 11 of *Marine Order 503 (Certificates of survey-national law) 2013* — outlines the form of survey (including electrical survey) for vessels.
- Subsection C5B (Electrical) of the National Standard for Commercial Vessels (NSCV) — the electrical design and construction requirements for vessels.
- Subsection C7B (Communications equipment) of the NSCV — includes the requirements for the power supply for radios.

MANAGING FATIGUE

If fatigue is not managed, the risks can be disasterous for a business

On a clear, still night in July 2015, a 20-metre live cray fishing vessel with master and crew on board was heading northwards from Cooktown, Queensland towards Princess Charlotte Bay to resume fishing.

The vessel went off course after failing to make a turn and ran aground on Pipon Island. At the time of the grounding, the master was asleep at the helm. He later reported that he had been awake for approximately 26 hours before falling asleep.

This is just one example of many, where fatigued crew put their lives and those of others at risk, not to mention damage caused to property and the environment.

Fatigue remains a significant risk in the domestic vessel fleet and is a contributing factor in many incidents.

WHAT IS FATIGUE?

Most people would recognise the symptoms of fatigue when they see them — constant yawning, lack of attention, poor concentration, slow responses, irritability, and low motivation are all tell-tale signs. But often people don't recognise when they themselves are fatigued.

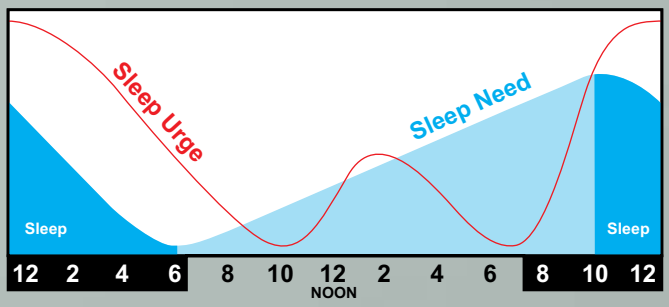
Fatigue risks are caused when a person reaches their physical or mental limits and as a result, their analysis of information is poor and decision making is impaired. Aboard a vessel, being able to stay alert and aware of what is happening around you is crucial for effective decision making. Fatigue reduces all of these necessary skills.

To give you an idea of how fatigue affects us, a study showed that the effects of fatigue after being awake for 17–19 hours is equivalent to a blood-alcohol concentration of 0.05%.

WHY DO PEOPLE BECOME FATIGUED?

Inadequate sleep (7–9 hours of continuous sleep is needed in a 24-hour period), disturbed sleep, long working hours and the time of day in which work takes place, are some of the primary factors that lead to fatigue.

Our bodies are programmed to be awake during the day and asleep during the night. This pattern is hard-wired into our biological clock, controlled by our circadian rhythm. Circadian rhythms are physical, mental and behavioural changes that roughly follow a 24-hour cycle, and the changes happen primarily in response to light and darkness in our environment. This is why the time of day has a significant impact on our level of alertness.



A normal circadian sleep rhythm in people

Because our circadian rhythm dips at night and in the afternoon, it causes certain biological functions to slow down and increase the drive for sleep. These periods of high sleep needs place you at a higher risk of experiencing fatigue between 2–5 am (known as the circadian low) and between 3–5 pm (known as the post-lunch dip). Sleep during the day is usually not as good as sleep during the night, due to the biological drive to be awake and other environmental factors (such as light).

Crew generally don't get enough sleep in round-the-clock operations. Inadequate sleep over several days leads to a 'sleep debt'. Each night that a person doesn't get enough sleep, it adds lost hours to their sleep debt. During sustained periods where sleep-debt builds up, fatigue sets in, leading to an increased chance of errors occurring. It can also result in people falling into very short sleep episodes called *micro-sleeps,* which are usually uncontrolled and spontaneous.

WHAT DO WE KNOW ABOUT THE EFFECTS OF FATIGUE IN THE MARITIME INDUSTRY?

In the maritime industry, factors like irregular schedules, long working hours, ship motion, noise and vibration, drugs and alcohol, and operational constraints (such as seasonal and migratory factors in fisheries), all increase the likelihood of operators becoming fatigued.

Too often fatigue is viewed as something that individuals simply have to 'live with', but fatigue is a foreseeable risk across the maritime industry that should be identified and controlled.

WHAT SHOULD YOU DO ABOUT IT?

Owners, operators and masters are responsible for managing risks associated with their operation. As fatigue is a known hazard, it is not different to other hazards within an operation, so strategies to manage fatigue should be considered and included in the vessel's safety management system.

The National Law requires all vessel operators to manage risks associated with their operations through their safety management system. Fatigue is commonly identified as a risk by owners, but the suggested methods of managing risk vary greatly.

