

People development programme: Aquatic animal health training scheme - workshop on aquatic animal disease surveillance

Dr C. Caraguel



Project No. 2009/315.15



THE UNIVERSITY
of ADELAIDE



Australian Government

**Fisheries Research and
Development Corporation**

2012 DAFF/FRDC Aquatic Animal Health Training Scheme- Aquatic Animal Health
Technical Forum and Skills Training Workshop
Draft Final Report

Charles Caraguel

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Project No: 2009/315.15

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NON-TECHNICAL SUMMARY

2012 DAFF/FRDC Aquatic Animal Health Training Scheme - Aquatic Animal Health
Aquatic Surveillance Workshop

Project No: 2009/315.15

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OBJECTIVES:

The funds provided through the award were used to materialize the 2011 Aquatic Surveillance Workshop by contracting experts and covering the logistic and materials.

The project, coordinated by Dr. Charles Caraguel, was held from the 12th to 16th of December 2011 at the Roseworthy Campus (The University of Adelaide, SA) and targeted the following objectives;

1. Improve the skills and knowledge of the aquatic health community to implement proper surveillance programmes for aquatic animal diseases,
2. Organise a workshop in aquatic disease surveillance involving international, national and local experts for 20-25 participants,
3. Provide participants with expert consultants for the design, development or review of their own surveillance needs,
4. Encourage sharing and networking among participants and instructors involved in the surveillance of aquatic diseases locally and globally,
5. Initiate ongoing training activities and working groups on aquatic animal health in Australia.

OUTCOMES ACHIEVED TO DATE

A 5-day Aquatic Surveillance Workshop was held at the Roseworthy Campus in December 2011 and was attended by 25 participants from private, academic, and governmental organisations throughout Australia. Experts with international and national perspective in aquatic surveillance were contracted to instruct the workshop. It covered basic and advanced animal disease surveillance principles and their application to aquatic populations. Groups of participants had the opportunity to apply concepts to real cases from the aquaculture industry and to work on their own surveillance projects with access to national and international experts.

Based on an initiative from the Aquatic Special Interest Group (AquaSIG) at the School of Animal and Veterinary Sciences (The University of Adelaide), a training workshop on aquatic surveillance was granted funding through the Aquatic Animal Health Training Scheme in July 2011.

The workshop was organized during the spring and held at the Roseworthy Campus in South Australia from December 12th to 16th, 2011. A total of 25 participants including 5 aquatic surveillance experts were present.

- **Dr. Angus Cameron**, veterinary epidemiologist from AusVet Animal Health Services, led the workshop with his expertise in training surveillance for animal disease and his experience in some aquatic production systems;
- **Dr. Larry Hammell**, co-director of the OIE collaborative centre in Epidemiology and Risk Assessment of Aquatic Animal Diseases in Canada, provided an international perspective on aquatic surveillance and his experience on the logistic considerations when implementing aquatic surveillance programmes;
- **Dr. Marty Deveney**, SARDI research scientist, provided his expertise on the regulatory framework for aquatic surveillance in Australia and the surveillance programmes in place for exotic diseases;
- **Dr. Barbara Nowak**, from the University of Tasmania, shared her experience on surveillance activities for endemic diseases in the Tasmanian aquaculture and her expertise on aquatic disease detection;
- **Dr. Charles Caraguel**, from The University of Adelaide, coordinated the workshop and provided his experience on basic and advanced epidemiological concepts.

KEYWORDS: Aquatic animal health; surveillance; skills; infectious diseases; training

Acknowledgments

We would like to acknowledge:

- The workshop participants for their enthusiasm and active participation, their home organisations for supporting their attendance at the skills training workshop.
- FRDC Aquatic Animal Health Subprogram for its support and encouragement of the development activities carried out during the training scheme.
- The Department of Agriculture, Fisheries and Forestry (DAFF) for their support of the training scheme with FRDC.
- The University of Adelaide for providing some administration support.
- The Australian Centre for International Agricultural Research for providing free of charge 25 copies of the manual “Survey Toolbox for Aquatic Animal Diseases: A Practical manual and software package”.
- CleanSeas Tuna, RoBarra, and Zippel Enterprises Pty Ltd for sponsoring the workshop diner with complimentary fresh seafood.

