Australian Government
Australian Maritime Safety Authority

Review of the North-East Shipping Management Plan

July 2019

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Foreword

We are pleased to present the 2019 *Review of the North-East Shipping Management Plan*.

In October 2014, the North-East Shipping Management Group—comprising senior executives from State and Commonwealth Government agencies—developed and published the *North-East Shipping Management Plan* ('NE SMP').

The NE SMP focussed on mitigating the potential effects of large commercial trading ships and identified existing, new and strengthened management measures to ensure shipping within the Great Barrier Reef (GBR), Torres Strait and Coral Sea operated to the highest standards possible. Importantly, it sets out a work plan for the safe and environmentally friendly management of shipping within the GBR, Torres Strait and Coral Sea.

This review assesses the progress made with the work plan of the NE SMP and highlights key achievements to date. This work also builds on the known and potential risks to maritime safety and environmental protection identified in the NE SMP, by assessing current risks in the north-east—and using it to develop a revised work program.

This work is timely, given that it is four years since the plan was released. And just months after the release of *Reef 2050 Long-Term Sustainability Plan July 2018* ('Reef 2050 Plan') which reaffirms the importance of a strong, coordinated approach to managing shipping in the reef.

We commend the review to you.

The North-East Shipping Management Group
July 2019

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Executive summary

Shipping plays an important part in Australia's economy. We have the world's fifth largest shipping task which represents around 10 per cent of the world's seaborne trade. Australia also has some of the world's most environmentally sensitive sea areas which ships must navigate to reach our ports. Nowhere is this more evident than the north-east region of Australia.

As part of the 2014 North-East Shipping Management Plan, governments have implemented a range of actions to ensure shipping within the Great Barrier Reef (GBR), Torres Strait and Coral Sea operate to the highest standard possible. Relevant government agencies have now come together in a North-East Shipping Management Group (Management Group) to assess progress against the plan, review current and emerging risks and consider the best way to manage ongoing and future challenges. The findings of the Management Group are outlined in the following plan.

Some of the major achievements to date include the expansion of the GBR and Torres Strait (TS) Particularly Sensitive Sea Area (PSSA) to include the Coral Sea. The PSSA enables special protection measures such as areas to be avoided and new ship routeing systems to be implemented.

Governments are engaging with local communities in Torres Strait to improve boating safety; reduce the number of search and rescue (SAR) incidents; increase the survivability of persons lost at sea; and support the development of the near coastal maritime industry in the region.

The National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna has been established. The strategy is used to identify species most at risk of ship collision; areas where these species are most at risk of collision; and appropriate mitigation measures to reduce this risk. While the focus of the strategy is to reduce the impacts of ship collisions on the conservation status of marine species, it also improves animal welfare and human safety, as well as reducing damage to ships.

The Australian Government has strengthened management of biosecurity risks associated with ship arrivals. It has introduced regulatory reforms to reduce the risks of marine pests and the diseases they can carry from entering, establishing and spreading in Australian waters. It has also introduced the Marine Pest Plan, which aims to improve marine pest prevention, strengthen surveillance, enhance emergency response capability, support research and development, and strengthen stakeholder engagement.

A pollution response fund has been established with financial capability of $50 million. The purpose of the fund is to support AMSA's rapid response to major pollution incidents and to meet the costs of such incidents not recoverable from the ship owner or insurer. The fund was built through a temporary increase to the Protection of the Sea levy and is backed by a high liquidity investment fund.

The *Queensland Marine Pest Prevention and Preparedness Project* is currently underway. It is designed to take a proactive approach to prevention of marine pests and their impacts, as well as improving capacity to respond in the event of a marine pest detection or incursion. A dedicated marine pest function has been established

within Biosecurity Queensland and a Queensland ports marine pest surveillance pilot program will be implemented at Cairns, Townsville, Mackay, Gladstone, and Brisbane in early 2019.

A range of measures have been introduced to improve ballast water management. The Australian Government has ratified and implemented the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), introduced requirements for ballast water management, and applied a ballast water exchange exclusion area within 12 NM of the outer boundary of the GBR Marine Park. Further, the government is also developing biofouling management requirements to address biosecurity risks associated with biofouling on ships coming to Australia.

In mid 2018, the government, in collaboration with North Queensland Bulk Ports (NQBP) and the Port of Brisbane, trialled a recycling pilot project to improve the reception facilities for ship waste. The project demonstrated that recycling is feasible. The provision of recycling facilities encourages proper onshore disposal, via reduced fees, and thus provides less incentive for illegal disposal at sea. AMSA will continue working with stakeholders to investigate the ongoing feasibility of recycling. If proven successful, the pilot projects could be extended to other ports in the region.

The Great Barrier Reef and Torres Strait Vessel Traffic Service (REEFVTS) continues to deliver tangible safety and environmental outcomes. Since 2010, REEFVTS has successfully intervened approximately 20 times to avert a potential ship grounding or serious incident. Before the introduction of REEFVTS in 2004, there was, on average, a ship grounding once a year in the GBR and Torres Strait. Since 2004, there has been only one grounding in the REEFVTS area.

These are some of the new initiatives that have been implemented since 2014. Twenty actions have been completed (see Section 3.1) while others have been progressed substantially. Overall, the remaining actions are either long-term actions or business as usual actions.

In addition to assessing progress against the NE SMP, the Management Group examined current and future risks to maritime safety and environmental protection in the north-east. It found many of the risks identified in 2014 remain relevant and these risks should continue to be managed on an ongoing basis as 'foundation actions'. This includes incident response capabilities, provision of aids to navigation subject to traffic density and assessment of risk and hydrographic surveys (Section 7.2 refers).

There is an opportunity to explore the use of a Vessel Arrival System (VAS) for bulk commodity ports in the area. The VAS provides additional safety and environmental protection by reducing the number of ships waiting at anchor, promoting navigation at reduced speeds and consequentially reducing the risk of collision and grounding.

Moving forward, the Management Group considers merit in realigning the NE SMP to be consistent with and complementary to the *Reef 2050 Plan*. As such the forward work program has realigned actions to accord with the broader *Reef 2050 Plan*. The reporting requirements, durations and action leads have also been updated.

1. Introduction

The North-East Shipping Management Plan (NE SMP) focuses on improving maritime safety and environmental protection outcomes for ships subject to the International Convention for Safety of Life at Sea (SOLAS) which operate in Australia's north-east region.

When the NE SMP was released in 2014, it was recognised that it would be a 'living' document, subject to periodic review and update, in consultation with all relevant stakeholders and with oversight by the Management Group.

It has been four years since the release of the NE SMP. The North-East Shipping Management Group (NE SMG) recognised that with a review of the Reef 2050 Plan in 2018, it was also timely to review the NE SMP to assess progress against identified actions in the context of a fresh assessment of the current maritime environment. This review is a result of that recognition.

The Management Group has overseen the work program of the NE SMP and has reviewed its progress. This review highlights completed NE SMP actions (Section 3.1) and key achievements (Section 4). It also assesses current risks to maritime safety and environmental protection in the north-east, and uses this to inform the development of a revised work program (Section 7).

The revised Reef 2050 Plan notes that the NE SMP is a foundational program. It also addresses shipping management issues. The Reef 2050 Plan can be found at:

https://www.environment.gov.au/marine/gbr/publications/reef-2050-long-term-sustainability-plan-2018

1.1 Review governance

The North-East Shipping Management Group ('Management Group') led the development of the NE SMP ('Plan'). The Management Group comprises representatives of:

- Australian Maritime Safety Authority (Chair)
- Great Barrier Reef Marine Park Authority
- Maritime Safety Queensland
- Department of Infrastructure, Regional Development and Cities
- Department of the Environment and Energy
- Department of Industry, Innovation and Science
- Department of Agriculture and Water Resources

The Management Group tasked the North-East Water Space Management Working Group ('Working Group') with undertaking this review. The Working Group is a consultative group with representatives from a wide range of industry, government and community stakeholders. It was established in 2012 to enable the efficient coordination of diverse maritime activities and use of water space within the GBR, Torres Strait and the Coral Sea.

The Working Group comprises representatives of:

- Australian Maritime Safety Authority (Chair)
- Australian Hydrographic Office
- Association of Marine Park Tourism Operators
- Australian Marine Conservation Society
- Australian Reef Pilots Pty Ltd
- Carnival Australia
- Department of Environment and Energy
- Department of Environment and Science (Qld) (The Office of the Great Barrier Reef)
- Department of Transport and Main Roads (Qld)
- Geoscience Australia
- Great Barrier Reef Marine Park Authority
- Maritime Industry Australia Limited
- Maritime Safety Queensland
- Queensland Ports Association

- Ports Australia
- Parks Australia
- Queensland Fresh Seafood
- Queensland Resources Council
- Queensland Seafood Industry Association
- Rio Tinto Group
- Shipping Australia Limited
- Torres Pilots Pty Ltd
- Torres Strait Regional Authority

1.2 Scope

The scope of this review is to:

- Review progress of the work items of the NE SMP and close out actions that have been completed and identify actions that are actually ongoing activities, being undertaken by agencies as business as usual.
- Identify levels of marine activity and developments in shipping that require new and emerging management measures to minimise risk.
- Align all new and outstanding actions from the NE SMP with actions, targets or objectives under the Reef 2050 Plan.
- Produce an updated and concise version of the NE SMP.

2. Background on shipping

2.1 General

Shipping provides the most cost-effective method of bulk transport gloablly, transporting over 90 per cent of the world's trade. It will be indispensable in a sustainable future global economy, as it is the most environmentally sound mode of mass transport, both in terms of energy efficiency and the prevention of pollution.

Australia, as an island nation that possesses enormous mineral and agricultural wealth, derives most of its income from goods exported by ships. The geographical spread of Australia's global trade partners and the large average size of many shipments mean that Australia's key navigation routes do not experience heavy traffic when compared to the rest of the world.

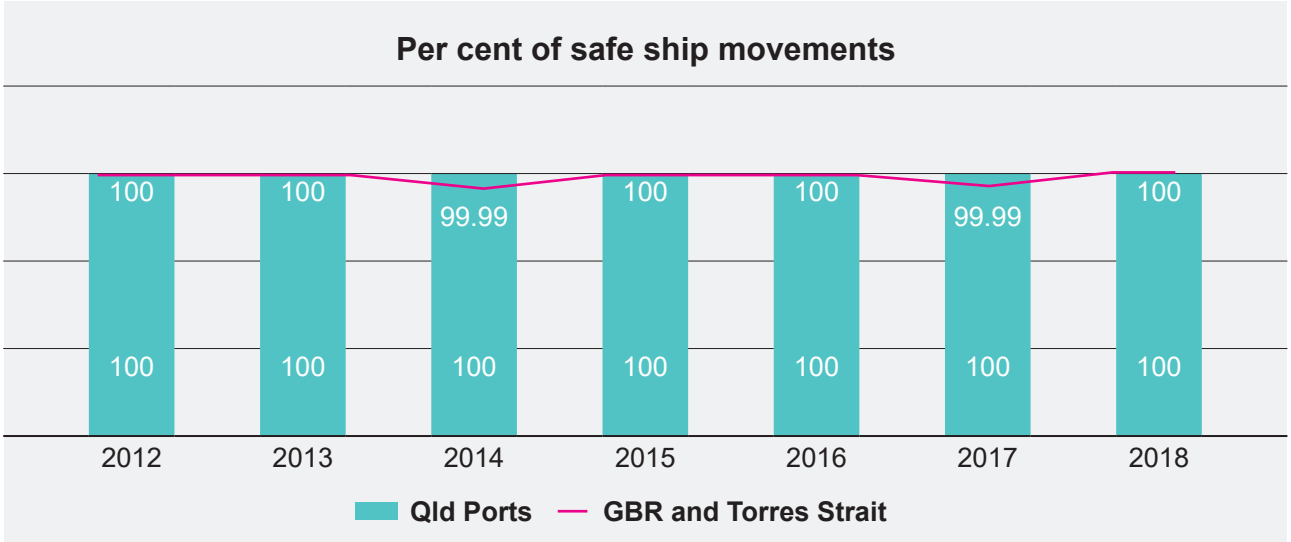

Figure 1: Safe shipping movements in the GBR and Torres Strait region

As can be seen in Figure 1, these controls have been extremely effective, with only two minor interactions between a ship and a fishing vessel recorded in the last seven years; one in 2014 and the other in 2017.

