Chapter 1

Introduction and background

1.1 On 21 March 2017 the Senate referred the followed matters to the Rural and Regional Affairs and Transport References Committee (committee) for inquiry and report by 22 June 2017:

> The biosecurity risks associated with the importation of seafood and seafood products (including uncooked prawns and uncooked prawn meat) into Australia, with specific reference to:
>
> (a) management of the emergency response and associated measures implemented to control the outbreak of White Spot Syndrome Virus;
>
> (b) the effectiveness of biosecurity controls imposed on the importation of seafood and seafood products, including, but not limited to, uncooked prawns and prawn meat into Australia, including the import risk analysis process concluded in 2009 that led to these conditions being established;
>
> (c) the adequacy of Commonwealth resourcing of biosecurity measures including Import Risk Assessments;
>
> (d) the effectiveness of post-entry surveillance measures and 'end use' import conditions for seafood products including, but not limited to, uncooked prawns and uncooked prawn meat into Australia, since the import conditions implemented in 2010 were put into place;
>
> (e) the impact of the outbreak on Australia's wild and farm prawn sectors;
>
> (f) the economic impact on Australian wholesalers and retailers;
>
> (g) domestic and foreign trade implications for Australian industries resulting from the suspension of importation of seafood and seafood products, including, but not limited to, uncooked prawns and uncooked prawn meat in Australia;
>
> (h) matters to be satisfied in the management of biosecurity risk before imports of seafood and seafood products, including, but not limited to, uncooked prawns and uncooked prawn meat into Australia could recommence; and
>
> (i) any related matters.[1]

Conduct of the inquiry

1.2 The inquiry was publicly advertised online, including on the committee's website. The committee also invited submissions from a number of organisations and individuals with interests and expertise in the seafood industry, particularly in relation to prawns.

1.3 The committee has received a number of submissions, and these will continue to be considered by the committee as it progresses its inquiry. To date, the committee

---

1 *Journals of the Senate* No. 32, 21 March 2017, pp. 1106-1107.

has held two public hearings, in Canberra on 28 March 2017 and in Brisbane on 10 April 2017.

Background

What is white spot disease?

1.4 White spot disease (WSD) is caused by the white spot syndrome virus (WSSV), which is the most serious viral pathogen of cultured prawns. It is a highly virulent virus that can spread quickly and cause up to 100 per cent mortality in farmed prawns, within two to seven days of infection.[2] There are currently no available treatments for WSD.[3]

1.5 WSSV has a wide decapod host range, including marine and freshwater prawns, crabs and crayfish, with all prawn species imported into Australia susceptible to infection.[4]

1.6 Mud crabs and blue swimmer crabs entering prawn farming ponds via intake water can carry high levels of the virus, without showing any outward clinical signs. WSSV may also be found in insect larvae, all lifecycle stages of *Polychaete* worms (which prawns feed on), and water and sediment.[5]

1.7 All prawn life stages are susceptible to infection, from eggs to broodstock. WSSV is spread through the movement of infected animals or contaminated water. The virus can be transmitted horizontally to healthy prawns and other crustaceans through ingestion[6] or immersion.[7] It can also be transferred vertically, that is, the eggs of an infected female prawn will also be infected with the virus.[8]

1.8 Birds feeding on infected animals can also contribute to the spread of the disease by collecting and dropping moribund or dead prawns into unaffected areas.[9]

---

2 Department of Agriculture and Water Resources, *Report into the cause of white spot syndrome virus outbreak in the Logan River area of Queensland – December 2016*, May 2017, p. 5.

3 Ron Glanville, Peter Neville and Peter Walker, Scenario Planning Advisory Panel, *Report on White Spot Disease of Prawns, Queensland Response, 2016-17*, February 2017, p. 5.

4 Biosecurity Australia, *Generic Import Risk Analysis Report for Prawns and Prawn Products*, October 2009, pp. 111-112.

5 Department of Agriculture, *Australian Aquatic Veterinary Diseases Emergency Plan (AQUAVETPLAN)*, Disease strategy: White spot disease (Version 2.0), 2013, p. 26.

