DRAFT NATIONAL ABALONE HEALTH WORKPLAN

The issue of abalone health has been highlighted by the Abalone Viral Ganglioneuritis (AVG) disease event affecting wild and farmed abalone in south-west Victoria.

On 2 October 2007, the Victorian Department of Primary Industries (VDPI) hosted the 2nd National Abalone Virus Scientific and Management Forum which was attended by over 50 participants from the industry, scientific and policy communities across the country with an interest in abalone health.

The key outcome of the Forum was the agreement by all parties that a national approach was required and support for the development of a national Workplan. Preparation of the Workplan was overseen by a coordinating body consisting representatives with expertise in fisheries management, wild abalone harvest, aquaculture, recreational fishing and diving, and aquatic animal health.

The Workplan addresses four priority work areas:

1. Epidemiology.
2. Stock sustainability.
3. Biosecurity.
4. Communication.

The need for a national approach reflects the importance of the Australian abalone fishery and that abalone health issues may influence abalone productivity throughout all abalone producing States. Funding abalone health is beyond any single industry group or jurisdiction and requires a coordinated investment, science delivery and implementation approach

The Worplan recognises the threat that AVG poses to the abalone fishery. It also acknowledges that improved abalone health preparedness is required to minimise the likelihood and impact of future disease events. To achieve this, the Workplan identifies work to address broader abalone health issues across Australia.

1. Epidemiology

Focus areas
1) Development of diagnostics techniques
2) Disease aetiology and transmission
3) Virus inactivation
4) Disease surveillance and modelling

Objective

To increase knowledge of Abalone Viral Ganglioneuritis in order to provide informed technical advice on biosecurity and disease management.

Workplan

Work Area	Responsibility	Estimated costs	Timing
1. Development of diagnostic techniques			
Technique to isolate and concentrate the virus from abalone tissues	TBA	TBA	Nearing completion
A rapid and specific diagnostic test-development of a validated PCR-test for the AVG virus	TBA	TBA	underway
Secondary diagnostic test	TBA	TBA	2008/09
Validation of diagnostic tests	TBA	TBA	2008/09
2. Disease aetiology transmission and immunology			
Confirmation that the isolated and sequenced virus is the causative agent of AVG	TBA	TBA	2008
Establish the possible relationships with other viral mollusc diseases that have occurred overseas	TBA	TBA	2008
Species vulnerability including host range and/or age	TBA	TBA	2008
Determination of the susceptibility of remnant populations following exposure to AVG	TBA	TBA	2008
Pathogenicity	TBA	TBA	2008
Bio-vectors and abiotic factors, including epidemiology mapping	TBA	TBA	2008
3. Virus inactivation			
Determine the viability of the AVG virus, including disinfection efficacy	TBA	TBA	2008
Provide proof of concept for a plan to develop AVG-resistant, AVG virus-free populations	TBA	TBA	2008
Survival of the virus in seawater	TBA	TBA	2008
Survival of the virus on fomites	TBA	TBA	2008/09

Efficacy of treatments	TBA	TBA	2008/09
Distribution of infective dose in tissues	TBA	TBA	2008
4. Monitoring disease and spread			
Determine the mode(s) of spread of the AVG	TBA	TBA	2008
A desktop study to collect and document all available information on AVG and biosecurity issues	SARDI	$70K	immediately
National survey of stocks to determine current distribution of the virus, including latency, and resistance status of stocks	TBA	TBA	Different for each State
Establish the true extent of virus distribution around the affected area	TBA	TBA	2008
Establish the true range of virus throughout Australia	TBA	TBA	2008
Establish host range	TBA	TBA	2008/09
Establish whether abalone can mount an immune response to infection	TBA	TBA	2008/09
Understanding of predisposing factors contributing to clinical disease in infected populations	TBA	TBA	2008
Determine whether subclinical infections exist in recovering populations	TBA	TBA	2008/09

Identified research needs:

- A desktop study to collect and document all available information on AVG and biosecurity issues.
- Species vulnerability including host range and/or age.
- National survey of stocks to determine current distribution of the virus, including latency, and resistance status of stocks.
- Lethal virus dilutions level.
- Bio-vectors and abiotic factors, including epidemiology mapping.
- Determination of the susceptibility of remnant populations following exposure to AVG
- Determine the viability of the AVG virus, including disinfection efficacy
- Determine the mode(s) of spread of the AVG
- Pathogenicity.
- Provide proof of concept for a plan to develop AVG-resistant, AVG virus-free populations.

