Department of Primary Industries

BN20/6628

Department of Agriculture and Water Resources
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Dear Prawn Liaison Officer

NSW Department of Primary Industries submission to the review of the biosecurity risks of imported prawns

Thank you for the opportunity to comment on the *Review of the biosecurity risks of prawns imported from all countries for human consumption* (the Review).

NSW Department of Primary Industries (NSW DPI) welcomes this review, and agrees and supports the need for thorough assessment of biosecurity risks associated with prawns imported for human consumption.

NSW DPI supports the measures recommended for mitigating risks through removal of head and shell, deveining and freezing as well as specific batch testing for white spot syndrome virus and yellowhead virus.

However, NSW DPI has concerns that some areas of biosecurity risk have not been adequately mitigated and that insufficient consideration of available supporting scientific evidence has been undertaken. NSW DPI specific comment are following:

Section	Comment
Section 7 and 8	NSW DPI disagrees with the assessment conclusions for Decapod Iridescent Virus 1 (DIV-1) and Covert Mortality nodavirus (CMNV), particularly that head and shell removal alone will be able to mitigate risks to an acceptable risk level of very low. For both these viruses, increasing evidence of impacts on cultured prawns, and increasing evidence to demonstrate extremely broad potential host ranges for these viruses indicate that the level of risk posed by these viruses are equivalent to, if not greater than, white spot syndrome virus and yellowhead virus, for which additional risk mitigation measures beyond removal of head and shell have been proposed. Specifically, for DIV-1, there is evidence to support susceptibility of a broad range of crustacean taxa, including non-penaeid Palaemonid shrimps such as *Macrobrachium rosenbergii, M. nipponense* (Qiu et al. 2019), *Exopalaemon carinicauda* (Chen et al. 2019) and freshwater crayfish such as *Procambarus clarikii* (Qiu et al. 2019). Given that various shrimps of the genus *Palaemon* and *Macrobrachium* are widespread in estuarine and nearshore marine systems in Australia (Short 2004), are amongst the most abundant species in estuarine systems (Gray 1991, Gibbs et al. 1999) and are opportunistic omnivores (Anger 2013) that are extremely likely to be exposed to bait and burley, it is incorrect to conclude that the partial risk of exposure for wild crustaceans would be “moderate” and should instead be assessed as “high”. As an example, during a survey of six estuaries along the central coast of NSW, *P. debilis* and *M .intermedium* were found to be the third and fifth most abundant

	taxa, respectively and together, by number, formed greater than 20% of the overall total number of all species sampled (Gibbs et al. 1999). Likewise, the partial likelihood of exposure for hatchery crustaceans (including public aquaria and research) should be assessed as at least moderate instead of low, due to the potential for such abundant crustacean species to become infected with DIV-1, as was the result of the assessment for WSSV. Likewise, the partial likelihood of exposure and spread should be adjusted accordingly due to the abundance of likely susceptible host species , commensurate with the assessment conclusions for WSSV and it is erroneous to conclude that the risk of establishment and spread of DIV-1 in wild crustaceans is "very low". In the case of Covert Mortality Nodavirus (CMNV), there is extensive literature evidence to demonstrate an extremely wide host range, including various finfish species such as *Mugiligobius abei* (Zhang et al. 2018) and *Paralichthys olivaceus* (Wang et al. 2019). While part of this broad host range has been acknowledged in this review, NSW DPI does not agree with this reviews conclusion that the partial likelihood of exposure to wild populations is only moderate, and for the partial likelihood of establishment and spread is "very low". Given that the Department of Agriculture, Water and Environment has recently outlined a "*Procedure to determine finfish susceptibility to infection*" as part of the "*Animal Biosecurity Advice 2020-A07: Draft update of non-salmonid marine finfish risk species lists for human consumption and baitfish*" , and there are various members of the genus *Mugilogobius* within Australia, including *M. paludis* which was found in a survey of six estuaries in NSW to be among the top 50 most abundant species (Gibbs et al. 1999), there is sufficient evidence to indicate Australian fish species are susceptible to CMNV, and therefore information is already available to warrant reconsideration as stated in the review that "*Should information become available that demonstrates non-crustacean species native to Australia are susceptible to CMNV, the definition of the exposure groups may change with respect to the CMNV risk assessment*". Based on the extremely wide host susceptibility of CMNV, as with WSSV, the conclusions require adjustment to be commensurate with those derived for WSSV.
Various	In various places the assessment includes the statement: *Farmed crustaceans were considered unlikely to be directly exposed to imported prawns (or associated wastes) because on-farm biosecurity measures should prevent their introduction either intentionally (for example, for feed) or unintentionally (through direct entry via the water inlet channels). However, not all farms have implemented standards of entry-level biosecurity for intake water that would exclude "*Ca. *H. penaei" or imported prawn wastes.* NSW DPI can advise that the infrastructure required to prevent biosecurity hazards entering a farm via intake water is unlikely to be present in NSW farms to prevent entry of many of the exotic hazards assessed in this review, and therefore NSW DPI objects to this assumption in the exposure assessments. NSW DPI requests that the assessment conclusions are adjusted to allow for this increased likelihood of exposure.
Section 4.3.6 (paragraph 3)	Cooked prawns are described in this section as being unsuitable for bait (also in section 5.1.3) and previous bait and burley surveys (2002 and 2007) have not collected information on the use of cooked product by anglers. However, in other places the review states that there is a small amount of use of cooked prawns as bait or berley by recreational fishers(Kantar Public 2017, White spots disease market segmentation report, Prepared for Biosecurity Queensland, Brisbane.) and indicates that "*The Kantar Public survey reported that 6% of fishers surveyed had used 'left-over' cooked prawns from a meal as fishing bait (Kantar Public 2017). That is they cooked prawns for human consumption and used the 'left-overs' as bait. Whilst 'left-over' was not fully defined in the Kantar Public survey, it is assumed that the bulk of the muscle tissue, shell and head (for*