A safe ship movement is the passage of a ship through the VTS area which did not result in a navigation related incident or accident.

North-East Shipping Management Plan, North-East Shipping Management Group (October 2014, p.13).

2.2 Trends

Voyage numbers have increased steadily—from 10,910 in 2013 to 11,875 in 2018. The corresponding numbers for 2015 (10,955) and 2016 (11,259) show a modest growth from previous years. This is around 2.6 per cent annual growth, year on year.

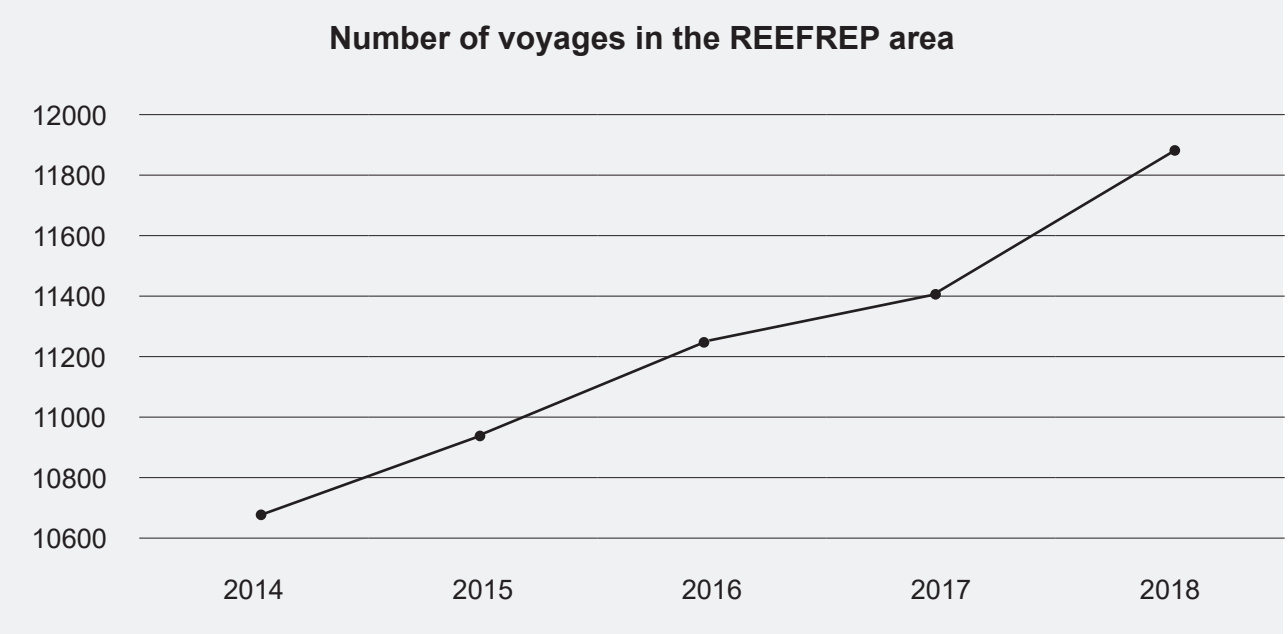

Figure 2: Voyages in the REEFREP area

Table 1 details ships participating in the GBR and Torres Strait Ship Reporting System (REEFREP, which is an IMO adopted, mandatory ship reporting system in the region) and which are categorised by ship type for the calendar years 2015, 2016, 2017 and 2018.

Ship type	Numbers			
	2015	2016	2017	2018
Bitumen Carrier	95	79	72	86
Bulk Carrier	6639	6640	6498	6724
Container	779	687	644	698
General Cargo	1077	952	869	952
Liquefied Gas Tanker	413	762	833	798
Livestock Carrier	108	129	94	134
Passenger	241	313	341	379
Tanker	1138	1199	1215	1225
Vehicle Carrier	156	138	164	192

Table 1: Types of ships that participated in REEFREP

Some clear trends are evident. There is a decline in the number of general cargo and container ships. However, there is a rise in the number of liquefied gas tankers and passenger ships. Note that a number of smaller, non-trading ships also participate in REEFREP but are not captured in the above categories.

2.2.1 Ship sizes

The size of ships calling at ports in Queensland and transiting the GBR region has increased. 2013 and 2018 data set out below clearly shows a reduction in the number of smaller ships (<200m Length Overall (LOA)) and an increase in larger ships (>200m LOA).

2013	Passenger		Container ship		Bulk carriers		Tankers		Total
LOA <150m	130	61%	93	13%	61	1%	358	28%	642
150m ≥ LOA < 200m	20	9%	159	21%	1868	31%	792	61%	2839
200m ≥ LOA < 250m	26	12%	239	32%	2448	41%	124	10%	2837
250m ≥ LOA < 300m	34	16%	252	34%	1560	26%	24	2%	1870
LOA > 300m	4	2%	0	0%	2	0%	0	0%	6

2018	Passenger		Container ship		Bulk carriers		Tankers		Total
LOA <150m	139	37%	65	9%	131	2%	286	23%	621
150m ≥ LOA < 200m	16	4%	203	29%	1756	26%	739	60%	2714
200m ≥ LOA < 250m	157	41%	181	26%	3339	50%	161	13%	3838
250m ≥ LOA < 300m	56	15%	249	36%	1470	22%	39	3%	1814
LOA > 300m	11	3%	0	0%	0	0%	0	0%	11

Table 2: Comparison of ship sizes in the GBR and Torres Strait (2013 and 2018)

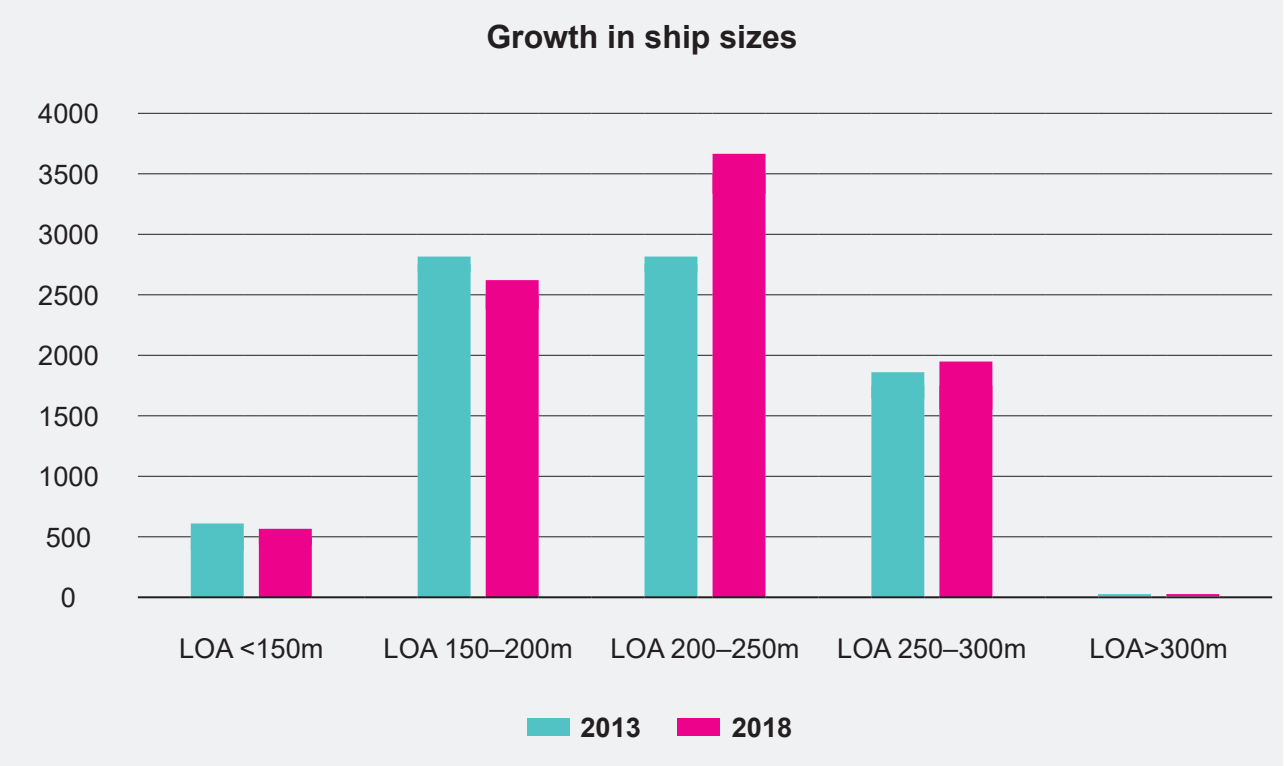

Figure 3: Growth in ship sizes

Along with an increase of the LOA ships, at the port of Brisbane there has been an increase in the number of ships constrained by their draught. One in five container ships now require suitable tidal windows to enter the port (compared to one in 20 a decade ago), further supporting the evidence provided in the 2014 report of the trend towards larger ships.

Note: Maritime Safety Queensland publishes shipping information data on its website at msq.qld.gov.au

3. Progress against actions

3.1 Actions assessed as complete

During a review of the 63 items listed in the work plan of the NE SMP, the 20 actions below were identified as complete.

Item	Description	Lead agency	Additional information
2	AMSA to encourage users of shipping to ports in the region to employ ships fitted with an Electronic Chart Display Information System (ECDIS) (and appropriately trained navigators) prior to mandatory implementation by 2018. This includes encouraging the uptake of ECDIS through publication of an annual report card by ship vetting companies.	AMSA	SOLAS stipulates a timetable for the installation of ECDIS on ships to which the convention applies. AMSA actively encouraged the use of ECDIS before the mandatory carriage requirements came into effect. Mandatory carriage is implemented, and AMSA reinforce these requirements through port State control initiatives.
15	If adopted by the IMO, AMSA to work with the Australian Hydrographic Office (AHO) and promulgate the establishment of a two-way route from the western end of the Torres Strait to the southern boundary of the GBR Marine Park.	AHO	The IMO adopted the two-way route in the GBR and Torres Strait in 2014. The measure came into effect later that year. This was promulgated via AMSA Marine Notice 11/2014 and IMO SN.1/Circ.326. The Australian Hydrographic Office (AHO) has published the two-way routes on electronic and paper charts.
21	AMSA and MSQ to consider the need to separate REEFVTS operations into two separate VTS centres (north and south).	AMSA (and subsequently MSQ)	The REEFVTS Management Group (which comprises senior executive officers from AMSA and MSQ) have agreed to split the delivery of REEFVTS services between MSQ's Vessel Traffic Services (VTS) centres at Townsville (northern area) and Gladstone (southern area) after the implementation of MSQ's new Decision Support Tool in the fourth quarter of 2019.

