FINAL REPORT



Aquatic Animal Health Subprogram: design and organisation of a multi-state disease emergency simulation exercise

I.J East and K.J. Scott

January 2004







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Printed by Australian Government – Department of Agriculture, Fisheries and Forestry,

by the Australian Government and the fishing industry.

Canberra, Australia. 2004.



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FRDC Project 2002/655

ISBN: 0-9751859-0-x





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NON-TECHNICAL SUMMARY

2002/655 Aguatic Animal Health Subprogram: Design and Organisation of

a multi-state disease emergency simulation exercise

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OBJECTIVES:

1. To develop in consultation with a range of government and non-government organisations, a simulation exercise that will effectively address issues of interjurisdictional communication and cooperation in response to an emergency disease incident in aquatic animals.

- 2. To engage the States/Territories that share the Murray-Darling Basin in the planning of the exercise and in doing so, heighten the awareness of these jurisdictions to the potential for incursions of emergency disease.
- 3. To negotiate funding for the subsequent simulation exercise from a range of participating organisations.

NON TECHNICAL SUMMARY:

OUTCOMES ACHIEVED TO DATE

Successful completion of this project has led to a cooperative and interactive approach to the development of training in the area of aquatic animal health. The project has also raised the profile of aquatic animal health within each State/Territory jurisdiction and the Australian government. The Exercise Design has been adopted for use in the planned exercise. The Australian Government Department of Agriculture, Fisheries and Forestry, Departments with Fisheries responsibilities from all State/Territory jurisdictions except the Northern Territory, the Commonwealth Scientific and Industrial Research Organisation, the NSW Silver Perch Growers Association, the National Aquaculture Council, the Tasmanian Salmonid Growers Association and the Murray-Darling Basin Commission have agreed to participate in the exercise. The full benefits flowing to stakeholders will be more apparent after completion of the companion project 2003/669 – Aquatic Animal Health Subprogram: conduct of a multi-jurisdiction simulation exercise focused on health management in Australian aquaculture.

The basis of this project was the design and conduct of a simulation exercise to act as a training resource for members of Australian government jurisdictions who work in the area of aquatic animal health and management of emergency disease incidents.

Australian fisheries and aquaculture industries have been fortunate in that, unlike aquaculture industries in other countries around the world, they have suffered little from the impact of disease epidemics. As a result, the Commonwealth, State/Territory governments and aquaculture industries have relatively little experience in incident management for emergency aquatic animal diseases. Over the past four years, a series of training exercises have been run with individual States and aquaculture industries with the aim of enhancing capability for managing emergency responses. In addition, a separate FRDC project (2002/660) has conducted training for industry and government representatives in the specific area of the Consultative Committee on Emergency Animal Diseases.

This project was designed to be a culmination of previous exercises bringing all the States/Territories together to examine the previously unaddressed area of interjurisdictional communication. The principal investigator and the project manager were supported by a working group including members from each State and Territory, the Murray-Darling Basin Commission, CSIRO and the Australian Government Department of Agriculture, Fisheries and Forestry.

The main aims of the project were:

- To develop a simulation exercise that effectively addressed the area of interjurisdictional communication during an emergency disease incident within the Australian aquaculture industry.
- To recruit the support and participation of States/Territories and industry in the proposed exercise.

The primary output of the project was the exercise plan. The aims of the project were achieved in that the exercise plan was successfully developed and the participation of all States/Territories except the Northern Territory, the Australian government, CSIRO, the Murray-Darling Basin Commission, the NSW Silver Perch Growers Association, the Tasmanian Salmonid Growers Association and the National Aquaculture Council was achieved.

The conduct of the planned exercise is the subject of a companion FRDC project (FRDC 2003/669) and full details of the conduct of the exercise and the outcomes arising from the exercise will be included in the final report of that project.

KEYWORDS: Simulation Exercise, emergency management, disease, aquaculture.

