



Australian Government

Australian Maritime Safety Authority

# WORKING BOATS

April 2019



## Working into the future

Safety, sustainability and environment

Search and rescue

Race against Tropical  
Cyclone Owen

Little Ferry Co

Going electric on  
Perth's Swan River

Timber Creek rangers

Protecting country and culture



Australian Government

Australian Maritime Safety Authority

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#### Front cover image

Preparing to dive

Image source: Pro Dive Lord Howe

Message  
from the CEO

## Message from the CEO

We should all care for the natural environment for its own sake, but for commercial masters and crew the sustainability of marine ecosystems is often also the key to making a living on the water.

Australia has pristine environments supporting marine tourism, from the Kimberley to Tasmania's wild coastlines. Our lakes and rivers host houseboats for hire and many other tourism businesses.

Fishing industries of course also depend on a strong and healthy marine environment. Many fishing vessels are family operations, which fishers plan to pass to their children. Family businesses like those really drive home the importance of protecting the environment for the next generation.

In this edition, you will find examples of working boats contributing to environmental sustainability. We feature electric vessels operating in Western Australia, Indigenous sea rangers working in the Northern Territory, and the impressive *Reef Ranger* vessel patrolling the Great Barrier Reef Marine Park.

Many people in our industry contribute to environmental health by supporting marine science, operating the vessels scientists need for their work. Late last year, I was very pleased to see AMSA contribute to marine science, not with a vessel but using our Challenger search and rescue jet. The crew combined a search and rescue training flight with monitoring of coral spawn off the Queensland coast. You can learn more about the incredible natural phenomenon of coral spawn in this edition as well.

Since my early career at sea, I've been astonished by how our awareness of environmental sustainability has advanced. Our marine environments still face existential threats, but with the awareness and the technology we're now seeing in environmental protection, I feel more optimistic about safeguarding our marine ecosystems and the businesses relying on them.

**Mick Kinley**

Chief Executive Officer



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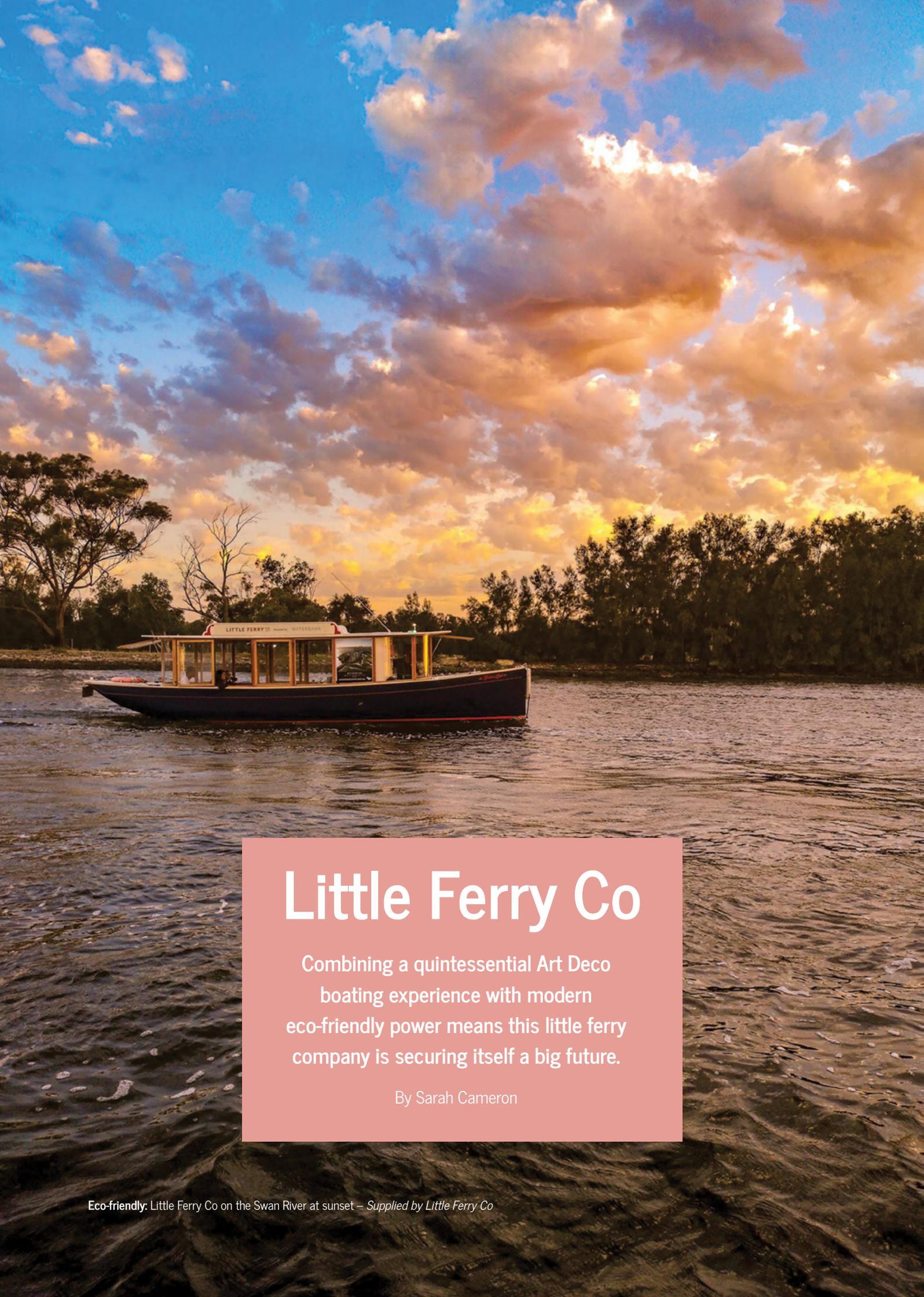


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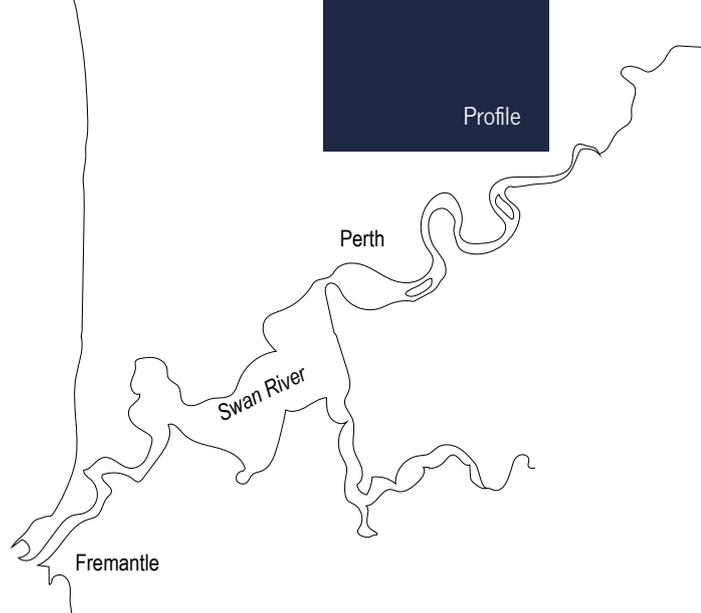
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# Little Ferry Co

Combining a quintessential Art Deco boating experience with modern eco-friendly power means this little ferry company is securing itself a big future.

By Sarah Cameron



Little Ferry Co has only been in operation since 2016 but it has quickly revealed a niche market for river transportation connecting inner-Perth cultural destinations along the Swan River.

Locals and tourists alike use the ferry service to visit historic Claisebrook Cove, the new Optus Stadium, On the Point entertainment precinct and Elizabeth Quay, as well as chartering the ferries for special events.

Little Ferry Co owner Kevyn Townley said the design of the vessels—which can each carry up to 11 passengers—is a homage to 1920s Art Deco design.

'They are an Edwardian tender boat style design and also reflect the style of the older ferries that used to transport passengers across the Swan River back in the late 1800s and early 1900s.

'Yet in contrast with the aesthetic leap back in time, each vessel has a state-of-the-art electric motor, allowing the vessels to slip silently through the water. Passengers can appreciate their surroundings without the noise and fumes of a diesel engine.

'About 35 per cent of our power comes from the solar panelling on the roof of each vessel and the balance comes through charging from the mains. We have a couple of banks of lithium-ion batteries on board which we recharge overnight,' Kevyn said.

'Solar-electric power is ideal for our operation—small vessels, short runs, and a small number of passengers.



*'Solar-electric power is ideal for the nature of our operation—small vessels, short runs, and a small number of passengers.'*

— Kevyn Townley

'And of course the other thing is nowadays we no longer want to be polluting our air and our water. A collective voice is increasingly saying "we don't want to do that anymore", Kevyn said.

'Once you start getting longer routes, you are carrying more passengers and you need to go faster than what we are doing, it gets challenging for solar-electric boats.'

Kevyn said it's pretty easy to get an electric vessel surveyed nowadays.

'It's really quite interesting how quickly technology progresses along. When we had the boats designed and put them

on the water three-and-a-half years ago it was pretty exciting in terms of the survey inspection regime and seeing how they would run.

'But even in three years, you now see so many more electric vessels and the survey process has become even more straight forward,' he said.

'Our vessels are in survey frequency category "low", so we do both an in-water and out-of-water survey every five years.'

'The moment you put paying passengers on board you introduce a measure of risk but our survey is confined to the river (sheltered waters).'

Kevyn said that at present there are only two ferry services running on the Swan River.

'One of the biggest cries from locals is "Why don't we have more ferries in Perth?";', he said.

'The geography of our river and our city doesn't lend itself to a busy ferry connect—the expanse of the river is quite wide and at present there's not a lot of commercial activity happening on the South Perth foreshore.

'But having said all that, there's enough development going on up river for us to seriously look at a larger vessel in the future.'

[littleferryco.com.au](http://littleferryco.com.au)

[@littleferryco](https://www.facebook.com/littleferryco)

[@littleferryco](https://twitter.com/littleferryco)

[#littleferryco](https://www.instagram.com/littleferryco)



Little Ferry Co skippers: Mark Loader (left) and Bob Larkman.

## Little Ferry Co crew staying connected

The crew at Little Ferry Co use a closed Facebook community—by invite only—to keep each other abreast of safety hazards, information and new ideas. We spoke to skippers Mark Loader and Bob Larkman for details.

By Sarah Cameron

This method of keeping everyone in the loop is dependent on mobile phone coverage, but this isn't an issue for the skippers of Little Ferry Co, which operates well within the metropolitan area of Perth. The two skippers explained that this novel way of communicating is so effective because each skipper has to like new posts to show that they have seen them, ensuring that everyone gets across new information being communicated.

'If one of us post on our Facebook community page it's there for reference, so you can scroll back and find past information—it's fantastic,' Bob said.

The skippers said they use their Facebook community page to share a range of things, from safety hazards, to weather warnings and changes to depth and navigational markers.

