

## Life jackets then and now

Recreational and professional activities bring people in contact with water every day. Safety on and near the water is an issue for the weekend boater as well as for military and rescue personnel. Flotation devices are an important part of water safety. Life vests and life jackets are technically known as personal flotation devices (PFDs). They are designed to keep an individual afloat in the water in the event of an emergency and are considered life-saving equipment. The main function of a life jacket is to keep a person on the water's surface in a relatively upright position to allow the person to breathe and not have to tread water to stay afloat.

Life jackets have been saving lives for generations. Their history can probably be traced back to the simple blocks of wood or cork used by Norwegian seamen. In 1854, Captain Ward, a Royal National Lifeboat Institution inspector in the United Kingdom, created a cork vest to be worn by lifeboat crews for both weather protection and buoyancy. Cork was used for many years in the manufacture of life jackets, together with balsa wood. Anyone who has seen the film *Titanic* will remember the cork life jackets, available to some of the passengers.

Although cork floats very well, it can be a little hard, so around the turn of the 20th century kapok became the standard stuffing for life jackets. Kapok was a much softer alternative to cork and was particularly useful on navy ships where seamen wore their life jackets even while sleeping.

Kapok is a vegetable fibre found in tropical tree pods, resembling milkweed. The waxy coating which covers the kapok fibre provided the necessary buoyancy. The kapok fibre was sealed in vinyl plastic packets to prevent exposure to the water. One problem with the vinyl-sealed kapok fibre life jacket was that the packets could be punctured, causing the jacket to lose its buoyancy.

In the 1960s, France introduced a life jacket called the flotherchoc. The flotherchoc was a light and flexible body-fitting vest. This design replaced the then popular but awkward horse-collar design. The advantage of this vest was that it was less confining and, therefore, more likely to actually be worn. The flotherchoc was made up of small, air-filled vinyl packets which were placed inside nylon chambers. However the flotherchoc had the same problem as the kapok life jackets; over time, the flotherchoc's vinyl packets could lose their buoyancy if punctured.

Plastics are now being used in the manufacture of life vests. Some vests are made from closed-cell foam or foamed plastics which are encased in nylon.

Closed-cell foam has been around since the 1940s, but it was not until the 1970s that its use in survival wear was introduced. A closed-cell foam insert is made of tiny, individual air-filled pockets within the foam itself. The air-filled pockets are called cells. This foam structure is similar to a sponge, except that in a sponge the individual cells are connected by tunnels which run throughout the material.

Closed-cell foam cells are not connected at all. It is the isolated air-filled pockets which provide the flotation. Closed-cell foam can be punctured over and over again with only minimal effect on its buoyancy. Some of the better closed-cell foam structures will not deteriorate even under tremendous compression. The air-filled pockets also provide some thermal insulation protection against hypothermia.

Modern life jackets are now available in different sizes and different designs and are standard safety equipment. Vessels operating in unprotected waters must carry an approved life jacket for each person on board. Remember, while most people know that life jackets save lives — It's not a lifesaver if you're not wearing it!



Henry Freeman, the sole survivor of the Whitby (UK) lifeboat disaster of 1861. His survival was attributed to the (then) recently introduced cork life jacket which he was wearing. The other 12 members of the crew all perished.

## Boat maintenance essential for safety

Thanks to the advice given by Maritime Safety Queensland (Whitsunday), the vessel "Summertime", part of a fleet of dive boats owned by Islandive, avoided a potential electrical fire while at sea.

Last year, Maritime Safety Queensland staff inspected the vessel during a slipping and advised the company to upgrade the electrical system to include a Residual Current Device.

A Residual Current Device works in the same way as a residential circuit breaker — if a fault occurs, the currents become unbalanced and the device trips a switch.

Islandive is meticulous about safety on all its boats and immediately made the necessary changes. Directors of the company have a strict safety program that includes regular inspections.

Some time later, during a routine trip, salt water leaked into an air conditioner causing a short current in the motor. This could have caused the wiring to catch fire, but because the vessel had a Residual Current Device in place, there was no danger to the boat or its occupants.

'We isolated the air conditioners immediately, and returned to port,' said Mike Keyte, one of the directors of Islandive.

'We engaged a refrigeration mechanic to repair the damage. He said that the positive outcome was a direct result of having the Residual Current Device installed.'

This story is an example of the importance of regular inspections and maintenance. As skipper, you are responsible for the safety of the boat and the people on board.



