Australian Government
Department of Agriculture, Water and the Environment

Review of the biosecurity risks of prawns imported from all countries for human consumption – draft report

Webinar

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24 November 2020

Introduction

Introduction and welcome from Dr Beth Cookson, Assistant Secretary Animal Biosecurity

Presentation overview

- The draft report
- The methodology
- Biosecurity measures considered
- Risk assessment example
- Proposed import conditions
- Next steps
- Question and answer session

The draft report

- The draft report documents our review of the biosecurity risks of prawns imported from all countries for human consumption.
- The draft report provides recommendations about if and how prawns can be imported in a manner that achieves Australia's appropriate level of protection (ALOP).
- The draft report was released on 28 September 2020.
- Comments can be made about the draft report until 15 January 2021.
  - **haveyoursay.awe.gov.au**

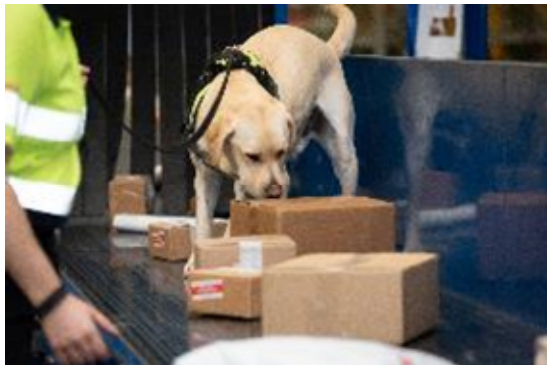
Australia’s biosecurity framework

Australia’s biosecurity system protects our people, plants, animals and our environment against risks that may arise from exotic pests and diseases.

Australia’s biosecurity framework is supported by the following:

- Commonwealth, state and territory biosecurity legislation
- policies
- import conditions
- shared responsibilities.

offshore



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Source: M. Masters

onshore

Source: K. Trapnell

Australia's international obligations

The department conducts animal/animal product risk analyses in accordance with international biosecurity obligations including:

- World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (SPS agreement).
  www.wto.org/english/tratop_e/sps_e/spsagr_e.htm

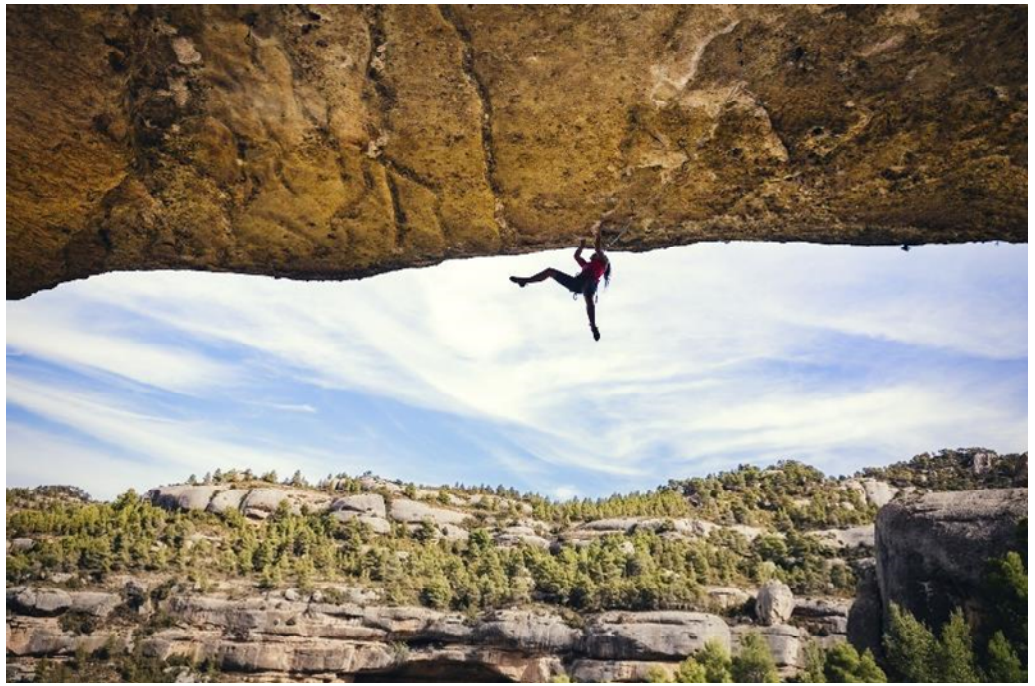
- World Organisation for Animal Health (OIE)
  www.oie.int/