Background

The sustainability of an aquaculture industry relies on the capacity to implement proper surveillance programmes for infectious agent. In the absence of the infection (exotic or emerging diseases), surveillance is used to demonstrate freedom to keep trade barriers open or to set early detection systems to trigger a fast response. In the presence of the infection (endemic diseases), surveillance is used to monitor the progression of infection in the population or to detect cases for control or eradication programmes. Therefore, surveillance programmes in aquaculture should be designed and implemented to fit their intended purpose.

Need

For the last two decades, the aquaculture industry in Australia is expanding and diversifying. A wide range of aquatic health professionals at the industry, government, and academic levels are involved in its health management. Surveillance activities are run in collaboration between the industry and the state and national governments.

Objectives

The funds provided through the award were used to materialise the 2011 Aquatic Surveillance Workshop by contracting experts and covering the logistic and materials.

The project, coordinated by Dr Charles Caraguel, was held from the 12th to 16th of December 2011 at the Roseworthy Campus (The University of Adelaide, SA) and targeted the following objectives;

1. Improve the skills and knowledge of the aquatic health community to implement proper surveillance programmes for aquatic animal diseases,
2. Organise a workshop in aquatic disease surveillance involving international, national and local experts for 20-25 participants,
3. Provide participants with expert consultants for the design, development or review of their own surveillance needs,
4. Encourage sharing and networking among participants and instructors involved in the surveillance of aquatic diseases locally and globally,
5. Initiate ongoing training activities and working groups on aquatic animal health in Australia.

Methods

Objective 1

Improve the skills and knowledge of the aquatic health community to implement proper surveillance programmes for aquatic animal diseases

To achieve this objective the workshop curriculum was developed in consultation with the instructor. The scope of the workshop was based on the principle of designing, implementing and evaluating surveillance programmes **to fit purpose**. The objectives of using surveillance are conventionally split between objectives where the infection is deemed absent in the target population (exotic & emerging diseases) and objectives where the infection is deemed present (endemic diseases). Therefore, the workshop programme (see Appendix 1) included:

1. **An introductory day:** definition and objective of surveillance programme, international and national regulatory framework of surveillance for aquatic animal infections;
2. **A conceptual day:** basic and advanced epidemiological principles of sampling and measuring infection level in aquatic populations;
3. **An “exotic/emerging disease” day:** concepts, strategies, implementation and illustrations of aquatic surveillance to demonstrate freedom from infection and for early detection;
4. **An “endemic disease” day:** concepts, strategies, implementation and illustrations of aquatic surveillance to estimate prevalence, to monitor level of disease across time, and to detect cases for control or eradication programmes;
5. **A project day:** personal or group project including presentation to the class.

Although number of aquatic animal health experts have some intuitive understanding of surveillance, few have a structured comprehension of the concepts and mechanisms involved. This programme was therefore custom made to up skill participants’ knowledge on infection surveillance.

Objective 2

Organise a workshop in aquatic disease surveillance involving international, national and local experts for 20-25 participants

Recognised experts in aquatic surveillance were contacted to survey their willingness and availability to instruct the workshop. Initially, the retained expert panel include one of the most experienced trainer and consultant in animal disease surveillance (Dr. Cameron), one of the co-author of the World Organisation for Animal Health (OIE) manual on aquatic disease surveillance and internationally renowned aquatic epidemiologist (Dr. Hammell), and a national and local expert in regulation and implementation of surveillance programme for aquatic disease in Australia (Dr. Deveney).

The scope and structure of the workshop was then put together in consultation with the instructors and integrated into a 5 day programme (Appendix 1).

Application for funding was submitted in April 2011 and granted in early July 2011. The workshop was advertised at aquatic health conferences (2011 science week for veterinary specialists in aquatic diseases, 2011 First Australasian Scientific Conference on aquatic Animal Health), and through the FRDC newsletter and email listing.

In September, a website (Appendix 2) was published to inform and record information details of interested applicants. A list of applicants was combined and submitted to the instructors and FRDC for review. The accepted applicants were notified directly by email with further information about the accommodation, restoration and transportation options and the expected pre-workshop preparation reading.