Acknowledgments

The authors wish to thank the State and Territory Department of Fisheries and Departments of Primary Industries for provision of the staff members that participated in the Working Group that helped design the simulation exercise. The authors also wish to thank the individuals on the working group (see Appendix 2) for their contributions to ensure that this project was a success. The authors would also like to thank Mr Michael Taylor, Secretary of the Australian Government Department of Agriculture, Fisheries and Forestry and the Australian Chief Veterinary Officer, Dr Gardner Murray for their support throughout this project.

Background

In the past 20 years, many fisheries and aquaculture industries around the world have suffered major production losses through the impact of disease epidemics. Australia to date has avoided many of these epidemics and retains a favourable disease status that facilitates international trade and the receipt of premium prices for Australian seafood exports.

In 1995, a major disease incident resulted in the death of a substantial proportion of the Australian pilchard population. In response, the Federal government conducted several inquiries into the management of aquatic animal health. The subsequent reports (Nairn Report, Report of the National Taskforce on Imported Fish and fish Products) revealed that Australia's emergency response capability was limited and ad hoc in nature. The Government's response to these reports led to the development of AQUAPLAN - Australia's National Strategic Plan for Aquatic Animal Health 1998-2003. AQUAPLAN includes eight programs that address all aspects of aquatic animal health. Program Four-Preparedness and Response focuses on the development of effective institutional arrangements to manage disease emergencies, and within this program, project 4.1.3 focuses on the conduct of simulation exercises to test the capability and capacity of Australia's State/Territory authorities to manage emergency disease incidents. The conduct of these exercises has been ranked as a high priority by Fish Health Management Committee (now the Aquatic Animal Health Committee).

The value of simulation exercises has been further recognised by the Federal Government in that, under the Federal Budget Initiative 'Building a National Approach to Animal and Plant Health', funds have been specifically targeted for the conduct of simulation exercises.

The Office of the Chief Veterinary Officer (OCVO) within the Australian Government Department of Agriculture, Fisheries and Forestry, has conducted several simulation exercises including the following:

- 1. October 1999 Queensland Department of Primary Industries and the prawn farming industry;
- 2. December 1999 Victorian Department of Natural Resources and the Environment and the freshwater finfish industry:
- 3. February and April 2000 Tasmanian Department of Primary Industry, Water and the Environment and the salmonid industry;
- 4. May 2001 South Australian Department of Primary Industries and Resources and the abalone industry:
- 5. October 2001 Queensland Department of Primary Industries and the redclaw

- crayfish industry (FRDC 2001/660);
- 6. May 2002 Compliance Sub-Committee of the Standing Committee on Fisheries and Aquaculture;
- 7. October 2002– Western Australian Department of Fisheries and the pearling industry (FRDC 2002/668); and
- May 2003 New South Wales Department of Fisheries and the Sydney rock oyster industry (FRDC 2002/661).

These exercises have been well received and invitations to return to jurisdictions and conduct further exercises attest to the value placed on them by government agencies.

In addition to these exercises, within FRDC projects under the Federal Budget Initiative, the OCVO has also been contracted to design and conduct simulation exercises for the Victorian and Western Australian governments (FRDC 2002/665 & 2003/671).

The current proposal extends on this past and current work by seeking to design a simulation exercise that will concurrently involve several States and Territories and which will focus extensively on the previously unaddressed area of interstate communication, cooperation and co-ordination.

Need

The current program of simulation exercises to be conducted under the auspices of the Federal Budget Initiative is designed to provide individual jurisdictions with training in the management of an aquatic animal disease emergency. However, within Australia, both marine and freshwater environments cross State/Territory boundaries. The need for inter-jurisdictional co-operation in successful disease control and eradication has not previously been addressed through the simulation framework. A current FRDC project, 2002/660 is providing training focussed on the operation of the Consultative Committee on Emergency Animal Diseases, however, the aims and objectives of the current proposal are to develop cooperation at a technical and operational level rather than the strategic level addressed by project 2002/660.

This project is needed to allow the development of the exercise materials and ensure that the exercise is effectively and efficiently planned. This project submission was requested by the FRDC Aquatic Animal Health Subprogram.