- World Health Organization (WHO)
  ww.who.int/

The methodology

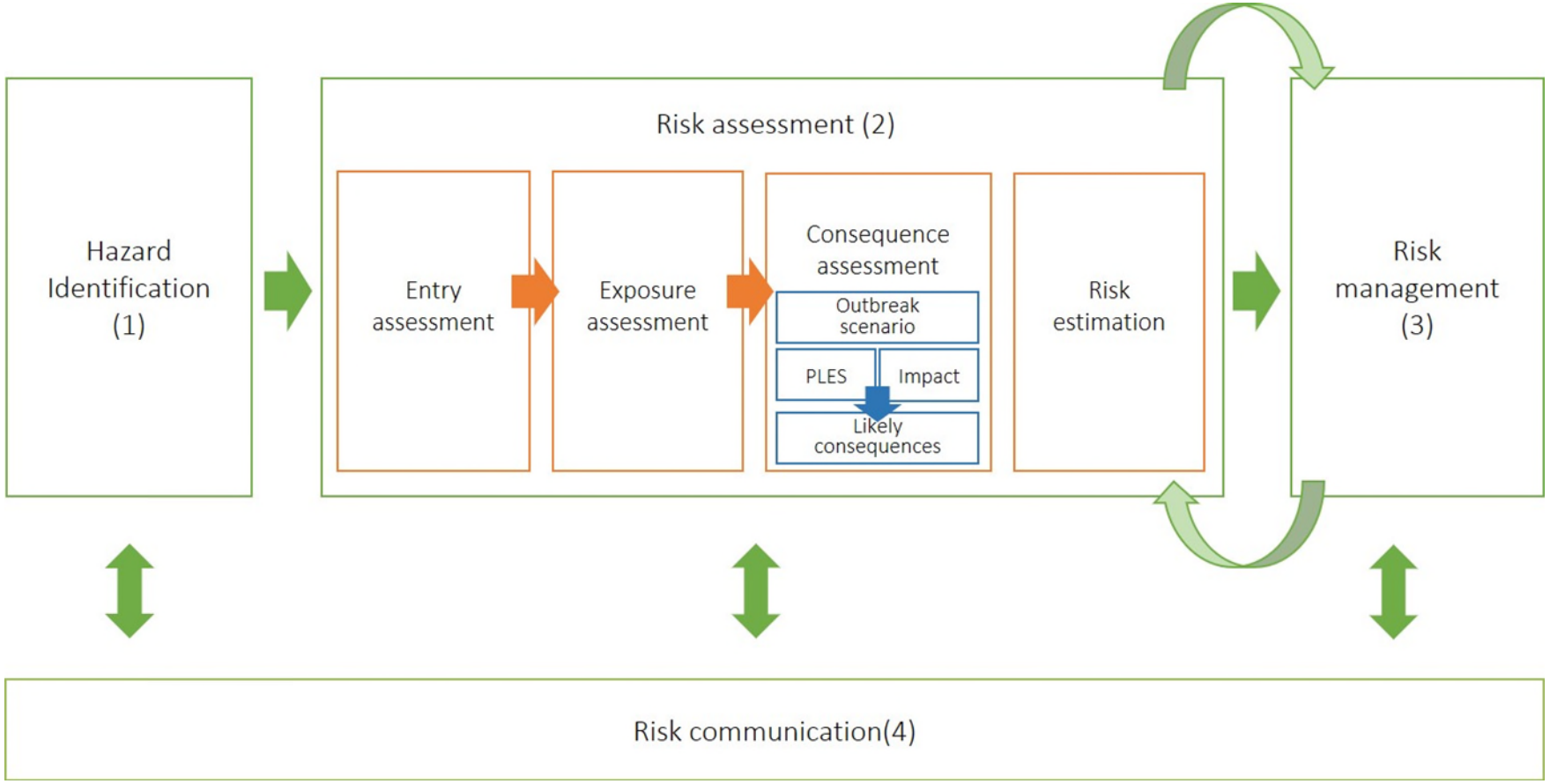
The prawn review was conducted using a risk analysis process that is consistent with that described by the World Organisation for Animal Health (OIE) in the *Aquatic animal health code.*

Risk = likelihood × consequence



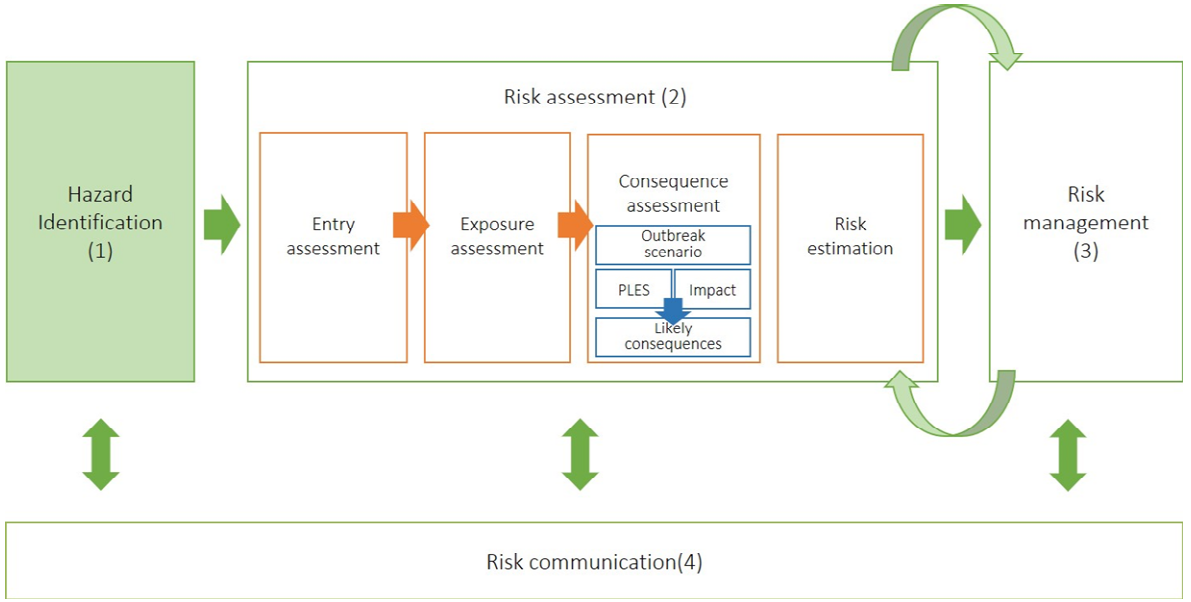
Risk analysis process

Chapter 4 of the draft report provides the details on the general considerations taken into account by the department when undertaking the risk assessments and a detailed explanation of the methodology used.



1. Hazard identification

Hazards retained for risk assessment



- "*Candidatus* Hepatobacter penaei" ("*Ca.* H. penaei")
- covert mortality nodavirus (CMNV)*
- decapod iridescent virus 1 (DIV1)*
- *Enterocytozoon hepatopenaei* (EHP)
- infectious myonecrosis virus (IMNV)
- Laem-Singh virus (LSNV)
- Taura syndrome virus (TSV)
- *Vibrio parahaemolyticus* strains containing Pir toxins (Vp AHPND)
- white spot syndrome virus (WSSV)
- yellow head virus genotypes 1 (YHV1) and 8 (YHV8)#.