whole prawns) is intact for 'left-over' cooked prawns. The bait and berley exposure pathway takes into account the use of 'left-over' prawns".

Given the extensive number of recreational fishers, 6% indicating use of "left over prawns" for bait is still a significant quantity of cooked product directly entering into natural environments; the usage of cooked prawn remains for berley is also likely to be significantly higher and may not have been considered by respondents as a form of "bait use".

Further, given extensive education on the avoidance of raw prawns for human consumption as bait, it is likely that the proportion of fishers using cooked prawns will have increased on the assumption that such products do not pose a biosecurity risk. In addition, Fisheries NSW recreational fishing managers have advised that cooked prawns are a preferred bait of some anglers, and therefore it is incorrect in this draft review to describe cooked prawns as unsuitable for bait.

While it is agreed that cooking is likely to reduce the biosecurity risk in most instances to an acceptable level, this review has outlined that for several hazards cooking alone does not remove the risk (e.g. TSV). Further consideration of this risk is required, including minimum standards for cooking.

The statement '*There would also be a reduction in the likelihood of cooked prawns being used as bait or berley in prawn inlet channels'* is unclear and should be further clarified. Does this refer to a reduced likelihood of fishing in the channels, or a reduced chance of cooked prawns being used as bait compared with raw prawns? Some reference to evidence is required here.

Additional evidence that cooked prawns are used as bait, and therefore are not unsuitable for use as bait:

https://www.fishraider.com.au/topic/50562-prawnsraw-or-cooked/

https://www.fishingreminder.com/fishing-talk/4-fishing-talk/3550-killer-bream-bait...-cooked-prawn...and-the-white-spot-debate

https://www.worldseafishing.com/threads/cooked-prawns.25849833/

Yours sincerely

NSW Chief Veterinary Officer

15 January 2021

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Gibbs PJ, McVea T, Louden B (1999) Utilisation of restored wetlands by fish and invertebrates / Philip Gibbs, Tracey McVea and Brett Louden, Vol. NSW Fisheries, Pyrmont, NSW

Gray CA (1991) Temporal variability in the demography of the palaemonid prawn Macrobrachium intermedium in two seagrasses. Marine Ecology Progress Series 75:227-237

Kantar Public (2017) White spots disease market segmentation report. In: Prepared for Biosecurity Queensland, Brisbane

Qiu L, Chen X, Zhao R-H, Li C, Gao W, Zhang Q-L, Huang J (2019) Description of a Natural Infection with Decapod Iridescent Virus 1 in Farmed Giant Freshwater Prawn, Macrobrachium rosenbergii. Viruses 11:354
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Zhang QL, Liu S, Li J, Xu TT, Wang XH, Fu GM, Li XP, Sang SW, Bian XD, Hao JW (2018) Evidence for Cross-Species Transmission of Covert Mortality Nodavirus to New Host of Mugilogobius abei. Front Microbiol 9:1447