Objectives

- 1. To develop in consultation with a range of government and non-government organisations, a simulation exercise that will effectively address issues of interjurisdictional communication and cooperation in response to an emergency disease incident.
- 2. To engage the States/Territories that share the Murray-Darling Basin in the planning exercise and in doing so, heighten the awareness of these jurisdictions to the potential for incursions of emergency disease in aquatic animals.
- 3. To negotiate funding for the subsequent simulation exercise from a range of participating organisations.

Methods

This project was focused on the design of the exercise not the conduct of the exercise (which was a separate FRDC project 2003/669).

Previous exercises in this series have confined the scenario to a disease incident in one jurisdiction. Thus, materials prepared for previous exercises had limited applicability to this multi-state exercise.

A detailed work plan for the project manager (not the principal investigator), who was appointed as a full time officer for six months was developed and that job description included the following tasks:

- 1. Establish Basic Exercise Parameters
 - Dates
 - Duration
 - Location
- Participants government and industry (AFFA, EA, MDBC, States, Industry, RecFish)
 - Identify Pre-event on-site coordinator
 - Travel and accommodation arrangements for participants
 - Venue and catering bookings
- 2. Establish and maintain relations with exercise participants
 - Identify participants
 - Recruit support of organisational heads
 - Ensure participation of organisations and individuals
 - Provide progress reports to participants
- 3. Establish funding basis for exercise
 - Develop exercise budget
 - Identify and approach sources of funding (NHT, FRDC)
 - Negotiate funding contributions from participants (cash, in-kind and other)
 - Prepare FRDC grant application for conduct of exercise
 - Financial tracking of project
- 4. Develop Exercise
 - Determine Aims and Objectives of the exercise
 - Determine type of exercise to be conducted
 - Identify critical issues that need to be addressed in scenario
- Provide Scientific and industry knowledge for exercise design (research as necessary)
 - Develop scenario
 - Research/on site visits to exercise (mapping sites of weirs, sites of farms, flow rates etc)
 - Develop exercise materials
- 5. Exercise Staffing
 - Establish organising committee with reps from participating organizations
 - Act as secretariat for organising committee
 - Identify exercise staffing needs
 - Identify and recruit exercise staff

Within this work plan, the project manager (PM) was the major driving force behind bringing this exercise to reality. The PM worked primarily through established channels and contacts such as Aquatic Animal Health Committee and direct contacts with government and industry staff to establish the basic parameters for the exercise. The basis for exercise development was the procedures and protocols laid down in the Emergency Management Australia publication "Managing Exercises" (emergency Management Australia, 2001).

As part of the simulation development the Project Manager led a working group of representatives from relevant stakeholders. Nominations for the working group and commitment to the exercise were obtained from chief executive of each State/Territory department with responsibility for aquatic animal health in early March. The working group was established in late March, and comprised representatives from each State and Territory department with responsibility for aquaculture, the Australian Animal Health Laboratory, the Murray Darling Basin Commission and the Australian Government Department of Agriculture, Fisheries and Forestry.

This working group played a critical role in the development of the simulation, through:

- Discussing issues of importance to be addressed by the simulation;
- Discussing the level of involvement of jurisdictions/agencies;
- Contributing to the development of the simulation scenario, through the provision of scientific and industry knowledge where appropriate;
- Contributing to the development of a communication strategy for the lead up to and during the conduct of the simulation;
- Contributing to the development of exercise materials;
- · Acting as exercise facilitators during conduct of the simulation; and
- Coordinating their jurisdiction's involvement in the conduct of the exercise

The working group met several times during the development of the simulation exercise and agreed upon several exercise parameters including the aim, objective and scope of the exercise, the target species, media coordination and involvement of jurisdictions.

The first stage in the development of the exercise was the production of a project plan including the identification of the aims and objective of the proposed exercise. This allowed the subsequent exercise design to address the stated aims and objectives. The aims and objectives were focussed on inter-jurisdictional communication because this was an area on emergency response that had not been addressed in previous Australian simulation exercises in the area of aquatic animal health.

