

# Bypass it's your birthday

May 2011 heralds 25 years of operation for the Nerang River entrance Sand Bypass System (SBS) and the 25th anniversary for officers involved with the plant.

The SBS is an internationally significant engineering feat, said Brian McRae, Manager (Waterways, Planning & Infrastructure) of Maritime Safety Queensland.

“Unstable river mouths are a common coastal phenomenon”, said Brian. “Twenty-five years ago, Queensland developed a novel way to manage the navigation hazards caused by littoral drift, the wave-generated transport of sand along a coastline”.

In Queensland, the prevailing waves generate a net movement of sand from south to north. Sand bars formed by littoral drift moving past a stabilised coastal entrance are often dredged to address navigation hazards. The SBS continuously moves sand south to north, ‘bypassing’ the Seaway, but otherwise simulating natural littoral drift.

The Seaway is the coastal gateway for the Broadwater, southern Moreton Bay, and Nerang and Coomera rivers, providing access to more than half of the largest registered vessels in Queensland, an extensive canal network and the Coomera Marine Precinct.

“In the early 1800s the Nerang River entrance was about where Jupiter’s Casino is today,” said Brian. “By 1930 it was at Seaworld’s present location and it was predicted to threaten the town of Curigee on South Stradbroke Island by 2050.

“Construction of the Seaway stabilized the entrance. The Sand Bypass has demonstrated that coastal bars can be managed without dredging and with minimal impact to natural coastal processes,” he said.

The 10 jet pumps on the jetty are buried up to six metres below the seabed. At each pump, high pressure water can be ‘jetted’ through a nozzle, into a ‘mixer’, creating a suction force, or venturi, that draws sand slurry from around the pump. The slurry is then pumped beneath the Seaway to an outlet on South Stradbroke Island.

The jet pump technology was borrowed from the mining industry, but a lot of staff-initiated field engineering has occurred over the years to improve performance and protect components from harsh marine conditions.

“Stainless steel pipe-work, cathodic protection, polyurethane coatings, ceramic components and procedural innovations have reduced service intervals, increased reliability and improved both efficiency and unit costs,” Brian explained.

“The SBS innovations are largely attributable to employee initiative” Brian said.

The three officers who were hired as the original plant operators are all still working there (Sidney MacKenzie, Russell Ratcliffe, Frank Hiron). The Gold Coast MSQ office also includes two officers, Regional Director Russell Witt and Manager (Marine Infrastructure) John Bendel, who worked for the consultants that designed the Sand Bypass and built the Seaway, respectively.

“An exciting recent development is a project to dredge the Seaway entrance”, according to Brian. “Through the recently formed Gold Coast Waterways Steering Committee, the state and Gold Coast City Council are contributing \$2.5m to remove ~200,000 m<sup>3</sup> of sand. The Seaway entrance has not been dredged since construction and the project will give us better insight into how well the plant is able to control bar formation”, he said.

In addition to providing navigation benefits, the project will nourish Surfers Paradise beaches. “This project is an excellent example of the benefits of collaboration that were intended under the Waterways Steering Committee Initiative”, Brian said. The Steering Committee and its working groups include representation from Marine Queensland, Gold Coast City Council and four state agencies.



Above: More than 125-years of sand bypassing experience, from left to right Russell Witt, Sidney MacKenzie, Alan Thompson, Russell Ratcliffe; Frank Hiron and John Bendel.



Above: An aerial view of the Sand Bypass System.

## SBS facts and figures

- Opened 31 May 1986.
- Two low pressure 150 kW turbine pumps.
- Two high pressure 560 kW centrifugal pumps.
- One 710 kW centrifugal slurry pump.
- Jetty is 490 metres long with the deck 6 metres above mean water level.
- 10 jet pumps spaced 30 metres apart, submerged up to 11 metres below mean sea level.
- Discharge pipe – 400 mm polyurethane lined steel, 1500 metres long with outlets on South Stradbroke Island.
- Seaway – 320 metres wide with a 170 metres wide, 5.5 metres deep navigation channel.
- Southern training wall 600 metres long.
- Northern training wall 400 metres long.
- More than 10 million cubic metres of sand pumped to date.
- Operating cost between \$1 and \$2 per cubic metre, less than one quarter the cost of dredging.

# Coast plan absorbs oil spill lessons

Maritime Safety Queensland has recently undertaken a comprehensive review of the Queensland Coastal Contingency Action Plan (QCCAP).

