

MarinePestPlan 2018–2023 mid-term review

Introduction

The purpose of this mid-term review (the review) is to document progress on strategic objectives and associated activities in *MarinePestPlan 2018–2023*. The Review has given particular attention to activities which were identified as potentially needing change or that required clarification to align with Australia's evolving national strategic objectives for marine pest biosecurity.

MarinePestPlan 2018–2023 is a national strategic plan for marine pest biosecurity, developed through partnership with governments, industries and other stakeholders. It details 5 objectives and 28 activities to target collective investment and attention to identified priority risk areas of marine pest biosecurity.

Activities have been completed in all five strategic objectives. All projects completed to date have enhanced our ability to better detect and manage marine pests. Examples include the ballast water activities and commencement of biofouling activities, validation guidelines for marine pest molecular detection, a marine pest surveillance strategy, redevelopment of NIMPIS and validation of some marine pest tests. Marine pest response exercises have been run on a national and at state and territory levels, benefit-cost analysis guidelines to guide responses to marine pest detections were developed, and some marine pest training needs identified. Refer to the *MarinePestPlan 2018–2023* update on the marinepests.gov.au website for current status of activities.

Mid-term review scope

The review aims to track how *MarinePestPlan 2018–2023* activities have progressed (as at October 2020), and to guide future prioritisation of activities and resources. It also indicates where changes to the plan were suggested through the consultation process. Being a five-year plan, activities have been staged according to priorities and available resources. Some activities are also dependent on partial or full completion of predecessor activities. Therefore, some projects have not commenced at the time of this mid-term review.

The review:

- reports on activities regarded as complete and any follow-on activities that may have resulted
- evaluates progress of current objectives and activities, focusing on those activities requiring prioritisation or revitalisation
- identifies activities that have not commenced (and any dependencies that impact activity commencement).
- identifies and records new or changed activities so they are recorded and can be acted on (in an addendum to the plan)
- identifies next steps or achievements of the activities.

The review is also intended to indicate where difficulties were encountered, to allow consideration of these in future strategic planning or project development.

Where activities are marked **complete** the main focus of the activity is finished. However, in many cases there are follow-on activities or use of products of activities.

Where activities are marked as **ongoing** this is because the activity as described is unable to be marked as complete. This may be because the activity outcome depends on additional work conducted outside the scope of *MarinePestPlan2018–2023* (e.g. activity 1.2), or because the activity requires continued input (e.g. activity 2.6).

Where activities are marked as **commenced** this means that the project has started, but that work is still required to complete the activity. In some cases, the commencement has led to a realisation that the activity needs refinement to a more discrete, achievable objective.

Where activities have **not commenced** they will be more closely considered. If activities have not started due to operational considerations (e.g. reliant on completion of another activity) this is noted. Some activities have been progressed through specific projects which may not have been led by a task group; and the Review aims to capture those activities. An activity may still be marked not commenced, as a formal commitment to the activity may not have been set, even though significant progress has been made against the objectives of that activity (e.g. activity 1.4).

Desired outcome of this review

Changes to the existing *MarinePestPlan 2018–2023* identifying new activities or activities that need further work. Proposed outcomes, and actions to achieve those, identified and documented.

No activities were identified for removal due to changed priorities at this point.

List of objectives of plan and last reported status – as at October 2020

Objectives	Activity	Description	Status	Lead*	Priority
1. Minimise the risk of marine pest introductions, establishment and spread	1.1	Implement nationally consistent domestic ballast water regulations under the Biosecurity Act 2015 (Cwlth).	Complete	DAWE	H
	1.2	Ensure the use of ballast water management systems in Australian waters meets accepted environmental standards.	Ongoing	DAWE	M
	1.3	Investigate regulatory options to manage biosecurity risks associated with biofouling on vessels.	Commenced	DAWE	H
	1.4	Review the National Biofouling Management Guidelines for marine sectors and update as required.	Not commenced	DAWE	L
	1.5	Investigate the benefits of an intelligence-gathering framework to monitor marine pest risk pathways and expand the International Biosecurity Intelligence System as appropriate.	Complete	DAWE	L
2. Strengthen the national marine pest surveillance system	2.1	Develop a national marine pest surveillance strategy.	Complete	MPSC TG	H
	2.2	Investigate Australia’s current passive surveillance capability for marine pests and recommend possible improvements.	Complete	MPSC TG	H
	2.3	Promote tailored education and awareness materials to engage marine pest observer groups in passive surveillance activities.	Commenced	MPSC TG	H
	2.4	Develop validation guidelines for marine pest molecular detection methods.	Complete	MPSC	H
	2.5	Validate molecular detection methods (including sampling methodology) for selected high-priority marine pest species.	Complete	DAWE	H
	2.6	Audit, maintain and share a database of marine pest identification capability.	Ongoing	MPSC	L
	2.7	Review surveillance information management needs and ensure an appropriate information system is in place.	Commenced	TBA	H
	2.8	Perform an audit of marine pest surveillance activities and data sets relevant to Australia.	Not commenced	MPSC TG?	L

