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**Submission re: Discussion Paper - Review of National Marine Pest Biosecurity**

**Issue: Limited commitment and resource allocation to implement the National System**

*1- What do you consider to be the main impacts (consequences) from marine pests to your business, industry, activities or the environment?*

By most definitions, a marine pest is any non-native aquatic species (including pathogens & parasites) that has become widely recognised (if not formally listed or gazetted by at least one government agency/institution) as an unwanted and potentially self-spreading agent of harm. Brief review of scientific, industry or government literature provides international & national examples of the deleterious changes caused by marine pests, to the following activities:

- Coastal/Bay commercial & recreational fisheries (by contributing to stock and catch declines and/or closures, via direct & indirect competition for food, light, space; predation; substrate/habitat modification; food-web alteration; infection or parasitism).
- Aquaculture/mariculture (by decreasing outputs and increasing operational costs -including cleaning & monitoring overheads - via increased gear fouling; reducing growth rates, harvest quantity or quality; or reducing stock health, spawning or settlement/grow-out success. In Australia's case, mariculture activities include the iconic and commercially significant 'South Seas' natural pearling industry, as well as edible species).
- Vessel, port, coastal industry and offshore O&G infrastructure (by increasing maintenance, servicing and repair costs due to increased nuisance fouling, corrosion and seawater intake blockage rates, and/or increased propulsion or pumping costs from fouling-induced drag).
- Effort spent on the conservation & sustainable use of marine ecosystems, biodiversity hotspots and/or marine wildlife assets of local, national or international significance (including the exacerbation of other stresses due to climate change/ocean acidification, pollution and/or unregulated, illicit or illegal activities).

*2- What activities should the Australian Government do to manage the biosecurity risks associated with marine pests to an acceptable level (to protect your business, industry, activities or the environment)?*

For the Ballast Water (BW) Vector:

- (i) ratify the IMO BW Management (BWM) Convention;
- (ii) assume responsibility for all domestic (inter-State/intra-State) management of BW by all vessels >400GRT, to ensure all Australian-flagged and international ships can operate uniform BWM that is consistent with the provisions of the IMO Convention.
- (iii) ensure all Australian government owned, managed or operated vessels (including chartered, patrol, research and military vessels), manage their BW in accordance with the IMO Convention.
- (iv) improve collaborative efforts and more transparent communications with Australian State & Territory governments to promote and ensure that all BW transfers within Australia's coastal waters by small vessels (<400 GRT, including fishing vessels and yachts), are managed in accordance with the provisions of the IMO Convention, under appropriate or parallel State & Territory legislative instruments or IGA arrangements.

For the Biofouling (BF) Vector:

Help advance and progress the development and adoption of improved practicable, and above all uniform, BF management (**BFM**) practises (including higher levels of international and national attention to improving the design, manufacture, installation and servicing of problematic, fouling-attracting hull niches) to:

- all sectors of the international shipping industry (trading, offshore support, construction, dredging) - via closer collaboration with other forward-thinking Coastal States and agencies; more proactive input to the IMO MEPC; improved consultation with Australian-based ship charterers, owners, managers and builders; and more liaison with NOPSEMA (for Australia's offshore O&G industry);
- all domestic (inter-State) traffic that falls outside the international umbrella (<400GRT vessels);
- intra-state vessel traffic (= vessel movements between ports & regions within an AUS State or Territory).

**Issue: Current biofouling requirements are not consistent across jurisdictions**

*4- What are the best ways to manage and monitor the biosecurity risks of biofouling on vessels?*

Achieving more widespread and uniform application of improved BFM by international vessels requires active involvement with IMO-MEPC, plus a closer collaboration with forward-thinking Australian States & Territories, foreign Coastal States and representatives of the global shipping industry, so as to ensure that risk-based BFM requirements are globally consistent and fairly applied. The following actions and activities would help achieve such progress:

- (i) Collaborating with relevant agencies in WA, NT, New Zealand, US (California; USCG), Singapore (MPA) and EU (EMSA, Lisbon) to avoid duplications of effort, synergise R&D & regulatory outputs and, above all, help ensure all BFM and associated compliance monitoring requirements are practicable, cost-efficient and acceptable for uniform adoption at national and preferably international levels [ideally via a practicable IMO instrument that can avoid decades of implementation delay due to overly complex technology and associated testing requirements and compliance monitoring issues, as arising from dubious adoption of almost zero-risk performance criteria (=> there are lessons to be learned from the IMO BWM Convention and USCG-USEPA BW Rulings)].

(ii) Promoting risk-based BFM, including practicable, open and simple Vessel Risk Assessment (VRA) procedures and methods, including web-based tools that allow self-application by vessel managers and operators. Such tools can be developed and customised for commercial/working ships, fishing vessels and private yachts/recreational vessels, and in collaboration with VRA steps already taken by Western Australia.

