
Marine Pollution from Vessel Sewage in Queensland



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Introduction

It is alarming that enforceable regulations have not been in place to prohibit the discharge of sewage from vessels in Queensland coastal waters until this year.¹ Queensland Authorities frequently receive reports of faeces and toilet paper in swimming waters and washing onto beaches.² Disguising these unpleasant deposits by maceration prior to discharge is not a solution.³ Waters are polluted by sewage nutrients and pathogens and as these waters are shared by the community for primary recreation, swimming and food production, the environmental and health risks are high. In coastal and semi protected waterways, water exchange rates are lower than those in the ocean therefore waste material accumulates more readily. Sewage pollution depletes oxygen supplies and promotes growth of algal blooms. The health of our waterways is threatened while sewage pollution is unpoliced.

Although there are numerous marine pollutants, the scope of this discussion is quarantined to sewage which is one of the more prolific and harmful. Its seriousness has warranted address by the international marine pollution conventions, including MARPOL's Annex IV.⁴ This annex relates to discharge of sewage from vessels on international voyages. For the purposes of this paper, 'vessels' includes small leisure craft to large livestock carriers and international cruise liners.⁵ Up to 100,000 litres of sewage per day can be generated by a cruise liner and discharged into the marine

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¹ 2004 marks the commencement of the *Transport Operations (Marine Pollution) Regulation 1995* (Qld) sewage discharge provisions. Other specific legislative instruments were in place prior to 2004 and are an exception (eg. the *Great Barrier Reef Marine Park Regulations 1983* (Cth) and *Transport Infrastructure (Sunshine Coast Waterways) Management Plan 2000* (Qld), probably drafted due to shortcomings in the remainder of the law applying to coastal waters in the rest of Queensland. The *Environmental Protection (Water) Policy 1997* (Qld) also applies to sewage discharge in non-coastal waters.

² Maritime Safety Queensland (MSQ), *Vessel-sourced sewage - Regulatory Impact Statement* (2003) Queensland Transport <<http://www.transport.qld.gov.au>> 14 at 29 July 2003.

³ Boat Owners' Association of NSW suggests maceration should be considered as a form of treatment. See Boat Owners' Association of New South Wales (Inc), *Sewage Discharge From Vessels - BOA Submission* <http://www.uers.bigpond.com/BOA_NSW/submission.htm> at 16 August 2003.

⁴ International Maritime Organisation, *Text of the Revised MARPOL Annex IV - Annex 10 MEPC 44/20 - Regulations for the Prevention of Pollution by Sewage from Ships* (2000) IMO <<http://www.imo.org>> at 16 August 2003.

⁵ MARPOL defines ships/vessels widely also to include hydrofoil boats, air cushion vehicles, submersibles, floating craft and fixed or floating platforms. See *Transport Operations (Marine Pollution) Act 1995* (Qld) Schedule.

environment without penalty.⁶ Vessel traffic is ever increasing, considering Australia's and Queensland's growing reliance on trade, tourism and recreational boating in sensitive areas.

The Commonwealth government is presently working towards adoption of the MARPOL annex but unfortunately this also will be applicable only to larger ships on international voyages. The Queensland government has enacted similar legislation relating to coastal waters and all vessels. Focusing on the Queensland marine environment, this paper examines and critically appraises the legislative measures available to combat vessel sewage pollution.

Extent of the Problem

There are many factors fueling the demand for protection against vessel pollution and consequently, protection of the marine environment. This is particularly pertinent for Queensland waters given the richness and beauty of its marine environmental assets including Hervey Bay, Moreton Bay and the Great Barrier Reef. The reef is extremely vulnerable to environmental change. Deterioration of water quality and the impacts of global warming are contributing to the degradation of the reef. In August 2003 the Queensland Government released a sobering scientific report on coral bleaching in the Reef.⁷ The Queensland Premier is adamant that the Reef Water Quality Protection Plan will be implemented. This initiative is being carried out in partnership with the Commonwealth Government.⁸

Land based marine pollutants also drive the need for better environmental controls. The effects of land based pollution on the coastal environment are driving major reforms of land use management and infrastructure requirements. Many local government water utilities are implementing upgrading strategies and major capital works programs to improve effluent quality at their sewage treatment plants.⁹ Australia's first membrane bioreactor (MBR) plant was recently commissioned at Picnic Bay, Magnetic Island.¹⁰ This plant services the domestic sewage produced on the island. The MBR treatment technology allows production of very high quality effluent.¹¹ Both the Great Barrier Reef Marine Park and the EPA were instrumental in setting the stringent discharge quality requirements. This demonstrates their high level of commitment towards protection of coastal waters by allowing only highly treated effluent to be discharged, while vessel based sewage has poured into the waterways raw and unchallenged.

A further comparison is drawn to the severity of penalties for land based sewage pollution discharge. The recent case of *Environment Protection Authority v Gardner*¹² involved the defendant discharging septic effluent into a coastal waterway. The physical, chemical and biological condition of the waterway was changed as a result of

⁶ 'Legislation Targets Pollution from Ships' (2003) July-August *About the House* 6.

⁷ Queensland Government, 'Report on Great Barrier Reef Coral Bleaching' (Press Release- Qld Media Statement, 11 August 2003) natural@cabinet.qld.gov.au.

⁸ *Ibid.*

⁹ Including local wastewater service providers Brisbane Water, Gold Coast Water, Redland Water & Waste, Maroochy Water Services and others.

¹⁰ Chris Hertle, 'Australia's First Membrane Bioreactor (MBR) – Wastewater Management at Magnetic Island' (Speech delivered at the Monthly Technical Meeting of the Australian Water Association, Greek Club Brisbane, 19 August 2003).

¹¹ *Ibid.*

¹² *Environment Protection Authority v Charles Anthony Leslie Gardner* [1997] NSWLEC 169 (7 November 1997) <<http://www.austlii.edu.au/ghi-bin/disp.pl/au/cases/nsw/NSWLEC/>> at 16 August 2003.

the discharge. Sediments sampled near the outlet contained viruses that were held to have come from the effluent. Gardner was imprisoned and ordered to pay a penalty of \$250,000 plus costs. This was considered to be a particularly serious environmental crime since the offence was committed against an entire community. Contrasted against the immunity enjoyed by those discharging sewage from a vessel, this case demonstrates the urgency of rectifying this imbalance.

Vessel based sewage pollution is comparatively more potent than domestic sewage as there is less water available per unit volume of sewage and seasickness wastes when discharged. Domestic sewage contains large amounts of fresh tap water and is usually treated at a wastewater treatment plant prior to discharge whereas vessel sewage is typically released directly to receiving waters. Further, vessel sewage may contain treatment chemicals such as chlorine and formaldehyde, not found in high concentrations in domestic sewage.¹³

The State of the Environment reporting process has indicated that nutrients released to the marine environment associated with sewage discharge present one of the most serious threats to Australia's near-shore marine environments.¹⁴ It is estimated that vessel sewage alone contributes 5,000 to 15,000 tonnes of nitrogen annually to the Brisbane River and Moreton Bay.¹⁵

Sewage pollution in the marine environment also poses a serious risk to the fitness of seafood for human consumption. Food poisoning is highly likely if humans consume seafood that has been exposed to sewage. Crustaceans are particularly susceptible as they inherently clean and filter the water they inhabit and accumulate pollutants within, including viruses. The National Health and Medical Research Council (NHMRC) established a hygiene code of practice for "Oysters and Mussels for Sale for Human Consumption".¹⁶ The code recommended that 'adequate precautions should be taken to ensure that shellfish growing areas are free from pollution capable of causing pollution of the shellfish, and extreme care should be taken to protect the shellfish from contamination by any wastes. A clean area surrounding the shellfish growing areas should be established and the dumping of all wastes ... including wastes from ...boats, should be prohibited.' High faecal coliform counts almost always occur in estuarine oyster growing areas during holiday season due to houseboat activity.¹⁷ Elevated levels of nitrogen isotopes derived from sewage sources have been found in oysters around harbours, marinas and boating locations.¹⁸ It is imperative that better protection of waterways and the crustacean habitat is provided.

*Ryan v Great Lakes Council*¹⁹ assessed the contamination of oysters from pathogens contained in sewage pollution and a resultant Hepatitis-A outbreak in those consuming the oysters. While the pollution was caused by land and marine based discharges, boats were nominated as a contributing source: 'the sanitary survey... reveals that 20 of these 31 watercraft were pleasure boats, 10 of which had permanent or semi-permanent

¹³ Joint Standing Committee on Treaties (JSCOT), Parliament of Australia, Chapter 4 – MARPOL 73/78: Annex IV – Regulations for the Prevention of Pollution by Sewage from Ships (Revised) of *Report No. 52 Review of Treaties Tabled on 4 March 2003*, (26 June 2003) 64

<<http://www.aph.gov.au/house/committee/jsct/march2003/report.htm>> at 17 August 2003.

¹⁴ *Ibid.*

¹⁵ MSQ, above n 2, 16.

¹⁶ *Ryan v Great Lakes Council* (1999) 102 LGERA 123, [78] (Wilcox J).

¹⁷ MSQ above n 2, 14.

¹⁸ Thomas Schlacher et al., 'Oysters as Biomonitors of Sewage Nitrogen in Four Sub-Tropical Estuaries' (Paper presented at the AWA Regional Conference, Mooloolaba, 8-10 November 2002).

¹⁹ (1999) 102 LGERA 123.

residents. ...only three of the pleasure boats had holding tanks or other suitable treatment devices. The remaining craft were fitted with standard direct disposal units'.²⁰

Queenslanders are also concerned with the current relaxed conditions with respect to live aboard vessels. These commercial 'hire and drive' vessels are classified as Class IF under the Queensland registration regime. Maritime Safety Queensland (MSQ) has received many complaints from those hiring houseboats when they discover their vessel contains a direct disposal unit.²¹ Further public concerns have been raised in "Questions on Notice" in Queensland Parliament. Residents of the Gold Coast have requested action from the Queensland Government regarding the need to implement change regarding vessel sewage management in the Southport Broadwater.²² Very few fully operational facilities have been available in that area for public use.²³ The community is increasingly becoming aware of this problem.

