



FRDC

**FISHERIES RESEARCH AND
DEVELOPMENT CORPORATION**

Submission to the Senate Inquiry:

Adequacy of Australia's biosecurity measures and response preparedness, in particular with respect to foot-and- mouth disease

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Submitted to the Committee Secretary

Senate Standing Committees on Rural and Regional Affairs and Transport

via email: rrat.sen@aph.gov.au

By:

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Introduction

The Fisheries Research and Development Corporation (FRDC) welcomes the opportunity to contribute to the inquiry relating to the adequacy of Australia's biosecurity measures and response preparedness. The FRDC has also been a part of the submission from the Council of Research and Development Corporations and is supportive of that submission.

Although this inquiry is specifically targeted to foot-and-mouth disease, the FRDC submission will highlight the key biosecurity issues of the Australian fishing and aquaculture sectors that also need to be acknowledged when considering Australia's biosecurity measures so that these can provide an appropriate level of protection for these significant sectors. During the period this inquiry was announced, another outbreak of White Spot Disease occurred in NSW. Disease incursions continue to be an ongoing event. The question then is this the risk approach and outcome that is desired outcome state for biosecurity. This submission focuses on diseases and not pests. The latter are also a significant impact on aquatic ecosystems.

The Australian Seafood Industry

The Australian seafood industry was valued at \$3.48 billion in 2021-22 (ABARES, 2022). Major industry sectors include Atlantic salmon farming, rock lobster fisheries, prawn fisheries and farming, abalone fisheries and farming and tuna fisheries and farming. There has been substantial growth in some aquaculture (i.e., farming) sectors over the past five years, specifically Atlantic salmon (+ 181%), prawn farming (+ 269%) and Barramundi farming (+ 14% pa) (Figure 1). This industry growth and aligned economic and social benefits are primarily threatened by introduction of exotic diseases and parasites.