Item	Description	Lead agency	Additional information
24	AMSA to introduce a system of navigational chart overlays that will define how UKCM information is displayed.	AMSA	AMSA's Under Keel Clearance Management (UKCM) system has successfully implemented a functional and operational chart overlay capability for the Torres Strait UKCM system user interface. Introduction of the chart overlay capability has enabled AMSA to amend how it regulates ships to which the UKCM systems applies and provides more detailed information to assist coastal pilots in areas of limiting depths and sea room in Torres Strait.
25	NE SMG and pilotage providers to implement recommendations of the ATSB report into Queensland coastal pilotage.	NE SMG	All recommendations have been implemented. The report can be found at: https://www.atsb.gov.au/publications/investigation_reports/2010/mair/282-mi-2010-011.aspx
30	GBRMPA and AMSA to explore options at the IMO for the development of grey water discharge standards.	GBRMPA	The regulation of grey water has been discussed at the IMO. It is currently being considered in the development of an action plan for marine plastic litter and for alignment with MARPOL Annex IV (sewage).
33	AMSA to implement regular satellite oil spill detection in the region to act as a deterrent for would-be polluters.	AMSA	AMSA has a commercial contract in place for the delivery of such a service. Regular satellite monitoring complements reports made by the shipping industry, government agencies and the general public.
35	If approved by the Australian Government, AMSA to progress an IMO submission to extend the eastern boundary of the existing GBR/TS Particularly Sensitive Sea Area (PSSA) to include an area of the south-west Coral Sea.	AMSA	Australia submitted a proposal to IMO in 2015, seeking the extension of the GBR and Torres Strait PSSA to include the south-west part of the Coral Sea. This proposal was adopted and came into effect in 2015 (IMO Resolution MEPC.268 (68) refers).

3.1 Actions assessed as complete (continued)

Item	Description	Lead agency	Additional information
36	The DoAWR to conduct a review and strategic analysis of invasive marine pests	DoAWR	The DoAWR completed its review and strategic analysis of invasive marine pests and released a report of national marine pest biosecurity in late 2015. The report sets a new direction for marine pest biosecurity arrangements in Australia. The national marine pest report is available at: http://www.agriculture.gov.au/SiteCollectionDocuments/pests-diseases-weeds/marine-pests/review-national-marine-pest-biosecurity.pdf See section 7.2 and Foundational Action 14 The Department of Agriculture and Fisheries, Queensland (DAF) also undertook a review of biosecurity capability in 2015 and found marine biosecurity to be a capability gap. As a result, a Queensland Marine Pest Prevention and Preparedness Project was developed. It is currently being implemented to facilitate best practice marine biosecurity management practices and improve early detection of marine pests and capability to respond to a detection.
37	The DoEE to finalise the National Ship Strike Strategy with relevant government and non-government stakeholders.	DoEE	The DoEE released the National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna in December 2017. It can be found at: http://www.environment.gov.au/marine/publications/national-strategy-reducing-vessel-strike-cetaceans-marine-megafauna. MSQ has implemented procedures to delay ship sailings where possible as and when a whale is sighted in a shipping channel. REEFVTS broadcasts whale advisory notices to ships transiting the GBR, alerting them of the presence of whales during their migratory period.

Item	Description	Lead agency	Additional information
38	The DoEE to work with industry and relevant agencies to improve ship-cetacean collision reporting procedures and establish a national portal to hold this data.	DoEE	The Australian Marine Mammal Centre has developed an online national ship strike database and questionnaire. It can be found at: https://data.marinemammals.gov.au/report/shipstrike
43	GBRMPA to instigate research into ship-sourced copper leaching from antifouling paints at GBR port anchorage sites to determine if this is an identifiable risk to the values of the GBR.	GBRMPA	Copper leaching was part of a National Environmental Science Program (NESP) funded study, led by the Australian Institute of Marine Science that looked at emerging contaminants in Torres Strait and GBR. The 2016 final report is available at http://nesptropical.edu.au/wp-content/uploads/2016/05/NESP-TWQ-1.10-FINAL-REPORTa.pdf GBRMPA does not conduct research itself and rarely commissions research. Rather, GBRMPA works with other research institutions and through the NSEP, to highlight priorities for funding.
46	NE SMG to enhance their engagement with Indigenous communities in the Torres Strait on search and rescue, maritime safety and pollution response arrangements including through the GBRMPA-led Indigenous Partnership Group and Indigenous Reef Advisory Committees.	NE SMG	AMSA and MSQ have implemented a Torres Strait Marine Safety Program to educate local communities on safe boating practices, as well as providing locals with access to safety grab bags that contain an EPIRB and other safety and communications equipment. This program has been very successful in educating local communities and reducing the number of search and rescue events in Torres Strait.

3.1 Actions assessed as complete (continued)

Item	Description	Lead agency	Additional information
48	GBRMPA and NE SMG to actively contribute to the Department of Environment's cumulative impacts policy and evaluate any implications for ship management measures in the GBR.	GBRMPA	The draft Reef 2050 Plan cumulative impact management policy and net benefit policy were released for public comment in 2017. They have now been finalised and are available at: http://www.gbrmpa.gov.au/our-work/reef-strategies/reef-2050/Reef-2050-policies. Further work on developing pathways for implementation will be undertaken by the Commonwealth and Queensland government agencies (this is identified as a separate action under Reef 2050 Plan).
49	AMSA, MSQ and GBRMPA to complete the program of oil spill response equipment and refurbishment, including implementing arrangements to monitor the operational readiness of control agencies, including audit and reporting arrangements.	AMSA	The outcomes of the 2012 review of the National Plan for Maritime Environmental Emergencies (National Plan) were implemented through the updated National Plan work program agreed with states and the Northern Territory. MSQ conducts regular audits of first strike capability for Queensland ports and waterways where both equipment and personnel resources are assessed. In addition, MSQ has implemented a reporting framework where port authorities report on the condition of their equipment and competency of their personnel available for a first strike response. As part of its asset management practices, MSQ has an ongoing replacement schedule for pollution response equipment and vessels.

Item	Description	Lead agency	Additional information
50	AMSA, Torres Strait Regional Authority, PNG National Maritime Safety Authority and MSQ to review the adequacy of the marine incident management and oil spill response arrangements in the Torres Strait and regularly exercise those arrangements.	AMSA	There have been a number of initiatives: ■ In May 2015, AMSA conducted a diagnostic assessment of PNG National Maritime Safety Authority's capabilities, including the ability to respond to marine pollution incidents. The report will assist the Australian Government to prioritise future funding and capacity building activities with the authority. ■ The Queensland Coastal Contingency Action Plan (QCCAP) is a hazard specific plan under Queensland's disaster management framework. It details how Queensland will respond to a marine environmental emergency and has a specific section covering a response in the Torres Strait. ■ The Papua New Guinea (PNG) National Maritime Safety Authority is developing a National Contingency Plan and conducting a series of risk assessments for major ports and international shipping routes. ■ AMSA, MSQ and the Torres Strait Regional Authority conducted a two-day ship-sourced marine pollution response exercise in Cairns in June 2017. The exercise centred on response arrangements to a marine pollution incident in the Torres Strait. ■ MSQ regularly conducts basic equipment operator and shoreline response training courses in the TS, training members of the Torres Strait Ranger Program as team leaders. ■ AMSA conducted National Response Team training in the Torres Strait in May 2018. ■ MSQ has pre-positioned shoreline response kits on strategic island along the main shipping route in the Torres Strait to enable a local led first strike response. ■ AMSA and MSQ conducted a national oil spill response exercise in the Torres Strait in August and September 2018.

3.1 Actions assessed as complete (continued)

Item	Description	Lead agency	Additional information
51	GBRMPA and MSQ to identify response strategies for cargoes that pose a specific risk to the environmental values of the region.	GBRMPA	The following actions/activities have been undertaken: ■ All jurisdictions conduct regular checks against the obligations contained in the International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 and the Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances 2000. ■ In addition, AMSA now provides a full suite of specialist, incident management courses (including Incident Controller, Planning, Operations and Logistics). ■ The QCCAP details how Queensland will respond to marine environmental emergencies. MSQ has a MoU in place with the Queensland Fire and Emergency Services for response to ship sourced hazardous substance spills and fires.
57	AMSA to maintain a pollution response reserve of $10 million and line of credit of $40 million to ensure immediate access to funds in the event of a marine pollution incident.	AMSA	AMSA pollution response fund has been established, the details of which are provided in section 4.5 of this plan.
60	NE SMG to establish a North-East Shipping Management Consultative Group consisting of industry, regulators and environmental groups to provide input to further development of the work plan.	NE SMG	The Management Group considers that the Working Group includes the appropriate industry members and safety regulators, as well as the expertise necessary, to provide input to further development of the work plan. Membership of the Working Group is reviewed periodically to ensure any relevant new stakeholders are included.
62	The NE WSM WG will continue as a consultative body for users of the waters in the South West Coral Sea, GBR and Torres Strait.	NE WSM WG	This is conducted as business as usual. The Working Group agreed that this is a foundational action, but should be included in the amended plan's introductory text.

Table 3: Actions assessed as complete

3.2 Alignment with Reef 2050 Long Term Sustainability Plan

In 2015, the Australian and Queensland governments released the Reef 2050 Long Term Sustainability Plan (Reef 2050 Plan).

The Reef 2050 Plan builds on the strong foundation of legislated protection and cooperative management of the GBR that has been in place since the 1970s by providing an overarching strategy for management of the World Heritage Area to 2050. The Reef 2050 Plan focuses on actions to address key threats and build the health and resilience of the GBR, in the face of a changing climate.

When the NE SMP was released, it was acknowledged that actions within its remit would shape and influence the content of the Reef 2050 Plan.

A number of shipping-related actions[1] were included in the Reef 2050 Plan including:

BA25	Develop a guideline specific to the GBR on assessing and managing impacts of underwater noise on species.
EBA6(a)	Implement commitments for best practice commercial vessel operation including those aimed at: (a) reducing collisions with marine fauna.
EBA6(b)	Implement commitments for best-practice commercial vessel operation including those aimed at: (b) reducing interference with species behaviour.
EBA6(c)	Implement commitments for best-practice commercial vessel operation including those aimed at: (c) undertaking further research and investigate appropriate measures to reduce cumulative impacts from shipping.
EBA7	Consider development of a new vessel class, which ensures bulk goods carriers travelling in the World Heritage Area meet stringent safety standards.
EBA8	Fully vet 100 per cent of bulk carriers traversing the GBR to an appropriate standard by an independent industry-endorsed ship-vetting provider.
EBA9	Encourage industry adoption of vessel assessment activities and approval process that incorporate key crew competency evaluations to help ensure safe operations and compliance with regional and port requirements.
EBA10	Support the North-East Shipping Management Group on environmental protection measures, preparedness and response protective measures management of major anchorages and stakeholder engagement.

Table 4: Actions included in the Reef 2050 Plan

[1] Note, not all actions are exclusively commercial shipping matters; they may relate to other industries or activities (e.g. underwater noise, fauna collisions).

The Reef 2050 Plan mid-term review (MTR), which was completed and released in July 2018, resulted in several actions being updated and consolidated. The plan can be found at:

https://www.environment.gov.au/system/files/resources/35e55187-b76e-4aaf-a2fa-376a65c89810/files/reef-2050-long-term-sustainability-plan-2018.pdf

Key determinations were:

EBA6(a), EBA6(b) and EBA 10	Determined to be foundational activities that underpinned the ongoing management of the GBR.
EBA 7, EBA8 and EBA 9	Updated and consolidated into a new action, MTR EBA1—Maritime Industry to adopt ship-vetting practices for bulk carriers to ensure they meet high safety standards. Vetting practices should take into account the quality of the ship, competence of the crew, ship emissions and general protection of the marine environment considerations. This new action will be led by Queensland's Department of Transport and Main Roads (DTMR).

Table 5: Determinations

3.3 Actions aligned to Reef 2050 Long Term Sustainability Plan and closed

During the review of the NE SMP, the Working Group noted that a number of actions were captured under the MTR of the Reef 2050 Plan. In order to reduce duplication in reporting and in line with the review terms of reference these actions have been removed from the revised NE SMP. However, actions in the Reef 2050 Plan would remain on the work program of the Management Group and the Working Group. The ongoing implementation and reporting of these actions will be undertaken as part of the processes for the Reef 2050 Plan. As a result, it is seen as appropriate to close some actions. The table below identifies such actions.