# Changes to legislation on marine pollution

In 2004, Maritime Safety Queensland introduced new ship-sourced sewage legislation to combat the environmental and health impacts associated with the discharge of sewage into Queensland coastal waters. These requirements are detailed in the *Transport Operations (Marine Pollution) Act 1995* (TOMPA) and the new *Transport Operations (Marine Pollution) Regulation 2008* which commenced on 1 September.

The main objective of the Act is to protect Queensland's marine and coastal environment from deliberate and negligent discharges of ship-sourced pollutants, such as sewage, into coastal waters.

Recently, some changes were made to TOMPA that relate to recreational and/or declared ships. A declared ship is a class 1 commercially registered passenger carrying ship fitted with a toilet or sewage holding device. In recognition of their potentially greater sewage generating capacity, declared ships must adhere to more stringent sewage discharge requirements.

- All ships with a fixed toilet on board must have a macerator fitted and ensure that sewage is unable to bypass the macerator.
- All ships with sewage treatment systems and operating in Queensland coastal waters must maintain the system to ensure it continues to perform according to the system specification. For all other ships, the treatment system must be assessed at least once in the first five years and then every two years after that. For declared ships, the treatment system must be assessed at least annually for the first two years and every two years after that.
- All ships (previously just declared ships) with sewage treatment systems and operating in Queensland coastal waters must keep the system's documentation and service manual onboard.
- A treatment system onboard a ship in Queensland coastal waters must conform to the standard outlined in the Regulation. This includes documentation, system service manual and a durable label attached stating the manufacturer's name and address, and the type and model number of the system. The system must be installed in accordance with the manufacturer's instructions.
- Declared ships must carry and complete a current sewage record book to be available for inspection at all reasonable times.



- Each time sewage is discharged from a declared ship's sewage holding device to a land-based waste reception facility, an entry must be made in the disposal record book.

Ship-sourced sewage is considered to pose greater environmental and health concerns than domestic sewage, because it has generally not received any form of treatment or adequate dilution. Discharged sewage adds excess inorganic dissolved nutrients such as nitrogen into the marine environment.

Excessive inputs of these nutrients can cause abnormal accumulations of seaweed as well as phytoplankton blooms. Nutrient-stimulated algal blooms and subsequent die-off can result in the reduction of dissolved oxygen in the surrounding waters, which can affect marine food-webs and ecosystem resiliency. Contamination of the marine environment with sewage can also affect beaches and shellfish aquaculture resources.

It is important to remember that the discharge of sewage from ships contributes to reduced water quality, poses a human health risk and decreases visual aesthetics of Queensland's waterways. Therefore, if you use a ship anywhere in Queensland's tidal waterways, the sewage legislation applies to you. It requires ship owners and operators in Queensland to modify their behaviour regarding their onboard sewage management practices.

The legislation stipulates where sewage discharges cannot occur (i.e. nil discharge waters) and offers boaters a variety of sewage management alternatives to achieve compliance.

These include use of onshore facilities, an onboard portable toilet for later disposal ashore or in open waters where discharge is permitted, use of an onboard sewage holding tank or use of an onboard sewage treatment system.

Boaters need to ensure sewage is managed appropriately and that any discharges are made in compliance with legislative requirements. Integral to this preparation is the need for boaters to give careful consideration to:

- the type of waterway in which their boating activities will take place
- the number of people onboard their vessel
- the amount of time to be spent boating in different waterway types
- the discharge restrictions that apply in those waterways.

Many owners and operators of recreational boats have found that the legislation does not greatly affect their vessel and in many cases, that compliance is relatively straightforward and inexpensive. While the use of onshore toilet facilities may be a good short-term sewage management solution for a particular ship type or operation, a more permanent and long-term 'user friendly' option should be considered when making extended or overnight trips.

Regardless of ship type or area of operation, owners and operators should ensure that all toileting arrangements be installed or modified by suitably qualified personnel and conform to the minimum requirements outlined in Australian Standard AS3542-1996 which is available from Standards Australia.

## Don't lose your boat!

Many boaties take their moorings for granted. They do so at their own peril. In February 2008, adverse monsoonal weather conditions in North Queensland resulted in the loss or damage of some 60 craft at Airlie Beach. While these conditions were extreme, the outcome nevertheless provides a timely reminder about the importance of having sound mooring.

There are almost 4,000 buoy moorings in Queensland waters. The value of vessels utilising these facilities is in the tens of millions of dollars. While all boat owners would like to use their boats more, it is a sad fact that, in today's busy world, boats spend more time moored than 'out on the water', which means that keeping an eye on the health of the mooring can be difficult. And let's face it, at the end of a pleasurable day of boating, most owners are happy to just hook up and go home.

