



Navigating with GPS

When Captain Cook sailed the open seas he didn't have the luxury of a Global Positioning System. All he had were charts, a sextant and a spyglass.

And yet the sea captains of his day had fewer maritime collisions than we have today despite all our modern navigational tools.

How did 18th century sea captains sail safely around the world using just those minimal navigational aids? The answer is the number one rule of safe boating – always keep a proper lookout! Captain Cook always had a lookout perched in the crow's nest scanning the sea for hazards.

Today's boaties should learn from Captain Cook. Yes, the technology driving GPS is remarkable, but it should be regarded as an aid to navigation rather than a complete navigation tool. Don't rely on GPS alone to get home safely.

As well as charts, local knowledge and a visual watch, boaties need to keep their documentation up-to-date. Boaties can access Notices to Mariners on Maritime Safety Queensland's website for updates and changes.

When a boatie puts all his eggs in one basket, navigational speaking, the outcome can be disastrous. Recently, a boatie turned on his new GPS unit and electronic chart display which lit up in the darkness. Land masses, reefs, channels and the boat's position were tracked in real time. What could be simpler?

The boatie and his three passengers throttled toward home from a favourite fishing spot. Close to midnight the master selected a waypoint near the boat ramp and engaged the 'Go To' feature on his electronic chart display.

The 5.5 metre 135hp fibreglass half-cabin continued at around 20 knots in total darkness while the master 'mucked around' with his new accessory. Minutes later the boat collided with rocks. One passenger suffered broken ribs and internal injuries and was taken by helicopter to hospital. The boat was destroyed.

The master in this incident relied solely on his GPS, ignoring other safe navigation methods such as keeping a watch. Several similar incidents in the past few years could have been avoided if owners of GPS and electronic navigation displays had used more caution.

A Global Positioning System has a 95 per cent accuracy level. The other 5 per cent of the time, it could be out by hundreds of metres. Accuracy can be further reduced by adverse atmospheric conditions, electrical interference, or obstacles

such as buildings, mountains or trees. Satellites themselves can also transmit errors.

To improve the accuracy and integrity of GPS, the Australian Maritime Safety Authority has established 16 Differential (DGPS) broadcasting stations along the Australian coast which broadcast in the 285-325 kHz frequency range to provide GPS accuracy generally better than 10 metres (95 per cent of the time).

Details of the available stations and their coverage are given in the annual Notices to Mariners (www.hydro.gov.au). Other differential correction services are commercially available for use around Queensland waters.

Maps created using GPS technology are based on a reference frame or datum. Most countries have their own datum designed to best fit the shape of the earth in their location, which is updated to account for continental drift and other variations.

Australia also has its own national datum of GDA94. For navigation and everyday use, GDA94 can be considered to be the same accuracy as WGS84. Most Australian maps developed before 2000 use AGD (the Australian Geodetic Datum). This datum was superseded by GDA.

There is, roughly, a 200 metre difference between these two datums. To avoid a possible 200 metre discrepancy, which could mean the difference between clearing a hazard or hitting rocks or a reef, you must make sure that your GPS receiver and the maps/charts you are using have the same datum. For consistency, and to minimise the potential for errors, you should use GDA.

When plotting GPS latitude and longitude onto a paper chart which uses different datum, corrections should be made according to relevant chart notes. Many GPS receivers have the capacity to perform these corrections automatically.

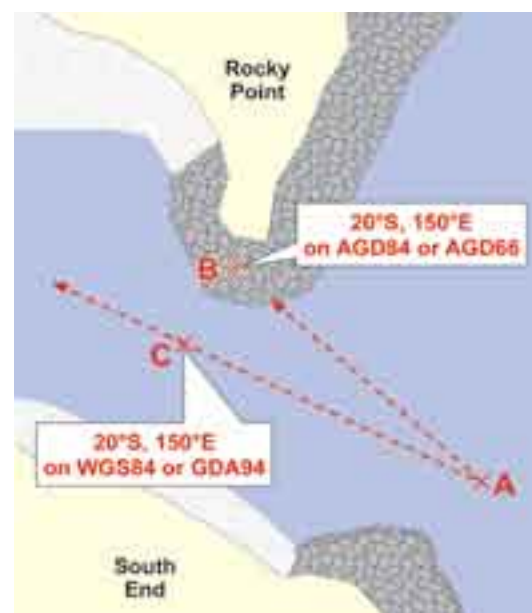
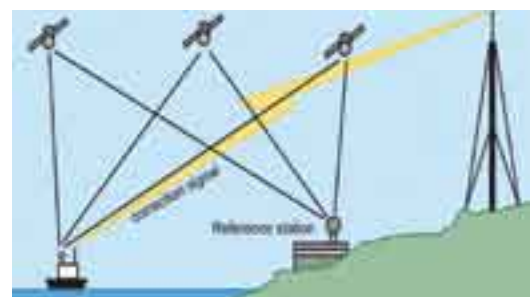
Boaties need to be aware of whether this feature on their GPS is active otherwise they may apply a correction which has already been applied by the receiver.