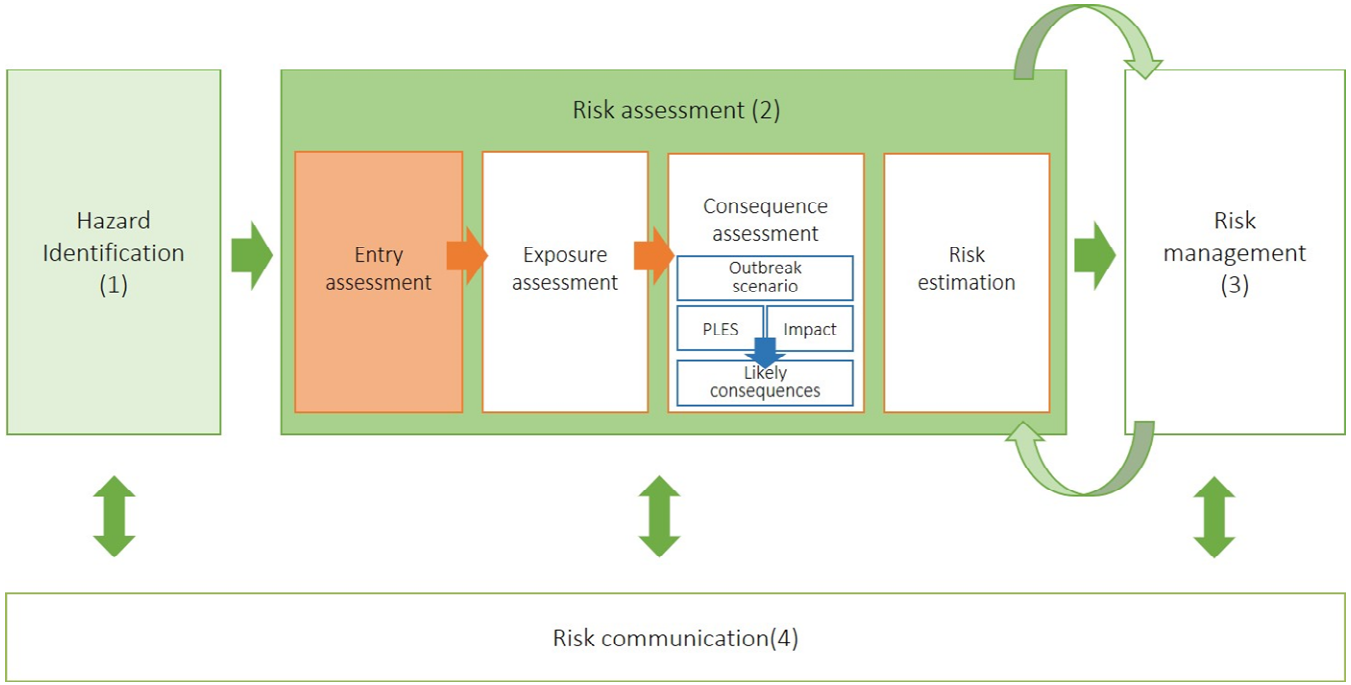
* The department notes that DIV1 & CMNV are emerging diseases. We continue to monitor the situation.

#The department considered there was insufficient information regarding YHV8 to conduct a risk assessment. We continue to monitor the situation.

2.1 Entry assessment

The first step in the risk assessment is the entry assessment.

- The entry assessment describes the pathway(s) for the introduction of the hazard into Australia and estimates the likelihood of that occurring.
- Single-entry scenario: the importation (from all countries) of **non-viable, farm-sourced, frozen, uncooked, whole prawns intended for human consumption.**
  - Also known as 'unrestricted risk'.



Factors considered in the entry assessment

To estimate the likelihood of entry we considered key factors, such as the:

- biological characteristics of the hazard
- effectiveness of post-harvest inspection and grading in removing infected prawns before export
- effect of processing, transport and storage on the hazard.

The likelihood of entry of each hazard was estimated as:

- high, moderate, low, very low, extremely low or negligible.

2.2 Exposure assessment

The second step in the risk assessment is the exposure assessment

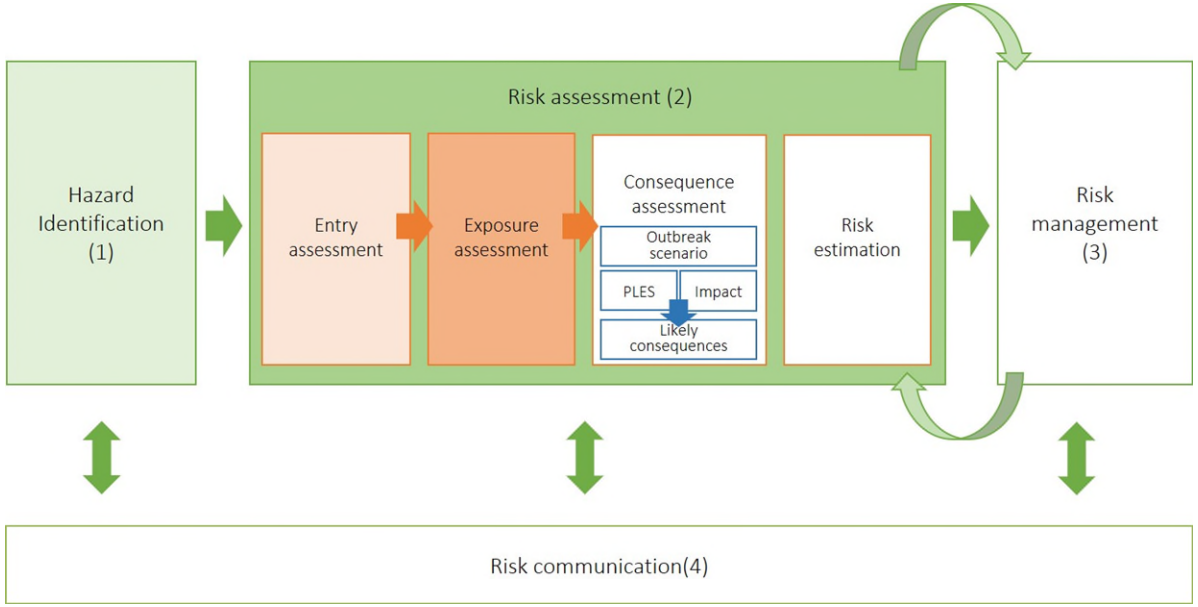
The exposure assessment estimates the likelihood of direct exposure of an exposure group to the hazard.