There are a range of potential issues which may affect the safety of a buoy mooring and it's a tragedy when someone's hard-earned investment ends up halfway up a rock wall, all because of the failure of a reasonably inexpensive part of the mooring. A buoy mooring that is moments away from complete failure may feel quite solid, but without regular maintenance of a mooring apparatus, it may be an accident waiting to happen.

Prior to the annual renewal of a buoy mooring authority, Maritime Safety Queensland requires that the device must be inspected by the buoy mooring authority holder or contracted mooring inspector to ensure it is:

- in good condition
- in the position approved by Maritime Safety Queensland
- adequate for securing the nominated ship.



Does your mooring look like this?



Or this?

Moorings need to be retrieved from the seabed for maintenance. All components, including ropes, float, chain, swivels, shackles and the block itself, need to be checked and replaced if necessary. Given that most complete moorings weigh around one tonne, owners are advised to seek professional help in raising the mooring from the seabed.

Maintenance checks should also ensure that the chain is of sufficient length to secure the vessel, without being so long that the swing pattern of the moored vessel poses a risk of collision with other boats.

Electrolysis, the effects of tide current and the constant movement of sand and mud against mooring components can cause significant damage so that with one strong wind the mooring will be gone, along with the boat.

The cost of professional assessment and remedial work is not expensive and a small price to pay to protect a considerable investment. In considering remedial action, owners should consider the range of environmentally friendly mooring apparatus that is now available.

Apart from professional annual inspection and maintenance, there are some basic measures that owners can take to enhance the safety of a mooring.

- Check the mooring rope at every tie-up, particularly if there has been rough weather.
- Check that the rope is not frayed or rubbing in a particular spot. If so, the problem can be solved by encasing that part of the rope in plastic hose.
- Make sure the buoy is up to scratch. Plastic buoys can deteriorate in sunshine, crack and fill with water. Preferably use a foam-filled, teardrop shaped buoy.
- Don't tie the mooring off to a weak point on the boat. Even the most secure of moorings won't help if it's tied to the wrong cleat.

## Maritime Museum

The Queensland Maritime Museum is in its 37th year and is in shipshape condition. Each week over 100 volunteers from all backgrounds are tackling a variety of roles at the museum and some major projects are in progress or have recently been completed.

Following the repair of the graving dock, the frigate *Diamantina* and the lightship *Carpentaria* have been dry docked and *Diamantina's* hull has been cleaned and painted. *HMAS Diamantina* is one of the most important objects on display in Australia and she is a very popular exhibit. *Carpentaria* is next in line for restoration and the dock pumphouse has been receiving significant attention including painting the exterior, refurbishing the pumps and restoring the boiler room.

With the assistance of a sponsorship from the Port of Brisbane Corporation, the 100-year old pearling lugger *Penguin* now has a new cradle and has been towed to the southern side of the dock where a major restoration is about to commence.

The Queensland Maritime Museum owns one of the largest collections of lighthouse equipment in Australia including the Cape Don lens and pedestal (circa 1917) and an 1897 Barbier & Benard beacon (ex-North Barnard Island) that is one of only a few remaining world-wide.

The museum's library includes over 5,000 publications, 3,000 ship's plans and 20,000 images. The museum is open to the public seven days a week.





Whale hunting ceased in Queensland in 1963, which closed the only whale processing complex at Tangalooma. Located on the western side of Moreton Island, Tangalooma today is a popular tourist destination with a growing community of holiday homes and little of the original whaling station is now recognisable. The water supply and power generator facilities are based on the originals and the flensing deck is now used as a shelter for building supplies. The old jetty, where the whale chaser boats KOS I and KOS II used to tie up, has been replaced by a new wharf at the south end of the resort. Both boats were scuttled in the 1970s and now form part of an artificial reef.

Whales have now attracted a new audience of people from around the world who come for the experience of seeing the humpback whale up close and witnessing its many antics. Over the past 20 years, whale watching has grown into a multi-million dollar business originating in Hervey Bay. Although whale watching boats now operate from Mooloolaba, Redcliffe, the Southport Broadwater and the Tweed River, Hervey Bay is still called the whale watching capital of Queensland and according to Brian Perry of "Quick Cat II" and Vice-President of Whale and Dolphin Watch Australia, the whale watching capital worldwide.

Hervey Bay offers a unique experience for watchers. Whales that enter Hervey Bay are migrating whales but because of the bay geography, they tend to remain in the area from three days up to three weeks at a time. This gives boat skippers the opportunity of consistently finding more whales than other whale watching locations.