'Any navigational warnings, temporary notices for mariners—skippers don't tend to go and read those—we put all that information on our Facebook community page and everyone acknowledges it,' Mark said.

'Anything new that comes up we just go on Facebook and say "Hey guys, there's a marker a bit further out than it was because of the boat show", or "It's very shallow at Claisebrooke Cove, so you need to go slow".'

'Also, when the bridge and river closed because of the building of the Matagarup Bridge—linking the Optus stadium to East Perth—we posted the procedures for radioing the Matagarup Bridge pilot when we passed through,' Mark said.

Bob added that they check the weather, tide and wind each day and log a record on the Facebook community page so skippers know what the conditions are going to be for the journeys.

They also use the community page to brainstorm procedures to address safety issues.

'An example is coming up with a new procedure via our community page of calling other nearby vessels using VHF radio to let them know we are passing by,' Bob said.

'The electric motors in our ferries are silent and other operators don't hear us coming, so calling nearby operators reduces the risk of other vessels backing into us at the quay for example,' he said.

The skippers also use the page to update themselves about the information they provide to passengers.

'We thought the Causeway bridge was built in 1846 but we realised it was actually built in 1843 so we put that on the Facebook community page.'



**NATIONAL  
MARITIME  
SYSTEM**

# Implementing our national system

**Nine months in we are starting to see the benefits of a single Australia-wide system.**

Australia's National System for Domestic Commercial Vessels brings together seven sets of rules into a single regulatory function with nationally-agreed standards. Applications once processed through seven maritime safety agencies are now managed by one regulator—the Australian Maritime Safety Authority.

Bringing about this change was not without its challenges. Seven sets of existing certificate records and vessel data had to be combined into a single system, while new applications and operational questions kept coming in the door.

AMSA is the first to say this process of adjustment was not all smooth sailing.

The patience and willingness of our stakeholders was a huge factor in getting through this period and we thank everyone who participated in user-testing or took the time to let us know when they weren't getting the service they expected. Feedback is essential for us to improve our services and systems design so please keep it coming.

## Coming up

With any new service comes new ways of working and new systems and processes to navigate. We have a dedicated improvement project underway to cast a critical eye over the way we do things internally and target ways we can improve.

Over the coming months, our focus will continue to be on safety awareness and education. A number of campaigns are in the pipeline, including safety management system workshops with a focus on fishing vessels and their operations. We are also working on campaigns to improve safety practices in high-risk industries.

## **SNAPSHOT: 1 July 2018 to 31 March 2019**

### **Certificates of operation issued**

New certificates and renewals	2583
Variation of certificates	203
Unique vessel identifiers	276
Exemptions	962

### **Certificates of survey issued**

New certificates	310
Renewals	864
Variation of certificates	378
Exemption 02 and Exemption 40	626

### **Certificates of competency issued**

New certificates	2547
Revalidations	3683
Variation of certificates	159
Equivalent certificates	102
Examinations	253

### **amsa.gov.au**

Over 360,000 page visits each month. Other than our homepage, the top five most visited pages are:

- \* Domestic qualifications
- \* Qualifications and training
- \* Vessels and operators
- \* Certificate of competency application
- \* Find a form.

### **AMSA Connect**

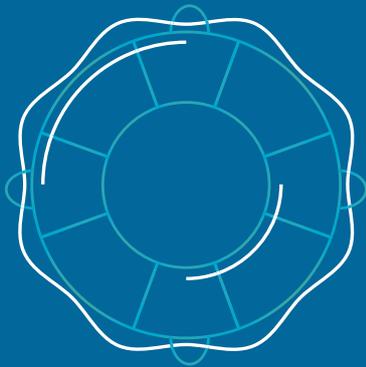
- \* 156,951 calls (approximately 50% of these related to domestic commercial vessels)
- \* Calls answered in around 21 seconds
- \* Call duration approx. 6:20 minutes.

Look out for more details at [amsa.gov.au](http://amsa.gov.au)



Australian Government  
Australian Maritime Safety Authority

# Report maritime incidents directly to AMSA in two simple steps



## 1. Submit an incident alert – as soon as practicable\*

This lets us know a serious event has occurred.

Form 18 – Incident alert, or by other means

Serious marine incidents include:

- death or serious injury to a person
- loss of a person overboard
- loss of, or significant damage to, a vessel.

\* You must submit an alert within 4 hours, then follow this up with an incident report within 72 hours

## 2. Submit an incident report – within 72 hours

This gives us detailed information about the incident and mitigation measures.

Form 19 – Incident report

Other types of marine incidents you need to report:

- fire
- loss of stability
- fouling of a vessel
- a close quarters situation
- any event that could impact the safety of a vessel, those on board or nearby.

Submit forms via [amsa.gov.au](https://amsa.gov.au) or email completed forms to [reports@amsa.gov.au](mailto:reports@amsa.gov.au)



Call AMSA CONNECT **1800 627 484**



Visit [amsa.gov.au/incident-reporting](https://amsa.gov.au/incident-reporting)



## AMSA does its bit for coral spawning

By David Sexton

Originally published in *Daily Cargo News*

Image source: iStock.com/konwarawat janhom

Oceanographers from the Australian Institute of Marine Science (AIMS) teamed up with AMSA last November to track coral spawn slicks on the Great Barrier Reef.

The Cairns-based AMSA Challenger jet aircraft was used to deploy self-locating datum marker buoys with satellite-tracking technology into the sea near Darley Reef off Townsville and Hope Reef off Bowen, to help track the movement of coral spawn slicks.

AMSA Principal Advisor Aviation Assets Mike Wytcherley said they took the opportunity to combine the tracking buoy drop with marine research during a recent audit flight.

'We typically use the satellite buoys to calculate surface drift and validate search areas in search and rescue operations,' he said.

'The real-time GPS feeds from the buoys give us vital information and are an effective tool in determining where we search for people and vessels missing at sea.'

AIMS oceanographer Craig Steinberg said the real-time information from the buoys revealed that the slicks had floated 52 kilometres in five days.

Mr Steinberg said the on-water observations found small slicks could form and move quickly across the reef, or dissipate if the wind created whitecaps.

'We want to better understand the connectivity of reefs so we know how they can be protected,' he said.

'To do this we observed surface currents using these satellite buoys in order to gather this information, which is quite rare.'

*'We want to better understand the connectivity of reefs so we know how they can be protected.'*

— Craig Steinberg

While AMSA undertook the deployment from the air, AIMS marine biologist Dr Andrew Heyward was on the water, watching close-up.

Dr Heyward said most coral species released buoyant egg and sperm bundles after dark, in the spectacular annual spawning event that typically occurs four to six nights in November, after the full moon.

Dr Heyward said floating spawn slicks could contain several million coral larvae per square metre.



# *Adelaide River Cruises*

In the heart of the Northern Territory, home to some of the world's most deadly creatures, wildlife tourism operators need to pay close attention to how they manage safety. We talk to Morgan Bowman about the unique challenges of operating Adelaide River Cruises.

By Peter Strachan

Adventure awaits: aerial view of the Adelaide River which extends for 180 kilometres – *Image source: iStock.com/JanelleLugge*

*'Timely maintenance is a vital part of our business plan. You do not want unexpected failures of equipment in any undertaking, but especially not when you are dealing with holidaymakers in an unfamiliar and potentially hostile environment.'*

— Morgan Bowman

Jumping-crocodile tours are cutting-edge wildlife tourism, which call for operators who have plenty of local knowledge, a keen eye for safety issues and a desire to care for the pristine environment.

Brothers, Morgan and Harry Bowman and their wives Karen and Maxine spend six months of each year showing about 15,000 tourists the grandeur and power of magnificent, ancient reptiles on the river, one hour east of Darwin.

'We rigidly enforce the AMSA rules on safety and ensure our customers are fully briefed before any cruise—everything from the location of life jackets to the importance of not leaning out from the boat,' Morgan said.

'The drive controls are at the back of our boats. This ensures we can always see what our passengers are doing and allows us to move quickly against any risky behaviour.'

Maintenance is carried out whenever it is needed as well as at regular prescribed intervals.

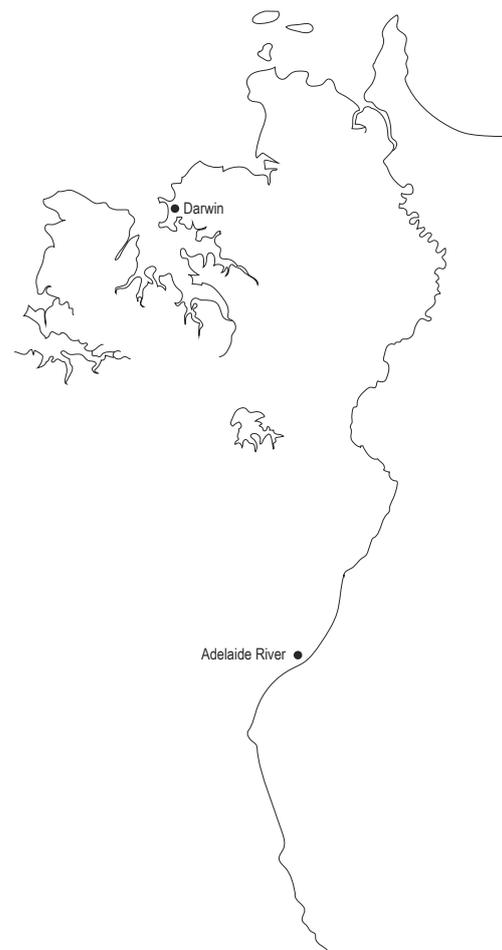
'Fortunately, we are only an hour from Darwin so getting expert help quickly and at reasonable cost is not a great problem for us,' Morgan said.

'Timely maintenance is a vital part of our business plan. You do not want unexpected failures of equipment in any undertaking, but especially not when you are dealing with holidaymakers in an unfamiliar and potentially hostile environment.'

Mr Bowman said the partners put a lot of time into building their personal knowledge of the river, its wildlife and their surrounds.

'We know our crocodiles, starting with the internationally recognised 'Brutus',' he said.

'We study their habits and characteristics, to help us understand the way they are likely to react to our customers and us.



This all allows us to give clients a very personal and informed experience, which in turn helps ensure our sustainability.'

The cruises operate at peak periods from May to August and to a slightly lesser extent in September. The cruises are suspended during the wet season.

'We operate a 6-metre and a 10-metre boat and can take up to 50 passengers using both. We find this gives us great flexibility while giving our customers the safe but up-close experience they want,' Morgan said.

'Patronage is increasing and is mainly from people who live in Australia and often from those travelling around the country, but we do get some from Europe and smaller numbers from Asia.'

[adelaiderivercruises.com.au](http://adelaiderivercruises.com.au)



# Pro Dive

## *Lord Howe Island*

Diving the crystal-clear waters off Lord Howe Island  
is rather like getting a rare glimpse of paradise.