The prevention of sewage pollution is not solely the task of the State government as the Commonwealth government also has an interest in water quality. There are clauses in the *Australian Constitution* to justify legislation to protect national water quality.²⁴ The Commonwealth also has responsibility for shipping,²⁵ navigation,²⁶ fisheries²⁷ and of course Environment Australia, so has ample authority to help defuse this time bomb. Commonwealth initiatives to prevent marine pollution include the Oceans Policy, the National Water Quality & Management Strategy, Coastcare and Clean Seas programs;²⁸ however these do not directly address the sewage problem. The Australian and New Zealand Environment Conservation Council (ANZECC) has been an active ministerial council of the Commonwealth and prepared guidelines in 1997²⁹ regarding port facilities and promoting awareness thereof. The Commonwealth is also responsible for Australia's accession to international pollution conventions so it is clearly in the Commonwealth's interests to be active in introducing legislative instruments to protect the marine environment.

Additional drivers for improved protection against vessel sewage pollution include the triple bottom line and Ecologically Sustainable Development (ESD) principles. Only recently have these principles become entrenched in our environmental and planning legislation.³⁰ Decision making processes should not proceed today without reference to the ESD doctrine. Sustainable development was first introduced as part of

²⁰ (1999) 102 LGERA 123, [204] (Wilcox J).

²¹ MSQ, above n 2, 15.

²² Queensland, *Questions on Notice*, Queensland Parliament, 27 February 2002, <www.parliament.qld.gov.au/Tableoffice/Documents/qon/Only/QON> at 30 August 2003 (Lex Bell).

²³ Email from James Murphy to Anna West, 3 September 2003.

²⁴ See Anthony Moeller and Jennifer McKay, 'Is there power in the Australian Constitution to permit the Commonwealth to impose legislation in the area of national water quality' (2000) 17(4) *Environmental and Planning Law Journal* 294-307. For example, the *Australian Constitution* s96 contains powers to make grants for water quality research and s52(i) and s51(xx) could also provide powers to govern regarding trade and commerce relating to water quality.

²⁵ *Australian Constitution* s98 navigation and shipping.

²⁶ *Australian Constitution* s51(vii) Lighthouses, lightships, beacons and buoys.

²⁷ *Australian Constitution* s51(x) Fisheries in Australian water beyond territorial limits.

²⁸ Zada Lipman and Gerry Bates (Eds), *Pollution Law in Australia* (2002) 373.

²⁹ Australian and New Zealand Conservation Council (ANZECC), *Best Practice Guidelines for the Provision of Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand* (1997) Environment Australia <<http://www.ea.gov.au/coasts/pollution/dumping/waste-reception/>> at 6 September 2003.

³⁰ *Environment Protection and Biodiversity Conservation Act 1999* (Cth), *Environmental Protection Act 1994* (Qld) and *Integrated Planning Act 1999* (Qld).

the Rio Declaration of 1992. The inspiring “Agenda 21” document³¹ of that declaration addresses priorities with regard to minimisation of sewage pollution in Chapter 17. It requires protection to be given to oceans and coastal areas against sewage discharge and also reminds us of the need to establish reception facilities for ship wastes, not only in large ports, but also in smaller scale facilities including marinas and fishing harbours.³²

The London Convention³³ deals with dumping of wastes at sea. The definition of ‘sea’ in Article 3 of the convention does not however apply to dumping of wastes via coastal outfalls or from ships in internal waters of a state.³⁴ This is ironic because it ignores the dumping of wastes, being the same type of wastes where discharge is prohibited or requires a permit under other parts of the convention. Australia is also obliged under the United Nations Convention on the Law of the Sea 1982 (UNCLOS) to prevent, reduce and control pollution of the marine environment from vessels in accordance with internationally accepted standards.³⁵ Part XII of UNCLOS relating to protection of the sea has a close relationship with Agenda 21’s Chapter 17. This association has elicited a more sophisticated level of protection to the environment in comparison to what might have eventuated under UNCLOS alone.³⁶ The MARPOL convention is a significant driver for reform regarding vessel pollution and is discussed below.

MARPOL 73/78 Annex IV

MARPOL 73/78 is an abbreviated name for the *International Convention for the Prevention of Pollution from Ships 1973* as modified by the 1978 protocol relating thereto. It is the leading international treaty on prevention of ship sourced marine environment pollution. It consists of a combination of a 1973 convention which was later supplemented in London in 1978 with a wider convention/protocol developed in response to a series of pollution accidents in 1976-77.³⁷ Australia incorporated the MARPOL convention in its domestic legislation in 1987.³⁸ The International Maritime Organisation (IMO)³⁹ administers MARPOL and is charged with the responsibility of preventing marine pollution, safety of shipping and liability and compensation for damage caused by pollution. On a domestic level, the Australian Maritime Safety Authority (AMSA), in cooperation with the States, implements MARPOL.

A number of annexes accompany MARPOL to deal with control of specific marine pollutants. Compliance with some of these annexes is mandatory for signatory parties, however most of them are adopted on a voluntary basis. Australia has adopted five (5) of the five (5) MARPOL annexes that have come into force to date.⁴⁰ MARPOL’s Annex IV contains “Regulations for the prevention of pollution by sewage from ships” and was formally adopted in Australia on 27 May 2004. Adoption is discussed in the

³¹ United Nations, *Agenda 21* (1992) International Geneva Convention (IGC) <<http://www.igc.org.habitat.agenda21/Ch-17.html>> at 20 July 2001 at 17.27.

³² *Ibid* at 17.30(d).

³³ The London Convention, *London Convention 1972 – Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter* (1972) London Convention Organisation <<http://www.londonconvention.org/main.htm>> at 6 September 2003 (and amended by the 1996 protocol).

³⁴ Zada Lipman and Gerry Bates (eds), above n 28, 358.

³⁵ *United Nations Convention on the Law of the Sea* (UNCLOS) 10 December 1982 part XII art 211.

³⁶ Patricia Birnie and Alan Boyle, *International Law & the Environment* (2nd ed, 2002), 349.

³⁷ International Maritime Organisation (2003) *IMO Home Page* <<http://www.imo.org>> at 16 August 2003.

³⁸ JSCOT, above n 13, 63.

³⁹ IMO, above n 37.

⁴⁰ As at 27 May 2004. The count was 4 out of 5 prior to Australia’s Annex IV ratification. See JSCOT, above n 13.

next section. As at 30 June 2003, 92 parties/countries had contracted to Annex IV, representing 52.47% of international cargo tonnage.⁴¹ Its popularity is increasing. Annex IV entered into force internationally on 27 September 2003 and applied immediately in those countries that had already given their ratification to the Annex.⁴² MARPOL Annex IV was recently revised as included in Annex 10 to MEPC 44/20 and was adopted on 13 March 2000 at the 44th MEPC session.⁴³ It was further revised during the 51st MEPC session, with newer provisions to commence 1 August 2005.

Annex IV prescribes standards for the containment and management of sewage generated on ships. It defines conditions where and when sewage may or may not be discharged. It applies to ships only on international voyage⁴⁴ greater than 400 tonnes or those less than 400 tonnes licensed to carry more than 15 people.⁴⁵ Passenger ferries are a good example of the latter. Existing ships meeting these criteria have a further five (5) years grace from the entry into force to comply with the Annex whereas new ships must comply immediately. Details of the classification of a “new” ship are prescribed Annex IV. There is clearly no coverage for ships on local voyage interstate or intrastate under this annex.

The following onboard hardware options are required by Annex IV to prevent sewage pollution:

- a holding tank (including level indicator) and standard discharge connection; or
- an approved sewage treatment plant; or
- an approved sewage comminuting and disinfecting system.

Restrictions imposed by Annex IV regarding discharge of wastes include:

- raw (untreated) sewage may be gradually discharged if a ship is more than 12 nautical miles (nm) from the nearest land and once the ship is moving at a speed greater than or equal to 4 knots;
- comminuted and disinfected sewage may be discharged if a ship is more than 3 nm from nearest land; and
- treated sewage (effluent) from an IMO approved treatment system may be discharged when a ship is in any location provided that the effluent does not produce visible floating solids nor cause discolouration of the surrounding water.⁴⁶

Further discussion on treatment standards is provided later.

The sewage discharge rules under Annex IV do not apply to ships where the discharge is necessary for the purpose of securing the safety of a ship, and those on the boat, or saving life at sea.⁴⁷ The discharge restrictions also do not apply if the discharge occurs as a result of damage to a ship or its equipment if all reasonable precautions have been taken to minimise the discharge.⁴⁸ As a further disclaimer, Regulation 11.2 of Annex IV suggests that while vessels are in waters of state jurisdiction, the discharge rules of Annex IV do not apply. This occurs only where less stringent discharge standards are imposed by the state. This allows ships to capitalise on the weaknesses of

⁴¹ IMO, above n 37.

⁴² Australian Maritime Safety Authority (AMSA) Commonwealth of Australia, Marine Notice – Regulations for the Prevention of Pollution by Sewage from Ships. AMSA 4 (2003).

⁴³ Marine Environment Protection Committee (MEPC), International Maritime Organisation, *44th Session 12 April Annex 11 MEPC 44/20 – Implementation of Annex IV of MARPOL 73/78* (2000) <<http://www.uscg.mil/hq/gm/mso/mso4/44report.pdf>> at 16 August 2003.

⁴⁴ IMO, above n 4 Annex IV reg 2 – Application.

⁴⁵ AMSA, above n 42.

⁴⁶ AMSA, above n 42.

⁴⁷ IMO, above n 4, Annex IV reg 3 – 2.1.

⁴⁸ IMO, above n 4, Annex IV reg 3 – 2.2.

state jurisdictions. It further erodes the protective measures of Annex IV and highlights the urgent need for compatible local legislation. Local legislation is discussed later.

To avoid any confusion over the definition of “sewage”, MARPOL’s Annex IV clearly defines it in Regulation 1.⁴⁹ It includes drainage from toilets and urinals, medical premises, animal areas and other wastewaters mixed with this drainage. It also astutely requires the application of more than just the sewage annex if sewage is mixed with other wastes covered by other annexes.⁵⁰ This clause is worthwhile. There is no mention however in the definition of sewage of “grey” waters generated from bathing facilities, kitchens and laundries (likely to be generated on larger vessels). These grey waters can equally contain disease-carrying microorganisms and other contaminants therefore they definitely should be considered for future inclusion in the definition of “sewage” also. Although the MEPC has rejected this suggestion in the past, the U.S. was in favour of the addition. It was determined by the committee that the risk associated with an overflow in the sewage system caused by higher inflows from grey water was potentially more serious than the environmental pollution caused by showers. Consequently, shower water was allowed to continue to drain to the open sea.⁵¹ “WC scuppers” drainage (which could include shower water) was subsequently removed from the definition of “sewage” in MARPOL Annex IV Regulation 1.3

Annex IV requires adequate reception facilities be provided by the government of each party to the convention to allow vessels to comply with the discharge rules.⁵² Most Australian ports have facilities in place in preparedness for the annex’s inception.⁵³ Annex IV was prepared almost 30 years ago. Such facilities are required to have sufficient capacity to meet ships’ needs and not cause delays to ships in port.⁵⁴

Additional protection is afforded to the Great Barrier Reef area by defining the reef as “nearest land”. That is, the discharge provisions of Annex IV must be applied in relation to the reef boundaries. Therefore the only discharges allowed within these areas are from an IMO approved sewage treatment plant. Designation of the Reef as a particularly sensitive area was effected in November 1990 by the IMO.⁵⁵ This shows a high level of commitment of the IMO towards environmental protection. It appears the Reef was the first and only sea area receiving this level of protection internationally for many years.⁵⁶ The AMSA or a delegated organisation⁵⁷ will be undertaking inspection, surveillance and compliance assessment as part of its normal port and flag state control activities.⁵⁸

There are a number of advantages associated with adoption of Annex IV, the most important being improved marine environment protection. Equally, there would have been dangers in not adopting the annex. If the Commonwealth had not adopted Annex IV, then Australia would not have been in a position to protect its waters from pollution

⁴⁹ IMO, above n 4, Annex IV reg 1.3.