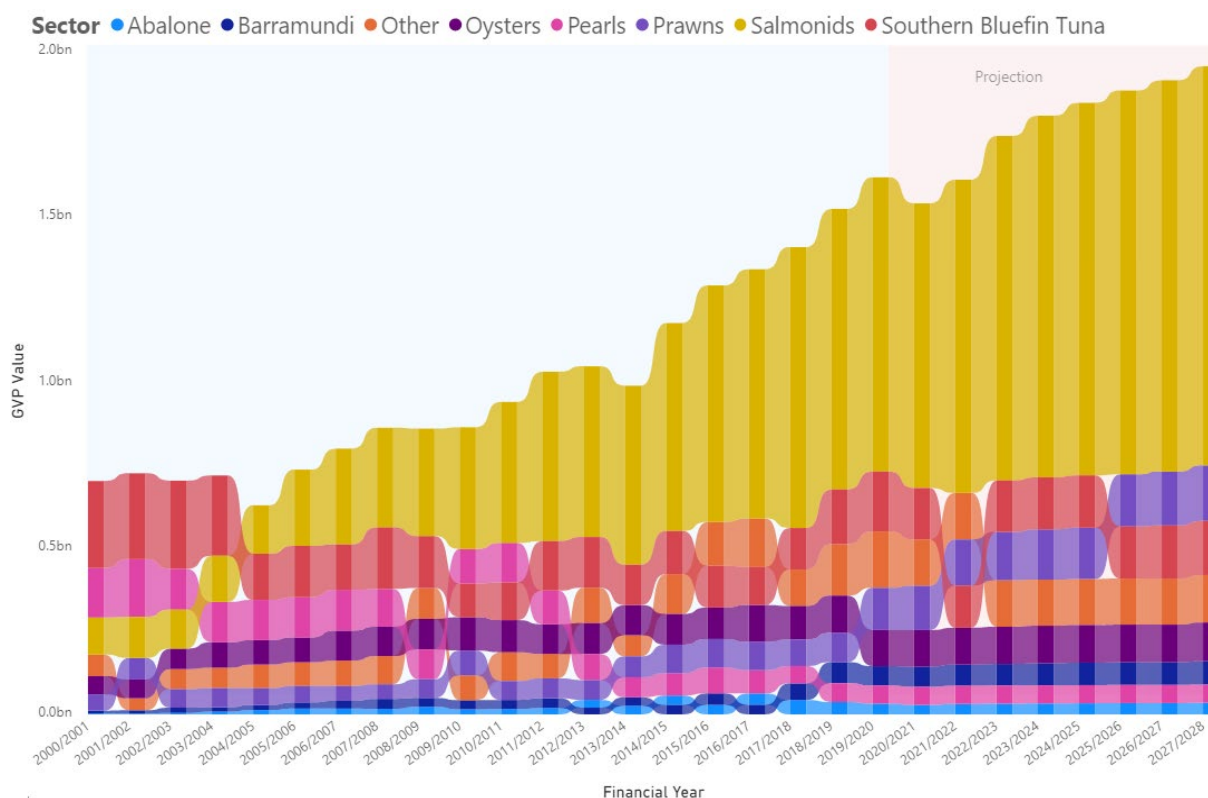


Figure 1. Value (GVP) of Australian aquaculture from each industry sector. Values to 2019-20 from FRDC including recent production reports. Projections based upon ABARES industry growth estimates (Mobsby et al., 2021).

Incursions of exotic aquatic diseases

In Australia there have been an increasing incidence of exotic disease incursions over the past 30 years and more frequent incursions over the past decade (Figure 3). During this period Australian seafood industries have been devastated by a steady march of disease outbreaks affecting finfish and shellfish.

In 1995 mass mortalities of pilchards devastated the fishery in Southern Australia that was subsequently identified to be caused by the Pilchard Orthomyxovirus that now causes substantial problems for farmed Atlantic salmon in Tasmania. Ten years later, mass mortality of abalone caused by Halitotis Herpes Virus (or Abalone Viral Ganglioneuritis, AVG)

devastated the fishery and abalone farms in western Victoria and has reoccurred in in the fishery in 2021. In 2010 the deadly Pacific Oyster Mortality Syndrome (POMS) was discovered in the Georges River, Sydney, and subsequently spread to Tasmania in 2016 where it devastated the oyster farming industry and indirectly caused major loss of production in the South Australian oyster farming industry. Also in 2016, the international devastating White Spot Disease (WSD) was identified on prawn farms along the Logan River in Southern Queensland requiring destruction of all farm stock, severe containment measures imposed on local fisheries, and fallowing of farms for the next production season. The cost of the WSD response in the first year was estimated at >\$100 million that does not account for the immeasurable social challenges for farmers and fishers and WSD persists as threat in Morton Bay and has now (24 August 2022) been reported in Northern NSW

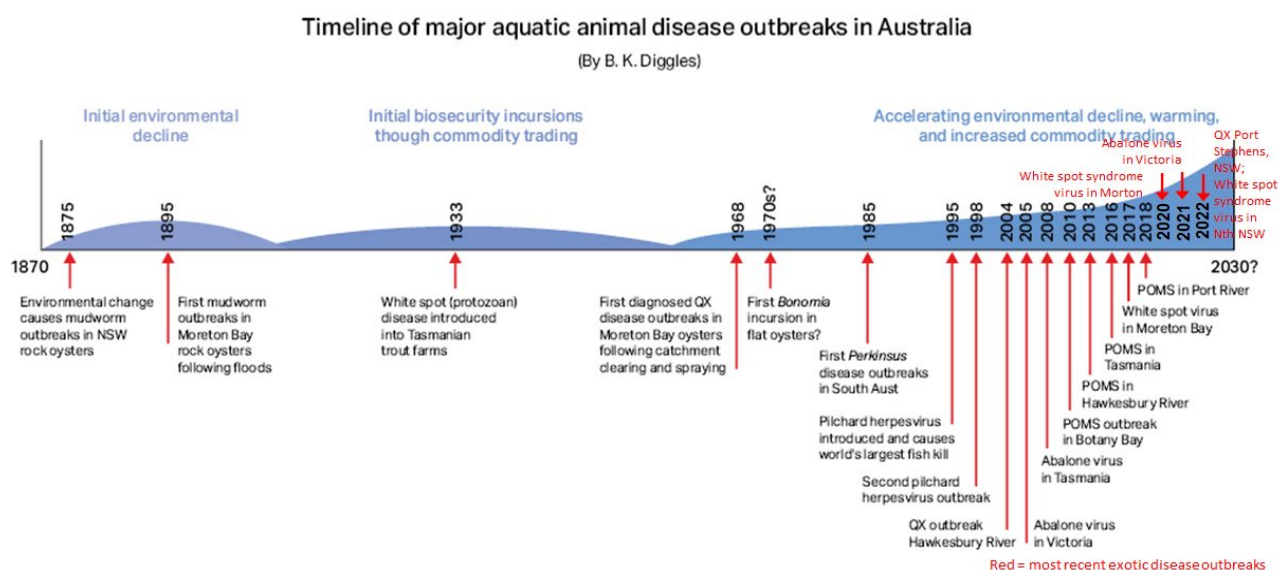


Figure 2. Timeline of major aquatic disease incursions into Australia (modified from Diggles).

