



Health Highlights



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From the Subprogram Leader

2013 FRDC Australasian Scientific Conference on Aquatic Animal Health

As per preliminary announcement, the 2013 FRDC Australasian Scientific Conference on Aquatic Animal Health will be held in Cairns at The Pullman Reef Hotel, on 8-12 July 2013. The format of the 2013 conference will be:

Date	Time	Activity
Mon 8 July	6-8 pm	Registration/welcome
Tue 9 July	8-8.45 am	Registration
Tue 9 July	9 am-5 pm	Scientific program
Tue 9 July	6-7 pm	Happy hour
Wed 10 July	9 am-5 pm	Scientific program
Wed 10 July	6-7 pm	Happy hour
Thu 11 July	9 am-5 pm	Scientific program
Thu 11 July	6-7 pm	Happy hour
Fri 12 July	9 am-5 pm	Scientific program
Fri 12 July	7-11 pm	Conference dinner

The scientific program will be held over 4 days to accommodate the increasing interest in the conference both domestically and from overseas. There will be a short happy hour at the end of each day to facilitate networking opportunities, and the conference dinner will be held on the last day of the conference.

As announced previously the two international expert presenters at the conference are:

Prof Hugh Ferguson, Head of the Department of Pathobiology, Director of the Marine Medicine programme, Professor of Pathology, School of Veterinary Medicine, St George's University, Grenada, West Indies.

Prof Don Lightner, Aquaculture Pathology Laboratory, Department of Veterinary Science and Microbiology, University of Arizona, OIE Reference Laboratory for Crustacean Diseases.

The Pullman Reef Hotel, Cairns – Venue for the 2013 Australasian Scientific Conference on Aquatic Animal Health, 8-12 July 2013



A conference website is being developed for conference registration and abstract submission. Details will be announced soon.

STC/SAC Meetings

The FRDC AAHS met on 23 October 2012 to review finalised Expressions of Interest (EoIs) for the 2013-14 funding cycle. Recommendations were provided to FRDC Board. Applicants should have been informed of the outcomes of submissions by now.

Health Subprogram Website

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

http://www.frdc.com.au/research/aquatic_animal_health/Pages/default.aspx

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. For Final Reports see <http://www.frdc.com.au/research/final-reports/Pages/default.aspx>.

Please contact FRDC if you have problems with this website.

Announcements

SPECIAL ANNOUNCEMENTS

ASP Workshop on Parasitic Diseases in Fish Mariculture

The Aquatic Animal Health Research Group at the Australian Maritime College's National Centre for Marine Conservation and Resource Sustainability

will host a workshop on parasitic diseases in fish mariculture in early **February 2013**.

The workshop, organised by Professor Barbara Nowak, will be held on February 4-5 at the University of Tasmania Newnham campus and will feature presentations by international guest speakers, local researchers and laboratory sessions.

Professor Kazuo Ogawa from Meguro Parasitological Museum in Tokyo Japan will deliver a presentation on Blood fluke infections of farmed Pacific Bluefin Tuna. Dr Sho Shirakashi from The Kinki University Fisheries Laboratory in Wakayama Japan will give a talk on "New possibilities of reducing *Benedenia* infection in net cage mariculture."

Research on amoebic gill disease and parasites of farmed Southern Bluefin Tuna will be presented.

This workshop is sponsored by Australian Society for Parasitology, Petuna and Tassal. Japanese Society for Promotion of Science sponsored Prof Ogawa's and Dr Shirakashi's travel.

For further information about the workshop, please contact Prof Nowak at b.nowak@utas.edu.au.

The Third FRDC Aquatic Animal Health Technical Forum

The skills training workshop to be held in Glenelg, South Australia on the 20th to 22nd March 2013. The funding provided by the FRDC project (see page 4 for details) will subsidise some of the travel/accommodation costs per participant.

The workshop can accommodate a maximum of 25 participants.

Please register your attendance to lynette.williams@csiro.au by Friday 8 Feb 2013.

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* (August 2013) to Joanne Slater before 15 July 2013.