Fatigue is a foreseeable risk across the maritime industry that can be identified and controlled.

STRATEGIES TO MANAGE FATIGUE

The most effective strategy to manage fatigue risks is to ensure all crew members get enough, good-quality sleep. This may not be possible in an operational environment, so crew must be given opportunities to catch up on sleep so that the effects of fatigue are managed effectively.

Two levels of control can be considered.

1 Individual crew members (including masters) should manage personal fatigue.

Individuals can help themselves get enough sleep by:

- scheduling sleep periods
- making sure the sleeping area is suitable. For example, people sleep better in dark, cool places
- taking short breaks of 5–10 minutes every 2–3 hours
- napping for 15–20 minutes to increase performance and alertness
- exercising to increase energy levels, relieve stress and promote sleep
- eating a balanced diet and staying hydrated
- drinking caffeine wisely. Caffiene should be avoided a few hours prior to sleep
- avoiding drugs, alcohol and nicotine.

2 Vessel owners and operators should encourage crew to manage fatigue.

Vessel owners and operators should consider the risks of fatigue in their operation when they develop and implement their safety management system. If fatigue is a valid risk then the vessel owners and operators may choose to implement a fatigue risk management system in order to reduce fatigue amongst their crew and manage the potential risks.

A fatigue risk management system considers all the potential risks in the operation associated with the crew becoming fatigued. The vessel owners and operators must think about what control measures can be put into place to eliminate or reduce those risks as much as possible, and then put the control measures into practice. The principles and practices used in a fatigue risk management system are the same as those used in a safety management system, which they should be integrated into.

Key features of an effective fatigue risk management system include:

- a fatigue management **policy**. This is where the vessel owner or operator commits to managing fatigue risks and outlines the shared responsibility of operators and crew in this process
- fatigue risk management **promotion**. Making sure all crew understand the causes and consequences of fatigue with individual strategies they can adopt, including training and awareness activities available to them
- **communication** with crew about the implementation of a fatigue risk management system and what this means
- effective **safety reporting** processes to make sure that new fatigue risks are identified, considered and mitigated
- encouraging **incident and investigation reports** from crew when incidents occur, to promote regular toolbox discussions with crew
- **monitoring** the hours worked by crew and making sure they are not subjected to long working hours, without adequate breaks and sleep periods.

Often business pressures of remaining commercially viable lead to an increase in fatigue. But left unchecked, the risks of fatigue can be disastrous for a business.

COLLISIONS BETWEEN VESSELS AND MARINE FAUNA

Reducing collisions starts with you

Collisions between vessels and marine fauna is a serious issue. Vessel operators are obliged to navigate at a safe speed and should maintain a lookout for marine fauna, be aware of hotspots of local species and report collisions to local authorities.

Each year more than 20,000 humpback whales migrate up the east and west coasts of Australia. Other species of whales, dolphins, dugongs, turtles and whale sharks are also distributed around Australia's coastline. Vessel operators need to be vigilant to avoid a collision with marine fauna.

SPECIES INVOLVED

Marine mammals, turtles and whale sharks are protected species in Australian waters under the *Environment Protection and Biodiversity Conservation Act 1999* and under state and territory legislation.

Although collisions with marine fauna are an issue in all Australian waters, there are also problem 'hotspots', such as Moreton Bay, where the seagrasses offer an ideal habitat for dugongs; and in Roebuck Bay, a sanctuary for snubfin dolphins.

Some species are more prone to being struck by vessels than others. Slow-moving whales, dugongs, turtles and even some species of dolphins, are particularly susceptible.

IMPACTS ON HUMANS AND VESSELS

If a vessel collides with an animal, it poses risk for all — the animal, the people on board the vessel, and the vessel itself.

Data on collisions with whales shows that in Australian waters two people have died, eight vessels have sunk, capsized or been abandoned, and 20 vessels have been badly damaged as a result.

In one instance off North Stradbroke Island, a rescue vessel collided with a whale while en route to assist another vessel, resulting in major damage to the hull of the rescue vessel. This incident also resulted in one person on board dislocating their shoulder while another received facial injuries.

IMPACTS ON FAUNA

Impacts of vessel collisions with marine fauna range from minor injury to the death of an animal.

The level of impact depends on factors like the size of the animal; which part of the body is struck by which part of the vessel; and the size, type and speed of the vessel. Propellers and hulls can cause significant damage to even the largest whales.

In some instances, collisions can even have population-level effects on marine fauna, especially for highly threatened species. For example, for a whale species with a small population and limited evidence of recovery, the loss of even one mature female could have a significant impact on the population.

