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From the Subprogram Leader

First FRDC Australasian Scientific Conference on Aquatic Animal Health

It is now six months since the 1st FRDC Australasian Scientific Conference on Aquatic Animal Health that was held, 5-8 July 2011, in Cairns at The Pullman Reef Hotel. By now, all participants should have received the CD with the conference proceedings. If any participant has not received the CD please contact Joanne Slater (joanne.slater@csiro.au) who will ensure that a copy will be forwarded to you.

Sponsorship for the conference from ABIN (Aquatic Animal Health Project NEPTUNE launch), DAFF (Emergency Disease Response session) and Schering-Plough/Intervet (conference bags) was greatly appreciated and assisted with keeping costs down.

Congratulations to the winners of the student prizes: Anneke Rimmer (University of Sydney), Jeffrey Go (University of Sydney) and Paula Lima (Flinders University). The quality of all the students' presentations was exceptional and they should all be congratulated. Congratulations to the winners for being the best of these high achievers.

STC/SAC Meetings

The FRDC AAHS met on 18 October 2011 to provide FRDC with AAHS' recommendations concerning the Expressions of Interest for the 2012-13 funding cycle.

Health Subprogram Website

Our website is located on the FRDC site and can be accessed directly under:

<http://www.frdc.com.au/research/Animal-Health>

The Pullman Reef Hotel, Cairns – Venue for the First Australasian Scientific Conference on Aquatic Animal Health, July 2011



There you can view this issue and all previous issues of *Health Highlights* - in addition to finding other information about the FRDC Aquatic Animal Health Subprogram.

Announcements

All final reports are available through the FRDC. Go to www.frdc.com.au to purchase a copy.

Newsletter submissions

The Aquatic Animal Health Subprogram welcomes contributions to *Health Highlights* on all aquatic animal health R&D news and events – both within and outside the FRDC. We aim to assist the widespread exchange of information by including any of the following in each bi-annual edition: project updates, milestone reports, final reports, research papers, project communication and extension outputs, info sheets, and letters to the editor. Announcements of conferences, workshops, meetings, etc are also welcome.

Please forward contributions for the next edition of *Health Highlights* (March 2012) to Joanne Slater before 15 March 2012.

Mailing list

Health Highlights is distributed biannually to stakeholders via hard copy and email as well as being posted on the FRDC website at: <http://www.frdc.com.au>. To change contact details or to ensure inclusion on the *Health Highlights* mailing list, contact Joanne at:

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Completed AAHS Project Summaries

Project No. 2009/072: AAHS: Risk Analysis – Aquatic animal diseases associated with bait translocations (PI: Ben Diggles)

OBJECTIVES:

1. Assessment of disease hazards in translocation of bait in Australia, and to expand the NAAH-TWG paper (OOS 24-06) on identification of hazards of bait and berley use into a full risk analysis (RA).
2. Conduct qualitative risk assessments to determine disease risks associated with identified hazards.

NON TECHNICAL SUMMARY:

This Risk Analysis (RA) examined the risk of disease introduction associated with domestic translocation of bait and berley products within Australia. A commodity identification process found that information on the types of commodities used in commercial and recreational fisheries is generally available, however details of the quantity of each commodity used is scarce as this information is not captured by State fisheries departments. The list of species most widely used as bait or berley included representatives from 17 families of saltwater fishes, 16 families of freshwater fishes, 16 species of prawns, 13 species of crabs or nippers, 13 species of freshwater and saltwater crayfish/lobsters, at least 32 species of molluscs (gastropods, bivalves, and cephalopods), 23 families or species of annelids, 4 species of echinoderms and 1 ascidean.

Hazard identification for the disease agents reported from these commodities identified at least 80 diseases of potential concern, including 30 viruses, 8 bacterial diseases, 20 protozoan diseases and 21 metazoan diseases from finfish, crustaceans and molluscs, as well as one fungal

disease from finfish. From the preliminary list of 80 potential hazards, 44 disease agents were classified as diseases of concern that required detailed risk assessment.