By Peter Strachan

From underwater caves to the world's tallest sea stack, 500 species of fish and a wide range of corals, these waters have it all. But it's not for the inexperienced to tackle alone.

Seeing all this magnificent part of the South Pacific has to offer and making it back safely, calls for expert professional support and extensive local knowledge.

Aaron Ralph, owner-operator of Pro Dive Lord Howe Island and his team have been diving these waters for 10 years. They know the importance of maintaining a professional and safe operation.

'We cater for 2000 dive enthusiasts each season and our task is to ensure they see it in safety and enjoy the experience,' Aaron said.

'The combination of safety and enjoyment is at the core of our business model and we have become renowned in the industry for it.'

Lord Howe—a two-hour flight from Brisbane or Sydney—is home to the world's most southerly barrier reef and is fed by temperate and tropical currents. This allows both tropical and temperate species of fish and corals to co-exist.

One of its leading attractions is Balls Pyramid, an impressive sea stack towering more than 560 metres above the ocean and looking like something out of a fantasy movie.

'The pyramid is a separate volcano from Lord Howe Island and an oceanic trench about 600 metres deep separates the two—it's an absolute

must for dive enthusiasts,' Aaron said.

'The pyramid is the only place known in the world where divers can see the Ballina Angelfish at SCUBA depths.

'Couple this with huge coral reef trees, steep drop offs, remarkable quantities of fish from myriad species, massive boulders, caves, swim-throughs and more crayfish than you could poke a stick at. It's not hard to see why year-on-year more people come here to see it for themselves,' he said.



Getting in on the action: Filming a dive – Supplied by Pro Dive Lord Howe

During summer, the warm tropical waters from the East Australian Current dominate the ocean around the island and the pyramid. This brings in oceanic wanderers, including giant manta rays and great hammerhead and whale sharks. The blue water also attracts wahoo and yellowfin tuna, among others.

Living and working in and around this island paradise also brings challenges and responsibilities for the dive team.

'Having limited access to materials and services is the most challenging aspect of living and working here,' Aaron said.

'The potential cost of unplanned failures means preventative maintenance is vital to both safety and viability of our business,' he said.

'As operators, we make sure we have spares on hand at all times and for all contingencies. This has developed a culture of preventative maintenance and 'safety first' in our team,' he said.

'If there was a major mechanical failure on our vessel, the turnaround time would be increased considerably by the tyranny of distance. It could take us a month to get an engine landed on the island if we had to change one over.

'Add to that the additional costs of freight, and flying a mechanic out to do the work and our costs could be 30 per cent higher than on the mainland.'

Accessing national system services also provides challenges for business on the island.

'Online access has only become readily available to all of us here in the last two to three years,' Aaron said.

'We need to pick up a land phone to get assistance, as there is still no mobile phone reception on the island.'

'This means we need to plan time during work hours to make a phone call when we are not on the water, which can prove difficult.'

The island has its own networks to call on for help in the event of an emergency. It operates on the working frequency of VHF 12. All operators scan both 12 and 16 and the island police and port operations staff relay important messages if there are transmission problems.

*Continued overleaf*

Continued from page 10

'Police and port operations are our official representatives, although we also have our unofficial volunteers working under the banner of Lord Howe Island Maritime,' Aaron said.

'All commercial operators have volunteered to take part in a vessel monitoring system inside the marine park. This system lets anybody log into the database and see in real time where vessels are and estimate their time of return.

'It's a fantastic back-up when the VHF or satellite phones aboard vessels are not working as well as we would like. The NSW Department of Primary Industries has spearheaded this program and there is a plan to bring in text messaging through the system—but it is not yet available on our system on Lord Howe.'

The peak season for Pro Dive is from November to April, with the busiest time from mid-December to mid-January. SCUBA diving is an activity for fit and healthy people eight years and over, but snorkeling, kayaking, stand-up paddle boarding are suitable for all age groups.

Aaron said most of Pro Dive's guests are Australian, with baby boomers and Generation Y heading the list and many are repeat visits.

'This is a beautiful island and people rarely leave disappointed,' he said.

[prodivelordhoweisland.com.au](http://prodivelordhoweisland.com.au)

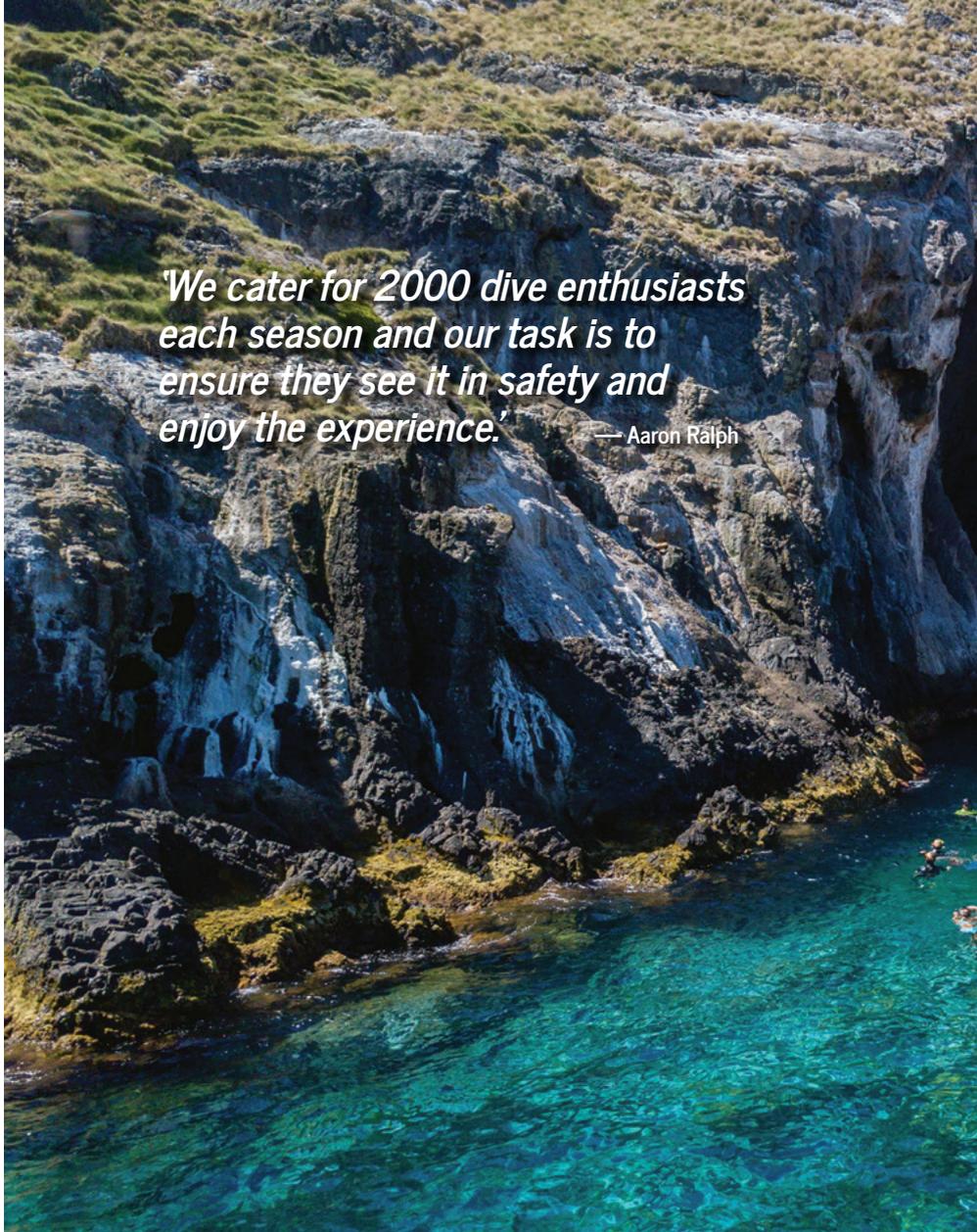
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*'We cater for 2000 dive enthusiasts each season and our task is to ensure they see it in safety and enjoy the experience.'*

— Aaron Ralph



Tourism: Snorkelling around the Admiralty Islands – Supplied by Pro Dive Lord Howe



Scenic route: Balls Pyramid, Lord Howe Island – Supplied by Pro Dive Lord Howe



Liaison: local operators from Lord Howe Island attend an information night – Supplied by AMSA

## Safety management

'While our support systems are pretty good we must always remain vigilant and realise we operate in a remote location with minimal rescue or medical services. Prevention is far better than even the most effective remedy,' Aaron said.

Remoteness makes safety management systems even more important in daily operations at Pro Dive than they might be in more supported areas.

'We obviously follow the general procedure stipulated by AMSA when it comes to the format and implementation of our safety management system,' Aaron said.

'Our safety briefings are specific and to the point. All passengers who board our vessel are taken through the safety equipment and shown what to do in the event of an emergency,' he said.

Passengers are logged on the vessel as a record of their journey. The log is then used as the divers' log when checking divers in and out of the water. Crew are inducted in the operation of the vessel and their role and the skipper's expectations of them as crew members. This training is recorded and filed for reference.

'All maintenance and issues are logged in the vessel logs and any incidents are recorded as incident reports filed on a computer in case they are required for future reference,' Aaron said.

'Record keeping is vitally important, as consistency is paramount when dealing with customers in a potentially hazardous environment.'

# Fishing for danger

Some of Australia's most prized fishing waters are also some of its most dangerous due to the life-threatening species inhabiting them. Operators need to prepare for the possibility of pulling up more than they bargained for.

By Peter Strachan



**Venomous:** sea snakes in a plastic lug – *Supplied by NPF Industry*

Animals from highly venomous sea snakes, jellyfish and stonefish, to sharks and crocodiles, co-exist with sought-after shellfish and other marketable treasures.

After a fatal accident in the pristine Northern Prawn Fishery waters last year NT Worksafe issued a safety alert in an effort to raise awareness of the dangers and to encourage greater use of personal protection among operators and crews.

The authority says operators working in areas shared by dangerous animals should clearly address the hazards in their safety management systems, to minimise risk of serious injury or death.

The alert details the tragic incident of a worker aboard a prawn trawler, which was operating in the Gulf of Carpentaria in October last year. The 23-year-old man died after he was bitten on the hand by a poisonous sea snake while folding emptied trawl nets—the snake was caught in the nets.

A co-worker picked up the snake and threw it overboard and the bitten worker said he was fine—which

resulted in a short delay before the crew immobilised him. First aid was applied and an emergency evacuation requested, but sadly the young man died later that day.

NT Worksafe warns sea snakes are a common hazard for commercial fishers. Many species inhabit this fishery area, stretching for 6000 kilometres along Australia's northern coastline. They are all highly venomous and should be handled with extreme caution.

The worker was not wearing any personal protective equipment to shield himself against potential sea snake bites or stings from other marine creatures and the trawler's safety management system did not include appropriate procedures to manage the risk of either bites or stings.

