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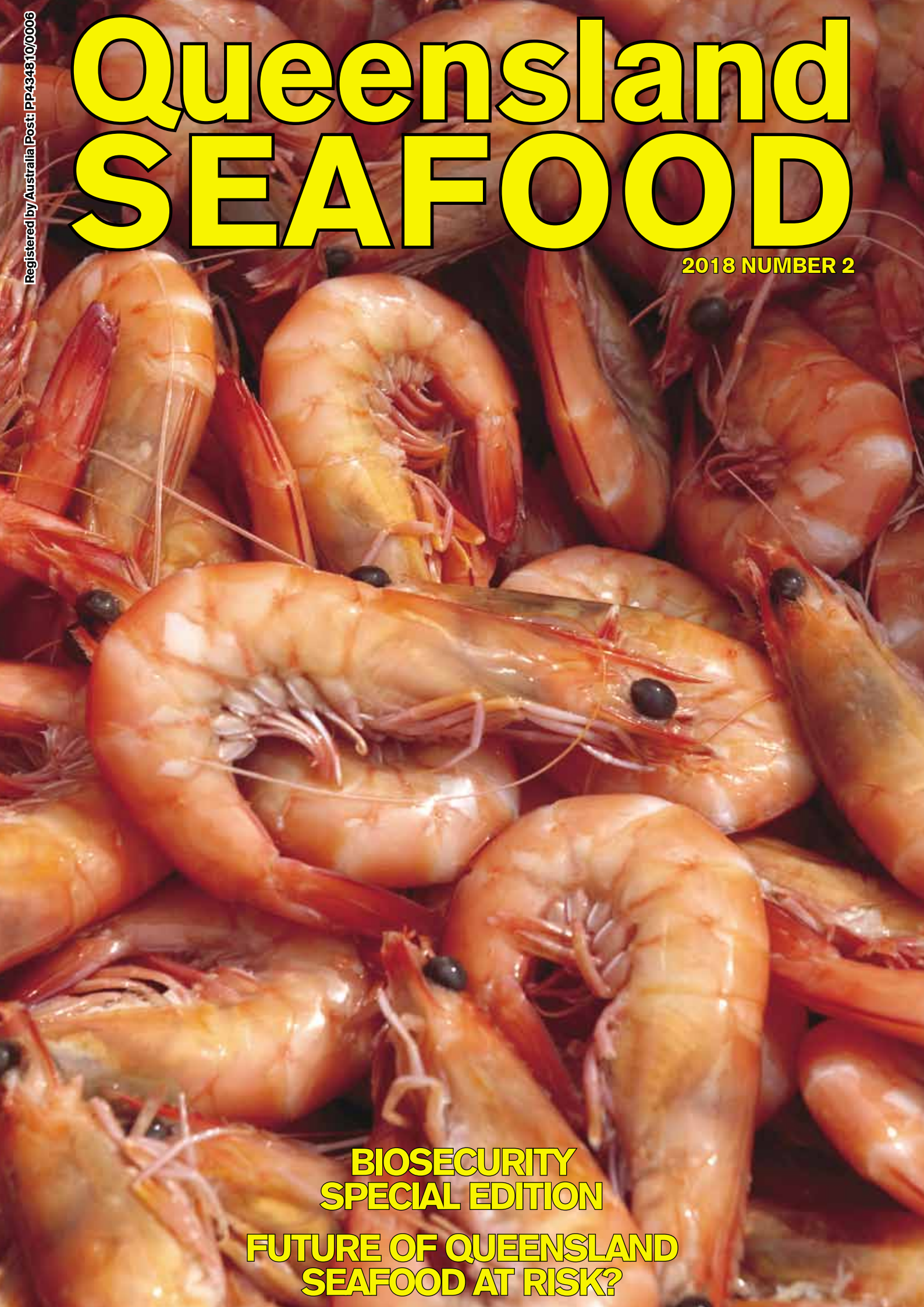
Queensland SEAFOOD

2018 NUMBER 2



BIOSECURITY SPECIAL EDITION

FUTURE OF QUEENSLAND SEAFOOD AT RISK?

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Queensland SEAFOOD

Special Edition

Dawn over the Logan River (and Jumpinpin), site of the original outbreak of White Spot Syndrome Virus.

THE impact of White Spot Syndrome Virus (WSSV) in Queensland exposed the level of preparedness of industry to the implications of a biosecurity event. The Queensland Seafood Industry Association (QSIA) applied for and received a grant from the Department of Agriculture and Water Resources (DAWR). This edition of *Queensland Seafood* provides a summary of the work undertaken by the Association and Dr Ben Diggles, with contributions from Federal and State government officers.

This grant was provided through the Stronger Biosecurity and Quarantine Initiative (SBQI), which aims to enable the Australian Government to strengthen Australia's biosecurity preparedness and response capability for exotic pest and disease incursions. The Association has worked with Federal and State Government biosecurity officers to ensure the information developed under the grant is applicable in Queensland as well as nationally.

Under the SBQI, the grant was used by the Association to:

- ❑ increase preparedness of Queensland's wild harvest seafood industry to respond to biosecurity incidents through the appointment of a Biosecurity and Industry Liaison Officer;
- ❑ develop an industry biosecurity plan; and
- ❑ develop an industry communication tool kit to educate the industry on biosecurity issues.

In order to ensure the material under the SBQI grant is disseminated across industry and government, the Association has posted biosecurity plans and information on its website: https://qsia.com.au/biosecurity/. The Association is also preparing a series of video presentations examining the importance of biosecurity for wild harvest fishers, post-harvest businesses and biosecurity basics.

If you have any questions regarding the content in this special edition of the magazine, please call me on 0417 631 353 or email: eo@qsia.com.au.

Eric Perez
Chief Executive Officer
Queensland Seafood Industry Association

Queensland Seafood **is the official journal of the Queensland Seafood Industry Association Inc, the peak body representing the State's seafood industry.**

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INTRODUCTION TO SPECIAL EDITION

White Spot Disease a lesson on importance of Biosecurity

THE White Spot Disease saga is a lesson on the importance of biosecurity at several levels. At a national level, the deliberate rorting of Australia's weak border testing procedures by greedy, unscrupulous importers allowed thousands of tonnes of diseased uncooked prawns to enter the country, highlighting major deficiencies in the knowledge, capabilities and resources provided to staff involved with border quarantine.

The revelations of Operation Cattai which found several ways by which border controls were being avoided, also provided proof that some local businesses (and exporters in foreign countries) are quick to exploit any weakness in our border controls.

We can only hope that those involved with this deception are prosecuted to the full extent allowed by law, and that penalties for breaching our border controls are strengthened to try to ensure that such behaviour never happens again.

Given that the highly infectious White Spot virus is considered by many world experts to be the aquatic equivalent of Foot and Mouth virus, the White Spot saga predictably brought the prawn risk analysis – which underpinned our failed border controls – under close scrutiny.

We can only hope that the inevitable (and never ending) government reviews will also strengthen the risk analysis so that our seafood and aquaculture industries can benefit from the same level of protection enjoyed by our terrestrial livestock industries.