In years to come GPS units will become standard navigation equipment on recreational boats but they are no substitute for sound navigational practices.

Boaties should understand the strengths and weaknesses of the technology. There are some important points to remember when using a GPS.

- Always keep a proper lookout.
- Don't lose the situational awareness of the vessel's movement and course through the water.
- Don't zoom in to the largest available accurate chart scale.
- Switch the unit on well before departure and check the accuracy of the position information prior to starting the voyage.
- Always make sure your charts are current.

Volunteer Marine Rescue (VMR) and the Australian Coast Guard offer courses in navigation and the use of GPS units.





Release of Boat-share Policy

Over the last few years there has been a significant growth in the number of boat-share schemes on the market. A boat-share scheme is any arrangement involving the shared use of a ship for recreational or commercial use.

Shared ownership significantly reduces the cost, but not the responsibility and skill required to navigate large, powerful boats through increasingly crowded waterways. The shared nature of the ships means that the usage rates are usually higher than for privately owned ships.

In response to safety concerns arising from the popularity of boat-share schemes, Maritime Safety Queensland has released the Boat-share Policy.

'In the interest of marine safety, a clear and equitable boat-share policy was needed to ensure that boat-share scheme ships are operated safely,' said Captain John Watkinson, General Manager of Maritime Safety Queensland.

While similar in nature to bareboat or hire-and-drive operations, boat-share schemes have, to date, escaped the more stringent safety requirements applied to these market segments because the ships were in many instances incorrectly registered as recreational ships.

On the other hand, Queensland's bareboat and hire-and-drive industries are subject to commercial registration and operating requirements.

Historically, this is due to the high level of usage and the relative inexperience of many of the customers of bareboat and hire-and-drive operations.

'Commercial vessels which provide a service to the public need to adhere to a higher standard of safety so the safety of those on board is not jeopardised,' said Captain Watkinson.

The Boat-share Policy represents approved Government policy, and comes into effect on 1 January 2009. The policy identifies how the *Transport Operations (Marine Safety) Act 1994* and *Transport Operations (Marine Safety) Regulation 2004* apply to boat-share schemes.

As a result, many formerly registered recreational boat-share ships will be required to register as a commercial ship and comply with commercial standards.

The policy will ensure that boat-share ships are operated safely, registered correctly and have the appropriate safety and miscellaneous equipment.

In addition, the policy requires operators to be appropriately licensed and to follow the required emergency procedures and navigational safety provisions.

A number of exemptions from commercial registration requirements are provided under the policy as part of the transitional arrangements to facilitate the transition to commercial regulation.

- Exemptions may be granted in respect to registration requirements, safety equipment and licensing requirements provided certain conditions are met.
- The necessary documentation for the granting of the exemptions is to be submitted with the application for commercial registration which details what supporting documentation is required. The application for commercial registration must be lodged at a regional Maritime Safety Queensland office.
- In determining whether or not an exemption will be granted, the merits of each operation will be assessed on a case-by-case basis.

The policy is intended to provide the necessary safety outcomes for the operation of boat-share scheme ships while encouraging continued growth in boating and efficiency for the industry.

The Boat-share Policy paper can be downloaded from www.msq.qld.gov.au or by contacting a local Maritime Safety Queensland office.

Courtesy – what does it mean to you?