⁵⁰ IMO, above n 4, Annex IV reg 11.3.

⁵¹ MEPC, above n 43, Chapter 12.

⁵² IMO, above n 4, Annex IV reg 12 – 1.1.

⁵³ JSCOT, above n 13, 66.

⁵⁴ EMARC, *Transport Research Fourth Framework Programme Waterborne Transport DG VII-83 MARPOL Rules and Ship Generated Waste* (1999), 17.

⁵⁵ *Ibid*, 19.

⁵⁶ JSCOT, above n 13, 70. Nine (9) areas are now internationally designed as particularly sensitive.

⁵⁷ JSCOT, above n 13, 66.

⁵⁸ AMSA, above n 42.

from foreign flag vessels.⁵⁹ Consequently the states would have needed to implement their own requirements to cover international ships as well as their own vessels, creating a situation where each state had differing controls in each 3 nautical mile (nm) jurisdiction. The remaining Commonwealth waters extending to the 200 nm limit would then have been unprotected.⁶⁰ Such disparity may occur between states regardless of the Commonwealth's actions, but to a greater extent if the Commonwealth took no positive action. For this reason, a number of states have been awaiting the Commonwealth's action before embarking on their own state-specific sewage pollution legislation.⁶¹

Further, for Australian ships to participate in export trade, they would need to comply with the Annex IV requirements to be permitted to enter foreign ports. Only administrations that have adopted Annex IV can issue the certification documentation at present, so additional costs would be incurred by those traders in obtaining relevant approvals.⁶² Participation in Annex IV will empower Australian authorities to apply a consistent national approach to any foreign ships visiting Australian waters and to enter and inspect suspect vessels as part of port state control. Adoption of the Annex will provide an opportunity for Australians to participate in IMO debates regarding treatment standards and other matters of concern. Treatment standards under MARPOL are discussed below.

MARPOL Annex IV Treatment Standards and MEPC.2(VI)

MARPOL's Annex IV Chapter 3 – Equipment and Control of Discharge, Regulation 9 - Sewage Systems⁶³ contains the specific sewage infrastructure and treatment plant requirements for those ships to which this annex applies.⁶⁴ Provision of onboard treatment is clearly the most expensive option to vessel owners, but arguably provides the best protection where reception facilities are limited and high passenger numbers and/or prolonged stays in sensitive waters are likely.

Regulation 9.1.1 of Annex IV requires that sewage treatment plants shall comply with the standards and test methods as outlined in resolution MEPC.2(VI)⁶⁵ adopted in 1976. That resolution contains “Annex A – International Effluent Standards for Sewage Treatment Plants” which lists the treatment standards and “Annex B – Guidelines for Performance Tests for Sewage Treatment Plants with Respect to Effluent Standards” which outlines a testing methodology to ensure compliance of equipment with “Annex A”. The mandate for the IMO to develop these standards is contained in the 1973 convention⁶⁶ (note this was prior to the 1978 protocol). MEPC.2(VI) also pre-dated the

⁵⁹ Commonwealth, Parliament of Australia, *Commonwealth Regulatory Impact Statement – Regulations for the Prevention of Pollution by Sewage From Ships – Annex IV of the International Convention for the Prevention of Pollution from Ships 1973/78 (MARPOL 73/78)* (2003) at <<http://www.aph.gov.au/house/committee/jsct/march2003/treaties/AnnexIV/RIS.pdf>> at 15 August 2003 at 4.1.

⁶⁰ *Ibid.*, 4.2.

⁶¹ *Ibid.*, 4.15.

⁶² *Ibid.*, 4.4.

⁶³ IMO, above n 4, Annex IV reg 9 – 1.1.

⁶⁴ IMO, above n 4, Annex IV reg 2 establishes the ships to which Annex IV applies i.e. those on international voyage and are ≥ 400 tonnes or < 400 tonnes and carry >15 passengers.

⁶⁵ IMO, above n 4, reg 9.1.1 Refers to Marine Environment Protection Committee (MEPC), International Maritime Organisation, *MEPC.2(VI) MEPC VI/17 – Annex IV – Recommendation on International Effluent Standards and Guidelines for performance tests for sewage treatment plants* 3 December 1976.

⁶⁶ MEPC, above n 65, MEPC.2(VI) at page 1 suggests Resolution 20 of the *International Convention on Marine Pollution 1973* urges the IMO to develop treatment standards and test methods.

latest version of Annex IV so the regulation references in MEPC.2(VI) are not strictly correct.⁶⁷

MEPC.2(VI) also recommends that a list be periodically circulated to member governments containing brand names of treatment plants meeting the prescribed treatment standards. As a result, circular MEPC.5/Circ.6⁶⁸ was produced, with the most recent edition being prepared in 2003 under MEPC.5/Circ.7. This circular contains a number of annexes covering certified Pollution Prevention Equipment (PPE) including oil/water separators, incinerators and sewage treatment plants. Annex 5 defines those sewage treatment plants referred to as “IMO approved treatment systems”. The list contains the manufacturing country, the manufacturer’s name, the type and model, design loadings and approving governments for each type of plant. As yet, Australia does not appear on the list as an approving government. There is also no Australian manufacturer listed as at 2003. Presumably any Australian manufactured equipment would also need to meet requirements established in Australian Standards (for example AS 3542 – Pleasure boats – Toilet Waste Collection).

Regulation 11 of MARPOL’s Annex IV – Discharge of Sewage,⁶⁹ further requires that where discharge is permitted through use of a sewage treatment plant, the plant has to be certified by the administration to meet operational requirements. Results must be laid down in a certificate. This section adds an additional water quality criterion that the effluent must not produce visible floating solids or cause discoloration of the receiving water under Regulation 11.1.2.2. The absence of visible floating solids or water discoloration does not necessarily mean a high quality effluent is being produced, so this clause serves only as an aesthetic consideration. It is uncertain why this criterion was not included in Regulation 9.1.1 instead, where there was referral to the other MEPC.2(VI) quality standards. This clause would be better placed into the MEPC.2(VI) standards.

The treatment standards specified in Annex A of MEPC.2(VI) require that treatment plant effluent quality be achieved as follows:

- faecal coliforms $\leq 250/100$ mL;
- suspended solids ≤ 50 mg/L on shore and ≤ 100 mg/L above the flushing water value when tested aboard;⁷⁰ and
- BOD₅ ≤ 50 mg/L (reduction of soluble and insoluble organics).

It is suggested the values above should be reduced as they are higher than domestic land based sewage effluent limits adopted in south-east Queensland.⁷¹ An update of the

⁶⁷ MEPC, above n 65, MEPC.2(VI) refers to the treatment requirements of Annex IV reg (3)(1)(a)(i) which now relates to “Exceptions” so clearly some regulation renumbering has occurred since MEPC.2(VI).

⁶⁸ Marine Environment Protection Committee (MEPC), International Maritime Organisation *MEPC.5/Circ 6 – Pollution Prevention Equipment Required by MARPOL 73/78. Ref. T5/1.01.* 29 July 2002 later updated as *MEPC.5/Circ 7* 15 December 2003.

⁶⁹ IMO, above n 4, reg 11.1.2.

⁷⁰ Perhaps this higher value is due to the unsettling impact of turbulence experienced onboard as a result of swells. This would interfere with desirable conditions for settling out of solids.

⁷¹ It may be argued that elevated values are permissible since the volumes associated with vessel discharges are less than those associated with domestic land based discharges. This is a complex question – dispersion studies etc. are needed. Before domestic discharge locations and licences are agreed, extensive environmental impact assessment studies (EIS) are undertaken. Assuming a MARPOL vessel commences discharge under the rules of Annex IV, at the location of a domestic outfall site, it is logical and precautionary to suggest that at least the same standards as determined by EIS or higher should apply to the vessel. Further, if the MARPOL standards are hypothetically to apply to areas where a state’s jurisdiction does apply, eg in Queensland waters through enabling legislation (eg. TOMPA), then the same or better standards should also

1976 standards is certainly overdue. Further, Annex B of MEPC.2(VI) suggests other parameters may voluntarily be tested with a view to “technological development” in the future.⁷² Additional quality parameters should definitely be added. Total nitrogen is highly relevant to effluent quality, as is phosphorus.⁷³ It is recommended limits be set for these parameters and added to the three “mandatory” criteria above.

There is also reference in Annex B to the need for improved disinfection methods (again a voluntary provision) due to the risk of chlorination and its byproducts. In 1976 those alternative disinfection methods would have been expensive and unreliable for many, but today are commonplace and perform well. It is recommended that the disinfection methods be specified to produce a low disinfectant residual and perhaps a residual value should be nominated. There are a number of other technical issues related to treatment standards that require discussion, however they are beyond the scope of this paper.

To its credit, the IMO has prepared a set of reference standards to define specific sewage treatment requirements however it is argued that the treatment levels outlined in this standard do not achieve a satisfactory level of protection to the marine environment. Stakeholders including the Great Barrier Reef Marine Park Authority (GBRMPA) are asking why standards are being implemented that are obsolete.⁷⁴ As early as 2000, this question was raised by the U.S.,⁷⁵ and has been included in one of Australia’s recent submissions to the IMO’s MEPC.