But most importantly, for commercial fishers and seafood processors, the White Spot saga highlighted how severely biosecurity related issues can impact seafood businesses in Queensland.

Biosecurity is important not only at the international border, but also at state borders, and even within Queensland itself now we have the White Spot Movement Control Zone in Moreton Bay.

Even if no more crustaceans in Moreton Bay test positive for White Spot (we can only hope), there is a minimum of two years of disease-free testing required before the restrictions within the movement control zone can be lifted. It is these restrictions on the movement of uncooked prawns and other White Spot susceptible hosts (bait worms, other crustaceans), and the requirements to decontaminate boats and equipment, that highlight how biosecurity also applies to individual operators and businesses.

Throughout Queensland, revisions to the Biosecurity Act effective from 1 July 2016 introduced a general biosecurity obligation, which requires every person to "take reasonable and practical steps to prevent or minimise biosecurity risks to the economy, agricultural and tourism industries, and the environment".

While the White Spot saga has compelled the seafood industry in Queensland to acknowledge they have a biosecurity obligation, this edition of Queensland Seafood shows that, as an industry, we are taking these matters seriously.

We can only hope that our Federal politicians and bureaucrats do the same and give us the biosecurity protection we need so we can continue to provide Queenslanders with sustainable, high quality locally caught seafood for the foreseeable future.

Keith Harris
President
QSIA

White Spot Disease Response - Movement Control Order 15/03/2017

Australian Government
Department of Agriculture and Water Resources

This project is supported by the Queensland Seafood Industry Association, through funding from the Australian Government through the Department of Agriculture and Water Resources.

BIOSECURITY LIAISON OFFICER ROLE

QSIA appoints Biosecurity Industry Liaison Officer to help fishermen

IN early 2017, QSIA sought funding under the Federal Government's Stronger Biosecurity and Quarantine Initiative (SBQI) and was successful in obtaining a grant.

QSIA's new Biosecurity Industry Liaison Officer (BILO) is Dr Ben Diggles. His task is to enhance the ability of Queensland's wild harvest seafood industry to prepare for, identify, mitigate the impact of and respond to future biosecurity incidents by:

- ❑ Developing a commercial seafood industry biosecurity plan, to prepare the industry for future responses to biosecurity incidents;
- ❑ Reviewing and implementing best practice biosecurity measures within the wild harvest seafood industry; and
- ❑ Communicating with and educating wild harvest commercial fishing businesses about the characteristics, prevention and management of aquatic pests and diseases.

The grant is being provided through the SBQI which aims to enable the Australian Government to strengthen Australia's biosecurity preparedness and response capability for exotic pest and disease incursions.

Biosecurity and Industry Liaison Officer Role

Dr Diggles is a marine biologist based on Bribie Island who specialises in study of the health of aquatic animals and their environment. He is the Managing Director of DigsFish Services, a fish health consulting company he established in 2003 after several years working in New Zealand's National Institute of Water and Atmospheric Research and prior to that, as a fisheries manager in South Australia.

Dr Diggles has worked over the past 25 years on issues as diverse as:

- ❑ parasites and diseases of wild and aquacultured fish and shellfish;
- ❑ national and international biosecurity frameworks;
- ❑ fish welfare;
- ❑ pathogen risk analyses;
- ❑ fish kill investigations; and
- ❑ fisheries environmental standards.

Some of Ben's recent work includes development of the Aquatic Disease Field Guide mobile phone applications, which contain useful information on diseases of importance to fisheries and aquaculture in Australia, and the ikijime.com website and ikijime tool phone apps designed to assist with humane dispatch of finfish.

He has also published several reports on the recent white spot incursion that are publically available for download at http://frdc.com.au/research/Final_Reports/2016-064-DLD.PDF and http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Rural_and_Regional_Affairs_and_Transport/Seafoodimportation/Submissions

Industry Meetings

Following on from the well attended wharf meeting at Scarborough on 2nd June, the BILO met with concerned commercial trawl and crab fishers during visits to Scarborough and Sandgate on the 8th and 9th of June 2017. He spent this time meeting with fishers and answering their questions regarding many aspects of white spot disease and the ramifications of the current movement control order for uncooked crustacean products from Moreton Bay.

He also took the opportunity to distribute and obtain feedback on communications materials that have been drafted by QSIA to help fishers understand some of the aspects relating to biosecurity for white spot and other diseases that could potentially impact the commercial sector. (See below for more details on the "Biosecurity Basics" series of documents and resources.)

Industry meetings have taken place in Cairns, Townsville, Mackay, Gladstone, Bundaberg, Tin Can Bay, Hervey Bay, Brisbane and Tweed Heads. Meetings were also held in Adelaide, Perth and Darwin.

Queensland must be prepared for a "new age" of biosecurity threats

WITH global trade boosting arrivals of international shipping and increasing availability of imported seafood, commercial fishers throughout Queensland need to be aware and prepared for a "new age" of potential biosecurity threats to their fisheries.

The presence of White Spot Disease amongst wild populations of prawns and crabs in South East Queensland, and the resulting disruptions to local businesses, have dealt some harsh lessons and raised many questions.

The most obvious question is what were the failures in border quarantine that allowed the exotic white spot virus entry in the first place? The recent Inspector General of Biosecurity Report into the effectiveness of biosecurity controls on uncooked prawn imports found that "*Despite enhanced pre-border and border measures, the resumption of uncooked prawn imports still poses the risk of infected prawns entering Australia for retail sale and entering Australian waters*."

In the face of this sobering situation, another question that arises is "*what should fishers do if they catch fish which have visible symptoms of disease*?" It was these sorts of questions that lead to development of Queensland's first Seafood Industry Biosecurity Plan.

Important revisions of the *Queensland Biosecurity Act 2014* came into effect on 1 July 2016. The new Act included introduction of a general biosecurity obligation (GBO), which requires every person to take "*reasonable and practical steps to prevent or minimise biosecurity risks to the economy, agricultural and tourism industries, and the environment*".

People do not need to know about all biosecurity risks, but they are expected to know about the risks associated with their day-to-day work and hobbies.

Under the new act, every Queenslander needs to take an active role in managing the biosecurity risks under their control. If a person's activities are likely to pose a biosecurity risk, they are expected to know about the risks posed by what they do, and to ensure they do not spread pests, diseases or contaminants.

Australia is a member country of the World Trade Organization (WTO) and the Office International des Epizooties (OIE) (The World Organisation for Animal Health). Membership of these international organisations requires Australia to recognise and abide by certain standards relating to international trade in animal products, including a need to report the occurrence of serious infectious diseases that are listed by the OIE as "notifiable diseases".

The main aim of developing a Biosecurity Plan for Queensland's Seafood Industry was to provide commercial fishers and processors with the tools they need to improve their awareness of the various notifiable diseases that could affect their fishery.

The Biosecurity Plans also alert fishers and processors to their general biosecurity obligations and responsibilities under the Queensland Biosecurity Act. In doing so, the plans will also improve industry biosecurity capacity and ensure that fishers know what to do if they suspect the presence of a major aquatic pest or disease in their fishery.