3. Enhance Australia’s preparedness and response capability for marine pest introductions	3.1	Plan and implement a national program of marine pest emergency response exercises.	Complete	MPSC TG	H
	3.2	Develop a benefit–cost analysis framework to guide response efforts in the event of a nationally significant marine pest incursion.	Complete	DAWE	M
	3.3	Identify marine pest emergency response training needs.	Not commenced	MPSC TG	L
	3.4	Review the national emergency marine pest plan (EMPPPlan) framework.	Complete	DAWE	H
	3.5	Plan and implement procedures to develop and update the EMPPPlan rapid response manuals and related guidance materials.	Commenced	MPSC TG	H
4. Support marine pest biosecurity research and development	4.1	Periodically review the national marine pest biosecurity research and development priorities.	Not commenced	MPSC	H
	4.2	Promote research coordination through the national marine pest research network.	Commenced	MPSC	M
	4.3	Review the economic, environmental and social impacts of marine pests in Australia.	Commenced	MPSC TG	M
	4.4	Make recommendations and implement measures to improve management of marine pest vectors and pathways	Not commenced	See details below	H
	4.5	Assess the effectiveness of current management options for biofouling in niche areas.	Commenced	DAWE	H
5. Engage stakeholders to better manage marine pest biosecurity	5.1	Identify and build a profile of marine pest biosecurity stakeholders.	Complete	DAWE	H
	5.2	Develop a national stakeholder engagement strategy for <i>MarinePestPlan 2018–2023</i> and the Marine Pest Sectoral Committee.	Complete	MPSC	H
	5.3	Design a targeted national campaign to improve awareness of marine pest biosecurity risks, management actions and shared responsibilities.	Commenced	OceanWatch	H
	5.4	Review, update and maintain the marinepests.gov.au website.	Complete	DAWE	M
	5.5	Establish an independent national marine pest network.	Commenced	DAWE	H

Priority: High, Medium, Low (as per Implementation Plan) DAWE - Department of Agriculture, Water and the Environment

MPSC TG – Marine Pest Sectoral Committee task group. Task groups are formed from MPSC members, partners and other expertise as required to complete specific tasks.

Marine Pest Plan 2028–2023 Mid-term review

All activities are reviewed. Where activities have not started, an indication of potential development or commencement is given.

The report on each activity includes:

- a brief description of the intended outcome
- current status and the approach used to deliver on the activity
- an evaluation of whether the outcome was delivered and follow-on or ongoing effects arising from completion of the activity.

1.1 Implement nationally consistent domestic ballast water regulations under the Biosecurity Act 2015 (Cwlth)

Expected outcome

Domestic ballast water regulations are implemented.

Activity status and approach

Complete Domestic ballast water regulation has been introduced and implemented under the *Biosecurity Act 2015*. The requirements have now been fully implemented. The phase out of ballast water exchange as a management measure, to the use of treatment systems which meet the standards prescribed by the International Convention for the Control and Management of Ship's Ballast Water and Sediments (the Convention), is underway and is expected to be complete by 2025. Refinement of the risk management measures is ongoing with a reassessment of the ballast water risk tables species conducted in 2019 and development of a tool for molecular detections of viable material of these species in an advanced stage of development.

Evaluation

Domestic ballast water regulation has been implemented. Ongoing maintenance of the domestic ballast water arrangements will be necessary to address changing domestic risk profiles and compliance challenges. Processes are in place to ensure ongoing maintenance is undertaken. A stronger focus on compliance and enforcement processes is required to be developed over the next 3 years.

1.2 Ensure the use of ballast water management systems in Australian waters meets accepted environmental standards

Expected outcome

That ballast water treatment and subsequent discharge does not pose an unacceptable environmental risk.

Activity status and approach

Ongoing As part of the ballast water management convention implementation considerable research has been done to monitor potential impacts of ballast water management systems. Specifically, ensuring testing for discharge of total residual oxidants from vessels operating ballast water management systems is done during the approvals process and on commissioning of a system to a vessel. Modelling of ballast water discharge and dispersal in selected ports has been completed, including modelling the discharge from various systems under varying operational regimes to assess the levels of treatment by-products entering the environment.

The reports from this work are available on the [ABARES Biosecurity sciences page](#) and the issue has been referred to the Water Quality Policy Sub-Committee (WQPSC) of the interim National Water Reform Committee.

Projects are underway to test the ballast water on discharge from vessels utilising a ballast water management system in Australia. The results of these projects have been provided to the International Maritime Organization (IMO) which will inform future amendments to the Convention as required.