Regulation 9 of Annex IV concedes that for treatment systems on existing ships, national specifications are acceptable. This then raises the question, do national standards exist for treatment systems and are they more or less stringent than the MEPC recommendations? Why does Annex IV require only new ships to comply with MEPC.2(IV)? The IMO is tolerant towards existing vessel owners.⁷⁶ However Regulation 2.2 provides some control. It suggests older vessels should be equipped to discharge sewage in accordance with Regulation 11 but this could perhaps be to a lesser discharge standard. It is also logical that new ships should have to abide by a new standard. It is suggested Australia needs to develop better national treatment standards. These standards might be used both for the purposes of local waters and also to lobby the IMO regarding MARPOL’s standards. Queensland’s *Transport Operations (Marine Pollution) Act 1995* (Qld)⁷⁷ (TOMPA) allows for such standards development under s133(2)(e). TOMPA is discussed later. And also as discussed later, the GBRMPA has made some progress with its own discharge standards.

With advances in technology since 1976, significantly higher standards of treatment are possible (including tertiary treatment – c.f. membrane technology used at Magnetic Island as discussed earlier). Scientists are also better able to assess and quantify the

be expected. It is noted that the *Great Barrier Reef Marine Park Regulations 1983* (Cth) draw a similar parallel of comparing discharge at the site of a land-based outfall in reg 74(4).

⁷² IMO, above n 55, MEPC.2(VI) Annex B s2.5, 5.

⁷³ Boating Western Australia (BWA), *Boating WA Submission to the Department of Transport on “The Discharge of Sewage from Vessels into the Marine Environment – Draft Discussion Paper.”* BWA <<http://boatingwa.com.au/documents/sewagebwasubmission.pdf>> at 16 August 2003. The Boating Association of Western Australia suggests available treatment cannot reduce nutrient loadings. This claim requires further investigation in light of most recent treatment technologies.

⁷⁴ Interview with Paul Nelson Australian Maritime Safety Authority – Environment Protection Standards (Telephone interview, 19 August 2003). Mr Nelson also noted this is a problem.

⁷⁵ MEPC, above n 43 Chapter 12, 46.

⁷⁶ IMO, above n 4, Annex IV reg 2 - existing ships are bound by the Annex IV provisions post 2008.

⁷⁷ *Transport Operations (Marine Pollution) Act 1995* (Qld).

adverse impacts of sewage pollution on ecosystems. The international community has to some extent maintained pressure on the IMO and some improvements have been made in commercial vessels.⁷⁸ The international community needs to continue to lobby the IMO to review its standards, considering recent advances in treatment technology and to assess feasibility and cost of newer treatment systems and standards. The debate needs to be informed by process engineers, technologists, equipment suppliers, scientists and environmentalists.

It is also noted that in relation to the sewage comminuting and disinfecting devices,⁷⁹ there is no specification as to the quality of discharge, the type of disinfectants used and the impact of the discharge of contents (which may have a high residual). The only guidance given is that the system shall be approved by the "administration". Better specification of these facilities is required.

Research into the effectiveness of the MARPOL regulations and standards has indicated that awareness is generally high⁸⁰ however there is sparse concrete environmental evidence to suggest that the MARPOL regulations are directly responsible for improvement in the marine environment. Some have suggested accurate reporting of annual totals for each of the MARPOL annexes would significantly improve confidence levels.⁸¹ The environmental performance of the shipping industry could then be better benchmarked.

Adopting the Annex

There are a number of processes that must be followed before the MARPOL Annex IV can be officially adopted in Australia. While it was originally envisaged that the annex would be in force in Australia by Christmas 2003,⁸² it did not happen until 27 May 2004.⁸³ For the benefit of the marine environment it is crucial that Annex IV be implemented without delay. The processes required to bring the Annex IV treaty into force are described below.

As early as 1986,⁸⁴ just prior to Australia's adoption of MARPOL, legislation was passed by the Commonwealth⁸⁵ to implement Annex IV however this was never proclaimed. Insufficient acceptance of the annex globally meant that the annex had not entered into force internationally and there was little incentive or urgency for Australia to proceed at that time. Some countries had been reluctant to adopt Annex IV due to concerns that it would be difficult to provide the scale of reception facilities required, and would create onerous obligations on small ship owners.⁸⁶ Originally the annex covered ships down to 200 gross tonnes undertaking domestic or international voyages.⁸⁷ The annex was subsequently modified to apply to a slightly more narrow classification (eg. ships 400 tonnes and above etc. on international voyage as discussed

⁷⁸ Interview with Paul Nelson, Australian Maritime Safety Authority – Environment Protection Standards (Telephone interview, 19 August 2003).

⁷⁹ IMO, above n 4, Annex IV reg 9.1.2 - a sewage comminuting and disinfecting system is one of the other alternative infrastructure measures to protect against sewage pollution while within 3 nm from nearest land.

⁸⁰ EMARC, above n 54, 63.

⁸¹ EMARC, above n 54, 63.

⁸² Email from Bob Alchin to Michael White, 1 July 2003.

⁸³ Email from Bob Alchin to Anna West, 18 August 2003.

⁸⁴ JSCOT, above n 13, 64.

⁸⁵ *Protection of the Sea Legislation Amendment Act 1986* (Cth).

⁸⁶ Michael White, 'Marine pollution from ships: international conventions and Australian laws' in Zada Lipman and Gerry Bates (eds), *Pollution law in Australia* (2002), 393.

⁸⁷ JSCOT, above n 13, 70.

earlier). The revised text of Annex IV was adopted by the MEPC at its 44th session in 2000.⁸⁸ Many countries deferred their interest in Annex IV until these amendments were made. It is interesting to note the MEPC states the amendments were necessary to assist the acceptance of Annex IV, while maintaining the same level of protection to the marine environment.⁸⁹ This reduction in the application of the annex to only the larger international ships was perhaps in fact against the interests of ESD and marine protection.⁹⁰

Concern had been raised by member countries over the need to avoid a dual treaty regime⁹¹ between those countries that had ratified the original Annex IV and the more recent signatories that committed to the revised version. The IMO recommended that parties to the old annex implement the revised version as soon as the annex enters into force to avoid any duality. It is the revised version that has been referenced in this paper. The MEPC suggests that for new signatories, only the revised annex should be implemented upon commencement.⁹²

Internationally the Annex entered into force on 27 September 2003, with the number of countries ratifying Annex IV now exceeding the 50% level.⁹³ Many foreign ships complied with the Annex IV regime ahead of the international entry into force as part of good shipping practice. Some port states also have developed local legislation to control sewage pollution, and conditions are imposed on entry into those ports.⁹⁴ Australia however is yet to become heavily involved in such practices. Australia was required to pass legislation to effect its endorsement of Annex IV and consider treaty action. In 2001, the Australian Transport Council recommended that Australia adopt the annex.⁹⁵ The *Maritime Legislation Amendment (Prevention of Pollution from Ships) Act 2003* (Cth) was subsequently endorsed, receiving Royal Assent on 26 June 2003.⁹⁶ This Act is discussed further in the section on Commonwealth Legislation.

The Commonwealth Government's Joint Standing Committee on Treaties (JSCOT) considers treaties prior to their ratification. On 4 March 2003, it was submitted that MARPOL Annex IV be considered for adoption. Following a review period of a few months, the committee submitted its report on the Annex (Report No. 52) on 26 June 2003 recommending it be adopted.⁹⁷ It was considered that its adoption would be in the national interest.⁹⁸

With the approval of the JSCOT and the requisite amending legislation, the ensuing steps involved arranging accession of Annex IV with the IMO via the Department of Foreign Affairs and Trade. The Minister for Transport and Regional Services, John Anderson, wrote to the Minister for Foreign Affairs seeking his agreement, together with other relevant ministers, to gain the Governor General's agreement to Australian

⁸⁸ MEPC, above n 43, Annex 11 Resolution MEPC.88(44) – implementation of Annex IV of MARPOL 73/78.

⁸⁹ Ibid.

⁹⁰ A value judgement must be made regarding what size ship becomes a problem. Arguably in relation to primary contact / primary recreation coastal waters, any size boat can provide a hazard. Even though a single boat may not contribute significant pollution, it is the cumulative impact of 100 other boats doing exactly the same thing in close proximity that creates a more serious impact.

⁹¹ MEPC, above n 43, 46.

⁹² MEPC, above n 43, Annex 11.

⁹³ IMO, above n 37.

⁹⁴ EMARC, above n 54, 17.

⁹⁵ Commonwealth, above n 59, s2.4, 3.

⁹⁶ Alchin, above n 82.

⁹⁷ JSCOT, above n 13 at 71 – Recommendation No 3 – ‘The committee supports Annex IV of ... MARPOL 73/78... and recommends that binding treaty action be taken’.

⁹⁸ JSCOT, above n 13, 64.

accession and for the Minister for Foreign Affairs to arrange accession with the IMO. Once the accession application was lodged, the Annex entered into force in Australia after a period of three (3) months and this occurred on 27 May 2004. Once lodgement with the IMO occurred, the Commonwealth proclamation process commenced simultaneously with the IMO's considerations, with the intent that legislative provisions would commence once the Annex entered into force.⁹⁹ The Commonwealth legislation is discussed below.

Commonwealth Legislation

The *Maritime Legislation Amendment (Prevention of Pollution from Ships) Act 2003* (Cth) amends the *Navigation Act 1912* (Cth) and the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth)¹⁰⁰ (POTS(POPFS)A) to implement Annex IV of MARPOL. The POTS(POPFS)A applies to the outer edge of the Exclusive Economic Zone (EEZ). It applies to Australian flagged ships in any location and to foreign flagged ships in Australian ports or the territorial sea.¹⁰¹ It also allows "rollback" of legislation to the state requirements as per the Offshore Constitutional Settlement to allow state legislation to continue to operate.¹⁰² The amended POTS(POPFS)A gives effect to Australia's obligations under Annex IV of MARPOL as stated in Part IIIB – Prevention of pollution by sewage, ss26BB and 26CA. The provisions commence on a date fixed by proclamation. Protection is also given to the Antarctic regions.

The technical discharge prohibitions will not be repeated here, but one technical difference identified from Annex IV was the initial adoption in s26D6(a) of 4 nm rather than 3 nm as the distance from nearest land beyond which disinfected and comminuted sewage may be discharged. Annex IV suggests discharge can occur after 3 nm. The POTS(POPFS)A therefore initially provided slightly more protection to the nearest land than Annex IV and better buffered the coastal waters of the federated states. This buffer was subsequently restored to the 3 nm distance envisaged in Annex IV via an amendment to the POTS(POPFS)A.¹⁰³

A further difference introduced by the POTS(POPFS)A is the application of civil offences within the context of a criminal penalty system. Each time deviation occurs from the MARPOL intent, there is less likelihood of achieving parity with the internationally accepted system. It has been noted that the 2001 amendments to introduce Annex IV make many departures from MARPOL¹⁰⁴ and deviate towards Australian domestic law.¹⁰⁵ It would be preferable if there was complete consistency between international, national and state regimes.¹⁰⁶

It is noted that culpability of crew members is not addressed in the Commonwealth legislation (as it is in State legislation discussed later). Only masters or owners can be liable for a discharge offence under ss26BD(2A) and 26D(1) of POTS(POPFS)A. The

⁹⁹ Alchin, above n 83.