The new edition embodies the important lessons learned from the *Pacific Adventurer* oil spill which occurred in March 2009 and the *Shen Neng 1* grounding incident which occurred in April 2010.

The new edition of QCCAP was compiled through consultation with a wide group of stakeholders. The plan supports Australia's national arrangements for oil and chemical spills under the Inter-Governmental Agreement on Australia's National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances. The plan is also recognised as a hazard-specific plan under Queensland's State Disaster Management Arrangements, and supports Queensland's recently revised State Disaster Management Plan.

This QCCAP represents a significant change from previous editions. The plan is based on the prevention, preparation, response and recovery (PPRR) model, stipulated by the State Disaster Management Plan, and for the first time, both oil and chemical spill incidents are addressed in one document.

QCCAP is supported by a number of port and area specific first-strike response plans and also includes the Oiled Wildlife Response Plan.



Above: The clean up in progress at Moreton Island after the *Pacific Adventurer* incident.

## The law and you

# Safety equipment – are you up to speed?

On 1 June 2009, Maritime Safety Queensland introduced a new standard; National Standard for Commercial Vessels (NSCV) Part C7A – Safety Equipment, to be applied across all commercial vessels.

With the introduction of the new standard, Maritime Safety Queensland installed a two phase transitional period to allow the existing fleet enough time to get their effected safety equipment up to speed.

Commercial and fishing ships that were equipped with the required safety equipment prior to 1 June 2009 qualified for transitional periods to NSCV Part C7A.

For those vessels that qualified, the timelines are as follows:

- Two years to comply with type and quantity of items such as life jackets, life jacket lights and flares as specified in chapter 5 of the NSCV Part C7A (edition 3).
- Five years to comply with design, construction, installation and servicing requirements as specified in chapters 3, 4 and 6 of the NSCV Part C7A.

Penalties will apply to vessel owners who do not take advantage of the transitional periods to ensure they meet the new requirements within the above mentioned time frames.

If you are unsure what safety equipment is required to be carried onboard your vessel, please visit the Safety section of the Maritime Safety Queensland website at [www.msq.qld.gov.au](http://www.msq.qld.gov.au) or contact your local regional office.

## Cross-decking strengthens agencies ties

Maritime Safety Queensland's involvement in cross-decking has increased in the Gladstone region with the introduction of police vessel *Lyle M Hoey* to the region in 2009.

Marine officers from Gladstone region, which includes Gladstone, Bundaberg and Urangan, have a long-term working relationship with both the Queensland Water Police and Queensland Boating and Fisheries Patrol (QBFP) in the region which has been strengthened with the introduction of the 24 metre patrol catamaran.

Joint patrols can now be conducted not only in smooth and inland waters but also during seagoing patrols onboard the QBFP vessel *KI Ross* and the QPS vessel *Lyle M Hoey*.

MSQ marine officers' primary tasks include activities such as marine incident investigation, commercial and fishing ship monitoring, marine pollution monitoring and recreational vessel safety inspections.

The introduction of the *Lyle M Hoey* has provided all three agencies the opportunity to conduct their compliance and enforcement activities together, an initiative which has been recognised within the industry as a positive move. Officers from state and federal government can now display a unified presence in the field and address most compliance issues in line with their respective legislation. These multi-agency patrol vessels carry officers from agencies which have an interest in marine safety, marine pollution, state fisheries, marine parks, criminal law and environmental protection.

Marine officers within MSQ are confident one of the major factors contributing to the success of the joint patrols is that vessels are intercepted while they are operating on the water.

In March 2010, *Lyle M Hoey* embarked on a multi-agency patrol of the Capricorn Bunker Group off Gladstone. Police and MSQ marine officers visited the tourist and research islands and carried out vessel monitoring, marine safety education and marine investigations. Another trip in October saw a patrol covering an area north to Swain Reef and surrounding reefs which was also attended by officers from the Great Barrier Reef Marine Park Authority.

Sergeant Shaun Halson, Officer in Charge of Yeppoon Water Police said "from our perspective it was invaluable to conduct the commercial vessel intercepts in the presence of MSQ marine officers. Their in-depth knowledge of survey standards and commercial operators presents a highly professional approach to field compliance. We learnt a lot and the commercial operators value the practical advice on operating to the legislative requirements".

*Lyle M Hoey* was built by Austal in Tasmania and was launched in February 2009. It is based in Rosslyn Bay, Yeppoon and can accommodate up to 10 officers from a number of agencies on seven day deployments.