Item	Description	Remarks
10	Industry to actively vet all ships that trade in the north-east region to ensure that only high quality ships, operated by competent crews, are engaged.	This action is assessed as aligned to MTR EBA1
31	AMSA to investigate options to encourage ship charterers in the region to engage ships constructed with bunker fuel tanks in protected locations (built after August 2010) and the means to mandate this requirement for ships calling at GBR ports.	This action is assessed as aligned to MTR EBA1
40	GBRMPA and AMSA to keep under review opportunities to conduct research into noise monitoring tools and methods and implications for ship noise mitigation strategies.	This action is assessed as aligned to BA25
47	DoEE and GBRMPA to undertake further research and investigate appropriate measures to manage cumulative impacts from shipping in the GBR.	This action is assessed as aligned to EBA6

Table 6: Actions closed as aligned with the Reef 2050 Plan

4. Key achievements

Under the NE SMP, the Australian and Queensland Governments initiated a number of measures to enhance maritime safety and environmental protection. Key achievements are highlighted below.

4.1 Coral Sea Particularly Sensitive Sea Area (PSSA)

The Australian Government, through the IMO, extended the GBR and Torres Strait Particularly Sensitive Sea Area (PSSA) to cover approximately 12 per cent of the Coral Sea.

This expanded the existing GBR and Torres Strait PSSA to create the GBR, Torres Strait and Coral Sea PSSA, which encompasses an area of approximately 968,000 km2.

The reasons supporting the extension included: the Coral Sea's rich biodiversity, unique physical features and important heritage values. The area contains outstanding examples of reef communities and a diverse array of isolated sandy cays, islands, deep-sea plains, seamounts and canyons. Collectively, these areas provide critical habitat for a rich diversity of species, including some of the world's unique and globally significant marine species.

The portion of the PSSA in the Coral Sea is within the Coral Sea Marine Park, now actively managed under the Coral Sea Marine Park Management Plan 2018 (under the EPBC Act).

This addresses action 35 (Section 3.1) in the NE SMP.

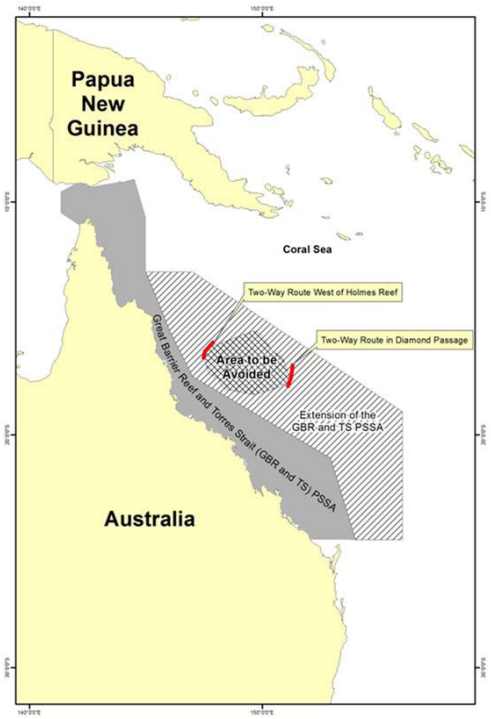

Figure 4: Overview of the region and the location of the PSSA

4.2 Associated Protective Measures

What is a Particularly Sensitive Sea Area (PSSA) and Associated Protective Measure (APM)?

A PSSA is an area that has been given special protection by the International Maritime Organization (IMO) because of its unique physical, ecological or scientific attributes that may be vulnerable to damage by international shipping.

When IMO approves an area as a PSSA, APMs can be put in place to protect that area. These can include, for example, ships' routeing systems and mandatory reporting requirements.

How does this affect international shipping?

In the case of the Coral Sea, the extended PSSA and the Associated Protective Measures are clearly marked on navigational charts, highlighting to ship's masters that they must take particular care while traversing the region.

The new PSSA and Associated Protective Measures will also increase safety by keeping ships clear of the many navigational hazards within the area to be avoided. This minimises the risk of groundings, should a ship encounter mechanical difficulties.

Navigating outside the ATBA adds an extra 11 nautical miles (NM) to a typical journey from a GBR port to East Asia.

The Australian Government, through the IMO, established Associated Protective Measures (APM's). These consisted of ships' routeing systems that would establish a recommendatory Area to be avoided (ATBA) and two two-way routes.

The ATBA aims to reduce the risk of a maritime incident in the remote Coral Sea and protect the sensitive marine environment. The two two-way routes separate opposing streams of traffic and keep ships away from the ATBA, to limit the likelihood of drift groundings.

The APMs were adopted by IMO in 2015 and came into effect in 2016. Although non-mandatory, the ATBA has had a positive impact on safety and environmental protection, by reducing transits through the area (see below). The rules do allow some ships, such as cruise ships (that have an operational need) to enter the area.

This action addresses foundational action F6 of the NE SMP.

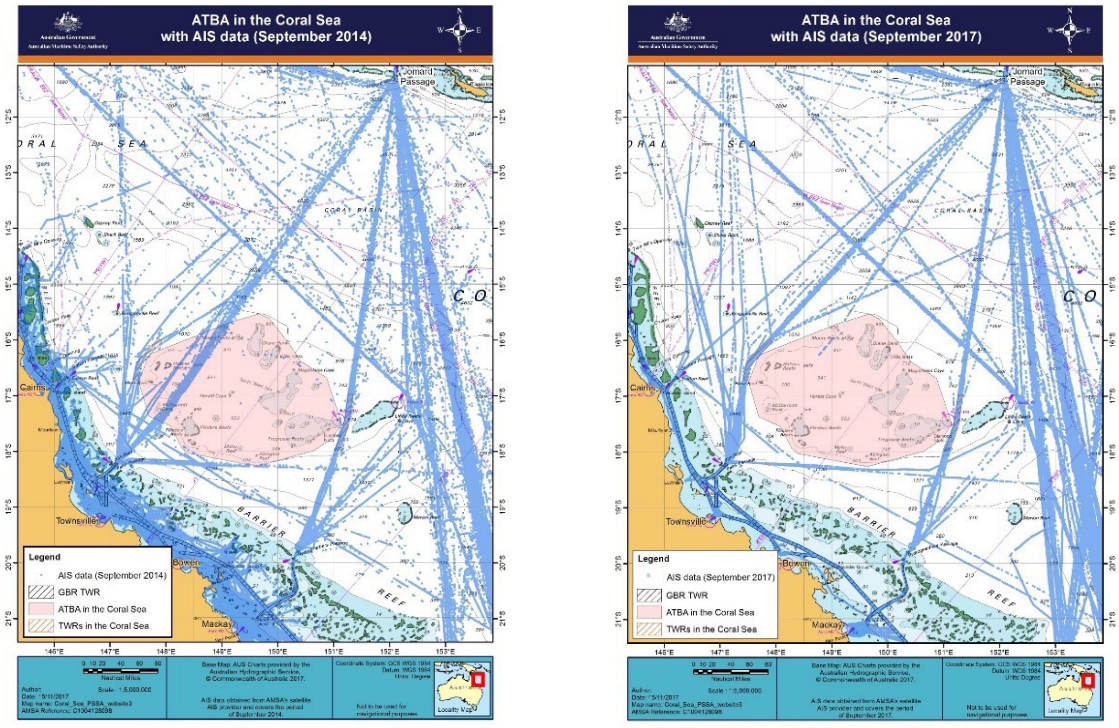

Figure 5: Traffic patterns in and around the ATBA (September 2014 and September 2017)

4.3 Reducing collisions between ships and marine mammals

The Australian Government established the National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna ('the strategy') which is a guiding framework for identifying species most at risk of ship collision; areas where these species are most at risk of collision; and appropriate mitigation measures to reduce this risk.

The overarching goal of the strategy is to provide guidance on understanding and reducing the risk of ship collisions and the impacts they may have on marine megafauna. The strategy recognises the importance of data acquisition and data analysis to inform mitigation measures and communication with stakeholders. It addresses a range of marine megafauna including whales, dolphins, dugongs, turtles and whale sharks (the list is not exhaustive). The objectives and key actions can apply to other marine fauna, as required. The strategy also contributes to the implementation of the Reef 2050 Plan for the GBR.

The focus of the strategy is to reduce the impacts of ship collisions on the conservation status of marine species, however it is also recognised that doing this will also improve animal welfare and human safety, as well as reducing damage to ships. In addition, ship collision is only one of multiple anthropogenic threats that megafauna face. Any mitigation measures to reduce ship collision are likely to complement measures that address other impacts, such as noise and physical displacement.

MSQ has implemented procedures through its port VTS operations. When a VTS receives notification that a whale is in one of the port shipping channels, the VTS will delay ship movements where practicable to reduce the potential of an interaction. In addition, MSQ VTS operations, including REEFVTS, advise ships and the maritime industry to be alert for the presence of whales during the migratory seasons. The strategy is publically available on the DoEE website at http://www.environment.gov.au/marine/publications/national-strategy-reducing-vessel-strike-cetaceans-marine-megafauna)

4.4 Reception facilities for ships' waste

As a signatory to the International Convention for the Prevention of Pollution from Ships (MARPOL), Australia has an obligation to provide ships' waste reception facilities that are adequate for the needs of the ships calling at our ports. The costs for disposal of ships' waste in Australia are high, due to our stringent biosecurity requirements and associated high disposal costs (for deep burial or autoclaving (heat treatment)).

AMSA, in conjunction with the DoAWR, North Queensland Bulk Ports (NQBP) and the Port of Brisbane, has been trialling the feasibility of recycling certain garbage types (glass, plastics, metals) from visiting international ships through two pilot projects at Hay Point and Brisbane in mid 2018. Under the pilot projects, recyclables were separated by visiting ships and then inspected by biosecurity officers before being released and disposed free-of-charge to ships.

The pilot projects required the cooperation of a range of stakeholders, including local government and waste contractors. The project demonstrated that recycling is feasible, and the provision of recycling facilities encourages proper onshore disposal, via reduced fees, and thus provides less incentive for illegal disposal at sea.

AMSA will continue working with stakeholders to investigate the ongoing feasibility of recycling. If proven successful, the pilot projects could be extended in the GBR area, given its environmental significance (see Foundational Action F9).

4.5 Pollution response funds

AMSA established a pollution response financial capability of $50 million. The fund was developed in response to the 2009 Pacific Adventurer oil spill which cost in excess of $30 million to clean up.

In addition, the Protection of the Sea levy[2] was temporarily increased from 11.25 per cent to 14.25 per cent (2010–2014) to fund costs not recoverable from the Pacific Adventurer ship owner or insurance. The excess funds were used to fund the response financial capability.

This capability is currently backed by a high liquidity investment fund. The purpose of the fund is to support AMSA's rapid response to major pollution incidents and to meet the costs of such incidents not recoverable from the ship owner or insurer.

4.6 Biosecurity Act 2015 and the marine biosecurity review 2015—new policy direction and recommendations

The Department of Agriculture and Water Resources (DoAWR) is the Australian Government agency responsible for regulating biosecurity risks associated with ship arrivals in Australia. The introduction of the *Biosecurity Act 2015* in 2016 strengthened the government's ability to manage biosecurity risks associated with ship arrivals, including ballast water and biofouling.

The *Biosecurity Act 2015* and specific marine biosecurity amendments have delivered significant regulatory reforms to reduce the risks of marine pests and the diseases they can carry from entering, establishing and spreading in Australian waters. DoAWR is working closely with international regulators, Australian state and Northern Territory governments, industry, researchers and non-government stakeholders to establish consistent, effective approaches to the management of marine biosecurity risks across Australia.

In 2013, the Australian Government committed $5 million for the Review of National Marine Pest Biosecurity. Since then, DoAWR has been implementing each of the 13 recommendations set out in the 2015 Review report.