The alert says initial findings indicated a level of complacency towards the dangers of sea snakes in the fishing and aquaculture industry.

'Workers routinely handle sea snakes without personal protective equipment to throw the snakes back overboard,' it says.

'A contributing factor may have been the mistaken belief that sea snake fangs are at the back of the mouth or in the throat, resulting in only bites without venom.'

NT Worksafe advised all nets should be visually inspected for venomous or toxic marine creatures before they are handled. Puncture resistant gloves should be used to offset risks and all sea snake bites should be treated as medical emergencies—immobilise, splint, call for medical help and arrange evacuation.

They also called for owners and operators to review their safety systems to ensure they adequately cover sea snake bites and marine stings and inform new recruits about the dangers and proper handling during induction processes.

'Ensure there are snake hooks or grabbers and never handle sea snakes by hand,' it said.

Read the NT Worksafe safety alert *Managing the Risk of Sea Snake Bites* on the Fishing & Aquaculture Industry website at [worksafe.nt.gov.au/Safety-Alerts/default.aspx](http://worksafe.nt.gov.au/Safety-Alerts/default.aspx)

# Timber Creek rangers

Timber Creek rangers undertake land management throughout the Victoria River District in the Northern Territory. Now, after successfully attaining their Coxswain Grade 2 (Certificate 1 in Maritime Operations), new opportunities are benefiting the environment and the local community. By Peter Strachan

Coxswain training was provided by registered training organisations on-site in Timber Creek and on the Victoria River.

'We selected the best qualified trainers in the skills we wanted our rangers to have and got them to come out to show them how to do everything safely in the areas where they would be working,' said Timber Creek Ranger Coordinator Newton Hobbs.

'The result is a well-trained crew carrying out important functions in an area that is of great personal importance to us.'

'Protecting country and culture is so important,' said Timber Creek ranger Floyd Rogers. 'This is our home and country and we now have skills that we can use to better protect our country for the next generation.'

Thanks to their hard work, the Timber Creek rangers have now acquired a powerboat.

'The purchase of the vessel, *Green Hornet*, has opened up a lot of opportunities, including a five-year partnership with CSIRO, which has brought new knowledge and skills,' Newton said.

'It means Timber Creek and the surrounding community share in the benefits of conservation and land management, including fire management, survey and control of feral animals and invasive weeds—and now monitoring of threatened species in the local river systems.'

Timber Creek rangers have been involved in an important monitoring program on the Victoria River, working alongside CSIRO to record population estimates of endangered sawfish and sharks.

'The rangers experienced their first trip on the river last August and they loved it. It allowed them to see and experience things they never have before,' Newton said.

The crew is just one of the Northern Land Council's ranger groups operating across more than 200,000 square kilometres of country in the Top End.

'We are proud of our ranger teams. They all play vital roles in our vision to have the land and sea rights of traditional owners and affected Aboriginal people in the Top End recognised,' said Caring for Country Manager, Matt Salmon.

'We want to ensure they benefit socially, culturally and economically from the secure possession of the land, waters and seas,' he said.

With the continual support of the Caring for Country branch, the Northern Land Council Rangers have built and developed partnerships with external funding agencies in the Territory and Federal Government departments, research bodies and other organisations.

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Read more about the ranger groups operating across the Northern Territory. [nlc.org.au/our-land-sea/caring-for-country/ranger-program](http://nlc.org.au/our-land-sea/caring-for-country/ranger-program)



Timber Creek rangers: Floyd Rogers (left), Richard Pillans and Aron Harrison hold sawfish on the Victoria River – Supplied by the Northern Land Council



Regular maintenance system: workers unload the fishing nets – Supplied by Australian Wildcatch Fishing; Charlie Grech in one of his Blue Riviera boats – Supplied by AMSA.

# Making maintenance work for you

**Maintenance systems are essential to the safety of a vessel and its operations and make good business sense.** By Brad Roberts and Sarah Cameron

Reducing the risk of expensive breakdowns or accidents increases productivity by limiting costly downtime.

Operators must include a process for managing the maintenance of their vessels within their safety management system. However, operators can adapt their maintenance system to suit their type of operation.

Two operators from Victoria's Lakes Entrance region talked to us about how they make their maintenance systems work for them.

**David Guillot**  
Co-owner, Australian Wildcatch Fishing

Australian Wildcatch Fishing is a multi-species fishery. They own four vessels—two under 20 metres, each crewed by three people, and two larger deep-sea trawlers crewed 24/7

by a rotating crew of five. They fish predominantly for blue grenadier, rock ling, flathead, orange roughy and trevally.

David explained they have a system where they log each vessel's scheduled and non-scheduled maintenance.

They encourage their crewmembers to log every single unscheduled maintenance issue that crops up, no matter how big or small.

'Maintenance jobs all go into one database that you can go into and create reports on a regular basis. Our admin officer makes sure she gets the information from our staff to present to my brother—who co-owns the business with me—and myself.'

'Whether I'm at home or at sea, I watch the lists in the database. I can see what's getting done and when. For example, I might check in on the

database and see the engineers have fixed that refrigeration problem—that's good.

'We keep those records in Excel—it's that simple. We can look back as far as five years to see when we last worked on the rudder, for example. That's one side of maintenance.'

David explained the other side of maintenance is having good systems and procedures in place to be proactive about maintenance.

'You've got your scheduled maintenance, your big things like your docking and your vessel surveys. They are in the schedule religiously and you can see those coming up,' he said.

'We also have a weekly checklist. If you work for me as a master, you need to tick the boxes. When the masters send in the checklist on a weekly basis,



## Make good maintenance your business

Smart maintenance practices can save time and money and they might even save your life one day. Many maintenance problems can go undetected until things go really wrong.

Taking shortcuts on basic maintenance can seriously risk the safe operation of your vessel and the people on it. Good maintenance practices include:

- never skipping scheduled maintenance
- replacing and/or fixing out-of-date or missing equipment
- making sure modifications to machinery and equipment are suitable
- making sure machinery and equipment is installed properly.

Attempting emergency repairs at sea can be particularly risky with time constraints, bad weather, vessel movement, limited tools and technical skills all making for a messy set of circumstances.

**Don't put your safety, business operation, or productivity at risk—good maintenance makes good business sense.**

*'People's lives come first—if the boat isn't right, it doesn't go out.'* — Charlie Grech

the staff in the office then compile the information from everyone's spreadsheets together to get an overview of what's going on and where my problem areas are.'

'We send the report to every Master to show them what has happened for that quarter. It helps them see where they can improve and it shows us where we need to focus on training.'

'Then there are processes for engineers to follow, like pre-sailing checklists,' he added.

'These are particularly about the general navigation of the vessel—your steering gear, because it tends to be locked away in a back hatch that nobody's looking at, the engine controls, life rafts, life rings, engines, greasing of things that need to be greased weekly, and anchor winches.'

'When some kinds of mistakes are made, they cost me hours of admin time, so this system really works by helping us address potential issues before they get costly.'

[australianwildcatchfishing.com](http://australianwildcatchfishing.com)

**Charlie Grech**  
Co-owner, Blue Riviera Boat Hire

Charlie and his wife Teresa own nine half-cab vessels and one barbeque boat, which they rent out in their hire-and-drive operation.

Charlie explained that even though they are tough little boats with new motors, they pull them out of the water to be checked each year.

'If you keep your vessels maintained you know they are okay and the passengers will have a good experience. People's

lives come first—if the boat isn't right, it doesn't go out,' he said.

'When we pull the boats out of the water we check and clean the hulls. If repairs are needed, my son—who is a boat builder—does the work.'

Each of the vessels at Blue Riviera Boat Hire undergoes servicing every 50 hours.

'Each boat has an hour meter. When we check the oil and the motors, we also check the meter to see exactly when the service is due.'

'I'm a diesel mechanic by trade but I take the boats to the local outboard motor dealer to be serviced. Each motor comes with a service book that is stamped when the motor is serviced, which serves as our record.'

[f @bluerivierahireboats](https://www.facebook.com/bluerivierahireboats)



# Tug safety

Heavy, with deep keels and extremely large propellers, tugboats are perfect for the grunt work of pushing and pulling large vessels and barges. What you may not know is that their particular purpose carries a precise set of risks. By Sarah Cameron

Neil Hall, Regional Safety, Health, Environment and Quality Manager at Smit Lamnalco, talked to us about the top three risks that come with this kind of work and how Smit Lamnalco's efforts to control them touch on vessel maintenance, operational procedures and training.

## Risk 1: Vessel interactions

At Smit Lamnalco where there are normally two or three tugs working in close proximity, the biggest risk associated with harbour towage operations is interaction between the tugs and the vessels they are moving.

Neil explained this risk is best managed through development of the crew's skill and competency.

'We developed our own in-house tug masters training program, which was rolled out last year.'

'We have a number of senior training masters that visit each location where Smit Lamnalco operate. Their role is to train, assess and develop our

tug masters in all aspects of towage operations. This training encompasses newly hired masters right through to our senior training masters.'

As part of the training program, all masters, including the senior training masters, receive two training events per year. These are a mixture of theory and practical where they are trained and checked. The company has set the program up very similar to an airline check-and-train system.

He said masters completing the training were highly engaged.

'The sessions are normally one-on-one. It's not about telling them what they are doing wrong, it's about identifying their areas for improvement,' he said.

'Sometimes we can be talking very fine points, but when you've got 60 to 80 tonne pulling on a towline those fractions of seconds can really count. It's important our masters are continually trained.'

Neil added that crew ownership is extremely important.

'The crew are highly skilled and

extremely knowledgeable on how towage operations run on a daily basis—they own the procedures.

'At any time, crew can request a change to a procedure by using the Smit Lamnalco change management process. We have had a number of procedural recommendations from local crew which have resulted in changes to operational procedures being adopted by Smit Lamnalco operations worldwide.'

## Risk 2: Towline breakages

Towline breakage is another risk Smit Lamnalco assesses continually and mitigates through a strict regime of towline inspections and testing.

'Our towlines are the heart and soul of our operation—we really take care of them. We maintain very tight controls over their condition, how long they have been used, how many tows have been performed and, maintaining a replacement regime,' Neil described.

'We maintain a towline register which records all of the line details. This detail includes purchase date and supplier,

*'The planned maintenance system is constantly reviewed to ensure all maintenance and safety matters are current.'*

— Neil Hall

line specification, certification details, number and type of tow performed, non-destructive testing and estimated disposal date.'

'We don't use towlines to destruction, we remove them from service before we reach that point. Obviously, we never want to break a towline—the result could be disastrous.'

