



# aquaplan

2005-2010

Australia's National Strategic Plan for Aquatic Animal Health

July 2005

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AQUAPLAN 2005–2010 outlines Australia's national strategic plan for aquatic animal health. It was jointly developed by national, state and territory governments, and private industry sectors. The production of AQUAPLAN 2005–2010 was coordinated by the Office of the Chief Veterinary Officer within the Australian Government Department of Agriculture, Fisheries and Forestry on behalf of the Aquatic Animal Health Committee.

Primary Industries Ministerial Council endorsed  
AQUAPLAN 2005–2010 in April 2005.

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## Foreword

Australia's fisheries and aquaculture are vital sectors of our primary industries, averaging more than 11 per cent growth per annum throughout the past decade.

The Australian Government and agrifood industries are placing great emphasis on marketing Australia as a supplier of high-quality fresh produce. It is important that these 'clean food' activities are underpinned by appropriate mechanisms that ensure the integrity of Australian product.

As the fishery and aquaculture industries evolve, great care is needed to ensure that Australia maintains its competitive advantage and continues to provide the world with premium-quality seafood and great recreational fishing experiences. This requires commitment and alertness from all involved. Care must also be taken to ensure a healthy future for our non-food-producing aquaculture sector such as the pearl and ornamental industries.

This strategy represents a shared vision of the Australian governments and industry, working together to implement an integrated and planned approach to aquatic animal health within Australia.

We are pleased to release AQUAPLAN: Australia's National Strategic Plan for Aquatic Animal Health 2005–2010.



Warren Truss  
Minister for Agriculture, Fisheries and Forestry



Ian Macdonald  
Minister for Fisheries, Forestry and Conservation



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## Acronyms and abbreviations

AAAHIS	Australian Aquatic Animal Health Information System
AAHC	Aquatic Animal Health Committee
AAPQIS	Aquatic Animal Pathogen and Quarantine Information System
AFFA	Department of Agriculture, Fisheries and Forestry – Australia (now known as DAFF)
AHA	Animal Health Australia
APVMA	Australian Pesticides and Veterinary Medicines Authority
aqCCEAD	Aquatic Consultative Committee on Emergency Animal Diseases
AQIS	Australian Quarantine and Inspection Service
AQUAPLAN	Australia's National Strategic Plan for Aquatic Animal Health
AQUAVETPLAN	Aquatic Animal Veterinary Emergency Plan
AVA	Australian Veterinary Association
CCEAD	Consultative Committee on Emergency Animal Diseases
CSA	cost-sharing arrangement
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Australian Government Department of Agriculture, Fisheries and Forestry
DEH	Australian Government Department of the Environment and Heritage
EADRA	Emergency Animal Disease Response Agreement
FAO	Food and Agriculture Organization of the United Nations
FHMC	Fish Health Management Committee
FRDC	Fisheries Research and Development Corporation
MACC	Marine and Coastal Committee
MDBC	Murray-Darling Basin Commission
MUP	minor use permit
NAAH-TWG	National Aquatic Animal Health Technical Working Group
NAC	National Aquaculture Council
NACA	Network of Aquaculture Centres in Asia-Pacific
NCCAW	National Consultative Committee on Animal Welfare
OCVO	Office of the Australian Chief Veterinary Officer
OIE	World Organisation for Animal Health (formerly the Office International des Épizooties)
PIJAC	Pet Industry Joint Advisory Council
PISC	Primary Industries Standing Committee
SCARM	Standing Committee on Agricultural and Resource Management
SCFA	Standing Committee on Food and Animal Health
WTO	World Trade Organization







## Executive summary

AQUAPLAN: Australia's National Strategic Plan for Aquatic Animal Health 2005–2010, is a broad, comprehensive strategy to build and enhance capacity for the management of aquatic animal health in Australia. The plan outlines objectives and projects to develop a national approach to emergency preparedness and response, and to the overall management of aquatic animal health.

AQUAPLAN 2005–2010 succeeds AQUAPLAN 1998–2003, which was developed in response to the *Report of the National Task Force on Imported Fish and Fish Products* (Higgins 1996) and *Australian Quarantine: A Shared Responsibility* (Nairn et al 1996).

AQUAPLAN 2005–2010 has been jointly developed by governments and private industry sectors under the management of the Aquatic Animal Health Committee (AAHC). The plan is consistent with existing arrangements in the terrestrial animal sector. Wherever possible, it links into existing health management arrangements of state and territory governments and industries, to avoid duplication and to use resources sensibly.

There are seven main strategies within AQUAPLAN 2005–2010. Government and private sectors have identified priority projects under these seven strategies to achieve the plan's objectives. Together, these objectives will help to maximise Australia's ability to:

- control aquatic animal disease outbreaks
- maintain market access
- support quality assurance
- improve the productivity and sustainability of its aquatic animal production industries.

The table below lists the seven AQUAPLAN 2005–2010 strategies and their objectives.

This document outlines the strategic approach agreed upon by industry sectors and government, and endorsed by the AAHC, to manage aquatic animal health in Australia over the next five years. AQUAPLAN 2005–2010 identifies responsibilities and provides an indicative budget for implementation. Adjustments will become necessary as progress is reviewed. Updates and progress reports will be provided to stakeholders through the AAHC.

## Summary of strategies and objectives of AQUAPLAN 2005–2010

Strategy	Objectives
1. Enhanced integration and scope of aquatic animal health surveillance in Australia	<ol style="list-style-type: none"> <li>To identify needs and gaps with respect to surveillance requirements for specific industry sectors.</li> <li>To develop cost-effective surveillance systems tailored to address the identified gaps and needs.</li> <li>To have a surveillance information system that addresses the deficiencies found in Objectives 1 and 2, which is organised and readily accessible at a national level.</li> <li>To improve investigation and reporting of major (wild) fish kills.</li> <li>To create a consistent system of aquatic animal disease laboratory diagnosis and reporting across Australia.</li> </ol>
2. Harmonisation of approaches to aquatic animal health in Australia	<ol style="list-style-type: none"> <li>To harmonise the framework for aquatic animal emergency disease management in Australia.</li> <li>To implement a common approach to zoning for disease control and market access.</li> <li>To implement a common approach for managing pathogens associated with the translocation of live aquatic animals across Australia.</li> <li>To harmonise any new legislative, code of practice or quality assurance approaches as they are initiated in aquaculture.</li> </ol>
3. Enhancement of aquatic animal emergency disease preparedness and response framework	<ol style="list-style-type: none"> <li>To agree on an approach to the establishment of an aquatic emergency animal disease response agreement for Australian aquaculture industries.</li> <li>To ensure the scientific and technical accuracy of AQUAVETPLAN.</li> </ol>
4. Education and training in the aquatic animal health sector	<ol style="list-style-type: none"> <li>To clearly define the current and future needs for aquatic animal health support among Australia's aquaculture industries (established and emerging).</li> <li>If required, to modify the current education and training structures to ensure the needs of Objective 1 are met.</li> <li>To develop an accreditation and competency scheme for aquatic animal health service providers.</li> <li>To provide training in the framework and operational aspects of aquatic animal disease emergency management.</li> </ol>
5. Welfare standards for aquaculture	<ol style="list-style-type: none"> <li>To develop a scientifically-based and harmonised approach to aquatic animal welfare policies across Australia.</li> <li>To increase awareness of aquatic animal welfare issues within industry.</li> <li>To assist international standard setting bodies in developing welfare guidelines and standards that are scientifically based.</li> </ol>
6. Appropriate use of therapeutics for aquatic animal health management	<ol style="list-style-type: none"> <li>To ensure the availability and safe use of therapeutics for cultured aquatic animals in Australia.</li> </ol>
7. Aquatic animal health management as part of ecologically sustainable development	<ol style="list-style-type: none"> <li>To ensure that market opportunities are not lost due to the use of suboptimal health management practices in aquaculture.</li> <li>To raise awareness about disease issues associated with imported live aquatic animals.</li> </ol>

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## Aquatic animal health in Australia

AQUAPLAN: Australia's National Strategic Plan for Aquatic Animal Health 2005–2010 was developed through industry and government cooperation, and followed on from AQUAPLAN 1998–2003. Its purpose is to improve the management of aquatic animal health in Australia through the development, adoption and implementation of programs, policies and codes of practices related to key aspects of aquatic animal health.

### AQUAPLAN 1998–2003

In the past 20 years, many fisheries and aquaculture industries around the world have suffered major production losses because of disease epidemics. To date, Australia has largely avoided such epidemics and retains a favourable aquatic animal health status. This situation is important for international trade and the receipt of premium prices for Australian seafood exports.

In 1995, a major disease incident caused the death of a substantial proportion of the Australian pilchard population. In response, the Australian Government carried out several inquiries into aquatic animal health management. The subsequent reports — *Australian Quarantine: A Shared Responsibility* (Nairn et al 1996)

and the *Report of the National Taskforce on Imported Fish and Fish Products* (Higgins 1996) — revealed that Australia's emergency response capability was limited and ad hoc in nature.

In December 1999, the Federal Minister for Agriculture, Fisheries and Forestry, the Hon Warren Truss, formally launched AQUAPLAN: Australia's National Strategic Plan for Aquatic Animal Health 1998–2003 (Commonwealth of Australia 1999). AQUAPLAN 1998–2003 included eight programs that addressed all aspects of aquatic animal health. Its purpose was to:

- maximise Australia's ability to control aquatic animal disease outbreaks
- maintain market access





- support quality assurance
- improve the productivity and sustainability of Australia's aquatic animal production industries.

Between 1998 and 2001, annual AQUAPLAN stakeholder workshops were held to review progress made on AQUAPLAN projects and determine priorities for the coming year. Towards the end of the planing period, the programs were reviewed by the Fish Health Management Committee (FHMC) Secretariat (Commonwealth of Australia 2002).

Many stakeholders helped to implement these priority projects, including the Australian Government (with its various groups within the then Department of Agriculture, Fisheries and Forestry – Australia, AFFA), state and territory governments, educational institutions, and the commercial fishing (including aquaculture) and recreational fishing sectors.

