



Australian Government
Australian Maritime Safety Authority

WORKING BOATS

September 2018

Building a better fleet

Working together for a safer industry

Compliant foam

Marko and Tanya Bacic talk industry compliance

Industry update

New survey schedule improves requirements

Incident reporting

Your information improves maritime safety for everyone



Australian Government

Australian Maritime Safety Authority

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Front cover image

Marko and Tanya Bacic.
Image source: AMSA



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Message from the CEO

A new era for AMSA began on 1 July 2018 with the integration of National System services to AMSA, supported by a \$10 million funding boost from the Federal Government.

The additional funding has ensured that no levy will be charged to the marine industry for the first three years of service delivery under AMSA.

We will continue to engage with the industry on the most efficient and useful ways to deliver services. For owners, operators and crew of domestic commercial vessels this means one set of rules, one point of contact and one set of fees no matter where you operate in Australia.

We understand most people want to operate safely and comply with the rules, so a high priority for AMSA is to make sure the safety regulations are practical to implement and that people understand them.

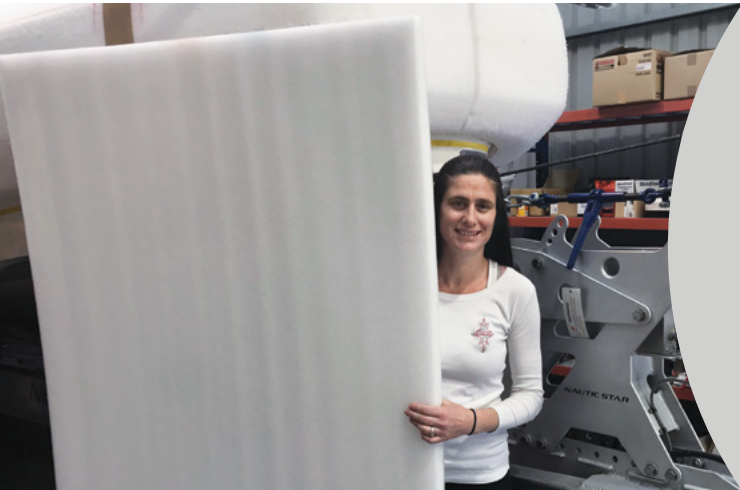
In this edition of *Working Boats* you will read about some of the changes that have been made to improve safety and reduce the cost of working on the water.

The change to the survey schedule, outlined on page 14, for example will come as a welcome change for many operators, both reducing costs and time out of the water. The majority of the fleet will be subject to reduced periodic survey requirements. There will also be more flexibility to move vessels into higher or lower survey frequency levels, depending on the performance of the individual vessel.

Mick Kinley

Chief Executive Officer

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Industry update

National System for Domestic Commercial Vessel Safety



**NATIONAL
MARITIME
SYSTEM**

You can now access national system services from one place—AMSA.

On 1 July 2018, we began the delivery of domestic commercial vessel services—creating one national system for you to navigate.

For owners, operators and crew of domestic commercial vessels this means one set of rules to follow, one point of contact for services and one set of fees—no matter where you operate in Australia.

Our services have been designed with busy people in mind so you can access the services you need, when you need them. We have also made it easy for you to interact and transact in a way that suits you.



Online self-service

The quickest and easiest way to apply, renew and pay for most certificates and other permits is via our website—amsa.gov.au

New online forms are available to guide you through the application and payment process and you can do this at any time that suits you.

There is also a range of self-service tools and resources to help you keep up-to-date with your safety obligations.

Talk to an operator

If you need someone to answer a question or guide you through the application process our AMSA Connect team is available from 8am to 5pm, Monday to Friday on 1800 627 484.

They will answer most questions on the spot or refer technical enquiries to our team of specialists.

Visit us in person

If you want to talk to someone in person, we have teams located in 19 regional offices around Australia. They are on hand to support you with new processes and systems and give you technical advice about vessel and operations safety requirements.

It is best to phone ahead or make an appointment (call AMSA Connect) so we can ensure the right person is available to help you with your enquiry. You will also see our staff out and about conducting education, compliance and enforcement activities.

Australia Post

Our service partner—Australia Post—is another point of contact for some services. Applications for certificates of competency must be lodged in person at a participating Australia Post office. We do not accept these applications directly as applicants must provide proof of identity at the time of lodging an application. You can find the location of a service centre nearest you on our website.

You can also make payments for all other AMSA applications at any Australia Post office provided you have your unique biller details.

We look forward to working with all of our new customers to improve the safety of domestic commercial vessel operations.

Visit amsa.gov.au/vessels-operators/transition-national-system



AMSA Connect 1800 627 484

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NATIONAL
MARITIME
SYSTEM



A fast, easy way to access services

- ✓ Seafarer qualifications and certificates
- ✓ Certificates for vessel operations
- ✓ Certificates of vessel survey and non-survey
- ✓ Specific exemptions and applications
- ✓ Equivalent means of compliance applications
- ✓ Intention to build/vessel unique identifier

One system to navigate.

Services for domestic commercial vessel safety are now only being delivered by the Australian Maritime Safety Authority.



Call AMSA CONNECT **1800 627 484**



Visit **AMSA.GOV.AU**
to find out how
this affects you



Incident reporting

informing the future of safety

**When involved in an incident, you must report the event to AMSA.
Your information plays an important part in guiding the way we improve
maritime safety for everybody on the water.**

The information you provide in your incident report feeds into a large collection of data which we analyse to identify patterns and connections between incidents taking place across the Australian commercial vessel industry.

For example, an incident that appears to be an unfortunate one-off event may in fact be a frequently occurring problem across industry.

The insights we gain from incident reports and other information sources such as inspections, safety management system assessments, surveys, interactions with stakeholders and coronial proceedings allow us to develop more effective safety strategies and better advice for owners, operators and seafarers.

Results can include making new safety information available, rolling out education campaigns or even changing regulations. A pertinent example of this is the safety campaign we delivered after detecting a high rate of incidents among dory fishing vessels.

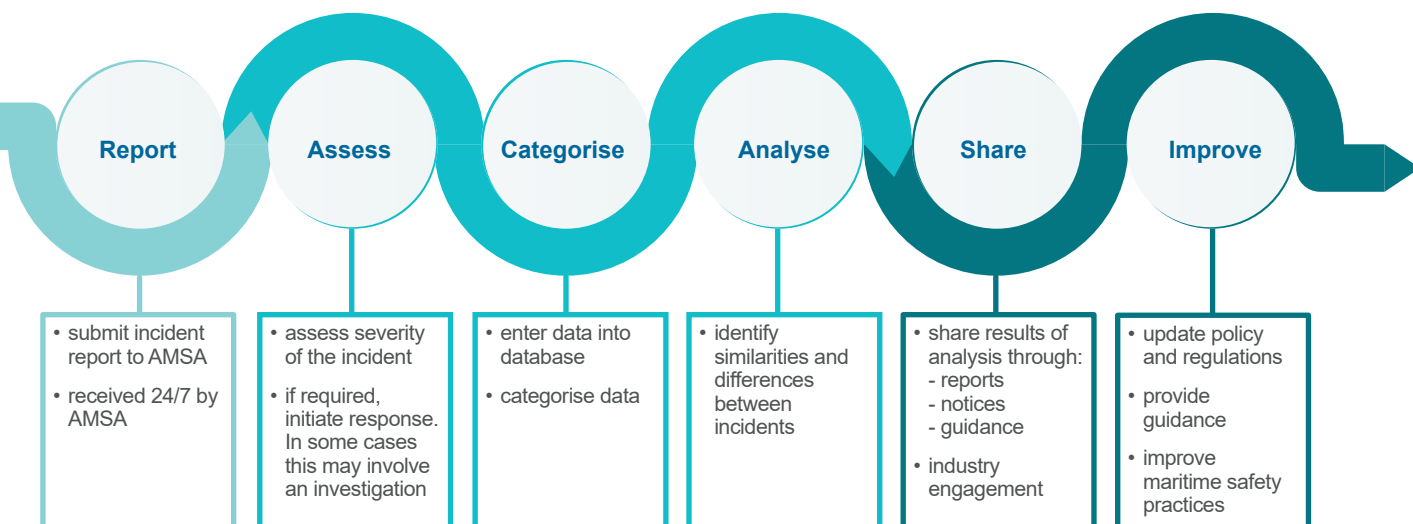
We looked into how the incidents occurred and identified a problem that could be addressed by better preparation

for operational risks. To address this we launched a series of workshops to raise awareness in this sector on how to identify and mitigate operational risks as a part of their safety management system.