The development of the plan includes a toolkit comprised of various resources in a total of 23 fishery-specific Biosecurity Plans (including an overview document).

If any fishery is potentially affected

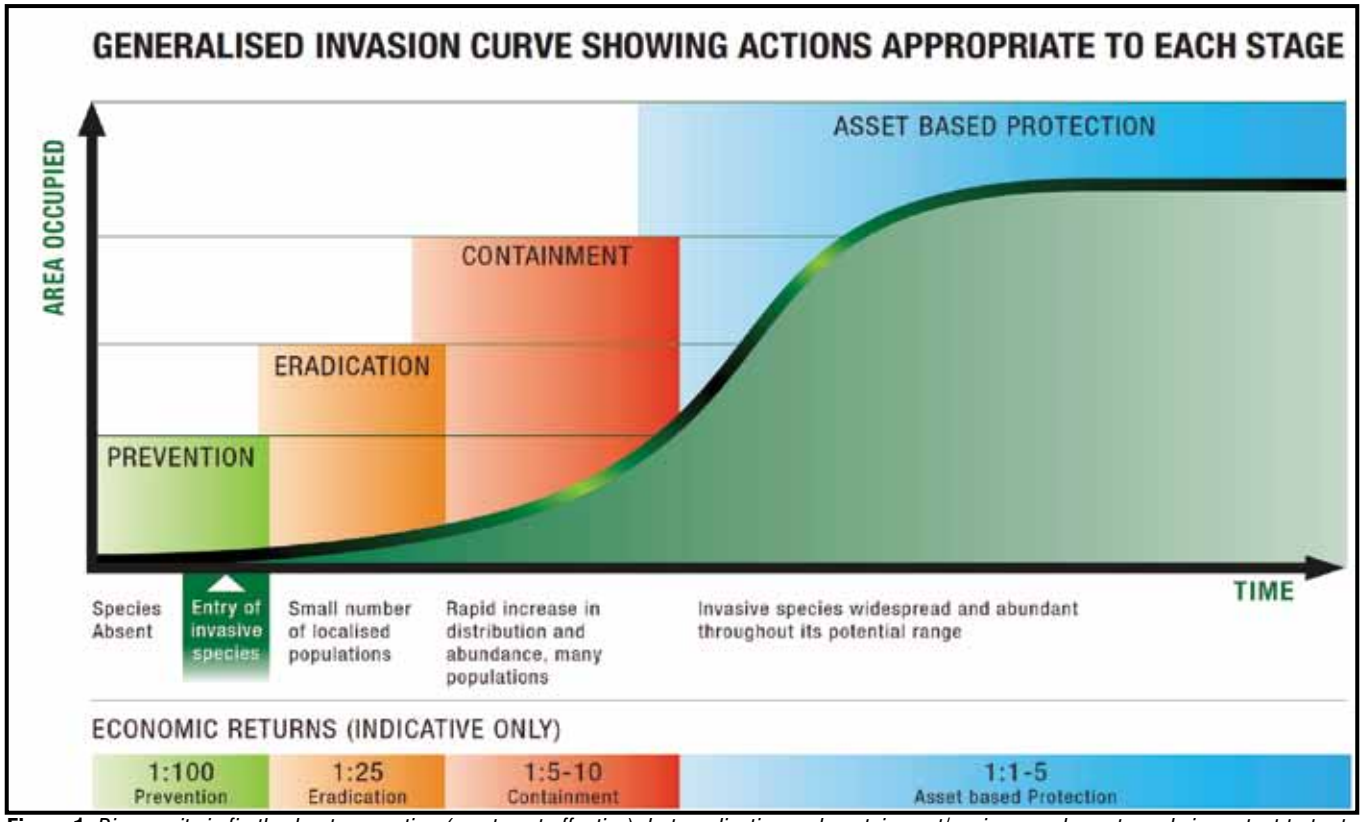


Figure 1. *Biosecurity is firstly about prevention (most cost effective), but eradication and containment/zoning are also extremely important to try to limit spread of a disease once it is introduced.* (Diagram from Victorian Government 2010)

Drained prawn ponds between the Gold Coast and Brisbane symbolise a "new age" of biosecurity threats.

by an important disease which could be introduced into Queensland from overseas or interstate, a biosecurity plan has been developed for that fishery.

Each biosecurity plan contains introductory information on biosecurity basics (See adjacent article: What is Biosecurity?) as well as detailed disease identification sheets containing information on diseases that may affect that fishery or seafood sector (see List of Disease Identification Sheets).

A list of the various different fisheries-specific biosecurity plans can be found in the Biosecurity Plan Overview Document.

Each biosecurity plan also contains information on who to contact if you suspect the presence of an important disease, why biosecurity strategies such as zoning, compartmentalisation and decontamination are employed, and a summary of different ways to decontaminate equipment exposed to the various disease agents of concern.

What is biosecurity?

PARED down to the bare essentials, biosecurity is simply prevention of the introduction and spread of serious pests and diseases into new areas. The main emphasis is prevention, because this is usually much cheaper in the long run as once introduced, eradication of new diseases or pests is often not an option.

Biosecurity can be applied at many levels. Indeed, in Australia it is applied in multiple layers; at the international border, between States, between different regions within each State, and even within individual business. At each level there are several "tools of the trade" such as testing, zoning, compartmentalisation and decontamination that are applied to try to ensure that movements of products that represent a biosecurity risk are done safely, reducing the risk to a level of protection that is acceptable while still allowing trade. In general, live animals represent the highest biosecurity risk, followed by products made from fresh dead (uncooked, chilled or frozen) animals, while cooked products represent the lowest biosecurity risk.

Biosecurity is only as strong as the weakest link in the chain. Breakdowns at the international border require beefing up of biosecurity at each State border, or in infected and uninfected zones within each State (such as within the White Spot Disease Movement Control Zone in South East Queensland). The spread of serious, internationally significant aquatic diseases such as White Spot Disease to new areas can cause massive and permanent disruption and economic losses to fisheries and aquaculture businesses. Like it or not, the "White Spot Saga" has forced the seafood industry in Queensland to acknowledge that biosecurity matters are important and need to be taken seriously.

Rust spot shell disease.

Biosecurity Basics 1

Information for fishers about basic biosecurity principles

Prevent

- Biosecurity is about prevention of the introduction and spread of diseases.
- Prevention is the ideal goal first and foremost. Unfortunately, biosecurity breaches do occur and new diseases can emerge or be introduced via various pathways.
- If a significant new or exotic disease agent is found in a new area, there are several options available to manage the situation and try to minimise the damage to industries and the environment.
- These options include eradication, containment and asset based protection (Figure 1).