In the May 2000 budget, the Australian Government announced its *Building a National Approach to Animal and Plant Health* program. Within this initiative, approximately \$3 million over four years was allocated as administered funds to support aquatic animal health in four specific program areas:

- diagnostics
- emergency management planning
- emergency management training and incident simulation
- [establishment of a] joint industry or government body for aquatic animal health management.

In addition, in the 2001 budget, the Australian Government provided departmental funds to AFFA to extend that department's commitment to aquatic animal health for at least another four years.

AQUAPLAN 1998–2003 provided, for the first time, an integrated and planned approach, with industry and governments working together to maximise the opportunities for, and profitability of, Australian aquaculture and fisheries. *AQUAPLAN – A Five Year Review* (Commonwealth of Australia 2002), released in 2002, reviewed the achievements of all eight AQUAPLAN 1998–2003 programs. The review found that considerable progress had been made under AQUAPLAN 1998–2003 (see appendix), that it had delivered significant benefits to the industry and that its integrated approach was required for Australia to remain competitive. However, the review also noted that several priority areas within aquatic animal health remained to be addressed, and that many of the original projects had become core work of several agencies.

With aquaculture expanding to reach a production target of \$2.5 billion by 2010 (ACIL 1999), industries will increasingly focus on export markets to sell their products. Disease problems are becoming an increasing de facto barrier for international trade in fish and fish products. Therefore, a new, national aquatic animal health strategy is needed to underpin the necessary programs that protect our disease-free status and ensure that our aquaculture industry continues to produce 'clean green' seafood of superior quality.

## AQUAPLAN 2005–2010

Through the *Building a National Approach to Animal and Plant Health and Aquaculture Industry Action Agenda* programs, the Australian Government funded three workshops between late 2003 and early 2004. These workshops aimed to identify priority health issues, for Australian, state and territory government and industry, that the aquaculture industry will face from 2005 to 2010. The workshops were held with the Aquatic Animal Health Committee (AAHC) and its technical advisory group, the National Aquatic Animal Health Technical Working Group (NAAH-TWG). They also included representation from the Australian Government Department of the Environment and Heritage (DEH), the Murray-Darling Basin Commission (MDBC), the National Aquaculture Council (NAC) and the wild-catch and recreational fishery industries.

Participants at the workshops identified more than 40 separate issues, encompassing a wide range of topics, to be included in the new AQUAPLAN. They recognised that no single strategy could cover all relevant issues, and that a highly focused strategy was more likely to be adopted and implemented effectively. Therefore, participants ranked the identified issues in order of importance for the next five years, noting that some issues were already covered by other agencies or bodies.

The seven highest ranked priority areas thus became the strategies within AQUAPLAN 2005–2010. These strategies are:

1. Enhanced integration and scope of aquatic animal health surveillance in Australia
2. Harmonisation of approaches to aquatic animal health in Australia
3. Enhancement of aquatic animal emergency disease preparedness and response framework
4. Education and training in the aquatic animal health sector
5. Welfare standards for aquaculture
6. Appropriate use of therapeutics for aquatic animal health management
7. Aquatic animal health management as part of ecologically sustainable development.

These strategies replace the eight priority programs of AQUAPLAN 1998–2003. The following sections of this document examine what was achieved by the previous eight priority programs, discuss the development of the seven AQUAPLAN 2005–2010 strategies in light of the current needs of Australian aquaculture industries, and outline the objectives of the seven strategies.

### Scope of AQUAPLAN 2005–2010

AQUAPLAN 2005–2010 focuses on health in fish, molluscs and crustaceans in aquaculture (including ornamental fish) and recreational fishing, as well as the role of health in commercial fisheries. It also recognises that organisations and programs other than those traditionally associated with aquatic animal health may play a role in health management, because their natural functions align with the overall aims of the plan. Such organisations and programs include the *Aquaculture Industry Action Agenda*, the Fisheries Research and Development Corporation (FRDC), the MDBC and DEH.

As recognised by *AQUAPLAN – A Five Year Review*, many of the AQUAPLAN 1998–2003 projects are ongoing in nature. These projects are now part of the core responsibility of government agencies and, although they are not specifically mentioned in AQUAPLAN 2005–2010, they will continue to occur. For example, emergency management and preparedness is now an established component of aquatic animal health management in Australia, and therefore, its underpinning tools (eg AQUAVETPLAN) and activities will continue to be supported and improved.

Other components that are not specifically mentioned in AQUAPLAN 2005–2010, but are considered core work and will continue to be supported by governments and industry, are the AAHC, its supporting structure (secretariat) and the NAAH-TWG.

Although AQUAPLAN 2005–2010 features seven discrete strategies, it has several common themes, such as recognition of the need for research and the ability to adapt to include emerging aquaculture industries.

Compared with the terrestrial animal industries, knowledge of aquatic animal health management is limited. Research is critical to expand this knowledge and improve management practices to prevent disease or limit its impact on aquaculture industries. During the AQUAPLAN 1998–2003 tenure, responsibility for strategic research was transferred to the FRDC and its Aquatic Animal Health Subprogram. Research will continue to be supported through the FRDC and its Strategic Research and Development Plan for Aquatic Animal Health, as well as through research providers from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and state departments, Technical and Further Education institutions (TAFEs) and academia. These research areas include vaccines, immunostimulants and probiotics.

AQUAPLAN 2005–2010 recognises that new industries will emerge, and that health management within these industries is crucial to their survival. Therefore, the plan integrates emerging industries in each of the individual strategies, rather than including them in stand-alone strategies.

### Roles and responsibilities of AQUAPLAN 2005–2010

AQUAPLAN 2005–2010 was endorsed by the Primary Industries Ministerial Council in April 2005, and is to be adopted by governments and aquatic animal industries Australia-wide.

Although AAHC oversaw the plan's development, stakeholders (eg industries, state and territory governments or the Australian Government) are responsible for implementing projects within the seven strategies. These responsibilities are clearly defined in the individual strategies, and the methods of implementation through discrete projects are also itemised.

The responsibility for implementing each strategy ultimately rests with governments or industries; however, each strategy is assigned a 'driver' or body that will actively progress implementation by encouraging the responsible bodies to deliver them as part of their core activities, or through helping with contract work. AAHC will play a role in monitoring progress and fine-tuning projects.

### The future of aquaculture in Australia

Aquaculture cannot develop without improved infrastructure, such as laboratory capability and capacity, and skilled staff. Such improvements require a shared approach between governments and aquatic industries, similar to the approaches taken in the terrestrial animal and plant sectors.

Adequate resources are also needed. An ad hoc opportunistic approach to aquatic animal health funding and resourcing will not be in the best interest of either industries or governments. Such an approach will also be detrimental to Australia's international reputation, and have a negative impact on trade.

Forward planning at the strategic level is essential. Resource needs should be identified, and an agreement reached on 'who provides what' and, ultimately, 'who pays'. AQUAPLAN 2005–2010 provides this strategic approach to aquatic animal health in Australia. In addition, each strategy includes a detailed description of its objectives and the projects required to achieve them. Roles and responsibilities, timelines and performance indicators are identified in an implementation table to assess the progress of each objective. Some key risks are listed, and contingency actions are also included.

AQUAPLAN 2005–2010 represents a shared vision of governments and industry working together to implement an integrated and planned approach to aquatic animal health within Australia.

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## Strategy 1 – Enhanced integration and scope of aquatic animal health surveillance in Australia

Strategy 1 builds on what was achieved by Program 3 (*Surveillance, monitoring and reporting*) of AQUAPLAN 1998–2003, and aims to support cost-effective surveillance activities that meet national, state and industry needs effectively. The objectives of Strategy 1 are given in Box 1.

This section explains the achievements of AQUAPLAN 1998–2003 and the rationale of Strategy 1 of AQUAPLAN 2005–2010. It also includes a table summarising the programs involved in the implementation of the strategy (Table 1).

### Box 1 Objectives of Strategy 1

- Objective 1** To identify needs and gaps with respect to surveillance requirements for specific industry sectors.
- Objective 2** To develop cost-effective surveillance systems tailored to address the identified gaps and needs.
- Objective 3** To have a surveillance information system that addresses the deficiencies found in objectives 1 and 2 and to have surveillance information and analyses organised and readily accessible at a national level.
- Objective 4** To improve investigation and reporting of major (wild) fish kills.
- Objective 5** To create a consistent system of aquatic animal disease diagnosis, surveillance and reporting across Australia.

Table 1 provides information on how these objectives will be implemented.



## Achievements of AQUAPLAN 1998–2003

AQUAPLAN 1998–2003 included eight priority programs. Program 3, (*Surveillance, monitoring and reporting*), comprised three projects: surveillance and monitoring, reporting, and zoning. Each of these projects was further subdivided into a number of components to address identified priorities. In 2002, *AQUAPLAN – A Five Year Review* found that all projects within Program 3 were either completed or were ongoing activities. The appendix provides an update of the projects' status.

## Rationale for Strategy 1

Strategy 1 of AQUAPLAN 2005–2010 aims to continue the achievements of Program 3 by ensuring that surveillance systems meet specific industry requirements. Participating industry sectors are the main beneficiaries, particularly those that are larger and export focused. Governments will also benefit from a more efficient use of resources.

The main drivers for a continued effort to enhance aquatic animal health surveillance are:

- an increase in disease risks associated with increasing production
- a shift in emphasis to export markets demanding improved health certification
- the maintenance of Australia's present high health status for aquatic animals
- changes to international surveillance standards requiring improved evidence of health status.

These drivers, which are discussed in more detail below, are important for the five major industry sectors – pearls, tuna, oysters, prawns and salmon – which collectively accounted for more than 88 per cent of the gross value of production in 2003 (ABARE 2004). These sectors have different surveillance priorities and needs. For example, the highest priority for an established export-focused industry where individual animals have a high value may be the early detection

of new diseases. On the other hand, an emerging industry may still be clarifying the relative importance of existing endemic diseases. Surveillance priorities are likely to change as an industry develops, and Strategy 1 will address this by monitoring the needs of each industry sector and developing a cost-effective surveillance system accordingly.