Evaluation

Work to identify actual discharge oxidation products has been done with mixed results. Further sampling effort is recommended to increase confidence in the actual level of oxidants being discharged from BWMS system use in Australia. Assessment of ballast water treatment system operation globally is part of the of the ballast water management convention implementation phase, and a larger scale assessment will be done by the International Maritime Organization (IMO) once this phase is complete. Australia is an active participant in this process and will continue to provide sampling data and information to the IMO on this topic.

1.3 Investigate regulatory options to manage biosecurity risks associated with biofouling on vessels.

Expected outcome

Biofouling risks are managed consistent with international guidelines.

Activity status and approach

Commenced. DAWE completed public consultation on options for managing the biosecurity risk associated with biofouling for internationally arriving vessels in mid-2019 through a consultation regulation impact statement. DAWE is currently finalising the preferred regulatory approach via a decision regulation impact statement (D-RIS). DAWE provided a final D-RIS for government approval in the second half of 2020. In parallel (see activity 1.4), DAWE is actively engaged in the current review of the IMO Biofouling Guidelines (see Activity 1.4 for timelines). DAWE will ensure Australian legislation is consistent with the intent of the IMO Guidelines. Management of biofouling for domestic vessel movements is also being considered by states and the Northern Territory and will be informed by the national risk management measures for international shipping.

Evaluation

A D-RIS has been completed and investigations are underway. This activity is dependent on the IMO guidelines revision, which will ensure consistency with international guidelines.

1.4 Review the national biofouling management guidelines for marine sectors and update as required

Expected outcome

Industry adoption of agreed measures to reduce the risk of marine pest spread through biofouling.

Activity status and approach

Not commenced. DAWE is working with the IMO on revision of international biofouling guidelines. A framework for the revision is expected to go to the IMO Sub-Committee on Pollution Prevention and Response (PPR8 in February 2021), if approved the IMO guidelines will be drafted in 2021. Once IMO guidelines are completed, Australia's national biofouling

management guidelines can be developed. Currently national guidelines are more sector specific than the IMO guidelines, which are anticipated to be more general so they have a wider applicability to a range of vessel types. The Biofouling Management Guidelines for Marinas and Slipways are available (www.marinepests.gov.au/commercial/port-marina/biofouling-guidelines).

NOPSEMA has published regulatory guidance to provide contemporary biofouling risk management advice to the offshore oil and gas industry. This guidance was endorsed by the MPSC in 2019 and was published by NOPSEMA in early 2020. See link to published guidance. www.nopsema.gov.au/assets/Environment-resources/A715054.pdf

Evaluation

DAWE is contributing to the revision of the IMO biofouling management guidelines and this activity is dependent on completion of the IMO revision.

NOPSEMA has observed that the oil and gas industry has been using the published regulatory guidance in developing plans for the environmental management of offshore activities.

1.5 Establish an intelligence-gathering framework to monitor marine pest risk pathways

Expected outcome

Intelligence can be gathered and shared, particularly with respect to marine pest pathways.

Activity status and approach

Complete (but investigations into other mechanisms underway). DAWE developed a marine biosecurity sub-site for the International Biosecurity Intelligence System (IBIS) to investigate whether it could be used effectively to gather and share marine biosecurity information. This effectively completed this activity as an intelligence sharing network was established.

However, after investigating the use of IBIS for marine biosecurity intelligence and information sharing, DAWE (the Department) has concluded that there is not a strong case for continuing use of IBIS at this time. However, the tool will continue to be used by the department for other biosecurity purposes, and is regularly being updated.

A range of other options for better sharing of intelligence are being investigated by state and national biosecurity agencies, possibly through a network allowing sharing of information between government agencies in real time. This would allow for intelligence collected by various agencies through a variety of means to be shared. One element of this network may be marine pest intelligence. The chair of MPSC will monitor developments.

Evaluation

IBIS was established and moderated using DAWE resources. There is not a strong case for continuing it at present, but the frameworks are there if required in the future. Other mechanisms integrated with wider biosecurity intelligence gathering and sharing are under investigation.

2.1 Develop a national marine pest surveillance strategy

Expected outcome

improved marine pest surveillance, supported by an agreed national strategic approach to surveillance.

Activity status and approach

Complete. The [National Marine Pest Surveillance Strategy](#) was endorsed at MPSC17 and published on the marine pest website. The surveillance strategy identifies four objectives and fifteen suggested activities to achieve these objectives. One of the activities identified the need for a National Marine Pest Surveillance Work-Plan to be developed, in order to guide the implementation of surveillance strategy activities. The MPSC Surveillance Work-Plan Task Group are in the process of developing the work-plan, which is forecast to be drafted by early-2021.

This is a new activity to be included in *MarinePestPlan 2018–2023* as it guides the implementation of the surveillance strategy.