To estimate the likelihood of exposure we:

- identified the exposure groups.
- identified the exposure pathways.
- considered hazard and exposure group specific information.

The partial likelihood of exposure (PLE) was estimated for each of the three exposure groups as:

- high, moderate, low, very low, extremely low or negligible.

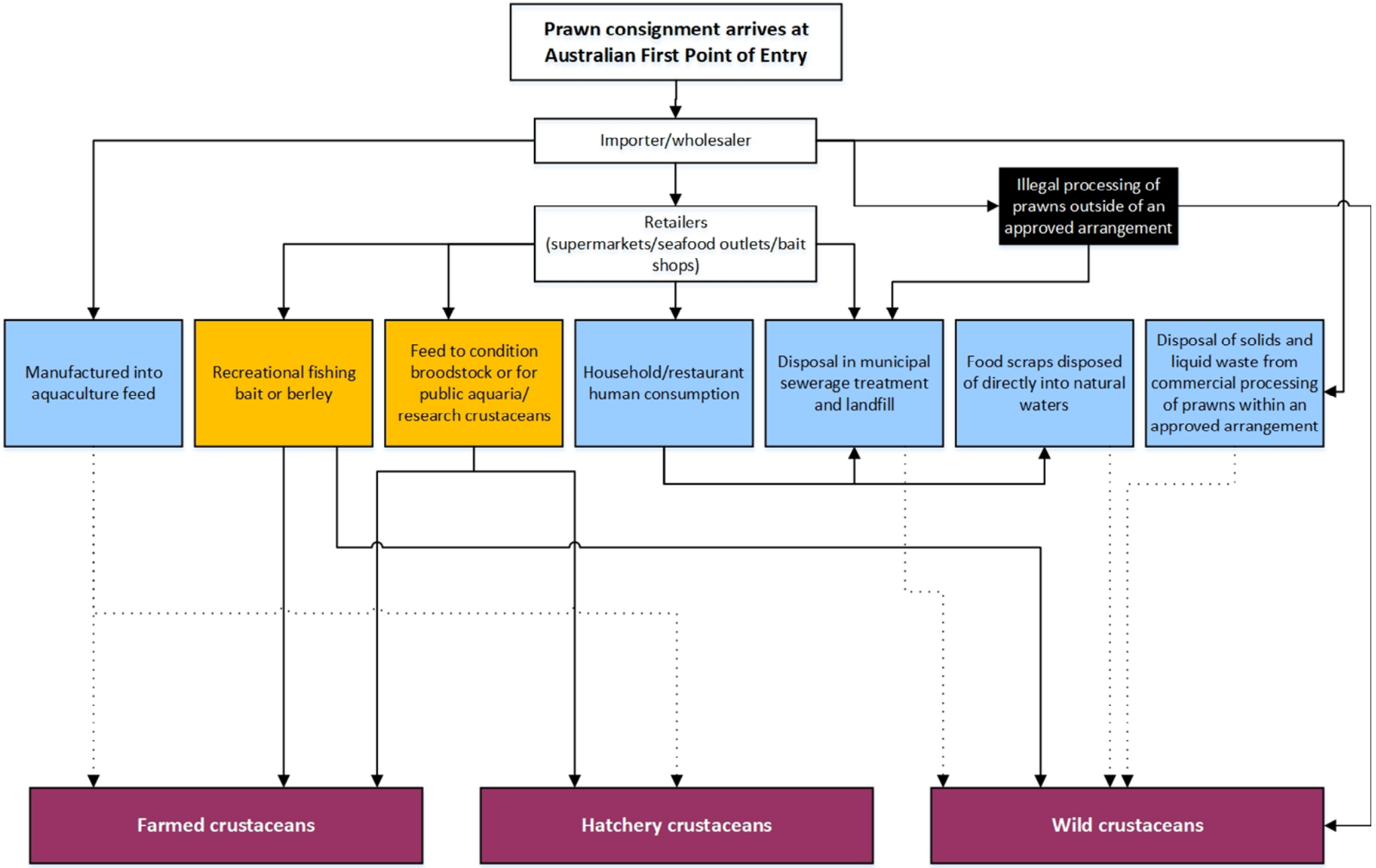


Identification of three exposure groups

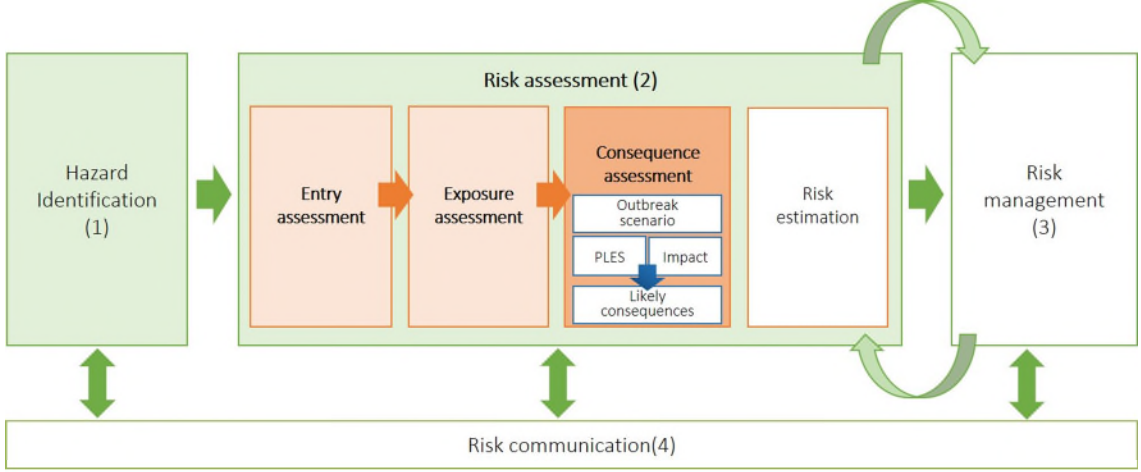
- farmed crustaceans
- hatchery crustaceans (encompassing crustacean hatchery broodstock and postlarvae, crustaceans in research facilities and crustaceans in public aquaria)
- wild crustaceans.