## Growth of aquaculture in Australia

The drivers for Strategy 1 reflect changes to the needs and management of Australian aquaculture as the industry continues to grow. In the future, increased production of aquatic animal commodities in Australia is likely to derive from farming rather than from fishing. Since 1992–93, the real value of Australian aquaculture production has more than doubled, from \$331 million (in 2002–03 dollars) to \$743 million in 2002–03. This represents an annual rate of growth of 11 per cent in nominal terms and 8 per cent in real terms (ABARE 2004). To achieve industry forecasts of \$2.5 billion annual sales by 2010 (ACIL 1999), this rate of growth will need to be maintained (Dadswell 2001), representing a doubling in value every six years and tripling every 10 years. Increases in production volume are likely to at least parallel increases in value.

Although domestic consumption is growing, there will be much more dependence on export markets in the future. Increased production can result from an increase in numbers of farms or animals, stocking densities or production efficiency, or from a combination of these factors. Increased production will increase disease risks, while growing reliance on export markets will mean a greater need to meet client country requirements for evidence of health status.

Freedom from many serious diseases is one of Australian aquaculture's prime competitive advantages in meeting future global demand (Dadswell 2001). Continuing industry expansion depends on this high health status being maintained through initiatives (such as the projects planned under Strategy 1) that reduce the risk of disease incursions, and improve early detection and response to emerging disease problems (ACIL 1999).



### Changes to surveillance guidelines

Strategy 1 also takes into account the recent changes to the World Organisation for Animal Health (OIE) standards, which affect surveillance. Section 1.1.4 of the 4th edition of the OIE *Manual of Diagnostic Tests for Aquatic Animals* (OIE 2003) outlines new requirements for surveillance to recognise freedom from infection. These new guidelines shift the emphasis to output-oriented surveillance, and permit countries to use any scientifically justifiable technique to undertake surveillance. This situation challenges OIE member countries to meet quantifiable and demonstrable standards of proof for disease status claims, but encourages innovative approaches for providing this proof. Surveillance requirements range from demonstrating the historical absence of disease or absence of susceptible species, to supporting claims of absence of infection using disease-specific surveys, sampling and laboratory-based testing of clinically healthy animals.

Surveillance is also required to detect major fish kills. In this context, a major fish kill is evidence of unnaturally high numbers of an aquatic animal

species' mortality during a specified period, which adversely affects the viability or health of the species' population in a local geographical area, or in the whole or part of an aquatic or catchment ecosystem.

Although unregulated recreational fish stocking poses a problem for surveillance, this issue cannot be addressed effectively using this strategy. However, the objectives of Strategy 1 will improve monitoring of other fish kills, as well as maintaining Australian aquaculture's high health status through an efficient, national surveillance system.

### Implementation of Strategy 1

The five objectives of Strategy 1 will address issues relating to the growth of the Australian aquaculture industry and changes to surveillance guidelines. For each objective, there is a project with performance indicators, due dates, responsibilities, threats and contingency plans. The implementation of Strategy 1 is summarised in Table 1.

Table 1 – Implementation of Strategy 1

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
Objective 1. To identify needs and gaps with respect to surveillance requirements for specific industry sectors							
1.1	To identify surveillance requirements for states and territories with reference to specific industry sectors as appropriate	Consolidated report describing existing surveillance levels and outlining the needs and gaps with respect to requirements for participating industries	Report accepted by AAHC as noted in minutes	State and territory reports by end 2006 National workshop by end 2007	Joint NAC-AAHC working group with a central person to coordinate	Industry and governments	Industries do not participate Develop solely through government agencies
Objective 2. To develop cost-effective surveillance systems tailored to address the identified gaps and needs							
2.1	To develop cost-effective surveillance systems tailored to address the identified gaps and needs	Surveillance plans in place and progressively implemented for each participating industry	Confirmed in minutes of AAHC	Trial implementation in one sector by end 2008 Implemented in two additional sectors by end 2009 Implemented in three additional sectors by mid 2010	NAC: Joint NAC-AAHC working group	Industry and governments	Systematic approach not effected Take a less-structured approach but at least document specific objectives and implement a basic work plan
Objective 3. To have a surveillance information system that addresses the deficiencies found in Objectives 1 and 2 and to have surveillance information and analyses organised and readily accessible at a national level							
3.1	To have surveillance information and analyses readily accessible at a national level as identified appropriate	System fully implemented, populated with information and providing reports	Confirmed in minutes of AAHC	An information system designed and established and users trained by end 2006 Information submission and reporting routine by end 2007	OCVO	OCVO	Stakeholders do not populate system Revert to present system which is likely to be less efficient in the long term

Table 1 – Implementation of Strategy 1 continued...

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
	An operational pathogen register with universal web access is established and maintained	Confirmed in minutes of AAHC	End 2006	OCVO	OCVO	Stakeholders do not notify register when pathogens identified	Revert to present system which is likely to be less efficient in the long term
<b>Objective 4. To improve investigation and reporting of major (wild) fish kills</b>							
4.1 To improve investigation and reporting of major (wild) fish kills	At least 80 per cent of 'major' fish kills investigated and reported	Review report accepted by AAHC as noted in minutes	Protocols finalised, agreement among agencies by end 2007 Training workshops and recording system in place by end 2008 Routine annual reporting by end 2009	NAAH-TWG	States and territories	Major fish kills not investigated Major fish kills not identifiable	Inquire through AAHC why not happening Only impacts on ability to estimate per cent investigated
<b>Objective 5. To create a consistent system of aquatic animal disease laboratory diagnosis and reporting across Australia</b>							
5.1 To create a consistent system of aquatic animal disease laboratory diagnosis and reporting across Australia	National laboratory network formed with quality assurance program in place	Reports accepted by AAHC as noted in minutes	Consultation and workshop planning process completed by end 2006 Implementation underway by end 2007 Fully implemented by end 2008 Review and adjustment by end 2009	NAAH-TWG	Governments and laboratories	Some laboratories do not participate	Revert to present system which is likely to be less efficient in the long term

AAHC = Aquatic Animal Health Committee; NAAH-TWG = National Aquatic Animal Health Technical Working Group; MAC = National Aquaculture Council; OCVO = Office of the Australian Chief Veterinary Officer





## Strategy 2 – Harmonisation of approaches to aquatic animal health in Australia

Strategy 2 builds on the achievements of Program 7 from AQUAPLAN 1998–2003 (*Legislation, policies and jurisdiction*). The strategy will harmonise approaches to aquatic animal health in Australia. It will achieve this by providing the basis for an effective management system for emergency and endemic disease, and for

international and domestic trade in aquatic animal products. The objectives of Strategy 2 are given in Box 2.

This section explains the achievements of AQUAPLAN 1998–2003 and the rationale of Strategy 2 of AQUAPLAN 2005–2010. It also includes a table summarising the programs involved in the implementation of the strategy (Table 2).

### Box 2 Objectives of Strategy 2

- Objective 1** To harmonise the framework for aquatic animal emergency disease management in Australia.
- Objective 2** To implement a common approach to zoning for disease control and market access.
- Objective 3** To implement a common approach for managing pathogens associated with the translocation of live aquatic animals across Australia.
- Objective 4** To harmonise any new legislative, code of practice or quality assurance approaches as they are initiated in aquaculture.

Table 2 provides information on how these objectives will be implemented.

## Achievements of AQUAPLAN 1998–2003

Program 7 of AQUAPLAN 1998–2003 (*Legislation, policies and jurisdiction*) comprised two projects: legislation, policies and jurisdiction; and translocation. Each project was subdivided into components that address identified priorities. When reviewed in 2002, all projects within Program 7 were either completed or were ongoing activities. The appendix provides an update of the projects' status.

## Rationale for Strategy 2

Strategy 2 will build on Program 7 of AQUAPLAN 1998–2003 to support aquaculture industry growth through effective emergency animal disease response systems. This growth also depends on translocating aquatic animals, and industry and government must therefore have a legislative and practical framework that allows:

- legislative and cooperative approaches to emergency disease outbreaks
- zoning systems for disease control and marketing purposes
- a system of translocation of live aquatic animals and aquatic animal products.

Matching the approaches of these frameworks will make them more efficient and effective, and will help to ensure a consistent approach between Australia's internal processes and international obligations under the World Trade Organization (WTO).

## Harmonising legislative framework and managing disease responses

The objectives of Strategy 2 will ensure consistency in legislation across jurisdictions, leading to more effective and efficient emergency disease responses. They will also support the actions of the new rapid-response team that provides additional resources to manage emergency disease responses, where required

by states and territories. Strategy 2 recognises that jurisdictions may have different risk-management strategies, depending on what aquatic industries are present, the size of those industries, local risk factors and, in particular, environmental issues specific to each jurisdiction.

## Translocation guidelines for live aquatic animals

Using agreed translocation guidelines, Strategy 2 will also help to organise the existing translocation guidelines for live aquatic animals (Ministerial Council on Forestry, Fisheries and Aquaculture 1999) into discrete, active systems. The strategy will produce a consistent translocation process that will be aligned with Australia's international requirements for quarantine protocols of live aquatic animal movement into Australia. The existing *AQUAPLAN Zoning Policy Guidelines* (Commonwealth of Australia 2001) will also be reviewed by Strategy 2.

A strategic advantage of aquatic animal health over terrestrial animal health is the relative newness of the systems that are in place. Strategy 2 uses this advantage by ensuring that any new initiatives are approached in a coordinated way across jurisdictions.

In this document, harmonisation means a consistent approach, but it does not mean that all jurisdictions or industries must have the same legislation, codes of practice or quality assurance programs, or the same outcomes.

## Implementation of Strategy 2

The four objectives of Strategy 2 will address issues relating to the coordination of a national emergency disease response, the organisation of zones for marketing and disease control, and the production of translocation guidelines for live aquatic animals. For each objective, there is a project with performance indicators, due dates, responsibilities, threats and contingency plans. The implementation of Strategy 2 is summarised in Table 2.