Evaluation

The strategy is completed, and a work-plan is being developed (see addendum), so the original activity is complete and a follow-on activity commenced.

2.2 Investigate Australia’s current passive surveillance capability for marine pests and recommend possible improvements

Expected outcome

Current passive surveillance capability understood and report used to support future developments.

Activity status and approach

Complete. A market research company, were engaged to identify marine pest observer groups relevant to Australia’s marine pest biosecurity and assess their marine pest related knowledge, reporting behaviours and motivations.

The research involved a literature review, a series of qualitative interviews of key marine pest stakeholders and a survey (including a choice model) of the public. This information was used to inform activity 2.3. The report is available from DAWE on request.

Evaluation

The report produced has been used by MPSC task groups and the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) to inform their activities or wider network analyses.

2.3 Promote tailored education and awareness materials to engage marine pest observer groups in passive surveillance activities

Expected outcome

Observer groups have access to fit for purpose training materials; improved knowledge of marine pests and reporting pathways.

Activity status and approach

Commenced. This activity is being done in two phases

The first phase involved collation and open source provision of all marine pest awareness and educational material produced by stakeholders (primarily governments but including other stakeholders), and identification of gaps in the material available. This phase of the activity is now complete and the marine pest awareness materials are available on the OceanWatch website. (www.oceanwatch.org.au/marine-pests-biosecurity/).

The second phase, to develop materials to fill in gaps identified, is underway through an MPSC task group. The Passive Surveillance Education and Awareness Task Group has discussed the objectives that can be achieved with the current resource availability and agreed that development of tailored material for all potential stakeholders is not practical. The task group aims to agree on the type of education and awareness material needed to fill identified gaps for priority stakeholder groups before presenting to MPSC for comment, recognising that there are other groups which could be engaged as opportunities arise. Also, for many stakeholder groups verbal communication is the most effective communication method. Identified gaps could be filled with information that can then be applied to verbal (and other) channels of communication, tailored to the target group but ensuring consistency of the message. Specific groups, particularly aquaculture, commercial divers, ports/marinas and shipping (especially international shipping) have been identified as requiring development of material. Outcomes sought therefore differ from the original intent which, while valid, did not appear to be deliverable.

The task group put a call to MPSC for information to produce material to assist with field identification of priority species identified in the Australian Priority Marine Pest List. These would be primarily for groups identified as having limited access to appropriate material for this purpose: 1) operators of ports and marinas; 2) commercial divers; 3) shipping.

Evaluation

This activity involves staged projects, the first phase (collation of the materials and identification of gaps) has occurred and this has allowed identification of areas needing attention. The first phase of the project has provided a valuable resource which has been used by stakeholders. The second phase is underway and new materials are in development.

2.4 Develop validation guidelines for marine pest molecular detection methods

Expected outcome

Validation guidelines are developed and made available to support consistent and robust validation of marine pest molecular surveillance tools.

Activity status and approach

Complete. Guidelines for development and validation of assays for marine pests have been published on the marinepests.gov.au website. The guidelines are based on a workshop that was attended by biosecurity officers and researchers with expertise in molecular biology.

Evaluation

Guidelines have been developed and are available. Methods consistent with the guidelines were used in the validation of molecular tests for marine pests in Australia (see activity 2.5).

2.5 Validate molecular detection methods (including sampling methodology) for selected high-priority marine pest species

Expected outcome

Molecular tests for priority marine pests are validated.

Activity status and approach

Complete. The Department of Agriculture funded two projects to validate molecular detection methods for established and exotic marine pest species.

A department project to validate molecular assays for six established marine pests considered in the risk assessment of marine pest translocation via ballast water uptake and discharge between Australian ports has been completed.

A parallel department project to validate molecular assays for six exotic marine pest species that are considered high risk has been completed, although only partial validation was achieved for some species and further work is needed to achieve complete validation.

Evaluation

Validated tests for the six ballast water risk table species were developed. Partial validation of six exotic species was completed as part of a multi-institution project, but some further work is necessary to complete the validation. Issues with some tests have been identified and work to resolve these commenced. Issues with a multi-institution approach used in the exotic species validation project were identified and will be taken into consideration in future projects.

2.6 Audit, maintain and share a database of marine pest identification capability

Expected outcome

Database of identification capability available.

Activity status and approach

Ongoing. A database of Australian scientists with expertise in the identification of marine pests has been compiled. The database is available upon request from MPSC@awe.gov.au. As the database will need periodic updating to maintain accuracy, this activity will be ongoing.

Evaluation

The database is available for use, particularly in responses. It was used to source expertise for NIMPIS species profile reviews.

2.7 Review surveillance information management needs and ensure an appropriate information system is in place

Expected outcome

The current surveillance information system (NIMPIS) is publicly available and upgraded to become more user friendly and able to be maintained by DAWE staff.