Investigation components of the epidemiology focus area

The National Aquatic Animal Health Technical Working Group (NAAHTWG) was consulted as part of the development of the epidemiology section of the work plan. NAAHTWG is a group of aquatic animal health experts that provide technical support and advice to the Aquatic Animal Health Committee.

Information obtained through research proposed within the epidemiology focus area of the Workplan will therefore provide tools and information necessary to undertake many aspects of the stock sustainability (area 2) and bioscurity (area 3) focus areas.

1. Development of diagnostic techniques

Previous experience in animal disease control programs has shown that access to an accurate, inexpensive and rapid diagnostic test is essential to their success. This need is particularly relevant for AVG, where cases in both wild and farm populations must be quickly confirmed so that appropriate control measures are quickly put in place. Delays in confirmed diagnosis can potentially lead to spread of the disease, or unnecessary losses to the producer through the destruction of healthy stock.

Until recently, AVG could only be confirmed through examination of fixed abalone tissue at the cellular level (histopathology). This process uses changes in tissue in affected abalone as the basis of diagnosis. The process cannot detect infection in clinically normal stock, is time consuming and not suitable for broad-scale screening required to undertake surveillance or translocation programs.

Work is currently in progress to develop PCR tests able to detect the presence of the virus in tissues. This work is a priority and needs to be completed, validated and disseminated to as soon as practicable. Additional test methods (ie. in-situ hybridization) are also required as back-up to PCR tests and for confirmation of inconclusive results. All tests will also require validation before they can be incorporated into biosecurity and management programs.

2. Disease aetiology transmission and immunology

This area involves study of the cause of the disease and how abalone are likely become to be infected.

Further work is required on how the virus affects abalone populations, whether it affects other marine species and if populations become resistant to future infection. This will assist in designing biosecurity measures to ensure production facilities remain free of disease and provide fisheries managers with information on how best to manage disease in wild populations.

Currently, the cause of AVG is most likely a previously unknown virus first detected in Australia during 2006. Similar outbreaks of the disease have recently been reported in abalone stocks in Taiwan, China and possibly Japan.

It is not currently known whether the virus isolated in Australia is identical to those seen overseas. This distinction or similarity is vital in assisting to determine if the disease represents an exotic disease outbreak or spread from another region within Australia. Work to isolate and compare overseas viruses to AVG would provide insight into the origin of AVG.

3. Virus inactivation

If human movement is a major factor in the spread of disease, then appropriate biosecurity measures are vital to limit spread

In order to develop robust biosecurity measures for aquaculture, wild fisheries and fish processors, data is required on survival of the virus outside of abalone and what techniques most effectively inactivate the virus. Determining the efficacy of the virus inactivation procedures is a priority requiring immediate investigation.

Of particular interest to many is the process by which the virus is transported within the water column and how this contributes to spread between geographically separate populations. Information is required on whether the virus can be transferred significant distances via water currents or by other pathways such as faeces excreted by fish. At present, this information is not available and is necessary for the design of biosecurity and control programs.

4. Monitoring disease and spread

Although AVG is currently reported to be restricted to areas along the central and western Victorian coast, its accurate distribution throughout Australia has yet to be confirmed.

Epidemiological investigation has indicated using a "best fit" scenario that the virus was moved to the primary farm through movement of wild broodstock. Determining the state of the disease in the wild is important for ongoing control of the disease though interstate movement controls.

States and regions considered free of disease must be confirmed through a program of targeted surveillance using improved test techniques. Since AVG is of international significance, information relating to regional freedom may well prove necessary to access some overseas markets in the future.

Disease modelling would also assist in determining risk factors associated with the introduction of disease.

Specific projects requiring further investigation and recommendations for research are listed in the below.