Each disease incursion episode has been devastating and has demonstrated the challenge for eradication of aquatic biosecurity threats in the absence of effective barriers for disease containment in connected freshwater and marine environments. Due to the inter-connectedness of aquatic systems, preventing the introduction of diseases and parasites is of foremost importance for the Australian aquaculture industry. It needs to be accepted that effective pre-border and at border biosecurity is by far the most cost-effective approach to minimise risks and impacts of aquatic diseases and parasites that threaten Australia's seafood industry.

Aquatic biosecurity risks

Major identified pathways for introduction of exotic diseases are known, including:

1. Imported seafood products.

Australia currently allows the importation of uncooked seafood products for human consumption. Seafood intended for human consumption cannot be imported for use as bait (AQIS, 1999). However, these products, or processing waste (e.g., whole prawns and

shellfish, heads, frames, viscera etc) from them are known to be used for bait for hook and line fishers and crab/lobster pots and this practice is not illegal throughout Australia. If infected, these imported products pose a risk for direct exposure of farmed and wild Barramundi and other susceptible fish in tropical estuaries (Hernandez-Jover et al., 2017) and as previously stated acknowledged to be the likely pathway of the 2016 WSD incursion (DAWE, 2021). For imported Barramundi the extent of biosecurity risk has been confirmed with exotic ISKNV-like and SGIV viral DNA present in uncooked whole and head-on eviscerated Barramundi, at a prevalence greater than 5% with all head-on eviscerated Barramundi sampled being non-compliant to current Australian Biosecurity Import Conditions (BICON) in relation to their product form, as all products sampled were not completely de-gilled and did not have all internal organs (i.e. liver, kidney, swim bladder, gut) completely removed (Landos et al., 2021). While some barramundi farms in Taiwan have tested positive to OIE listed RSIV, Australia is still importing product that has been demonstrated to not meet BICON conditions for evisceration. Additional risks exist with household wastes and processing facility wastes, which if not treated, may feed directly into the aquatic environment through the domestic sewerage system (Hernandez-Jover et al., 2017).

2. Imported aquarium fish.

Imported ornamental fish also provide a pathway for entry of exotic aquatic diseases into Australia. Infectious spleen kidney necrosis virus (ISKNV) that threatens Australian fish species has been detected in numerous domestic populations of ornamental fish at wholesalers and retailers, and at one aquaculture facility (Rimmer et al., 2016).

Aquatic biosecurity system

Australia's aquatic biosecurity reporting and decision making system is complex (Figure 1) and is often far removed from those who bear the greatest risk of disease outbreak. There is a need to involve end-users more formally and address their concerns.