Table 2 – Implementation of Strategy 2

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
Objective 1. To harmonise the framework for aquatic animal emergency disease management in Australia							
1.1	Implementation of the recommendations – where applicable – arising from the first two multijurisdiction disease simulation exercises: <i>Exercise Tethys</i> (aquatic) and <i>Exercise Minotaur</i> (terrestrial)	Improvements seen in updated systems	31-12-2006	AAHC	Participating jurisdictions	Jurisdictions unwilling to implement the recommendations	Seek high level endorsement (PISC) of the implementation of the recommendations
1.2	Identification of further opportunities to harmonise emergency disease management through the conduct of additional simulation exercises	To the satisfaction of participating jurisdictions	Ongoing (one exercise per year)	OCVO	Participating jurisdictions	Jurisdictions do not see the need for these harmonisation activities	Address the need at high level forums (eg PISC)
Objective 2. To implement a common approach to zoning for disease control and market access							
2.1	Review and update, if required, of the current <i>AQUAPLAN Zoning Policy Guidelines</i> by governments and industry	Endorsed by AAHC	31-12-2006	AAHC	Governments	Importance of revision not recognised, nor revisions implemented	Highlight the need for updated guidelines at high level forums (eg PISC)

Table 2 – Implementation of Strategy 2 continued...

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
Objective 3. To implement a common approach for managing pathogens associated with the translocation of live aquatic animals across Australia							
3.1 The creation and adoption of National Technical Guidelines for the Translocation of Live Aquatic Animals, with respect to pathogens	Guidelines completed and adopted	Guidelines endorsed and regularly reviewed by appropriate agencies	31-12-2007	AAHC	AAHC	Failure to engage drivers for individual projects	High level agreement is required that flows down to responsibilities in individual governments and industries – this is particularly true for data dictionary changes and establishment of National Reference Laboratories
3.2 The development, implementation and recording (national) of specific translocation policies for live aquatic animals as appropriate	Translocation policies for live aquatic animals developed	Policies implemented by appropriate agencies	31-12-2008	AAHC	Industry		
3.3 Development of policy guidelines for the translocation of bait and berley within Australia	Policy guidelines developed	Policies implemented by appropriate agencies	31-12-2009	AAHC	AAHC		



Table 2 – Implementation of Strategy 2 continued...

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
Objective 4. To harmonise any new legislative, code of practice or quality assurance approaches as they are initiated in aquaculture							
4.1	Provision of a forum for the sharing of information to aid the harmonisation of new legislation, codes of practice, and quality assurance programs developed for the aquatic animal industries with respect to aquatic animal health	Stakeholders contribute to the forum	30-06-2006	Aquaculture Committee	MACC	Individual states or industries avoid coordinated approaches own way	High-level agreement required at Ministerial Council level and go their
4.2	Development of (or collation of existing) bio-security principles for use by the wider aquaculture community as appropriate.	Adopted by major industries	31-12-2007	NAC	AAHC/Industry		

AAHC = Aquatic Animal Health Committee; MACC = Marine and Coastal Committee; NAC = National Aquaculture Council; OCVO = Office of the Australian Chief Veterinary Officer; PISC = Primary Industries Standing Committee



## Strategy 3 – Enhancement of aquatic animal emergency disease preparedness and response framework

Strategy 3 builds on Programs 4 and 8 from AQUAPLAN 1998–2003. This strategy will ensure rapid and effective responses to emergency aquatic animal disease incidents by establishing a standard approach to emergency responses for Australian aquaculture industries, and assessing the accuracy of

AQUAVETPLAN (Aquatic Animal Veterinary Emergency Plan). The objectives of Strategy 3 are given in Box 3.

This section explains the achievements of AQUAPLAN 1998–2003 and the rationale for Strategy 3. It also includes a table summarising the programs involved in the implementation of the strategy (Table 3).

### Box 3 Objectives of Strategy 3

**Objective 1** To agree on an approach to the establishment of an aquatic emergency animal disease response agreement for Australian aquaculture industries.

**Objective 2** To ensure the scientific and technical accuracy of AQUAVETPLAN.

Table 3 provides information on how these objectives will be implemented.



## Achievements of AQUAPLAN 1998–2003

Program 4 of AQUAPLAN 1998–2003 (*Preparedness and response*) comprised two projects: to include aquatic animal disease management in the Consultative Committee on Emergency Animal Diseases (CCEAD) process, and to develop AQUAVETPLAN (see below).

Program 8 of AQUAPLAN 1998–2003 (*Resources and funding*), comprised five projects:

- ongoing funding arrangements for AQUAPLAN 1998–2003
- funding to underpin aquatic animal disease emergency response arrangements (AQUAVETPLAN)
- continuing funding to support disease monitoring and surveillance and reporting activities
- continuing funding to support development of awareness and promotion for aquatic animal diseases
- evaluating the potential for insurance companies and underwriters to provide compensation coverage.

The final review found that significant progress for Program 4 had been achieved; however, Program 8 was the most difficult AQUAPLAN 1998–2003 program to implement, and had only made marginal progress. The appendix provides an update of the projects' status.

## Rationale for Strategy 3

The two objectives of Strategy 3 extend the work of AQUAPLAN 1998–2003 in establishing rapid and efficient emergency disease responses. To achieve this, the strategy will examine the financial consequences of compulsory animal destruction, and the scientific and technical accuracy of AQUAVETPLAN for managing an emergency disease response. These two issues are discussed in more detail below.

### Financial considerations for compulsory animal destruction

In 2002, the *AQUAPLAN Resources and Funding Consultancy* (EconSearch 2002) identified gaps in aquacultural insurance and recommended that insurance and potential options for dealing with compulsory destruction be reviewed. The subsequent FRDC-funded study on funding and compensation for compulsory destruction of aquatic animal stock and crop loss coverage (East 2004) found that:

- compulsory destruction of stock to contain disease is exempted from standard aquaculture stock mortality insurance policies
- related expenses could be covered through a cost-sharing arrangement (CSA).

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The review recommended that a cost-effective pathway for establishing a CSA be investigated and illustrated, using a major sector of aquaculture as a pilot study.

Subsequently, a pilot study examined the feasibility of the salmonid sector joining Animal Health Australia (AHA) and accessing the terrestrial Emergency Animal Disease Response Agreement (EADRA) program to cover the salmon industry in the event of an emergency disease outbreak. The study recommended that either sectors of aquaculture join AHA and become signatories to the existing EADRA, or a separate aquaculture CSA (administered by AHA or independently) be formed.

Given these background studies, the aquaculture industry, or sectors of it, must decide on the most appropriate option for establishing CSAs.

Strategy 3 will develop and assess principles for including aquatic animal diseases in CSAs as part of its objective to establish a coordinated, rapid and efficient emergency disease response.

### AQUAVETPLAN

The Australian AQUAVETPLAN was developed as part of Program 4 of AQUAPLAN 1998–2003, and will be reviewed by Strategy 3 of AQUAPLAN 2005–2010.

AQUAVETPLAN is a series of technical response documents that describe Australia's proposed approach to an emergency aquatic animal disease

incident. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency management plans, and form the basis of emergency responses. They will be updated as required, to take account of research, experience and field trials, and to cover emerging disease threats.

As the Australian aquaculture industry continues to grow, there will be an increased need to be aware of, and understand, emergency management frameworks among industries and governments. Therefore, Strategy 3 will review AQUAVETPLAN and assess its scientific and technical accuracy, to ensure its continuing relevance to Australian aquaculture industries.

### Implementation of Strategy 3

The two objectives of Strategy 3 will address issues relating to a coordinated, rapid and effective emergency response (including financial considerations), and the accuracy of AQUAVETPLAN for the current needs of aquaculture industries. For each objective, there is a project with performance indicators, due dates, responsibilities, threats and contingency plans. The implementation of Strategy 3 is summarised in Table 3.



**Table 3 – Implementation of Strategy 3**

<b>Project</b>	<b>Performance indicator</b>	<b>Standard</b>	<b>Due date</b>	<b>To be progressed through</b>	<b>Responsibility</b>	<b>Threat</b>	<b>Contingency</b>
Objective 1. To agree on an approach to the establishment of an aquatic emergency animal disease response agreement for Australian aquaculture industries							
1.1	Development of an issues paper to provide information including the principles of aquatic animal diseases with respect to inclusion in cost sharing agreements and identification of relevant activities within other sectors (eg plants, marine pests)	Issues paper developed and distributed to industry and government stakeholders	31-07-05	DAFF	OCVO	Failure to complete within time frame	Identify resources available to complete the paper within timeframes
1.2	Provision of formal industry and state and territory responses on willingness (or otherwise) to enter into discussions regarding the establishment of an EADRA for the aquaculture industry	Industry and governments provide a formal response	31-12-05	NAC, governments	AAHC	Lack of interest	Foster support at high industry and government levels
1.3	If the decision is to move forward with the discussions, conduct a stakeholder workshop to agree on the most appropriate method to establish an EADRA for the aquaculture industries	Workshop held	31-12-06	DAFF			
Objective 2. To ensure the scientific and technical accuracy of AQUAVETPLAN							
2.1	Review and validate manuals to ensure they are accurate/appropriate for use in an emergency response	AQUAVETPLAN manuals reviewed and validated	Ongoing	AAHC	NAAH-TWG	As above	

AAHC = Aquatic Animal Health Committee; DAFF = Australian Government Department of Agriculture, Fisheries and Forestry; EADRA = Emergency Animal Disease Response Agreement; NAAH-TWG = National Aquatic Animal Health Technical Working Group; NAC = National Aquaculture Council; OCVO = Office of the Australian Chief Veterinary Officer



## Strategy 4 – Education and training in the aquatic animal health sector

Strategy 4 builds on Program 5 (*Awareness*) from AQUAPLAN 1998–2003. This strategy aims to enhance education and training in aquatic animal health at all levels of teaching. Better education and training will support the continuing growth, profitability and sustainability of Australia's aquaculture industries. The objectives of Strategy 4 are given in Box 4.

This section explains the achievements of AQUAPLAN 1998–2003 and the rationale for Strategy 4. It also includes a table summarising the programs involved in the implementation of the strategy (Table 4).