1. Diagnostic test development

OUTCOME	NEED	WORK REQUIRED
Technique to isolate and concentrate the virus from abalone tissues	Required to enable test development and validation	Technique to be established and published
A rapid and specific diagnostic test	Required to underpin disease investigation, confirm diagnosis and to be used in surveillance programs	• Development of a validated PCR-test for the AVG virus • Technique to be distributed to regional animal health laboratories and staff trained in the procedure
Secondary diagnostic test	Required for confirmatory diagnosis and to verify active infection rather than viral contamination	• Development of a validate in-situ hybridization test (ISH) • Technique to be distributed to regional animal health laboratories and staff trained in the procedure
Validation of diagnostic tests	Required to design surveillance programs and testing requirements for moving stock	Assessment of diagnostic techniques under both laboratory and field conditions to provide sensitivity and specificity

2. Disease aetiology, transmission and immunology

OUTCOME	NEED	WORK REQUIRED
Confirmation that the isolated and sequenced virus is the causative agent of AVG	Required to ensure that test development, surveillance and biosecurity procedures are appropriate	• Infection experiments in abalone to satisfy Koch's postulates • Infection experiments to determine minimum infective dose • Reproduce infection with purified virus
Establish the possible relationships with other viral mollusc diseases that have occurred overseas	Required to determine whether the disease is endemic or exotic to Australia and assess what control measures may be most suitable.	• Establish collaborative arrangement with overseas laboratories • Obtain samples of infected abalone tissues from other countries • Compare PCR results for various samples • Compare sequenced viral genomes of overseas and Australia viruses
Establish host range	Required to determine the	• Infection experiments in non-abalone

	potential impact on other species, the marine environment and whether an reservoir of disease exists in wild populations	molluscs to determine disease susceptibility and subclinical carriage.
Establish whether abalone can mount an immune response to infection	Required to determine possibility of subclinical carriage in abalone populations Assessment of potential for vaccine	• Exposure trials using inactived or low dose pathogens

3. Virus inactivation

OUTCOME	NEED	WORK REQUIRED
Survival of the virus in seawater	Required to manage regional biosecurity and limit spread	Infectivity experiments to determine virus decay rates in seawater
Survival of the virus on fomites	Required to manage regional biosecurity and limit spread	Infectivity experiments to determine virus decay rates of virus on fomites
Efficacy of treatments	Required to manage regional biosecurity and limit spread	Infectivity experiments to determine efficacy of specific decontamination procedures
Distribution of infective dose in tissues	Required to assess the risk posed by various processing and waste disposal methods.	• Infection experiments using common waste products, including discharge water • Assess tissue distribution in the affected animals

4. Surveillance and modelling

OUTCOME	NEED	WORK REQUIRED
Establish the true extent of virus distribution around the affected area	Required to guide fisheries management and biosecurity decisions to prevent further disease spread	Surveillance of clinically unaffected abalone in Victorian abalone populations adjacent to the affected area
Establish the true range of virus throughout Australia	Required to guide fisheries management and biosecurity decisions	Active surveillance of abalone populations to determine presence in SA, WA, Tas, NSW and Qld Analysis of existing samples using improved test methods (ie. PCR and ISH)
Establish host range	Required to determine the	Active surveillance of non-abalone

	potential impact on other species, the marine environment and whether an reservoir of disease exists in wild populations	species in infected areas
Establish whether abalone can mount an immune response to infection	Required to determine possibility of subclinical carriage	Assessment of clinically normal animals in infected areas using PCR
Understanding of predisposing factors contributing to clinical disease in infected populations	Required to better manage disease on farms and help predict when outbreaks are likely to occur in infected areas	Retrospective analysis/ modelling of the disease spread indicating potential causal factors
Determine whether subclinical infections exist in recovering populations	Required to inform fisheries management decisions for recovering populations	Surveillance of previously affected abalone populations using improved diagnostic tests

NAAHTWG: National Anquatic Animal Health Technical Working Group
AAHC: Aquatic Animal Health Committee
PCR: Polymerase chain reaction
ISH: In-situ hybridisation
Broodstock: Animals used for spawning and breeding purposes
Biosecurity: Measures taken to limit the introduction of disease to a facility or region

2. Stock sustainability

Focus areas
1)Stock Sustainability
2)Rebuilding stock
3) Economic analyses
4) Trial eg sentinels
5) Surveillance

Objective
To ensure sustainable abalone fisheries and aquaculture now and in the future.