Activity status and approach

Complete. The National Introduced Marine Pest Information System (NIMPIS) was relaunched in 2020 (nimpis.marinepests.gov.au) and is linked to the Marine Pest Website. It was migrated from an outdated platform and upgraded to improve the look and feel of the system, enable editing by departmental staff and entry of surveillance information by surveillance data owners. NIMPIS was publicly launched and DAWE conducted online training to government biosecurity officers, on the capabilities of NIMPIS and submitting future surveillance information for their respective state or territory.

DAWE engaged marine pest experts to review the profiles of priority species on NIMPIS. These species are primarily those listed on the Ballast Water Risk Tables, the Australian Priority Marine Pest List and the Priority List of Exotic Environmental Marine Pests. Two new species profiles were created (for *Perna canaliculus* and *Mytella strigata*) and 17 updated species profiles have been uploaded (*Didemnum perlucidum*, *Didemnum vexillum*, *Sabella spallanzanii*, *Undaria pinnatifida*, *Asterias amurensis*, *Charybdis japonica*, *Eriochier sinensis*, *Carcinus maenas*, *Hemigrapsus sanguineus*, *Rhithropanopeus harrisi*, *Varicorbula gibba*, *Maoricolpus roseus*, *Magellana gigas*, *Arcuatula senhousia*, *Mytilopsis sallei*, *Perna perna* and *Perna viridis*).

The system is in place and at MPSC20 a surveillance data reporting schedule will be proposed for consideration by members. The information system is back in place and improvements will be made to meet requirements and suggestions identified by MPSC members.

Evaluation

NIMPIS has been re-launched and priority species profiles updated by experts. Further improvements/changes as recommended by MPSC (to review the needs) are underway.

2.8 Perform an audit of marine pest surveillance activities and data sets relevant to Australia

Expected outcome

Increased knowledge of available marine pest data sets; improved accessibility and sharing of marine pest surveillance data to inform research and marine pest management.

Activity status and approach

Commenced. Awaiting Marine Pest Biosecurity Australia, see activity 5.5. This project was initially dependent on development of the marine pest network (Marine Pest Biosecurity Australia, Activity 5.5) to lead the audit of marine pest surveillance activities. However, the update of the National Introduced Marine Pest Information System (NIMPIS) has achieved some of the outcomes sought from this activity. Jurisdictions were asked to provide surveillance data in order to support the update of NIMPIS. Data sets were loaded into NIMPIS and users will be able to see where surveillance has been done, what surveillance methods have been used and when. When feedback on NIMPIS was sought through MPSC it was found that information from some jurisdictions was incomplete, and work is underway to capture this information. However, a more in-depth assessment of what surveillance work has been done through non-government organisations, and availability of commercial surveillance material (e.g. from environmental monitoring by natural resource industries) would be required. It is recognised that some of this information may not be obtainable or verified to enable entry into NIMPIS.

Evaluation

The review of NIMPIS datasets and feedback sought through consultation has enabled updating of NIMPIS with jurisdiction endorsed data up to 2019, although some jurisdictions identified data sets that had not been submitted for inclusion into NIMPIS at the initial requests. Other data sets are being sought for inclusion, but will require verification by jurisdictions before inclusion into NIMPIS.

3.1 Plan and implement a national program of marine pest emergency response exercises

Expected outcome

Emergency response exercises held, leading to improved national emergency response capability and recommendations for further exercises developed.

Activity status and approach

Complete (but recognised that additional exercises are needed when resources become available as ongoing resources for national exercises are not available). Two national marine pest emergency exercises were held.

In the first, held in Canberra, Consultative Committee on Introduced Marine Pest Emergencies (CCIMPE) members or representatives focused on improving their knowledge of CCIMPE roles and responsibilities as part of a simulated marine pest emergency response.

The second exercise was a hypothetical response in Sydney Harbour and involved MPSC members and partners and industry representatives from the port. The simulation included desktop and field-based exercises.

An assessment of the exercises was produced and an exercise program was developed indicating response capabilities requiring further development. This program will be used to inform future exercise planning and training needs (Activity 3.3). MPSC members have identified that further exercises (at least biennially) are needed due to staff turnover and changes in responsibilities and working environment. Further exercises are contingent on funding being available, however some states and New Zealand have had exercises to which other jurisdictions have been invited to take part which has improved readiness. Additionally, there have been a number of responses which also contribute to readiness.

Evaluation

Two successful exercises were held and needs for a future program identified. Future exercises are dependent on resources being available.

3.2 Develop a benefit-cost analysis framework to guide response efforts in the event of a nationally significant marine pest incursion

Expected outcome

Benefit-cost analysis (BCA) to enhance response times for National Environmental Biosecurity Response Agreement (NEBRA) eligible responses developed.