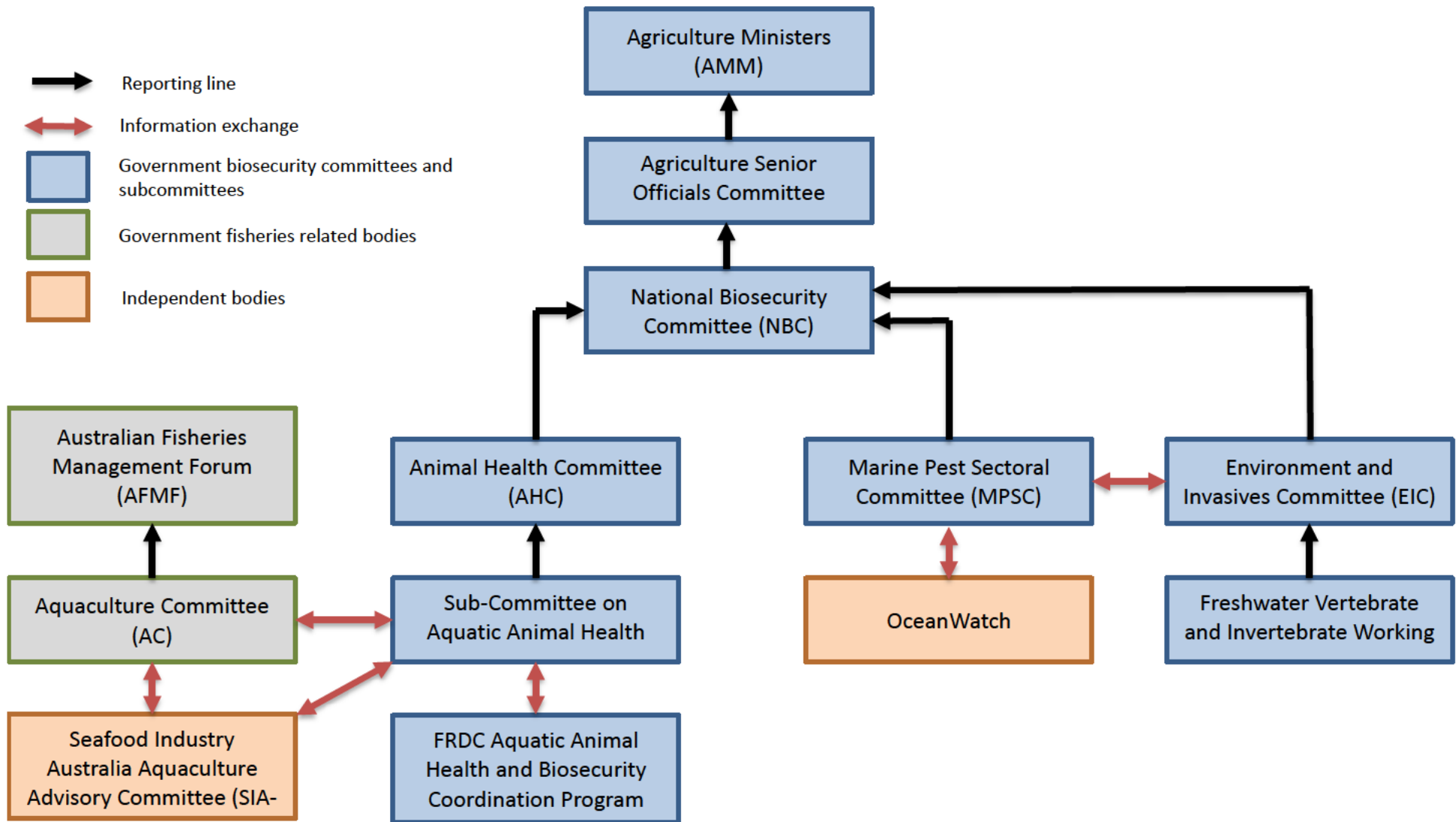


Figure 3. An example of the committees and reporting structure for aquatic biosecurity related issue

Biosecurity research

Currently FRDC is funding a large quantum of biosecurity related research (\$5.28 million since FY 2016-17; \$0.94 million in FY 2021-22). Some of this investment is in responding to disease incursions which have gotten through Australia's international border, to confirm probable incursion pathways for diseases of concern to the Australian seafood industry (Hernandez-Jover et al., 2017; Landos et al., 2017; Landos et al., 2021). Following completion of these projects that have revealed the extent of biosecurity failings, there has been subsequent investigation by the Commonwealth that has confirmed the results from these investigations that would not have been instigated without industry presenting evidence of these suspected pathways.

There is significant capacity in biosecurity and health of aquatic species in Australia including within the Australian Centre for Disease Preparedness (CSIRO) and the Centre for Aquatic Animal Health and Vaccines (Department of Natural Resources and Environment Tasmania). There is an opportunity to better link these resources in a national approach to dealing with biosecurity and preparedness such as vaccine development.

It is acknowledged that biosecurity is a shared responsibility, and these situations highlight the need for the Australian Government to become more active in addressing their offshore and at border shared responsibility to minimise avenues for introduction of aquatic diseases that may severely impact the Australian seafood industry. Biosecurity activities including more active overseas surveillance and intelligence gathering for known and emerging aquatic diseases, improved pre-export and on-arrival testing programs, and associated monitoring and compliance programs (i.e., traceable product origin, pre-border testing for imported product processing requirements and pathogen testing) will reduce risks to industry and greatly reduce the substantial costs associated with responding to incursions. This investment would be balanced with industry and FRDC investments in R&D and other activities around improving within border surveillance, sector level biosecurity planning and farm level biosecurity to meet shared responsibility obligations of the Australian seafood industry.