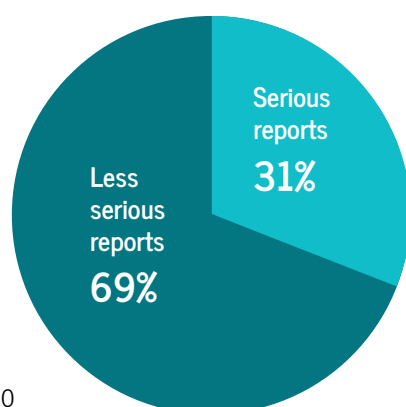
The workshops provided an opportunity for fishers to get one-on-one guidance from staff and have their questions answered. We intend to hold further workshops in the future but no dates have been set. Please keep an eye on our website for updates.

We also produced a factsheet, issued media releases, published articles about it in newsletters and magazines and posted information on social media. There has been a marked reduction in incidents among dory fishing operations since the rollout of the safety campaign.

Incident data can also help us provide feedback to suppliers to help them improve a product or service for the domestic commercial vessel industry. For example, many incidents on commercial vessels in Australia are associated with technical issues. If reports indicate a number of incidents involving a particular piece of technical equipment, we may provide feedback to the supplier to improve the performance of the equipment or its instructions.



**Between January–June 2018
we received 218 incident reports**



Very serious: 0

Serious: 31% (68 reports)

Less serious: 69% (150 reports)

The process of reporting an incident has recently changed. Here's what you need to know.

1. Incident occurs
2. You submit an incident report
3. We receive your report
4. We triage the report into one of three categories: very serious, serious, less serious
5. We forward your report to staff in your region to provide assistance if needed
6. We enter information from your report into our incident database
7. All data is analysed
8. We identify trends in safety issues
9. We develop and implement safety strategies
10. We have safer seafarers.

How to report an incident

Owners and masters of domestic commercial vessels now report incidents directly to AMSA.

You must submit your incident report within 72 hours of becoming aware of the issue.

Incident report Form 19 is available online at amsa.gov.au/incident-reporting

What to report

The types of incidents to report to us may include:

- Death or serious injury of a person
- Loss of a vessel
- Loss of a person from a vessel
- Grounding, sinking, flooding or capsizing of a vessel
- Significant damage to, or fouling of a vessel (ie fire or entanglement in ghost nets)
- Structural failure of a vessel
- Collisions and close-quarters situations
- An incident that could reduce the safety of a vessel, those on board or nearby.

Report dangers to navigation

You can also email reports@amsa.gov.au to report dangers to navigation such as floating logs, ghost nets and containers.

reports@amsa.gov.au



1800 627 484

For more information on incident reporting visit amsa.gov.au/incident-reporting

Wellbeing *on the water*

Stradbroke Flyer.
Image supplied.

Early morning starts and long hours on the Stradbroke Flyer cats, ferrying passengers between Cleveland and north Stradbroke Island, takes an understandable toll on the social lives of crew.

Operators of the service, the Groom family, look after the wellbeing of their employees by offering a high degree of flexibility in the workplace.

'We have 15 services a day. The first passage out is at 4:55 in the morning and the last boat returns to Cleveland at 8:25 at night,' John Groom said.

'It means no late nights and partying is impossible. We know that it can be stressful work, with the demands of customer service and the hours we require. That's why we go out of our way to shift the rosters around where possible to let people have a night out when they have an event coming up.'

John said the flexibility offered to staff also helped the crew develop their skills with other operators and return to their employment with the cats.

'When someone tells me they are leaving to expand on their experience I'm happy they are going to increase their knowledge and learn more,' he said.

'For instance a deckhand who started with us when he was 17 attained his Coxswains and then his Master 5. We only had 12-metre boats back then so he couldn't really go any further. He said he wanted to keep progressing so we did everything we could to help him move north. He worked out of Yepoon for about three to six months and then Cairns before calling us back



Crew wellbeing: iStock.com/paulprescott72

'Taking care of crew wellbeing really does pay off in the long run.' — John Groom

a couple of years ago and saying he'd like to come back to Cleveland and become a firey. He said he'd like to work on the boats again while doing his fireman courses.

'We said "absolutely!" So he came back to us, worked with us as a skipper for a year or two while he did his courses and became a fireman. He still comes back and fills in for people when they're away.'

John said the flexibility and understanding shown to employees had fostered a strong sense of loyalty among the crew.

'For instance, when the daughter of one of our crew members was

involved in a major car accident our other employees saw that we were doing as much as we could to help him stay next to his daughter,' he said.

'And the crew decided to cover his shifts so that he could keep being paid. When you start to create a family environment where crew can come and go the crew will often return the favour or pass it on to someone else.

'Your reputation grows from that as well—some people seek us out, saying "you guys never go through staff, can I put my name down on your books?'

'Taking care of crew wellbeing really does pay off in the long run.'

AMSA's approach to compliance

Helping you comply with your obligations

The national law requires people to take responsibility for their operational safety outcomes in relation to domestic commercial vessels.

Our response to non-compliance is based on the principle that most people want to operate safely and comply with the rules. A high priority for AMSA is to make sure the safety regulations are practical to implement and that people understand them.

We intend to carry out inspections, compliance checks and business audits on approximately ten per cent of Australia's domestic commercial vessel fleet to ensure that safety is being maintained.

AMSA Marine Safety Inspectors began performing checks of domestic commercial vessels on 1 July. If you are checked you may be asked to show evidence of having recorded information in your safety management system (SMS) documentation.

One of the key general safety duties of the vessel owner is to implement and maintain an SMS to make sure the vessel and its operation are safe, so far as reasonably practicable.

You may be asked for evidence of risk assessments, crew briefings, inductions, training on safety procedures and emergency drills that address your safety risks.



Marine safety inspector: on board a domestic commercial vessel. Image source: AMSA

Inspections of operators will occur across all sectors of the industry. A domestic commercial vessel could be audited at any time.

Inspections will be conducted across numerous categories including differing operating areas, class types, vessel lengths and risks. AMSA, as the national regulator, intends to check all operators over the coming years.

Operators who demonstrate that they are failing to maintain safe operations will come under increased scrutiny.

Our response to those not complying with their safety requirements depends on the level of risk or harm that arises from non-compliance. For example, non-compliance that puts lives in serious danger will incur harsher enforcement action than instances of non-compliance that do not carry severe safety risks. This allows us to prioritise and target instances of non-compliance that pose the greatest risk to people and the environment.

AMSA understands that the way people see risk can differ significantly, leading

to inconsistencies in the way operators approach safety. Some people take great care to manage even minor risks in situations where others may not perceive any risk at all.

We are also aware that attitudes to safety vary across the domestic commercial vessel industries. While many operators have a mature approach to maintaining high standards of safety, some operators continue to put others in harms way with unsafe practices—despite known risks for particular operations. These operators will be the focus of our education and compliance monitoring activities.