Activity status and approach

Complete. Guidelines for benefit-cost analysis for marine pests were completed in 2018. The guidelines include a case study to demonstrate how the costings could be worked through.

The study is published on the Centre of Excellence for Biosecurity Risk Analysis (CEBRA) website (cebra.unimelb.edu.au/engage/reports/decision-making).

Evaluation

The benefit-cost analysis guidelines are publicly available and can be used to support applications for cost-sharing of marine pest responses under the NEBRA.

3.3 Identify marine pest emergency response training needs

Expected outcome

Emergency response and capability gaps are determined and training needs identified.

Activity status and approach

Not commenced. Two national marine pest response exercises were held in 2018 as part of activity 3.1 (Plan and implement a national program of marine pest emergency response exercises). A number of state-based exercises and real marine pest incursion incidents have provided development opportunities for response personnel. The Queensland port-based exercises were very well received and there is interest in further development of a response training program. Recommendations from response exercise reports and incursion incident debriefs will be used to identify additional emergency response training needs. Further response exercises will be developed and run when resources become available.

It is suggested that MPSC and partners identify and discuss the type/s of exercise which provides the most benefit for planning, and resources or specific people who can plan towards an exercise when financial resources become available. A national exercise to train CCIMPE members could be run once revisions to the CCIMPE ToR are finalised. Also, if New Zealand have further marine pest exercises, Australian participation will be considered. Suggest that MPSC members formulate a guide on what could be done so that if/when funding becomes available we have an identified project to start. A Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis for National Biosecurity Emergency Preparedness for the National

Biosecurity Committee (NBC) was undertaken last year, which should assist with some background and areas to focus on. However, it is important to clarify the outcomes and stakeholders when planning exercises, with these being very different for national exercises as opposed to regionally-focussed.

Evaluation

While this project has not officially commenced some groundwork to progress it has started.

3.4 Review the national Emergency Marine Pest Plan (EMPPPlan) framework

Expected outcome

EMP framework developed and recommendation for changes made.

Activity status and approach

Complete. At MPSC15 the structure of the Emergency Marine Pest (EMP) Plan framework was discussed and the committee agreed to changes as described below. A future review of the EMPPPlan framework may be required to assess the effectiveness of the proposed framework.

The MPSC Emergency Response Task Group has been involved in the initial review of new and revised material.

- Develop separate, specific manuals for new operational and management content as required. A management manual is nearing completion of a draft for comment by MPSC, which covers most of the material discussed.
- Consolidate the Rapid Response Manuals (RRMs) to cover marine pest taxonomic groups as well as maintain a generic marine pest manual. The first of these is an invasive crabs manual draft due for delivery in November 2020 – delayed.
- Streamline RRM's so that the taxa-specific manuals do not repeat information in the generic manual. This has been held off pending delivery and assessment of the invasive crabs manual as it may make this task redundant.
- Develop a single marine pest-specific control centres manual, which would incorporate both the content of the existing Biosecurity Incident Management System (BIMS) manual, and additional marine pest specific guidance. This has been completed and endorsed and is published on the Marine Pest website.

Evaluation

The revised framework is being used to guide revisions and further development of EMP Plan guidance materials.

3.5 Plan and implement procedures to develop and update the EMPPPlan rapid response manuals and related guidance materials

Expected outcome

Update of EMPPPlan manuals planned and endorsed by MPSC.

Activity status and approach

Commenced. MPSC established a task group to assist in development and updating of the EMPPPlan guidance materials. MPSC outlined a plan to update existing manuals and develop new materials. The BIMS manual (Marine Pest Version) has been produced. The rapid response manuals have been updated to reflect changes in biosecurity legislation, and a revised format agreed whereby species-specific manuals are replaced with manuals covering taxonomic groups

that have similar management requirements. The first of these manuals is an invasive crab manual drafted for delivery in November 2020 – delayed.

A marine pest management manual that can be used in conjunction with the rapid response manuals will cover aspects of marine pest responses such as destruction, containment and decontamination of marine pests, dispersal modelling and vessel movement traceability is in preparation and is overdue for delivery. Once the RRM for invasive crabs has been developed and published on the Marine Pest Website, the update of other manuals in the RRM series will be considered. Update of additional manuals will be dependent on resource availability to undertake this work.

Evaluation

The revised framework is being used to develop a program of manual writing. A crabs manual draft was expected by late 2020, but was delayed. A revised marine pest BIMS manual has been completed and published. A management manual is also in preparation. These revised manuals will be used to guide responses.

4.1 Periodically review the national marine pest biosecurity research and development priorities

Expected outcome

Prioritisation of marine pest research objectives leading to coordinated and strategic investment.