As part of the 2008-09 summer boating safety campaign, Maritime Safety Queensland asked what 'Courtesy on the water' means to you as a boatie. You said:

'I like people to slow down when they are travelling past me when at anchor. I also slow down when travelling past people either at anchor or near boat ramps' – **Aroona.**

'All boaties should respect the water and collect any rubbish that goes past them while anchored' – **Queensland.**

'As a fisherman's grandson, boating courtesy is the old forgotten English term for slowing down as you pass another vessel and giving a wave and a smile' – **Wurtulla Qld.**

'Boating courtesy begins at the boat ramp. Be prepared before you get on the ramp, wait your turn, and enjoy the day' – **Brisbane.**

'Move over as far as possible in tight channels, observe speed limits and make your intentions clear before changing directions' – **Mango Hill.**

'Involves slowing down for anchored vessels who may be fishing or just anchored. Also just a short wave to acknowledge the skipper doing the right thing' – **Brisbane.**

'Being patient at boat ramps; assisting other boaties who may need assistance; respecting all water users; adhere to speed limits and boating rules; protecting the environment' – **Ipswich.**

'Showing courtesy is slowing down in narrow waterways and giving way to slower vessels whilst observing the speed limit and being fully observant of the rules' – **Thorneside.**

'When out on Queensland waters I always follow what my father taught us. Give junior sailors a wide berth, take care near the surf, or end up the object of someone else's mirth' – **Queensland.**

'Go slow for smaller craft so our wash will not swamp them' – **Queensland.**

'When boating last weekend a group of young blokes gave me cushions to sit on for the hard metal seats in my tinny' – **Queensland.**

'Be aware; keep a proper lookout; give way; get there safe – not first' – **Southport.**

'Slowing down or keeping clear of people fishing while travelling is a common courtesy' – **Greenslopes.**





Competency-based training shows the way to an industry safety culture

Maritime Safety Queensland is developing and establishing 'safety culture' as the accepted benchmark for safety and risk management performance within commercial vessel operations.

The challenge is to look beyond traditional approaches to marine safety administration to improve its capacity to support safety culture development. It's all about changing behaviours.

The magnitude of this operation can be appreciated when cultural change is combined with the diversity, geographical distribution and sheer size of Queensland's commercial marine industry. So how is Maritime Safety Queensland approaching this cultural change?

It has actively engaged with commercial and fishing vessel owners and operators and the marine training sector to draw on their wealth of knowledge and experience, and enlist their support to drive essential change.

This cooperative approach has already been mutually beneficial. Outcomes of the fishing ship safety equipment trials will be used to inform decisions relating to the wearing of personal flotation devices by commercial fishers at sea.

At the Commercial Marine Industry Forum in October 2008, the risk management theme confirmed that vessel owners and operators appreciate the importance of risk assessment and management but look to Maritime Safety Queensland and Workplace Health and Safety Queensland to develop more user-friendly guidance material.

This led to a commitment from Maritime Safety Queensland to coordinate a series of interactive workshops with industry and risk management professionals to provide owners and operators with hands-on experience in the application of current methods.

Another important influence on safety culture is crew training and development. Maritime Safety Queensland has been working with the commercial marine training sector over the past 12 months to progress workplace centred competency-based training and assessment (CBT&A).

It is a national initiative with Queensland leading the transition to marine training and assessment under the National Maritime Training Packages.

A comprehensive capability development seminar for key personnel was held in October 2008 to ensure staff are equipped to work with approved training organisations over the next eight months to implement CBT&A.

Competency-based training will see students completing task books in the workplace to complete the practical application of essential skills and knowledge required for a commercial marine licence.

The change increases reliance on practical experience at sea, and translates to a significant shift away from the traditional delivery methods where the bulk of a trainee's learning and development occurred in the classroom.

Gone in 60 seconds

Three mates decided to go on an overnight fishing trip to a spot off the Queensland coast where they had fished previously, often with good results. Before leaving they thoroughly checked the boat, a nine-year-old 5.6 metre aluminium vessel. With safety in mind, the owner replaced one of the batteries, anchor and rope.

The usual practice at the fishing spot was to anchor and lay over the bommy. It usually took about five attempts to get the boat in the right position. After the first try, an attempt was made to recover the anchor and reposition the boat. While the boat was going astern, the anchor broke free and the stern created a large wash that swamped the deck.

The water continued to rise rapidly and one of the crew used his mobile phone to contact emergency services and give the position of the boat. The other crew member activated the Emergency Position Indicating Radio Beacon (EPIRB).

They all donned life jackets and the boat sank under them. The owner found himself trapped under the canopy and lost the EPIRB in his struggle to free himself of the boat. They also lost the flares which went down with the boat.

A search and rescue operation was undertaken involving three helicopters and two fixed-wing aircraft along with the Volunteer Coast Guard. After 13 hours in the water the three mates were recovered and spent three days in hospital recovering from hypothermia and jelly fish stings.

This could have turned out quite differently for these three fishermen. They were very lucky to emerge from this experience with only minor injuries. There are lessons to be learnt from this incident.