### **Risk 3: Mechanical failure**

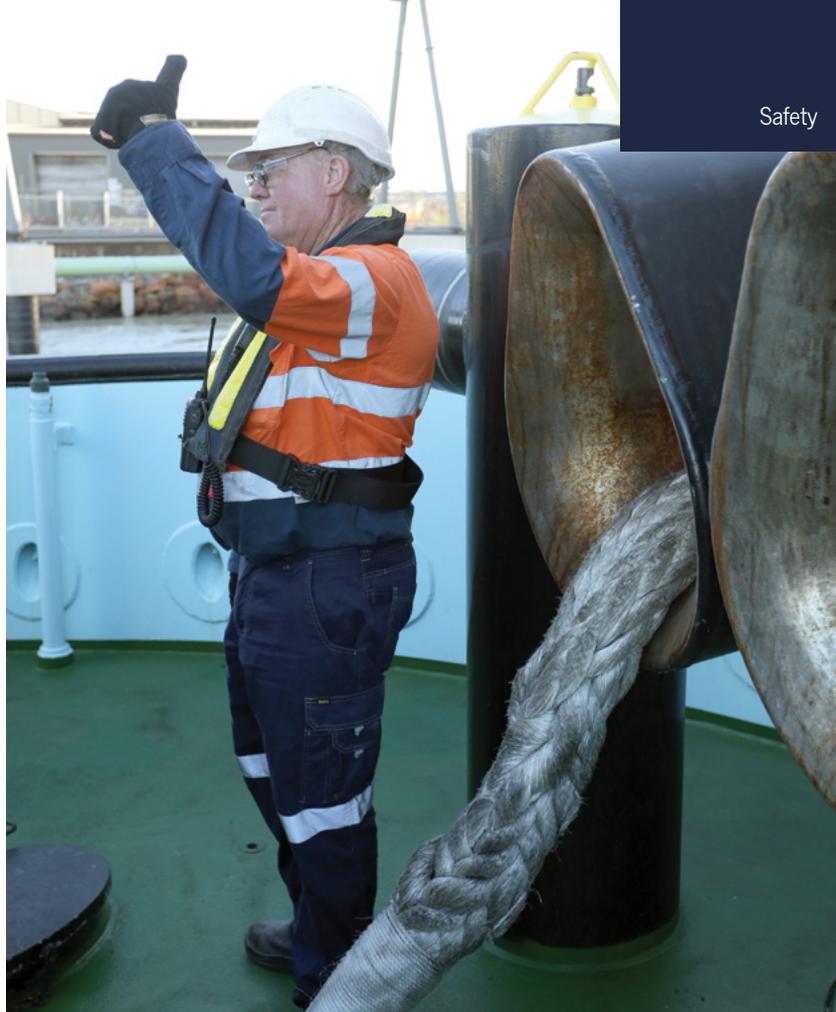
The maintenance of Smit Lamnalco towage vessels is critical to their business. Their customers require tugs to be available 24 hours a day and in top mechanical condition.

'Smit Lamnalco runs a comprehensive planned maintenance system which highlights daily, weekly and monthly tasks that are completed onboard,' Neil revealed.

'The system also monitors the status of compliance items such as firefighting systems, lifesaving appliances and regulatory certificates.'

'The planned maintenance system is constantly reviewed to ensure all maintenance and safety matters are current.'

[smitlamnalco.com](http://smitlamnalco.com)



**Working together:** (clockwise) Townsville tugs in action; crew giving the all clear; towline connecting the tug to the ship – *Supplied by Smit Lamnalco*

## Close calls

Neil explained that over the last few months there had been a number of near misses where vessels had accidentally dropped the towlines onto the tugs. Luckily, the tug crews were clear of the area when this occurred and no one was injured.

'The master always advises the pilot onboard when a situation like this occurs, and will also submit an incident report so the matter can be investigated in an effort to prevent near misses such as these from occurring again.'

'Our contract manager is the vital link between the tugs and the clients, they will communicate the findings of the investigation so all parties are aware of the outcomes.'

## Pacific Wind Cruises—an accessible charter

Being out on the water can be a therapeutic experience for trauma sufferers, boosting their overall well-being. Michael Brown's accessible fishing charter does just that, but upkeep of the specially designed vessel relies on support from the wider community. By Sarah Cameron

Michael's non-for-profit fishing charter is open for business—to everyone. The boat Michael designed is a therapeutic haven for those with a disability and wheelchair-accessibility needs.

'The boat is 100 per cent wheelchair friendly and has an elevator for wheelies to reach the top deck as well as toilet— and shower-modified facilities, and a 100 per cent wheelchair-friendly kitchen,' Michael said.

Michael achieved his goal of operating an accessible charter-boat business through driving ambition. He himself a quadriplegic, knows firsthand the challenges of accessing things as simple as being able to jump on a boat to go fishing when you are in a wheelchair.

'I wanted others to be able to experience the relaxation of fishing and being out on the water,' he said.

But the continuation of this non-for-profit venture needs financial support.

'We are fundraising for new outboards and maintenance equipment to allow this service to continue to change the lives of countless trauma sufferers,' Michael said.

'Any support is greatly appreciated.'

If it wasn't for the uniqueness of Pacific Wind's design and Michael's vision to make this possible, wheelchair bound and physically challenged patrons would not have a chance to enjoy such an experience.

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[wheelchairfriendlycharters.com](http://wheelchairfriendlycharters.com)



## 2019 Australian Search and Rescue Awards NOMINATE NOW!



The National Search and Rescue Council is pleased to announce nominations are open for the 2019 Australian Search and Rescue Awards.

These prestigious awards are in recognition of 'Outstanding contribution to Search and Rescue' within the Australian region during the period 1 July 2018 – 30 June 2019.

The awards are open to groups, individuals or organisations that have made a significant contribution to Search and Rescue in Australia and deserve recognition at a national level.

**Nominations close 12 July 2019.**

To nominate candidates or for further information about the Australian Search and Rescue Awards or the National Search and Rescue Council, please visit: <https://natsar.amsa.gov.au/award.asp> or phone 02 6279 5828



Distress signal: location of the EPIRB position on a map at AMSA Search and Rescue – image supplied by AMSA

# Race against Tropical Cyclone Owen

When AMSA detects a distress beacon, response time is always of the essence, but this rescue mission was a race against Tropical Cyclone Owen to a remote scene of three stranded fishers

By Daniel Redondo and Sarah Cameron

In the early afternoon of 12 December 2018, AMSA detected a personal locator beacon (PLB) activation half a nautical mile off South West Island in the Northern Territory region of the Gulf of Carpentaria.

The rescue response to this particular activation was more complex due to the remoteness of where the beacon indicated, and the fact that Tropical Cyclone Owen was forecast to hit the location at last light. However, two things were instrumental in the quick

response—the PLB was equipped with global positioning system (GPS) and the owner had registered the PLB with AMSA and provided emergency contacts.

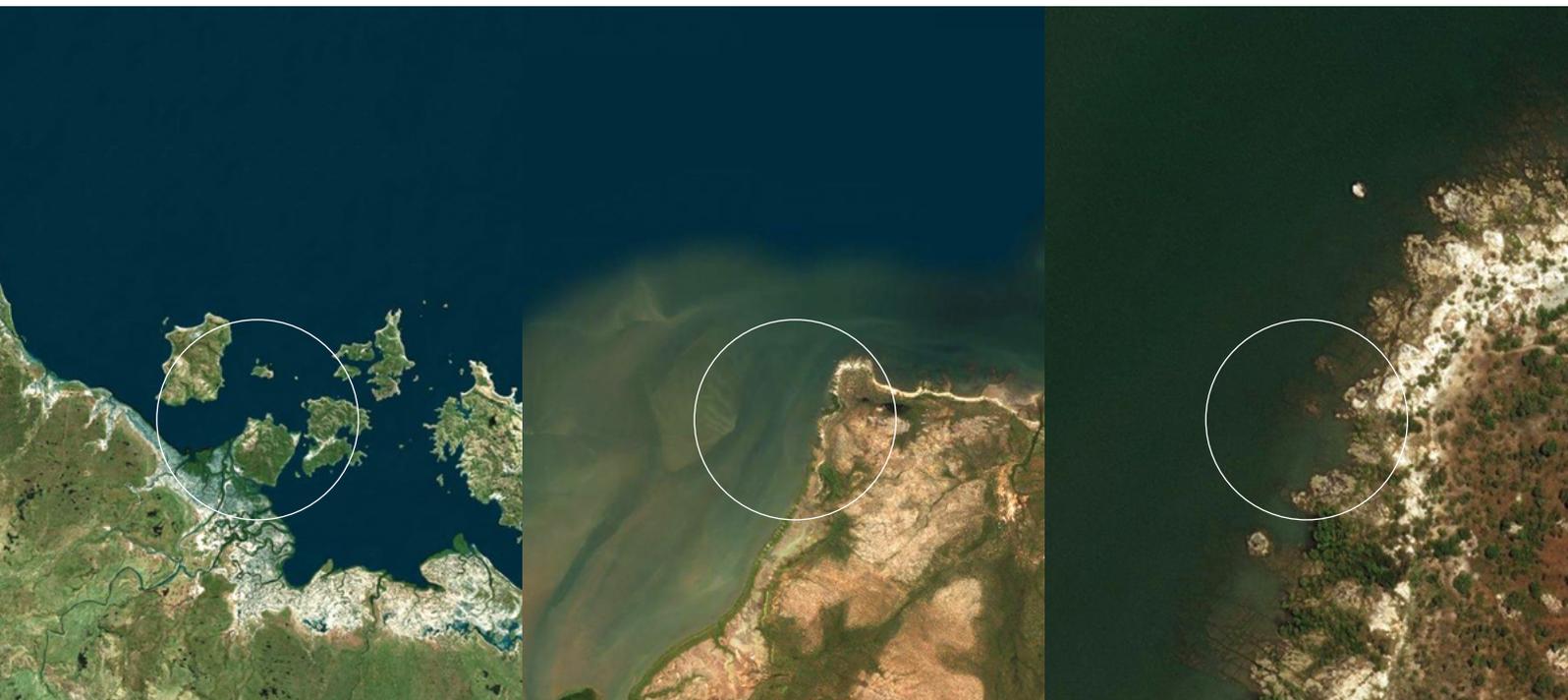
GPS-equipped emergency beacons provide the location of the people needing assistance much more quickly and accurately than those without GPS. While both types send an alert to AMSA immediately, the time needed to provide a location varies.

GPS-equipped beacons can take up to 20 minutes to provide a location with

a 120-metre-radius search area, but a beacon without GPS takes between 90 minutes and five hours to provide a location with a search radius of five kilometres.

In this case, AMSA received the GPS position immediately, when they first detected the activated beacon. Confident with the accuracy of the position, AMSA sent both the Cairns Challenger aircraft—*RSCU 330*—and the Darwin Careflight helicopter—*Careflight 1*—to the scene straight away.