Activity status and approach

Not Commenced. Refer to National R&D priorities. The Chair of the Research Network has agreed to lead this. He has invited both Defence and New Zealand to review the list in the context of their own priorities. The current R&D priority list is quite broad and academically focused. It needs to be revised, narrowing the scope and including more industry consultation, in addition to more general updates. The point has been made, as borne out by the Impacts review report (draft, Activity 4.3) that we usually don't have the research baseline needed to make assessment of impacts.

Evaluation

An activity lead has been identified and commenced project preparation work.

4.2 Promote research coordination through the national marine pest research network

Expected outcome

A national marine pest research network is established.

Activity status and approach

Commenced. The Western Australia Department of Primary Industries and Regional Development and DAWE have developed draft terms of reference for Marine Biosecurity Research Australia in consultation with Deakin University and Murdoch University.

Evaluation

The network is in embryonic stages and is a subset of the National Marine Pest Network (5.5).

4.3 Review the economic, environmental and social impacts of marine pests in Australia

Expected outcome

A report detailing known, documented impacts of marine pests that have established in Australia, to identify gaps in research knowledge and identify already understood impacts.

Activity status and approach

Commenced. Stakeholders from industry, universities and government biosecurity organisations have reviewed the economic, environmental and social impacts of marine pests in Australia. Detailed reviews of the impacts of sixteen established marine pest species have been completed and peer reviewed. Experts have completed their reviews, and the document has been to MPSC for comment. While there were documented impacts for many of the species examined, due to the lack of baseline data on pre-introduction situations and the pervasiveness of anthropogenic impacts it was difficult to find conclusive information for impacts solely attributable to marine pest introduction.

Evaluation

A draft paper has been written and identified that there are few studies that have isolated impacts of marine pests from other environmental factors (range extensions, anthropogenic changes). This paper will assist in development of research priorities (4.1).

4.4 Conduct risk analyses of marine pest vectors and pathways, and make recommendations for improved management

TITLE CHANGED

‘Make recommendations and implement measures to improve management of marine pest vectors and pathways.’ (Change agreed at MPSC19)

Rationale for change

Pathways and vectors are very well understood so the prime pathways are well known, and measures are already under way to manage them (all ballast water and biofouling projects cover elements of this issue). There may be a need to do an external evaluation of current domestic ballast water arrangements to assess their efficacy and identify if changes need to be made. Activities 1.4 and 4.5 cover many of the biofouling actions required.

A core task for DAWE is to develop and implement these national tools and this will be done in consultation with MPSC. The possibility of contracting an external review of the whole domestic ballast water and biofouling management system to identify weaknesses will be investigated by DAWE.

Expected outcome

Increased understanding of Australia’s risk pathways to support development of risk minimisation regulations and policies.

Activity status and approach

Not Commenced. Ballast water and biofouling have been identified as the key vectors and pathways for marine pests in a number of ABARES publications so this activity could be considered largely complete. Ballast water is currently managed, and national biofouling management is being developed. The recommendations for improved management have already been implemented for ballast water through implementation of the ballast water convention and management of ballast water within Australian waters. The IMO has also commenced a review of the efficacy and uptake of the 2011 Biofouling Guidelines. The scope

and intention of the review was agreed at the IMO Pollution Prevention and Response sub-committee seventh meeting (PPR 7) and Australia is actively involved in the review. Testing and revised risk analysis after implementation of regulations could be done to test efficacy of management measures. Some of this work is underway (ballast water testing). Other pathways may need to be considered for management. Some of these were considered in development of the environmental priority pest list. Input from MPSC on future requirements and planning to progress this activity and align it with the scope of future biofouling regulation assessments is required.

Evaluation

Not commenced but some projects that will contribute to this task have been identified.

4.5 Assess the effectiveness of current management options for biofouling in niche areas

Expected outcome

Increase knowledge about uptake and effectiveness of marine growth protection systems and identification and consideration of methods.

Activity status and approach

Commenced. During 2017–2018, DAWE commissioned testing of a draft framework for the management of biofouling in internal niches, developed by the New Zealand Ministry for Primary Industries (MPI). Significant challenges prevented field testing of the framework, which would have tested the appropriateness of proposed data requirements contained within the framework and provided an estimate of the efficacy of in-water options for treating and/or rendering biofouling non-viable in internal niches. Further research and analysis of viable options for determining the availability, uptake and efficacy of options is needed.

DAWE is also considering working with New Zealand MPI on marine growth prevention systems for internal seawater systems.

The Northern Territory Department of Industry, Tourism and Trade is also conducting work on internal seawater systems on recreational boating.

DAWE is involved in the review of the IMO Biofouling Guidelines. Revised draft Guidelines are proposed to be submitted to PPR 8 and this could include an assessment of options for effectively managing biofouling in niches. Finally, to support effective implementation of biofouling management, DAWE has engaged consultancy services to inform development of criteria for testing the efficacy of plans and record books. Discussion with dive companies doing niche area inspection on possibility of fitting blanks and treatment options would be beneficial. DAWE is also discussing options for biofouling management that are consistent with the department's proposed biofouling requirements, which includes the effectiveness of options for internal pipework.