4.6.1 Marine Pest Plan

Australia's national strategic plan for marine pest biosecurity (Marine Pest Plan 2018–2023), was published in June 2018. The plan, a recommendation of the 2015 Review of National Marine Pest Biosecurity, is a joint initiative of key marine pest biosecurity stakeholders, which aims to improve marine pest prevention, strengthen surveillance, enhance emergency response capability, support research and development, and strengthen stakeholder engagement.

The Marine Pest Plan is intended for use by government and jurisdictional representatives, maritime industries, non-government organisations and researchers. DoAWR, along with the Marine Pest Sectoral Committee made up of all the states and Northern Territory, oversees implementation of the plan.

[2] The purpose of the levy raised under the Protection of the Sea (Shipping Levy) Act 1981 (PSL Act) is to fund the National Plan for Maritime Environmental Emergencies (National Plan). The levy raised from specified ships is transferred to the Official Public Account (OPA) and then appropriated back to AMSA under section 48 of the Australian Maritime Safety Authority Act 1990 (AMSA Act) as a special appropriation.
In accordance with the National Plan and associated Claims Management Guidelines, where the responsible agency is unable to recover costs incurred in responding to the pollution incidents in Australia or may have difficulties meeting the financial commitments while waiting for reimbursements from shipowners or their insurance, AMSA may reimburse the response costs. Where the polluter is not identified, or costs are not recoverable from the shipowner, then the costs may be recoverable from AMSA under the PSL Act.

4.7 Ballast Water Management

4.7.1 Ratification and implementation of Ballast Water Convention (BWC) in 2017

The International Convention for the Control and Management of Ships' Ballast Water and Sediments (Ballast Water Convention) requires ships to manage their ballast water to remove, render harmless, or avoid the uptake or discharge of aquatic organisms and pathogens within ballast water and sediments.

Significant amendments to the *Biosecurity Act 2015* in 2017 enabled Australia to ratify and implement the Ballast Water Convention on 8 September 2017.

Amendments to the *Biosecurity Act 2015* also introduced national domestic ballast water requirements to reduce the risk of spreading marine pests that have already established in Australian seas. The national requirements that apply to domestic operators have been implemented to be consistent with the Ballast Water Convention.

4.7.2 Australian Ballast Water Management Requirements Version 7

In August 2017, DoAWR released version 7 of the Australian Ballast Water Management Requirements. The requirements outline the obligations of vessel operators under the Biosecurity Act 2015 with regard to the management of ballast water and ballast tank sediment when operating within Australian waters. The requirements apply to all international and domestic ships and are consistent with the requirements of the Ballast Water Convention.

The requirements explain the acceptable management methods for ballast water, including designating acceptable areas for conducting ballast water exchange when operating in Australian seas.

4.7.3 GBR ballast water exchange exclusion area

Ballast water must not be exchanged within 12 nautical miles of the outer boundary of the GBR Marine Park. This requirement applies to both international arrivals and domestic operators.

If the requirements to conduct a ballast water exchange beyond 12 nautical miles of the GBR Marine Park are unachievable, the master should contact DoAWR for advice as soon as possible. Ships using ballast water exchange as their primary method of ballast water management, must abide by additional requirements when conducting operations within this zone (Australian Ballast Water Management Requirements—section 5 refers).

The Biosecurity (Ballast Water Same Risk Area) Instrument 2017 designates an area including the GBR Marine Park and part of the Torres Strait as a 'same risk' area. This area is known as the GBR Marine Park—Domestic Ballast Water Zone and includes the ports within the GBR Marine Park and part of Torres Strait.

Over the past three years, DoAWR has invested in research to validate the use of molecular port surveillance methods for marine pests. The outcomes of this project will enable efficient and effective future port surveillance to inform risk assessments for domestic ballast water movements.

4.8 Biofouling

DoAWR is currently developing biofouling management requirements to address biosecurity risks associated with biofouling on ships coming to Australia. To ensure commercial shipping can comply with all jurisdictions through the same actions, Australia's proposed biofouling requirements align with the IMO Biofouling Guidelines as far as possible.

Over the past three years, DoAWR has invested in research to support the development of biofouling regulations and has worked collaboratively with other countries to share research findings and experiences with implementation of the IMO Biofouling Guidelines. Research projects include international ship biofouling surveys and recreational boater surveys to better understand the biosecurity risk associated with the biofouling pathway and the level of uptake and understanding amongst ship owner/operators of the biofouling guidelines.

DoAWR is supporting global efforts to improve biofouling management through becoming an official strategic partner in the GloFouling project, an IMO initiative focused on building regional capacity to manage biofouling.

The GloFouling project will focus on the implementation of the IMO Biofouling Guidelines and build capacity in developing countries for implementing the Guidelines to achieve overall reductions in the translocation of invasive marine species through biofouling. The management of ships' hull fouling has additional benefits in reducing drag and fuel consumption and therefore greenhouse gas emissions.

4.8.1 Port surveillance project to validate molecular techniques for surveillance

The Queensland Marine Pest Prevention and Preparedness Project is currently underway. It aims to take a proactive approach to prevention of marine pests and their impacts, as well as improving capacity to respond in the event of a marine pest detection or incursion. To date, the project has successfully established a dedicated marine pest function within Biosecurity Queensland and designed a Queensland ports marine pest surveillance pilot program, which will be implemented at Cairns, Townsville, Mackay, Gladstone and Brisbane in early 2019, to improve early detection capability. A marine pest education and awareness campaign is in development, with a focus on educating those most likely to come across a marine pest, for example, slipway operators, port operations staff and marina operators. A regional port-based marine pest emergency response exercise is planned for mid 2019.

4.9 Enhanced engagement with local communities in the Torres Strait

One of the outcomes from the engagement with the local communities of the Torres Strait was the identification of an issue around coastal erosion that is thought to be a result of ship wash. Because of this, a new action item to investigate the matter has been added to this review (see new action NE SMP8 in Section 7.3).

4.9.1 Torres Strait Marine Safety Program

The Torres Strait Marine Safety Program (TSMSP) is a joint initiative of organisations including AMSA, MSQ and the Torres Strait Regional Authority (TSRA), the Queensland Police Service (QPS) and National Maritime Safety Authority (NMSA) of PNG.

The project began after it was estimated that Torres Strait islanders had a one in 12 chance of being involved in a marine incident, while Queenslanders more generally had a one in 3300 chance.

Today, Torres Strait Islanders are far better equipped with the skills and knowledge to avoid a marine incident, and are much better prepared to deal with possible risks associated with operating on the water.

The program's primary foci are:

- improving and promoting boating safety in the Torres Strait
- reducing the number of search and rescue (SAR) operations in the area
- increasing the survivability of persons lost at sea
- supporting development of the near coastal maritime industry in the region.

A crucial element of the TSMSP is engagement with traditional owners, community representatives and industry leaders, to discuss current and emerging maritime safety issues. This includes working with the PNG NMSA to deliver TSMSP boating safety education to those villages in the western province subject to the Torres Strait Treaty.

4.9.2 Disaster management

MSQ is a member of the Far North District Disaster Management Group (FNDDMG), which includes representatives of each relevant local government in the disaster district, including the Torres Strait. Representatives on the FNDDMG include Queensland government agencies, government owned corporations, non-government organisation, industry and commerce and key community representatives, who can provide and coordinate whole-of-government support and resource gap assistance to disaster stricken communities. FNDDMG members perform a 'middle management' function within Queensland's disaster management arrangements by providing coordinated state government support when requested by Local Disaster Management Groups (LDMGs) on behalf of local governments.

4.9.3 Pollution prevention and response

AMSA and MSQ undertook significant engagement with the local communities in the Torres Strait during the planning and delivery phases of the national oil spill exercise in August and September 2018. Trained responders from the Torres Strait and Kaiwalagal region were integrated into each field team and were imbedded within the incident management team. Community information sessions were held on each of the islands that were involved in the exercise to educate local communities about the preventative, preparedness and response measures in place to improve maritime safety and prevent marine pollution. AMSA and MSQ have committed to sustaining and extending the engagement with local communities in the Torres Strait and developing a strategy to build local capacity and capability in the Torres Strait.

5. Changes in risk in the north-east

5.1 Background

As part of the original NE SMP work program, AMSA engaged Det Norske Veritas Australia Pty Ltd (DNV) to estimate the risk of shipping incidents, mainly due to collisions and groundings, in the GBR, Torres Strait and Coral Sea region.

The study considered shipping traffic at 2011–12 levels (based upon actual traffic data) as the base case, as well as forecast traffic levels for the years 2020 (1.7 times 2012 traffic levels) and 2032 (2.6 times 2012 traffic levels).

The risk assessment found that while the incidence of large commercial ship groundings is very low, current risk mitigation measures in the region reduce incident risk by around 38 per cent. REEFVTS already covers areas where it provides most benefit. On the basis of the risk modelling results, DNV concluded the following order of effectiveness of possible risk reduction options, as traffic levels increase:

- extension of the geographical area of pilotage and/or measures to improve the effectiveness of pilotage, such as fatigue management, for current and forecast future traffic
- port State control (PSC)—an effective PSC regime deters shipping companies from operating substandard shipping in the region and can detect deficiencies in shipping equipment or working practices, which could increase navigational risk
- Electronic Chart Display and Information System (ECDIS)—when combined with high quality and up-to-date electronic charts, ECDIS provides strong navigational support through ship position monitoring and alarms, if the ship exceeds pre-defined safety boundaries
- all ships in the area required to have bunker fuel oil tanks in protected locations (reduces risk of oil spill, following an incident)
- a traffic organisation service in the Torres Strait and Hydrographers Passage
- additional emergency towage capability, which may be achieved by contracts with existing emergency towage providers, by greater awareness and utilisation of tows of opportunity, by the provision of additional towage capability or by other means (the study only took into account the dedicated emergency towage vessel Pacific Responder previously employed by AMSA to patrol the region north of Cairns).

2014 GBR Outlook report: shipping management

The effectiveness of shipping management within the GBR was assessed as 'very good' in the GBR Outlook Report (2014), being well regulated and managed and future risks were being addressed based on the draft NE SMP.

The assessment noted that the interim NE SMP was an example of control and emergency response arrangements, anticipating and pre-empting changes in shipping activity levels and risk profiles—a critical aspect of shipping management.

The results of this review indicate that the implementation of the NE SMP has progressed with positive outcomes, such that the effectiveness of shipping management has been maintained in the interim. However, there are still knowledge gaps that require research to more fully understand impacts of shipping and their anchorages.

GBRMPA 2014, GBR Outlook Report 2014, Townsville, Australia http://www.gbrmpa.gov.au/our-work/reef-strategies/great-barrier-reef-outlook-report

5.2 Current situation

There has been no substantial change to the risk profile of shipping since the 2014 plan was published. While the rate of growth in shipping traffic has not been as high as some of the forecasts at the time, the number of ship transits through the GBR has increased modestly over the past five years.

REEFVTS data indicates 10,910 transits in 2013 and 11,875 transits in 2018 representing an average 2.6 per cent increase year on year over the past five years. Of note, LNG carriers and cruise ship numbers have increased markedly (see Annex 2 for more information on cruise ships).

The 2014 risk reduction options identified above remain relevant. The action plan in this report addresses existing and emerging risks.

5.3 Ships at anchor

For reasons of safety, timing or operational efficiencies, it is common practice for large commercial ships to arrive at a port and then proceed to anchor. This may be while awaiting their turn to enter the port to effect cargo operations (or other activities), avoid bad weather or seek a port of refuge.

Anchoring can either be at specific, and individually charted locations designated by an authority, within a more generally defined anchorage area (or roads) or at a suitable location, chosen by the ship's master.

An identified risk is the potential operational and cumulative effect on the environmental when an excessive number of ships lie waiting off a port at anchor.

Operationally, requiring a large number of ships to clear the anchorage when bad weather approaches potentially increases the risk of collisions and groundings.

