The Commonwealth Department of Agriculture, Water and the Environment has invited comments from interested parties on the "Review of the biosecurity risks of prawns imported from all countries for human consumption – Draft report: September 2020"

The Western Australian Department of Primary Industries and Regional Development Animal Biosecurity and Welfare branch has considered the draft report and provides the following comments.

Section	Issue	Detailed comment	Recommendation
3.1 Pathogenic agents retained for risk review	The risk analysis is based only on a select group of known diseases for which information is available (10 hazards). It does not consider how to manage the risk of new and emerging diseases, which can be predicted to continue to emerge with the growth of aquaculture globally. Concern also exists as to how pathogens are added to the lists (and speed at which this occurs) when new diseases become evident.	Other exotic pathogenic agents may be of consequence to Australia and worthy of consideration and have not been retained for review (e.g. abdominal segment deformity disease (ASDD), YHV8, and organisms in the review not considered a hazard but that the department will continue to monitor). The focus of the draft prawn review is on a small number of well characterised pathogens. However new and emerging diseases of prawns will continue to emerge, given increased aquaculture development globally and in Australia. As new diseases emerge, it takes a significant amount of time (years) to accumulate evidence suitable for risk assessments, as well as diagnostic test capability. The susceptibility of Australian crustacean species to new and emerging diseases is rarely known. The OIE obliges members to inform the OIE of the detection of listed diseases. However, whilst members report mainly on the listed diseases, only a very limited number of emerging diseases are reported (Oidtmann et al, International and National Biosecurity Strategies in Aquatic Animal Health, Aquaculture, 2011, pp 22-33). Lack of timely surveillance information will impact the effectiveness of Australia's border controls. The lack of consideration of new and emerging disease risks in the draft prawn review is particularly concerning given it recommends that frozen raw prawns (head and shell removed) be permitted for import without any biosecurity measures that would expected to reduce	Pathogens with any potential for adverse consequences are significant, and should be included in the risk assessment. That the draft prawn review includes a mechanism to assess and manage the risk of new and emerging prawn disease risks.

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		the overall risk of a new/emerging disease (unless the risk is managed by freezing or head and shell removal). As part of the *Biosecurity Import Risk Analysis Guidelines 2016*, it is possible under the Provisional Sanitary and Phytosanitary (SPS) agreement, in cases where relevant scientific evidence is insufficient, to adopt provisional SPS measures on the basis of available relevant information (Department of Agriculture and Water Resources 2016, Biosecurity Import Risk Analysis Guidelines 2016: managing biosecurity risks for imports into Australia, Department of Agriculture and Water Resources, Canberra, pg. 11).	
5.1.1 Sourcing from free populations 16.1 Documentation	Whilst a Competent Authority (CA) may certify a region free from a specific pathogen, potential exists for material with that pathogen to enter the certified region from another source and then be forwarded as product from the certified region.	The draft prawn review recommends whole uncooked prawns may be imported from a country/compartment/zone that is recognised by Australia to be free of the relevant hazards. However it is likely to be very challenging to assess the product substitution or cross contamination given how complex the seafood industry supply chains are. Traceability, product substitution and labelling issues are recurring problems within the industry. The Inspector General of Biosecurity highlighted some of these issues in the review *Uncooked prawn imports: effectiveness of biosecurity controls* (2017). Ultimately, traceability is based on systematic recording and record keeping. As such, there is no guarantee that the records are true. Both errors and fraud may lead to untrue claims with respect to the properties of the food product (Olsen and Borit, How to Define Traceability,	Please advise how the Commonwealth can effectively assess the risk of product substitution, and undertake verification/compliance, as part of any approvals for import of whole uncooked prawns from country/zones recognised to be free of the relevant hazards.

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		Trends in Food Science & Technology, 2013, pp 142-150). In this regard, potential exists for material from a pathogen present area to enter an area free from that particular pathogen. There is a clear need to verify claims with respect to the product. There is the potential for new technology to be used to relate product with specific geographical location, species or production method (Olsen and Borit, How to Define Traceability, Trends in Food Science & Technology, 2013, pp 142-150).	
5.1.2 Sourcing from wild stocks	The draft review appears to indicate that sourcing from wild stocks is an option for biosecurity management of imported prawns, and it could considered on a case by case basis. This appears to contradict information included in the review that various hazards may be present in wild populations at levels that pose a biosecurity risk.	It is difficult to understand how sourcing from wild prawns could be considered as an alternative biosecurity measure, based on the information presented in the draft prawn review. Reports of actual clinical disease or deaths in wild prawn populations are rare; however, there are many instances where disease agents have been identified in wild prawn populations. Diseased prawns, in the wild, may not survive for any length of time due to predation which makes capture and examination of prawns for reporting difficult. Some diseases such as Taura Syndrome Virus (TSV) are understood to involve an asymptomatic carrier (Briggs et al., Introductions and Movement of *Penaeus vannamei* and *Penaeus stylirostris* in Asia and the Pacific, RAP Publication 2004/10, Food and Agriculture	Please provide more information to illustrate how sourcing from wild populations may be considered equivalent and therefore how it could be adopted on a case by case basis as an alternative measure.