Having defined the aims and objectives of the exercise, the second stage was to develop a general scenario describing the nature of the incident. This scenario would spell out the events that would happen in the lead up to the commencement of the exercise. It also attempts to predict the course of events that would occur during the exercise so that all eventualities can be planned for. Decision tree analysis was also used to predict all the possible pathways that the exercise could take and this allowed all potential outcomes to be predicted and planned for. Once the description of the initial fish mortality was determined, the scenario was based on the response activities and responsibilities as described in the AQUAVETPLAN Control Centres Management Manual (AQUAVETPLAN, 2002) and the response of the combat state as determined from responses in previous exercises and in real emergencies.

Once the scenario was established, input documents were generated to establish and support the scenario. These documents took the form of phone logs, Email messages, FAX messages, diary entries, laboratory reports, farm inspection reports (standard Animal Emergency Information System (ANEMIS) reports), topographic maps etc. The scope of the input documents was limited only by the need to establish a credible scenario.

Additional documents were also required and these were tailored to meet the specific requirements of this exercise. In this particular exercise, detailed descriptions of each farm were written. In addition, brief histories of recreational anglers using a tourist facility at the affected farm and brief descriptions of all farms using the same fish food supplier were also written. These supporting documents are not released to the exercise participants but are retained by the exercise control team and are used to provide information when the controlling team take on the role of characters outside of the simulation that may be contacted by the participants to gain information pertinent to their investigations.

Finally, the whole exercise was controlled by a master schedule. This is a list of activities that needed to be completed, the time at which they needed to be commenced and the person responsible for completing the activity.

Production of these documents provided the necessary details for a simulation exercise to be successfully planned. Technical accuracy with the exercise was ensured by the input of the various experts on the working group and also by consultation with staff at the NSW Fisheries Narrandera Fisheries Centre and with Bruce Malcolm of the Uarah Fish Hatchery.

Results/Discussion

The overall project plan for Exercise Tethys is included on the accompanying CD-ROM in the folder 'Project Plan'. The timing of the Exercise is dictated by the timetable laid out in the Master Schedule that is included on the accompanying CD-ROM in the folder 'Master Schedule'.

The exercise was designed to include five distinct phases, they are:

Phase 1 – Introductory Briefing

Prior to the commencement of the simulation exercise, briefing will be provided to all participants in two ways:

- 1. Two weeks prior to the commencement of the lead-in phase, each participant will receive a copy of the "Exercise Instructions". The "Exercise Instructions" are included on the accompanying CD-ROM in the folder "introductory briefing"
- 2. At least one week prior to the commencement of the lead-in phase, each State/Territory member of the directing staff will provide members within their own jurisdiction with a briefing about the exercise and the contents of the "Exercise Instructions". The outline and content of this briefing are included on the accompanying CD-ROM in the folder "introductory briefing"

Phase 2 - The lead-in Phase

The scenario for the Exercise is included in the accompanying CD-ROM in the folder 'scenario'. To simulate the gradual accumulation of information that occurs during a real disease emergency, the exercise will be preceded by a lead-in phase where information about the central incident within the simulation will be provided as the events unfold. Commencing seven days before the simulation proper, appropriate participants will receive packages of information detailing events that precipitate the simulation and the combat State's response to those events. The timing and nature of the combat State's response is based on both the AQUAVETPLAN Control Centres Management Manual and on the actual responses of NSW Fisheries as recorded during the recent Exercise Kilpatrick simulation exercise. This part of the simulation will require only passive participation. As documented in the master schedule, at 4pm AEDST on each day, a summary of the day's simulated events and the necessary supporting documentation will be E-mailed to appropriate participants. Information will only be sent to those participants likely to receive that information during a real event. For example, the initial information will only be sent to participants in the combat State, other States will remain unaware of developments until later in the exercise. The master schedule and the input documents for the lead-in phase are included in the accompanying CD-ROM in the folder "lead-in phase". Within this folder, input documents are filed in sub-folders corresponding to each day of the exercise.