Above: Marine officers are able to assist in incidents such as these now that they have access to the *Lyle M Hoey*.

# CO on boats – be awake to warning signs

Carbon monoxide (CO) is a hazardous toxic gas – you can't smell it, see it or taste it, but it can pose a real threat to the personal safety of those onboard your vessel.

Early symptoms of carbon monoxide poisoning are headaches, nausea and fatigue. These symptoms warn that a dangerous concentration is being inhaled but they may be mistaken for the flu as the gas goes undetected. Prolonged exposure can lead to brain damage and at worst, death.

Prospective and existing vessel owners and operators should be aware of the risk of exposure to carbon monoxide poisoning in enclosed engine rooms or auxiliary machinery spaces when combustion engines are running.

Vessel owners and operators should also be aware that the configuration of boats with partially-enclosed cabins, wheelhouses or passenger accommodation spaces combined with the prevailing weather conditions can create a situation where machinery exhaust fumes that are discharged overboard are drawn back into these enclosed areas.

Owners and operators of larger vessels should also ensure appropriate controls are in place for safe entry into confined spaces such as sealed void spaces, fuel tanks, sullage tanks, battery storage compartments and compartments where harmful gases may be present. The requirements of Australian/New Zealand Standard 2865 – Confined spaces provide a minimum benchmark for safety compliance in this area. When in doubt, owners and operators of these vessels should err on the side of safety and exclude entry to these spaces until safe access can be assured in accordance with requirements of the standard.

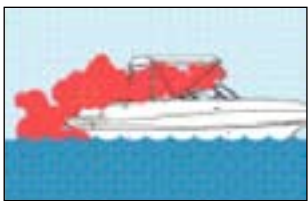
## Watch out for these situations



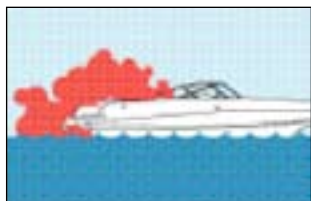
Inadequately ventilated canvas enclosures.



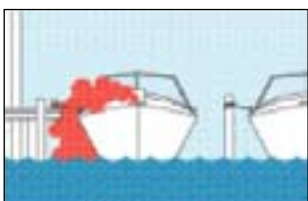
Another vessel's exhaust. CO from the boat docked next to you can be just as deadly.



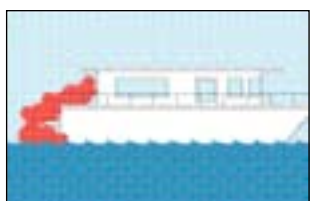
Exhaust gas trapped in enclosed places.



'Station wagon effect' or back drafting.



Blocked exhaust outlets.



At slow speeds, while idling, or stopped – CO can remain in or around your boat even if your engine or the other boat's engine is no longer running!

Graphics courtesy of the United States Coast Guard

## Engine and equipment maintenance

Regular maintenance and proper boat operation can reduce the risk of injury from carbon monoxide. The exhaust from a poorly tuned engine carries more CO than a well tuned unit. Petrol engine exhaust contains more CO than diesel engine exhaust.

### Checklist

#### Every trip

- Test the operation of each CO alarm by pressing the test button.
- Confirm that exhaust cooling water flows when the engines are started.
- Listen for any change in exhaust sound, which could indicate an exhaust component failure.
- Make sure you know where sources of CO are located, that is, engine exhaust systems and gas appliances.
- Educate all on board about the symptoms of CO poisoning.
- Educate all on board about where CO may accumulate.
- When moored alongside or rafted with another boat keep aware of exhaust emissions from the other boat.
- Ensure that temporary rain and weather covers are not blocking the normal free flow of air around the boat.
- Keep forward facing hatches open to allow fresh air to circulate.

#### Regularly

- Check your exhaust systems:
  - mounting clamps are in place and secure
  - no rust, exhaust soot, water leaks, corroded or cracked fittings evident
  - rubber hoses should be pliable and free of kinks with no burned or cracked sections
  - confirm that exhaust cooling water flows when the propulsion and auxiliary engines are started
  - listen for any change in exhaust sound that could indicate an exhaust component failure.
- Check the burners on your gas appliances.
- Check your CO detector:
  - test the operation of each detector
  - make sure the detector battery is installed properly and is in good condition
  - never remove the detector battery unless replacing it with a new battery.