### Box 4 Objectives of Strategy 4

- Objective 1** To clearly define the current and future needs for aquatic animal health support among Australia's aquaculture industries (established and emerging).
- Objective 2** If required, to modify the current education and training structures to ensure Objective 1 needs are satisfied.
- Objective 3** To develop an accreditation/competency scheme for aquatic animal health service providers.
- Objective 4** To provide training in the framework and operational aspects of aquatic animal disease emergency management.

Table 4 provides information on how these objectives will be implemented.

## Achievements of AQUAPLAN 1998–2003

The four projects of Program 5 (*Awareness*), were:

- public awareness and communication
- education and training
- extension services
- quality assurance and food safety.

Each project was subdivided into a number of components to address identified priorities. The final review found that all projects within Program 5 were either completed or were ongoing activities. The appendix provides an update of the projects' status.

## Rationale for Strategy 4

Strategy 4 will help to support Australian aquaculture industries by meeting different sectors' needs for health support, and by measuring the education and training of aquatic animal health professionals.

### Required support and skill sets

Australia's growing aquaculture sector requires matching expert support in health management, both for established and emerging sectors. This includes access to well-trained and competent aquatic animal health professionals.

For continued growth of aquaculture industries, this support is needed at three levels – field, laboratory-based and specialist.

Each of these levels requires support using a different set of skills. This skill set changes from being wide and generalised (in a laboratory context) to narrow and specific (in a specialist context). The skills required by aquatic animal health professionals also extend to wild fisheries and aquatic conservation issues, specifically fish kills, restocking, translocation, import risk assessment, and disease freedom assessment for trade.

One of the objectives of Strategy 4 is to identify the needs for aquatic animal health expertise in Australia's aquaculture industries. Therefore, it will also identify the scope of the skill set required to meet these needs.

## Education and training

Aquatic animal health service providers have expressed concern about a shortfall of aquatic animal health professionals servicing Australia's aquaculture industries, and that demands for service exceed individual jurisdiction's capacity to deliver. Despite this demand, many Australian education systems and institutions do not adequately cover aquatic animal health.

As well as including aquatic animal health content in formal education courses, there is also a need for continuing education opportunities. Therefore, jurisdictions will continue to encourage animal health professionals to attend existing courses, provide feedback on the conduct of these courses to training providers, and encourage continued provision and development of relevant courses.

An adequate level of awareness and training in health management at the farmers' and managers' levels is vital for a successfully growing aquaculture industry. To achieve this awareness, Strategy 4 will identify accreditation mechanisms to measure competency in professionals providing aquatic animal health services to the aquaculture sector. These mechanisms will provide quality assurance and will help ensure that the aquaculture sector has expert and competent aquatic animal health input. Accreditation mechanisms will also demonstrate the competency of Australia's aquatic animal health personnel.

## Implementation of Strategy 4

The four objectives of Strategy 4 will address education and training for aquatic animal health personnel. For each objective, there is a project with performance indicators, due dates, responsibilities, threats and contingency plans. The implementation of Strategy 4 is summarised in Table 4.

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**Table 4 – Implementation of Strategy 4**

<b>Project</b>	<b>Performance indicator</b>	<b>Standard</b>	<b>Due date</b>	<b>To be progressed through</b>	<b>Responsibility</b>	<b>Threat</b>	<b>Contingency</b>
<b>Objective 1. To clearly define the current and future needs for aquatic animal health support among Australia's aquaculture industries (established and emerging)</b>							
1.1	Identification of current resource levels within the aquatic animal health service industry, with thought given to possible succession planning activities	Paper endorsed/ considered by major government and industry stakeholders	31-12-05	NAAH-TWG	NAC, AAHC	Failure to convince industry and potential funding bodies that there is a need to review aquatic animal health training and education in Australia	The need to review this area has already been noted. The strategy has been endorsed by NAAH-TWG. If further support is required to ensure funding, then lobbying for support at a higher level will be required
1.2	Identify and collate existing continuing education opportunities into a training register	Register available for use	31-12-06	NAC	AAHC	Register is not developed due to lack of resources or commitment	Secure external resources for consultant
<b>Objective 2. If required, to encourage modification of the current education and training structures to ensure Objective 1 needs are satisfied</b>							
Development and implementation of strategies to address the identified gaps, including the provision of 'on the job training' and scholarship support		Programs developed to address identified gaps by appropriate stakeholders	31-12-07	AAHC on a jurisdictional basis	Training institutions		



Table 4 – Implementation of Strategy 4 continued...

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
Objective 3. To develop an accreditation/competency scheme for aquatic animal health service providers							
3.1	Identify the current mechanisms for the accreditation and competency assessment of animal health professionals, and determine the suitability of these schemes for the accreditation of aquatic animal health professionals	Aquatic animal health professionals join existing schemes	30-06-07	NAAH-TWG	AAHC	Managers of existing schemes reluctant to have aquatic animal health professionals join new schemes	Promote benefits of membership of aquatic animal health professionals
3.2	Develop and implement new accreditation systems where current schemes are deemed not to meet the specific needs of aquatic animal health professionals	Aquatic animal health professionals join new schemes	06-08	NAAH-TWG	AAHC		Promote benefits of membership to aquatic animal health professionals
Objective 4. To provide training in the framework and operational aspects of aquatic animal disease emergency management							
4.1	Documentation of the training exercises conducted by state and territory governments and the Australian Government, including industry involvement and training	Increased awareness of emergency management frameworks amongst jurisdictions and industries	Ongoing	AAHC	Governments	Failure to attract funding to support projects	Recruit high level 'sponsors' for grant proposals, ensure strong industry support, identify impediments to funding and lobby to ensure means to overcome such impediments are identified
4.2	Conduct training on the operations of the aquatic CCEAD	Industry and government representatives aware of the aqCCEAD guidelines and their responsibilities	Ongoing	AAHC	DAFF	As above	

AAHC = Aquatic Animal Health Committee; DAFF = Australian Government Department of Agriculture, Fisheries and Forestry; aqCCEAD = Aquatic Consultative Committee on Emergency Animal Diseases; CCEAD = Consultative Committee on Emergency Animal Diseases; NAAH-TWG = National Aquatic Animal Health Technical Working Group; NAC = National Aquaculture Council



## Strategy 5 – Welfare standards for aquaculture

Strategy 5 was developed following a review of industry codes of aquatic animal welfare by the Fish Health Management Committee (FHMC). The strategy, in conjunction with the Aquatic Animal Health Committee (AAHC), aims to develop a position statement on aquatic animal welfare. This statement will enhance aquatic animal health and production

and favourably position Australian aquaculture products for domestic and international markets. The objectives of Strategy 5 are given in Box 5.

This section explains the rationale for Strategy 5. It also includes a table summarising the programs involved in the implementation of the strategy (Table 5).

### Box 5 Objectives of Strategy 5

- Objective 1** To develop a scientifically-based and harmonised approach to aquatic animal welfare policies across Australia.
- Objective 2** To increase awareness of aquatic animal welfare issues within industry.
- Objective 3** To assist international standard setting bodies in developing welfare guidelines and standards that are scientifically based.

Table 5 provides information on how these objectives will be implemented.

## Rationale for Strategy 5

Aquatic animal welfare was not included in AQUAPLAN 1998–2003; however, good welfare practices are essential for successful aquatic animal health and Australian aquaculture industry growth.

In March 2002, the director general of the World Organisation for Animal Health (OIE) said:

Animal welfare issues are coming under increasing public scrutiny, not only for terrestrial but also for aquatic animals. Guidance on animal welfare issues is one of OIE's responsibilities and also needs to be given attention by national authorities in its Member Countries in order to reduce negative effects of modern fish farming on the welfare of the animals (Vallat 2002).

Although animal welfare is not covered by the WTO's Agreement on the Application of Sanitary and Phytosanitary Standards, OIE member countries requested guidelines and recommendations to help them in bilateral negotiations. As part of the OIE 2001–2005 Strategic Plan, the director general of the OIE convened an ad hoc group on animal welfare, comprising specialists from five continents, to investigate the scientific aspects of animal welfare. A permanent Working Group on Animal Welfare was formed and held its first meeting in October 2002. Guidelines and recommendations developed by the OIE will apply to all its member countries, including Australia. Strategy 5 will assist Australian aquaculture industries to be actively involved in this process.

### Benefits of good welfare practices

The scientific community is divided on the issue of nociception (the perception of pain) in teleosts. However, valid scientific approaches have been used in aquaculture and other food production industries to identify major components of wellbeing in cultured

animals. This approach may be effective for assessing current practices and suggesting alterations that benefit the animals and industries involved – the latter in both product quality and market acceptance. Good welfare practices are generally reflected in the quality of the product. For instance, slaughter methods have an impact on the quality of the flesh, and environmental stressors depress growth in a number of aquaculture species. Thus, the commercial value of animal welfare remains a powerful driver in shaping industry practices.

Although welfare was not covered in the original AQUAPLAN 1998–2003, in 2000, the FHMC requested that the existing industry codes of practice be reviewed to identify gaps in animal welfare. This review showed that several aquatic animal industries and industry groups have developed codes of practice for their specific industry. Some of these codes have sections on aquatic animal welfare with varying levels of detail. The *Australian Seafood Users Manual* (Yearsley et al 2000) has the most thorough coverage on welfare.

Strategy 5 will use the FHMC review to develop an aquatic animal welfare position statement, in conjunction with AAHC.

### Developing an aquatic animal welfare position statement

In early 2003, AAHC requested that a position statement on aquatic animal welfare be developed. AAHC has also helped to develop the *Australian Animal Welfare Strategy* (Australian Government Department of Agriculture, Fisheries and Forestry 2004).

Because of the wide variation in the practices of harvest fisheries, recreational fisheries, and aquaculture, AAHC will initially focus on the welfare of aquatic animals under aquaculture and live holding systems only. In addition, lower order animals (such as univalve and bivalve molluscs) are unlikely to experience nociception, and it is difficult to measure this

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scientifically. Therefore, AAHC will initially focus on the welfare of finfish, crustaceans, and cephalopods. Strategy 5 will apply to finfish, crustaceans and cephalopods in aquaculture systems (including ornamentals and animals reared for restocking programs), and facilities where these animals are held for human consumption (eg the restaurant trade). It does not include non-commercial household aquaria.