A workshop kit was prepared for each participant including: name tag, folder including the workshop programme, dividers separating workshop sections, a pencil and a note pad.

Teaching material was printed and provided before the presentations (when available from the instructor). During the workshop a specific wireless internet access was setup to accommodate participant for email consulting and information access. An independent wireless network was also setup to survey participants' opinion, to monitor their progress and level of understanding, and to access electronic materials in real time.

Objective 3

Provide participants with expert consultants for the design, development or review of their own surveillance needs

The workshop programme (Appendix 1) included team-based exercises on day 2, 3, and 4. Participants were surveyed to identify the aquatic species and infections of primary interest in their field. Small groups were organized based on subject preference, and surveillance design duties were assigned to each group (e.g. sampling methods and sample size calculation, surveillance programme design ...etc...). Group works were presented and reviewed collectively. Individuals had additional opportunities to consult with the instructors to specifically address questions or concerns regarding the design, development or review of their own surveillance activity.

Objective 4

Encourage sharing and networking among participants and instructors involved in the surveillance of aquatic diseases locally and globally

On the first day, each participant was asked to introduce themselves and to outline their experience in aquatic surveillance and the reasons for taking the workshop. Coffee breaks and lunches were provided to encourage exchange and discussion among participants during the day. For the last evening of the workshop, a dinner was organised in a winery of the nearby Barossa Valley. Transportation and some of the gathering were covered by the workshop. Industry sponsors provided complementary seafood: pacific oysters (Zippel Enterprises Pty Ltd), Yellow Tail Kingfish (CleanSeas Tuna), and Barramundi (RoBarra).

Objective 5

Initiate ongoing training activities and working groups on aquatic animal health in Australia

This workshop on aquatic surveillance was the first at the School of Animal and Veterinary Sciences (The University of Adelaide), and to the author knowledge, in South Australia. Given the importance of surveillance for the proper management of the health of an aquatic population, this workshop is complementing previous training in aquatic animal health offered elsewhere in Australia. An email list was distributed to encourage ongoing exchange among participants beyond the workshop.

Results/Discussion

Workshop Participation

During the workshop preparation, Dr Nowak from the University of Tasmania offered her contribution to the workshop with her experience into aquatic surveillance to complete the local and national perspective provided by Dr. Deveney. After consultation with the instructors, Dr. Nowak was enthusiastically included into the instructor panel (see Appendix 1).

Out of the three other experts initially invited to instruct the workshop, Dr. Hammell (from Canada) had to cancel for personal reasons his travel to Australia. The workshop programme had to be revisited to fulfil Dr. Hammell absence. Dr. Cameron accepted taking part of the teaching time and Dr. Caraguel covered the training on epidemiology concepts. Nonetheless, Dr. Hammell still participated to the training by offering 3 short online presentations using a video conferencing software (i.e. Skype). The final instructor panel included: Drs. Angus Cameron, Marty Deveney, Barbara Nowak, Larry Hammell (online), and Charles Caraguel.

At the application deadline for the workshop (Oct. 10th, 2011), a total of 27 applicants were registered (see Table 1 & 2). All applications were accepted for participation after consultation with FRDC management team and workshop instructors. Unfortunately, seven of the applicants withdraw within the two weeks before the venue. This was mainly explained by the lack of sufficient fund for international applicant to participate, and private aquatic health professionals busy with unforeseen duty (see Table 1 & 2). Ultimately, a total of 20 participants attended the workshop (see Appendix 3 for the full list). The 5 instructors also attended to the workshop when not teaching.

Table 1. Count and proportion of workshop applicants per professional category.

Professional category	Applicants		Participants	
	Counts	Proportions	Counts	Proportions
Government	12	44%	10	50%
Private health professional	8	30%	5	25%
Academia	5	19%	4	20%
Industry	2	7%	1	5%
Total	27	100%	20	100%

Table 2. Count and proportion of workshop applicants per origin.