Originally, some 400-500 whales migrated annually. This year it is expected that in excess of 5,000 whales will migrate up the east coast with large numbers entering Hervey Bay as part of their trip back south.

Some 70,000 people will visit the Hervey Bay region to whale watch this year on 20 dedicated vessels operating out of Urangan Boat Harbour. The Gold Coast is likely to carry over 20,000 passengers in six vessels, the newest venture operated by Seaworld. In addition, the "Eye Spy" operating from Moreton Bay will carry an estimated 12,500 people.

The whale watching fleet has evolved from converted fishing or charter boats to what is considered the best whale watching fleet in the world. As the fleet has grown, with old boats being replaced and new vessels entering the industry, many lessons have been learnt about what is considered to be the ideal whale watching boat. This has resulted in many boats being downsized to a maximum passenger carrying capacity of 100 people.

These boats get to the whale locations quickly, usually have at least two decks for viewing and in some cases have an underwater viewing capacity. Other whale watching businesses have followed suit and the introduction of small high-powered boats of 30-40 passenger capacity capable of travelling to locations at speed and offering two trips per day is now showing potential.

Maritime Safety Queensland has worked closely with owners and skippers in providing guidance for safe operation, responsibilities of the owner and skipper and how to minimise risks.

This advice can range from safety of passengers, stability issues with passengers on higher decks, fire safety, safety equipment suitable for the area of operation and crew training. The safety of the whale watching fleet is paramount to the industry and its future. There is nothing like an accident at sea to reduce the confidence of potential visitors.

Maritime Safety Queensland is working with industry to develop a safety culture among skippers and owners of commercial vessels. Part of this is the emphasis on crew training and ensuring the crew can play their part in the event of an incident on board or an evacuation. Skippers are urged to conduct frequent drills for crew so everyone knows exactly what to do in an emergency.

Being a seasonal industry, whale watching vessels usually have time out prior to the season for maintenance which provides Maritime Safety Queensland marine safety officers with the opportunity to inspect the fleet, conduct safety audits and address any anomalies.

In only a few decades the transformation of Tangalooma has made it difficult to recognise its original purpose. From when it commenced operations in 1952, the Tangalooma Station and processing factory harvested 6,277 humpback whales before significant reductions in catch levels prompted its closure a decade later. Tangalooma illustrates the transition from a whale-based industry which was destructive and un-sustainable to one which is based on the protection of these magnificent creatures and could, in the longer term, be more profitable.



# My dream is to own a boat: Derelict vessels in Queensland

Following the introduction in 2006 of new powers in the *Transport Operations (Marine Safety) Regulation 2004*, Maritime Safety Queensland has been working hard to rid Queensland waters of unseaworthy and abandoned vessels. In each instance, effort is made to identify the owners of these craft and have them removed or remediated at the owner's expense.

However, not everybody wants to do the right thing. Some recalcitrant owners refuse to take responsibility for their inconsiderate actions. When a vessel represents a risk to the safe navigation of other ships or poses a risk of polluting Queensland's pristine waterways, Maritime Safety Queensland is empowered to take appropriate action to negate those risks.

Recalcitrant owners should note that action by Maritime Safety Queensland does not remove them from accountability. The government will pursue legal avenues to ensure that the owner meets the costs the public is forced to incur in removing their unseaworthy vessels from the water.

In many cases, these vessels were somebody's retirement dream. Unfortunately, their dream turns into the government's nightmare when they abandon their responsibilities and then expect somebody else to deal with the outcomes of their decision.

More often than not, removal action undertaken by Maritime Safety Queensland results in the vessel being destroyed, as most are beyond remediation.

In the long run, the owner's failure to take responsibility for his or her own actions not only results in responsibility for costs, it often ends in the loss of their investment when it is destroyed.

While the management of unseaworthy and abandoned vessels is an extremely resource-intensive operation, Maritime Safety Queensland will not shirk its obligation to the thousands of boat owners who do the right thing and all those who wish to use our waterways in the knowledge that they are safe and clean.

During the past six months alone, Maritime Safety Queensland has successfully removed and destroyed almost 30 derelict vessels from Queensland waters. These have ranged from small boats and yachts to large steel vessels of several hundred tonnes.

Some notable examples have been the removal of 12 mid-sized vessels from Trinity Inlet in Cairns. Prudent fiscal management led to the removal of these vessels at very limited cost to the public purse; a small investment for a great environmental and safety outcome.

Another four large vessels in Trinity Inlet are the subject of current contract negotiations. In addition to these specific removal actions, Maritime Safety Queensland in Cairns is working effectively with other government agencies and the Cairns Port Authority to ensure that the derelict vessel problem in Trinity Inlet is continually monitored. 'At risk' vessels are identified and actioned quickly to remove the potential for them to become derelict.