Aquatic disease preparedness

These situations highlight the need to maintain and increase biosecurity and aquatic animal health capability, in both industry and government institutions at a national level. Activities to progress these biosecurity preparedness needs for Australian aquaculture industries are included within the soon to be released AQUAPLAN 2022-26.

To increase biosecurity preparedness for Australian aquaculture industry sectors DAFF have developed biosecurity plan guidelines in collaboration with industry and governments to provide Australian aquaculture farmers with the tools and templates to create practical, cost-effective, and auditable biosecurity plans (<https://www.agriculture.gov.au/agriculture-land/animal/aquatic/biosecurity-plan-guidelines>). Following biosecurity priorities of the previous AQUAPLAN 2015-2019 sector level biosecurity plans have been developed for land based abalone farms, Barramundi farms, oyster hatcheries and sea-cage finfish (non-salmonid) farms.

An output from AQUAPLAN 2015-2109 was the development of generic guidelines and templates (<https://www.agriculture.gov.au/agriculture-land/fisheries/aquaculture/farm-biosecurity-plan>) to assist aquaculture enterprises to create farm biosecurity plans including records management, staff training and administration of the farm to improve the biological, operational, and economic performance of the farm.

Seafood Industry Australia (SIA) is the peak body established to progress national priorities concerning the Australian seafood industry. SIA have identified biosecurity as a major issue confronting the Australian seafood industry and recently taken over the role of the National Aquaculture Council (AAC) establishing an Aquaculture Advisory Committee comprised of representation from key sectors. The AAC have developed an Aquaculture Action Plan that clearly identifies enhanced biosecurity as a high priority.

There is a gap in the ability to be prepared for aquatic disease incursions due to an inability to undertake R&D nationally on exotic diseases. There are not sufficient facilities to be able to undertake live experimentation on exotic diseases and therefore help informing the response and provide mitigation options (e.g., vaccines) should these diseases arrive in Australia. There is a case to be made to invest in this infrastructure here in Australia, or to build partnerships and capacity to be able to undertake this work overseas in countries where exotic diseases are already present.

The need for stronger partnerships, coordinated preparedness and response, sustainable investment and Integration supported by technology, research and data are priorities of the recently released National Biosecurity Strategy (DAFF, 2022). It is important that the Australian seafood industry is represented when progressing these priorities as implementation and action plans

Concluding comments

As has been outlined in this submission biosecurity is of major importance to the Australian seafood industry. With growing globalisation and world trade aquatic biosecurity threats to this industry will only increase. Importantly and uniquely, once a disease is in the aquatic environment, it is highly unlikely that it can be controlled. Australia's biosecurity system is the only barrier to keep such disease risks offshore.

The FRDC is supporting the aquatic sector to ensure it has relevant RD&E programs in place to attempt to address these biosecurity challenges. Accepting the principle of shared responsibility for biosecurity FRDC is working with these industry sectors to invest considerable funds to address biosecurity concerns at sector and enterprise levels. Support of the Australian government to increase pre-border and at border protection from current and emerging aquatic biosecurity threats will greatly reduce risks to the growing Australian seafood industry.

The appropriate level of protection provided to the Australian seafood industry by Australia's biosecurity system is largely determined from import risk assessments. These assessments need to reflect current and emerging trade and travel realities.

There are platforms in place to develop better systems and information to either prevent or respond to disease incursions, including the National Biosecurity Plan, AQUAPLAN and the Agrifood Data Exchange. Australia also houses significant capacity and capability in this area but there are still opportunities to improve. Facilities nationally and international partnerships specifically around R&D could help Australia to be better prepared to respond when disease incursions do happen.

As well as partnerships around research there are also opportunities to improve international surveillance and partnerships within Australia around information sharing and decision-making which better links from government to industry or stakeholders, those who likely understand the relative risks the best.

Recommendations

- 1. Pre-border and at border biosecurity is critical to protecting the Australia seafood industry, recreational fisheries and the natural aquatic environment as there is little possibility to eradicate diseases that enter our aquatic systems.*
- 2. R&D for adequate preparedness which could include improved facilities nationally for undertaking research with exotic aquatic diseases or in building stronger partnerships to undertake research overseas to inform biosecurity and improve preparedness in Australia.*
- 3. Stronger partnerships and engagement with relevant stakeholders, namely industries who are best placed to assess the risk framework.*
- 4. Ensure that the Australian seafood industry is well represented when identifying initial action and designing national implementation and action plans for the National Biosecurity Strategy.*

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