Origin	Applicants		Participants	
	Counts	Proportions	Counts	Proportions
VIC	8	30%	5	25%
SA	6	22%	7	35%
TAS	3	11%	2	10%
QLD	3	11%	1	5%
NSW	3	11%	4	20%
ACT	1	4%	1	5%
International	3	11%	0	0%
Total	27	100%	20	100%

Workshop Schedule

The initial workshop programme was prepared in collaboration with Dr. Cameron. The programme had to be revisited in several instances to account with the addition of Dr. Nowak and with the cancellation of Dr. Hammell (see Appendix 1). Presentation time on local and national perspectives was shared between Drs. Deveney and Nowak. Time for short presentation was allocated to Dr. Hammell on day 1, 2, and 4. Finally, Drs. Cameron and Caraguel shared the rest of instruction time initially allocated to Dr. Hammell (Appendix 1).

Workshop Outcomes

The overall outcome of the workshop was positive according to the instructors' experience and based on the participants survey (Appendix 4). Each of the workshop objectives were fulfilled and are addressed individual below.

Objective 1

Improve the skills and knowledge of the aquatic health community to implement proper surveillance programmes for aquatic animal diseases

The participants survey answers associated with Objective 1 are reported into the questions 1 to 4 of Appendix 4. The workshop seemed to increase the knowledge and understanding of the participants of aquatic disease surveillance. They enjoyed the content and format of the presentations from the various instructors and the depth of information provided. The group included a wide range of backgrounds and interests, and some participants found the degree of information sometimes overwhelming. Overall, 80% of the participants strongly agreed, and the other 20% agreed, that what they learnt during the workshop would be immediately useful in their work.

Objective 2

Organise a workshop in aquatic disease surveillance involving international, national and local experts for 20-25 participants

The participants survey answers associated with Objective 2 are reported into the questions 6 to 9 of Appendix 4. A great majority of the participants judge the meeting room appropriate. They appreciate the gathering at coffee and lunch break but would have preferred more frequent and on time breaks. The accommodation available on site appeared to fit participant expectations. Overall, the participants appreciated the learning environment and the opportunity to access international, national and local experts.

Objective 3

Provide participants with expert consultants for the design, development or review of their own surveillance needs

The participants survey answers associated with Objective 3 are reported into the questions 2 and 4 of Appendix 4. Numerous opportunities were given to the participants to design, development or review of their own surveillance. The topics used for team-based exercises were based on participants daily survey to fit the participant needs. A wide range of surveillance activities associated to specific aquatic species and infections were covered and reviewed collectively. For instance, the participants designed together a surveillance programme for early detection of OsHV-1 μ var in pacific oyster in Australia. Along the 5 days, the participants consulted and discussed with the instructors about their own surveillance project. Ultimately, after this initial contact, the participants may follow up with the consultation of the experts for further questions on their surveillance needs.

Objective 4

Encourage sharing and networking among participants and instructors involved in the surveillance of aquatic diseases locally and globally

The participants survey answers associated with Objective 4 are reported into the questions 2, 7, 8 and 10 of Appendix 4. Coffee/Tea breaks and lunches were provided by the workshop. These allocated times during the week were expected to provide opportunities for the participants and the instructor to interact and network. However, unexpectedly, the workshop location and accommodation further promote sharing and exchange among the participants. The campus being in a remote location and the accommodations having shared facilities (i.e. kitchen, bathrooms), it was common that participants organised collective diners (e.g. barbecue) on the evenings followed by social discussions. Although we had initially some concerns about the convenience of the campus for the participant, we are finally confident that the location was a critical component of the success of the workshop. On the last evening of the workshop (Thursday night), a diner was organised around the theme of aquaculture product in a winery of the nearby Barossa valley. Transportation and part of the food was covered by the workshop. The seafood was sponsored by various aquaculture industry partners (Zippel Enterprises Pty Ltd, CleanSeas Tuna, and RoBarra). The rest of the cost was at the charge of the participants. This venue was the paramount of the networking activities organised during the workshop and was greatly appreciated by the participants. Few days after the workshop, a complete list of the participants and instructors contact information was distributed by email. The workshop went certainly beyond the expectations of Objective 4.

Objective 5

Initiate ongoing training activities and working groups on aquatic animal health in Australia

The participants survey answers associated with Objective 4 are reported into the question 5 of Appendix 4. The workshop triggered further interest among participant in disease surveillance and more advanced area of aquatic epidemiology. An *ad hoc* session on Latent Class Analysis (i.e. estimation of diagnostic sensitivity and specificity without gold standard) was offered to respond participants' request. Other requested topics could not be covered and should be considered for future workshops (e.g. risk analysis). Participants suggested that a same workshop should be offered again in the future and target government decision makers.