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. 2011/043: AAHS: Understanding and planning for the potential impacts of OsHV-1 μ Var on the Australian Pacific oyster industry (Tom Lewis, Don Defenderfer, Bruce Zippel)

OBJECTIVES:

1. A desktop study on industry relevant issues associated with the OsHV-1 μ var virus and the related Pacific Oyster Mortality Syndrome (POMS)
2. A field visit to France by a small group of industry representatives to discuss firsthand the French industry and regulatory experience regarding the effects and management of OsHV-1 μ Var.
3. The development and extension of a national strategy to control and/or minimise the spread of OsHV-1 μ Var in Australia and to develop management strategies to mitigate the effects of the disease in areas in which is, or may become, established.

NON TECHNICAL SUMMARY

OUTCOMES ACHIEVED TO DATE

The project outputs have contributed to or will lead to the following outcomes:

1. Improved knowledge within the Australian Pacific oyster and related sectors regarding the source, transmission, effects, mitigation and control of OsHV-1 μ Var – which will inform consideration of the best return on investment on management and control measures (e.g.

selective breeding, tightened biosecurity, management strategies).

2. Improved collaboration between Australian industry, scientists and regulators regarding management of OsHV-1 μ Var in Australia.
3. Improved industry and regulator readiness to combat new outbreaks should they occur in Australian waters.

This report summarises current understandings and describes desired outcomes and actions regarding four key issue areas associated with the Pacific Oyster Mortality Syndrome (POMS), the name that has been given to the OsHV-1 μ Var - mediated viral disease associated with high mortality events in the Pacific oyster (*Crassostrea gigas*).

This project was initiated through discussions between FRDC and the Shellfish Industry Council of Australia in response to the threat posed to the Australian Pacific oyster industry by the incursion of the POMS virus - which has been responsible since at least 2008 for devastating mortalities of 80-100% of farmed oysters in parts of Europe, France and New Zealand.

In 2010 the virus was identified in New Zealand where it has had major impacts upon the oyster industry; in late 2010 the disease was found in dead and dying Pacific oysters in two estuaries in NSW. The virus is now listed as notifiable disease.

In 2011 Australian industry, scientists and regulators recognised the massive threat that this virus posed to the Australian Pacific oyster farming industry. The urgent need for a national strategy to understand, control and/or mitigate the effects of this virus was prompted by industry, scientists and regulators; a National POMS Advisory Group was formed to guide a strategic way forward.

FRDC funding was received in July 2011 for a project to help industry understand the disease so as to be able to mitigate and prevent its spread to other oyster growing regions in Australia.

The project's first stage, a desktop analysis and subsequent development of extension materials (see Q & A Fact Sheets in Current Position and Future Plans for the Australian Industry report within Appendix 3 and [on line](#)) was significantly informed by the deliberations and Final Report of the International OsHV-1 μ Var Workshop that followed the Aquatic Animal Health Conference in Cairns in July 2011 (see within Appendix 3 and [on line](#)) and was released in November 2011.

The second stage of the project, the study tour to France, significantly increased the understanding of the oyster industry about the adverse affects of POMS and the strategies, including extension, research and development that are needed if we hope to successfully combat the virus in Australia. The report of the France study tour is available [on line](#) as well as within Appendix 3 and significantly informs this strategy.

Following the study tour, the project's third objective was amended slightly to focus more on pragmatic industry needs.

The third stage of this project, the development of a POMS strategy document (see Current Position and Future Plans for the Australian Industry report within Appendix 3), focuses on: the potential movement of the virus into other Pacific oyster production areas around Australia and the need to summarise current information and desired outcomes and actions; a discussion of current understandings and opinions regarding POMS by industry and government; and making recommendations regarding four key industry issues associated with the virus, including

- Emergency Response Protocols
- Tracking Oyster Movements
- Monitoring POMS
- Hatchery Protocols

There has been extensive consultation with growers from all states, DAFF and AAHL during the development of this project and the identification of the four key issues above.

The Current Position and Future Plans for the Australian Industry report is based on research, interviews with key industry and government stakeholders and input from the Oysters Australia National POMS advisory group.

Recommendations are detailed in the Current Position and Future Plans for the Australian Industry report (Appendix 3).