The 44 diseases of concern were placed into 35 different categories and detailed risk assessments were undertaken. The outcomes of the risk assessments indicated 21 diseases for which the unmitigated risk exceeded the ALOP (see summary table). Two diseases were classified as high risk, namely EHNV of finfish and AVG of abalone. Three diseases were classified as moderate risk, including EUS of finfish, and infection of molluscs with *Bonamia* and *Perkinsus*. Sixteen diseases were classified as low risk, including VER of finfish, goldfish ulcer disease, microsporidian infections of finfish and crustaceans, infections of live finfish, molluscs and crustaceans with introduced digeneans, nematodes and cestodes, infections of live finfish with introduced copepods and *Caligus epidemicus*, infection of finfish and annelids with myxosporeans, viral infections of freshwater crayfish, GAV, SMV and WTD of prawns, infections of crustaceans with *Hematodinium* spp. and *Sacculina* spp., infections of molluscs with Haplosporidians and infections of molluscs and annelids with *Marteilia sydneyi*.

Several options for mitigation of these risks to within the ALOP were presented. These and other options for risk mitigation should be examined in more detail and prioritised, preferably by a national working group including representatives from all states and territories (with stakeholder involvement wherever necessary), in order to develop the most appropriate and effective options for risk mitigation during the risk management and risk communication phases of this risk analysis process.

The emergence of a virus similar to Ostreid Herpesvirus-1 (OHSV-1) was recorded in Pacific oysters in NSW during the latter stages of development of this RA. While OHSV-1 like viruses of oysters are significant and worthy of inclusion in the RA, virtually nothing about this disease in Australia has been published at this time. Because of this, the OHSV-1 like virus remains omitted from the RA at this time, but it should be included in the RA during the next phase of the project once more information becomes available. Data gaps were also identified for disease agents of pipis, cockles, callianassids, bait crabs, cephalopod molluscs, annelids, echinoderms, and ascideans, all of which are commonly used as bait. Active disease surveillance should be implemented in a structured manner to fill in the data gaps identified in this RA. The importance of active surveillance was highlighted when a detailed risk analysis was undertaken for a hypothetical unknown virus from finfish. Indeed, there remains a risk of transfer of unknown disease agents, even in the absence of their identification, and disease surveillance is the only way to minimize these risks whenever

significant quantities of bait are being translocated to new geographical regions.

KEYWORDS: bait, burley, disease, parasite, translocation, risk assessment

Project No. 2009/075: Determining the susceptibility of remnant populations of abalone previously exposed to AVG (PI: Vin Gannon/Mark Crane)

OBJECTIVES:

1. Determine the susceptibility of remnant populations of abalone previously exposed to AVG in Victoria

NON-TECHNICAL SUMMARY

OUTCOMES ACHIEVED

Results from this research demonstrate that abalone from various sites along the Victorian coast-line that had experienced outbreaks of AVG remain susceptible to infection and disease. The mature abalone that were sourced from these areas are presumed to be survivors from the previous disease outbreaks and the juvenile abalone are presumed to be the progeny of these survivors. Neither groups demonstrated any resistance to re-infection and appeared to be as susceptible as naïve counterparts sourced from a farm that had no history of AVG.

This knowledge will assist industry and regulators manage the wild abalone fishery into the future.

The recent emergence in Australia of abalone viral ganglioneuritis (AVG) caused by abalone herpes-like virus (AbHV) is recognised as a major commercial threat to both the wild capture and the fledgling aquaculture industries, and an environmental threat to wild populations in general. Previous research has been concerned with development of diagnostic tools and a reliable infectivity and disease model. With these tools now developed we are able to address a number of aspects of the biology of this virus. The primary aims of this project were to determine whether abalone sourced from previously affected reefs that had presumably been exposed to the virus but had survived demonstrate any level of resistance to re-infection. These objectives of the project were met successfully.

KEYWORDS: Abalone herpesvirus, AbHV, abalone viral ganglioneuritis, AVG, PCR, resistance