*Continued overleaf*



Precision matters: EPIRBs equipped with GPS allow better search and rescue where every second matters – Image source: NASA

*'Providing emergency contacts not only helps AMSA respond to emergencies more effectively, it's also important to be able to let next of kin know that their loved one is in an emergency situation.'*

— Daniel Redondo

*Continued from page 20*

AMSA Search and Rescue Officer Daniel Redondo said that when AMSA first detected the beacon alert they were unable to contact the beacon's owner because of the remoteness of their location. However, the owner had provided an emergency contact when they registered the PLB.

'The contact quickly informed us that three people were on board the vessel and were on a fishing trip, which they had done previously. The contact also knew where they departed, what type of vessel they were in and that none of the people on board were suffering from any known medical conditions,' he said.

'A well-informed emergency contact can be one of our best search and rescue assets and have in the past resolved incidents without needing to send out an aircraft or vessel to the location.'

AMSA then asked the Northern Territory Water Police if they had any vessels near enough to the location of the fishers to reach them before the arrival of the cyclone. At 15:00 hours the Northern Territory Water Police tasked their vessel—*Bombastic*—to the scene out of the McArthur River with an ETA of 17:00 hours.

The *Cairns Challenger* aircraft spotted the vessel at 16:00—three hours after the fishers activated the PLB—and confirmed that all three people were safe on board.

The people on board the vessel indicated the vessel had broken down and was at anchor.

During this time, *Careflight 1* had completed refuelling and was on its way to the scene. However, due to deteriorating weather conditions—including winds over 40 knots—rescue by helicopter winch was no longer feasible.

At 17:30 police vessel *Bombastic* reported that it was at the mouth of the Carrington River, two nautical miles from the fishing vessel. AMSA had initially requested *Bombastic* to pick up the three people from the stricken vessel. However, after finding the vessel anchored in a reasonably sheltered location, the skipper of *Bombastic*



**Located:** Stranded fishers found by the Cairns Challenger aircraft – Supplied by AMSA; Careflight 1 rescue helicopter attended the incident – Supplied by Careflight

proceeded to tow the vessel and the three fishers back to where it originally departed without further incident to the great relief of the fishers' families.

Daniel said that providing emergency contacts not only helps AMSA respond to emergencies more effectively, it's also important to be able to let next of kin know that their loved one is in an emergency situation.

'In this particular mission we stayed in regular contact with the next of kin to update them on the progress of the rescue aircraft and the Northern Territory Water Police vessel against the deteriorating weather conditions, and then to pass on information about the wellbeing of the stranded fishers and their recovery back to shore.'

'Make sure your beacon is registered and that your emergency contacts are people who will likely know where you are, who you are with but also not likely to be on the vessel or aircraft with you,' he advised.

#### GPS vs non-GPS

If you are in the market for a new beacon, make sure it is equipped with GPS. Precision matters in life and death situations where every second counts and GPS-equipped beacons save hours.

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Difference between GPS and non-GPS encoded beacons  
[beacons.amsa.gov.au/purchasing/GPS-best.asp](https://beacons.amsa.gov.au/purchasing/GPS-best.asp)



#### Register your beacon

Register your distress beacon or change the ownership details online at [beacons.amsa.gov.au](https://beacons.amsa.gov.au) or phone 1800 406 406.

Make sure you list up to three emergency contacts when you register your beacon.

#### The best emergency contacts:

- know where you are going and who you are going with
- know about your vessel
- are not with you when you go out.

# Floating debris

**We are all familiar with the problem of rubbish in our oceans. Floating debris is just the tip of the iceberg, but because of its mobility and appearance as food to marine life, it has a particularly disturbing impact on the environment.**

By Gerard Walsh

- Tiny fragments of plastic are ingested by fish and shellfish. These micro plastics enter the food chain, making animals and people sick.
- Pristine environments enjoyed by locals and paying tourists are being tarnished by unsightly rubbish.
- Marine animals are getting entangled or ingesting items such as plastic packing straps, straws, bait holders, fishing line and foam packaging, causing injury and starvation.
- This rubbish can even damage your vessel. Larger items can damage hulls and propellers—even the smallest cut-off of rope can ruin a propeller shaft.

While rubbish in our oceans predominately comes from land sources, ships and boats are also contributing to this problem. Plastic lines, ropes and fishing nets significantly contribute to the issue, as does other garbage generated on board that ends up in the sea. But fishing gear isn't the only culprit—how often do you see things like cigarette butts, shopping bags, packaging, straws, plastic bottle tops and stubby six-pack plastic where they shouldn't be?

Our livelihoods depend on a healthy marine environment and safe working conditions and the good news is there are simple things we can and should do to turn this around.

@ Report dangers to navigation such as floating logs and ghost nets by emailing [reports@amsa.gov.au](mailto:reports@amsa.gov.au)

## Quick wins

- Secure items like fishing gear, pens, phones and device charges.
- Secure garbage bins and make sure crew and passengers know where they are.
- Highlight to crew and passengers that it is against the law to throw rubbish overboard.
- Take all your rubbish ashore to recycle and dispose of properly.
- Contact your local marina, boat harbour, port or terminal to find out what waste collection and disposal facilities are available.
- Only use plastic packaging and other disposable items if you can store it on your vessel until you can get back to shore to dispose of it properly.
- Store waste fishing gear like cut-off lengths of rope or line, damaged floats or lures and used glow sticks in closed containers and stow all your gear when you are not using it.
- Check your lines and nets regularly for damage.
- Consider using biodegradable fishing gear to reduce entanglement of marine life.

# Know what to do in a hook-up incident

One of the most dangerous situations for a trawler is when the net is hooked-up. For trawler operators, knowing what to do can save lives.



Trawlers can easily roll over and trap crew beneath. The circumstances can differ each time but when a trawler's net gets snagged it is usually a mix of sea conditions, trawler stability and crew actions.

Every crew member needs to understand and practice what actions are the best response on their vessel.

## When a trawler hook-up occurs

### Have a plan

It's important to prepare the wheelhouse and forecastle so that you and other crew can get out if the trawler capsizes.

The skipper must be familiar with the characteristics of the trawler including stability, freeboard, loading, maintenance and watertight integrity. This information should be available in the vessel's stability booklet and outlined in the maintenance schedule.

The skipper is responsible for making sure crew are properly informed about safety issues and trained to respond

to a range of emergency and high-risk situations. This includes emergency drills to ensure crew understand their respective roles, where the equipment is stored, how lifejackets are worn and how each piece of safety equipment is operated.

Crew have an obligation to know what is required of them while on board and participate fully in regular emergency response drills. If there is something a crew member does not understand, it is important they ask for advice or help from the skipper.

### Trawler stability

Be aware that maintaining the trawler in an upright position is the most important task during a hook-up. If the wind, tidal conditions and trawler are

all running in the same direction when a hook-up occurs, your chances of a rollover have increased on what they would have been if you were travelling against the wind and tide. The speed with which you respond is critical. If the hook-up site moves from behind to beside the trawler, depending on the sea and tidal conditions, you are in an extremely dangerous situation.

If you realise this early you should have enough time to put the trawler in neutral, buoy the wire, then cut it. Don't push the trawler past the point of no return.

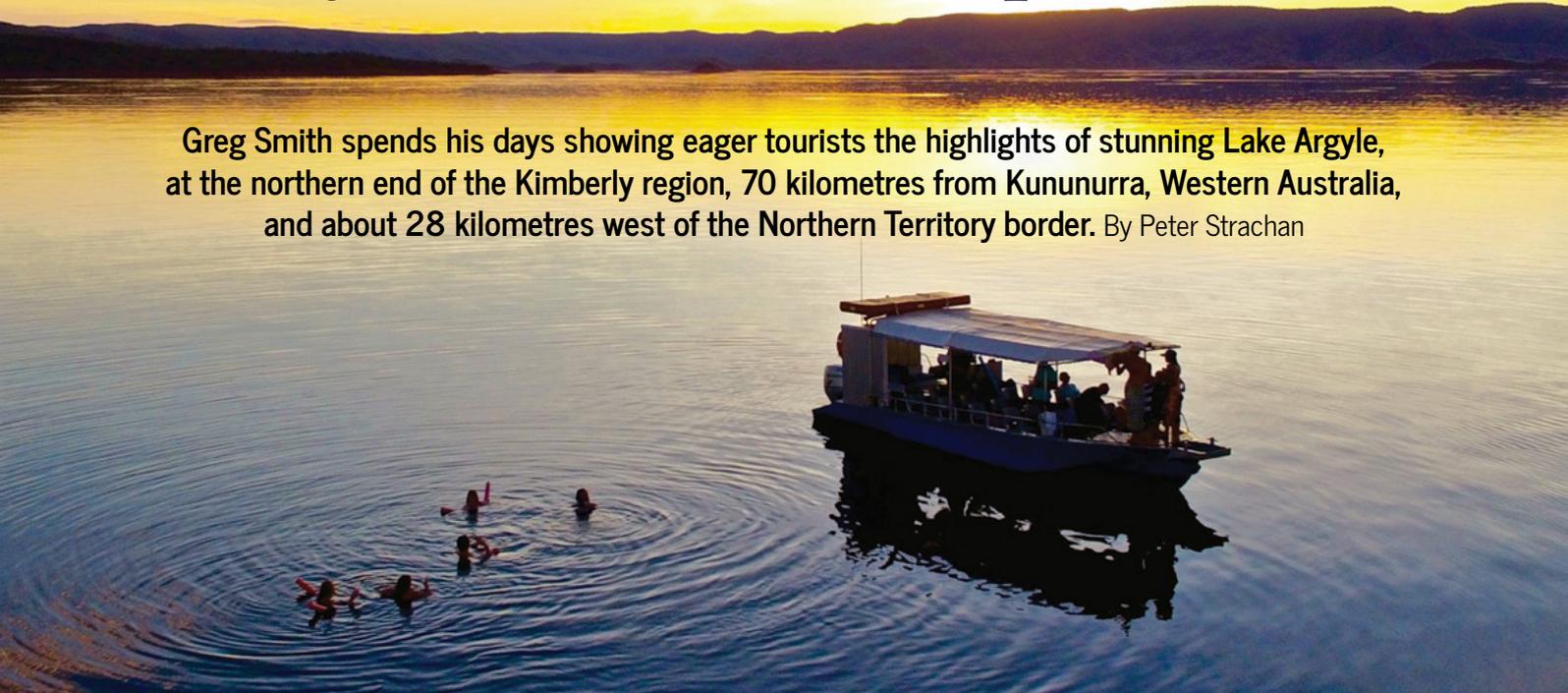
## Basic steps you can follow when a trawler hook-up occurs

- 1 Reduce power
- 2 All crew on deck and close hatches
- 3 Alert other vessels in the area
- 4 Lifesaving equipment in float-free position
- 5 Move trawl cables to the side of the vessel
- 6 Be ready to cut the trawl wires
- 7 Move to high side of the vessel

**Complete steps 1–4 within 20 seconds**

# A DAY *in the* LIFE of a remote tourism operator

Greg Smith spends his days showing eager tourists the highlights of stunning Lake Argyle, at the northern end of the Kimberly region, 70 kilometres from Kununurra, Western Australia, and about 28 kilometres west of the Northern Territory border. By Peter Strachan



Sunset swim: Passengers swimming in Lake Argyle at sunset – image supplied by Lake Argyle Cruises.