GENERALISED INVASION CURVE SHOWING ACTIONS APPROPRIATE TO EACH STAGE

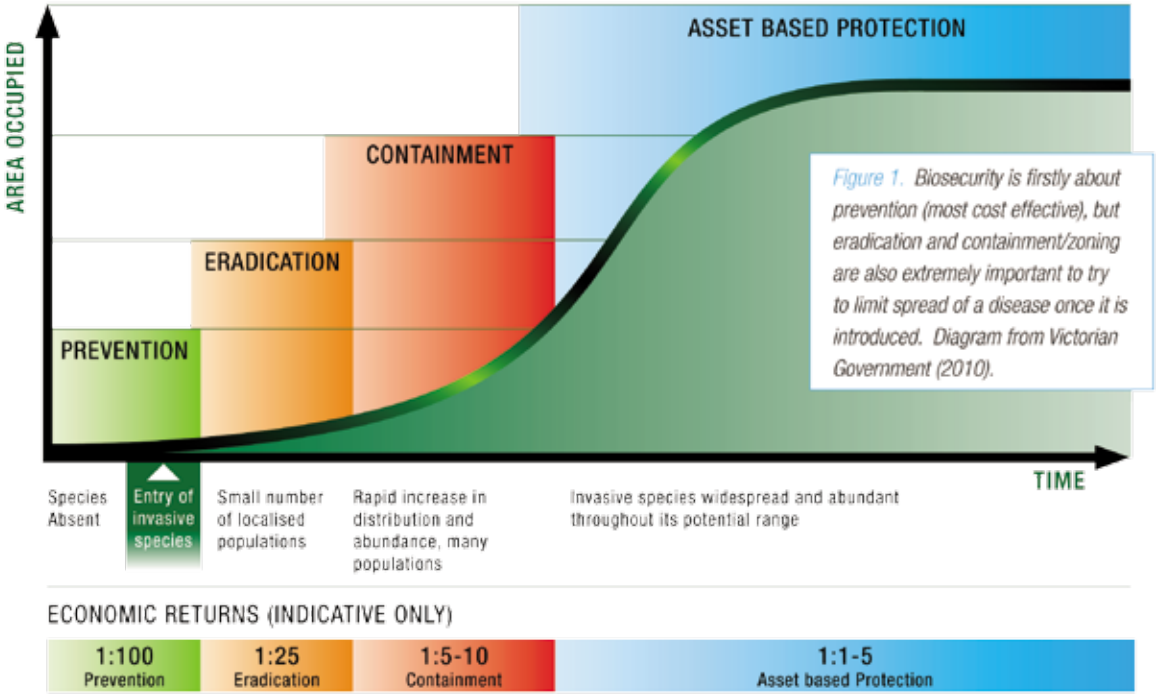


Figure 1. Biosecurity is firstly about prevention (most cost effective), but eradication and containment/zoning are also extremely important to try to limit spread of a disease once it is introduced. Diagram from Victorian Government (2010).

Eradication

- If a new disease emerges or an exotic disease is introduced into a new area, the first step is to try to eradicate it to return to freedom from that disease.
- Commercial fishers will be adversely affected by eradication efforts in the short-term.
- The long-term benefits of returning to business as usual are much greater than the "short-term pain" involved with eradication.

Containment and Zoning

- Containment is an extremely important process because diseases can be spread a long way very quickly by humans, much faster than they can be spread by natural movements of infected animals.
- The risk of translocation (moving) diseases are ranked as follows:

Different products have different risks

Risk profile	Product/process
Highest	Live animals
	Dead (uncooked)
	Frozen (uncooked)
	Contaminated equipment/clothing
Lowest	Cooked product

- Movement of live animals poses the greatest risk of spread of diseases.
- The second greatest risk is movement of dead (uncooked) animals, followed by frozen uncooked products.
- Diseases can also be spread on contaminated clothing, boats, vehicles and equipment.
- The lowest risk of disease spread is via movement of cooked products, as the heat from the process of cooking inactivates virtually all disease agents.

Why do I need to take biosecurity seriously?

- Our biosecurity systems are only as strong as the weakest link in the chain.
- The spread of serious, internationally significant diseases such as white spot disease to new areas can cause massive disruptions and economic losses to businesses.
- Strict controls on the movement of infected animals and contaminated equipment are required to prevent rapid movement of these diseases to new areas.
- It is important that fishers and farmers abide by these controls.
- These rules are put in place with the future best interests of our primary industries in mind. Everyone has a general biosecurity obligation under the Biosecurity Act, and there are large penalties (up to and exceeding $350,000) for non-compliance.
- Protect and support your local industries, do the right thing and don't be the weak link that breaks the biosecurity chain and threatens your fishery and our environment.

Learn more

- To learn more about the range of diseases of aquatic animals of significance to Australia, download the Aquatic Disease Field Guide App that is available for iOS, android and windows devices at the following locations:

IOS	ANDROID	WINDOWS
https://goo.gl/9UJNp9	https://goo.gl/T4Tn1X	https://goo.gl/Y8Vibj

Disclaimer: QSIA provides this information in good faith to inform commercial fishers how to meet QLD Government requirements for decontamination of fishing equipment in White Spot control zones. QSIA does not warrant the accuracy of the information supplied and cannot accept any form of liability for the contents of this document or for any consequences arising from its use.

Biosecurity Basics 2

Information for fishers about how to identify white spot

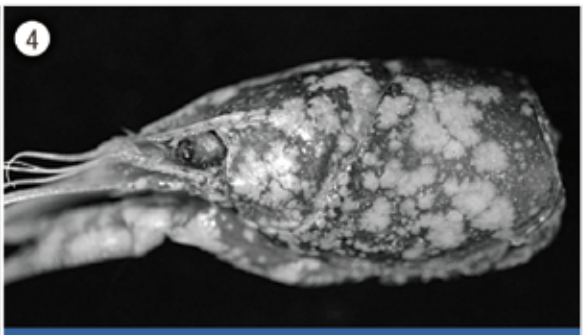
What do you need to look for?

Infected crustaceans may have white spots on the carapace, **or no external signs of disease**.

White spot infected prawns typically have circular spots with smooth edges.

If you find a prawn with spots like this, keep it chilled on ice (not frozen) and contact DAF on **13 25 23** or the National 24 hr emergency Disease Hotline on **1800 675 888**

White spots inside the carapace of a mud crab with White Spot



Freshwater crayfish with White Spot

Many types of crustaceans (including crabs, lobsters, crayfish and freshwater yabbies) can be infected by White Spot Virus. Some species like mud crabs have white spots inside the carapace instead of outside the carapace like in prawns.