Workplan

Work Area	Responsibility	Estimated costs	Timing
1. Economic cost benefit analysis of rebuilding intervention options	TBA	TBA	immediately
2. Develop a robust Total Allowable Catch setting process for affected fisheries	TBA	TBA	Mid 2008
3. Develop methodologies for stock rebuilding interventions including decision framework for best intervention option and evaluation process	TBA	TBA	Different for each State
4. Determine stock trigger levels for stock rebuilding interventions	TBA	TBA	Mid 2008
5. Determine interdependencies between ecosystem components and stock rebuilding options	TBA	TBA	Mid 2008
6. Management Strategy Evaluation - social/economic, including decision rules, including timeframes and trigger points.	CSIRO/Jurisdictions	TBA	2008
7. Determine the role(s) and opportunities of natural recruitment legal minimum lengths, translocation of broodstock and restocking as a stock rebuilding intervention options.	Each State	Different for each State (TBA)	2008

Identified research needs
- Undertake a cost benefit analysis of stock rebuilding intervention options
- Develop a robust Total Allowable Catch setting process for affected fisheries
- Develop methodologies for stock rebuilding interventions including decision framework for best intervention option and evaluation process.
- Determine stock trigger levels for stock rebuilding interventions.

- Determine interdependencies between ecosystem components and stock rebuilding options.
- Management Strategy Evaluation - social/economic, including decision rules, including timeframes and trigger points.
- Determine the role(s) and opportunities of natural recruitment legal minimum lengths, translocation of broodstock and restocking as a stock rebuilding intervention options.

National workshop on re-seeding and translocation outcomes.

On 10 to 12 December 2007 industry held a scientific workshop designed to identify a number of work areas to maintain the sustainability of the abalone fishery and identify options to rebuild stocks.

A decision-tree was produced that would focus on areas for restocking dependent on (i) previous catch history (select areas with high catch history), (ii) numbers of remaining adults (if known) (only intervene in areas without an adequate extant breeding population), (iii) if there is evidence of juveniles emerging (seeding priority should be to reefs without evidence of large numbers of emerging juveniles), (iv) is there suitable habitat for adult translocation without overgrowth by sessile animals and/or juvenile seeding (directly seed young and/or translocate adults, or try to modify the habitat first to make it more suitable).

All reseeding and translocation activities must consider potential genetic or biosecurity associated with moving animals among areas. A comparison of genotypes between survivors of affected populations and unaffected populations may be a useful first attempt as identifying whether there are resistant strains. These may be useful as brood stock for juvenile reseeding.

1. Cost benefit analysis of stock rebuilding intervention options

There are a number of stock rebuilding options available to industry, including broodstock translocation and reseeding. It is important to understand the cost effectiveness and efficacy of these options. A cost benefit analysis of stock rebuilding intervention options to assess the cost-benefit of proposed measures aimed at promoting or accelerating stock recovery shall be undertaken. There is likely to be a mix of interventions used within any fishery. The analysis should deliver a decision framework to assist in determining stock rebuilding regimes.

2. Develop a robust TAC setting process for affected fisheries

Sustainable fisheries management requires the ability to set Total Allowable Catches (TAC) for fisheries affected by AVG. Traditional TAC setting processes are not designed and unable to accurately set a TAC when large mortality events occur. Opportunities exist to further explore the fine scale management approach to abalone management and use a reef scale approach to setting a TAC.

Research should be undertaken to develop a robust TAC setting process to set TACs to meet the environmental, social and economic outcomes of industry and government.

3. Determine stock trigger levels for stock rebuilding interventions

It is important to only use stock interventions when there is a benefit. To determine benefit it is necessary to understand the critical mass to abalone on reefs to enable natural recovery within economical acceptable timeframes. Research is required to determine critical mass of

abalone to support natural reef rebuilding. The methodology determined for reef assessment must be pragmatic, cost effective to implement and adaptable nationally.

4. Determine interdependencies between ecosystem components and stock rebuilding options

The major concerns regrading high mortality apart from loss of dense aggregations that substantially reduce fertilisation rates, are loss of suitable habitat through colonisation by opportunist invertebrates and plants, and weakened age structure that places increased reliance on sporadic annual recruitment. Habitat dominated by algae species shaded beneath a kelp over-storey, and broad ranges of age classes among populations are regarded as critical elements for the persistence of abalone populations.

Large scale stock rebuilding success will depend on the nature and extent of ecological change that has occurred post-disease. There is a need to identify critical community factors for survival and growth of hatchery-reared juveniles and survival/spawning of translocated adults prior to engaging in costly intervention. Consideration should also be given to the necessity and feasibility of habitat manipulation prior to any juvenile re-seeding or adult translocation activities. The current impacts of abalone removals project provides a good starting point for a new project to extend this work to address ecosystem dependency questions. Collaborating internationally with counterparts undertaking similar work would be advantageous.