Studies draw attention to the potential cumulative impact on the environment of anchoring. For example, Ship Anchorage Management in the GBR World heritage Area Synthesis Report of July 2013 identifies the primary impacts of ships at anchor are:

- disturbance to seabed and supported biodiversity from anchor drop and chain drag
- minor releases of emissions or pollutants/wastes from ships
- a reduction or alteration of the aesthetic value of the coastal vista
- interference with other users access to resources
- potential for marine pest introduction
- interference with species behaviour.

A potential solution is to reduce the number and duration of ships waiting at anchor. This may be achieved by the implementation of a Vessel Arrival System (VAS). Section 6.5 refers.

6. New developments

Forecasting shipping trends is always challenging due to the uncertainty in commodity supply and demand and proposed new export-related projects, particularly those in the minerals and energy sector.

6.1 Coal

There is an often-missed distinction between metallurgical coal, which is used to make steel, and thermal coal, which is used in electricity generation.

The long-term outlook for metallurgical coal, which accounts for around 70 per cent of Queensland's total coal exports, is relatively positive; there are no proven competitive substitutes for metallurgical coal in blast-furnace steel-making. According to the Office of the Chief Economist (https://www.industry.gov.au/data-and-publications/resources-and-energy-quarterly-all) Australia's metallurgical coal exports are forecast to increase by approximately 4 per cent in the two years to 2020. This closely reflects historical growth patterns. Accordingly, metallurgical coal shipping numbers can be expected to increase at a similar rate.

The Office of the Chief Economist notes that the outlook for thermal coal is more subdued and that Australian export volumes are forecast to remain relatively steady to 2020. This is because India's increasing demand for thermal coal offsetting modest declines in Japanese imports (as its nuclear reactors restart). Any large increase in thermal coal shipping numbers is only likely if greenfield projects in the Galilee Basin establish significant production, due to a change in market demand. These projects are limited by available rail and port capacity and the capital cost of building new infrastructure.

6.2 Liquefied Natural Gas

Global LNG trade is forecast to increase by around 25 per cent from 2017 levels. Much of this LNG demand will stem from some of Australia's close neighbours. This may result in an increase in ship numbers if LNG production rates increase through the existing and proposed new fields in inland Queensland.

6.3 Cruise ships

It is likely there will be continued growth in cruise shipping numbers, particularly if new cruise ship terminals and infrastructure projects proceed at the ports of Brisbane, Townsville and Cairns.

6.4 Bauxite and zinc exports

The year 2018 saw the commencement of several new export facilities in the Gulf of Carpentaria. These will have an impact on ship numbers in Torres Strait and GBR. Shipping operations have commenced from the new port of Amrun, which will supply bauxite to refineries in Gladstone via the Torres Strait and GBR as well as international destination. Similarly, bauxite export operations have commenced from Skardon River.

The previously de-commissioned zinc export facility at Karumba has been recommissioned and zinc exports commenced. The dredging of the Karumba shipping channel has also reinvigorated the live cattle export trade from that port—although the devastating floods in north-west Queensland in early 2019 are expected to reduce cattle export numbers from the region for some time.

6.5 Investigate benefits of Vessel Arrival Systems for bulk commodity ports

A Vessel Arrival System (VAS) is a means of reducing the number of ships waiting at anchor at a port, by assigning a place 'in the queue' to ships before they enter Australia's Exclusive Economic Zone (EEZ) and communicating with ships enroute to update them on optimum arrival times. A VAS can have safety and environmental protection benefits.

A VAS was established at the port of Newcastle in NSW following the grounding of the Pasha Bulker in bad weather in 2007. The system has been operated successfully by the Port Authority of NSW for Newcastle's coal exports for a number of years, with ships moderating their speed and reducing their time at anchor, with no disruptions to date to the coal supply chain.

Whilst the operating environments at Queensland ports are different, the Newcastle VAS provides a model that could potentially be drawn upon for the GBR's bulk commodity ports, to improve safety and environment protection outcomes. To determine if a VAS or other anchorage management arrangements would be of value it is proposed to investigate if anchorages pose a significant risk in terms of safety or environmental impact; and, if so, what measures would be most effective in mitigating identified risks.

Government agencies and industry to evaluate the safety and environmental risks, benefits and viability of a Vessel Arrival System at ports where ships spend extended periods at anchor (new action SMP 11).

7. Revised work program

The revised work program, comprising foundational and revised/new actions, is based on updated information about nature of shipping activity in the north-east region, and the result of the experience, knowledge, data analysis and collaboration amongst members of the Working Group.

7.1 Reporting requirements

In keeping with the revised durations for action implementation, a more standardised reporting approach has been developed. Nominated action leads are responsible for submitting updates to AMSA, who will coordinate distribution of reports, as part of its secretariat role to the Working Group. These are:

- Foundational actions (report annually)
- Long term actions (report annually)
- Medium term actions (report six monthly)
- Short term actions (report six monthly, or as actioned and completed)

Given that the NE SMP is a key deliverable for the Reef 2050 Plan, the Working Group decided that it should reflect the framework used in the 2018 Reef 2050 Plan to identify foundational and new actions to this review. As such, this review has realigned actions as either foundational or new and will align reporting against its progress to match that of the Reef 2050 Plan so that they are better synchronised.

7.1.1 Revised durations

A different approach has been taken to the nature and duration of actions. Ongoing actions and business as usual practices have been included in a new category termed ‘foundational actions’.

Other actions have been assigned one of three durations. They are:

- Short term (12 months or less)
- Medium term (1 to 3 years)
- Long term (3 to 5 years)

7.2 Foundational actions

The original NE SMP included a number of underpinning foundational activities, which were drawn from broader legislative responsibilities and industry management practices. Specific actions in the original plan also described other foundational activities and programs including incident response capabilities, provision of aids to navigation subject to traffic density and assessment of risk and hydrographic surveys.

The NE SMP review recognised these activities and programs are better characterised as core foundational business. They have been categorised from specific actions to foundational programs and activities. The following table lists the responsible reporting agency and contributing partners for foundational activities and programs.

Original action	Foundational action	Description	Lead	Supporting
1	F1	AMSA to continue to work through the IMO to seek improvement in standards of ship propulsion reliability and redundancy and emergency towing arrangements.	AMSA	
3	F2	AMSA to undertake initiatives focused on the contribution of the human element to shipping incidents and address ways of reducing risk.	AMSA	
5, 8	F3	AMSA to promote the use of high quality ships, operated by competent crews, to trade in the region by enforcing standards in compliance with IMO guidelines for port State control. AMSA to maintain and publish a Compliance and Enforcement policy that applies to ships regulated under the Navigation Act 2012 and Marine Safety (Domestic Commercial Vessel) National Law 2012.	AMSA	
9	F4	AMSA to continue its technical cooperation on maritime safety and environment protection matters with neighbouring countries, particularly Papua New Guinea, to ensure ships and crews operate to the highest international standards.	AMSA	
12	F5	Government agencies to work with the Australian Hydrographic Office (AHO) to identify areas of the north-east region that will benefit from improved hydrography and oceanographic observations.	AHO	

7.2 Foundational actions (continued)

Original action	Foundational action	Description	Lead	Supporting
6, 7, 13, 14, 16, 19, 20, 22, 27, 34, 55, 59, 61	F6	AMSA and MSQ will continue to apply a risk-based approach to managing shipping related risks stemming from changes in shipping density and the profile of ships calling at Queensland ports and transiting through the waters of the north-east.	AMSA and MSQ	AMSA MSQ
17	F7	AMSA to continue to consult with all relevant aids to navigation stakeholders in the north-east and ensure access arrangements for aids to navigation maintenance are practical and within agreed environmental parameters.	AMSA	MSQ
23	F8	AMSA, in conjunction with shipping interests and coastal pilotage providers, to review, as needs dictate, the effectiveness of UKCM arrangements in Torres Strait and GBR.	AMSA	GBRMPA
32	F9	AMSA to continue to work with government agencies and Queensland port authorities to encourage the improvement and use of waste facilities in line with IMO guidelines and information.	AMSA	MSQ GBRMPA
44	F10	GBRMPA to share lessons learnt from the restoration of habitats affected by shipping incidents (e.g. coral and seagrass restoration, eradication of marine pests, halt impacts from biocides).	GBRMPA	Australian Reef Pilots
52	F11	AMSA to assess the availability of Hazardous and Noxious Substances (HNS) cargo information currently available from ships in the region in the event of an incident. If necessary, AMSA to seek to amend the requirement of the mandatory ship reporting system REEFREP to require all ships to which REEFREP applies to report further details of the carriage of HNS.	AMSA	Torres Pilots

Original action	Foundational action	Description	Lead	Supporting
53, 54, 56	F12	MSQ, port authorities and AMSA are to ensure they have adequate response assets and emergency towage capabilities and that they undertake training that targets responses to search and rescue incidents, maritime casualties and ship-sourced oil and chemical spills.	MSQ	AMSA QPA Ports North POTL NQBP GPC
63	F13	GBRMPA and AMSA to work with CSIRO's social and economic long-term monitoring programs to identify social perceptions of shipping and implement appropriate public education campaigns, as needed.	All NE SMG members	
New action	F14	Identify and implement marine biosecurity best practice management and early detection marine pest surveillance at key Queensland Ports.	DAF	DoAWR QPA Ports North NQBP POTL GPC Port of Brisbane
New action	F15	Maintain communications with agencies with interests in higher-risk ships transiting the Torres Strait and the Coral Sea but not calling at an Australian port.	AMSA and MSQ	

Table 7: Foundational actions

7.3 Revised / new actions

The following are revised or new actions, based on updated information about shipping activity.

Lineage/ original action number	New action number	Description	Lead	Support	Duration
4	NE SMP1	AMSA to work through the IMO to introduce a Fatigue Risk Management System (FRMS) approach to the global shipping industry.	AMSA		Medium term
11	NE SMP2	Port authorities to investigate and implement where appropriate, systems that reward ships for having higher safety and environmental standards.	QPA	MSQ	Medium term
18	NE SMP3	AMSA to keep under review the use of AIS on non-SOLAS commercial ships operating in the GBR.	AMSA	MSQ	Long term
26, 29	NE SMP4	Taking into account increases in traffic density and resultant changes in risk, MSQ and AMSA to investigate the benefits of REEFVTS and mandatory pilotage supporting shipping for the areas of the upper middle Inner Route.	MSQ and AMSA	GBRMPA	Medium term
28	NE SMP5	Drawing on the work done to date, further investigate the opportunities for conducting research on the impacts of ship anchorages at major commodity ports.	Queensland Ports and GBRMPA	MSQ DoEE	Long term
39	NE SMP6	The Department of the Environment to keep under review modelling and assessments of risk of ship strike on cetaceans in the north-east region. As the degree of risk warrants, the results would be used to design and implement appropriate safeguards.	DoEE	AMSA MSQ GBRMPA	Long term
41	NE SMP7	AMSA to investigate if the shape and energy of waves generated by passing ships influence coastal erosion in the Torres Strait.	AMSA	TSRA	Long term

Lineage/ original action number	New action number	Description	Lead	Support	Duration
42	NE SMP8	Drawing on the work done to date, GBRMPA, DoEE and AMSA to further investigate research into the potential environmental and socio-economic impacts of ship-generated sediment resuspension.	AMSA		Medium term
45, 58	NE SMP9	DoEE to investigate mechanisms to fund high priority restoration and rehabilitation of reef habitats following a ship grounding.	QPA	MSQ	Medium term
New	NE SMP10	MSQ to engage Murdoch University to expand its risk assessment for cetacean strike in the GBR to include the area offshore the Capricorn and Bunker Group. *(Murdoch University have completed a relative risk assessment for cetacean strike in the GBR. However the risk assessment did not cover the area offshore from the Capricorn Bunker Group which is an area where it is thought that migratory whales cross paths with ships entering the southern end of the GBR).*	MSQ		Medium term
New	NE SMP 11	Government agencies and industry to evaluate the safety and environmental risks, benefits and viability of a Vessel Arrival System at ports where ships spend extended periods at anchor.	AMSA	MSQ FNQP POTL NQBP GPC QRC	Medium term

Table 8: Revised / new actions

8. Progressing the work program of the revised North-East Shipping Management Plan

The NE SMP is a key deliverable for the Reef 2050 Plan. Given this, the NE WSM WG agreed that it should reflect the framework used in the 2018 Reef 2050 Plan to identify foundational and new actions. As such, this review has realigned actions in the revised NE SMP as either foundational or new. Reporting too will be aligned against their progress, to match that of the Reef 2050 Plan, so that they are synchronised.