It is recognized that the final strategy document's recommendations will need to be accepted and endorsed by appropriate industry, science and regulatory agencies before the next phase of POMS investment, extension and research can commence. It is also recognized that a considerable amount of research and progress towards strategically *managing* POMS has been undertaken (and is the process of being undertaken) since the original project application was developed in 2011.

Key words: Pacific Oyster Mortality Syndrome, POMS, OsHV-1 μ Var, Current Position and Future Plans, French Study Tour Report, Q & A Fact Sheets.

The report is downloadable from the [Oysters Australia Industry Blog](#) site.

Progress Summaries for Active AAHS Projects

Project No. 2010/036: Aquatic Animal Health Subprogram: Improved fish health management for integrated aquaculture through Better Management Practices (BMP's) (PI: Tracey Bradley)

The PhD student has conducted 43 farm visits and the project team has had close telephone communications with all enrolled farmers. Laboratory results have been communicated to

farmers by telephone with hard copies and an interpretation of results posted. A farmer newsletter was sent to all enrolled farms and a range of stakeholders in October 2012.

If you would like a copy of the draft BMP or have any questions/suggestions for the project please contact

Tracey Bradley - phone 0429 429 498

or email: tracey.bradley@dpi.vic.gov.au

Project No. 2011/053: Aquatic Animal Health Subprogram: Pacific oyster mortality syndrome (POMS) - understanding biotic and abiotic environmental and husbandry effects to reduce economic losses (PI: Richard Whittington)

Rather than provide the extensive project report here, the project team has created a blog for the project which has received a very favourable response from industry; it contains an illustrated description of the project and the main results to date:

www.oysterhealthsydney.org

Project No. 2012/032: Aquatic Animal Health Subprogram: Pacific oyster mortality syndrome (POMS) – risk mitigation, epidemiology and OsHV-1 biology (PI: Richard Whittington)

Rather than provide a summary progress report for this project report here, the project team has created a blog where information can be found:

www.oysterhealthsydney.org

Project No. 2010/034: Aquatic Animal Health Subprogram: Investigation of an emerging bacterial disease in wild Queensland goppers, marine fish and stingrays with production of diagnostic and epidemiological tools to reduce the spread of disease to other states of Australia (PI Rachel Bowater)

Determine the presence of *S. agalactiae* in a range of marine food species that are potentially a source of infection for Qld goppers in the Cairns region.

To date, *Streptococcus agalactiae* has not been detected in 126 finfish (comprising 11 different species), 106 baitfish (comprising 7 different species), 100 tilapia (*Oreochromis mossambicus*), 105 mudcrabs (*Scylla serrata*) or 84 banana prawns (*Penaeus merguensis*) or a stingray (*Rhinoptera javanica*) sampled from Trinity Inlet, Cairns, using conventional bacteriological methods and polymerase chain reaction specific for *S. agalactiae*.

Project No. 2009/032: Aquatic Animal Health Subprogram: Development of molecular diagnostic procedures for the detection and identification of herpes-like virus of abalone (*Haliotis* spp.)

An unexpected consequence of the Tasmanian outbreaks of AVG was identification of genotypic variants of the abalone herpesvirus (AbHV) that required evaluation of other qPCR primer and probe sets for virus detection and identification. Thus, diagnostic qPCR tests based on ORF66 and ORF77 of AbHV have been developed. As part of the development of qPCR tests for detection and identification of AbHV, plasmid standards (for use as non-infectious positive controls) have been generated for each of the qPCR tests.

In addition, during this milestone period, the infection model has been used to determine the role of mucus in viral transmission. The results suggest that infectivity of viral particles was not protected by the presence of mucus.

Project No. 2011/003: Aquatic Animal Health Subprogram: Investigations into the genetic basis of resistance to infection of abalone by the abalone herpes-like virus (PI Serge Corbeil)

2008YC families from GSW have been challenged and variation in susceptibility to infection and disease has been analysed. Analysis indicates:

- Susceptibility measured by injection is a different and unrelated trait to susceptibility measured by immersion. This indicates different underlying mechanisms for each challenge method.
- There is a genetic basis for differences in susceptibility to AVG for both challenges by immersion and challenges by injection. Data is suggestive of polygenic genetic control, meaning susceptibility is likely to be under the control a large number of different genes.