Under the National System, it makes sense that a uniform approach to compliance and enforcement should be part of the plan to promote safety standards across the entire domestic commercial vessel sector. We expect that operators will take their own safety, and that of their crew and passengers, seriously by actively managing the risks in all domestic commercial vessel operations.



Compliant foam *floats your boat*

A life raft is an ideal piece of safety equipment to have on board in the event of a vessel capsizing or sinking. However, for many small craft, space, weight and operational restrictions make it impractical to carry one.

Without the safety reserve provided by a life raft, vessel survival becomes critical during an emergency. Your life may depend on the quality of the buoyancy foam located within your boat.

The National Standard for Commercial Vessels (NSCV) requires many domestic commercial vessels (DCVs) be fitted with additional buoyancy, often in lieu of carrying a life raft, to mitigate the risks of swamping or hull damage resulting in flooding.

The quality of the foam can be a determining factor in survivability if a boat becomes swamped. If a boat is badly damaged, flooded or beginning to sink, the additional buoyancy should allow the craft to provide some support to its occupants, even when capsized. However, if the foam is poorly distributed, inadequately fastened,

insufficient in size, deteriorating or water-sodden it could let you down at the worst possible time.

In addition to emergency situations, water saturated foam can add significantly to the weight of a small vessel, reducing performance and increasing fuel bills. Incorrectly fitted foam can also cause severe and rapid corrosion in aluminium and steel vessels.

Vessel owners, surveyors and builders should take note of the current requirements for buoyancy foam standards. They have changed from previous requirements.

If an accredited marine surveyor or marine safety inspector find the foam fitted to your vessel is non-compliant with the standards you will face significant rectification costs. Vessel owners can request an assessment of their foam by a surveyor.

The NSCV poses six important questions that must be answered before you can do it right:

1. Is your vessel required to have additional buoyancy fitted and what are the conditions? (Details can be found in NSCV Part G and subsections 6B and 7A of Part C).
2. Will your boat float with just a small portion of the hull clear of the water, or float level and be able to support persons onboard when flooded?
3. How resistant is the intended foam buoyancy to hydrocarbon vapors, immersion in petrol, oil or bilge cleaners?
4. Does the intended foam meet the minimum requirements of resistance to hydrostatic pressure, stability under temperature cycling and resistance to water absorption?



Nautic Star: Marko and Tanya Bacic; Tanya holding compliant foam.

5. How much foam is required and where should it be placed?
6. How should the foam be fitted and fixed in place?

Ensure the designer and builder of your vessel is familiar with the NSCV and can answer these questions. If in any doubt commission an accredited marine surveyor to give advice and survey the additional buoyancy during installation. Fitting additional buoyancy the right way is not just a good idea it is the law! Part 3, Division 2 of the Marine Safety (DCV) National Law Act 2012 details the duties of designers, builders and suppliers of materials and services for DCVs. In this instance the supplying and fitting of non-compliant foam to a vessel can carry significant penalties.

There is a final important question surveyors, builders and vessel owners need to ask before fitting foam buoyancy to a vessel: 'can the foam buoyancy supplier prove their product is compliant with the requirements of the NSCV?'

Case study

Building with buoyant foam

South Australian boat builders Marko and Tanya Bacic founded Nautic Star nearly 20 years ago and have grown their business from a recreational craft operation to a company that supplies vessels to major government agencies.

'Marko's family background was fishing and I also love the water,' Tanya said.

'Marko did a trade course followed by working for a boat builder before we decided to build our first boat over 20 years ago. From there we have grown our small business into a company.'

The evolution of their home-grown business has given them significant insight into the many kinds of buoyancy foam available on the market and the need for rigorous testing to ensure their boats achieve the standard of level floatation.

The company uses the services of a naval architect who calculates the exact placement and amount of buoyant foam needed for each vessel.

'It has to be the right type of foam, with the right quantities and located in the correct areas for the vessel to meet the NSCV criteria for level floatation,' Tanya said.

'Safety on the water is paramount—it's not like breaking down on the side of the road where you can ring for assistance and wait. When out at sea you can get into big trouble very quickly.'

The process of finding buoyancy foam which would meet the NSCV requirements, without incurring huge freight bills, was a lengthy one for Tanya and Marko.

'I originally used a foam supplier whose quality was very good, but the freight costs were very high,' Tanya said.

'I was paying more in the freight than I was for the product so I started to search for another supplier. Once I found a supplier, I sent a big quantity of samples of the foam to a NATA-approved testing facility (Vic Labs) to make sure it passed fuel- and resistance-to-water tests among other things.'

Tanya then engaged the services of another company to ensure the test results met the criteria for the NSCV requirement for buoyancy foam. It was found to be compliant with the NSCV and a certificate of conformity was issued.

'It all adds up to being a costly and time consuming process but it's worth it when people's lives are at stake. It also means that our product is compliant and we can on-sell with complete confidence.'

LARGE SHIPS + *little vessels* = big trouble



In nearly all cases, the failure to keep a proper and effective lookout and take early avoiding action was a contributing factor to the collision.

— Mr Nat Nagy

Executive Director of transport safety at the Australian Safety Transport Bureau (ATSB), Mr Nat Nagy, said that over the past 28 years the ATSB had investigated 38 collisions between large ships and small vessels.

'In nearly all cases, the failure to keep a proper and effective lookout and take early avoiding action was a contributing factor to the collision,' he said.

The bureau recently released final investigation reports into two separate collisions at sea.

On 23 June 2015, the bulk carrier *Jag Arnav* and the fast utility vessel *Total Response* collided off the coast of Western Australia. The collision occurred in daylight in clear visibility.

The ATSB found that a proper lookout was not maintained on board *Jag Arnav*, electronic navigational aids were not properly used and when *Total Response* was sighted, it was incorrectly assessed to be passing clear. The crew of *Total Response* did not detect *Jag Arnav*, visually or electronically, and ran into the side of the ship at full speed. *Total Response* sustained structural damage and two



Damage to Mako: Image source: ATSB

Collisions on the water pose enormous dangers to the lives of people on board and threaten the structural integrity of the vessels involved. However, in spite of the risks, the cause of these incidents is often found to be avoidable.



Collision course: Image source: iStock.com/omersukrugoksu

of its crew suffered minor injuries.

On the evening of 12 August 2017, the container ship *Glasgow Express* and the fishing vessel *Mako* were on a collision course for nearly two hours off the Victorian coast. Radar and visual information was misinterpreted on board the container ship, with the crew assuming the ship would either pass clear or overtake the fishing vessel.

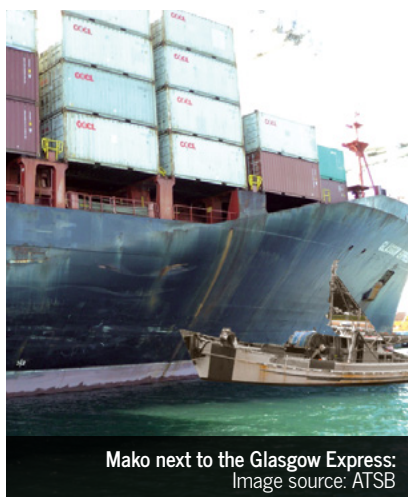
At 22:34, the two vessels were three nautical miles apart and clearly visible to each other. However, the risk of collision was not identified and action to avoid the collision was not taken.

Glasgow Express was not damaged in the collision but the damage to *Mako* was significant.