SPEED AND DEPTH

Studies show that vessels travelling at more than 15 knots cause the most damage, regardless of the species involved. Collisions at this speed usually result in the death of the animal. Speeds of eight knots or below are less likely to result in a lethal injury, but the damage can still be significant.

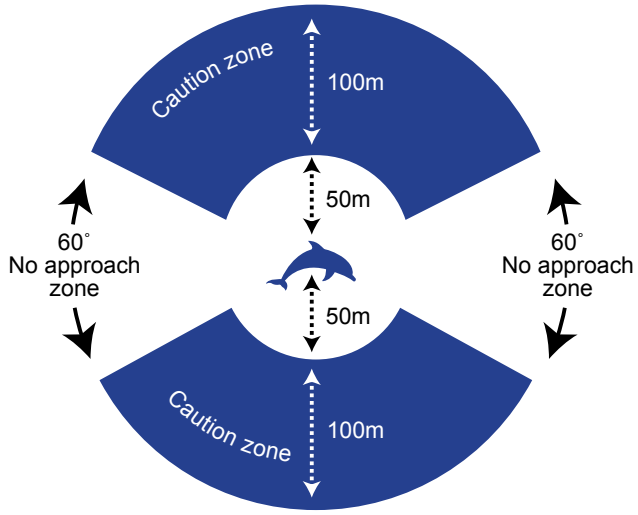
The risk of impact also increases in shallower waters where a vessel has less under-keel clearance, leaving an animal less room to avoid the vessel.

Studies show that vessels travelling at more than 15 knots cause the most damage.

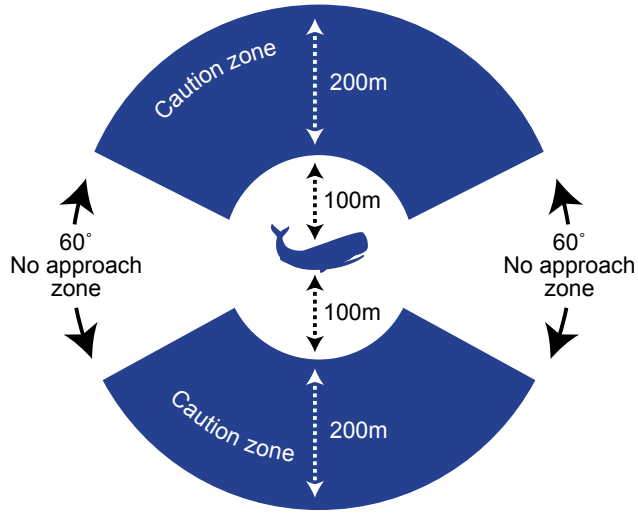
HOW TO PREVENT INCIDENTS

1. Maintain a proper lookout, where possible, posting extra lookouts to scan ahead with binoculars, on the bridge or from the bow of the vessel.
2. Reduce speed, especially when entering and leaving ports, bays, harbours and travelling within hot spots.
3. Adhere to the minimum-approach distances outlined in the Australian National Guidelines for Whale and Dolphin Watching (see below) or the applicable legislation in your jurisdiction.

SAFE APPROACH DISTANCES



Safe approaching distances for dolphins



Safe approaching distances for whales

Generally in the caution zone, speed should be constant and slow (less than six knots) with little wake.

Vessels should remain behind, or to the side of the whales. Never drive in their path or try to approach them head on. If a whale approaches the vessel, slow down to a 'no-wash' speed, move away or disengage the gears and don't make sudden course corrections.

Vessel masters are obliged to navigate at a safe speed and maintain a proper lookout. This is a requirement under the *Convention on the International Regulations for Preventing Collisions at Sea* (COLREG) and is enacted in Australian legislation (the *Navigation Act 2012*).

Vessel operators should also be aware of potential 'hotspots' in their area, such as special management zones. In some locations 'caution zones' or seasonal exclusions may exist to protect particularly susceptible species. Vessels travelling at night or in other low-visibility situations may also consider slowing down and should maintain a careful lookout.

REPORTING OF INCIDENTS

If you collide with protected marine fauna, notify your local authorities, both for the animal's welfare and also to assist the authorities keep track of incident rates. This is a requirement under Commonwealth legislation and also under some state and territory legislation.

The contact phone numbers to report injured marine mammals in each Australian state and the Northern Territory are as follows:

New South Wales
ORRCA Whale and Seal Rescue
02 9415 3333

Queensland
Parks and Wildlife Service
1300 130 370 (option 1, then option 3)

Victoria
Whale and Dolphin Emergency Hotline
1300 136 017

Tasmania
Whale Hotline
0427 942 537 (0427 WHALES)

South Australia
Fishwatch (24-hour hotline)
1800 065 522

Western Australia
Wildcare Helpline
08 9474 9055

Northern Territory
Marine WildWatch
1800 453 941

Commonwealth Waters
Vessel operators are encouraged to enter incidents into the online National Ship Strike Database.