The Management Group will direct a review of the NE SMP once in every five years. The review will typically be carried out by the NE WSM WG.

The Management Group will also task the NE WSM WG with monitoring the Plan's work program and to report on progress annually to the Management Group, generally in February of each year.

Annex 1:
Shipping activity in the north-east region

The NE SMP used a forecast for shipping and commodity exports in the north-east based on the AMSA commissioned study North Queensland Ship Traffic Growth Study. At the time of the publication (2014), annual shipping growth had averaged 5.4 per cent over the preceding five years. The study forecast that by 2020, the region would experience around 2450 voyages by bulk carriers from Queensland ports annually.

The actual number of voyages has increased steadily—from 10,910 in 2013 to 11,875 in 2018[3,4]. The highest growth occurred in 2013–14, during which Gladstone and Hay Point's bulk carrier voyages increased by 100 and 140 respectively. This growth is attributed to the completion of port expansion projects, resulting in significant throughput increases.

Overall growth in voyages from north-east ports has increased by 3.6 per cent annually. Figure 6 provides a breakdown of traffic by port. Gladstone experienced significant growth as the Curtis Island LNG facilities became operational, resulting in nearly 300 new sailings per year. Cairns' growth is attributable to an increase in international and domestic cruise ships calling at the port, as well as the number of Navy ships.

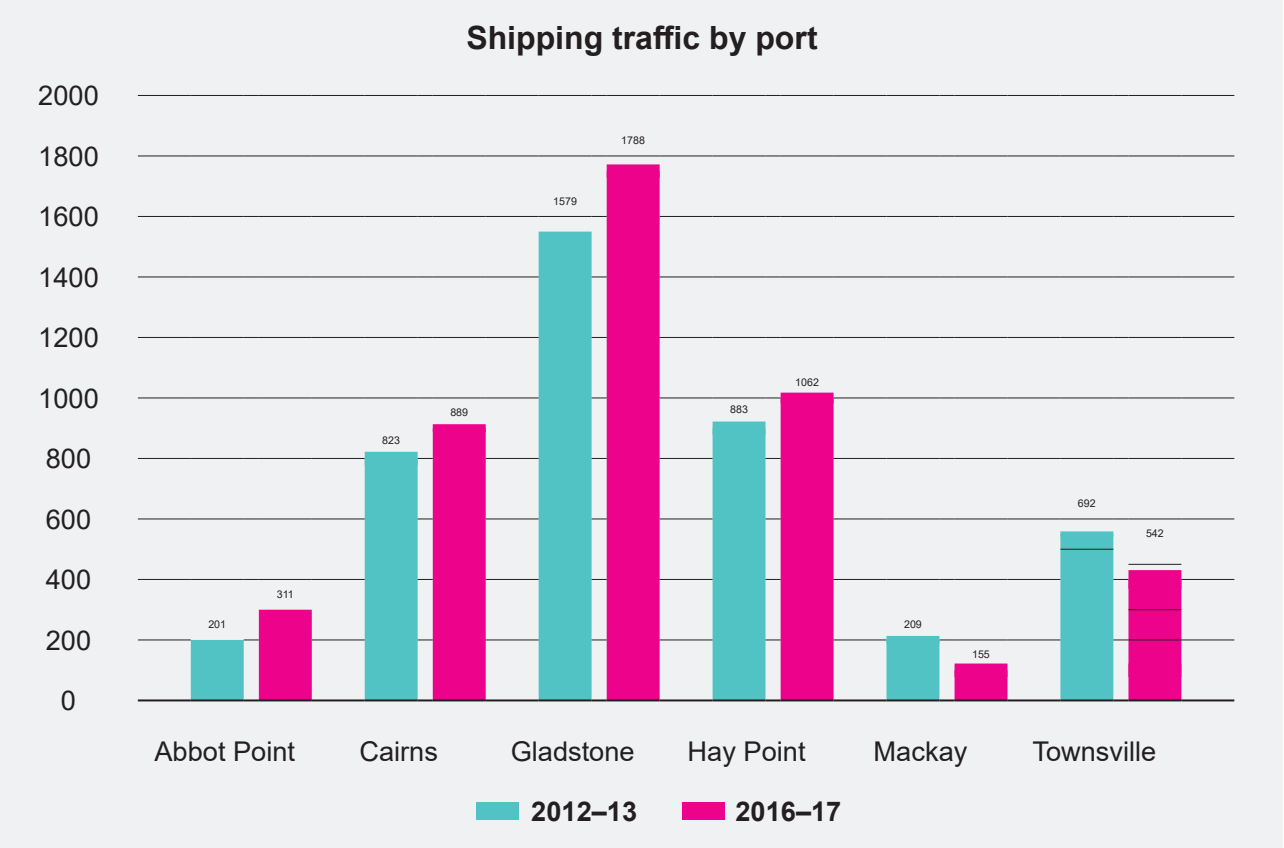

Figure 6: Shipping traffic by port

[3] North Queensland Bulk Ports Corporation, Annual Report 2012–13

[4] Gladstone Ports Corporation website, Origin & Destination of Cargoes, totals for financial year 2017 http://content1.gpcl.com.au/viewcontent/CargoComparisonsSelection/CargoComparisonsSelection.aspx (as at 27 November 18)

Vessel arrivals at ports and throughput comparison (2013–14 to 2017–18)

Port	Cargo type	Principal commodities	Vessel arrival at port		Throughput ('000 tonnes)	
			2013–14	2017–18	2013–14	2017–18
Abbot Point	Dry Bulk	Coal	287	306	15,059011	17,622306
Cairns	Mixed	General cargo, tourism	307	236	3,138739	1,997077
Cape Flattery	Dry Bulk	General cargo, mineral sands	42	47	1,289952	1,441429
Gladstone	Mixed	Coal, LNG, Bauxite, Aluminium	1684	1808	70,016078	101,802525
Hay Point	Dry Bulk	Coal	1007	1144	64,516340	70,481521
Lucinda	Dry Bulk	Sugar	13	16	339,056	469,587
Mackay	Mixed	Sugar and sugar products, grain and petroleum	188	186	3,998789	4,257846
Mourilyan	Dry Bulk	Sugar	32	31	556,704	601,155
Port Alma	Dry Bulk	Chemicals	76	78	9326	741,296
Townsville	Mixed	Minerals, sugar, general cargo	627	524	13,492576	12,086182

Table 9: Vessel visits data provided by port authorities and only include arrivals for trade (e.g., bulk carriers, gas, tankers, general cargo).

The forecast increase in ships transiting through the GBR has not materialised. There are several reasons for the lower growth rates:

- fertiliser exports from Townsville have not grown, with only 872,000 tonnes shipped during FY 2016–17, which was less than the 1M tonnes shipped in 2014 (Port of Townsville Limited's Annual Reports 2013–14 and 2016–17)
- the Wiggins Island terminal at Gladstone did not undergo development to expand coal export capacity from 57 to 81 million tonnes per annum (Mtpa)
- additional rail infrastructure and port terminals to support proposed new mines in the Galilee Basin have not proceeded beyond the approvals process.

The number of ships transiting annually through the GBR and Torres Strait has gradually increased since 2014. Statistics show a gradual increase of about 1.2 per cent per year although the last year has seen a slowing in the rate of increase.

In 2014 there were over 10,700 voyages conducted through the GBR per annum. Ships navigating through the GBR enter and exit via the following routes:

- Great North-East Channel
- Grafton Passage
- Palm Passage
- Hydrographers Passage
- Capricorn Channel and Curtis Channels.

Figure 8 provides a comparison of the number of ships entering and exiting the reef at the main locations in 2013–14 and in 2017–18.

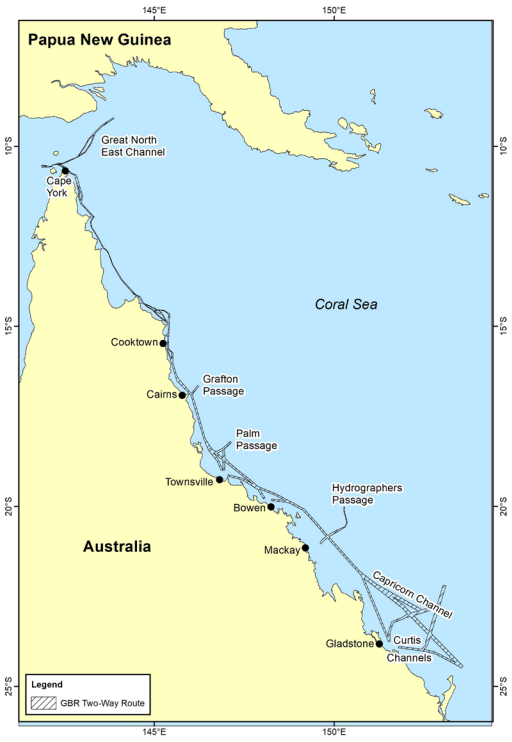

Figure 7: Great Barrier Reef two-way routes

Shipping passage	2013–14		2017–18	
	Ships	Voyages	Ships	Voyages
Great North-East Channel	628	1286	529	996
Prince of Wales Channel	1413	3412	1357	3257
Inner Route—Cape York to Cairns	895	2339	922	2469
Hydrographers Passage	766	1628	805	1710
Grafton Passage	126	239	121	209
Palm Passage	535	1032	666	1228
Whitsunday area	32	83	32	165

Table 10: Voyages through shipping passages in the Great Barrier Reef during 2013–14 and 2017–18