Australian states and territories have legislation governing the prevention of cruelty to animals; however, they vary in their coverage of fish and invertebrates. Some states and territories also have codes of practice for specific issues, such as codes of practice for pet shops or for the care and use of animals for scientific purposes; however, welfare guidelines that safeguard aquatic animal welfare need to be developed and adopted in a consistent, responsible and nationally coordinated manner.

State and territory governments will be expected to revise their policies in line with new relevant scientific and technological developments, as part of their core responsibilities. Stakeholder groups will also be expected to actively engage with research providers to support research of welfare standards, such as appropriate welfare indicators and nociception.

Although Strategy 5 is limited to aquaculture industries such as the ornamental aquatic animal industry, restocking programs, and the restaurant trade, it recognises that the Australian recreational fishing industry has a keen interest in aquatic animal welfare. This industry also has an important role to play in protecting aquatic animal welfare and encouraging consultation between the appropriate bodies in these sectors to ensure consistent approaches. A position statement covering animal welfare aspects of recreational fishing was issued in April 1999 by the National Consultative Committee on Animal Welfare (NCCAW) (NCCAW 1999).

Consistent and objective welfare policy guidelines across Australia will be a major step for developing welfare standards in aquaculture, and will potentially reduce any impact on industries arising from loss of market access or adverse consumer sentiment. Globally, preliminary activity is already introducing aquatic animal welfare as a market access issue. Australian industries will need to monitor developments in welfare requirements that are adopted by importing countries.

In the medium to long term, guidelines and standards for aquatic animal welfare will be developed through OIE. Australia has the option of watching these developments and passively adopting standards, or preferably, influencing the international process. For this to be effective, Australia will need to become a leader in this field. Strategy 5 will help to achieve this by developing an aquatic animal welfare position statement for Australian aquaculture industries.

## Implementation of Strategy 5

The three objectives of Strategy 5 will review existing aquatic animal welfare policies and develop a national aquatic animal welfare position statement; increase awareness of the benefits of good welfare practices within Australian aquaculture industries; and engage with international bodies to develop scientifically based aquatic animal welfare standards. For each objective, there is a project with performance indicators, due dates, responsibilities, threats and contingency plans. The implementation of Strategy 5 is summarised in Table 5.

**Table 5 – Implementation of Strategy 5**

<b>Project</b>	<b>Performance indicator</b>	<b>Standard</b>	<b>Due date</b>	<b>To be progressed through</b>	<b>Responsibility</b>	<b>Threat</b>	<b>Contingency</b>
Objective 1. To develop a scientifically-based and harmonised approach to aquatic animal welfare policies across Australia							
1.1	Review existing welfare policies applied in aquatic animal (including aquaculture, ornamentals and wild and recreational fishing) industries in Australia	To the satisfaction of AAHC	31-12-05	AAHC Animal Welfare Working Group	AAHC	Industry not open about current standards	Educate industry on the value and benefits of animal welfare
1.2	Develop and adopt an AAHC position statement on aquatic animal welfare and seek endorsement by governments and peak industry bodies	Endorsement by PISC and peak industry bodies (NAC)	31-12-06	AAHC Animal Welfare Working Group	AAHC	No consensus	Stakeholder involvement from start
1.3	Continue to provide advice on aquatic animal welfare issues through the inclusion of an AAHC member on NCCAW	NCCAW appreciates advice	Ongoing	AAHC representative on NCCAW	AAHC	No consensus between AAHC and NCCAW position	Frequent feedback from AAHC representative on NCCAW
1.4	Provide advice on the development and implementation of specific projects under the Australian Animal Welfare Strategy	To the satisfaction of AAHC	Ongoing	AAHC representative on NCCAW and AAHC Animal Welfare Working Group	AAHC	NCCAW and Animal Welfare Subcommittee do not accept advice	Frequent feedback from AAHC representative on NCCAW

Table 5 – Implementation of Strategy 5 continued...

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
Objective 2. To increase awareness of aquatic animal welfare issues within industry							
2.1	Promote the uptake of industry codes of practice through improved access to relevant information, including provision of information sourced under objective 1.1	Undertaking of industry workshops to encourage the uptake of industry codes of practice	To the satisfaction of attendees and ongoing	31-12-06	AAHC Animal Welfare Working Group and major industry sectors	NAC by industry	Poor attendance Highly promote workshops through industry eg NAC and hold workshops where industry are and/or connect to industry events
Objective 3. To assist international standard setting bodies in developing welfare guidelines and standards that are scientifically based							
3.1	Proactively engage with the relevant standard-setting bodies to assist development of international welfare standards that are underpinned by science	Proactive engagement with the relevant standard-setting bodies to assist development of international welfare standards that are underpinned by science	Invited to participate in international forums	Ongoing	OCVO	DAFF	Lack of resources Obtain high level endorsement for such activities

AAHC = Aquatic Animal Health Committee; DAFF = Australian Government Department of Agriculture, Fisheries and Forestry; NAC = National Aquaculture Council; NCCAW = National Consultative Committee on Animal Welfare; OCVO = Office of the Australian Chief Veterinary Officer; PISC = Primary Industries Standing Committee





## Strategy 6 – Appropriate use of therapeutics for aquatic animal health management

Strategy 6 was developed from AQUAPLAN 1998–2003's Program 5 (*Awareness*), based on Project 4 (*Quality assurance and food safety*). It emphasises the need to use therapeutics safely in aquatic animal health and welfare. The objective of Strategy 6 is given in Box 6.

This section explains the achievements of AQUAPLAN 1998–2003 and the rationale for Strategy 6. It also includes a table summarising the programs involved in the implementation of the strategy (Table 6).

### Box 6 Objective of Strategy 6

**Objective 1** To ensure the availability and safe use of therapeutics for cultured aquatic animals in Australia.

Table 6 provides information on how this objective will be implemented.

## Achievements of AQUAPLAN 1998–2003

Program 5 (*Awareness*) comprised four projects, and each was subdivided into a number of components to address identified priorities. When reviewed, all projects within Program 5 were either completed or were ongoing activities. The appendix provides an update of the projects' status.

## Rationale for Strategy 6

The aquaculture industry is a rapidly growing food and product sector. One of its major challenges is to prevent and manage diseases within production systems. Aquatic animal disease management should take into account animal welfare as well as market access requirements.

Chemicals used to prevent or manage disease problems must be used in an appropriate manner with particular reference to market requirements, where applicable. To achieve this, Strategy 6 will help to ensure that therapeutics (either registered or used through a permit system) are readily available, and that health management personnel who administer therapeutics are aware of their appropriate use.

### Therapeutic shortages

There is a worldwide shortage of chemicals that are registered for use in aquatic animals. The shortage means that veterinarians often have to prescribe chemicals 'off-label' without adequate information on dosage or drug clearance rates in aquatic species. Therefore, dosage and withholding periods have to be decided without sufficient data. This problem may be compounded by a lack of experience with aquatic animal health in many veterinarians.

Strategy 6 will help to alleviate these problems by updating lists of therapeutics used in aquaculture and organise training courses for their safe and appropriate use.

### Alternative disease management methods

While Strategy 6 focuses on therapeutics (eg antibiotics), AQUAPLAN 2005–2010 recognises that treatment is only one line of defence against disease. Improved hygiene and management practices, as well as a range of preventative substances (including vaccines, immunostimulants and probiotics), also play a pivotal role in disease prevention. Overseas experience shows that with increasing use of preventative tools (such as vaccines), the need for therapeutic tools (such as antibiotics) can drastically decline. Currently, the biggest barrier to the safe and effective use of preventative substances is the lack of underlying research and development. Therefore, these additional issues are addressed in Australia's aquatic animal health research and development strategies, rather than in AQUAPLAN 2005–2010.

## Implementation of Strategy 6

The objective of Strategy 6 will encourage safe and effective use of therapeutics, by identifying commonly used chemicals and providing training for their use. This objective has projects with performance indicators, due dates, responsibilities, threats and contingency plans. The implementation of Strategy 6 is summarised in Table 6.



**Table 6 – Implementation of Strategy 6**

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
Objective 1. To ensure the availability and safe use of therapeutics for cultured aquatic animals in Australia							
1.1	Update existing lists of products required for use by aquatic animal industries	Identification of products required by aquaculture industries	Products registered under MUP system	31-12-06	NAC	Failure to engage drivers for individual projects	Industry must commit to funding of the initiatives
1.2	The formation of a working group to liaise with the APVMA – this group will be responsible for the production of issue papers and the identification of funding sources	Development of issues paper, liaison with APVMA	Issues paper considered at stakeholder workshop	30-06-06	NAC		
1.3	The registration of up to 40 products for use by aquatic animal industries	Products registered for use	Registered products used by industry	30-06-10	NAC		APVMA
1.4	The identification and registration of veterinary chemicals for use in cultured aquatic species in Australia using the Category 40 system through the APVMA	Chemicals for use in cultured aquatic species in Australia identified	Chemicals registered under Category 40 system	30-06-08	NAC		APVMA
1.5	Encourage responsible bodies such as NAC to obtain MUPs for a range of basic pharmaceuticals to be used in generic groups of animals – crustaceans, coldwater finfish etc – rather than specific species	MUPs obtained for basic pharmaceuticals	Targets for registrations to be set once the target chemicals have been identified and the priorities for registration are agreed with industry	31-12-09	NAC		APVMA
1.6	Conduct of sector specific farm-level training courses for the safe and appropriate use of chemicals used in aquaculture	Positive feedback from course participants	Participants recommend course	31-12-08	NAC	No interest in participation	Ensure awareness about these courses

AAHC = Aquatic Animal Health Committee; APVMA = Australian Pesticides and Veterinary Medicines Authority; MUP = minor use permit; NAC = National Aquaculture Council



## Strategy 7 – Aquatic animal health management as part of ecologically sustainable development

Strategy 7 was developed from Program 5 (*Awareness*) from AQUAPLAN 1998–2003. The strategy is based on Project 1, and emphasises the need to ensure that aquaculture has a minimal impact on the environment, and is promoted as an ecologically sustainable activity. The objectives of Strategy 7 are given in Box 7.