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		Organization of the United Nations Regional Office for Asia and the Pacific, Bangkok, 2004). Requirements for product to be certified free from TSV and be free from visible signs of infectious disease therefore do not provide adequate mitigation.	
5.1.3 Cooking	Cooking is assumed to significantly reduce the likelihood of entry for a number of pathogens including WSSV, but there is no minimum time/temperature requirement for cooking. Therefore the significant reduction in likelihood of entry resulting from cooking is difficult to justify.	The draft prawn review acknowledges cooking may not inactivate all known (or unknown) viruses, and that its effect on reducing the load of infectious virus/inactivation is hazard specific. However it does recommend cooking as an effective biosecurity measure for most hazards. For some hazards such as WSSV, it makes assumptions that cooking would be expected to significantly reduce the likelihood of entry. The 2009 IRA and current prawn review report that that the complete cooking (coagulation of all protein) of a whole prawn under commercial conditions can be achieved for prawn grades of 11-28 grams (at 20^{o}C) by placing in boiling water for 2.40–4.55 minutes. This enables the core temperature to reach 85^{o}C. However this or similar minimum cooking requirement is not specified in the prawn review. An example of cooking to 70^{o}C core temp for at least 11 seconds is provided. Given no definition/minimum requirement is specified for the biosecurity measure of cooking (beyond it appearing coagulated and not raw), the reductions in the likelihood of entry attributed to cooking are difficult to justify. For example for WSSV, the biosecurity measure of cooking is assumed to reduce the likelihood of entry from “high” to “very low” (i.e. very unlikely to	Consider specifying a minimum processing requirement/definition for cooking that could be subject to verification. Please provide evidence that cooking to achieve coagulation (e.g. 70^{o}C core temperature for at least 11 seconds) would be sufficient to reduce the likelihood of WSSV entry from “high” to “very low”.

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		occur). To support selection of a "very low" likelihood, there should be evidence that cooking to coagulation (as per the example of heating to 70^{o}C for at least 11 seconds) would be expected to almost completely inactivate WSSV. In the absence of evidence a more conservative/higher likelihood should be selected. The requirement for coagulation (rather than a specified time/temperature requirement) is also problematic as it is difficult to verify. What appears coagulated to one person may not be the same to another. In addition, what may appear to be coagulated/cooked on the outside of the prawn may not be the case internally.	
5.1.5 Value-added products 16.2 Certification	The draft review assumes it is extremely unlikely that wild crustaceans will be exposed to value added products containing raw prawns (head and shell removed). Evidence is not provided to support this assumption.	The draft prawn review considers that the biosecurity risks of value added products are managed. Value added products includes par cooked breaded battered and crumbed (BBC) prawns, and dumpling and dim sum type products containing raw prawns. The review acknowledges the processing of the value added products does not reduce the likelihood of entry for most of the hazards as they contain uncooked prawns (head and shell removed). But it considers that the risk is managed as the value added products have a significantly lower risk of diversion to bait or berley. For most of the hazards, the partial likelihood of exposure for wild crustaceans is reduced from its unrestricted level (e.g. "high" for WSSV) to "extremely low" for value added products (i.e. the event would be extremely unlikely to occur).	Please provide evidence to justify that the likelihood of exposure of wild crustaceans to value added products would be "extremely low" (i.e. extremely unlikely to occur). If evidence is not available and there is significant uncertainty, a more conservative likelihood should be used.

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		The magnitude of this reduction in likelihood does not appear to be justified. Whilst less likely to be used as bait/berley, the prawn content of these products can be in a form that is consistent with that of berley (minced and thus able to facilitate distribution of particulate and trace matter) and as such could be used for this purpose. Both the 2002 and 2006 national surveys of bait and berley used by recreational fishers identified that prawns sold as seafood are used for bait and berley purposes. The 2006 survey further identified processed prawns (e.g. skewered, marinated or crumbed) as also being used for bait/berley. Clearly, prawns (including processed prawns) have been and are likely to continue to be used as bait/berley for fishing purposes (Kewagama Research, National Survey of Bait and Berley use by Recreational Fishers – Report to: Biosecurity Australia, AFFA, 2002), (Kewagama Research, National Survey of Bait and Berley use by Recreational Fishers: A Follow-up Survey Focussing on Prawn/Shrimp – Report to: Biosecurity Australia, 2007).	
5.1.9 Labelling for human consumption-only	The effectiveness of labelling for human consumption only should be better understood and strengthened to further manage biosecurity risk.	Labelling for human consumption has significant limitations due to: • the purchaser may not be the individual using the product for alternative purposes. • labelling of bulk packaging cannot be guaranteed to be transferred to loose product for over the retail counter sale situations.	Even if not considered likely to reduce the overall risk to an acceptable level on its own, further work should be undertaken to ensure product labelling as a recommended risk mitigation measure is as effective as possible.