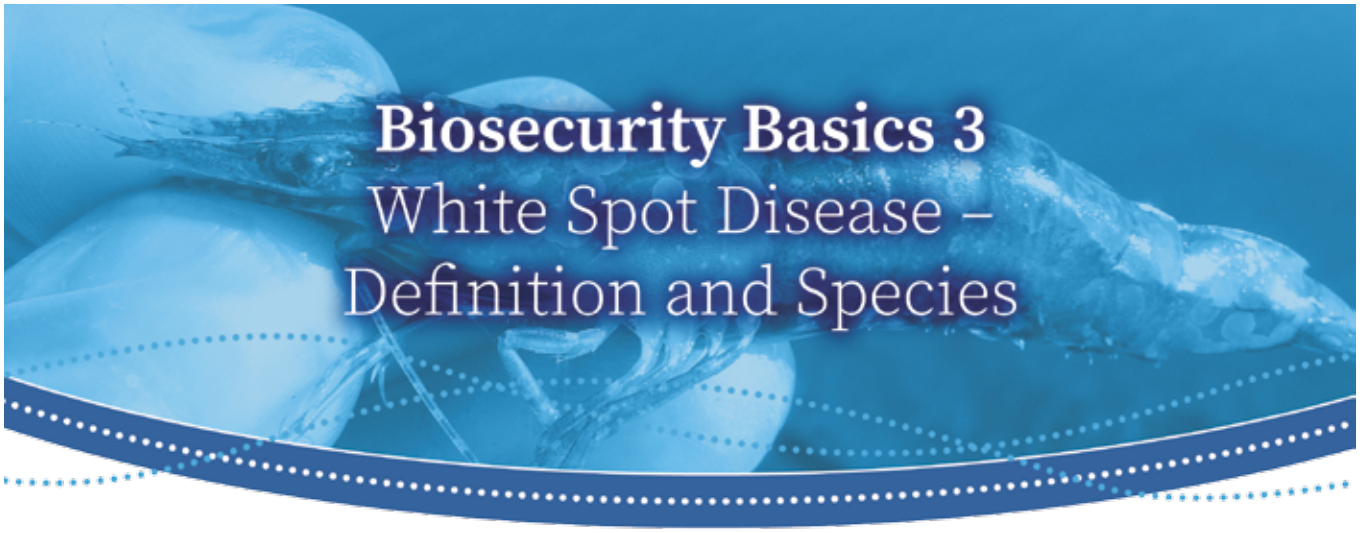
If you see anything suspicious, take some photographs, keep the affected crustaceans chilled or on ice and contact DAF on **13 25 23** or the National 24 hr emergency Disease Hotline on **1800 675 888**

Other white spots

Some spots on prawns may not be due to White Spot Virus. These instead can be calcium deposits due to bacterial infections or storage related issues such as freezer burn.

If there are any doubts, take some photographs, keep the affected crustaceans chilled or on ice and contact DAF on **13 25 23** or the National 24 hr emergency Disease Hotline on **1800 675 888**

Footnote: Figures 1, 2, 6, 7 Photos by Dr Ben Diggles www.digsfish.com.au. Figure 5 Photo by Warren Truloff. Figure 3 Raja et al. 2015 Aquacult. Rep. 2: 120-125. Figure 4 Baumgartner et al. 2009 DAO 85: 15-22



Biosecurity Basics 3
White Spot Disease – Definition and Species

What is White Spot Disease?

- A viral disease that infects all decapod crustaceans, i.e. crabs, lobsters, prawns
- Other species become infected but do not show signs of disease, including:
    - Rotifers.
    - Bivalves.
    - Polychaete worms
    - Non-decapod crustaceans (Artemia, copepods, sea slaters, Isopods).
    - Insect larvae
- These other species act as carriers capable of transmitting viable white spot virus.

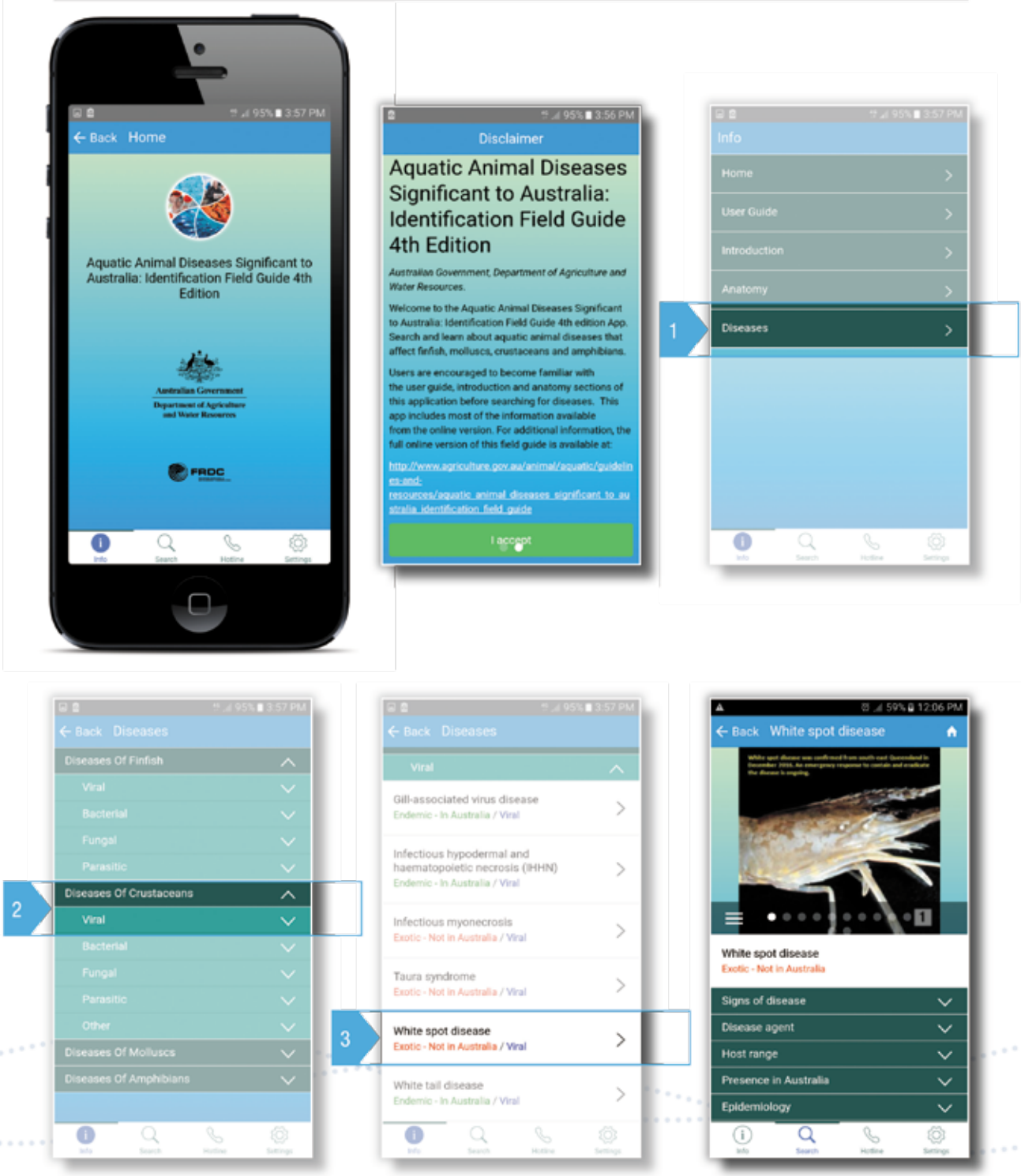
Identifying at risk fisheries

- Prawns (all species).
- Crabs (e.g. Mud, Sand and Spanner).
- Lobsters (e.g. tropical spiny lobsters, packhorse lobsters, slipper lobsters or bugs)
- Bugs (Balmain and Moreton Bay).
- Freshwater crayfish
- Yabbies (e.g. saltwater nippers)
- Jelly prawns
- Krill
- Worms (e.g. polychaetes)

Learn more

- For more information about White Spot and other diseases of aquatic animals of significance to Australia, download the Aquatic Disease Field Guide App that is available for iOS, android and windows devices at the following locations:

IOS	ANDROID	WINDOWS
https://goo.gl/9UJNp9	https://goo.gl/T4Tn1X	https://goo.gl/Y8Vibj



White Spot
Decontamination of Commercial Fishing Vessels and Gear

Please note – the information in this document is general advice in nature.
It is based on information received from the Department of Agriculture & Fisheries.