This section explains the achievements of AQUAPLAN 1998–2003 and the rationale for Strategy 7. It also includes a table summarising the programs involved in the implementation of the strategy (Table 7).

### Achievements of AQUAPLAN 1998–2003

Program 5 (*Awareness*) comprised four projects, and each was subdivided into a number of components to address identified priorities. When reviewed, all projects within Program 5 were either completed or were ongoing activities. The appendix provides an update of the projects' status.

#### Box 7 Objective of Strategy 7

**Objective 1** To ensure that market opportunities are not lost due to the use of sub-optimal health management practices in aquaculture.

**Objective 2** To raise awareness about disease issues associated with imported live aquatic animals.

Table 7 provides information on how these objectives will be implemented.

## Rationale for Strategy 7

As the Australian aquaculture industry grows and production increases in intensity, so will the pressure that it exerts on the environment. Potential environmental threats of the industry include the increased risk of diseases that do not normally affect aquaculture species, the introduction of new diseases through live fish releases (particularly from hatcheries), and the buildup of antibiotic residues and development of antibiotic resistance. These threats are discussed below, along with methods for reducing them and future developments of the aquaculture industry.

### Expression of new diseases

Aquaculture has the potential to affect the ecosystem by creating artificial environmental conditions that allow the clinical expression of diseases by pathogens that do not normally cause disease in the wild. For example, inadequate treatment of pond effluent water can lead to an increased risk of disease.

### Imported disease risk

Further disease threats to the ecosystem can arise from importing and releasing live fish, such as ornamental species, into the waterways. Pathogens and diseases that are transferred by hatchery fish may reduce survival and introduce new diseases to regions and farms. Native fish hatcheries have been implicated in the translocation of non-endemic fish, such as the banded grunter, which is now found as far south as the Clarence River in New South Wales.

Continuing poor practices may have serious long-term biological consequences for populations and species, and hinder the development of sustainable and economically viable aquaculture industries. To address these concerns, hatchery quality assurance programs are being developed for use by government and commercial hatcheries. The Aquatic Animal Health Committee (AAHC) will monitor the developments of these programs.

Strategy 7 will increase awareness of, and help reduce, the disease risks associated with live fish releases.

### Use of antibiotics

Using antibiotics in aquatic animals may cause residue buildup in edible tissues that subsequently affects market access. Antibiotic use may also lead to antimicrobial resistance. Export markets are already

using disease and chemical residues as trade barriers to importing aquatic animals and aquatic animal products. In the future, the ecological impact of the industry may become a trade issue.

### Future developments

Intensive aquaculture is a relatively new industry within Australia, and production systems are being continuously improved. As adverse management practices and their potential impact on the environment are identified, industries have modified their systems to address the issue and eliminated or reduced the impact on the environment surrounding production facilities. Examples of these modifications include:

- improving aquaculture facility siting
- improving treatment of pond effluent water
- changing feeding regimes
- fallowing sites to minimise or eliminate the buildup of nutrients at farms.

It is expected that stakeholders will continue to promote research on improvement to management practices to minimise their environmental impact, and promote opportunities to showcase ecologically sustainable developments in aquaculture.

Strategy 7 specifically excludes the environmental impact of pollution on fisheries and aquaculture because these issues are addressed by programs administered by, for example, the Australian Government Department of the Environment and Heritage (DEH), the Murray–Darling Basin Commission (MDBC), and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

### Implementation of Strategy 7

The two objectives of Strategy 7 will examine optimal health management practices and how they affect market opportunities, as well as raise awareness of disease risks associated with imported live aquatic animals. Both objectives have a project with performance indicators, due dates, responsibilities, threats and contingency plans. The implementation of Strategy 7 is summarised in Table 7.

aquaplan

Table 7 – Implementation of Strategy 7

Project	Performance indicator	Standard	Due date	To be progressed through	Responsibility	Threat	Contingency
Objective 1. To ensure that market opportunities are not lost due to the use of sub-optimal health management practices in aquaculture							
1.1	Encourage research in basic immunology and modulation of immune function to underpin the proposed farm management practices, including current therapeutics, future vaccines and farm management strategies	Research projects undertaken in the identified areas of aquatic animal health to improved management of aquatic animal health	Ongoing	NAAH-TWG	NAC, AAHC	Research bodies do not recognise the importance of identified research priorities	Engage research bodies at higher level to foster support for aquatic animal health research
Objective 2. To raise awareness about disease issues associated with imported live aquatic animals							
2.1	Produce and disseminate information packages on disease risks associated with imported live aquatic animals to pet shops, practising veterinarians, relevant industry organisations, and aquarium owners	Information package produced and distributed	31-12-2009	PIJAC, AVA	OCVO	Failure to engage PIJAC or AVA	Education campaign to demonstrate relevance of project to PIJAC and AVA

AAHC = Aquatic Animal Health Committee; AVA = Australian Veterinary Association; NAAH-TWG = National Aquatic Animal Health Technical Working Group; NAC = National Aquaculture Council; OCVO = Office of the Australian Chief Veterinary Officer; PIJAC = Pet Industry Joint Advisory Council





## Appendix – AQUAPLAN 1998–2003

### Status of projects and roll-over into AQUAPLAN 2005–2010

AQUAPLAN 1998–2003 projects	Status at November 2004	Coverage in AQUAPLAN 2005–2010 strategy
<b>Program 1: International linkages</b>		
<i>Project 1.1 Regional cooperation on technical standards</i>		
Development of regional technical guidelines for aquatic animal quarantine and health certification	Completed Review envisaged through NACA's Asia Regional Advisory Group on Aquatic Animal Health	
Agreement on important diseases for the Asia-Pacific region (for a list or reportable diseases under NACA/OIE) and OIE endorsement	Completed Annual review through NACA's Asia Regional Advisory Group on Aquatic Animal Health	
Development of a data collection strategy for information on aquatic animal pathogens (in Australia) and commencement of entering such data into the FAO/NACA database 'AAPQIS' (Aquatic Animal Pathogen and Quarantine Information System)	Completed DAFF core activity	



<b>AQUAPLAN 1998–2003 projects</b>	<b>Status at November 2004</b>	<b>Coverage in AQUAPLAN 2005–2010 strategy</b>
Assessment of benefits from NACA membership from an aquatic animal health point of view in order to contribute to the general benefits from NACA membership	Completed Australia continues to be a NACA member	
<i>Project 1.2 OIE disease categorisation</i>		
Establishment of a working group to further discussions with OIE on designing a model to categorise aquatic animal diseases	Completed New disease listing criteria adopted by OIE in 2003	
Re-assess the current aquatic animal disease lists of OIE, and communicate findings to OIE	Ongoing DAFF core activity	
<i>Project 1.3 International disease reporting</i>		
Fulfilling international obligations to OIE on notifiable diseases of aquatic animals	Ongoing DAFF core activity	
Fulfilling international obligations to OIE on providing annual reports on our aquatic animal health status	Ongoing DAFF core activity	
Initiation of regional aquatic animal disease reporting to OIE/NACA on diseases identified as 'reportable' on a regionally agreed-upon list of aquatic animal diseases	Completed (and ongoing) DAFF core activity	
Availability of Australia's quarterly reports to OIE/NACA on the AFFA website under Aquatic Animal Health	Completed Links are maintained on DAFF website (DAFF core activity)	
Consideration to transfer OIE/NACA combined quarterly reports from 20 countries to AFFA website under aquatic animal health for availability within Australia	Completed Links are maintained on DAFF website (DAFF core activity)	
Effective influence on OIE deliberations	Ongoing DAFF core activity	
<b>Program 2: Quarantine</b>		
See under <i>AQUAPLAN – A Five Year Review</i> for details	Australian Government responsibility on quarantine (or biosecurity) issues relating to aquatic animals lies with AQIS and Biosecurity Australia, both within DAFF. Their duties are broadly categorised into import- and export-related work. Biosecurity Australia undertakes policy reviews (including the coordination of import risk analyses) and makes recommendations on import policy to AQIS. AQIS is responsible for the implementation of biosecurity policies under the Quarantine Act.	

AQUAPLAN 1998–2003 projects	Status at November 2004	Coverage in AQUAPLAN 2005–2010 strategy
<b>Program 3: Surveillance, monitoring and reporting</b>		
<i>Project 3.1 Surveillance and monitoring for aquatic animal diseases</i>		
Assessment of the current status of surveillance and monitoring in Australia	Completed Update required	Strategy 1: Surveillance
Development and review of surveillance and monitoring strategies for specific aquatic animal diseases in Australia	Ongoing	Strategy 1: Surveillance
Development of a system for surveillance and monitoring data administration	Completed, but system (AAAHIS) rejected Some aspects are DAFF core activities	Strategy 1: Surveillance
Development of standardised diagnostic and sampling techniques, and standard operating procedures	Ongoing DAFF core activity	Strategy 1: Surveillance Strategy 2: Harmonisation
Development of a 'surveillance and monitoring template' outlining principles of surveillance and monitoring programs, and including case studies as examples	Completed	Strategy 1: Surveillance
Involvement of recreational and capture fisheries in surveillance	Ongoing	Strategy 1: Surveillance
Advice on the most appropriate diagnostic techniques for aquatic animal diseases and disease agents	Ongoing	Strategy 1: Surveillance
Addressing the worsening shortage of diagnostic capacity Australia-wide	Ongoing	Strategy 1: Surveillance Strategy 4: Education and training
<i>Project 3.2 Reporting arrangements</i>		
Agreement on the national list of reportable diseases of aquatic animals, and development of a review process for alterations to the list	Completed Annual review of the list through NAAH-TWG, endorsement of changes through AAHC and PISC	Strategy 1: Surveillance
Development of a generic strategy for national aquatic animal disease reporting and data administration system	Completed DAFF core activity	
Adherence to international reporting objectives	Ongoing DAFF core activity	
Implementation of emergency disease reporting strategy as required	Ongoing DAFF core activity for international reporting, state and territory government core activity for national reporting	Strategy 1: Surveillance Strategy 2: Harmonisation