Phase 3 – The Exercise Proper

The Exercise will involve the active participation of all jurisdictions. The exercise is spread over two days with the first day of the exercise (17 November 2003) representing the time at which first laboratory results indicate the presence of an exotic disease and the second day of the exercise (18 November 2003) representing a time four days later when confirmation of the disease is received from the AAHL Fish Diseases Laboratory. Each day will commence at 9am AEDST and will conclude at 4.30pm AEDST followed by 30-minute information and debriefing session. At the end of the second day of the exercise, as part of the debriefing session, the outcome of the disease event and the subsequent response will be revealed to participants. The timing for the whole of the simulation

exercise is detailed in the Master Schedule for the exercise. Various inputs designed to direct the exercise and introduce particular issues have been written and form part of the exercise documentation. For this phase of the exercise, relevant documents are included on the accompanying CD in the folder 'Exercise Proper'. Within this folder, documents are filed in sub-folders named:

- Briefing;
- Debriefing;
- Input documents; and
- Supporting documents.

Within the input documents folder, documents are filed by day and then within each day by jurisdiction.

Phase 4 - Debriefing

In addition to the debriefings to be held at the conclusion of each day of the exercise, each individual jurisdiction will conduct a debriefing exercise at a convenient time prior to the controlling team's central debriefing session that is scheduled for 2 December. A written report on the findings and outcomes of the exercise will be prepared and distributed to participating jurisdictions and organisations. Guidelines for the jurisdictional debriefings are included on the accompanying CD-ROM in the folder labelled 'Jurisdictional Debriefing'.

Phase 5 - Assessment

The performance of participants will be judged by comparing the timeliness and completeness of communications made during the exercise with a pre-determined list of communications that need to be made. The master list of communications has been determined based on the required actions described in the AQUAVETPLAN Control Centres Management Manual and based on experience from previous emergency response programs. This assessment is achieved by each State/Territory facilitator using a checklist detailing a pre-determined list of communications to record whether each component was completed and the time at which it was completed. Exercise Facilitators checklists are included on the accompanying CD-ROM in the folder marked 'Exercise Assessment'.

BENEFITS AND ADOPTION

Because this project was centred on the design of the simulation exercise, it is difficult to assess the benefits arising from the project. If the exercise is successfully conducted, the benefits flowing to stakeholders will include:

- improved emergency response capability in the area of aquatic animal health;
- training of fisheries and veterinary staff in all jurisdictions in the area of emergency management; and
- heightened awareness of disease and disease management in the aquaculture industry

The exercise design and plan was subsequently approved by the working group and the exercise was conducted on the 17-18 November 2003. The final report of the companion project 2003/669 will provide a more detailed report on the benefits arising from conduct of the exercise. In the original application, identified beneficiaries were limited to Queensland, New South Wales, Victoria and South Australia however, in addition to these states, Western Australia, Tasmania and the Australian Capital Territory participated in the exercise and benefited from that participation. In addition, awareness within industry was heightened by the participation of representatives of the NSW Silver Perch Growers

Association, the National Aquaculture Council and the Tasmanian Salmonid Growers Association.

FURTHER DEVELOPMENT

After the conduct of the exercise, the exercise planning process and the overall style and conduct of the exercise will be reviewed and the findings of the review will be used to further improve future exercises. As a training course, the basic output of the project will be of most benefit if the exercise is further refined but also if these type of exercises are conducted in the future as part of an on-going training and awareness program in each jurisdiction.

PLANNED OUTCOMES

The planned outcome of this project was "consensus amongst relevant governments and agencies to participate in the planned simulation exercise". With the exception of the Northern Territory who declined to participate, all States and Territories participated in the exercise. Additional participants were recruited to the exercise after the start of this project and these included the National Aquaculture Council and the Tasmanian Salmonid Growers Association. The Australian Government Department of Environment and Heritage declined to participate in the exercise.