Purpose

Aim to assist in preventing the accidental movement of White Spot from the declared movement control area.

Why

It is industry's aim to assist in the process of eradicating white spot and safeguard our livelihoods.

How

Certain types of disinfectants (e.g. those containing Benzalkonium chloride or chlorine) are said to be ideal for disinfecting fishing, crabbing and trawl equipment that may have been in contact with white spot virus – refer to table over page.

When do I decontaminate

Before leaving the movement control area, fishers, crabbers and trawl operators should:

1. Equipment and Actions

a. Remove solids and organic matter from equipment including ice baskets, nets, crab pots, lug baskets and bins and boat decks – e.g. use a high-pressure or high-volume hose and scrubbing brushes.

b. Soak and wash aprons, waders, clothes, gloves and other equipment in contact with crustaceans in a similar manner.

c. After cleaning, apply disinfectant to all surfaces as per instructions below.

d. Leave the disinfectant on for a minimum of 10 minutes.

2. Vessels

a. For land based decontamination this should be done in a nominated wash down area.

b. Note date and time of decontamination in your ship's movement log.

Disinfectants containing benzalkonium chloride are preferred as they destroy the virus at relatively low concentrations, are biodegradable (less toxic to the environment), and are readily available in bulk. These are examples of providers of the materials you might use to decontaminate your vessel.

Benzalkonium Chloride Product	(%) active	Min. amount* in 10L**	Min. amount* in 100L**	Manufacturer /Importer	Distributors	Approximate Price
Redox Quaternary Ammonium Compound	50%	1.5 ml	15 ml	Redox Pty Ltd 07 3268 1555 www.redox.com john.Hornby@redox.com	Redox Brisbane 776 Boundary Road Richlands QLD 4077	$900 / 200L
Cidal	10%	7.5 ml	75 ml	Castle Chemicals 02 4014 5555 www.castlechem.com.au	Chemzone 07 3245 2851 www.chemzone.com.au Lindsay Packaging 0428 042874	$75 / 5L $150 / 25L
Phytoclean	10%	7.5 ml	75 ml	Phytoclean Pty Ltd 0412 885 556 www.phytoclean.com.au	Fernland Agencies Yandina QLD 4561 1800 672 794	$75 / 5L $200 / 20L $1450 / 200L
Kildet no-rinse sanitiser	9%	8.3 ml	83 ml	Jasol 1800 334 689 www.jasol.com.au/product/kildet	www.cleaningshop.com.au Northside Cleaning supplies Morayfield 07 5499 1611	$23 / 5L $85 / 20L
Santec no-rinse sanitiser	7.5%	10 ml	100 ml	Jasol 1800 334 689 www.jasol.com.au/product/santec	www.washroomaccessories.com.au Northside Cleaning supplies Morayfield 07 5499 1611	$125 / 20 L
Septone Spice Septone Forest Pine	3%	25 ml	250 ml	Septone Ph. 1800 177 989 www.septone.com.au	Signet.net.au Blackwoods Cleaningshop.com.au	$20-25 / 5L $75-100 / 25L
Chlorine Product***						
Dairy Chlor	12.5%	16ml	160ml			$0.50 / L

** Inactivation of WSSV requires a minimum of 75 mg/L of Benzalkonium chloride or 200mg/L chlorine in water for 10 min.*
*** Can use either freshwater or seawater. *** May degrade net material.*

Other disinfectant products containing benzalkonium chloride (BC) can be used provided they are applied as follows:
Minimum quantity of product (in ml) added to 10 L of water = 75 ÷ (% active BC ingredient in product); or
Minimum quantity of product (in ml) added to 100 L of water = 750 ÷ (% active BC ingredient in product).

Other disinfectant products containing chlorine can be used provided they are applied as follows:
Minimum quantity of product (in ml) added to 10 L of water = 200 ÷ (% active chlorine ingredient in product); or
Minimum quantity of product (in ml) added to 100 L of water = 2000 ÷ (% active chlorine ingredient in product).

Disclaimer: QSIA provides this information in good faith to inform commercial fishers how to meet QLD Government requirements for decontamination of fishing equipment in White Spot control zones. QSIA does not warrant the accuracy of the information supplied and cannot accept any form of liability for the contents of this document or for any consequences arising from its use.

12th August 2018
Fishermens Park
Urangan
Harbour

HERVEY BAY
SEAFOOD
festival
Celebrating Local Seafood

It is the Hervey Bay Seafood Festival 20th Anniversary!

You are invited to celebrate with fishing industry and friends of local seafood. Gather with thousands of seafood lovers and enjoy the community spirit at the biggest seafood picnic in Australia. There will be oceans of seafood, music, wine, industry exhibits and seafood cookery. Don't miss the launch of Wide Bay Wild Catch – the exciting new regional branding promotion for the local seafood industry.

www.herveybayseafoodfestival.com.au

Wild Harvest Biosecurity Plan

COMMERCIAL fishers are on the water more often than just about anyone else and understand what is normal with the animals they target.

Because of this, they are usually the first to know if something goes wrong. For example, in northern Moreton Bay the first people to observe something was amiss and alert authorities when the first toxic *Lyngbya* algal blooms began in the early 1990's were the commercial fishers operating in Deception Bay. Unfortunately, it was also the fishers in Moreton Bay harvesting prawns, crabs and bait worms who were the first to be adversely affected by the recent White Spot incursion in the summer of 2016/17.

Because commercial fishers are in the front line when it comes to early detection of problems which can appear in our stocks of fish and shellfish, they are well placed to provide the important early warnings which can prevent establishment and spread of serious pests and diseases.

The main aim of developing a Biosecurity Plan for Queensland's seafood industry was to provide commercial fishers and processors with the tools they need to improve their awareness of the various notifiable diseases that could affect fisheries in Queensland.

The Biosecurity Plans also alert fishers and processors to their general biosecurity obligations and responsibilities under the Queensland Biosecurity Act. In doing so, the plans will improve industry biosecurity capacity and ensure that fishers know what to do if they suspect the presence of a major aquatic pest or disease in their fishery.

The plan includes development of detailed disease identification sheets for each of the 35 diseases of concern that can affect finfish, crustaceans and molluscs captured in Queensland fisheries (Table 1).