6 Through the consumption of infected tissue by cannibalism or by predation.

7 The OIE *Manual of Diagnostic Tests for Aquatic Animals* notes that outside a host, WSSV is viable for at least 30 days at 30°C in seawater under laboratory conditions, and is viable in ponds for at least 3 to 4 days.

8 Department of Agriculture and Water Resources, *Report into the cause of white spot syndrome virus outbreak in the Logan River area of Queensland – December 2016*, May 2017, p. 6.

9 Department of Agriculture, *Australian Aquatic Veterinary Diseases Emergency Plan (AQUAVETPLAN)*, Disease strategy: White spot disease (Version 2.0), 2013, p. 26.

1.9 According to the World Organisation for Animal Health (OIE), the infection (WSSV) does not always lead to the disease (WSD). With regard to environmental factors that may contribute to an outbreak, the OIE has stated that:

> Disease outbreaks may be induced by stressors, such as rapid changes in salinity. Water temperature has a profound effect on disease expression, with average water temperatures of between 18 and 30°C being conducive to WSD outbreaks.[10]

Signs and symptoms

1.10 Prawns with WSD may have a loose shell with numerous white spots (0.5-3.0 mm in diameter) on the inside surface of the shell and a pink to red discolouration. As these spots are not always present, and similar spots can be produced by bacterial shell disease, high alkalinity and stress, they are not considered a reliable sign for preliminary diagnosis of this disease. Other signs to look for in identifying WSD include:

- a loose shell (carapace);
- cessation of feeding;
- lethargy;
- unusual mortality;
- prawns coming to the edge or water surface; and
- prawns demonstrating unusual swimming patterns.[11]

White spot disease outbreaks

1.11 A serious disease outbreak can occur when WSSV is first introduced to an area. Serious outbreaks of WSD were common in Asia in the mid-1990s and in South America in the late 1990s.[12] In 2011-12, new outbreaks of WSSV in farmed prawns occurred in Saudi Arabia, Mozambique and Madagascar, with genetic testing revealing that all three outbreaks were likely due to environmental factors. The Department of Agriculture and Water Resources (DAWR) reported that 'WSSV is known to transfer between the natural environment and farmed prawn populations in most parts of the world'.[13]

1.12 In 2009, the *Generic Import Risk Analysis Report for Prawns and Prawn Products* (IRA) found that if WSSV took hold in Australia, it would 'be expected to cause serious prawn aquaculture production losses, causing significant impacts to

---

10 OIE (World Organisation for Animal Health), *Manual of Diagnostic Tests for Aquatic Animals*, 2016, Chapter 2.2.7.

11 Department of Agriculture, Fisheries and Forestry, *Aquatic Animal Diseases Significant to Australia: Identification Field Guide 4th Edition*, August 2012, p. 232.

12 Biosecurity Australia, *Generic Import Risk Analysis Report for Prawns and Prawn Products*, October 2009, pp. 111-112.

13 Department of Agriculture and Water Resources, *Report into the cause of white spot syndrome virus outbreak in the Logan River area of Queensland – December 2016*, May 2017, p. 5.

multiple regional prawn farming areas in multiple States/Territories', and that 'once established in wild crustacean populations, eradication is unlikely'.[14]

1.13 In response to questions from the committee, DAWR confirmed that the prawn population does not have any level of immunity to WSSV. Therefore, a single virus could, in theory, be sufficient to cause a WSD outbreak. However, Dr Robyn Martin, Acting Australian Chief Veterinary Officer and Assistant Secretary, DAWR noted that:

> there are a lot of factors that have to happen. You have to have the appropriate infectious dose. That has to be eaten and be able to replicate, and that cycle has to then be eaten by other crustaceans. So you have to have a whole series of events occur to get an infection going.[15]