#### Annually

Have a marine mechanic:

- ensure that propulsion and auxiliary engines are well tuned maintained
- check and repair or replace as necessary:
  - exhaust components for cracking, rusting, leaking or loosening
  - hoses
  - cooling systems and water pumps
  - cylinder head and exhaust manifold components.

Have a gas fitter:

- check your gas installation and appliances.

# New jet skis deliver smoother ride

Maritime Safety Queensland's marine officers are appreciating smoother waterways patrols after taking delivery of two new high-performance jet skis.

Marine Inspector Dion McKinnon says he and fellow Marine Inspector Ross Caruso had put the jet skis (more correctly called personal watercraft) through their paces and were already noticing a better ride and over-all sharper performance.

While recreational riding can be an exhilarating past-time, going out all day, every day can be a different matter.

"When you operate personal watercraft in all weather conditions for long hours rider comfort is a high priority," said Marine Inspector McKinnon.

The new jet skis worth a total \$40,000, replace two previous models which were at the end of their operational life.

"They had logged 670 hours and repair and maintenance would have involved major costs."

Marine Inspector Ross Caruso agreed that it wasn't only the jet skis which log long hours often in tough conditions.

"The improved suspension seating system reduces rider impact on rough water such as Moreton Bay which also makes the job a little easier reducing physical stress and aiding concentration and control," Marine Inspector Caruso said.

"The new personal watercraft have much shorter stopping distances and are fitted with neutral and reverse thumb throttles on the handle bar which allows for safer docking, launching and vessel interception – all important factors in our day-to-day operations."

The marine inspectors spend many hundreds of hours a year patrolling coastal and inland waterways providing safety advice to boaties and intercepting those who endanger themselves and others by ignoring the rules for safe boating.

On weekend patrols the inspectors can issue up to 30 Marine Infringement Notices per day. The Field Compliance Team have intercepted 2359 boats and jets skis and 1035 Marine Infringement Notices have been issued to date since July 2010.

"Our waterways are becoming increasingly popular and while most boaties do the right thing there's always an element who need to be reminded of the rules or pay the penalty," said Marine Inspector Caruso.

"The jet skis are highly visible and fitted with strobe lights and red and white chequered banding which should also

serve as a visual deterrent to anyone thinking of misbehaving on the water."

Maritime Safety Queensland marine inspectors are already planning a number of compliance operations on waterways across the state in cooperation with enforcement partners Queensland Water Police and Boating and Fisheries Patrol.

Inspector Caruso said the most common types of offences related to safety equipment such as unsuitable or insufficient personal flotation devices and expired flares or worse, none at all.

"By taking a few simple steps to know the rules and ensure they're properly equipped, boaties can enjoy their day out on the water and avoid the cost of a fine which can range from \$200 for safety equipment and speed breaches to \$500 for operating unlicensed or allowing an unlicensed person to operate."

For more information on boating safety and rules visit Maritime Safety Queensland's website [www.msq.qld.gov.au](http://www.msq.qld.gov.au).



Above: Marine Inspector Dion McKinnon takes one of the new jet skis out for a test ride.

Left: The new high-performance jet skis will assist the Field Compliance Team in their patrols.

## Industry profile

### Michael Barnett, General Manager – Operations Ports North

Ports North operates the Ports of Cairns, Cape Flattery, Karumba, Mourilyan, Skardon River, Quintell Beach, Thursday Island, Burketown and Cooktown in one of the world's most spectacular regions.

#### How did you first become involved in the marine industry?

I am from a seafaring family so I guess the sea was always in my blood! I went to sea straight from school as a deck cadet, serving on reefer vessels trading between the UK and Europe, and New Zealand and Australia. When I gained my Foreign-Going Master's ticket, my wife and I emigrated from the UK to New Zealand, where after a short time on the Cook Strait Ferries, I joined the Lyttelton Harbour Board (port for Christchurch) as a junior pilot. I eventually became harbour master and chief pilot. I left New Zealand to move to my current role in Cairns.



#### How long have you been in your current role and what does it involve?

I have been in Cairns since the beginning of 2006 as Manager Operations for Ports North (formerly Cairns Port Authority). Ports North manage all the ports on Cape York from Mourilyan to Burketown, except Weipa. My staff look after the day-to-day operations of the ports providing berthage for all vessels from the cruise liners to fishing vessels and pleasure craft. Cairns hosts more than 40 cruise liner visits a year, imports bulk fuel and fertilizer and exports sugar and supplies for Thursday Island and Weipa. The Cairns Marlin Marina is home to the largest commercial passenger fleet operating to the Great Barrier Reef and is a popular destination for cruising vessels and superyachts.