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		Diggles (2018) reports observations made during 2018 by fisheries officers in NSW and other states where they continued to find imported uncooked prawns being used as bait. This issue is acknowledged in the prawn review so that while labelling is recommended, it is not calculated to reduce risk as a recommended mitigation. However labelling remains a very important mechanism to further reduce the risk of diversion of product to bait/burley and therefore reduce likelihood of exposure of wild crustaceans. Therefore further work should be undertaken to understand the effectiveness of labelling and strengthen it.	
5.1.8 Batch testing for hazards	One of the recommended biosecurity measures for uncooked prawns (head and shell removed), is pre-export and on-arrival batch testing for WSSV and YHV1. It specifies that the sampling regime will provide 95% confidence of detecting a hazard at a prevalence of 5% or greater, and indicates design is appropriate for WSSV and YHV1. However, the testing regime does not appear to provide adequate confidence of freedom from WSSV and YHV1, and does not appear to be consistent with OIE recommendations.	Design prevalence: The sampling for the on-arrival batch testing is designed to provide 95% confidence of detection of WSSV and YHV1 at a prevalence of 5% or greater. The draft prawn review does not provide adequate evidence to justify the selection of a design prevalence of 5%. The OIE indicates a 2% should be used for the design prevalence unless there is reliable information on the expected prevalence in an infected population (Aquatic animal health code chapter 1.4). For WSSV, the OIE aquatic animal health manual for WSSV indicates the “Prevalence of infection with WSSV	Please provide scientific justification for its sampling design for on-arrival batch testing, including design prevalence and test sensitivity.

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		is highly variable, from <1% in infected wild populations to up to 100% in captive populations". The draft prawn review indicates YHV1 prevalence may be less than 1% in healthy or wild or farmed *P.monodon* (pg. 245). Given uncooked imported prawns may be wild sourced, a lower design prevalence is appropriate for WSSV and YHV1. In designing the national WSSV surveillance program in Australia in 2017, jurisdictions and the Commonwealth agreed that it was appropriate to use a design prevalence of 2% for WSSV surveillance in wild prawn populations based on Queensland surveillance data from wild prawn populations in northern Moreton Bay. Diagnostic sensitivity: The current sampling regime for on-arrival batch testing is not specified in the prawn review but is understood to involve testing 65 prawns per batch across randomly selected cartons, in pools of 5. The testing regime appears to assume 90% diagnostic sensitivity. Evidence should be provided that the diagnostic sensitivity of the tests used (with pooling) would be expected to exceed 90%.	
Appendix 3 Likelihood of establishment and spread for DIV1 and a	The likelihood of establishment and spread (PLES) for wild crustaceans for many of the hazards has been assessed as "very low" despite significant unknowns.	The partial likelihood of establishment and spread (PLES) in wild crustaceans of the hazard DIV1 was determined to be "very low" (i.e. the event would be <u>very unlikely</u> to occur. The relevant factors given include that establishment is less likely in wild crustaceans than	For DIV 1, CMNV, IMNV and TSV: Please provide evidence to justify selection of the less conservative PLES for wild

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range of other hazards	This is significant as it affects whether additional biosecurity measures are required for uncooked prawns (beyond head and shell removal).	farmed and less likely than for hazards with larger host ranges such as WSSV and YHV1. While these factors appear reasonable, they do not necessarily support selection of a "very low" PLES in wild crustaceans. The selection of a "very low" likelihood is only appropriate if there is evidence to support it being a very unlikely event. In the absence of evidence and where there is significant uncertainty, it is more appropriate to select a "low" likelihood (i.e. the event would be unlikely to occur). Critical assessment of PLES for wild crustaceans is particularly important as it significantly changes the outcome of the assessment. For DIV1, if the PLES for wild crustaceans is assessed as "low", head and shell removal no longer achieves Australia's ALOP. Similarly, the selection of "very low" PLES for wild crustaceans should also be examined for the hazards CMNV, IMNV and TSV to ensure there is evidence to support it being a very unlikely event. As per DIV1, the selection of "very low" PLES for wild crustaceans for these hazards significantly changes the outcome of the assessment. If the PLES for wild crustaceans is "low", head and shell removal no longer achieves Australia's ALOP for each of these hazards.	crustaceans ("very low"). If evidence is not available and there is significant uncertainty, the more conservative "low" likelihood should be used. The apparent 'sensitivity' of the analysis outcome (biosecurity recommendations) to the PLES for wild crustaceans should also be examined.