¹⁰⁰ *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) <http://www.gbrmpa.gov.au/corp_site/about_gbrmpa/legislation_regulations.htm> at 30 August 2003.

¹⁰¹ White, above n 86, 406.

¹⁰² *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) <http://www.gbrmpa.gov.au/corp_site/about_gbrmpa/legislation_regulations.htm> at 30 August 2003 - s5 Saving of other laws (eg. TOMPA).

¹⁰³ Above n 6.

¹⁰⁴ White, above n 86, 406.

¹⁰⁵ White, above n 86, 406.

¹⁰⁶ For example, to reduce the likelihood of triggering clauses such as reg 11.2 of Annex IV (IMO, above n 4) regarding regimes that differ from Annex IV.

amended act will also provide power to authorities to require the owner or a master to discharge a particular load of sewage at a reception facility when it is suspected the sewage would pose a risk to the sea under s26DAA. The Annex IV treatment standards are also referred to therein. Reference is also made in POTS(POPFS)A s26D(7)(a)(ii) regarding the performance of a vessel's sewage treatment plant and its results being annotated in the ship's sewage certificate as is defined in the *Navigation Act 1912* (Cth). This act defines structural requirements for the shipping industry (for example, requirements for oil/water separators and other equipment).

The Commonwealth has expressed an intention to consider development of parallel standards for those ships not on international voyage. This is being investigated by the Australian Transport Council's Australian Maritime Group.¹⁰⁷ It has been proposed that a national standard for vessel sewage treatment systems would be beneficial.¹⁰⁸ Undoubtedly Queensland would want to have significant input to ensure the criteria developed were stringent enough to protect Queensland's sensitive waters. For the time being however, the Commonwealth's focus has been on the Annex IV implementation legislation. The amended Commonwealth legislation is intended to apply to State jurisdictions also, but with provisions to allow states to develop their own complementary legislation.¹⁰⁹ This has been the approach adopted for the other annexes as well as Annex IV. The relevant legislation for the State of Queensland is discussed below.

Transport Operations (Marine Pollution) Act 1995 (Qld)

The *Transport Operations (Marine Pollution) Act 1995* (Qld)¹¹⁰ (TOMPA) is Queensland's primary act addressing marine pollution associated with ships. Its goal is to protect Queensland's marine and coastal environment through minimisation of vessel sourced pollution.¹¹¹ Sections 3(2) and (3)(b) make specific reference to sewage pollution. TOMPA applies¹¹² to all ships in coastal waters, defined as those waters of the State¹¹³ under the *Acts Interpretation Act 1954* (Qld)¹¹⁴ s36 and includes other waters within the limits of the State that are tidal. Since Queensland's jurisdiction extends to a limit of 3 nm of the territorial sea, only discharges occurring within that area are covered by TOMPA,¹¹⁵ with the seaward remainder being covered by Commonwealth legislation. TOMPA's jurisdiction is slightly expanded by its s9 which qualifies discharges that occur outside coastal waters and enter coastal waters to be considered as discharges under TOMPA.

¹⁰⁷ Commonwealth, above n 59, s5.4, 7.

¹⁰⁸ MSQ, above n 2, 7.

¹⁰⁹ Commonwealth, above n 59, s4.15, 6.

¹¹⁰ *Transport Operations (Marine Pollution) Act 1995* (Qld) <<http://www.legislation.qld.gov.au>> at 15 August 2003.

¹¹¹ *Transport Operations (Marine Pollution) Act 1995* (Qld) s3 <<http://www.legislation.qld.gov.au>> at 15 August 2003.

¹¹² *Transport Operations (Marine Pollution) Act 1995* (Qld) s6 <<http://www.legislation.qld.gov.au>> at 15 August 2003.

¹¹³ *Transport Operations (Marine Pollution) Act 1995* (Qld) Schedule – definition of “coastal waters” <<http://www.legislation.qld.gov.au>> at 15 August 2003.

¹¹⁴ *Acts Interpretation Act 1954* (Qld) s36 – Meanings of commonly used words “coastal waters of the State” – typically the waters on the landward side of the territorial sea boundary <<http://www.legislation.qld.gov.au>>.

¹¹⁵ *Transport Operations (Marine Pollution) Act 1995* (Qld) s11 <<http://www.legislation.qld.gov.au>> at 15 August 2003.

TOMPA has been amended in the last few years by the *Transport Legislation Amendment Bills 2001 and 2002 (Qld)*¹¹⁶ (TLAB 2001 and 2002). Previously TOMPA required vessels 10 m or more in overall length to be fitted with a toilet and sewage holding tank. These provisions were to apply from 1 July 2002 forwards.¹¹⁷ Interestingly these proposals received strong criticism from the boating industry and were considered to contravene the spirit of the Act.¹¹⁸ This prescriptive size classification covered less than 10% of recreational vessels and did not address the nature of on-board sewage generation. Even if a holding tank were installed, there was no provision to prohibit discharge to coastal waters.¹¹⁹ The 2001 amendments made minor alteration to the sewage holding tanks clause by allowing some ships to be exempted if the Chief Executive deemed the vessel unsuitable for a tank.¹²⁰

This aside, the 2001 amendments better defined culpability for discharge of sewage from ships. Up until the 2001 amendments, crew members in Queensland were immune from prosecution for causing pollution.¹²¹ A ship's master or owner was criminally responsible. However after 2001, this responsibility was extended to any crew member causing sewage pollution unless carrying out instructions from a master or other authorised person.¹²² This will ensure more care is taken, provided crew members know the law.

The TLAB 2002 amendments were more promising. These changes have been successfully passed through parliament and amended TOMPA to improve the framework for vessel sewage management. A key stakeholder advisory group, formed and facilitated by MSQ, was instrumental in developing the 2002 amendments.¹²³ Part 7 of TOMPA was replaced with a new Part 7 titled "Prevention of Pollution by Sewage." The amendments provide increased protection to Queensland's coastal waterways and their users.¹²⁴ The amendments were made to mirror the national process of implementing legislation to give force to Annex IV of MARPOL. Terminology used in the MARPOL Annex was also incorporated into the legislation in TOMPA s46. The TOMPA terminology however will prevail in the event of any inconsistencies.¹²⁵ TOMPA defines "sewage" in its Schedule as per the Annex IV definition and it too is not particularly specific on grey water.

Legislative provisions were included to allow the establishment of nil discharge areas and to require on-board infrastructure systems. The discharge restrictions are

¹¹⁶ Transport Legislation Amendment Bill 2001 (Qld) (TLAB 2001) and Transport Amendment Bill 2002 (Qld) (TLAB 2002).

¹¹⁷ Queensland, *Hansard – Transport Legislation Amendment Bill 2002*, 50th Queensland Parliament, 16 April 2002, at 987 <http://legislation.qld.gov.au/Bill_Docs/BI150_02.html> at 15 August 2003 (Steve Bredhauer).

¹¹⁸ *Ibid.*

¹¹⁹ MSQ, above n 2, 19.

¹²⁰ Transport Legislation Amendment Bill 2001 (Qld) (TLAB 2001) Clause 52 – Amendment of TOMPA s50 – Ships to have holding tanks. Transport Legislation Amendment Bill 2001 (Qld) Explanatory Notes <<http://www.legislation.qld.gov.au>> at 17 August 2003 at page 20. Note s50 of TOMPA was later amended by Clause 35 of TLAB 2002.

¹²¹ Transport Legislation Amendment Bill (Qld) 2001 (TLAB 2001) Clause 51 – Amendment of TOMPA s47 – Discharge of sewage into coastal waters prohibited. Note however s47 was later amended by Clause 36 of TLAB 2002.

¹²² Transport Legislation Amendment Bill (Qld) 2001 Explanatory Notes <<http://www.legislation.qld.gov.au>> at 17 August 2003 at page 19 Clause 45 and others amending TOMPA extend the culpability to crew members in certain circumstances.

¹²³ MSQ, above n 2, 4.

¹²⁴ Transport Legislation Amendment Bill 2002 Explanatory Notes <<http://www.legislation.qld.gov.au>> at 15 August 2003, 1.

¹²⁵ *Transport Operations (Marine Pollution) Act 1995* (Qld) s46.

quite clear, however defences apply similar to those in MARPOL regarding exemption if it is a permitted discharge as a result of saving life or if discharge occurs due to damage to a ship or its equipment (with subsequent impacts being mitigated).¹²⁶ s51A of the amended TOMPA contains these discharge defences.¹²⁷ The legislative amendments also defined declared vessels. These declared vessels are considered to pose particular sewage pollution risk, so the legislation developed a specific protection regime for such vessels. Many of the specific mechanisms of these amendments were intended to be covered in detail in the TOMPA regulation promised for release in 2002.¹²⁸ The regulation was later adopted, with provisions commencing 1 January 2004. The regulatory provisions are discussed later.

One of the contentious items in TOMPA post the 2002 amendments is the exclusion of the *Criminal Code Act 1899* (Qld)¹²⁹ (CCA) defences of mistake or lack of intent. Section 47 of TOMPA assigns a penalty for the offence of discharging sewage but also states that the offence applies despite ss23-24 of the CCA.¹³⁰ Section 23 of the CCA examines intention and motive and removes criminal responsibility for acts that occur independently of a person's will. Section 24 of CCA covers mistake of fact, declaring an innocent act committed under mistaken belief to be no more serious than that arising, had the belief been correct. Section 24(2) of the CCA volunteers that this defence may be expressly waived, as occurs in the amended TOMPA. TOMPA's exclusion of the CCA defences had previously applied to other discharge offences in TOMPA, but now has been applied to sewage discharges. This severely narrows the scope of defences. It is acceptable to discharge sewage where it is a permitted discharge, or due to ship damage, but for all other discharges, the criminal defence provisions are not available. This establishes an environment of strict liability.¹³¹ Ship owners and operators will need to ensure that crew receive thorough training and are fully aware of their obligations. Any management systems or technological instruments generally rely on some form of human operation so onboard work procedures or instructions must be effective, practical and workable. Communication and education will be vital.¹³² Given the highly complex nature and sheer volume of marine environment law already in force, crew, masters and owners must take the time to become fully conversant with the TOMPA requirements. These provisions leave no room for onboard error and represent a 'win' for the marine environment.