#### What changes have you seen brought in during this time?

The first major change was the sale of Cairns Airport closely followed by the Queensland Ports Review. This is when the Cape York ports moved to come under management from Cairns, and Far North Queensland Ports Corporation, or Ports North, was established.

“ I am from a seafaring family so I guess the sea was always in my blood! ”

#### What are some of the changes that you feel the Australian and/or Queensland shipping industry needs to make?

I think the changes proposed under the National Ports Strategy will go a long way to creating efficient port infrastructure.

#### What do you see as the main differences between the Australian and New Zealand marine industries?

Both countries have major container trades, in fact most shipping services include both countries in their trading routes. The main difference is marked by the trading patterns of the two countries. Australia is dominated by the huge export tonnages of coal, iron ore and other minerals while New Zealand relies on pastoral exports. In addition Australia has a large offshore industry based in the North West.

#### What are the main challenges Ports North face in an environmental capacity?

Ports North operates in one of the highest sensitive areas in the world, the Great Barrier Reef Marine Park. The primary challenge that we face is to be able to maintain an efficient, profitable business while ensuring the environment is protected and enhanced.

#### How do you think the marine tourism industry's health is faring at the moment?

Tourism is a major industry in the Far North and Ports North provides major facilities for the Reef Fleet operators and cruise liners. Like all sectors of the industry the decline in visitor numbers affects revenues for Ports North. The incentives currently being provided by both state and federal government are expected to assist in the much needed recovery of the industry.

#### What are your personal future directions?

Working in Cairns and my frequent visits to our other ports means life is varied and rewarding, however I expect some changes to come along in a couple of years so will see what opportunities they bring.

# Confronting storm season's aftermath

Queensland boaties have had to deal with some extreme weather conditions over the past few months, with flooding and cyclones hitting the coast over the Christmas/New Year period and February.

A key challenge for Maritime Safety Queensland during these events is to maintain our core business and services across the state while some regions and areas are confronting quite daunting periods of weather impacts and disruptions.

The Christmas/New Year flood events in central Queensland and the January floods in the south-east are behind us but work continues to restore navigation aids and channel depths in some areas south of Rockhampton. The Port of Bundaberg was reopened in early March after a two month closure due to extensive flooding of the Burnett River.

Debris and hazards to navigation continue to be collected by the contractors engaged to clean up areas of the Brisbane River.

On the cyclone front, Severe Tropical Cyclone (STC) Yasi began developing as a tropical low northwest of Fiji on 29 January and was upgraded to a Category 4 at 7 pm on 1 February when it also began to accelerate towards the tropical Queensland coast.

At 4 am on Wednesday 2 February Yasi was upgraded to a Category 5 system. By the same evening all ports between Cooktown and Mackay were closed. STC Yasi made landfall near Mission Beach between midnight and 1 am early on Thursday 3 February. Through good preparation REEFVTS was already operating from Hay Point having relocated (see page 4 for details).

Townsville region had the unfortunate experience of enduring the wrath of cyclone Yasi but the preparations had been well planned. All ships in the region's ports were put to sea well in time to find safer waters. Tugs, pilot boats and work boats had adequate time to secure.

Further to the south, early notification to all vessel operators of the regional harbour master's (RHM) intention to close the Whitsunday pilotage area was well received and all vessels were able to return to base or seek safe haven before the closure.

The RHM closed the Port of Hay Point and notified all ships' masters of the imminent closure of the port and encouraged them to leave voluntarily before the closure. This proved to be an excellent strategy to ease any last minute 'traffic jams'. This was made possible through an agreement negotiated by the RHM with both Hay Point Coal Terminal and Dalrymple Bay Coal Terminal that queuing positions would be maintained on their return.

Maritime Safety Queensland would like to commend boaties on their cooperation and vigilance during these testing times.



Above: Marine inspectors out in force in Milton during the Brisbane floods.

## Upcoming events 2011

### MAY

- 19-22 Sanctuary Cove International Boat Show  
Sanctuary Cove
- 28-29 Townsville Fishing and Outdoor Expo  
Cluden Racecourse, Townsville

### JUNE

- 4-5 Boondooma Fish Stock and Management  
Boondooma
- 10-12 Boyne-Tannum Hook-up  
Gladstone

## Contacting Maritime Safety Queensland

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### 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  
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

## Seascope online

To see the latest and previous editions, go to  
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