1.14 As to the question of how WSSV reached Australia, DAWR identified a number of potential import pathways. These include 'contaminated import feed, probiotics, contaminated equipment, overseas visitors, poor on-farm biosecurity practices, and brook stock, as well as imported uncooked prawns used as bait'.[16]

White spot disease in Australia

Historical context

1.15 WSSV is exotic to Australia.[17] Prior to the current outbreak, Australia was one of the few countries in the world with a prawn-farming industry that was free of WSD.[18]

1.16 On the detection of prawns showing gross signs of WSSV in a Brisbane restaurant in late 1999, the Consultative Committee for Emergency Animal Diseases (CCEAD) recommended that an active surveillance program be undertaken. In August 2000, the Queensland Department of Primary Industries and CSIRO Livestock Industries conducted a survey of Australian farmed prawns to determine the presence

---

14 Biosecurity Australia, *Generic Import Risk Analysis Report for Prawns and Prawn Products*, October 2009, p. 117.

15 Dr Robyn Martin, Department of Agriculture and Water Resources, *Committee Hansard*, 28 March 2017, p. 10.

16 Department of Agriculture and Water Resources, *Media Statement: Department's action on imported prawns*, 10 February 2017, http://www.agriculture.gov.au/about/media-centre/media-releases/dept-action-white-spot (accessed 23 March 2017).

17 Department of Agriculture, Fisheries and Forestry, *Aquatic Animal Diseases Significant to Australia: Identification Field Guide 4th Edition*, August 2012, p. 233; Biosecurity (Suspended Goods – Uncooked Prawns) Determination 2017, p. 1.

The Department of Agriculture has noted that an exotic animal disease is a disease affecting animals that 'does not normally occur in Australia' (Disease strategy: White spot disease (Version 2.0), *Australian Aquatic Veterinary Emergency Plan (AQUAVETPLAN)*, 2013, p. 61).

18 Department of Agriculture, Disease strategy: White spot disease (Version 2.0), *Australian Aquatic Veterinary Emergency Plan (AQUAVETPLAN)*, 2013, p. 9; Queensland Department of Agriculture and Fisheries, *White spot disease information*, 2017.

of WSSV within the industry. No evidence of WSSV was found in any of the samples and the industry was shown to be free of the virus.[19]

1.17 Following a November 2000 incident in Darwin, another national survey was conducted on the recommendation of the CCEAD. This survey was designed to supplement the previous survey by focussing on wild crustaceans. It was conducted using a two-stage sampling regime and all samples were tested by the polymerase chain reaction (PCR) tests recommended by the OIE.

1.18 Of the 3051 samples tested from 64 sites throughout Australia, no mortalities, clinical signs of the disease or evidence of WSSV was detected. The results of the survey supported the case that Australia's crustacean populations were free of WSSV.[20]

Recent incidents and investigations

1.19 At a Senate Estimates hearing on 28 February 2017, the Rural and Regional Affairs and Transport Legislation Committee (legislation committee) was advised that DAWR had 'investigated and responded to a number of incidences of non-compliance with prawn import requirements' since the incident in Darwin in 2000, including:

- an investigation in 2006 which uncovered illegal importation of prawn feed by three prawn farmers in NSW and Queensland;
- an investigation in 2013 into possible washing or mislabelling of marinated prawns after independent testing detected WSD in prawns for sale at retail outlets; and
- an investigation in 2016 into non-compliant behaviour by importers of prawns and prawn product, known as Operation Cattai.[21]

Outbreak of WSD in the Logan River and Moreton Bay areas

Logan River

1.20 On 22 November 2016, prawns at an aquaculture farm located on the Logan River in South East Queensland were observed displaying unusual behaviour. Prawn samples were submitted to the Queensland Biosecurity Sciences Laboratory for testing.[22]

1.21 On 30 November 2016 initial testing indicated that the samples provided were positive for WSSV. Further testing was undertaken by the Australian Animal Health

---

19 Animal Health Australia, Aquatic Animal Health, Quarterly Report for 1 July to 30 September 2000, *Animal Health Surveillance Quarterly*, 2000, Volume 5, Issue 3, pp. 6-7.