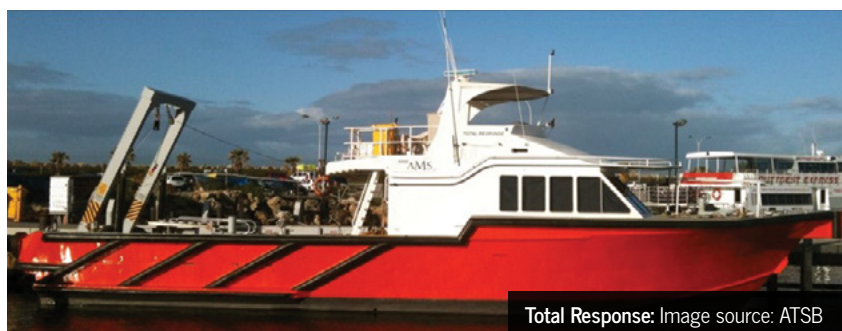
'It's unfortunate that we continue to see the same factors repeatedly contributing to collisions at sea. Over the years, the ATSB has issued a number safety bulletins and advisories to the marine industry. It's disappointing that similar collisions keep happening when they could so easily be avoided,' Mr Nagy said.



Jag Arnav and Total Response tracks:
Image source: ATSB



Mako next to the Glasgow Express:
Image source: ATSB



Total Response: Image source: ATSB

For more information into marine investigations reports and publications visit atsb.gov.au/marine



Mandatory *float-free* EPIRBs

Float free EPIRB: automatically activates under water.

AMSA has introduced a mandatory requirement for float-free emergency position indicating radio beacons (EPIRBs) on certain types of domestic commercial vessel, which will apply from 1 January 2021.

The change follows a number of incidents in Australian and international waters where commercial vessels have sunk quickly and the master and crew were not able to deploy their EPIRB in time, resulting in a tragic loss of life.

Investigations have shown there were a number of reasons those aboard could not manually transmit a distress signal in an emergency including an inability to access the device due to the speed of the capsize or sinking and/ or the location of the device.

A float-free, auto-activating EPIRB can signal a request for help within minutes of being submerged in water without any action of a person.

The safety benefits of carrying these devices on commercial vessels operating at sea have also been recognised by other maritime safety agencies. Maritime New Zealand has recently introduced similar changes to mandate float-free, auto-activating EPIRBs on certain commercial vessels.

AMSA has conducted extensive public consultation about changes to requirements for carrying float-free EPIRBs.

As a result we are making changes to the National Standard for Commercial Vessels (NSCV) from 1 January 2019, with a two-year transition period.

From 1 January 2021 it will be mandatory for the following domestic commercial vessels to carry a float-free EPIRB:

All fishing, passenger, and non-passenger domestic commercial vessels (Class 1, 2, and 3) that are:

- equal to or greater than 12 metres in length and operate beyond 2 nautical miles seaward from land
- less than 12 metres in length operating in restricted offshore and offshore waters (B or C waters) and do not have level flotation
- all hire-and-drive vessels operating in restricted offshore waters (Class 4C), equal to or greater than 12 metres in length, or less than 12 metres and do not have level flotation.



A float-free, auto-activating EPIRB can signal a request for help within minutes of being submerged in water without any action from a person.

These changes apply to new vessels, existing vessels, and transitional vessels. It also applies to vessels that are exempt from the requirement to have a certificate of survey (also referred to as 'non-survey' vessels). This includes vessels operating under the following exemptions:

- Exemption 02 Marine Safety (Certificates of survey)
- Exemption 40 Marine Safety (Class C restricted operations).

Vessels without level flotation that are less than 12 metres in length and operating in D and E waters will not be affected by the changes. Similarly, all vessels that are less than 12 metres with level flotation can continue to carry the kind of EPIRB currently required regardless of where they operate. The change does not affect coastal life rafts.

During the transition period AMSA will consider putting in place a generic equivalent solution (GES) to provide alternative options for owners of <7.5m without level flotation operating in offshore waters (B and C waters). This will be in consultation with industry.

Float-free EPIRBs offer significant safety advantages for crew and passengers on sinking vessels. While float-free EPIRBs are important lifesaving devices, they should be regarded as only one of several crucial pieces of equipment for seafaring.

Vessel use	Vessel class
Passenger vessel (13 or more passengers)	1
Non-passenger vessel (up to 12 passengers)	2
Fishing vessel	3
Hire and drive vessel used by the hirer only for recreational purposes	4

Operational area	Indicated by
Unlimited domestic operations (no longer available to domestic commercial vessels). Vessels operating in A waters must be Australian regulated vessels under the Navigation Act 2012.	A
Extended offshore operations (beyond 200 nautical miles from the baseline of the Australian mainland, Tasmania, a recognised island but within the exclusive economic zone)	B Extended
Offshore operations (within 200 nautical miles from the baseline of the Australian mainland, Tasmania, a recognised island but within the exclusive economic zone)	B
Restricted offshore operations (within 30 nautical miles from the baseline of the Australian mainland, Tasmania, a recognised island; within 50 nautical miles of the baseline of Qld, within the Great Barrier Reef Region or the Torres Strait Zone; whilst remaining within the exclusive economic zone)	C
Restricted offshore operations—specified areas	C Restricted
Partially smooth water operations	D
Smooth water operations	E

Register your float-free EPIRB at amsa.gov.au/beacons

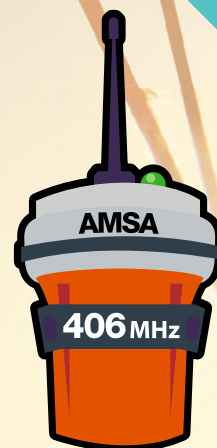
Learn more about the regulatory requirements for float-free EPIRBs in Australia at amsa.gov.au



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.



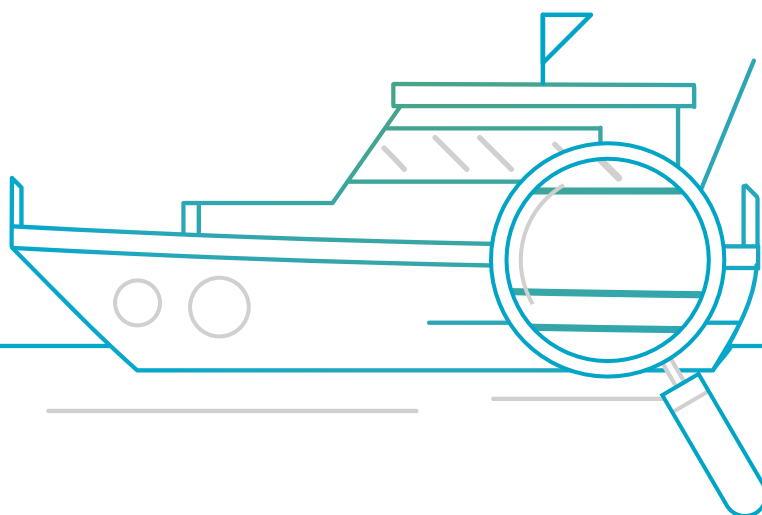
To update your registration details or for more information on beacons, please visit amsa.gov.au/beacons or phone **1800 627 484**



**NATIONAL
MARITIME
SYSTEM**

New survey schedule

The new schedule makes survey requirements easier to identify and apply to your vessel.



Depending on the type of vessel you own or operate, you may benefit from a reduction in survey frequency and your survey requirements will be better aligned to the risks of your type of operation.

The new survey schedule contributes to safety by ensuring that vessels meet required design, construction and equipment standards, are fit for purpose, well equipped and maintained.

Key changes

- vessels less than 12 metres operating in sheltered waters and which do not have a 'high risk modifier' no longer need a certificate of survey (Exemption 02)
- Restricted C vessels can now carry up to up to 12 crew or special personnel in specified Restricted C areas (Exemption 40)
- reduced survey frequency for other vessels in survey (Marine Order 503)

All vessels in survey will still undergo an initial survey including design approval, inspection during construction, stability and operational trials to confirm safe performance of machinery and equipment. Once in operation, your vessel will be periodically surveyed to make sure it and its equipment are well maintained and continue to perform to the required standard.