The mechanics of the TLAB 2002 amendments deem it an offence to discharge sewage under TOMPA ss 47, 48 or 50. Section 47 covers the prohibition of raw sewage discharge in the nil discharge waters for raw sewage. Section 48 covers prohibition of discharge of treated sewage in nil discharge waters for treated sewage. If a ship is outside the nil discharge waters for treated sewage but inside the nil discharge waters for untreated sewage, s51B obliges the operator to ensure the treatment process equipment is functioning and that an indicator be provided to confirm that status. It is submitted that the discharge of untreated (raw) sewage should attract a more severe

¹²⁶ Above n 124, 3. Damage is defined in TOMPA's Schedule to specifically exclude any existing defect resulting from lack of maintenance.

¹²⁷ *Transport Operations (Marine Pollution) Act 1995* (Qld).

¹²⁸ Bredhauer, above n 117, 987.

¹²⁹ *Criminal Code Act 1899* (Qld) <<http://www.legislation.qld.gov.au>> at 17 August 2003.

¹³⁰ Transport Legislation Amendment Bill 2002 (Qld) Clause 36 amending s47 of TOMPA – Discharge of untreated sewage into nil discharge waters for untreated sewage prohibited. Section 47(3) applies despite the *Criminal Code Act 1899* (Qld), sections 23 and 24.

¹³¹ Above n 124, 3.

¹³² EMARC, above n 54, 43.

penalty than discharge of treated sewage. Presumably the former generates the greater environmental impact and is therefore a more serious offence. Interestingly the legislation assigns equal penalties to each of these offences of 850 points for an individual, or up to five times this amount if a corporation. This is consistent with s181B *Penalties and Sentences Act 1992* (Qld). A penalty unit is currently worth \$75 AUD.

Section 50 covers prohibition of discharge of either raw or treated sewage in the nil discharge waters for a declared ship and is also assigned an 850 point penalty. Section 49 is closely related to s50. It is slightly confusing but suggests that a declared vessel must not operate in the nil discharge waters for a declared vessel unless it is fitted with an appropriate sewage holding device. Such clauses are necessary to address the higher level of pollution risk these vessels create. Adequacy of the holding device must be determined based on the vessel "person capacity" declared under the *Transport Operations (Marine Safety) Act 1994* (Qld) and its regulation.¹³³ The sewage holding volume required must be calculated with reference to the time the vessel will be in the nil discharge area. The current TOMPA regulation exempted discharge from declared ships until s50 commenced.¹³⁴

s51 of the amended TOMPA also addresses the declared ship regime. It requires the development and observance of a "Shipboard Sewage Management Plan" (SSMP). The regulation details precisely what this must cover. It seems that this represents a trend towards a modern environmental approach, using a management tool that achieves outcome-based results, with some process control along the way.¹³⁵ This is similar to what may have resulted had a self-regulated industry "Code of Practice" approach been taken. The Boat Owners' Association of NSW has suggested a code of practice approach for vessel sewage discharge in NSW requires further consideration.¹³⁶ There are a number of offences related to the SSMP, including the development of a management plan without having the relevant equipment to implement the plan.¹³⁷

Section 51C of the amended TOMPA allows other legislation to apply with regard to vessel sewage pollution. For example, the *Transport Infrastructure (Sunshine Coast Waterways) Management Plan 2000* (Qld)¹³⁸ requires containment of all sewage until it can be pumped out at shore or disposed of by using mobile reception facilities.¹³⁹ This stringent legislation perhaps indicates a level of the frustration with the inadequacy of existing legislation to protect coastal waters against vessel sewage pollution.

Clause 37 of the TLAB 2002 further increases the regulatory framework to require that sewage pollution offences committed under the amended TOMPA ss47, 48 and 50 constitute reportable incidents. The amended TOMPA s67 explains this requirement by widening its definition of "reportable incident" to include sewage offences. This

¹³³ *Transport Operations (Marine Safety) Act 1994* (Qld) <<http://www.legislation.qld.gov.au>> at 17 August 2003. TOMSA and *Transport Operations Marine Safety Regulation 1995* (Qld) <<http://www.legislation.qld.gov.au>> at 17 August 2003 TOMSA Regulation.

¹³⁴ *Transport Operations (Marine Pollution) Regulation 1995* (Qld) s55 – Exemption from Part 7 of the Act <<http://www.legislation.qld.gov.au>> at 15 August 2003.

¹³⁵ Command v control environmental management systems. See Brad Wylynko, 'Beyond command and control: environmental licensing strategies' (1999) 16(4) *Environmental and Planning Law Journal* 277.

¹³⁶ BOA NSW, above n 3.

¹³⁷ *Transport Operations (Marine Pollution) Act 1995* (Qld) s51(3) <<http://www.legislation.qld.gov.au>> at 15 August 2003.

¹³⁸ *Transport Infrastructure (Sunshine Coast Waterways) Management Plan 2000* (Qld) <<http://www.legislation.qld.gov.au>> at 17 August 2003.

¹³⁹ Above n 124, 11.

emphasises the seriousness of these offences. The existing notification procedures established under TOMPA describe the reporting process.

Perhaps one of the most impressive clauses in the TLAB 2002 is Clause 39 which amends TOMPA s133(2)(e) to include the power to impose regulations over standards for treatment systems. It is now possible to impose higher standards than those prescribed by the IMO's MEPC.¹⁴⁰ Such an increase could only be implemented after thorough risk assessment and assimilation studies justifying the change. Surely a better outcome can be achieved than the prevention of floating solids and the outdated 1976 standards. Queensland tends to lead other states in terms of municipal wastewater standards, with its focus on the clean seas program and local water quality management strategies. Generally infrastructure standards have remained ahead of the regulator's requirements.¹⁴¹ Hopefully the same can be achieved with respect to the boating industry and its standards.

The amended s66 of TOMPA now includes powers to the 'general manager' as established under the recently developed legislation *Maritime Safety Act 2002* (Qld).¹⁴² The general manager can provide or request the provision of reception facilities required as a result of the new TOMPA Part 7 regarding sewage. Standardisation¹⁴³ of the types of facilities crew members could expect to find in each port they visit would promote consistency and reduce scope for errors or pollution. This is one practical suggestion that could be highly effective in protecting the marine environment.

MSQ has undertaken a regulatory review of vessel sewage pollution in Queensland. The review commenced in 1998 with the intention of developing legislation to better protect Queensland's marine environment and its users from vessel sewage pollution. As part of this review, a Regulatory Impact Statement (RIS) was prepared in early 2003,¹⁴⁴ accompanied by a draft regulation to update the existing TOMPA 1995 regulation.¹⁴⁵ These documents were made available for public discussion with the opportunity to comment closing in May 2003. The regulation is discussed below.

TOMPA Regulation

As promised by the State,¹⁴⁶ the TOMPA regulation has been endorsed to progress the amendments made to TOMPA by the TLAB 2002 towards setting specific details for the new legislative provisions. It advances the purpose of TOMPA as established in its s3. MSQ conducted a wide consultation process with stakeholders on the draft version of the regulation and submitted finalised regulation amendments to Cabinet in September / October 2003.¹⁴⁷ The regulation was endorsed, with commencement occurring on 1 January 2004. As discussed earlier, the TOMPA amendments and regulation amendments were introduced to promote consistency with the MARPOL Annex IV provisions. The amendments target boats that are not on international voyage but on local intrastate and interstate voyages including those with similar high passenger carrying capacities. They also cover boats of a smaller size. The regulation

¹⁴⁰ MEPC, above n 55 MEPC.2(IV) specifies treatment standards.

¹⁴¹ For example, a local authority in South-east Queensland prepared a tertiary treatment upgrade strategy in the mid 1990s, well ahead of regulatory requirements.

¹⁴² *Maritime Safety Act 2002* (Qld) <<http://legislation.qld.gov.au>> at 17 August 2003.

¹⁴³ EMARC, above n 54, 63.

¹⁴⁴ MSQ, above n 2.

¹⁴⁵ Consultation Draft *Transport Operations (Marine Pollution) Amendment Regulation 2003* (Qld) at <<http://www.transport.qld.gov.au/msq/>> at 8 August 2003.

¹⁴⁶ Bredhauer, above n 117, 987.

¹⁴⁷ Email from James Murphy to Anna West, 22 July 2003.

specifically defines the nil-discharge areas, sewage treatment equipment, requirements for various ship types (including declared ships) and reporting/management requirements.¹⁴⁸

Prohibited discharge waters are those that are most important to protect. Under the regulation these include marinas, canals, boat harbours and highly protected areas (marine parks). Other restricted discharge areas have been declared and include smooth waters, Hervey Bay waters, Moreton Bay waters and buffer areas to important features including persons in the water, aquaculture resources, reefs, the mean low water mark of an island or the mainland and highly protected areas.

Annex IV extended the definition of nearest land to protect the Great Barrier Reef,¹⁴⁹ but clearly for coastal waters, the above comprehensive list indicates there are different uses of waters and therefore additional items to protect against pollution. It is considered these have been adequately addressed. Detailed dilution and dispersion studies were undertaken to determine the discharge regime rules. The assimilative properties of sewage in various waters eg. smooth waters, open waters etc. were considered, as were the various treatment systems available before the buffer distances were nominated.¹⁵⁰

It is suggested that the regulation should include or reference detailed maps of the various discharge areas. Coloured mapping could be very effectively used to outline the various zones and discharges permitted as relevant to the timeframes outlined in the regulation. It is a relatively detailed task to determine what can and cannot be discharged where and when. There also needs to be a clear logical hierarchy in the discharge regime (eg. raw sewage cannot be discharged here, but treated effluent of Class x can be discharged) to clearly convey the intent. This information could also be shown on navigational charts.

The Queensland vessel sewage key stakeholder group considered a number of issues associated with the draft regulation at its last meeting 30 July 2003 and had proposed further amendments to the regulation before it was submitted to Cabinet.¹⁵¹ Discussions were conducted regarding 500 m vs 1,000 m as an appropriate discharge buffer from a sensitive area. The 1,000 m was retained as it is likely vessel operators would find it difficult to judge 500 m so the 1,000 m buffer gives a better level of protection.¹⁵² The final TOMPA regulation contains slightly different values to these, such as 700, 926 and 1,852 m as referenced in Schedule 6.