20 East, I., Black, P., McColl, K., Hodgson, R. and Bernoth, E, Survey for the presence of White Spot Syndrome Virus in Australian crustaceans, *Australian Veterinary Journal*, Volume 82, No. 4, 2004, pp. 236-240.

21 Ms Lyn O'Connell, Deputy Secretary, *Estimates Hansard*, 28 February 2017, p. 81. Operation Cattai is discussed further in Chapter 3 of this report.

22 Department of Agriculture and Water Resources, *Report into the cause of white spot syndrome virus outbreak in the Logan River area of Queensland – December 2016*, May 2017, p. 5.

Laboratory (AAHL) in Geelong and, on 1 December 2016, a case of WSD in prawns was confirmed. The farm with detected WSD was placed under government movement control orders, to restrict the further movement of any infected product. However, the disease spread to other farms within the Logan River area and, by 13 February 2017, a seventh and final property was confirmed as infected with WSD.[23]

1.22 Immediately following the outbreak, five prawn farming families in Logan River were forced to close their farms and most hatcheries, with a total loss of stock in all growout ponds, stock in most hatcheries, and stock in breeding programs that supply some hatcheries.[24]

1.23 Mr Alistair Dick from the Australian Prawn Farmers Association (APFA) stated that the WSD outbreak on affected farms had caused severe personal hardship and incurred around $40 million in direct losses.[25] APFA provided a breakdown of those costs (determined from farm records), as set out in the following table.[26]

Table 1.1: Costs of WSD outbreak to Logan River prawn farmers

Cost of raising the 2016-17 crop which either died or was destroyed	$8.1 million
Value of lost hatchery and breeding stock	$5 million
Cost of new biosecurity infrastructure to recommence farming	$12.6 million
Cost of shutting down for another season	$11.9 million

1.24 The APFA described the prawn farming industry in the Logan River area as being in a state of flux. The jobs of 122 people employed by the affected farms are at risk due to uncertainty on whether or not they will be able to farm this season.[27]

---

23 Department of Agriculture and Water Resources, National pest & disease outbreaks, *White spot disease*, http://www.outbreak.gov.au/current-responses-to-outbreaks/white-spot-disease (accessed 27 April 2017).

24 Ridge Partners, Project 2016-17, *Summary Overview: Economic Impact of 2016 White Spot disease Outbreak*, 2017, p. 5.

25 Mr Alistair Dick, Australian Prawn Farmers Association, *Committee Hansard*, 10 April 2017, p. 2. In May 2017, the Queensland Minister for Agriculture and Fisheries stated that the direct financial impact on affected farms was estimated at $22.3 million; see the Hon Bill Byrne MP, Minister for Agriculture and Fisheries and Minister for Rural Economic Development, 'Queenslanders deserve better from Commonwealth on white spot', *Media Statement*, 5 May 2017, http://statements.qld.gov.au/Statement/2017/5/5/queenslanders-deserve-better-from-commonwealth-on-white-spot (accessed 31 May 2017).

26 Australian Prawn Farmers Association, *Submission 2*, p. 9.

27 Australian Prawn Farmers Association, *Submission 2*, p. 9; Ridge Partners, Project 2016-17, *Summary Overview: Economic Impact of 2016 White Spot disease Outbreak*, 2017, p. 8.