- When retrieving the anchor, make sure you are positioned directly over the anchor so it can be pulled up vertically.
- Make sure the boat has positive flotation and that pumps onboard have the capacity to clear excess water from the hull.
- It is very important that safety equipment is in a position where it is easily accessible in an emergency.
- Put on personal flotation devices early in an emergency as a vessel can sink at a rapid rate.



Remote operations – Maritime Safety Queensland

Next time you access the Internet to quickly download some information, spare a thought for our remote ports. Cast your mind back to a time where a computer was a stand-alone unit, with no access to a network with G-drive or a selection of printers to choose from.

Remember when your mobile phone only got reception if you stood on a hill and faced west, and the Internet was accessed by dial-up modem where downloading an email took 15 minutes or locked up your system and shut it down?

This may seem like the dark ages now, but in remote locations in far north Queensland, these are everyday occurrences.

Maritime Safety Queensland's Remote Area Managers, Bevis Hayward and Frank Thomson are responsible for our remote ports and surrounding waters. They manage the ports effectively and professionally, and have become quite resourceful in the process.

Thursday Island (Port Kennedy) in the Torres Strait is renowned for being a busy port, both on a community level and in a shipping sense. Frank Thomson resides on Thursday Island and is heavily involved in the operational side of the *Torres Strait Marine Safety Program*.

Maritime Safety Queensland initiated the program in July 2006 to save lives and reduce the number of lost seafarers in the Torres Strait region. Boats are the main means of transport between islands, and voyages of more than 80 nautical miles in all kinds of weather are not unusual.

Lives were saved in Torres Strait recently as a result of an Emergency Position Indicating Radio Beacon (EPIRB) supplied under the program. On 5 October 2008, a dinghy with five people on board flipped while a turtle was being pulled into the boat. The incident happened approximately 11 nautical miles north/north-west of Thursday Island.

The occupants activated an EPIRB and a helicopter search was launched by Thursday Island Water Police. Three people were winched to safety and two others were picked up by a passing private vessel. All were rescued in good health.

As part of the *Torres Strait Marine Safety Program*, consultation with local councils confirmed the cost of and access to safety equipment and training were priority issues, and that the higher cost of the EPIRBs may be financially out of reach for some community members.

To address this issue, Maritime Safety Queensland and the Australian Maritime Safety Authority are working together to develop and implement an initiative to improve access to safety equipment in the region by offering the EPIRB to eligible communities at a reduced price.

The current 121.5 MHz EPIRB will become ineffective from February 2009. From this date, internationally administered satellites will cease using the 121.5 MHz frequency and will only relay the 406 MHz frequency.

The 406 MHz EPIRB is a more advanced beacon and when activated will relay a signal that is received immediately and will pinpoint the beacon's position to within 5 kilometres accuracy, a vast improvement over the previous EPIRB.

Results from the *Torres Strait Marine Safety Program* indicate that the time spent searching for lost seafarers has reduced significantly since the widespread distribution of the new EPIRBs, increasing survival rate and decreasing the cost of recovery.

Maritime Safety Queensland is continuing to improve the program and its outcomes, aiming to provide the Torres Strait community with a strong safety culture.



Weipa is home to Rio Tinto Mining Company and as a result, the port supports a healthy volume of shipping. In addition, Weipa is well known for its fishing competitions and general enthusiasm of the local people for boating and fishing activities.

Recently, Marine Operations Officer Mike Beeby was involved in an emergency response trial in the region. The response exercise was designed and coordinated by Regional Harbour Master Captain Alan Boath and Manager (Regional Operations) Harry McLean from the Cairns Region. In supporting roles were Marine Safety Officers Don Cowie and Graeme Walker, Marine Operations Officer Andre Bats, and Acting Manager (Technical Services) Steve Budd.

The aim of the exercise was to put the Marine Emergency Response Vehicle (MERV) and the newly purchased, purpose-built response trailer into action to test their capabilities and to provide a platform for the testing of satellite

communications gear required in these remote locations.

The trailer became home to five men over a period of five days with the role of chef being taken on by Don Cowie. Don commented that the facilities were both adequate for the task and comfortable. The 10-hour drive from Cairns proved to be handled well by the MERV, trailer and the support vehicle, even in the rough terrain experienced along the way.

The operation was a great success, providing managers with the opportunity to identify logistical issues in relation to an emergency response and to implement accommodation and catering procedures required in the event of a remote area oil spill.

Karumba Port is generally based around the mining and fishing industries, with a large zinc loading facility within port limits, and a base for the Northern Prawn Trawl Fishery.