The TOMPA regulation nominates 2010 as the year for adoption of the most stringent pollution control requirements, with intermediate requirements to apply between 2004, 2005 and 2009. This timeframe is similar to the MARPOL Annex IV requirements and justly indicates an equivalent urgency to protect local waters. Key stakeholder group members suggested that instead of waiting until later years of this decade for the higher level of protection, a mid 2005 adoption would be preferable.¹⁵³

Annex IV granted existing ships five (5) years grace from the 2003 in-force date to the 2008 deadline to comply with the sewage requirements. There is no equivalent distinction or reprieve for existing vessels against new vessels under TOMPA which is less accommodating to existing vessel owners than MARPOL's Annex IV. All ships

¹⁴⁸ MSQ, above n 2, 12.

¹⁴⁹ IMO, above n 4, Annex IV reg 1.5.

¹⁵⁰ MSQ, above n 2, 3.

¹⁵¹ Email from James Murphy to Anna West, 3 September 2003 (notes from 30 July 2003).

¹⁵² Ibid.

¹⁵³ Ibid.

must comply including existing ships. Also, for the first time, TOMPA places discharge restrictions on all sizes of vessel and this is a refreshing change after the MARPOL Annex IV requirements which were concentrated on large international ships. Fortunately, TOMPA's Schedule defines "ships" widely and all may be capable of attracting sewage discharge restrictions (provided sewage is generated). Special provisions also apply to declared ships.

Declared ships have finally been defined in the TOMPA regulation in s38D as Class 1B, 1C, 1D, 1E or 1F registered passenger carrying vessels. During 2003 a separate discharge regime was proposed for Class 1F houseboats with approximately 6-8 people but less than 12 onboard.¹⁵⁴ MSQ's RIS contained a proposal to place restrictions on the discharge of sewage from ships with more than 12 passengers aboard for compatibility with MARPOL.¹⁵⁵ MARPOL's Annex IV applies to vessels certified to carry 15 or more persons. A void existed for vessels certified to carry 13 to 14 passengers. Annex IV would not apply but TOMPA would. In any case, the TOMPA regulation seems to clarify this as it applies specific requirements to declared vessels carrying up to 15 people and then 16 and above so the 12 passenger distinction quoted in the RIS seems to be of no significance. It is particularly important that the term "passengers" is clearly defined. It is possible that the word "passengers" may be thought of as the transient travellers, excluding the captain and crew. It is recommended that the all documentation should simply refer to the count "onboard" to avoid any confusion.

TOMPA defines "treated sewage" as sewage treated such that its sewage quality characteristics are reduced to those prescribed in a regulation. The TOMPA regulation references three (3) quality standards, Grades A, B and C. While a long list of relevant parameters is provided under the definition of "sewage quality characteristics" in TOMPA's Schedule, only a couple of those have been nominated in the regulation grading. The grading from A to C represents a scale of higher to lower quality effluent. This generally reflects the usual wastewater industry effluent grading nomenclature where class A effluent is typically the highest quality, with class C being a lower quality. Grade A effluent will require the highest level of treatment. The faecal coliform criteria listed for the various effluent grades in TOMPA's Schedule 7 seem to show a reverse trend, with Grade A only requiring reduction to 250 faecal coliforms/100 mL whereas Grade C has a more stringent value of 150 faecal coliforms/100 mL. It is recommended the regulation be populated with additional limiting values against the TOMPA characteristics list and the values be subject to ongoing review to reflect the latest treatment technologies and to maintain a high level of environmental protection. Notably there is little reference to the MARPOL Annex IV 1976 treatment standards except that the Grade A effluent is intended to represent the MARPOL Annex IV scenario. TOMPA does allow that other characteristics may be applied in the future¹⁵⁶ as discussed earlier. The remaining specifications for treatment systems are procedural only. Operations and maintenance (O&M) standards can also be set as part of the ship based sewage management plan. These plans are intended to be succinct and s38G requires they contain certain information.¹⁵⁷

¹⁵⁴ MSQ, above n 2, 10.

¹⁵⁵ MSQ, above n 2, 13.

¹⁵⁶ MSQ, above n 2, 7.

¹⁵⁷ Consultation Draft *Transport Operations (Marine Pollution) Amendment Regulation 2003* (Qld) at <<http://www.transport.qld.gov.au/msq/>> at 8 August 2003.

The sewage requirements under the regulation do not account for vessel travel through the Great Barrier Reef Marine Park.¹⁵⁸ There are specific rules established by GBRMPA for sewage discharge in that area as discussed below.

Great Barrier Reef Marine Park

The Great Barrier Reef Marine Park Authority (GBRMPA) is established under s6 of the *Great Barrier Reef Marine Park Act 1975* (Cth).¹⁵⁹ GBRMPA administers and formulates recommendations regarding the park's usage and protection. Although intentional or reckless discharge of sewage is prohibited under s45A(1) of the *Great Barrier Reef Marine Park Regulations 1983* (Cth),¹⁶⁰ GBRMPA currently allows some discharge of sewage within the marine park. If a vessel is fitted with a holding tank, sewage from the tank can be released when the vessel is 500 m from the nearest reef.¹⁶¹ This seems to be a fairly relaxed standard. Perhaps these provisions were developed as a stop gap response to the ineffective TOMPA clauses requiring a holding tank. They reef regulations omit to punish those discharging from vessels without a holding tank and those acting in accordance with a specific reef zoning plan which may permit discharge. The regulations also provide the usual defences to discharge for the purpose of saving life at sea or securing the safety of the vessel in s45A(2).

GBRMPA has also established a set of "Best Practice" guidelines for environmental management in the reef.¹⁶² Perhaps these represent an idealised code of behaviour GBRMPA would like to be observed but is not enforceable by law. The practice suggests sewage should preferably be stored and pumped ashore where possible. However if there is no provision of onshore facilities, then the status quo situation of discharging 500 m from reefs is preferred. With reference to vessels with no holding tank, the guidelines suggest that toilets not be used while the vessel is over a reef or near enclosed bays.

From 1 January 2004 onwards, GBRMPA has also planned to amend and tighten its vessel sewage requirements outlined in regulation 45A(2)¹⁶³ via changes to the *Great Barrier Reef Marine Park Regulations 1983* (Cth).¹⁶⁴ The authority aims to prohibit the discharge of sewage within the park unless the discharge occurs outside 1,000 m seaward from the nearest reef, the mainland or islands.¹⁶⁵ This will apply only to vessels able to carry more than six (6) passengers. It will be permissible to discharge tertiary treated effluent anywhere in the park and, under the new regulations 45A(2)(4) and 74(3), a tertiary treatment standard is specified. The reference to tertiary treatment

¹⁵⁸ MSQ, above n 2, 9.

¹⁵⁹ *Great Barrier Reef Marine Park Act 1975* (Cth)

<http://www.gbrmpa.gov.au/corp_site/about_gbrmpa/legislation_regulations.htm> at 30 August 2003.

¹⁶⁰ *Great Barrier Reef Marine Park Regulations 1983* (Cth)

<http://www.gbrmpa.gov.au/corp_site/about_gbrmpa/legislation_regulations.htm> at 30 August 2003.

¹⁶¹ *Great Barrier Reef Marine Park Regulations 1983* (Cth) s45A(2)(ii)

<http://www.gbrmpa.gov.au/corp_site/about_gbrmpa/legislation_regulations.htm> at 30 August 2003.

¹⁶² Great Barrier Reef Marine Park Authority, *Legal Requirements - Waste Disposal (garbage, oil products and sewage)* GBRMPA <http://www.gbrmpa.gov.au/corp_site/key_issues/tourism/waste_disposal.htm> at 25 August 2003.

¹⁶³ *Great Barrier Reef Marine Park Regulations 1983* (Cth)

<http://www.gbrmpa.gov.au/corp_site/about_gbrmpa/legislation_regulations.htm> at 30 August 2003.

¹⁶⁴ *Great Barrier Reef Marine Park Regulations 1983* (Cth)

<http://www.gbrmpa.gov.au/corp_site/about_gbrmpa/legislation_regulations.htm> at 30 August 2003.

¹⁶⁵ The 1,000 m standard is similar to that in the Consultation Draft *Transport Operations (Marine Pollution) Amendment Regulation 2003* (Qld) at <<http://www.transport.qld.gov.au/msq/>> at 8 August 2003.

is pleasing.¹⁶⁶ Interestingly regulation 74(3)(j) requires that no harmful chlorination byproducts are produced. This was discussed earlier in regard to the MARPOL treatment standards of MEPC.2(VI). Other treatment parameters contained in the regulations are significantly more stringent than those specified in 1976 by the MEPC. A selection of parameters from regulation 74(3) is listed below for comparison:

- *Escherichia coli* bacteria ≤ 200 colonies/100 mL (c.f MEPC.2(VI) of 250 faecal coliforms/100 mL);
- Suspended solids ≤ 30 mg/L (c.f MEPC.2(VI) of 50-100mg/L); and
- BOD₅ ≤ 20 mg/L (c.f MEPC.2(VI) of 50 mg/L).

Unfortunately these amended GBRMP provisions still do not address the situation for boats accommodating six (6) or less passengers as compared to TOMPA which covers vessels with fewer passengers. In relation to other marine parks in Queensland apart from the GBRMP, the *Marine Parks Regulation 1990* (Qld) addresses the discharge of "human waste".¹⁶⁷ It generally prohibits discharge of wastes without permission, but suggests waste disposal is permitted where a vessel is not fitted with a holding tank. This is not particularly stringent and TOMPA is likely to provide greater protection. A final piece of State legislation addressing vessel sewage for discussion in this paper is the *Environmental Protection Act 1994* (Qld) and is discussed below.

Environmental Protection Act 1994 (Qld)

Queensland's *Environmental Protection Act 1994* (Qld)¹⁶⁸ (EPAct) and associated Environment Protection Policies eg. *Environment Protection (Water) Policy 1997* (Qld)¹⁶⁹ (EPWP) provide a general framework of punishment for pollution or other offences causing or threatening environmental harm in Queensland. One could presume that discharge of sewage from vessels could be considered such an offence.

It has been suggested that state environmental legislation is not directed specifically at prevention or reduction of marine pollution. It instead adopts protection policies focused on controlling pollution through a licensing scheme¹⁷⁰ and other techniques including best practice environmental management.¹⁷¹ Some States' environmental legislation applies to coastal waters to the 3 nm limit whereas others are less specific.¹⁷² The EPAct and EPWP simply refer to "Queensland waters" which although not specifically defined in those instruments, would include the 3 nm territorial sea. These Queensland instruments also distinguish between coastal and non-coastal waters, and this seems to equate to tidal and non-tidal areas respectively.¹⁷³ State legislation

¹⁶⁶ The success however is contingent on the proper operation of the treatment plants. If they malfunction, the risk is potentially far worse as they will be discharging the effluent anywhere they go (including for example, near sensitive reefs).