The new requirements will, in time, provide more flexibility by allowing vessels to move between higher and lower survey frequency levels.

Importantly, a vessel will be able to move levels based upon its performance. This new approach will reward operators with excellent safety records through a reduction in regulatory burden. Operators with poor safety records or sectors operating in high-risk environments can expect to have survey frequency increased.

The option for owners to apply to move their vessel into a lower survey frequency will be available after 2023, upon renewal of the vessel's certificate of survey.

AMSA is currently developing survey mobility rules which will be released publicly prior to 2023 to ensure that the arrangements are transparent.

Higher-risk vessels such as passenger carrying vessels, vessels operating a long way offshore and vessels carrying dangerous goods are subject to a more intensive initial survey process. The periodic surveys also occur more frequently to reflect the potential safety risks posed to people on board and the marine environment.

Lower-risk vessels such as human-powered vessels, sail craft and small passenger vessels are subject to less intensive survey requirements, with many not subject to survey at all due to the low safety risk they pose.

You will also have greater flexibility in when you need to have your vessel periodically surveyed, to align with other vessel-maintenance activities.

The new survey schedule allows periodical surveys to be conducted any time within a six-month window of up to three months prior to and three months after the due date within the window ▶



New survey requirements for DCVs: brochure available.

of the certificate—with no application required.

However, it must be done before the expiry of the certificate.

A well-maintained vessel is less likely to be involved in an incident or, in the event of an incident—less likely to result in death or serious injury. In assuring that the key aspects and systems of the vessel meet the required standards and are in good working order you will contribute to the safety of those on board the vessel and the marine environment.

All vessels that require a certificate of survey will be affected by the changes to the domestic commercial vessel survey rules.

These processes are intended to foster a culture of proactive safety management and create incentives for operators to maintain vessels to high standards.

The new survey requirements will reduce compliance costs, while maintaining safety.

Learn more about survey schedule requirements
amsa.gov.au/certificates-survey

Case study



Plenty to inspect—how the changes affect big players

With approximately 100 vessels in its Australian fleet, multinational towage company Svitzer takes an understandably close interest in changes to the survey schedule.

Manager of Svitzer Australia's Brisbane Port operations (and ex Regional Marine Manager for Svitzer), Andy Perry, said he welcomed many of the changes that came from AMSA's introduction of a truly national system on 1 July.

'We're really pleased that we will be able to stick with the companies that have been doing our annual surveying work for us,' he said.

'That's not going to change and that is a great outcome for us. There are some changes coming through in 2020 that affect vessels in both the under-65m class and under-45m class, which we support.

'The thing we really like is the consistent national approach. We know we will get the same answers no matter where we look and the rules will be less open to interpretation. In the past we've had to work with five of the six regulatory bodies around Australia. The new system will be more thorough and Australia will have a safer domestic fleet because of it.'

Mr Perry said the process of having vessels surveyed was at times inconvenient, but the results were well worth it.

'It does disrupt the operation to have every vessel surveyed for one day per year, but we also have our international survey work done at the same time so it's an efficient use of time,' he said.

'And if we don't have our surveying done we don't have an operation.'

Mr Perry said the more in-depth surveys conducted every five years which required ships to be hauled from the water were more costly, but often also more informative.

'You get a good inspection of the hull and you may find jellyfish and sea life clinging on underneath the waterline. You might find a few dents you didn't expect to see but that doesn't happen too often.'

Case study

Chasing the rain and watching the bottom line

Prawn trawling operator Ian Boot has a lot of sympathy for farmers—in part because he shares so much in common with them.

Angst over the weather is a common feature in his day, as is the cost of fuel and the movement of the Aussie dollar. Ask any farmer and they will usually list the same three things as their chief ongoing concerns.

'If we don't get the rain at the right time we don't have a good season,' Ian said.

The prawn trawling business Austfish was founded about 30 years ago. It is jointly owned by Ian and his brother Ross and boat skipper Hilton Bell. The company operates eight vessels out of Darwin and is headquartered in Fremantle, where the brothers grew up.

Changes in the survey schedule could be especially beneficial to a business like Austfish which watches all of its costs carefully.

'It costs \$8000 to lift a 28m vessel and another \$8000 to return it to the water. It costs money and time because while that's being done—the vessel is not working.

'The changes are new and it will take time to fully appreciate what they will mean for us, but every little saving helps. If we can extend the period between surveys it will create a saving for us.

'Five of our vessels work in the northern prawn fishery—from Cape York to Cape Londonderry including the Gulf of Carpentaria. So we can roam around more than farmers can on acreage, but otherwise, there are a lot of similarities.



Austfish owner Ian Boot: Image credit: ABC Country Hour

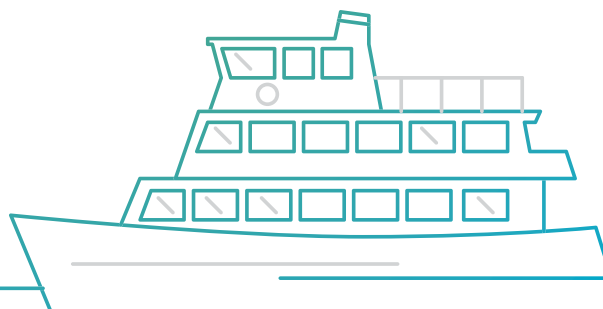
'Strong winds have an impact on what we do, there are a lot of variables with this operation and the costs are extremely high.'

Ian said fuel was a major cost for Austfish which was why the vessels were kept permanently in Darwin rather than moved between the NT and WA.

'The time to steam from Darwin to Fremantle is 23 days,' he said.

'We used to do our refits in Fremantle but the fuel costs are restrictive. When the facilities improved in Darwin we decided to keep the vessels there. They are in a very well-managed fishery.

'We sell our products internationally and on the domestic market so the movement of the Australian dollar is something we watch carefully. It's also consumer driven—we sell a lot to the domestic market during Christmas and early summer and a lot to China during the New Year celebrations.'





A DAY *in the* LIFE

of an aquatic ecology researcher

Andrew Pickworth is an aquatic ecology research scientist whose work includes electrofishing. This involves passing powerful electrical currents through water. The process stuns fish which are then caught, weighed, measured, tagged, released and monitored.

Aquatic ecology research scientist: Andrew Pickworth collecting important data, measures a fish. *Image supplied*

Andrew works for the Arthur Rylah Institute for Environmental Research (known as ARI), in Heidelberg, Victoria, which is part of Victoria's Department of Environment, Land, Water and Planning (DELWP).

ARI's fleet includes 16 vessels, eight of which are electrofishing boats. Andrew's work is frequently commissioned by the Victorian Fisheries Authority, Catchment Management Authorities, Melbourne Water and the Murray-Darling Basin Authority to learn more about the changing conditions in the natural environment.

What led you to become an Aquatic Ecology Research Scientist and how long have you been in this role?

I became interested in fisheries when I was studying science at Dookie Agricultural college. I did my major study in aquaculture at Snobs Creek—Victoria's government hatchery. After a few years working in the hatchery I had the opportunity to move into the field research side of things. I have been working in this field for nearly 20 years.

Can you tell us a little bit about the ecosystems you work in?

I have worked on a number of great projects over the years from stocking to population studies, fish movement

and behaviour, radio and acoustic tracking studies, working with endangered and threatened species, and stream and river improvement projects. I've worked in waterways ranging from big waters like the Murray to little streams in the high country and even in saline estuaries along the coast from the Glenelg River in the west to Mallacoota in the east.

What does a normal day on the water look like for you?

Before we go out we need to thoroughly plan our project and get approval from an animal ethics committee. We need a permit from the relevant fisheries management agency and we also need to make sure



If you catch a tagged fish please notify the people on the tag and provide accurate data; it all helps.