Greg's days can be challenging, with early morning starts and sunset finishes, working in a remote area of Australia. Safety of passengers, crews and vessels has to be foremost in his mind as they navigate the 70-kilometre length of the man-made lake, through extensive wildlife and world-class natural beauty.

#### **How long have you been a tour operator and what drew you to this industry?**

I grew up in Darwin and had a career in transport before taking an interest in a Lake Argyle tourist boat about 20 years ago. I loved the beauty of the lake and its surrounds—and experience in transport taught me about the need for passenger safety and the importance of protective maintenance of equipment.

#### **What boats do you operate and what are the survey requirements?**

We have a range of vessels out here from hired-out canoes and kayaks, through to six metre fishing charter and 39-passenger boats. Our most recent acquisition was a 13-metre, 36-passenger craft. All of these have to be surveyed each year to ensure they meet rigorous government safety standards and we keep them fully maintained in between times. This is a key plank in ensuring the safety of passengers and crews and the overall wellbeing of our business.

#### **Who carries out the surveys and what ongoing support do you get?**

Before AMSA came into the picture, Department of Transport sent a government-approved inspector from Perth, usually in February or March each year. Now, the local operators

work together to bring an approved surveyor to the area. We have continued to use the same inspectors and find their surveys meet all AMSA requirements very well. We also get support through site visits by AMSA experts who help with development and maintenance of our safety management systems.

#### **When is your peak season and what do you do in off-peak periods?**

Our peak tourist season at Lake Argyle is June to August. During these 100 days or so, it's usually three other skippers and myself on the water, as well as office staff and bus drivers who bring cruise passengers out from Kununurra. By December–January we're into our wet season and tourist numbers are well down. We still offer cruises at least five days a week, but we supplement our income with other work—often linked to the Ord

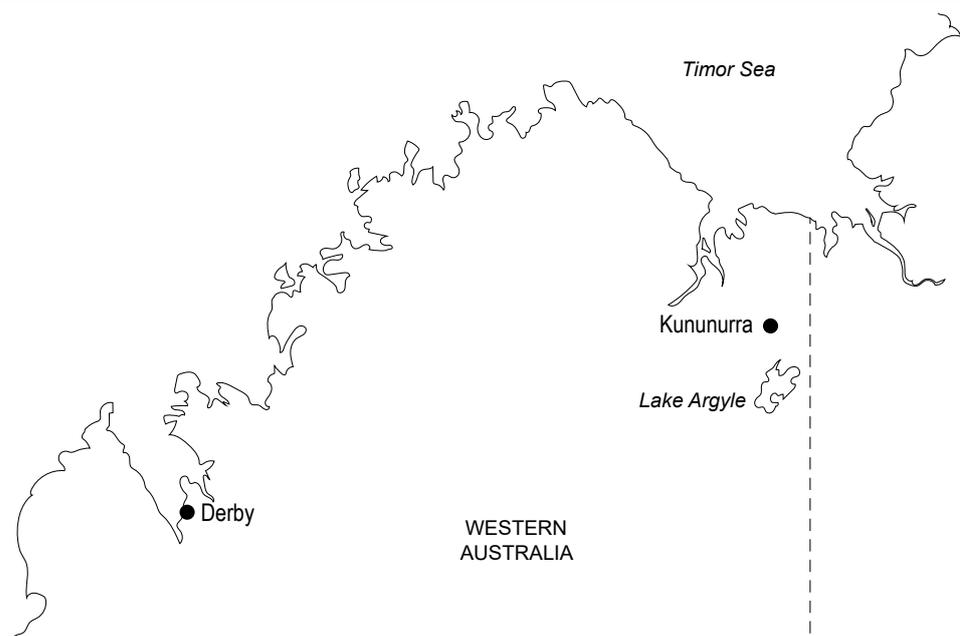


Remote tourism: Greg Smith making a stop along the route – image supplied by Lake Argyle Cruises.



*'We make sure our skippers and crews know we value their experience and their contribution to the team result.'*

— Greg Smith



River Scheme and its privately owned hydro-electric power station. We also schedule our major servicing of vessels at this time.

**Just how early do you start and how late do you finish at times of peak demand?**

On a bird-watching trip, it's out of bed at 4.30 am for a 5.30 am departure. Much of the food preparation is done the night before and it's just a matter of getting it loaded. Our sunset cruises usually get back by about 5.30 pm to 6 pm. Our office manager attends to most other things during the day.

**Is it difficult getting experienced staff for this work in an area like Lake Argyle?**

As in most remote areas, getting dedicated, experienced crews for peak times of the year is always a challenge. I'm a diesel mechanic by trade and we also have a petrol mechanic. We have

been fortunate in getting some of our best skippers to return from season-to-season. We make sure our skippers and crews know we value their experience and their contribution to the team result. I know that plays a part in their coming back each season and it certainly adds to the enjoyment our customers get from their dedication and experience.

**When you need support or advice from AMSA, how do you get it?**

We don't write letters anymore. We generally get online or call them by phone. It's much easier and faster and that's what we usually need in our situation this far out of town.

**Why and when was Lake Argyle created?**

It was established with the construction of the Argyle Dam in the early 1970s as part of the Ord River Scheme and the

Argyle diamond mine, one of the ports-of-call of some of the cruises. There's just so much to see out here now.

**How have you developed your business model to capitalise on the attractions of the area?**

Each itinerary has a wildlife theme and runs from less than half a day up to a 12-hour air, land and sea package combining diamonds, Dreamtime stories and a breathtaking sunset cruise. Food and drinks are complimentary in most cases, but customers may also bring their own if they wish. And yes, you can take a sunset swim without having to worry about the crocodiles.

[lakeargylecruises.com](http://lakeargylecruises.com)

[f @lakeargylecruises1](https://www.facebook.com/lakeargylecruises1)

[t @lakeargylecruis](https://twitter.com/lakeargylecruis)



# From *the* vault

At AMSA, we have a vast collection of historical maritime artefacts that have accumulated over the years from different sources around Australia.



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1. The Admiralty Navigation Manual, first published in 1914, is a textbook that was widely used by merchant mariners as well as navy officers in the (British) Royal Navy.
2. Heeling error instrument (c.1940s)—also known as a 'vertical force instrument'—was used to adjust a ship's magnetic compass by balancing the needle to horizontal and placing magnets in a tube underneath the magnetic compass bowl.
3. Small models of navigational buoys used for training. The yellow is a Starboard Hand Special Mark and the red is a Safe Water Mark, used to mark specific features of the sea.
4. Samples of colour filters (1924), likely used in an eyesight colour-testing lantern, designed to simulate ship navigation lights at a distance.
5. The Elcometer is a mechanical instrument used for measuring the thickness of dried paint on an iron or steel structure, likely used by AMSA engineers to inspect the durability of the coating on lighthouses and buoys.
6. Stopwatch (c.1980s), issued to Commonwealth Lighthouse Service mechanics and engineers. Used to set and check a lights character.
7. Stamp from Lloyd's Register of Shipping, a maritime classification society and independent risk-management organisation. This was first printed in 1974 in order to give both underwriters and merchants an idea of the condition of the vessels they insured and chartered.
8. Morse key used for sending Morse code signals, possibly from lighthouses during the Second World War period. This type of key could have been intended for mobile use and fastened to the leg of the operator with two straps.
9. Cap badges and buttons issued to light keepers and other officers of AMSA and its predecessors.
10. An Inclinometer is an instrument for measuring angles of slope (or tilt), elevation or depression of an object, with respect to gravity. This instrument was used by lighthouse engineers when inspecting and building navigation aids.



# Reef Ranger

Highly efficient and deceptively fast, *Reef Ranger* has given protectors of the Great Barrier Reef a super weapon in their fight to defend the world-famous marine park.

By Peter Strachan

Principal ranger for maritime operations at Queensland Parks and Wildlife Service (QPWS), Craig Baddiley said the vessel is ideally suited to the work it does.

'*Reef Ranger*, designed by Incat Crowther, came into service in June 2014 and is funded by the Australian and Queensland Governments, who jointly manage the park through the Field Management Program,' Craig said.

'It works for an average of 250 days at sea, clocking up in excess of 12,000 nautical miles each year, and carrying up to 28 day passengers and crew, or 16 crew on patrols that last up to 12 weeks at a time.

'The *Reef Ranger* is a \$5 million, 24-metre multipurpose vessel, capable of patrolling the 334,000 square kilometre park at speeds of up to 25 knots.

'The marine park is a massive area to manage, extending for 2000 kilometres along the Queensland coast, up to 250 kilometres offshore and includes more than 1050 islands and 2900 individual reefs.

'When *Reef Ranger* was in development, rangers knew they needed a fast, multi-purpose vessel, with sleeping accommodation for 16.

'They also needed a boat capable of carrying, launching and retrieving a six-metre compliance rigid hulled inflatable boat (RHIB) and carrying two additional six-metre tender vessels.'

The requirements also included storage for 1500 litres of petrol, as well as tanks to carry 12,000 litres of diesel to give the vessel a range of 750 nautical miles at 20 knots.

The vessel also needed the ability to undertake diving operations and space for four tonnes of cargo.

To help minimise the carbon footprint on the reef, the *Reef Ranger* incorporates 8kW of solar panels to reduce emissions.

Mr Baddiley said one of the main challenges facing the designers was incorporating the launching arrangement for the six-metre inflatable RHIB.

'*Reef Ranger's* design is based on a modified, but well-proven 24-metre aluminium catamaran hull,' he said.

'This allows the RHIB to be safely launched and retrieved while the vessel operates at 6–7 knots in seas of up to three-metres.

'This has been hugely successful and has completely changed the way we manage the marine park.

'We are no longer restricted to the extent we were and can now operate in most sea and weather conditions.



**Reef Ranger:** (from left) moored in a bay; Deploying the rigid-hulled inflatable boat; Sea turtle monitoring – images by Matthew Evans Photography, supplied by Queensland Department of Environment and Science.

*The marine park is a massive area to manage, extending for 2000 kilometres along the Queensland coast, up to 250 kilometres offshore and includes more than 1050 islands and 2900 individual reefs.*

'The vessel also allows the crew to carry out multiple operations simultaneously while at sea.

'The six metre RHIB can be out checking green zones while rangers carry out weed management on an island national park.

'At the same time, a dive team can check the condition of one of the 250 public moorings we manage.

'All of this requires careful planning and a well-developed safety management system, particularly when working in remote, offshore waters.

'Safety measures include an automatic identification system (AIS) tracking of each tender from *Reef Ranger* and private vessel monitoring system tracking for all our fleet.