Source: shutterstock.com

Identification of exposure pathways and estimation of partial likelihood of exposure



2.3 Consequence assessment



The third step in the risk assessment process is the consequence assessment

The consequence assessment describes the potential consequences of a given exposure, and estimates the probability of them occurring.

To undertake the consequence assessment we:

- identified a likely outbreak scenario
- estimated the partial likelihood of establishment and spread
- determined the overall impact of establishment and spread
- determined the likely consequences of the outbreak scenario.

The likely consequences of the outbreak scenario for each hazard were expressed as:

- extreme, high, moderate, low, very low or negligible.

Determining the overall consequences of establishment and spread

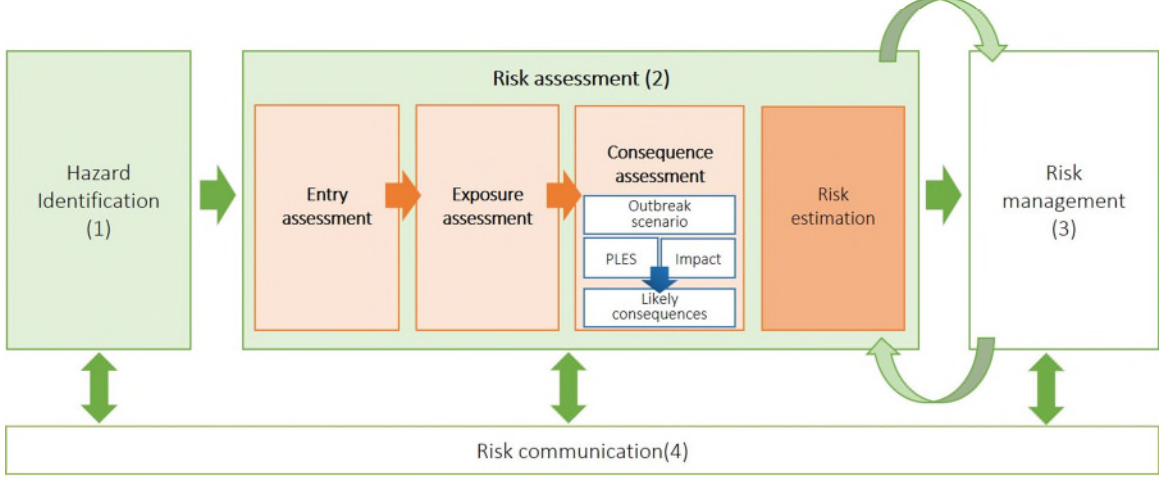
- Outbreak scenario
  - 'the hazard establishes in the directly exposed population and spreads to wild and farmed populations, is not eradicated, becomes endemic in Australia and eventually spreads to its natural geographical limits'.

- The partial likelihood of establishment and spread (PLES) is estimated for each of the 3 exposure groups.
  - How likely is it that one index case will result in the hazard establishing and spreading to the other exposure groups and eventually to its natural geographic limits.

- Overall impact of establishment and spread is estimated across the exposure groups.
  - What will be the biological, economic and environmental impacts associated with the outbreak scenario occurring.

- Likely consequences of the outbreak scenario.
  - Determined by combining the overall impact with the partial likelihood of establishment and spread for each exposure group.

2.4 Risk estimation



The fourth step in the risk assessment is risk estimation

Risk estimation is the integration of likelihood of entry and exposure and likely consequences to obtain the overall annual risk associated with entry, establishment and spread of a hazard.

Risk estimation:

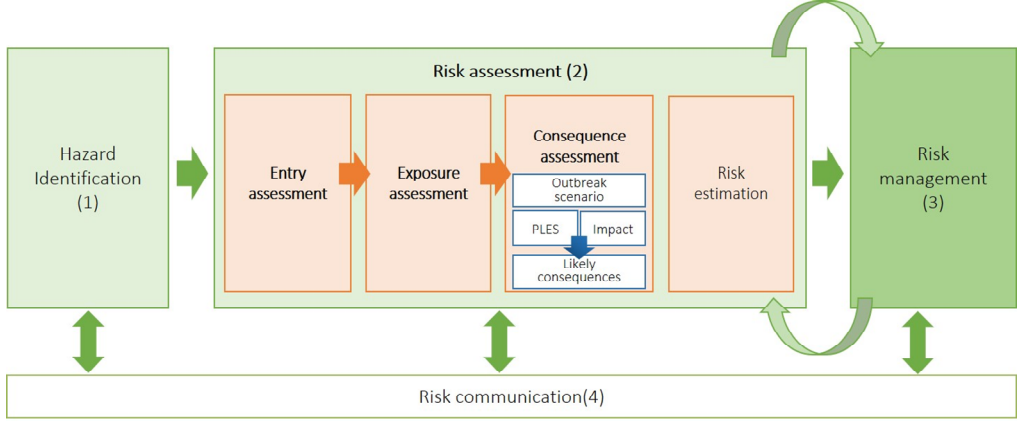
- estimated the overall annual risk for the single-entry scenario (unrestricted risk)
- identified whether the overall annual risk achieved Australia's ALOP.

The overall annual risk was reported using one of the following ratings:

- extreme, high, moderate, low, very low or negligible.

3. Risk management

Risk management is the third component of risk analysis



Risk management is the process of identifying, selecting and implementing measures that can be applied to reduce the level of risk of a hazard, while at the same time, ensuring that negative effects on trade are minimised.