(iii) Promoting and helping fund efforts to obtain more reliable and useful data on the following, for providing to the IMO MEPC for dissemination and discussion among Flag States, Class and shipping industry at large:

- (a) the number and types of sessile and mobile fouling species that accumulate in the hull niches, recesses and running gear appendages of the main types of trading ships and work vessels;
- (b) the poor design features of these niches that facilitate the unwanted accumulations, and which also constrain reliable and cost-effective antifouling measures, access and cleaning,

[Poor niche design includes all sharp edges (conducive to rapid coating damage, wear-through and premature failure), overly complex sea chest recesses and interiors with multiple small frame spaces, non-opening grills (a feature promoted by drug traffic/homeland security requirements, but not unsurpassable) and various overly complex, narrow and questionably necessary free-flood spaces and recesses (e.g. rudder horns, rope guard interiors, thruster spaces, anode block gaps, unfaired areas etc)].

(iv) Supporting BFM as an ongoing important item on the IMO MEPC's agenda, with the aim to accelerate the development of practicable fouling reduction, control and monitoring strategies and actions that:

- (a) are amenable to industry-wide and Flag State acceptance for adopting as a practicable and more mandatory IMO instrument;
- (b) will complement and support the IMO's existing mandatory SEEMP (= *Ship Energy Efficiency Management Plan*, as introduced in January 2013 to promote, amongst other actions, less rough and more fouling-free hulls to help reduce excessive GHG emissions from drag-related fuel burn). Currently, the IMO's voluntary BFM Guidelines [2011] do not provide or recommend any linkage between a vessel's SEEMP and its voluntary BF management plan and record book. This omission needs to be removed, so as to achieve more cost-effective BF management by ship owners and fleet managers.

Much of the good information noted in the IMO's voluntary BGM guidelines (2011) remains ignored – particularly the value of improved hull niche design, installation and maintenance, including the types noted by A. Taylor & G. Rigby many years ago in their DoA (AQIS) funded BFM review of 2002. Given the current promotion of 'eco-ships', 'eco-design' and 'eco-builds' among ship-building promoters, pundits and investment seekers, it's about time that naval architects, shipbuilders, shipyards and Classification Societies ('Class') are made to focus on considering, testing and applying ways to reduce the number of fouling-friendly hull niches and appendages, and to make those that are a necessity more amenable to existing fouling-control technology, as well as for access, inspection and cleaning. Such encouragement will require an instrument or code enabling an equitable and progressive or step-wise implementation of niche performance measures & criteria, as fairly applied across new builds and/or amenable to retro-fitting.

More emphasis and evidence therefore needs to be placed before the IMO MEPC by Coastal and Flag States such as Australia, on the value and cost-benefit advantages for the progressive 'design-out' and eventual ban of problematic hull niche, appendage and recess designs that presently (a) facilitate and support diverse fouling accumulations, and (b) constrain access, inspection, antifouling and cleaning actions, via inherent poor characteristics, arrangements, positioning and/or questionable duplication/repetition.

In the case of the relative large range of 'Ice-Classed' trading, construction and offshore support vessels, there are long-standing conservative rules and 'rules-of-thumb' that cause them to have additional and/or enlarged sea chest apertures and associated inner spaces. Such policy, versus smarter ways to prevent seawater cooling blockages by ice,

warrants questioning - particularly for vessels designed to visit highly sensitive polar regions and/or trade among enclosed high latitude seas (Baltic, Alaska, Far North-East, Great Lakes etc), as these are areas already prone to aquatic bioinvasions due to climate change & high endemicity. Moreover, while many trading and work vessels are ordered to Ice-Class specifications, the majority spend most if not all of their time chartered to temperate, subtropical or tropical trading routes or project locations, including visiting or working in Australian coastal waters.

*5- If the Commonwealth progresses to regulate the management of biofouling on international vessels, what role should it take in the development of domestic controls by the states and territories?*

It should adopt a fully cooperative and more collaborative, transparent role, bearing in mind the useful experience and information gained by Western Australia and Northern Territory in their management of high risk 'project vessels' and other hull monitoring programs, with the aim of ensuring that very harmonious if not completely uniform practises and legislative instruments, are adopted across all Australian jurisdictional waters.

This effort should include the collaborative development of a readily-accessible, affordable pathway for promoting an Australian-wide licensing or approval mechanism, for environmentally acceptable in-water hull cleaning equipment (i.e. diver-operated or ROV equipment that captures, for land disposal, not just hull fouling biota but also the various-sized flakes and particles of copper-laden, biocidal AF coating that may be removed by the cleaning gear. In this context, it is important to recognise that over 90% of the world's registered fleet presently uses biocidal antifouling (AF) coatings, while dry-docking opportunities are very limited and often prohibitively expensive in Australia and New Zealand).