Monitoring activities in other Queensland ports have been enhanced to address the issues of possible derelict vessels. So, if you bring an 'at risk' vessel into Queensland waters, be prepared for some form of intervention from Maritime Safety Queensland. It's not a matter of if, just when, and remember — the consequences could be dire.

Recently, Maritime Safety Queensland seized the vessel *Ossa*, left by its owner at Airlie Beach. Every effort to get the owner to take responsibility for this vessel failed, so it has now been towed to Townsville where it will be destroyed. Another dream gone!

How's your dream boat? Had a look at it lately? If you haven't, we probably have! In Brisbane, the vessel *Santa Rosa* was recently removed from Hemmant Creek.

The owner's dream went from this:



*Ossa* — Seized by Maritime Safety Queensland



To this:



## News in brief

### New publications

The new edition of *Beacon to Beacon* directory is now available. This is the eighth edition of the directory and is a 'must have' item for recreational boaties. This edition has expanded its content to include numerous coastal marina facilities accessible by the public, displaying berth and mooring layout, onshore facilities and services, boat ramps, fuel stations, and oil and sewage disposal facilities.

### Website helpful to boaties

The Maritime Safety Queensland website continues to be a major source of information for recreational boat owners and operators. The website covers a range of boat-related topics such as tides, licensing, navigation lights, safety equipment and life jackets. Boat owners can change personal details or verify a marine licence online, and the "What's new" section lists important changes and new features.

The popularity of the website has been steadily increasing. The number of pages viewed has risen from 180,455 in January this year to over 281,000 during August. Some of these pages are listed below and indicate the number of times each page was accessed in August 2008.

- Home page - 11,756
- Licensing (Recreational) - 3,989
- Tides - 3,917
- Licensing - 2,932
- Registration (Recreational) - 2,319
- Notices to mariners - 1,539
- Licensing (Personal water craft) - 1,455
- Sun and moon times - 1,304
- Navigation lights - 1,173
- Shipping movements - 1,036
- Publications - 950

### Contacting Maritime Safety Queensland

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### Single national system of maritime safety regulation supported by Ministers

The establishment of a single national system of maritime safety regulation was recently supported by State, Territory and Commonwealth Transport Ministers, subject to the outcome of a regulatory impact assessment process. The national system would be part of broader national reforms designed to cut down red tape in the transport and logistics sector and deliver more consistency in transport regulation across Australia.

The Australian Transport Council (ATC), which is considering the reforms, includes all Ministers responsible for transport issues across Australia. In addition to maritime safety regulation, they are also reviewing arrangements for heavy vehicle regulation, registration and licensing, and rail safety regulation.

The ATC agreed that their preferred option for the design of a single national system of maritime safety regulation would be the Australian Maritime Safety Authority (AMSA) taking responsibility for regulating commercial vessel design and construction, equipment, vessel operation, crew certification and manning. They also agreed that the national system should allow for the delivery of regulatory services by State and Northern Territory maritime agencies operating under arrangements agreed with AMSA.

The final decision on whether to proceed with a single national maritime safety system will be made following the completion of a Regulatory Impact Statement (RIS) which was prepared for consideration by the Australian Transport Council and has now been published on the Commonwealth Department of Transport website.

It is anticipated that, if the RIS outcome is positive, the Prime Minister and Premiers at the Council of Australian Governments will consider an intergovernmental agreement that would underpin the single national system early in 2009.

Stakeholder consultations were held throughout September 2008 in all states and the Northern Territory to provide important input to the RIS on the proposed changes.

Those interested in participating in the RIS consultation process should contact their state maritime safety agency for further details or visit [www.infrastructure.gov.au/maritime/safety/consultation.aspx](http://www.infrastructure.gov.au/maritime/safety/consultation.aspx).

### Upcoming events – 2008

#### OCTOBER

5 River to Reef Festival, Mackay

#### NOVEMBER

7-9 North Coast International Boat Show, Caloundra

#### Regions:

Southport	07 5539 7300
Brisbane	07 3860 3500
Mooloolaba	07 5477 8425
Hervey Bay	07 4194 9600
Bundaberg	07 4131 8500
Gladstone	07 4973 1200
Port Alma	07 4934 6929

Mackay	07 4944 3700
Whitsundays	07 4946 2200
Townsville	07 4726 3400
Cairns	07 4052 7400
Weipa	07 4069 7165
Karumba	07 4745 9281
Thursday Island	07 4069 1351