¹⁶⁷ *Marine Parks Regulation 1990* (Qld) s20 Discharging etc. of wastes <<http://www.legislation.qld.gov.au>> at 17 August 2003.

¹⁶⁸ *Environmental Protection Act 1994* (Qld) <<http://www.legislation.qld.gov.au>> at 16 August 2003.

¹⁶⁹ *Environmental Protection (Water) Policy 1997* (Qld) <<http://www.legislation.qld.gov.au>> at 6 September 2003.

¹⁷⁰ Zada Lipman and Gerry Bates (Eds), *Pollution Law in Australia* (2002), 366.

¹⁷¹ For example, *Environmental Protection Act 1994* (Qld) s21 – Best practice environmental management <<http://www.legislation.qld.gov.au>> at 16 August 2003.

¹⁷² Zada Lipman and Gerry Bates (Eds), *Pollution Law in Australia* (2002), 373. The *Acts Interpretation Act 1954* (Qld) provides further guidance on the definition of waters.

¹⁷³ One asks, does this equate to the coverage of other State vessel sewage legislation? TOMPA definitely covers tidal waters by reference to its proximity to the shoreline and its long title "to protect coastal waters"

typically does not effectively regulate diffuse sources of marine pollution such as vessel sewage pollution and has been also been accused of not integrating internationally agreed processes engrained in particular international conventions.¹⁷⁴ On this basis, one can confirm that TOMPA is serving a worthwhile purpose.

The EAct's principles however should not be ignored regarding the waste hierarchy and waste minimisation and reuse. This is something TOMPA and most of the other instruments discussed herein seem to bypass. TOMPA refers to pollution minimisation, but this is not strategic enough. It should require waste minimisation and encourage reuse. It is suggested that TOMPA's shipboard sewage management plans as described in s38G of the draft regulation should additionally be designed to require plans for waste reduction, reuse and recycling.¹⁷⁵

TOMPA clarifies the interface between the EAct and its own scope. It suggests that the EAct will only apply if pollution is released from a source other than a ship or vessel as described in TOMPA s14. For all other ship based pollution or pollution due to ship transfer operations, then TOMPA applies. Equally, the EAct suggests in its s23 that the EAct does not limit any other act and if it conflicts with a particular act (including TOMPA), that act prevails, but only to the extent of the inconsistency. This at least provides some certainty to the operation of these acts in plain terms.

Confusion arises when one refers to the EPWP. This policy contains yet another regime for discharge of sewage from ships. However, these provisions are restricted to non-coastal waters, being those waters other than the territorial sea and tidal waters. Under s29(1) of the EPWP,¹⁷⁶ it is an offence to discharge sewage from any ship that has or is required to have a holding tank by law. This provision provides little protection against sewage pollution as it would not apply to many ships. Under the previous versions of TOMPA, there was a vague requirement for declared ships to have a holding tank under s49. In the current TOMPA regulation, a declared ship is better defined, but says that a ship is a declared ship if it has a toilet or holding tank and meets other criteria. So there is a degree of circularity in the definitions which needs to be addressed.¹⁷⁷ Under s29(2) of the EPWP, it is also an offence to release sewage into non-coastal waters at a place for mooring, docking or berthing ships. This is some consolation but could mean that discharges will instead occur just outside these berthing areas. The EPWP also guides environmental decision making regarding provision of waste reception facilities for ships and releases of waste water to surface water.¹⁷⁸

Considering the earlier parallels drawn to land based pollution, the Environmental Protection Agency (EPA) declares any activity involving sewage treatment and discharge to receiving waters as an "Environmentally Relevant Activity". One might suggest that similarly, any treated or untreated sewage discharge from vessels in coastal or non-coastal waters should also be classified as an ERA (within reason). This would

(which include the territorial sea and tidal waters – as per TOMPA's Schedule definitions) but does not cover non-coastal or non-tidal waters. So no, the coverage is not the same.

¹⁷⁴ Zada Lipman and Gerry Bates (Eds), *Pollution Law in Australia* (2002), 366.

¹⁷⁵ EMARC, above n54, 43.

¹⁷⁶ *Environmental Protection (Water) Policy 1997* (Qld) Part 6 – Management of Certain Sources of Contamination – s29 Release of sewage from ships into non-coastal waters <<http://www.legislation.qld.gov.au>> at 6 September 2003.

¹⁷⁷ Boat owners may even remove their holding tanks to get around this s29 EPWP requirement if they frequently operate in non-coastal waters where TOMPA will not apply.

¹⁷⁸ *Environmental Protection (Water) Policy 1997* (Qld) Part 5 – Management of Activities, Division 3 – Environmental Management Decisions - s18 Waste water releases to surface water and s25 Waste reception facilities for ships <<http://www.legislation.qld.gov.au>> at 6 September 2003.

introduce significantly more involvement of the EPA into vessel sewage management in Queensland. It may also introduce further EPA intervention into the debate on treatment standards setting which could be of benefit.¹⁷⁹ The administrative burden would be enormous if each boat were to be licensed and issued with an environmental authority. The type of approach the EPA would probably adopt would be to firstly initiate a licensing scheme for various scales of vessel, establish an offence and punishment regime, and institute powers to issue notices and investigate.¹⁸⁰ Considerable effort and resources would be required to develop and enforce such a scheme which would perhaps provide no additional benefit above that currently proposed under TOMPA. There might be some merit though in consolidating responsibility for pollution control with the one agency. It seems already there is some duplication between TOMPA and the EAct and this makes things somewhat more confusing for vessel owners/operators. Presently, the EPA does not play a major role in control of vessel pollution in coastal waters in this state but there is scope for that involvement to significantly increase.

Conclusions

The health and quality of Queensland's coastal waters has been under threat due to a lack of specific provisions to prohibit sewage discharge from vessels with a few exceptions. A number of important driving forces exist to reverse this trend including the need to preserve the amenity of coastal waters, reduce seafood health risks, address public pressure, mitigate inconsistent penalties and of course meet fundamental ESD considerations. Sewage pollution legislative instruments have been considered, some of which are beginning to introduce a significantly improved regime to protect against vessel pollution. The year 2004 will herald unprecedented changes in vessel sewage management in Queensland. The change is marked, considering the lack of framework and regulation to date. Appendix A summarises the main features of each instrument analysed.

Queensland has made excellent progress by making significant improvements to TOMPA and its regulations. The process has included valuable key stakeholder input. With adequate resources for enforcement, this scheme will be successful and will extend more effective protection to Queensland waters than present legislation. The best example of protection is contained in the GBRMP regulations, and in particular, the treatment standards for effluent release. While these standards may be considered too high for the remaining Queensland coastal waters, their adoption displays true precautionary behaviour. TOMPA's treatment standards should be expanded by nominating additional limiting values.

The MARPOL Annex IV treatment standards need to be raised. There is an urgent need to lobby the IMO to update its sewage treatment standard MEPC2.(VI) before it is adopted as part of the Commonwealth regime. Considering recent advances in impact assessment and treatment technology globally, it is recommended additional parameters be added to the 1976 standards and the existing values be reduced in quantum to provide more stringent protection. Recent debate contributed to the IMO's MEPC forum by Australia has promoted this goal.

¹⁷⁹ It is noted the Environment Protection Agency (EPA) does already participate in the Queensland TOMPA vessel sewage key stakeholder group, but could understandably feel a little distanced from the debate. EPA are already the land-based sewage discharge regulators so would surely have a lot to contribute.

¹⁸⁰ Zada Lipman and Gerry Bates (Eds), *Pollution Law in Australia* (2002), 373.

There should be more consistency between the instruments at state, national and international levels. Ideally all instruments should equate. Our Commonwealth legislation does not completely mirror the international regime. This will be a challenging obstacle for Australia to overcome and deserves further work at all levels. The system needs to be known, workable and practical for those who will be the ultimate users, including foreign flagged vessels. Because there is a variety of acts regulating sewage discharge in Queensland (eg. TOMPA and the EPAAct), there is a degree of parallel responsibility for regulation regarding coastal and non-coastal waters respectively. It is recommended better liaison occurs between authorities to avoid duplication and confusion.

Australia must expedite its implementation and enforcement of MARPOL Annex IV. As a member party to this Annex, Australia will now enjoy a fundamental increase in the level of protection against sewage pollution from foreign flagged ships and be able to participate in and contribute to the debate on treatment standards. Tightening of vessel discharge practices not only nationally, but also at a State level is imperative to reduce the acceleration towards the degradation of our marine environment.

APPENDIX A - Comparison of Vessel Sewage Pollution Control Instruments

PARAMETER		POTSPOFES	EPAAct EPWP	TOMPA	GBRMPA
Geographical Coverage	Vessels on International voyage from nearest land – the baseline from which the territorial sea is established (does not apply in “State” ¹⁸¹ waters if a less stringent regime applies)	To edge of EEZ, Australian flagged vessels wherever they go and foreign flagged vessels in Australian ports or territorial sea.	State non-coastal waters (non-tidal)	State coastal tidal waters (including Hervey Bay, Moreton Bay, Gold Coast, excluding GBRMP)	Great Barrier Reef Marine Park
Number of Persons	15 or more (or > 400t)	> 10 persons for Antarctic region and remainder as per Annex IV.	Any	Any	More than 6
Discharge Regime	Treated effluent anywhere, disinfected and comminuted sewage outside 3 nm, raw sewage from holding tanks released outside 12 nm provided ship speed ≥ 4 knots	As per Annex IV except outside 4 nm instead of 3 nm for comminuted and disinfected sewage (but to be amended back to 3 nm)	Prohibits discharge from vessels with holding tanks and those vessels required by law to have a holding tank. Prohibits discharge in a mooring, docking or berthing area.	Tables identify nil discharge areas, treated effluent discharge areas and untreated effluent discharge areas against water classifications of smooth, open, Hervey Bay, Moreton Bay etc.	500 m presently, change to 1000 m
Treatment Plant Treatment Standards	MEPC.2(VI) 1976	MEPC.2(VI) 1976	N/A	Faecal coliforms ≤ 250 /100 mL, ss ≤ 50-100 mg/L and BOD ≤ 50 mg/L for Grade A	Specific tertiary treatment standards

¹⁸¹ “State” here is in reference to international law.

				discharge to Grade C faecal coliforms \leq 150 /100 mL with option to nominate further parameters	
Timing	2003 with remainder by 2008 (more recent amendments by 2005 with remainder by 2010)	Entered into force 27 May 2004	At present	2004 with last provisions by 2010	2004