5. *Management Strategy Evaluation - social/economic, including decision rules, incl. timeframes and trigger points. CSIRO work.*

A Management Strategy Evaluation (MSE) should be conducted using existing and new models that can be applied to test-beds of data to compare the likely outcomes from alternative strategies. Model outputs will rely on known or perceived relationships between various dependent and co-dependent variables related to productivity and profit. Mature biomass and GVP can be estimated using empirical relationships. Models will essentially run calculations that estimate numbers of abalone at within different length/age classes over time given sets of observed and/or estimated population parameters. The usefulness of these strategies will depend on the availability of data, and assumptions about lifer history relationships, harvesting practices and markets. The advantage of MSE is that outputs are relative and such models could be run on a fictitious fishery created by amalgamating data form different source into a test bed. This will not produce outputs specific to any particular reef, but will provide a basis for discriminating among alternative management strategies as implied by the name. The severity of the impact on GVP to date is compelling grounds for engaging the world leader expertise in modelling.

6. Determine the role(s) and opportunities of natural recruitment legal minimum lengths, translocation of broodstock and restocking as a stock rebuilding intervention options.

Surveys conducted among reefcodes using some simple classification system that seeks to identify potentially adverse and suitable habitat (based on outcomes from the ecological interdependency study) and assess the present abundance of abalone should be undertaken. Small scale manipulative experiments in a variety of candidate habitats with varying levels of disease impact would need to be undertaken to test the short-term (one year) survival, growth or reproductive outputs. This work could be then scaled up on reefs that appear to have the best prospects for success, careful monitoring these both seasonally and inter-annually.

Strategies could be expanded to additional reef areas depending upon how much success occurs among particular reef categories, in other words, a learn from experience approach.

Reef scale size limits provide a potential way for linking fine scale management strategies with regional and zonal biomass strategies. Model inputs could include size selectivity based of the length frequency of commercial catch samples.

7. Develop methodologies for stock rebuilding interventions including decision framework for best intervention option and evaluation process

There are several intervention options to assist in stock rebuilding apart from area closures and reduced TACs. These include reseeding with hatchery stock, translocation of broodstock and modification of legal minimum size to alter population structure.

It is important to understand how the options may be implemented including determining minimum ecosystem requirements, the scale of the intervention needed in relation to the reef, the optimal mix of interventions and evaluation methodologies.

It is important to undertake research to inform the use of stock rebuilding interventions and develop best practice methodologies to be used nationally.

3. Biosecurity

Focus areas

1) Preparedness/ emergency
2) Mitigation and prevention
3) Cost sharing arrangements
4) Capacity

Objective

To reduce the risk of abalone disease spread and potential new threats.

Workplan

Work Area	Responsibility	Estimated costs	Timing
Investigated an emergency aquatic animal disease response agreement (EAADRA) using the abalone industry as a first model.	AAHC	TBA	immediately
Review and audit biosecurity arrangements currently in place for each State and sector.	DPI Victoria/ PIRSA	TBA	2008
Develop national Biosecurity framework	DAFF	TBA	Mid 2008
Evaluated and determine best practice biosecurity, in all sectors.	National	TBA	Mid 2008
Review of biosecurity uptake and communication strategy, incl. rock lobster and recreational sectors.	DPI Victoria	TBA	Mid 2008
Assess feasibility of translocation and surveillance protocols being adopted at the National levels across all sectors.	National/ jurisdictions	TBA	Mid 2008
Consolidate and validate risk assessment and mitigation measures for each state.	National/ jurisdiction	TBA	Mid 2008
Develop AQUAVET Plan	DAFF	About $30k	Started

Identified research needs

- Review and audit biosecurity arrangements currently in place for each State and sector.
- Determine and review control options (i.e- biosecurity measure/closure) in the wild.
- Review cost and benefits of codes/standards vs. regulations; enforcement vs education; incentive mechanisms and auditing.

Proposed National biosecurity framework:

- Abalone disease emergency response agreement

- Monitor the development of an emergency abalone disease response agreement between industry and governments (to be progressed through an Aquatic Animal Health Committee working group)
- In consultation with the AAHC, determine any work that may be required to underpin an emergency abalone disease response agreement
- There is a need for an agreed disease response in place - AQUAVET plan.
- Under AQUAVET consider funding to write an interim disease control strategy manual acknowledge limitation of what is know about the disease.
- Disease response and compensation arrangement need to be determined and agreed
- Develop zoning policy for stock movement and translocation to be adopted at a National level

1. Preparedness and emergency response

It is necessary to develop a framework to provide for an appropriate level of preparedness and to permit effective and efficient disease responses.