Summary of Active Projects

Project No.	Project Title	Principal Investigator
2008/030	AAHS: Development of a DNA microarray to identify markers of disease in pearl oysters (<i>Pinctada maxima</i>) and to assess overall oyster health (Associated species: <i>Pinctada maxima</i>)	Dr Brian Jones Department of Fisheries WA Phone: 08 9368 3649 Email: bjones@agric.wa.gov.au
2008/30.20	AAHS: Development of a DNA microarray to identify markers of disease in pearl oysters (<i>Pinctada maxima</i>) and to assess overall oyster health (Associated species: <i>Pinctada maxima</i>)	Dr David Raftos Macquarie University NSW Phone: 02 9850 8402 Email: draftos@rna.bio.mq.edu.au
2008/031	AAHS: Investigation of Chlamydiales-like organisms in pearl oysters, <i>Pinctada maxima</i> (Associated species: <i>Pinctada maxima</i>)	Dr Brian Jones Department of Fisheries WA Phone: 08 9368 3649 Email: bjones@agric.wa.gov.au
2008/039	AAHS: Strategic planning, project management and adoption (Associated species: multi-species)	Dr Mark Crane CSIRO AAHL Fish Diseases Laboratory Phone: 03 5227 5118 Email: mark.crane@csiro.au
2008/041	AAHS: Tools for investigation of the nodavirus carrier state in marine, euryhaline and freshwater fish and control of NNV through integrated management (Associated species: multi-species)	Prof Richard Whittington University of Sydney, Camden, NSW Phone: 02 9351 1619 Email: richardw@camden.usyd.edu.au
2009/032	AAHS: Characterisation of abalone herpes-like virus infections in abalone (Associated species: <i>Haliotis</i> spp.)	Dr Mark Crane CSIRO AAHL Fish Diseases Laboratory Phone: 03 5227 5118 Email: mark.crane@csiro.au
2009/044	AAHS: Surveys of ornamental fish for pathogens of quarantine significance (Associated species: multi-species)	Prof Richard Whittington University of Sydney, Camden, NSW Phone: 02 9351 1619 Email: richardw@camden.usyd.edu.au
2009/315	PD Program: scholarship program for enhancing the skills of aquatic animal health professionals in Australia (Associated species: multi-species)	Jo-Anne Ruscoe FRDC Phone: 02 6285 0423 Email: jo-anne.ruscoe@frdc.com.au
2010/034	AAHS: Investigation of an emerging bacterial disease in wild Queensland gopros, marine fish and stingrays with production of diagnostic tools to reduce the spread of disease to other states of Australia (Associated species: multi-species)	Dr Rachel Bowater DEEDI, Biosecurity Queensland Phone: 07 4760 1592 Email: rachel.bowater@deedi.qld.gov.au
2010/036	AAHS: Improved fish health management for integrated inland aquaculture through Better Management Practices (BMPs) (Associated species: <i>Maccullochella</i> spp)	Dr Tracey Bradley DPI Victoria Phone: 03 9217 4171 Email: tracey.bradley@dpi.vic.gov.au
2011/003	AAHS: Investigations into the genetic basis of resistance to infection of abalone by the abalone herpes-like virus (Associated species: <i>Haliotis</i> spp)	Dr Serge Corbeil CSIRO AAHL Fish Diseases Laboratory Phone: 03 5227 5254 Email: serge.corbeil@csiro.au
2011/004	AAHS: Development of Improved Molecular Diagnostic Tests for <i>Perkinsus olseni</i> in Australian molluscs (Associated species: multi-species)	Mr Nick Gudkovs CSIRO AAHL Fish Diseases Laboratory Phone: 03 5227 5456 Email: nicholas.gudkovs@csiro.au
2011/005	AAHS: Investigation of inclusions in Australian prawns (Associated species: multi-species)	Dr Melanie Crockford Dept Fisheries WA Phone: 08 9368 3205 Email: mcrockford@agric.wa.gov.au

2011/043	AAHS: understanding and planning for the potential impacts of OsHV1 on the Australian Pacific oyster industry (<i>Associated species</i> : Pacific oyster)	Dr Tom Lewis RDS Partners Pty Ltd Phone: 03 6231 9033 Email: tom.lewis@ruraldevelopmentservices.com
2011/046	Tactical Research Fund - AAHS: Disease risk assessment for abalone stock enhancement program (<i>Associated species</i> : <i>Haliotis</i> spp)	Mr Richard Stevens Western Australian Fishing Industry Council Phone: 08 9432 7777 Email: richards@wafic.org.au
2011/048	Tactical Research Fund - AAHS: Determining the susceptibility of Australian species of prawns to infectious myonecrosis (<i>Associated species</i> : multi-species)	Dr Mark Crane CSIRO AAHL Fish Diseases Laboratory Phone: 03 5227 5118 Email: mark.crane@csiro.au
2011/053	AAHS: Pacific oyster mortality syndrome (POMS) - understanding biotic and abiotic environmental and husbandry effects to reduce economic losses (<i>Associated species</i> : Pacific oyster)	Prof Richard Whittington University of Sydney, Camden, NSW Phone: 02 9351 1619 Email: richardw@camden.usyd.edu.au

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