The resulting outcome represents a toolkit comprised of 23 fishery-specific Biosecurity Plans (including an overview document) (Table 2).

Each biosecurity plan contains introductory information on biosecurity basics as well as detailed disease identification sheets containing information on each important notifiable disease that may affect that particular fishery.

Each biosecurity plan also contains information on who to contact if you suspect the presence of an important disease, why biosecurity strategies such as zoning, compartmentalisation and decontamination are employed, and a summary of different ways to decontaminate equipment exposed to the various disease agents of concern.

As far as we are aware, this is the first time that biosecurity plans have been developed for wild harvest fisheries in Australasia (if not the world).

Disease Information Sheets

Table 1. *List of 35 disease information sheets for important diseases of significance to fisheries in Queensland. Red font = exotic disease (not in Australia). Green font = occurs in Australia. * = already occurs in Queensland.*

Host Group	Important Diseases	Disease type	Host species affected
Crustaceans	Infectious Myonecrosis (IMN)	Virus	Prawns, shrimp
	Monodon Slow Growth Syndrome (MSGS)	Virus +others	Prawns
	Taura Syndrome (TS)	Virus	Prawns, shrimp, crabs
	White Spot Disease (WSD)*	Virus	Prawns, crabs, lobsters, shrimp, yabbies, freshwater crayfish, worms, plankton
	Yellowhead Virus 1 (YHV1)	Virus	Prawns, shrimp
	Acute Hepatopancreatic Necrosis Disease (AHPND)	Bacteria	Prawns, shrimp, worms
	Milky Haemolymph Disease of Spiny Lobsters (MHD-SL)	Bacteria	Lobsters
	Necrotising Hepatopancreatitis (NHP)	Bacteria	Prawns, shrimp
	Enterocytozoon hepatopenaei (EHP)	Protozoa	Prawns, shrimp, worms
Finfish	Channel Catfish Virus (CCV)	Virus	Catfish, carp
	Grouper Iridoviral Disease (GIV)	Virus	Estuary cod, Groupers
	Infectious Pancreatic Necrosis Virus (IPN)	Virus	kingfish, estuary and Inshore species, scallops, molluscs
	Megalocytiviruses / RSIV / ISKNV	Virus	Barramundi, snapper, kingfish, estuary and Inshore species, Murray cod,
	Viral Encephalopathy and Retinopathy (VER)*	Virus	Barramundi, Bass, cobia, groupers, kingfish, estuary and inshore species
	Viral Haemorrhagic Septicaemia (VHS)	Virus	Salmonids, herrings, eels, snapper, mullet, estuary cod, flatfish

Host Group	Important Diseases	Disease type	Host species affected
Finfish (con't)	*Aeromonas salmonicida*, atypical strains	Bacteria	Eels, flatfish, carp, goldfish, salmonids
	Bacterial Kidney Disease (BKD)	Bacteria	Salmonids, scallops
	Enteric Redmouth Disease (Hagerman strain)	Bacteria	Salmonids, carp, catfish, eels, flatfish
	Enteric Septicaemia of Catfish (ESC)*	Bacteria	Catfish
	Furunculosis	Bacteria	Salmonids, eels, flatfish
	Infection with *Aphanomyces invadans* (EUS)*	Fungus	Mullet, bream, catfish, Freshwater and estuary species
Molluscs	Acute viral necrosis of scallops (AVNV)	Virus	Scallops, clams
	Iridoviruses of molluscs	Virus	Rock oysters, mussels, clams
	Ostreid Herpesvirus 1-μVar (POMS)	Virus	Pacific oysters
	Bonamia ostreae	Protozoa	Flat oysters
	Bonamia spp.	Protozoa	Flat oysters
	Bonamia exitiosa	Protozoa	Flat oysters
	Marteilia refringens	Protozoa	Rock oysters, mussels cockles
	Martelia sydneyi (QX)*	Protozoa	Rock oysters, polychaete worms
	Martelioides chungmuensis	Protozoa	Pacific oysters
	Mikrocytos mackini	Protozoa	Pacific oysters, Rock oysters
	Perkinsus marinus	Protozoa	Rock oysters, flat oysters, cockles, mussels
	*Perkinsus olseni**	Protozoa	Abalone, rock oysters, cockles, mussels, pearl oysters
	Akoya oyster disease	Unknown	Pearl oysters
	Oyster Oedema Disease (OOD)	Unknown	Pearl oysters

Table 2. *Summary of the 23 documents making up the Queensland Seafood Industry Biosecurity Plan.*

Overview document	Fishery Specific Documents				
Sector	**Trawl**	**Pot**	**Net**	**Line**	**Harvest**
All fisheries	East Coast Otter Trawl Fishery Fin Fish (Stout Whiting) Trawl Fishery Gulf of Carpentaria Developmental Fin Fish Trawl Fishery River and Inshore Beam Trawl Fishery	Blue Swimmer Crab Fishery Mud Crab Fishery Spanner Crab Fishery	East Coast Inshore Fin Fish Fishery Gulf of Carpentaria Inshore Fin Fish Fishery	Coral Reef Fin Fish Fishery Deepwater Fin Fish Fishery East Coast Spanish Mackerel Fishery Gulf of Carpentaria Line Fishery Rocky Reef Fin Fish Fishery	Coral Fishery Crayfish and Rocklobster Fishery East Coast Pearl Fishery Marine Aquarium Fish Fishery Queensland Eel Fishery Bait worm fishery Trochus Fishery Rock Oyster Industry

The role of Biosecurity Queensland during a biosecurity incident

THE Department of Agriculture and Fisheries (DAF) is the lead department for the management of biosecurity incidents and responses in Queensland. Biosecurity Queensland, an agency of DAF, develops and maintains response capacity and capability through the Biosecurity Emergency Response Group, which is a network of personnel who support initial response operations, and arrange for the deployment of staff from other States and Territories to help at the start of a response.

During a response, Biosecurity Queensland utilises incident management structures that can be scalable and flexible, depending on the nature and size of the biosecurity incident. Typically a response will be supported by a State Coordination Centre and a Local Control Centre.

These centres undertake a number of key functions including planning, operations, logistics, and public information. Industry involvement is also critical during an emergency response and Biosecurity Queensland works closely with the affected industry to minimise impacts.

The white spot disease emergency response

White spot syndrome virus, which is the causative agent for white spot disease, was first confirmed on prawn farms on the Logan River, in South East Queensland, in December 2016.

Following the detection of the virus, Biosecurity Queensland decontaminated all farms in the area that were infected with the disease. Following decontamination, all farms were required to lay fallow for 12 months to ensure they were completely free of the virus before resuming farming. The fallow period ended on 31 May 2018.

The pathway for how white spot syndrome virus entered into South East Queensland is being investigated by the White Spot Disease Program. However, based on evidence available to us at this stage, the most plausible pathway is via imported prawns, or prawn products, being used as bait in waters adjacent to the affected prawn farms.