During winter, however, Karumba's population explodes by up to 100,000 people, all with 'tinnie' in tow. Accommodation facilities that are normally at 30 per cent capacity are filled to 'bursting at the seams' level, and caravan parks are crowded with vans of all shapes and sizes.

People converge on Karumba every winter chasing the same thing – fish! The recreational boatie becomes a regular in the port and surrounding estuaries, and managing the influx of so many keen anglers entering an unforgiving and unfamiliar tidal zone, can be an arduous task.

Bevis Hayward, as Remote Area Manager, oversees this annual event. He is passionate about sending out the safety message to all marine users. Bevis is also a member of several volunteer community groups, attending meetings on a regular basis, and ensuring that the face of Maritime Safety Queensland is prominent.



Response trailer – all the comforts of home!



The boat ramp car park at Karumba Port feels the weight of the tourist season.

A dollar saved – a life lost?

When it comes to choosing a life jacket, Maritime Safety Queensland is warning boat owners that there are no bargains when it comes to safety.

Recently some life jackets sold in outlets outside the marine industry have not complied with the Australian Standard.

After preparing a boat for summer with so many unexpected boat or trailer maintenance costs it's easy to understand that owners who need to replace life jackets are keen for a bargain. But boat owners need to be careful when buying life jackets.

People believe that if a life jacket is for sale on a shelf that it means it is okay for use in Queensland however this is not always the case.

We mostly find problems with people buying life jackets from suppliers who aren't specialist marine suppliers.

People need to be sure they know what to look for, or get expert advice when buying. After all, a poor quality sub-standard life jacket could make the difference between making it home or not.

Always look for a trademark compliance stamp or a statement printed on the jacket, expressing the standard to which the life jacket complies. For a PFD type 1 look for AS1512, for a PFD type 2 it's AS1499 and for a PFD type 3 it's AS2260.

Each type of life jacket has particular design features that determine how they operate and where they can be used.

Boat owners who are unsure of which type of life jacket they require should consult a specialist marine retailer, the free MSQ publication *Guide to Recreational boating and fishing in Queensland*, or check the safety tab on the MSQ website www.msq.qld.gov.au.

The website contains extensive information on life jackets and the entire range of safety equipment required in Queensland. Remember 'You're the skipper, you're responsible'.

Contacting Maritime Safety Queensland

Maritime Safety Queensland
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Office of the General Manager: 07 3120 7462

To contact the editorial team of *Seascope*, email us at: seascope@msq.qld.gov.au with 'Seascope' in the subject line, or post your letter to The Editor, *Seascope*, at the above postal address.

Cooperation between agencies

In August this year, Peter Finn from Maritime Safety Queensland's Marine Environment Protection Unit travelled to New Zealand at the request of the Australian Maritime Safety Authority to participate in acceptance testing of new oil spill response equipment.

Specialised tanks designed for storing recovered oil during pollution response operations are being purchased by the Australian Maritime Safety Authority as part of an important upgrade of Australia's oil spill response capacity. They will be available for use throughout Australia during significant oil pollution incidents.

Peter, whose role with Maritime Safety Queensland includes managing the maintenance of similar equipment throughout Queensland and training operators in its use, is recognised as an expert in his field. He is also a member of Australia's national oil spill response team and has been involved in most of the major incidents in Australian waters during the last 10 years.

In New Zealand, Peter worked closely with peers from Maritime New Zealand and the Australian Maritime Safety Authority to ensure



Testing of 20,000 litre capacity temporary storage bags in Auckland Harbour.

the products being supplied by an Auckland-based manufacturer met all operational requirements.

Peter's involvement in the project was part of Maritime Safety Queensland's ongoing commitment to Australia's National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances, better known as the National Plan.

This important project was supported by Queensland Transport and involved state, federal and international agencies, reinforcing the fact that the cooperative spirit is alive and well.

One of the many advantages of the National Plan is the close cooperation between agencies that has evolved over many years of mutual support.

New publications

The 2008 edition of *Guide to Recreational Boating & Fishing in Queensland* is now available, ready for the new year. Boaties will find this edition has been streamlined to make it more user-friendly, and some new sections have been added including Marine Pollution and How to Avoid Marine Incidents. This key publication is essential for anyone who uses our waterways.

Upcoming events 2009

MARCH

20-22 Brisbane Tinnie & Tackle Show, RNA Showgrounds

MAY

21-24 Sanctuary Cove International Boat Show, Sanctuary Cove

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