— Andrew Pickworth.

report data), an internal PIT tag (like a pet microchip), or even surgically implant acoustic or radio tracking tags into the fish's abdominal cavity. We release the fish before moving on. Most field days are long; perhaps 10 hours, but this can vary.

How did you become involved in the tag-and-release program?

I have been involved in a number of tag-and-release projects over the years, most notably the Tri-State, Murray Fishways project. This project was set up to allow fish to be able to travel from the sea (Murray mouth) right up to the Hume Dam at Albury, past all the locks and weirs along the river. I think the record for movement was a Golden perch that travelled over 2000km up the Darling. The tag-and-catch data is also very helpful in analysing fish growth over time.

How do your findings impact clients like the Murray-Darling Basin Authority?

I think you can only have good management if you have good knowledge. Survey work and tagging programs on the Murray have bridged some of the knowledge gaps that previously existed. It's good to know our work makes a difference.

Do you have any advice for fishers?

I'd just like to encourage people to help protect and preserve our environment as best they can. If you catch a tagged fish please notify the people on the tag and provide accurate data; it all helps. Please also report any illegal activities to protect our fishing future.

we have completed all our training and safety checks. We notify the relevant regional staff of the work we are conducting; including Victorian Fisheries Authority, DELWP and Parks Victoria staff. With that done we get to drive out the gate. Our research is conducted in Victoria, NSW, and sometimes South Australia.

A general day in the field involves launching the vessel, often in some very difficult locations, and then setting up the anode booms and filling the holding tank. The anode is basically the positive terminal and the aluminium hull of our boats is the cathode (negative terminal). Depending on the size of the boat the generators on board vary from 2.5KVA to 13KVA.

This may seem pretty dangerous; putting a high-voltage current into the water while standing on a metal boat, but due to Faraday's (scientific) law you are safe as long as you stay within the vessel. We wear rubber-soled shoes and rated linesman gloves. The electric field generated around the boat and anodes reaches a few meters.

If a fish is very close to the anode it may become stunned, if a bit further out it should be attracted in and if a fish is further away from the anode it will get a slight shock and move away. Once a fish is netted and placed in a holding tank it recovers quickly. The species, length and weight is recorded and in some cases we will attach an external marker tag (for anglers to



Crewing

for your operation

Crewing requirements: you are the best person to appoint your crew. Image credit Tony Morris.

AMSA recognises that the vessel owner or operator is the best person to assess the risks of their operation.

As part of AMSA's less prescriptive regulatory approach, we have made changes to the crewing requirements for most vessels.

When deciding the appropriate number of crew for their vessel, operators are no longer required to ensure that this exceeds the core complement.

Rather, appropriate crewing is determined by an evaluation guided by the list of factors set out in Marine Order 504 (and listed below). The changes are expected to promote a safety culture of self-assessment and review.

If you have determined that it is safe, having conducted and documented an appropriate crewing evaluation, you can operate your vessel with minimum crewing.

For new vessels, you will be able to work solo, provided your vessel is less than 12 metres and your appropriate crewing

evaluation supports operating with the minimum crewing (one person).

For a new vessel 12 metres or greater in length, you will generally need to have at least two people working as a master and crew.

If your vessel is eligible for grandfathered crewing arrangements, you can continue to comply with the requirements that applied to your vessel on 30 June 2013.

Appropriate crewing

Appropriate crewing is the number of certified or uncertified people needed to safely operate a vessel. To determine appropriate crewing, an evaluation will take into account factors including:

- type of vessel

- activities performed by the vessel
- environment the vessel operates in
- duration of your trip
- number of people on the vessel and their levels of competency.

You should document the outcome of this evaluation in your safety management system (SMS).

Minimum crewing

Minimum crewing is the minimum number of certified or uncertified people needed to operate a vessel based on length. It replaces the old concept of 'core complement'.

Appropriate and minimum crewing may be the same if the risk assessment carried out by the owner determines that minimum crewing is adequate to eliminate the risks.

Depending on the type, circumstances and conditions that your vessel operates under, there may be more than one appropriate crewing solution. That is, you might need more crew for certain operations, but when you are doing less complex work then you may be able to safely operate with fewer crew.

You should record the crewing assessment and outcomes in your vessel's SMS.

How will this affect my operation?

There is no need to re-apply for your certificate of operation (CoO). Your certificate remains in force (subject to the conditions in the new Marine Order 504) until it expires or, alternatively, is revoked or suspended.

In order to operate with the appropriate crew, some additional documentation may be required as part of your SMS. You can find the guidance material and templates on the AMSA website.

amsa.gov.au/vessels-operators/domestic-commercial-vessels/crewing-guidance-domestic-commercial-vessels



Crewing for success

Qualified crew: Tony Morris at All Coast Charters and Boats. Image credit Tony Morris.

The need for commercial maritime operators to stay profitable is often weighed against safety obligations like appropriate crewing, but owner-operator Tony Morris said cutting corners could cost more money than it saved.

Tony grew up close to the water in Southern Victoria, learning seafaring from a young age, before moving to Queensland in the late 1970s. He has spent his career working on a wide variety of vessels including tourist, cruise, charter and party boats as well as towing and workboats.

He has repeatedly seen how poor maintenance and poor crewing can contribute to emergency situations.

'Few skippers seem to know how to bowline or splice a rope and the old school seamanship seems to be lacking in some quarters these days,' he said.

'You really need to work out their skill level before you put them in charge of passengers and your vessel. Some may have qualifications, but still need a lot of on the job training before they become competent.'

'I've seen it happen over and over again—a company will offer lower wages that some skippers accept, but they don't have the skills to operate the boat properly in all conditions. They hit wharves, hole boats, damage equipment and ultimately it costs the operator more in repair work than it would have in wages to employ somebody who's proven themselves.'

Tony said emergency drills at some of his previous workplaces had revealed some crew were unsure how to don lifejackets properly.

'They know where they're kept and can put them over their heads but then get confused with the straps. I say "it will be up around your ears and you won't be able to swim if you put it on like that". I make them do it properly and lead the drills themselves. It's more effective than having the captain just tell them what to do.'

"If you combine poor maintenance with a low-skilled crew you have a recipe for disaster."

— Tony Morris.

Tony said he'd experienced flooding and fires in engine rooms caused by a poor maintenance culture which could have been cheaply avoided.

'If you combine poor maintenance with a low-skilled crew you have a recipe for disaster,' he said.

'Skippers and crew are not after flat-screen TVs or air conditioning—they just want good safe boats to operate so everybody goes home at the end of the day to their families.'

Tony said the value of a well-trained crew was important to safety outcomes.

'I worked on a party boat for 15 years that would regularly carry up to 300 passengers and we certainly had a large crew and security staff,' he said.

'Everybody except the bar staff had qualifications—even the cleaner was a coxswain. They knew every inch of the boat. The security staff all had their tickets in shipboard safety and first aid and firefighting.

'I was told I needed to send the bar staff to three-day training courses which would have cost at least \$1800 per head when wages, training, and staff replacement costs were factored in. I pushed back against it because the turnover of the bar staff was very high and we already had enough qualified people on board. It's a case of being practical and safe.'

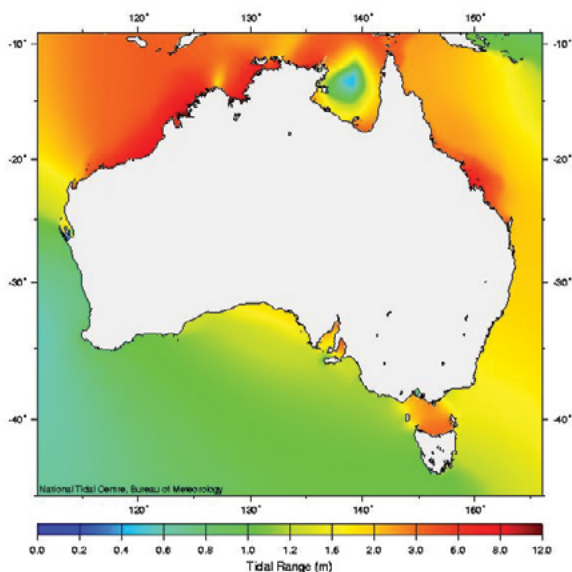
Tony said he previously used the Maritime Safety Queensland (MSQ) evaluation template to determine crew numbers but had since printed off the new AMSA evaluation tool and found it helpful and easy to use.