Moreton Bay

1.25 On 16 March 2017, the Queensland Government announced that white spot had been detected in wild prawns in Moreton Bay and Deception Bay, near Brisbane.[28]

1.26 Following this detection, a new movement control order was issued with immediate effect, encompassing the whole Moreton Bay region, and replacing the January restrictions imposed on the Logan River.[29]

1.27 These further restrictions had a significant impact on local commercial operators, as noted in an industry update issued by the Queensland Department of Agriculture and Fisheries on 31 March 2017:

> Commercial crab operators, some prawn trawlers, commercial wormers and yabby collectors have all been significantly impacted by the movement control zones, as it means that they cannot send raw or live product to their usual markets.[30]

1.28 The closure of the Logan River to beam trawling and crab potting to assist with the management and control of WSSV significantly affected commercial fishers who operate in that area. Evidence provided by the Queensland Seafood Industry Association (QSIA) outlined the financial impact on commercial fishers in the control zone. Mr Eric Perez, Chief Executive Officer of QSIA advised the committee that active commercial fishers, who derive 60 to 100 per cent of their business from fishing in the Logan River, have not traded since the movement restrictions came into effect.[31] Mr Perez of QSIA continued:

> Since the extension of movement restrictions from the Logan to the rest of Morton Bay, it has gone from 20-odd operators to over 200 commercial business that are potentially impacted by the spread of the disease. If you are looking at this in terms of value for our crustacean fishery in Queensland alone, at gross value of production the beach price is about $110 million for all species of crustaceans – prawn are about $70 million,

---

28 Queensland Department of Agriculture and Fisheries, *White spot disease program strategy expands across Moreton Bay*, White spot disease industry update number 20, 16 March 2017, http://www.vision6.com.au/em/message/email/view.php?id=1141647&u=13082&k=1UWv_PsouIXxtc6yUoiYsyAX2f9D_cpylkc2Bg73aUA (accessed 8 June 2017).

29 Queensland Department of Agriculture and Fisheries, Movement Control Order (Moreton Bay) – White Spot Syndrome Virus, 16 March 2017, https://www.daf.qld.gov.au/__data/assets/pdf_file/0005/1016339/Movement-control-order.pdf (accessed 31 May 2017). The area covered by the control order included Moreton Bay, Pumicestone Passage, waterways flowing into the Moreton Bay and south to the Queensland/NSW border, the 100 metres eastward of the ocean beaches on the islands surrounding Moreton Bay and the Gold Coast to the Queensland/NSW border.

30 Queensland Department of Agriculture and Fisheries, *White spot disease industry update number 22*, 31 March 2017, https://www.daf.qld.gov.au/animal-industries/animal-health-and-diseases/a-z-list/white-spot-disease (accessed 3 April 2017).

31 Mr Eric Perez, Queensland Seafood Industry Association, *Committee Hansard*, 10 April 2017, p. 13.

> and bugs, crabs and I think, tropical rock lobster in the north make up the other $40-odd million.[32]

Potential pathways

1.29 At this point in time, it is not known how the virus was introduced to the Logan River area. It has been suggested that the use of imported infected uncooked prawns as bait in the Logan River was the most likely source of the outbreak.[33]

1.30 However, DAWR has cautioned that the cause of the outbreak may never be identified.[34] While the exact route of entry of the virus remains unknown, DAWR has identified five potential pathways, which may have led to the outbreak of WSD to the Logan River.[35]

1.31 The first possibility was that WSSV was already present in Australia but had not been previously detected. As to the other four pathways, DAWR noted that the virus could have been introduced:

- from raw prawns being used as bait (as noted above);
- via imported aquatic feed or feed supplements;
- through diseased broodstock or their progeny; or
- via a human element, including the importation of associated equipment.[36]

1.32 On 5 May 2017, the Minister for Agriculture and Water Resources, the Hon Barnaby Joyce MP, confirmed that neither the department nor Biosecurity Queensland had yet determined the cause of the outbreak, and again reiterated the multiple possible causes of the outbreak. He noted that the 'results of genetic sequencing being undertaken may shed more light on the possible origins of the outbreak'.[37]

1.33 The Fisheries Research and Development Corporation (FRDC) also advised the legislation committee that there were a number of different possible pathways to

---

32 Mr Eric Perez, Queensland Seafood Industry Association, *Committee Hansard*, 10 April 2017, pp. 13-14.

33 Ron Glanville, Peter Neville and Peter Walker, Scenario Planning Advisory Panel, *Report on White Spot Disease of Prawns, Queensland Response, 2016-17*, February 2017, p. 3.