Conclusion

The offered workshop on aquatic surveillance fulfilled the 5 main objectives as initially stated. A group of 20 participants and 5 instructors, including international and national experts, attended the 5 day training held at the Roseworthy Campus. Participants were provided with tools and knowledge to up skill their capacity to design and evaluate surveillance programmes for aquatic diseases. Surveillance programmes in aquaculture should be designed and implemented to fit their intended purpose and guidelines of the surveillance characteristics according to their purpose were distributed to the participants (Appendix 5). The exchange of information and experience as well as networking was very active during the workshop and direct contacts with experts facilitated the development of participants' personal projects. Overall, positive feedback from the participants confirmed the proper fit of the venue and the organisation. It has been suggested that the same workshop should be offered again to further train aquatic health stakeholders and additional aquatic epidemiology topic (e.g. risk analysis) should also be considered for future workshop.


References

Cameron A. 2002. SURVEY TOOLBOX FOR AQUATIC ANIMAL DISEASES: A Practical Manual and Software Package. ACIAR. Canberra, Australia. pp. 375.

Appendix 1. Programme of the workshop on surveillance for aquatic animal disease

Monday December 12 th , 2011		Tuesday December 13 th , 2011		Wednesday December 14 th , 2011		Thursday December 15 th , 2011		Friday December 16 th , 2011	
MORNING	9:00-9:05 Welcome (Dr. Caraguel) 9:05-9:15 Opening remarks (Dr. Hind) 9:15-10:30 Introduction to disease surveillance (Dr. Cameron) 10:30-10:45 Break 10:45-12:00 Introduction to disease surveillance Cont'd (Dr. Cameron)	MORNING	9:00-9:30 Sampling practices in aquaculture (Dr. Hammell) 9:30-10:45 Sampling for surveillance: principles (Dr. Cameron) 10:45-11:00 Break 11:00-12:00 Sampling for surveillance: workgroup exercises (Drs. Cameron & Deveney)	MORNING	9:00-10:45 Surveillance of exotic & emerging disease (Dr. Cameron) 10:45-11:00 Break 11:00-12:00 Illustration with Australian examples of exotic surveillance (Dr. Deveney)	MORNING	9:00-9:30 Risk factors of ISAv (Dr. Hammell) 9:30-11:00 Surveillance of endemic disease (Dr. Cameron) 11:00-11:15 Break 11:15-12:00 Illustration with Australian examples of endemic surveillance (Dr. Nowak)	MORNING	9:00-12:00 Personal (or group) project (Dr Cameron) (Break around 10:30)
12:00-13:00 Lunch Break		12:00-13:00 Lunch Break		12:00-13:00 Lunch Break		12:00-13:00 Lunch Break		12:00-13:00 Lunch Break	
AFTERNOON	13:00-13:30 OIE perspectives on aquatic surveillance (Dr. Hammell) 13:30-14:30 Surveillance options (Dr. Cameron) 14:30-14:45 Break 14:45-16:15 Overview of Aquatic Surveillance in Australia (Drs. Deveney & Nowak)	AFTERNOON	13:00-14:15 Detection for surveillance: Individual testing (Dr. Caraguel) 14:15-14:30 Break 14:30-16:00 Detection for surveillance: Herd testing (Dr. Caraguel)	AFTERNOON	13:00-14:30 Surveillance of exotic & emerging disease: risk-based sampling (Dr. Cameron) 14:30-14:45 Break 14:45-16:15 Surveillance of exotic & emerging disease: early detection (Dr. Cameron)	AFTERNOON	13:00-16:30 Team-based exercise (All instructors) (Break around 14:30)	AFTERNOON	13:00-15:00 Project presentation 15:00-15:30 Workshop wrap-up 15:30- 15:45 Closing remarks (Dr. Doroudi)

Appendix 2: Snapshot of workshop website



- Animal and Veterinary Sciences Home
- The School
- Students
- People
- Research
- Anatomy and Physiology
- Pathobiology
- Production Animal Health
- Reproduction and Genetics
- Companion Animal Health
- Public and Population Health
- Equine Health
- Administration
- HSW (Safety)
- Links
- Biosecurity


Further Enquiries

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Aquatic Surveillance Workshop

Funded by the Aquatic Animal Health Training Schemes (FRDC/DAFF)



What?
Five-day workshop on design, evaluation and implementation of surveillance for aquatic animal diseases.