Project No. 2012/002: Aquatic Animal Health Technical Forum (PI Nette Williams)

PROGRAM

The forum for 2013 is being held jointly at The Haven Inn, Glenelg, SARDI and the University of Adelaide Roseworthy campus. The forum will run over 2½ to 3 full days (9am to 4.30pm) from Wednesday 20th March – Friday 22nd March 2013.

It is anticipated that the program for the forum will be a mixture of theory (presentations), practical laboratory sessions (University of Adelaide facility) as well as a visit to some commercial aquaculture facilities in Glenelg.

One of the aims of the forum is to encourage informal discussions and transfer of knowledge. Therefore, participants are encouraged to prepare a presentation to be presented in a welcoming environment where “no question is a stupid question”. Presentations of 5-15 minutes may be on any aspect of your work, interesting cases or

techniques. Once you have decided on your presentation title and duration, please let us know so that it can be included into the program.

TRANSPORT

Flights in and out of Adelaide are available on Jetstar, Virgin Blue and Qantas Link. Glenelg is a short taxi ride from the Adelaide airport.

ACCOMMODATION

15 rooms are held at the Comfort Haven Inn Marina www.haveninn.com.au

5 standard single (\$129/night), 5 standard twin (\$129/night) and 5 standard twin marina view rooms (\$159/night).

REGISTRATION

Participants will need to contact Lynette Williams (lynette.williams@csiro.au) with any special dietary needs, "date in" and "date out" and estimated arrival time by Friday February 8th 2013.

MEALS

Wednesday dinner will be at your expense, but a venue will be selected that is reasonably priced and within walking distance of accommodation for participants.

For Thursday it is envisaged that dinner will be held at a venue in the Barossa Valley with bus transport back to Glenelg. Depending on number of participants this may be provided or subsidised.

Meals Provided: Morning tea, lunch and afternoon tea; Wednesday-Friday inclusive

CONTACTS for more information:

Nette Williams: Lynette.Williams@csiro.au

Belinda Jones: Belinda.Jones@dpiwwe.tas.gov.au

Martine Cornish: Martine.Cornish@dpiwwe.tas.gov.au

Summary of Active Projects

Project No.	Project Title	Principal Investigator
2008/041	AAHS: Tools for investigation of the nodavirus carrier state in marine, euryhaline and freshwater fish and control of NNV through integrated management (<i>Associated species</i> : 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 (<i>Associated species</i> : <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 (<i>Associated species</i> : 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 (<i>Associated species</i> : 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 goppers, marine fish and stingrays with production of diagnostic tools to reduce the spread of disease to other states of Australia (<i>Associated species</i> : 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) (<i>Associated species</i> : <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 (<i>Associated species</i> : <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 (<i>Associated species</i> : 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 (<i>Associated species</i> : multi-species)	Dr Melanie Crockford Dept Fisheries WA Phone: 08 9368 3205 Email: mcrockford@agric.wa.gov.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
2011/245	Research methods to manage pathogenic microbiological and biological organisms within a redclaw (<i>Cherax quadricarinatus</i>) egg incubator hatchery to improve survival and reliability (<i>Associated species</i> : <i>Cherax quadricarinatus</i>)	AquaVerde Redclaw Hatchery & Farm Phone: 07 4091 2020 Email: info@aquaverde.com.au
2012/001	AAHS: Strategic planning, project management and adoption (<i>Associated species</i> : multi-species)	Dr Mark Crane CSIRO AAHL Fish Diseases Laboratory Phone: 03 5227 5118 Email: mark.crane@csiro.au

2012/002	Aquatic Animal Health Technical Forum (<i>Associated species</i> : multi-species)	Nette Williams CSIRO AAHL Fish Diseases Laboratory Phone: 03 5227 5442 Email: lynette.williams@csiro.au
2012/032	AAHS: Pacific oyster mortality syndrome (POMS) - risk mitigation, epidemiology and OsHV-1 biology (<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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Vacancy (SCAAH Rep)			
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