34 Ms Lyn O'Connell, Department of Agriculture and Water Resources, *Estimates Hansard*, 28 February 2017, p. 118.

35 Ms Lyn O'Connell, Department of Agriculture and Water Resources, *Estimates Hansard*, 28 February 2017, p. 118.

36 Department of Agriculture and Water Resources, *Report into the cause of white spot syndrome virus outbreak in the Logan River area of Queensland – December 2016, Interim Report*, May 2017, p. 6.

37 The Hon Barnaby Joyce MP, Minister for Agriculture and Water Resources, 'Coalition Government delivers $20 million to assist prawn farmers', *Media Release*, 5 May 2017.

explain how the WSD outbreak occurred. FRDC Executive Director, Dr Patrick Hone advised the committee that:

> I would say from a science perspective we have ruled out the feed as a pathway…which still leaves: was it present in the environment beforehand? We have not done the historical samples. Did it come through some sort of imported green prawn feed bait issue? Again, until we have done the genetics and more testing…it is extremely difficult to actually scientifically demonstrate a particular virus pathway.
>
> …I would say at the moment, on the sort of information we have got today, the most highest risk factor is probably going to be the green imported prawn issue.[38]

Purpose of interim report

1.34 The outbreak of WSD has raised serious questions about Australia's biosecurity regime. Such questions include how the virus was introduced into the country, what needs to be done to prevent its spread beyond Queensland, whether it will establish in Australia or be eradicated as planned, and what measures should be taken to prevent similar outbreaks in the future.

1.35 The outbreak of WSD has also raised important questions about the role of DAWR and the timeliness of its response. Concerns about transparency have been raised with regard to what was known by whom, and when. In addition, the prawn industry has raised particular concerns about the timeliness and consistency of information provided by involved government agencies.

1.36 At the same time, investigations into the practices of seafood importers have exposed the shortcomings of Australia's importation controls and inspection regime. The enhanced testing system imposed following the outbreak of WSD has also brought to the fore a number of questions around the approach taken by different laboratories prior to the outbreak, and current reliance on one testing laboratory to perform enhanced testing. It has also brought to light the fact that the tolerated five per cent prevalence rate for WSSV, as provided for in the IRA for prawns and prawn products, had been exceeded a number of times over the past seven years.

1.37 These matters, which have direct relevance to the terms of reference before the committee, are complex and may have far reaching implications. Underpinning many of the issues is the question of the balance between protecting Australia's biosecurity on the one hand and promoting Australia's trade interests on the other. To enable the committee to consider these issues in a comprehensive manner, the committee seeks an extension from the Senate to the inquiry reporting date.

---

38 Dr Patrick Hone, Fisheries Research and Development Corporation, *Estimates Hansard*, 27 February 2017, p. 37.

Structure of the report

1.38 This interim report provides an overview of Australia's biosecurity regime and the respective responsibilities of Commonwealth and state agencies in relation to disease outbreaks, including the white spot outbreak.

1.39 The report considers Australia's importation regime in relation to seafood products and the importation suspension measures imposed to date. The report also details Australia's biosecurity disease testing regime and its impact on the importation of seafood products, following the WSD outbreak.

1.40 The concluding chapter to this interim report details the key concerns of the committee regarding the WSD outbreak thus far, and indicates where the committee may direct its future inquiries.

Next steps

1.41 The committee will continue to consider the evidence provided to it by submitters, government and key industry stakeholders, in forming its views on the biosecurity risks associated with the importation of seafood and seafood products.

1.42 As the committee continues its inquiries, it will consider evidence from a range of involved agencies and stakeholders including the farmed and wild prawn sectors. The committee expects to travel to the Logan River area in late June 2017 to take evidence from Biosecurity Queensland and the affected prawn industry on the outbreak and responses to it.