Evaluation

Biofouling management in niche areas will be covered in the wider biofouling policy development. There are a number of activities either underway or being considered that will contribute to the expected outcome.

5.1 Identify and build a profile of marine pest biosecurity stakeholders

Expected outcome

Analyse current communication pathways to support improved communication with current and potential stakeholders.

Activity status and approach

Complete. The Department commissioned ABARES to analyse Australia’s marine biosecurity network, including information and resource sharing relationships. The report identified the presence or absence of network structures that may support certain characteristics of an ‘ideal’ network that would support coordination, innovation or collaboration. The report was published on the ABARES website in August 2020 (www.agriculture.gov.au/abares/research-topics/social-sciences/australian-marine-pest-network-analysis).

Evaluation

The profile has been completed and is being used to guide communications with stakeholders.

5.2 Develop a national stakeholder engagement strategy for *MarinePestPlan 2018–2023* and MPSC

Expected outcome

Stakeholder engagement planned and implemented.

Activity status and approach

Complete. In 2017 MPSC agreed to developing a joint MPSC and *MarinePestPlan 2018–2023* engagement strategy that aligns with the engagement objectives of both MPSC and *MarinePestPlan 2018–2023*.

The MPSC National Marine Pest Biosecurity Strategy (NMPBS) Task Group developed the joint plan—the National Marine Pest Stakeholder Engagement Strategy (Engagement Strategy), endorsed by MPSC in 2019.

Evaluation

Task complete and stakeholders being engaged as per plan.

5.3 Design a targeted national campaign to improve awareness of marine pest biosecurity risks, management actions and shared responsibilities

Expected outcome

Increase awareness of marine pest issues among high-risk stakeholder groups that results in better biosecurity practises.

Activity status and approach

Commenced. While this activity is marked as commenced, the direction and purpose need further refinement. Activity 5.1 (Identify and build a profile of marine pest biosecurity stakeholders) feeds into this. A task group led by OceanWatch is leading this activity. Initial discussions have indicated that the scope is far too wide for a single project (particularly in a restricted funding environment) so revision of the scope and development of realistic and achievable terms of reference for the task group is needed. Discussions to date with communications experts and state communications personnel will determine the correct course of action to reduce duplication given that a number of jurisdictions have run awareness campaigns recently.

Evaluation

Underway, needing refinement of objective.

5.4 Review, update and maintain the marinepests.gov.au website

Expected outcome

Data on the Marine Pest Website is up to date and presented in a style that meets modern information needs.

Activity status and approach

Complete. The review of marinepests.gov.au is complete, with the updated website launched in January 2019 (www.marinepests.gov.au). The website has a new responsive modern design, is structured to improve site navigability and functionality and written to more clearly communicate information. The website also has an increased emphasis on reporting of suspected marine pest sightings.

Evaluation

Completed; the department has assumed responsibility for continued maintenance of the site.

5.5 Establish an independent national marine pest network

Expected outcome

Improved communication across all marine pest stakeholders and a forum for discussion and connection (Carried over from The Review of Marine Pest Biosecurity <https://www.agriculture.gov.au/pests-diseases-weeds/marine-pests/review-national-marine-pest-biosecurity>).

ACTIVITY STATUS AND APPROACH

Commenced. This activity is marked as commenced and there have been significant lead-in activities (such as a network analysis Activity 5.1). Development of the network is ongoing.

Evaluation

Some lead-in activities have been completed which will allow refinement of this activity.

New Activity

Marine Pest Surveillance work-plan – see activity 2.1

Expected outcome

A work plan to enable implementation of the Marine Pest surveillance strategy is developed and agreed to.

Activity status and approach

Commenced. A new activity for *MarinePestPlan 2018–2023* is to implement the National Marine Pest Surveillance Strategy. The first step to the implementation of the strategy is the development of a National Marine Pest Surveillance Work-Plan, which is under development. This work plan is being developed through a MPSC task group and once it has been published, MPSC will be responsible for overseeing its implementation.

The way forward

Many of the activities in *MarinePestPlan 2018–2023* have been completed and have led to improved biosecurity outcomes in marine environments.

While more than half of the activities identified are well underway and the pathway to completion of most activities is clear, there are a number which need refinement (e.g. activity 5.3) or additional work (e.g. activity 1.2) to ensure that they can deliver the outcomes sought. These have been identified in this report and MPSC will work towards ensuring that the refinement gives those activities the traction they need.

The *MarinePestPlan 2018–2023* will continue to meet implementation targets, deliver outputs and reprioritise activities as resources become available. The final review is scheduled to be released in 2024.