'We are lucky to have an exceptional crew operating *Reef Ranger*. Our marine park rangers and other staff

are dedicated to safety, when using the vessels and while on operation.'

At present, QPWS has a fleet of 21 vessels based between Cairns and Gladstone. Nineteen vessels are less than 12 metres, but two long-range patrol vessels allow the service to reach the many remote areas of the reef.

QPWS has a second, long-range patrol catamaran currently under construction—the *Reef Resilience*—which is expected to come into service in June this year.

# Cape Don Lighthouse

Cape Don Lighthouse is Australia's northernmost traditional lighthouse and the first lighthouse to be built by the Commonwealth Lighthouse Service. It began guiding mariners through the Dundas Strait in 1917, a popular route to Darwin between the Coburg Peninsula and Melville Island.

Due to tropical cyclones, it took three dry seasons to construct the 36-metre high tower out of concrete reinforced by gravel, arriving all the way from Melbourne. The builders of the lighthouse had to construct a jetty and a tramway to get the materials through the reef and a mangrove swamp to the construction site.

The light was fitted with a Chance Brothers 3.3-metre lantern and originally had a Third Order dioptric lens on a mercury-bath pedestal.

When war came to the Pacific in 1941, the Royal Australian Air Force established 46 radars at Cape Don to watch the northern and eastern approaches to Darwin. Log books and accounts from men stationed at Cape Don talk about the life at the station—often mentioning sharks, crocodiles and snakes, and the happy relationship between the lighthouse keepers, station men and the local indigenous communities.

Cape Don Lighthouse became automated and unmanned in 1983 when a high-intensity light replaced the original lens—the first of its kind to be powered by solar cells.

In 2013 AMSA refurbished the structure, which included a significant quantity of concrete repairs.



## What are we hearing from you?

**Your questions help us provide better information about meeting safety requirements and how to access our services.**

Here are some of the questions received over the past few months, gathered from AMSA Connect, community and industry events, and from our regional Liaison Officers and Port Marine Surveyors.

### 1. I have an American Coxswain license. Can I convert it into an Australian Coxswain qualification?

No, there are no international standards for near coastal qualifications, including the Coxswain certificate of competency. However, you may approach your local registered training organisation (RTO) to discuss whether they can offer you recognition of prior learning towards getting an Australian Coxswain certificate of competency. You then have to do a practical on-water test to be deemed competent.

Australia does recognise New Zealand near coastal qualifications under the *Trans-Tasman Mutual Recognition Act*.

Find more information at [amsa.gov.au/recognition-new-zealand-near-coastal-qualifications](https://amsa.gov.au/recognition-new-zealand-near-coastal-qualifications)

### 2. How long does my stability book last?

Your stability book only needs to be updated or replaced when the vessel:

- changes service category (for example, a 2D vessel is upgraded to 2C)
- is modified in a way that means the calculations in the stability book no longer apply (for example, if items are added to the vessel which move its centre of gravity significantly)
- will be used with a new load condition not covered by the book (for example, carrying cargo of greater weight or different distribution than accounted for in the book).

### 3. I have a business hiring out vessels for others to operate. Do I have to have a certificate of competency?

The owner of a hire-and-drive operation must make sure each person working as a tour leader or guide meets the recreational boat licencing requirements in their state or territory. However, the risk assessment and safety management system requirements for the operation may require the employees to hold additional, or higher qualifications, depending on the nature of the hire-and-drive operation.

Learn more about recreational boating licences in states and territories at [amsa.gov.au/marinesafetyagencies](https://amsa.gov.au/marinesafetyagencies)

Learn more about developing a safety management system at [amsa.gov.au/sms](https://amsa.gov.au/sms)

### 4. How do I become a registered training organisation (RTO)?

You need to apply for registration to a vocational education training regulator such as the Australian Skills Quality Authority or the Training and Accreditation Council in Western Australia or the Victorian Registration and Qualifications Authority. Each RTO must meet a range of requirements that make sure training and assessment is delivered to a high standard.

More information go to [asqa.gov.au](https://asqa.gov.au), [tac.wa.gov.au](https://tac.wa.gov.au) or [vrqa.vic.gov.au](https://vrqa.vic.gov.au)

## 5. What is lightship verification?

In a lightship verification, a surveyor verifies that a vessel's displacement and centre of gravity have not changed significantly since the vessel was put into service. Class 1 (passenger) vessels over 12 metres must do a lightship verification every five years. Owners of all other vessels in survey can choose to have a lightship verification done, or submit a lightship declaration (AMSA Form 752). A lightship declaration is where the vessel owner declares any changes made to the vessel.

## 6. What do the CoO and CoS indicate about ownership of a vessel?

Certificates of operation (CoO) and survey (CoS) are not evidence of title or ownership of a vessel. To remove any confusion around the purpose of these certificates, from 13 December 2018 certificates issued by AMSA—including certificates for Exemption 02 and Exemption 40—no longer display the name of the certificate holder.

Read more at [amsa.gov.au/removal-certificate-holder-name](https://amsa.gov.au/removal-certificate-holder-name)

## 7. What do I need to do if I sell a grandfathered vessel?

If you sell a vessel, you must notify AMSA within 14 days. The steps you need to take depend on the type of certificate, approval, or if the vessel is on the Australian general shipping register. This also applies to grandfathered vessels.

Certificates of survey, operations and related exemptions do not provide evidence of title or ownership of a vessel or an operator's competence to operate a certain vessel.

If you hold a certificate of survey or approval, then the certificate and/or approval is transferable to a new certificate holder. Complete an *Application to vary a vessel certificate or approval form 566*.

NOTE: If you purchase a grandfathered vessel, it may not be able to be operated outside of current geographical area restrictions or be modified.

If you hold a certificate of operation and no longer wish to hold the certificate, you can submit an *Application to suspend or revoke a certificate or approval form 600*. Certificates of operation cannot be transferred between operators so a new certificate application will need to be submitted to AMSA.

If the vessel you are selling is also on the Australian general shipping register, the new owner must notify AMSA within 14 days of the date of acquisition. The evidence of transfer you will need to provide depends on whether the vessel has been sold or transmitted by operation of law. Visit the ship registration page of our website to find out more.

## 8. What is the Australian Shipping Register?

The Australian shipping register is a list of all Australian ships registered under the *Shipping Registration Act 1981* and includes their ownership details and ships' particulars. Registration of a ship on the Australian general shipping register gives your vessel internationally recognised nationality.

## 9. Is the Australian shipping register a database of all vessels in Australia?

No. The register contains only vessels that are Australian registered. Prior to the national system, state and territory marine safety agencies used the term 'registration' to refer to certification and approvals for domestic commercial vessels. We don't use the term 'registration' when referring to domestic commercial vessels under the National Law, we use the terms 'certification' and 'approvals' instead.

## 10. How can I get copies of my documents from before AMSA took over service delivery for domestic commercial vessels?

If you need a record of a document issued by your marine safety agency before AMSA took over service delivery in July 2018, you may need to contact the agency that was your local marine safety agency before 1 July 2018.

To find out how to request these records, go to [amsa.gov.au/vessels-operators/domestic-commercial-vessels](https://amsa.gov.au/vessels-operators/domestic-commercial-vessels) select your state or territory and scroll down to the bottom of the page.

## 11. Where can I apply for or renew my Maritime Security Identification Card?

AMSA does not require you to have a Maritime Security Identification Card (MSIC) but it might be required for your line of work or when you enter a port. Find out if you need an MSIC and how to apply for, or renew your existing card online at [msic.net.au](https://msic.net.au).

You will need to complete the online form, verify your identity and lodge your application, including payment. You can also lodge an application in person at Veritas' Perth office or at selected Australia Post outlets around the nation.

Once you have done this it takes two to three weeks to approve your card.



**Dunna Benson,  
Bruny Island TAS**

'We don't throw anything over the sides.'



**Will Spears,  
Manly NSW**

'I recycle all the bottles and cans on our charter boat.'



**Richard Gridley,  
Lilydale VIC**

'We don't discharge anything into the ocean, we take all our refuse back to land.'



**Sam McKnight,  
Seaforth, NSW**

'We recycle all chain and material where practicable.'

## What do you do on your boat to look after the environment?

At the Australian Wooden Boat Festival in February, we asked people what environmentally friendly practices they have on their boat. Here's what they said...



**Tom Hughes,  
Bayview NSW**

'I take great care that no oil goes to the bilges and if it does I pump it out separately and take it ashore.'



**David Golding,  
Huonville, TAS**

'On our boat we make sure no unwanted fishing gear goes over the side when we are out fishing.'



**Zac Howells,  
Cairns, QLD**

'We have a cassette toilet in the vessel so there are no through holes. We have an inbuilt holding tank so there is no sewerage discharge overboard. It gets emptied ashore.'



**Jennifer Pickering,  
Hunters Hill, NSW**

'We always make sure we don't throw out anything over the side of the boat, we take everything back to shore, and we make sure we don't discharge any excess into the environment.'



**Rob Johnston, Stuart Park, NT**

'When I'm travelling between the boat and the shore—I live in the boat—I carry a garbage bag and a landing net and scoop up bottles, plastic and any rubbish in the water, put it in the garbage bag and put it in a bin when I come ashore.'

# Community events

We started off the 2019 event trail with the Nelson Bay's Australia Day event and the My State Australian Wooden Boat Festival in Hobart where—in addition to answering people's questions about beacons and the national system—we displayed a life raft and what comes in an equipment pack. The kids enjoyed jumping in and out of the life raft we had on display while kids and adults alike, were curious to taste life raft rations. Hopefully it's the only chance they'll get!



## The galley



# Roast lamb

Roast lamb with vegetables, garnished with fresh rosemary.  
Source: iStock.com/hlphoto

Serves 1

Preparation: 20 minutes

Cook: 2.5 hours

Total: 2 hours 50 minutes

When we spoke to David Guillot of Australian Wildcatch Fishing in Lakes Entrance, we asked him what the crew like to cook when they are out at sea for weeks at a time. He said roast lamb—it's hard to overcook or ruin, so it's much easier to manage when you are busy. You can also throw all the veggies in the tray with the lamb, so it's simple and hearty and the leftovers are handy the next day.

### Ingredients

- 2.5 kg lamb leg
- 3 cloves garlic
- 2 rosemary branches
- Salt and pepper
- Oil
- Selection of vegetables (ie potatoes, carrots, onions)

### Method

1. Preheat oven to 180°C
2. With a small sharp knife, pierce the lamb every 3cm or so. Stuff each incision with a slice of garlic and a few rosemary leaves. Sprinkle the roast with salt and pepper.
3. Roast lamb for 2½ hours. After 1½ hours add vegetables to tray for the remainder of the cooking time.
4. Remove from oven and rest the meat in the pan under foil.



*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 [communication@amsa.gov.au](mailto:communication@amsa.gov.au)



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](https://amsa.gov.au/beacons) or phone **1800 627 484**