The Animal Health Committee through the Aquatic Animal Health Committee has formed a working group with jurisdictional (Vic, Tas, NSW, SA and WA), Australian Government and industry representation (farmed and wild sector) to progress this work. This group has the role of investigating an emergency aquatic animal disease response agreement (EAADRA) using abalone as a first model.

2. Mitigation and prevention

Currently there are a range of measures implemented in Victoria for AVG mitigation and prevention in the farmed sector. These included: tightened translocation protocols with an annual audit measuring compliance, a surveillance program enhancing the chances of disease detection and a biosecurity code of practice outlining best practice for biosecurity.

In Victoria the wild catch and processing sectors also operate under the translocation protocol and biosecurity codes of practice. Victoria has strong legal powers to control activities in infected areas if required, and are effective.

The ability of different jurisdictions to control removal of abalone and human activities in affected areas should be assessed if anthropomorphic spread is deemed to be important.

Current gaps in our knowledge include uptake/ dissemination of the biosecurity codes of practice in each state. Although the disease is not yet present in other states, jurisdictional preparedness is currently unknown. To this end, information needs to be gathered for each state identifying their levels of preparedness and gaps that may need to be addressed.

3. Cost sharing arrangements

A step to effective disease preparedness and response is to have formal coat sharing arrangements in place. This was highlighted during the recent equine influenza disease event.

The development of cost sharing arrangement will be covered under preparedness and emergency response by the AAHC working group. At this stage a cost sharing agreement will follow completion of the EAADRA.

4. Capacity

In order to prevent and mitigate disease events it is necessary to have the appropriate capabilities of the appropriate groups. These capabilities will rest with government, industry and private providers

A workforce must be available, both government and other, for tackling further spread of AVG, diagnosis capability and deal with legislation

4. National Communication Plan

Objective

To further raise national awareness of abalone health to minimise the social, economic and environmental impacts on regional communities.

Workplan

Communications Tool	Action	Estimated Cost	Timing
Health Bulletin	Consider expanding distribution list, and scope of Bulletin, to suit National Coordinating Group's need to disseminate detailed information often and quickly.	nil	As required
Advertisements	Full page colour ad in Modern Fishing magazine	$1800	2008
	Full page colour ad in Fishing World magazine	$1,800	Mid 2008
	Full page colour ad in Victoria Fishing Monthly magazine	$1,800	Mid 2008
	Full page colour ad in Dive Log magazine	$1,800	Mid 2008
	Full page colour ad in Saltwater Sportfishing magazine	$1,800	Mid 2008
	Full page colour ad in Surfing Life magazine	$1,800	Mid 2008
	Full page colour ad in Tracks magazine	$1,800	Mid 2008
	Banner ad on fishvictoria.com	$2,000	Mid 2008
	Banner ad on fishnet.com	$2,000	Mid 2008
	Advertisement on surfing website	$500	Mid 2008
	30 second ad on The Outdoor Life Radio Show (series of 20 ads over 8 weeks)	$1,500	Mid 2008 (Melb metro only)
Direct mail		Depends on size (TBA)	Different for each State (TBA)
Publications	Flyers to accompany direct mail or posters in dive shops and fishing tackle shops/angling clubs. Both direct to primary audiences or via 'middle-men' distributors such as Tourists Information Centres.	Depend on size (TBA)	Various – state based with national consistency
Signage	Access point signage for appropriate locations. Victoria has spent in excess of $12,000 on 300-plus A3 plastic signs (@ $42 per sign)		Where required (TBA)

Web	Nil (staff time)	State based with national consistency
Email	nil	When required
FAQ's	nil	

Target audience(s)

Primary Audience:

- Licensed commercial abalone divers in Victoria, New South Wales, South Australia, Tasmania and Western Australia
- Licensed aquaculture abalone producers in Victoria, New South Wales, South Australia, Tasmania and Western Australia
- Abalone processors in all states
- Recreational divers (abalone, rock lobster, non-extractive) in Vic, NSW, SA, Tas and WA.