TIME & TIDE WAIT FOR NO MAN

A good working knowledge of the tides can help with the safe and efficient operation of your vessel.

Increased tidal range: image source: iStock.com/nightman1965



Tidal range map: average tidal range at spring tides around Australia. Image source: Bureau of Meteorology

‘On the other hand, the extremely low tides that accompany king tides can expose hazards and render river entrances inaccessible. The currents during the mid-tide (in between high and low tide) will also be the strongest of the year, posing danger to boats crossing river mouths, or to swimmers from rip currents.’

the topography of the sea floor, with waves undergoing reflection, refraction, rotation and changes of speed.’

Mr Mitchell said the tides were caused primarily by the gravitational pull of the moon and were more extreme during a new moon or full moon. These tides are known as ‘spring tides’ (as in ‘springing forth’) and they occurred every 15 days. Spring high tides will be a little higher than average and spring low tides a little lower than average.

National manager of the Bureau of Meteorology’s Tidal Unit Bill Mitchell said seafarers could access information online about the heights and times of tides for about 700 locations around Australia.

‘The timing and expected height of tides are very predictable although their actual height will depend on the local weather and wave conditions on the day,’ he said.

‘Boat operators should carefully consider the tidal range in their plans. Areas with a large tidal range look very different at high and low tide and the incoming tide can catch people unaware with deadly consequences. Tidal currents are typically stronger in areas of large tidal range or during periods of increased tidal range (spring tides).’

Mr Mitchell said tides could be especially dangerous for people engaging in coastal activities like rock fishing.

‘Water may cover rocks and other hazards that are usually visible, or make waterways underneath bridges or other pathways temporarily inaccessible.

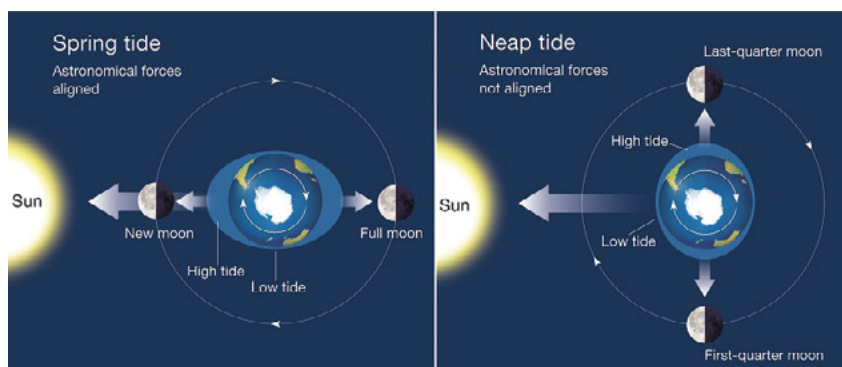
Mr Mitchell said the tidal range (the difference between the maximum and minimum water levels during a typical tidal cycle) varied dramatically around Australia’s coastline—averaging from less than a metre in southwest Australia to a whopping 11 metres in the northwest.

‘This variation is due to the response of the ocean to astronomical tidal forces, and the shape and depth of ocean basins, bays, and estuaries, which can have a funnelling effect,’ he said.

‘The spread of tides around the oceans can be thought of as many waves interacting with each other as well as

When the sun and moon are at right angles to each other (during a first- or last-quarter moon) the tides will be more moderate. These tides are called ‘neap’ tides and they occur seven days after a spring tide. Neap high tides will be a little lower than average and low tides a little higher than average.

There are other factors involved, including the sun’s gravitational pull, the moon’s declination (angular height above the equator), local geography and topography, and water depth. All of these factors combine to create a complex tidal system across the world’s oceans.



Spring tides: how tide is influenced by phases of the moon. Image source: Bureau of Meteorology

The Bureau of Meteorology’s tide portal, showing tide heights and times for around 700 locations, is available at: bom.gov.au/australia/tides



OIL *and* WATER

AMSA conducts annual oil spill response training exercises. Lauren Smit from AMSA HQ in Canberra joined those aboard the *Coral Knight* to experience it first hand. This is her report.

Clear waters whipped up by strong winds greet a group of men in high-vis and steel capped boots as they step onto the shores of Thursday Island.

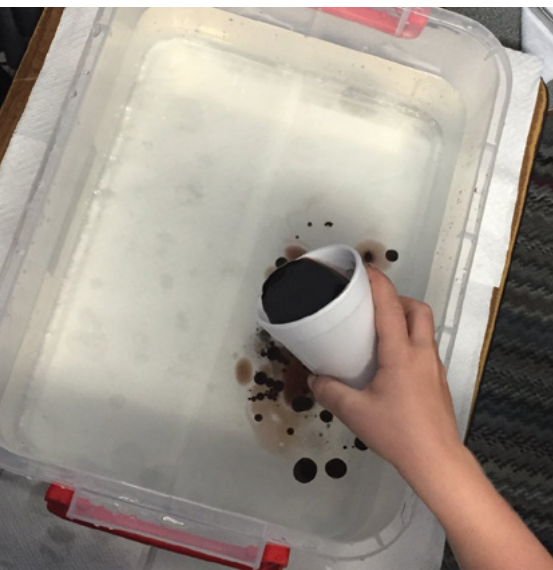
It's May and the weather is turning in the Torres Strait, a cluster of sparsely populated islands which bridge the gap between the tip of Australia and Papua New Guinea.

The participants are a friendly bunch. It's been a year since they've seen each other but you wouldn't know it. They shake hands, greeting each other by nicknames borne from tales which grow taller every year.

Bags and boxes of heavy gear, labelled 'oil-spill response' accompany them. An orange shipping container is heaved onto the grass at Anzac Park, a meeting place for the community.

The team are joined by local rangers, united for a common cause. They are preparing for a crisis they hope will never unfold—an oil spill from shipping.

The waters of the Torres Strait present many risks for ships. The channels are narrow, dotted with reefs and subject to powerful tidal forces. Conditions change quickly and a moment's inattention or inexperience can result in catastrophic outcomes.





Experienced oil spill responders: The National Response Team conduct annual oil spill exercises off the coast of Thursday Island. Image source: AMSA

From tug boats to barges to the 4000-odd ships which transit the region every year, the risk of grounding is very real for them all.

The National Response Team, led by the Australian Maritime Safety Authority, is made up of experienced oil spill responders from state and territory marine safety agencies. It conducts a major training exercise every year which simulates an oil spill.

The exercises are guided by the invaluable local knowledge of the rangers.

Hundreds of metres of inflatable boom, hooked up behind tug boats to corral and contain oil slicks on the surface of the ocean, can sometimes distract from the true heavy lifting which takes place during a real crisis. While these big boys' toys of the oil spill response world play an important

role, it's the people on the ground who do most of the heavy lifting.

It might seem old-fashioned, says AMSA's Manager of Crisis Preparedness and Response, Jamie Storrie, but shovelling oil off the beach by hand can be the most effective and least damaging means of removing the oil from the environment.

'Elbow grease goes a long way in an oil-spill response.'