Australia's ALOP provides a benchmark for evaluating risk and determining whether biosecurity measures are required.

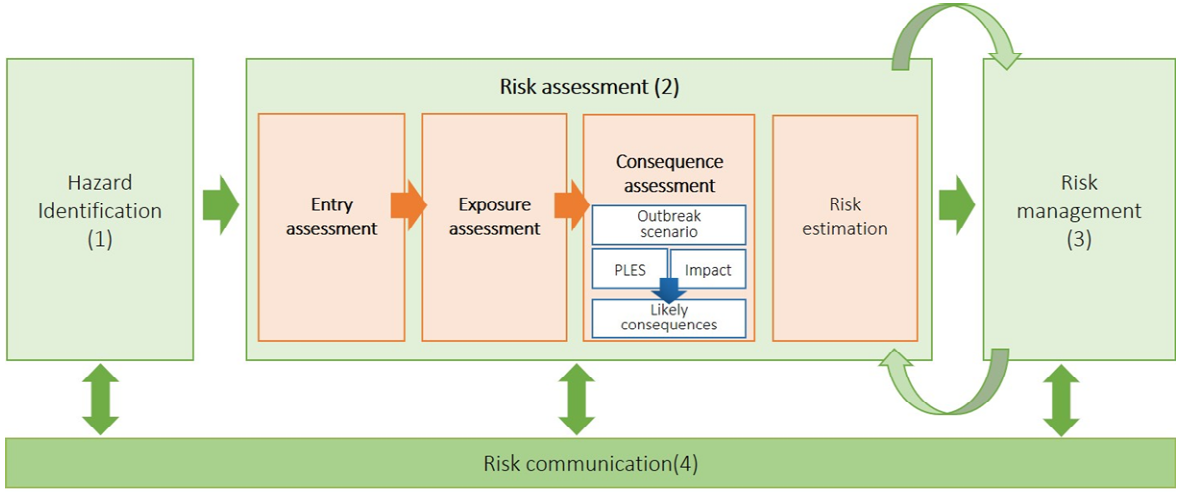
- If the unrestricted risk achieved Australia's ALOP (negligible or very low), biosecurity measures were not required.
- If the unrestricted risk did not achieve Australia's ALOP (low, moderate, high or extreme) biosecurity measures were identified and the risk was recalculated with the biosecurity measure applied (restricted risk).
    - If the restricted risk was then found to be negligible or low, that biosecurity measure was considered to manage the biosecurity risk of the hazard to a level that achieves Australia's ALOP.

4. Risk communication

Risk communication is the fourth component of risk analysis

Risk communication is an ongoing process and includes both formal and informal consultation with stakeholders.

The department has been committed to ongoing communication and consultation with stakeholders throughout the process of the review, including the use of the Prawn Review Liaison Officer.



Biosecurity measures considered

The following biosecurity measures were selected from a range of pre-export and on-arrival measures considered practicable and form the basis of the biosecurity measures that are recommended to apply to the importation of prawns for human consumption.

Alternative biosecurity measures that are demonstrated, to the satisfaction of the department, to provide equivalent biosecurity will also be considered on a case-by-case basis.

Biosecurity measures

There are two means by which biosecurity measure reduce the overall risk of a hazard to achieve Australia's ALOP:

- Reducing the likelihood of hazards **entering** Australia in imported prawns.
- Reducing the likelihood that susceptible animals in Australia would be **exposed** to the hazard in imported prawns.

The extent to which the biosecurity measures will reduce the likelihood of entry and/or exposure is dependent upon the specific hazard and the exposure groups.