Secondary Audiences: Peak bodies for commercial, recreational, aquaculture, conservation and indigenous sectors in Victoria, New South Wales, South Australia, Tasmania and Western Australia

- Licensed commercial fishers in Victoria, New South Wales, South Australia, Tasmania and Western Australia
- Recreational fishers (boat and shore) in all states
- Representative groups other than peak bodies for commercial, recreational, aquaculture, conservation and indigenous sectors
- Aquatic Animal Health Institutes (often part of DPI) in Victoria, New South Wales, South Australia, Tasmania and Western Australia
- State and Federal fisheries managers
- Investors and providers of fisheries research and monitoring services in marine waters
- Beachgoers, particularly surfers and swimmers
- Community

Other: Ministers Responsible for Fisheries (State and Federal)

- Coastal State and Federal members of Parliament

Funding abalone health is beyond any single industry group or jurisdiction and requires a coordinated investment, science delivery and implementation approach and recognises the threat that abalone health poses to the abalone fishery. It also acknowledges that there is a need improve preparedness and understanding of abalone health across all Australian abalone fisheries.

Primary message*:*

Help protect <u>Australia's</u> most valuable shellfish – abalone.

Secondary message (divided according to audience):

i. Commercial fishing industry (divers & processors)

- Help limit the spread of the disease and protect abalone stocks,
- Observe commercial fishing biosecurity protocols,
- Government is managing abalone health through a science based response,
- Government and industry are working together to identify sustainable harvesting strategies to ensure abalone for the future.

ii. Aquaculture sector

- Observe aquaculture biosecurity protocols,
- Government and industry are doing everything they can through an evidence-based approach to manage abalone health.

iii. Recreational anglers and divers

- Ensure a viable recreational fishery by helping contain the lethal disease and protect abalone stocks,
- You can help by observing biosecurity protocols wherever you are doing
- Abalone virus kills abalone
- Avoid outbreaks
  - **wash** vessels, wetsuits, dive equipment and your hands with soapy freshwater,
  - **remove** all marine organic matter from vessels and equipment,
  - **dispose** of abalone shell, meat and gut with your household waste,
  - **avoid** using abalone meat or gut for fishing bait.

iv. Dependent businesses, coastal visitors including surfers

- The abalone disease does not affect humans: swimming, surfing, fishing, eating abalone are safe,
- The disease does not affect other marine species but kills most abalone it infects,
- 'Do your bit' to contain the disease: observe biosecurity protocols avoid outbreaks.

Campaign components

The main campaign components include:

- Media: media releases outlining what is happening, what is being done to manage abalone health and how the community can help? Consider multi-cultural media lists depending on the make-up of each state's stakeholders.
- Health Bulletin: a roughly fortnightly one or two page status report on abalone health. Sent to sixty individuals and groups (locally, nationally and internationally) with encouragement to forward on to constituents. Available to anyone that is interested but most relevant to commercial abalone divers in the southwest.
- Advertisements: in dive, fishing, surfing magazines, recreational websites and radio shows, describing the situation, urging people to observe biosecurity protocols and identifying means by which to get more information. Different ads in commercial fishing magazines and conservation magazines.
- Direct mail: to peak bodies, licensed commercial fishers, processors, aquaculturalists, coastal members of state and federal Parliament, dive shops, recreational fishing licence sellers on the coast, representative groups other than peak bodies, animal health institutes, state and federal fisheries managers, investors and suppliers of marine research.
- Signage: at beach access points to remind beachgoers of biosecurity protocols and highlight any special management arrangements. (i.e. closed areas, areas of confirmed disease presence, areas of high level abalone interaction).
- Web: state based fisheries management agencies to establish dedicated pages on their websites with access from their homepages. Consider customised URL's to simplify access and make it more memorable. (e.g. www.dpi.vic.gov.au/abalonehealth).
- URL to feature on all advertisements and printed material, with links from homepages to other states web pages on this issue. (i.e. connectivity).

- Email: ad hoc responses to requests and follow-up questions from the Health Bulletin. To all sectors upon engagement.
- FAQs:

Customer Service Centres (CSC) to be briefed with frequently asked questions for phone calls to 1300 numbers or similar. Supply CSC with collateral to send to callers.

5. Governance

Implementation of the Workplan will be overseen by a Steering Committee comprising of members nominated by:

- Australian Fishery Management Forum;
- Australian Chief Veterinary Officer;
- Abalone Council of Australia;
- Recfish Australian;
- Australian Abalone Grower Association.

If funded the Workplan implementation will be supported by an executive officer.

The Steering Committee will report progress to the Primary Industries Standing Committee via the Aquatic Animal Health Committee and to the Natural Resource Management Standing Committee via the Marine and Coastal Committee.