Following the detection of white spot disease on the prawn farms in the Logan River area, Biosecurity Queensland undertook extensive surveillance for the virus on all prawn farms in Queensland, and in natural waterways from the New South Wales border to Cairns.

The surveillance undertaken outside of the Moreton Bay area forms part of a national surveillance plan that all states are required to undertake. To date, more than 61,000 crustacean samples have been tested for white spot syndrome virus.

Once positive detections were confirmed in Moreton Bay, it was necessary to put movement restrictions in place from Caloundra to the New South Wales border and west to Ipswich, to contain the spread of the virus. These restrictions have placed significant pressure on commercial fishers in the Moreton Bay region.

To ease some of this pressure Biosecurity Queensland has initiated a number of projects working with key industry representatives.

For example, a research project is currently underway into the use of

The outbreak of White Spot Disease in Queensland was first observed amongst black tiger prawns in farms at the northern end of the Gold Coast.

gamma irradiation on bait prawns. The objective is to establish an economically viable dose of gamma irradiation that will inactivate white spot syndrome virus and enable interstate bait trade. This project is expected to be completed in early 2019.

Furthermore, to reduce the likelihood of additional outbreaks, Biosecurity Queensland has initiated a campaign that raises awareness about the risks of using imported prawns as bait. The campaign is being delivered through radio, newspaper, magazine and social media advertising, with the campaign video being viewed more that 1.5 million times.

The second phase of the campaign is working with major supermarkets to get labelling on tickets for raw, imported prawn products. To date, Woolworths, Aldi and IGA have all implemented new point of sale messaging stating that the product is 'Not to be used as bait' and we expect other retail outlets to follow suit in the coming months.

To address the stigma around eating prawns from the white spot disease movement restriction area, a small working group was formed in November 2017 and comprised of DAF staff, local commercial operators and seafood industry representatives. Together, the working group developed and delivered the *2018 Ask for Queensland Seafood* campaign which was designed to instil confidence in local seafood and boost sales.

The campaign was launched by football legend, and face of the campaign, Sam Thaiday, Moreton Bay Seafood Industry Association Vice President Michael Wood and Minister for Fisheries Mark Furner. Set at South Bank Parklands, a few days before Easter, 50Kg of delicious, local prawns and seafood was given out to the public for free. The launch was covered by all the major news outlets and received fantastic exposure in the lead up to the Easter seafood sales.

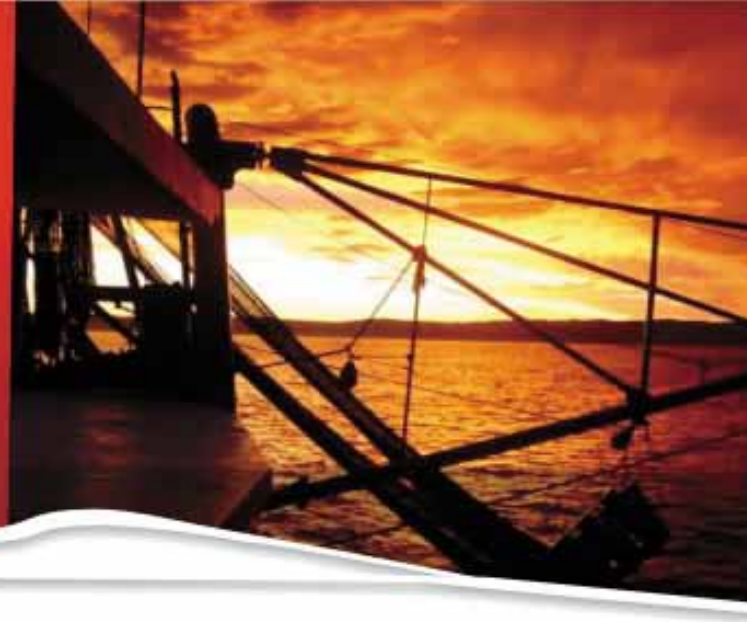
The Broncos' Sam Thaiday features in an ad from the Queensland Government promoting consumption of prawns from Moreton Bay.

The campaign video, featuring Sam Thaiday tucking into local prawns fresh from the trawler, has been viewed more than 2.1 million times and saw over 27,000 people click through to the Love Australian Prawns local seafood locator, which directed them to their local seafood outlet.

Biosecurity Queensland will continue working with local seafood businesses and industry to minimise the impacts caused by white spot disease. A dedicated White Spot Disease Program is in place that is focused on surveillance, prevention and control and ensuring essential public information is readily available.

For more information about white spot disease visit biosecurity.qld.gov.au/wsd

Urangan UF FISHERIES



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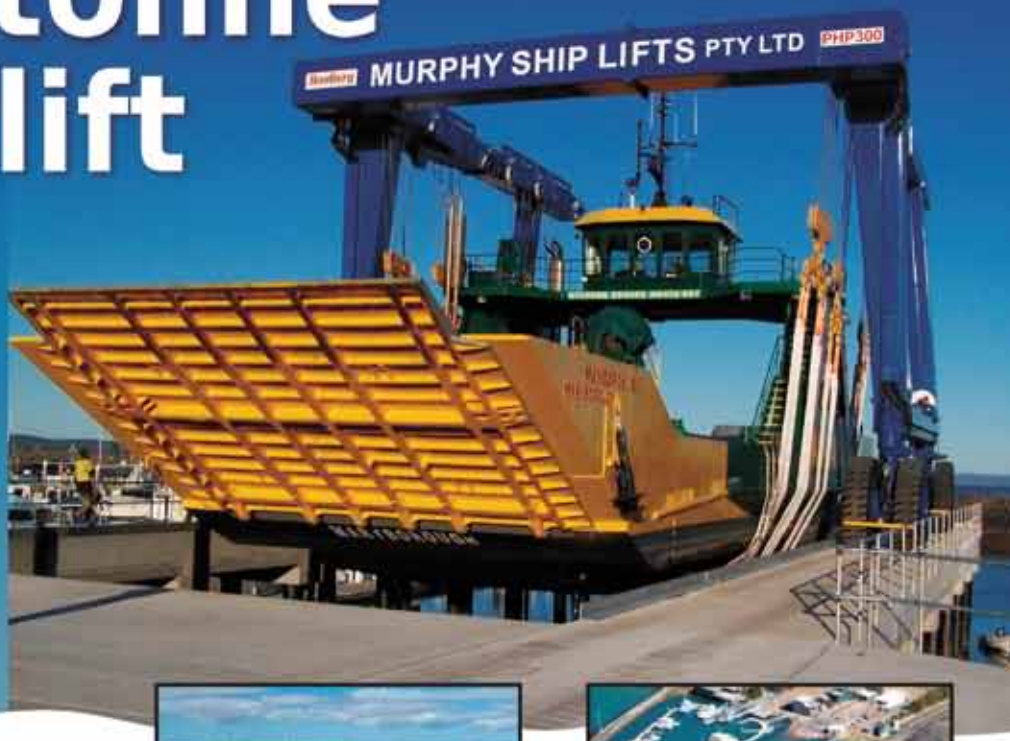

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