Source: shutterstock.com

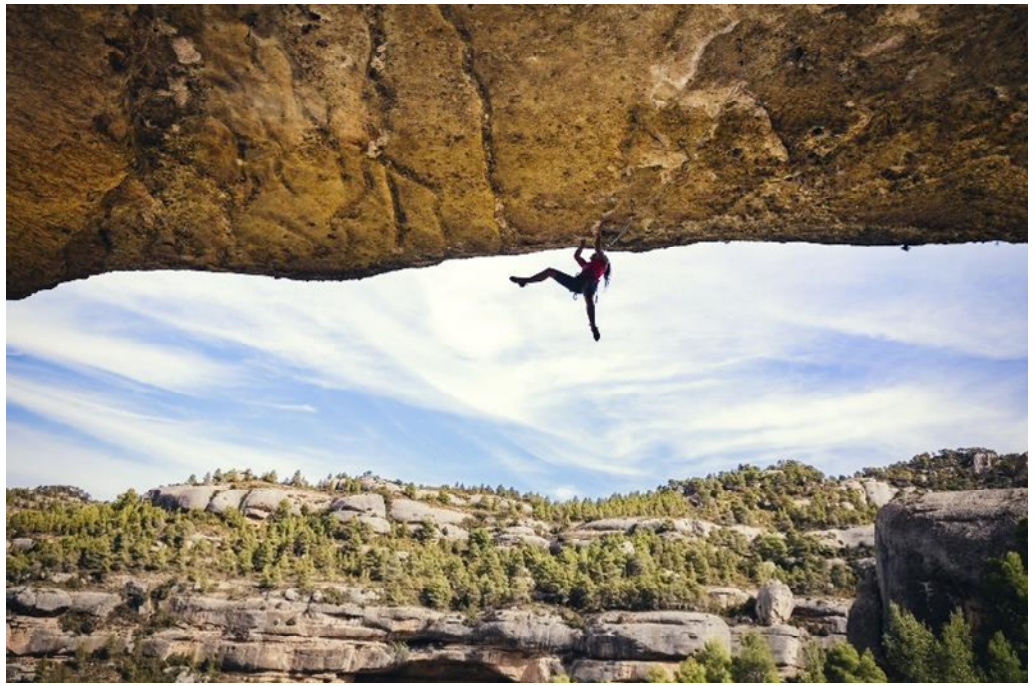
Source: shutterstock.com

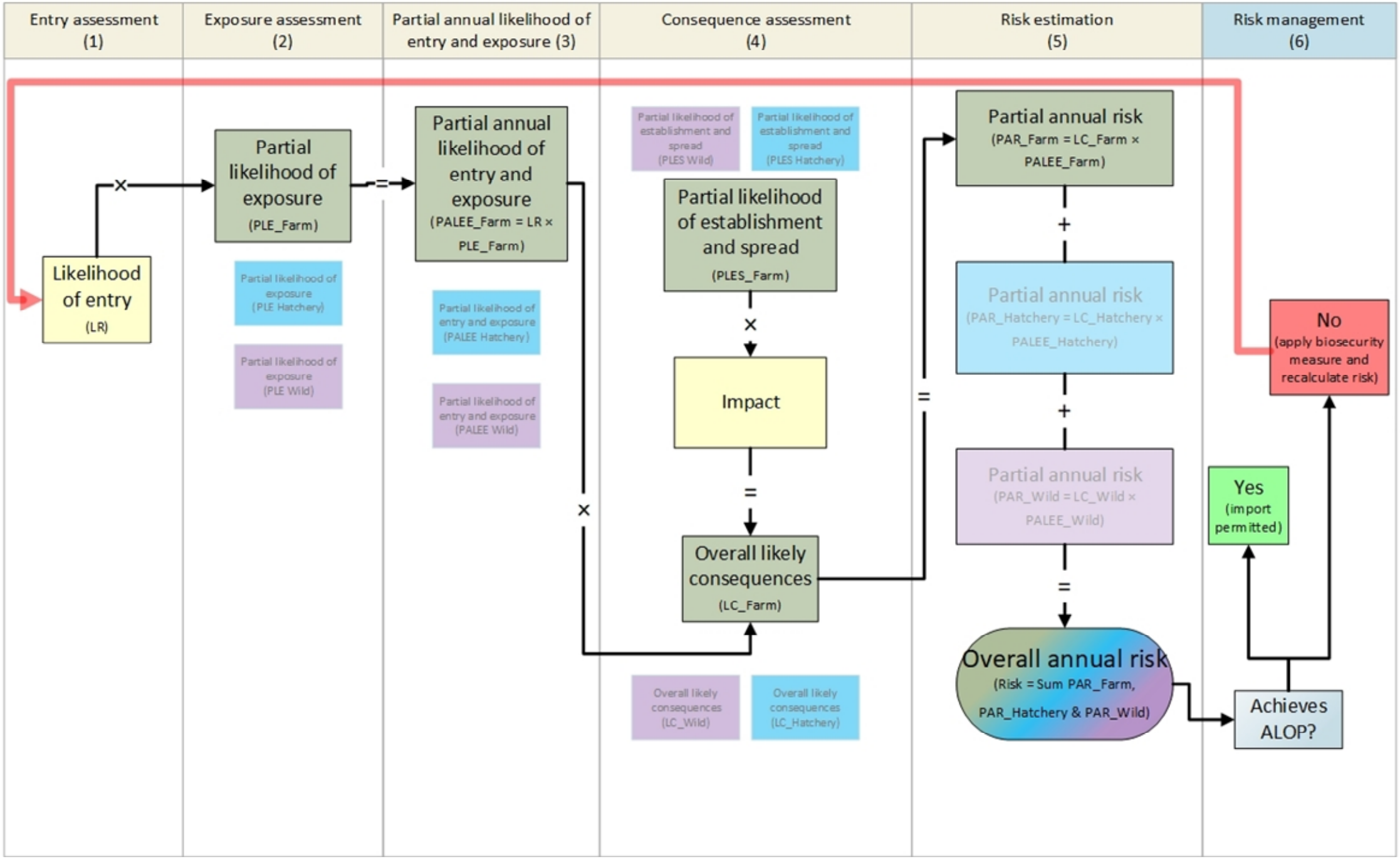
Biosecurity measure	How reduces likelihood of entry	How reduces likelihood of exposure
Sourcing from disease-free populations	Reduces likelihood of entry for all hazards.	N/A
Freezing	Reduces likelihood of entry for hazards which are affected by freezing. - "*Ca.* H. penaei" - Vp AHPND	Reduces likelihood of exposure for those hazards expected to persist and remain infectious in frozen prawns at time of exposure. - "*Ca.* H. penaei" - Vp AHPND
Head and shell removal (last tail segment and tail fans permitted)	Reduces likelihood of entry for hazards which are primarily present in the head, shell and associated tissue. - LSNV	Reduces likelihood of exposure for farmed and hatchery exposure groups. - all hazards
Head and shell removal in combination with deveining (removal of the digestive tract to at least the last shell segment)	Reduces likelihood of entry for hazards which are primarily present in the head, shell and digestive tract. - EHP	N/A – does not reduce likelihood of exposure any more than head and shell removal.
Batch testing for hazards (pre-export and on-arrival testing)	Reduces likelihood of entry for hazards where appropriate testing methods are available. - WSSV - YHV1	N/A
Cooking	Reduces likelihood of entry for hazards which are affected by temperatures used in commercial cooking of prawns. - IMNV -Vp AHPND - WSSV	Reduces likelihood of exposure for all exposure groups. - all hazards
Value-added products including breaded, battered and crumbed prawns and dumpling and dim sum type-products)	N/A	Reduces likelihood of exposure for all exposure groups. - all hazards
Labelling for human-consumption	N/A	Makes clear the intended end-use is for human consumption and that the product should not be diverted to bait or feed suppliers.

Example risk assessment – WSSV

Risk assessments were conducted for 10 hazards.