#### **Issue: The 'species-based' approach to manage biofouling**

*6) Should the department consider a regulatory framework for international biofouling management that is:*  
*- a species-based approach (as currently proposed in the Biofouling RIS), or*  
*- an approach based on a requirement for vessel operators to adopt IMO Biofouling Guidelines, including on-board biofouling management plan and record book.*

The latter is the most practical BFM approach for all Australian and internationally flagged vessels >400GRT, and it helps ensure uniformity and more widespread industry acceptance. It is a defensible approach if implemented with the intent of promoting increased use of the IMO Guidelines, including eventual adoption of a more mandatory instrument that is accepted by sufficient Coastal and Flag States (refer previous).

A species-based approach also needs to be retained, particularly to facilitate the management and monitoring of marine pests that have already established in one or more areas of Australia, and which need active control policies and supporting legislative instruments to limit their BW- and BF-mediated spread to other regions in Australia (and our neighbouring States). Each species placed on the national target list warrants a thorough, transparent justification regarding its known, proven or feared economic, social or environmental/biodiversity impacts – as based on sufficient scientific input and public scrutiny.

[‘Marine pest’ is a very broad term that warrants dividing into two classes: ‘High level’ targeted pests (have proven impacts that merit public funds for action & containment), and ‘Alert species’ of concern, which merit increased agency, institutional and public awareness, and a watching brief in the region/s where they’ve been found). Maintaining a national ‘alert list’ would improve and facilitate more cost-effective inter-agency awareness, information-gathering and data sharing on the less well-known invasive marine species, so as to help detect potential speed/patterns of spread and actual types of impact in Australian waters, for ultimately determining if a higher level targeting is warranted].

A dual approach to BW management (IMO-based and species-based) would meet national requirements and priorities, as well as current international needs and constraints, and can be designed and implemented to avoid duplications of effort and achieve cost-effective solutions.

**Issue: Minimise the cost to industry of domestic ballast water management requirements**

*7- How can the Australian Government cost-effectively manage domestic ballast water risks, while preventing the spread of established marine pests?*

As with the global shipping industry, the user-pays principle for BWM should be followed. Much domestic shipping involves internationally-flagged vessels that will already be following the IMO BWMC with respect to the need to manage any BW discharges to the D-2 requirement etc. For local ferries and other such services, procedures enabling risk-based vessel and route exemptions and seawater alternatives are provided for within the Convention (such as use of potable drinking water that can be accepted for within-State BWM). As discovered by Danish ferry operators in the Baltic/North Sea region, obtaining a risk-based exemption can involve inordinate and onerous data collation, processing and analysis needs, so it is likely that Australian operators will require advice and support from DoA and pertinent state/territory agencies.

*8- Should species-specific assessments of port-to-port movements, with associated monitoring, be used?*

Yes, to improve as well as justify the management of domestic BW transport from one State to another, as above. For example, there are many marine pests established in Port Phillip Bay and parts of Tasmania that threaten ports and southern coastal waters in WA, SA and southern NSW, if spread by BW, and existing BW exchange is far less effective than the D-2 discharge of the IMO Convention.

*9- Should we restrict ballast water movements between suitably determined regions?*

Yes: any uncontrolled discharges of unmanaged/untreated seawater or riverine ballast should be restricted between suitably determined regions, as based on marine pest species-specific risk assessment/s.

**Issue: Incomplete implementation of the National Monitoring Strategy**

*10- What are the most important aim(s) for monitoring in a cost-effective national marine pest biosecurity system?*

- to determine the effectiveness of existing and future BWM & BFM effort (requires monitoring for the unwanted spread of the targeted pests that are already present in one Australian port or region).
- to help detect new bioinvasions at an early enough stage during the introduction-establishment process (i.e. before the chances for affordable eradication or control get diminished by population expansion or spread).

*11- How should this monitoring be achieved?*

More cost-effective monitoring can be promoted by:

- Improving the marine taxonomy, curation and gene-sequencing abilities at Australian museums and associated institutions/collectives;
- Developing smarter marine pest DNA/RNA 'sniffing' methods, covering as many targeted pests as possible;
- Reviewing and testing the 'multi' settlement-collector designs, deployment and positioning methods, with the aim of achieving better designs, monitoring locations and seasonal timings, for more reliably detecting the presence of targeted marine pest species.
- Ensuring adequate community marine pest information and outreach to commercial and recreational fishing, aquaculture and diving operators, clubs and associated groups (i.e. the people most likely to come across marine pests during the course of their work or favoured leisure activities).