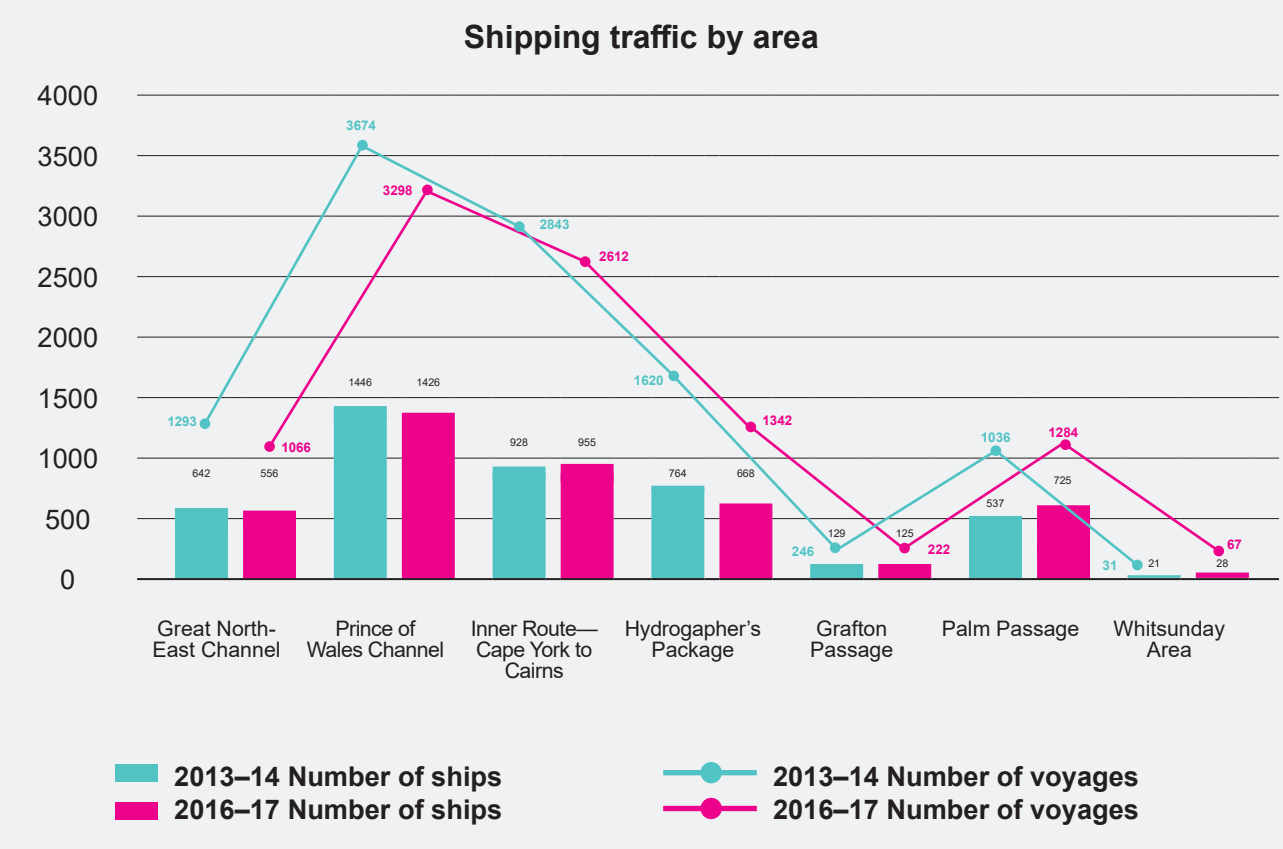

Figure 8: Shipping traffic by area (2013–14 vs 2016–17)

Annex 2:
Cruise ship activity in the GBR

The Australian cruise industry has had a 12 year run of double digit percentage growth in passenger numbers. As the pace of growth continues, the number of Australian cruise passengers has almost doubled in the last five years. Industry forecasts that demand for ocean cruising in our region will continue to grow and, notwithstanding infrastructure constraints, will reach two million ocean cruise passengers by 2020[5].

Overall

- Cruise ships are getting larger and carrying more people.
- Governance in the reef provides the ability for oversight and management of numbers (Marine Park permit system, dedicated anchorages, REEFVTS, licensed coastal pilotage etc).
- Queensland witnessed 520 cruise ship calls in 2017–18.
- Of the total 520 ship calls, 302 calls were in the region between Gladstone and Thursday Island.
- More than 778,000 passengers and more than 86,000 crew visited Queensland destinations in 2017–18.
- GBRMPA Environmental Management Charge data shows that as on 18 September 2018 visitation for the calendar year had already exceeded the numbers for all of 2017.

2017

- Cruise ship EMC visitation figures = 124,000.
- Number of cruise ship booking = 67.

2018

- Cruise ship EMC visitation figures = 95,573 (to date 1 Jan 2018 to 18 Sept 2018).
- Number of cruise ship booking = 95 (current bookings).

[5] Cruise Lines International Association Cruise Tourism's Contribution to the Australian Economy, 2016–17.

Figure 9 below illustrates the global forward cruise ship order book. In the near future the newly built cruise ships will be either predominantly large—over 3000 pax, or small expedition sized—less than 1000 pax.

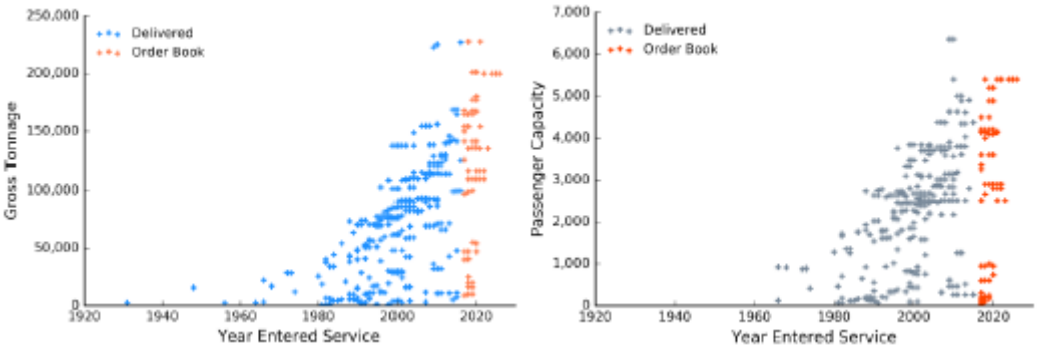

Figure 9: Global forward cruise ship order book utilising Cruise Lines International Association data

Future planning and regulation should be cognisant of the impending change in the makeup of the fleet visiting Queensland, and the significant range/variations in ship sizes. This is likely to result in requests for greater capacity at reef experience destinations for large ships, as well as smaller intimate experiences for higher end small ships.

It is expected that the global fleet will grow substantially from 2020, and this will mean several more ships in the marine park. Demand for Queensland destinations like the Whitsundays, that are strategically located geographically, is likely to increase, particularly in February and March each year.

The new Brisbane Cruise Ship Terminal development by Port of Brisbane will see growth in Queensland cruise itineraries and traffic along the coast from 2020.

Annex 3:
Glossary of acronyms

AMSA	Australian Maritime Safety Authority
AHO	Australian Hydrographic Office
APM	Associated Protective Measure
ATSB	Australian Transport Safety Bureau
DoAWR	Department of Agriculture and Water Resources
DoEE	Department of the Environment and Energy
DoIIS	Department of Industry, Innovation and Science
DoIRDC	Department of Infrastructure, Regional Development and Cities
DAF	Department of Agriculture and Fisheries, Queensland
FNQP	Far North Queensland Ports
GBRMPA	Great Barrier Reef Marine Park Authority
GPC	Gladstone Ports Corporation
LNG	Liquid Natural Gas
IMO	International Maritime Organization
Mtpa	Million tonnes per annum
MSQ	Maritime Safety Queensland
NE SMP	North-East Shipping Management Plan
NE WSM WG	North-East Water Space Management Working Group
NM	Nautical Mile
NQBP	North Queensland Bulk Ports Corporation
Ports North	Ports North
POTL	Port of Townsville Limited
PSSA	Particularly Sensitive Sea Area
QCCAP	Queensland Coastal Contingency Action Plan
QPA	Queensland Ports Association
Reef 2050 Plan	Reef 2050 Long term Sustainability Plan (July 2018)
REEFREP	Great Barrier Reef and Torres Strait Ship Reporting System
SAR	Search and Rescue
TMR	Transport and Main Roads (Department of)
TSRA	Torres Strait Regional Authority
VAS	Vessel Arrival System

Annex 4:
List of members (as of July 2019)

North-East Shipping Management Group

- Australian Maritime Safety Authority (Chair)
- Great Barrier Reef Marine Park Authority
- Maritime Safety Queensland
- Department of Environment and Science (Queensland)
- Department of Infrastructure, Regional Development and Cities
- Department of the Environment and Energy
- Department of Industry, Innovation and Science
- Department of Agriculture and Water Resources

North-East Water Space Management Working Group

- Australian Maritime Safety Authority (Chair)
- Australian Hydrographic Office
- Association of Marine Park Tourism Operators
- Australian Marine Conservation Society
- Australian Reef Pilots Pty Ltd
- Carnival Australia
- Department of Environment and Energy
- Department of Environment and Science (Queensland) (The Office of the Great Barrier Reef)
- Department of Transport and Main Roads (Queensland)
- Geoscience Australia
- Great Barrier Reef Marine Park Authority
- Maritime Industry Australia Limited
- Maritime Safety Queensland
- Queensland Ports Association
- Office of the Great Barrier Reef
- Ports Australia
- Parks Australia
- Queensland Department of Science and Technology
- Queensland Fresh Seafood
- Queensland Resources Council
- Queensland Seafood Industry Association
- Rio Tinto Group
- Shipping Australia Limited
- Torres Pilots Pty Ltd
- Torres Strait Regional Authority

Annex 5:
List of legislation applicable

Commonwealth instruments

Navigation Act 2012

The Act is the primary legislative means for the Commonwealth to regulate international seagoing ships by promoting their safe navigation and the safety of life at sea of seafarers and passengers. Its objective is also to protect the marine environment from ship-sourced pollution. The Act gives effect to inspection and enforcement powers derived from relevant international conventions, to which Australia is a signatory.

Great Barrier Reef Marine Park Act 1975

The Act applies to all persons (including foreigners) and ships (including foreign-flagged ships), whether or not they are within the Australian coastal sea. It provides for a statutory planning regime, including the GBR Marine Park Zoning Plan 2004, which aims to regulate and prohibit use of, and entry into, particular regions of the marine park.

The Act also implements a permit system to control activities identified in the Plans of Management, such as tourism, moorings, and sea dumping. This allows for extensive regulation of shipping and boating promoting safety and protection of the environment.

Environment Protection and Biodiversity Conservation Act 1999

The Act establishes a corporation with the function of managing Commonwealth reserves, including the recently proclaimed Coral Sea Commonwealth Marine Reserve.

Of the eight matters of national environmental significance to which the *Environment Protection and Biodiversity Conservation Act 1999* applies, six are directly relevant to the north-east region:

- threatened species
- migratory species
- GBR Marine Park
- World Heritage Areas
- National Heritage Properties
- Commonwealth Marine Areas.

Protection of the Sea (Prevention of Pollution from Ships) Act 1983

The object of the Act is to give effect to Australia's obligations under the International Convention for the Prevention of Pollution from Ships (MARPOL) and the SOLAS Polar Code by imposing requirements concerning the discharge from ships of oil and oily mixtures, noxious substances, packaged harmful substances, sewage, garbage and air pollution.

Protection of the Sea (Powers of Intervention Act) 1981

The object of the Act is to give effect to Australia's obligations under the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 by enabling AMSA to intervene in the event of any threat of pollution from a ship in Australian waters or on the high seas. The Act enables the Commonwealth to take action to respond to an actual or potential pollution incident.

Protection of the Sea (Harmful Anti-fouling Systems) Act 2006

The object of the Act is to implement the International Convention on the Control of Harmful Anti-fouling Systems on Ships and prohibit the use of harmful organotins in anti-fouling paints used on ships. Obligations, including certification and inspection requirements, are imposed on specified Australian ships and foreign-flagged ships entering an Australian port or shipping facility.

Biosecurity Act 2015

The object of the Act is to provide for the management of biosecurity risks including the spread of disease and pests, risks arising from goods brought to Australia and risks associated with vessels and aircraft that enter Australia. The Act also implements the Ballast Water Convention and regulates the ballast water and sediment of certain vessels in accordance with the United Nations Convention on the Law of the Sea.

Queensland instruments

Maritime Safety Queensland Act 2002

The object of the Act is to create an entity—Maritime Safety Queensland—to provide professional, specialist advice to, and undertake particular functions in relation to marine safety, ship-sourced pollution and related matters.

http://www.legislation.qld.gov.au/view/html/inforce/current/act-2002-029

Transport Operations (Maritime Safety) Act 1994

The object of the Act is to provide a system that achieves an appropriate balance between regulating the maritime industry to ensure marine safety; and enabling the effectiveness and efficiency of the Queensland maritime industry to be further developed.

http://www.legislation.qld.gov.au/view/html/inforce/current/act-1994-014

Transport Operations (Maritime Pollution) Act 1995

The overall purpose of this Act is to protect Queensland's marine and coastal environment by minimising deliberate and negligent discharges of ship-sourced pollutants into coastal waters.

http://www.legislation.qld.gov.au/view/html/inforce/current/act-1995-002

AMSA 1077 (02/19)