CONCLUSION

The project resulted in the development of a simulation exercise designed to evaluate inter-jurisdictional communication during the response to an emergency disease event in aquatic animals. In this, the objective of recruiting stakeholders to participate in the exercise was fully achieved. An assessment of the project clearly demonstrates that the first two objectives – to develop the exercise and to engage stakeholders in the planning process were both fully met. The involvement of all government jurisdictions, CSIRO, the Murray-Darling Basin Commission and the Silver Perch Growers Association in the planning process clearly demonstrates the successful engagement of stakeholders in the project. To determine whether the awareness of these stakeholders for the potential for incursions of emergency diseases was heightened during the planning process covered in this project is more problematic. However, by the successful completion of the conduct of the exercise, all stakeholders had significantly increased their awareness. This was clearly demonstrated by the standard of the response to this exercise design by each of the participants during the exercise proper.

The third objective to negotiate funding with the participating organizations was less successful. All stakeholders covered the salary costs of their own staff participating in the planning phase and the conduct of the exercise. Financial support other than these in-kind contributions was not actively sought after the FRDC made funds available to conduct Exercise Tethys (FRDC 2003/669)

The outcome of this project was the design of the exercise and successful completion of the exercise design led to the agreement of all States/Territories except the Northern Territory to participate in the exercise. Thus, the outputs as produced led to successful completion of the planned outcomes of the project. The exercise as designed was subsequently conducted on the 17-18 November and was generally regarded as a success. A full assessment of the benefits arising from the design and conduct of the

exercise will be included in the final report to the companion project 2003/669 - Aquatic Animal Health Subprogram: Conduct of a multi-state simulation exercise.

REFERENCES

AQUAVETPLAN Control Centres Manual (2002) Australian Government – Department of Agriculture, Fisheries and Forestry, Canberra, Australia.

Emergency Management Australia (2001) Australian Emergency Manuals Series Part V – The Management of Training. Manual 2 – Managing Exercises. Emergency Management Australia, Canberra, Australia.

APPENDIX 1: INTELLECTUAL PROPERTY

This project has not developed any intellectual property that requires legal protection. The nature of the output of this project is an educational process designed for instruction of government staff involved in management of emergency disease events involving aquatic animals. The procedures used in the development of this simulation exercise are adapted from procedures originally designed by Emergency Management Australia.

APPENDIX 2: STAFF

Principal Investigator
Project Manager
Simulation Exercise Advisor
DAFF Working Group Member
CSIRO Working Group Member
Tasmanian Working Group Member
New South Wales Working Group Member
Queensland Working Group Member
Western Australian Working Group Member
Victorian Working Group Member
Australian Capital Territory Working Group Member
South Australian Working Group Member
Northern Territory Working Group Member
Murray-Darling Basin Commission Working Group Member

Karina Scott
Tony Callan
Les Johns
Mark Crane
Rod Andrewartha
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Tiina Hawkesford
Brian Jones
Anthony Forster
David Shorthouse
Marty Deveney
Colin Shelley
Sarah Omundsen

Iain East

APPENDIX 3: OUTLINE MAP OF THE ACCOMPANYING CD-ROM

The CD-ROM accompanying this report contains all the documents used in the design and conduct of the exercise. The documents are arranged on the CD-ROM as follows:

1 st Level	2 nd Level	3 rd Level	4th Level
Project Plan			
Master Schedule			
Introductory Briefing	Exercise Instructions		
	Introductory Briefing		
Scenario			
Lead-in Phase	Input documents	Day X-7	
		Day X-6	
		Day X-5	
		Day X-4	
		Day X-3	
		Day X-2	
		Day X-1	
Exercise Proper	Briefing		
	Debriefing		
	Input Documents	Day X	CSIRO
			New South Wales
			South Australia
			Victoria
		Day X+4	ACT
			CSIRO
			Commonwealth
			New South Wales
			Queensland
			South Australia
			Tasmania
			Victoria
			Western Australia
	Supporting Documents		
Jurisdictional Debriefing			
Exercise Assessment			