Learn more at amsa.gov.au/marine-environment/marine-pollution/general-marine-pollution-reporting

Eye of the Needle

A century has passed since the last keeper signed off their nightly watch at Cape Wickham Lighthouse, which stands sentry over the treacherous waters around King Island in Bass Strait.

On 5 July 1918, Cape Wickham became the first of the large coastal lighthouses to be automated in Australia, marking the beginning of a new era of navigation driven by technology.

The perilous passage between Cape Otway on the southern tip of Victoria and King Island, known as the Eye of the Needle, claimed many lives.

In 1835, gale force winds drove the convict ship *Neva* onto Navarine Reef just north of King Island, killing all but 15 of the 239 passengers.

A decade later a British barque, the *Cataraqui*, was transporting 367 passengers and 41 crew when strong winds forced it onto jagged rocks southwest of King Island. Only nine people survived.

A lighthouse was built at Cape Otway in 1948 but the Eye of the Needle continued to claim lives, prompting calls for a second lighthouse.

Debate raged about the location, with opponents arguing that New Year Island, just west of King Island, was a better choice. However, on 1 November 1861, Cape Wickham Lighthouse was lit for the first time.

Unlike Cape Otway, Cape Wickham Lighthouse did not mark a safe passage for mariners. Instead, it warned of the dangers hidden beneath the white caps.



Cape Wickham Lighthouse King Island, 1887: Archibald Campbell

lighthouses.org.au

Cape Wessel

During a planned visit to the Cape Wessel lighthouse, auditors from AMSA and AMSA's maintenance service provider Australian Maritime Services Group (AMSG) found an osprey nest in the nesting platform located on the tower.

A young osprey was caught in some old fishing net used to build the nest. The helicopter pilot used a piece of wire to make a hook and pull the osprey aside and the team were able to cut the netting away. They then returned the bird to the nest.

Thankfully the sea hawk seemed in good health, apart from a few minor scars where the netting had been tight around its body.



Cape Wessel lighthouse:
A young osprey is freed.
Images source: AMSA

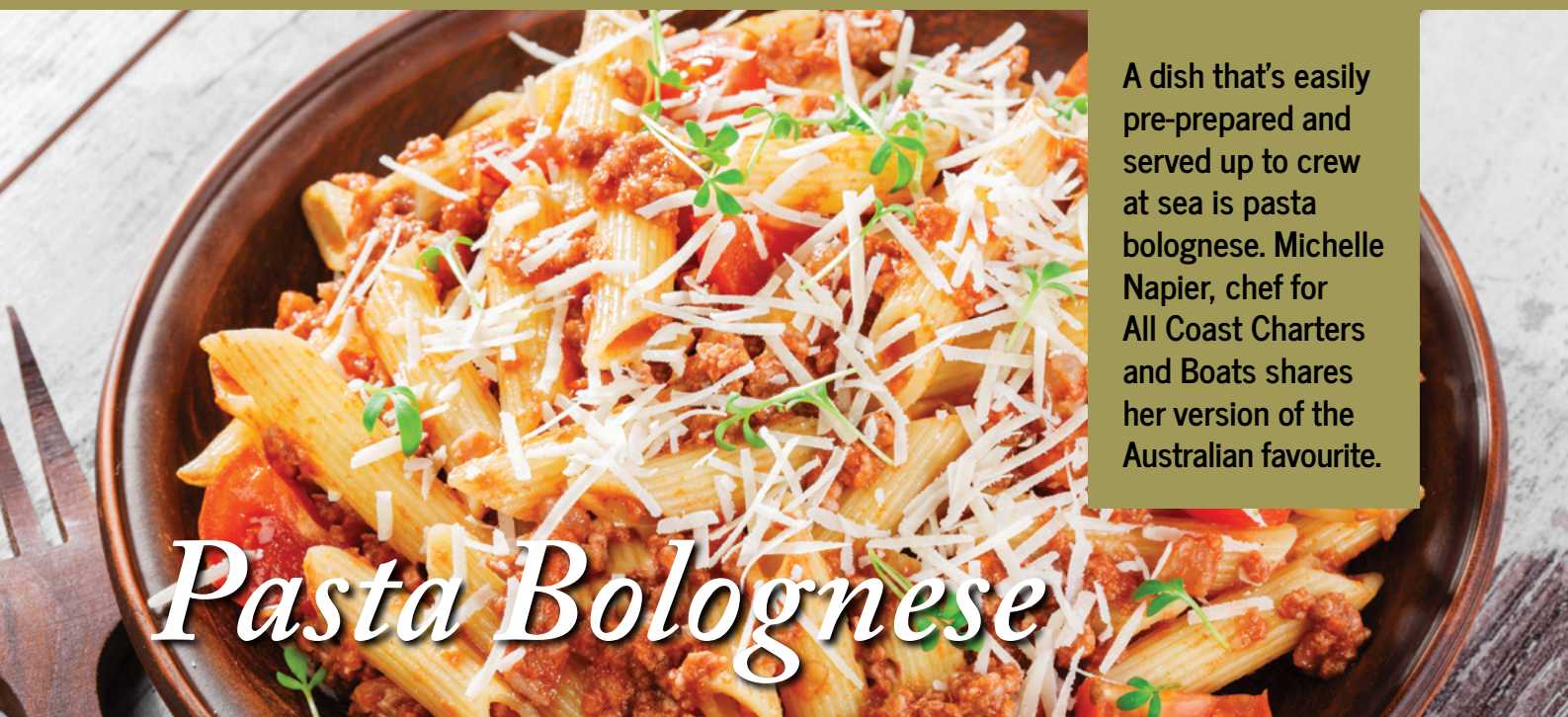


Community events

It is boat show season and we have been right in there with our team to answer questions about the new National System. AMSA had stands at Melbourne and Sydney international boat shows and the Hervey Bay Seafood Festival. Our team members answered lots of questions about float-free EPIRBs, certificates of competency and getting started in the commercial vessel industry.



The galley



A dish that's easily pre-prepared and served up to crew at sea is pasta bolognese. Michelle Napier, chef for All Coast Charters and Boats shares her version of the Australian favourite.

Pasta Bolognese

Serves 4

Preparation: 30 minutes

Cook: 20 minutes

Total: 50 minutes

Chef for All Coast Charters and Boats Pty Ltd, Michelle Napier, precooks and freezes meals for crew before they go out for extended periods. 'Calm seas can turn rough and you don't really want to have lots of pots on the stove. I precook all of the meals so they can be heated up on board,' she said.

Ingredients

- 3 tablespoons olive oil
- 1 large onion, finely chopped
- 1 garlic clove, minced
- 2 medium sized carrots, grated
- 1kg topside beef mince
- 125ml of water
- 500ml passata
- 250ml liquid chicken stock
- Pinch of salt and pepper
- 2 teaspoons of sugar
- 2 teaspoons of oregano
- 1 teaspoon Tuscan herb seasoning
- Half a cup of fresh basil
- Splash of red wine
- 1 cup of pasta

Instructions

1. Heat oil over medium to high heat. Add the onion, garlic and carrot and stir until the onion starts to brown.
2. Add the mince and water and stir for 7 minutes to break down the mince, separating it completely.
3. Add the passata, chicken stock, salt and pepper, and stir.
4. Add the sugar and stir until dissolved.
5. Add the oregano, Tuscan seasoning and basil and set to simmer for 45 minutes.
6. Add the red wine.
7. Boil the pasta until al dente and drain.
8. Add the pasta to the mince mixture, stir through.
9. Allow bolognese to cool. Place into containers and freeze.
10. Heat up while at sea and garnish with fresh parsley and parmesan cheese and serve with a cob of bread.



Eating a variety of fresh foods daily is important for your physical and mental wellbeing.



We'd love to know what fare you serve up from your galley. Please send your recipe, the story behind the recipe and pictures to engagement@amsa.gov.au



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Australian Maritime Safety Authority



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