Risk = likelihood × consequence




Entry assessment (1)
Exposure assessment (2)
Partial annual likelihood of entry and exposure (3)
Consequence assessment (4)
Risk estimation (5)
Risk management (6)
Likelihood of entry (LR)
Partial likelihood of exposure (PLE_Farm)
Partial likelihood of exposure (PLE Hatchery)
Partial likelihood of exposure (PLE Wild)
Partial annual likelihood of entry and exposure (PALEE_Farm = LR × PLE_Farm)
Partial likelihood of entry and exposure (PALEE Hatchery)
Partial likelihood of entry and exposure (PALEE Wild)
Partial likelihood of establishment and spread (PLES Wild)
Partial likelihood of establishment and spread (PLES Hatchery)
Partial likelihood of establishment and spread (PLES_Farm)
Impact
Overall likely consequences (LC_Farm)
Overall likely consequences (LC_Wild)
Overall likely consequences (LC_Hatchery)
Partial annual risk (PAR_Farm = LC_Farm × PALEE_Farm)
Partial annual risk (PAR_Hatchery = LC_Hatchery × PALEE_Hatchery)
Partial annual risk (PAR_Wild = LC_Wild × PALEE_Wild)
Overall annual risk (Risk = Sum PAR_Farm, PAR_Hatchery & PAR_Wild)
Achieves ALOP?
Yes (import permitted)
No (apply biosecurity measure and recalculate risk)

White spot syndrome virus

f = farmed exposure group, **h** = hatchery exposure group, **w** = wild exposure group

Key factors considered	Risk assessment	Risk management
• Present in whole body of the prawn. • Infections can be sub-clinical. • Survives freezing. • Impacted by cooking. • All decapod crustaceans susceptible. • Use of imported prawns as bait or berley by fishers and feed for captive crustaceans. • Causes high mortality. • High impact if becomes established in Australia.  Source: D. Lightner	Likelihood of entry • High Partial likelihood of exposure (PLE) • Low (f), Moderate (h), High (w) Partial annual likelihood of entry and exposure (PALEE) • Low (f), Moderate (h), High (w) Partial likelihood of establishment and spread (PLES) • High (f), Moderate (h), Moderate (w) Impact • High Likely consequences • High (f), High (h), High (w) Partial annual risk • Moderate (f), High (h), High (w) **Overall annual unrestricted risk = Extreme.**	**Head and shell removal** • Likelihood of entry unchanged. • Reduced PLE in farmed and hatchery. • PLES/Impact/Consequences unchanged. *Overall annual restricted risk* = **High** **Head and shell removal + pre-export testing** • Likelihood of entry reduced. • Reduced PLE in farmed and hatchery. • PLES/Impact/Consequences unchanged. *Overall annual restricted risk* = **Moderate** **Head and shell removal + pre-export + on-arrival testing** • Likelihood of entry reduced. • Reduced PLE in farmed and hatchery. • PLES/Impact/Consequences unchanged. *Overall annual restricted risk* = **Very Low** **Cooking** • Likelihood of entry reduced. • Reduced PLE for all exposure groups. • PLES/Impact/Consequences unchanged. *Overall annual restricted risk* = **Very Low** **Value-added products** • Likelihood of entry unchanged. • Reduced PLE for all exposure groups. • PLES/Impact/Consequences unchanged. *Overall annual restricted risk* = **Very Low**

Proposed import conditions

The following provides the proposed import conditions for prawns and prawn products exported to Australia.

The draft report does not propose any changes to the way prawns are currently imported, with the exception of whole uncooked prawns which require an assessment by the department to demonstrate freedom from additional hazards.

Proposed import conditions

A summary of the import conditions proposed in the draft report are presented below. With the exception of requirements for whole uncooked prawns, they are consistent with current import conditions.

Product type	Summary of import conditions
Whole uncooked prawns:	• have been sourced from a country, compartment or zone that is recognised by Australia to be free of all hazards (DIV1, CMNV, EHP, IMNV, LSNV, TSV, VpAHPND, WSSV, YHV1) listed in the draft report. ▪ Freedom from "*Ca.* H. penaei" applies only for chilled product.
Uncooked prawns: (includes marinated prawns, Australian prawns processed overseas outside approved systems and BBC prawns which have not been par-cooked)	• are frozen, deveined and have had the head and shell removed • have tested pre-export and each batch has been found to be free of WSSV and YHV1 • are subject to seals intact inspection and each batch is tested for WSSV and YHV1 on–arrival and must be found negative before it is released from biosecurity control.
Breaded, battered and crumbed (BBC) prawns:	• are prawns which have had the head and shell removed, are coated for human consumption by being breaded, battered or crumbed, and have undergone a par-cooking step after the prawn has been coated.
Dumpling and dim sum-type products:	• are products which contain uncooked prawns (which have had the head and shell removed) which have been processed to the extent that no discernible pieces of meat are salvageable.
Cooked prawns:	• are prawns which have been cooked so that all the protein in the prawn meat has coagulated and no raw prawn meat remains.

Next steps

Anticipated timeframe	Activity
28 September 2020	Draft report released for consultation
24 November 2020	Webinar
15 January 2021	Draft report consultation ends
Early to mid-2021	Consideration of comments on draft report, bait and berley data and any new information received
Mid-2021	Preparation of final report
Mid to late-2021	Final report released
Mid to late-2021	New import conditions put in place (if needed)

Image sources

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Zhang, Q, Liu, Q, Liu, S, Yang, H, Liu, S, Zhu, L, Yang, B, Jin, J, Ding, L, Wang, X, Liang, Y, Wang, Q & Huang, J 2014, 'A new nodavirus is associated with covert mortality disease of shrimp', Journal of General Virology, vol. 95, no. 12, pp. 2700-9, available at http://dx.doi.org/10.1099/vir.0.070078-0

Question and answer session

- Contact the Prawn Review Liaison Officer if you would like to arrange a follow-up discussion, request a factsheet or provide feedback on the webinar.
  - **prawnreview@awe.gov.au**
- Visit Have Your Say to comment on the draft report.
  - **haveyoursay.awe.gov.au**
- Consultation period closes 15 January 2021.
- The transcript from today will soon be available on the Prawn Review Webpage.
  - **agriculture.gov.au/biosecurity/risk-analysis/animal/prawns**