National Ship Strike Database
https://data.marinemammals.gov.au/report/shipstrike

References
Peel et al. (2016). *Historical Data on Australian Whale Vessel Strikes*. Presented to the International Whaling Commission Scientific Committee. SC/66b/HIM/05.

This article is based on the *Collisions between vessels and marine fauna* fact sheet, available at **amsa.gov.au/environment > Forms, Fact Sheets and Publications > Fact Sheets**.

MY BOAT

Your vessel's survey requirements and safety obligations made easier

We have launched a new online application called 'My Boat' to help owners, operators, surveyors, designers and builders understand and comply with vessel-survey requirements and safety obligations.

Our My Boat application allows you to insert details about your vessel and generate a customised guide to the regulatory standards that apply to your vessel, based on the information provided.

The application also helps you understand what modifications to your vessel or equipment might be required, if you decide to upgrade or change your vessel.

AMSA's My Boat combines the following existing calculators into one easy-to-use application:

- Propeller shaft calculator
- National System requirements
- Navigation lights and shapes requirement generator
- Equipment list generator.

My Boat also provides new functionalities, such as results for fast craft and restricted C vessels.

Since its launch, the My Boat application has been used 7077 times by 5029 users, reducing the need to contact AMSA Connect, their state marine safety agency or AMSA technical staff for assistance.

Here's what our users have said:

'My Boat seems like a very useful (and user friendly) application — kudos to those responsible for putting it together!'

'It is a really useful tool and I think with the passage of time will develop to become the go-to site.'

'Great page for us to assist with survey equipment supply.'

Go to the My Boat application at **apps.amsa.gov.au/MyBoat** to get started or to read the frequently asked questions.

For further enquiries, send an email to **my.boat@amsa.gov.au**.

VESSEL FLOTATION

How does your boat float?

The National Standards talk about ‘basic’ and ‘level’ flotation requirements, but what’s the difference? Why is level flotation considered to provide a better safety outcome? And what does the type of flotation have to do with your operation?

When you buy a commercial vessel you may have to make a choice between purchasing one with basic flotation and another with level flotation.

The National Law generally requires small vessels to have level flotation. In Queensland this is referred to as a positive flotation certificate.

Here are the main differences between basic flotation and level flotation.

LEVEL FLOTATION

For a vessel to have level flotation, there is a specific requirement under the National Law for the builder to place the vessel’s buoyancy up high and out wide at the vessel extremities.

They must also place quite a lot of buoyancy around heavy items (like the vessel’s engine). This way, the buoyancy supports the weight of these heavy items and remains in a stable and level condition if the vessel becomes swamped.

If this occurs, level flotation allows you to stay within the boat, protected from marine life and the effects of being submerged. You may also bail the vessel or have the opportunity to make small repairs. It is also easier to access your safety equipment such as lifejackets, radios and beacons.

It is still a good idea to make sure that safety equipment is accessible in the event of an emergency.

BASIC FLOTATION

With basic flotation, there are no specific placement requirements for buoyancy. In most cases the buoyancy is placed under the deck of the vessel.

Placing buoyancy down low means that if the vessel gets flooded it will capsize. Because there is no specific requirement to support heavy weights like engines with buoyancy, vessels with basic flotation often end up floating with only the forward parts of the vessel above water.

In the event of capsize, you may be able to cling on to the upturned hull but you will be fully exposed to the wind, waves and water while awaiting rescue. There is also a risk that you may be separated from the vessel, making it harder for rescuers to find you. You will also have limited access to any safety equipment stored in lockers and places that are hard to reach.

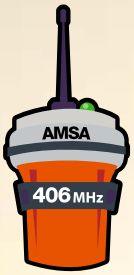
If your vessel has basic flotation you should consider wearing your lifejacket at all times and keeping the vessel’s safety equipment accessible in a buoyant waterproof container.

MORE INFORMATION

- Use our online My Boat application to work out which flotation requirements apply to your vessel and your operation.
  Go to **amsa.gov.au > My Boat**
- Read the *Safety management systems* guidance notice at
  amsa.gov.au > Forms and publications
- Call **AMSA Connect 02 6279 5000**

Australian Government
Australian Maritime Safety Authority

PREPARE YOUR BEACON BEFORE HEADING OUT ON THE WATER



REGISTER YOUR BEACON WITH AMSA

Having a registered beacon can provide search and rescue authorities with important information to respond effectively in an emergency. In some cases, it's the law.

To update your registration details or for more information on beacons, please visit **amsa.gov.au/beacons** or phone **(02) 6279 5000**.