<b>AQUAPLAN 1998–2003 projects</b>	<b>Status at November 2004</b>	<b>Coverage in AQUAPLAN 2005–2010 strategy</b>
<i>Project 3.3 Zoning for aquatic animal diseases</i>		
Development of a policy paper on zoning, explaining the generic principles of zoning based on pathogen distribution, the movement principles between zones, and international relevance of national zoning	Completed Review required	Strategy 1: Surveillance Strategy 2: Harmonisation
Turning guidelines into action to manage fish health preparedness and disease response and to retain market access	Ongoing State and territory core activity	Strategy 1: Surveillance
Coordination of consistent implementation of zoning guidelines across states and territories	Ongoing	Strategy 1: Surveillance Strategy 2: Harmonisation
<b>Program 4: Preparedness and response</b>		
<i>Project 4.1 Consultative committee on emergency animal diseases (CCEAD)</i>		
Formal inclusion of aquatic animal disease emergency management into the CCEAD operating guidelines	Completed	
Ensuring state and territory arrangements comply with, and operate within, the CCEAD structure	Ongoing State and territory core activity	Strategy 4: Education and training
Simulation exercise especially to test the communication flow	Ongoing	Strategy 4: Education and training
<i>Project 4.2 AQUAVETPLAN</i>		
AQUAVETPLAN summary document	Pending	
Operational procedures manual	Ongoing	
Valuation and compensation	Pending	
Enterprise manuals	Completed Review required	
Disease strategy manuals for crustaceans, molluscs and fish	Ongoing	
Management manuals	Completed	
Agency support plans	Pending	
Review and development of training resources	Ongoing	Strategy 4: Education and training
Diagnostic resources	Ongoing	Strategy 1: Surveillance
Prioritisation and coordination of manuals	Ongoing	

AQUAPLAN 1998–2003 projects	Status at November 2004	Coverage in AQUAPLAN 2005–2010 strategy
<b>Program 5: Awareness</b>		
<i>Project 5.1 Public awareness and communication</i>		
A field identification guide for aquatic diseases	Completed Second edition available on CD-ROM	Strategy 4: Education and training
Summary document providing information on AQUAVETPLAN emergency preparedness and response arrangements	Completed	Strategy 4: Education and training
Posters, pamphlets and videos for industry, veterinarians and the public	Ongoing	Strategy 4: Education and training Strategy 7: Ecologically sustainable development
Training for aquaculturists in aquatic animal health management and improving farm practices to promote disease prevention	Ongoing	Strategy 4: Education and training
Publication of regular columns in industry or trade journals	Ongoing	Strategy 7: Ecologically sustainable development
A disease hotline for use by industry and the general public	Completed Proposal rejected but to be reconsidered	
Professional communication of AQUAPLAN	Ongoing	Strategy 4: Education and training Strategy 7: Ecologically sustainable development
<i>Project 5.2 Education and training</i>		
Inclusion of aquatic animal health in veterinary curricula and other tertiary education	Ongoing	Strategy 4: Education and training
Supporting self-education	Ongoing	Strategy 4: Education and training
Postgraduate training of veterinarians, aquatic animal health specialists and industry groups in the recognition of disease syndromes	Ongoing	Strategy 4: Education and training
Training for aquaculturists in aquatic animal health management and improving farm practices to promote disease prevention	Ongoing	Strategy 4: Education and training
Succession planning, and sharing training materials	Ongoing	Strategy 4: Education and training

<b>AQUAPLAN 1998–2003 projects</b>	<b>Status at November 2004</b>	<b>Coverage in AQUAPLAN 2005–2010 strategy</b>
<i>Project 5.3 Extension services</i>		
Support linkages of governmental services with Fisheries Departments' liaison sections with industry	Ongoing DAFF core activity	
<i>Project 5.4 Quality assurance and food safety</i>		
Registration and minor use permit approval for the use of drugs and chemicals aquaculture	Ongoing	Strategy 6: The use of therapeutics
Encourage the development of programs to promote the safe, effective and minimal use of drugs and chemicals	Ongoing	Strategy 6: The use of therapeutics Strategy 7: Ecologically sustainable development
<b>Program 6: Research and development</b>		
<i>Project 6.1 Strategic plan for focused and prioritised research</i>		
Inventory of aquatic animal health research in Australia	Completed	
Prioritisation of research needs by private sectors and governments	Ongoing FRDC Aquatic Animal Health Subprogram core activity	
Development of a strategic research plan	Completed	
<i>Project 6.2 Specific research needs</i>		
Prioritisation of research into import replacements	Ongoing FRDC Aquatic Animal Health subprogram core activity	
Aquatic disease management (to prevent disease)	Ongoing FRDC Aquatic Animal Health subprogram core activity	Strategy 7: Ecologically sustainable development
Development of new diagnostic tests	Ongoing FRDC Aquatic Animal Health subprogram core activity	Strategy 1: Surveillance
Project health research and development for infant industries and new aquaculture species	Ongoing FRDC Aquatic Animal Health subprogram core activity	
<b>Program 7: Legislation, policies and jurisdiction</b>		
<i>Project 7.1 Legislation, policies and jurisdiction</i>		
Identify and work towards necessary legislative and jurisdictional outcomes	Ongoing	Strategy 2: Harmonisation



<b>AQUAPLAN 1998–2003 projects</b>	<b>Status at November 2004</b>	<b>Coverage in AQUAPLAN 2005–2010 strategy</b>
Encourage the states and territories to critically assess their existing systems regarding gaps, legal challenges, and extent of enforcement	Ongoing	Strategy 2: Harmonisation
Encourage states and territories to adopt the generic principles and adjust their systems accordingly, to ensure agreed-upon outcomes	Ongoing	Strategy 2: Harmonisation
Legislation for normal activity (surveillance) as opposed to disease outbreaks	Ongoing	Strategy 2: Harmonisation
Provide SCARM/SCFA with recommendations to improve reporting and management of aquatic animal disease outbreaks	Completed	
<i>Project 7.2 Translocation</i>		
Agree on a national approach to translocation of aquatic animals through SCFA and its subcommittees Aquaculture Committee and Environment and Health Committee	Completed Review required	Strategy 2: Harmonisation
Agree on a national approach to policy for the post quarantine management of imported fish and aquatic products	Ongoing	Strategy 2: Harmonisation Strategy 7: Ecologically sustainable development
Implement the necessary changes to legislative arrangements, policies and regulations at the state and territory government level	Ongoing	Strategy 2: Harmonisation
Translocation of bait and other non-viable fish product	Ongoing	Strategy 2: Harmonisation
<b>Program 8: Resources and funding</b>		
<i>Project 8.1 Ongoing funding arrangements for AQUAPLAN</i>		
Examine the AAHC funding structures for the terrestrial animal industries as a potential model to be applied to the aquatic animal industries		Completed
<i>Project 8.2 Funding to underpin aquatic animal disease emergency preparedness and response arrangements (AQUAVETPLAN)</i>		
Funding to underpin aquatic animal disease emergency preparedness and response arrangements (AQUAVETPLAN)	Ongoing DAFF core activity	Strategy 3: Emergency disease preparedness and response framework

<b>AQUAPLAN 1998–2003 projects</b>	<b>Status at November 2004</b>	<b>Coverage in AQUAPLAN 2005–2010 strategy</b>
<i>Project 8.3 Continuing funding to support disease monitoring and surveillance and reporting activities</i>		
Continuing funding to support disease monitoring and surveillance and reporting activities	Ongoing	Strategy 3: Emergency disease preparedness and response framework
<i>Project 8.4 Continuing funding to support development of awareness and promotion of aquatic animal diseases</i>		
Encouraging the development of undergraduate and postgraduate veterinary and aquatic animal health training	Ongoing	Strategy 4: Education and training
Codes of practice in aquatic animal health management	Ongoing	Strategy 7: Ecologically sustainable development
Increased general public awareness of aquatic animal health issues, especially through the aquarium and recreational fishing industries	Ongoing	Strategy 4: Education and training Strategy 7: Ecologically sustainable development
<i>Project 8.5 Evaluate the potential for insurance companies and underwriters to provide compensation coverage</i>		
Presentation of information by an aquaculture industry insurance expert	Completed	Strategy 3: Emergency disease preparedness and response framework
Separately address the issues of compensation versus major loss due to disease	Completed	Strategy 3: Emergency disease preparedness and response framework
<i>Project 8.6 Examine all aspects of resource and funding, including insurance and levies; joint industry/government bodies; industries needs for, or costings of, discrete programs</i>		
High level consultancy (out of AFFA Federal Budget Initiative Funds) to examine all aspects of resource and funding, including insurance and levies; joint industry/government bodies; industries needs for/costings of discrete programs	Completed	Strategy 3: Emergency disease preparedness and response framework
<i>Project 8.7 FHMC working group to review FHMC</i>		
FHMC working group to review FHMC and make recommendations regarding a more effective implementation of AQUAPLAN	Completed FHMC superseded by AAHC in 2002	

AAAHIS = Australian Aquatic Animal Health Information System; AAPQIS = Aquatic Animal Pathogen and Quarantine Information System; AFFA = Department of Agriculture, Fisheries and Forestry – Australia; AQIS = Australian Quarantine and inspection Service; DAFF = Australian Government Department of Agriculture, Fisheries and Forestry; CCEAD = Consultative Committee on Emergency Animal Diseases; FAO = Food and Agriculture Organization of the United Nations; FHMC = Fish Health Management Committee; FRDC = Fisheries Research and Development Corporation; NAAH = National Aquatic Animal Health; NACA = Network of Aquaculture Centres in Asia-Pacific; OIE = World Organisation for Animal Health (Office International des Epizooties); PISC= Primary Industries Standing Committee; SCARM = Standing Committee on Agricultural and Resource Management; SCFA = Standing Committee on Food and Animal Health; TWG = Technical Working Group

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