Where?







[School of Animal & Veterinary Sciences](#), The University of Adelaide, Roseworthy Campus ([map](#))

When?
Monday 12th to Friday 16th of December, 2011

Who?
A panel of 4 experts with international, national and local perspective in aquatic surveillance will instruct the workshop:

			
Dr Larry Hammell	Dr Angus Cameron	Dr Barbara Nowak	Dr Marty Deveney

			
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Scope?
An intended program of the workshop is available for consultation [here](#).

Cost?
The cost of the workshop is covered by the [FRDC/DAFF Aquatic Animal Health Training Schemes](#) and will be free of charge for the participants. However, personal needs including travel, accommodation and food are at the participant own charge. Some convenient and low cost accommodation on the Roseworthy Campus may be available. Please [contact us](#) for further information on this.

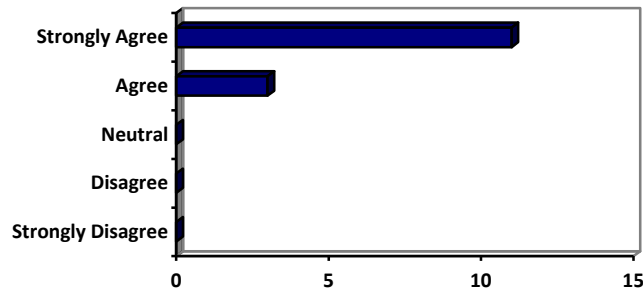
Application?
Applications for the workshop are now closed (deadline October 10th, 2011).
For further information please contact [Dr Charles Carague](#).

Appendix 3. Participants list

Title	Name	Organisation	Role
Dr	Paul Hick	EMAI	Participant
Dr	Jane Owens	The University of Adelaide	Participant
Dr	Alistair Brown	Aquatic Veterinary Services	Participant
Dr	Nick Moody	CSIRO	Participant
Dr	Matt Landos	Future Fisheries Veterinary Service	Participant
Miss	Katherine Humphrey	DAFF	Participant
Dr	Malcolm Anderson	PIRSA	Participant
Dr	Melanie Leef	University of Tasmania	Participant
Dr	Cassandra Ypelaan	Panaquatic Health Solutions	Participant
Dr	Shokoofeh Shamsi	Charles Sturt University	Participant
Dr	Michael Sierp	Biosecurity SA (PIRSA)	Participant
Dr	Shane Roberts	PIRSA Fisheries & Aquaculture	Participant
Dr	Tracey Bradley	Victorian DPI	Participant
Dr	Jack van Wijk	Biosecurity SA	Participant
Ms	Jane Frances	NSW DPI	Participant
Miss	Claire Webber	ASBTIA	Participant
Dr	Wayne Boardman	The University of Adelaide	Participant
Ms	Natale Snape	Biosecurity Queensland	Participant
Dr	Robert Jones	The Aquarium Vet	Participant
Mr	Josiah Pit	Aquarium Industries	Participant
Dr	Angus Cameron	AusVet Animal Health Services	Instructor
Dr	Marty Deveney	SARDI	Instructor
Dr	Larry Hammell	OIE collaborating centre	Instructor
Dr	Barbara Nowak	University of Tasmania	Instructor
Dr	Charles Caraguel	University of Adelaide	Organizer/Instructor

Appendix 4. Workshop feedbacks

1. I felt I learnt things that would be immediately useful in my work.



2. What was the best thing about the workshop?

- *Switching between different presenters and media was good and the exercises. The dinner was amazing. Well done guys!*
- *The lectures by Dr Cameron - he is a very good presenter. Conveys his knowledge very well - easy to understand the concepts he explains. Very interesting to also hear from Dr Hammell - very good lectures. The videos in Dr Hammell 's lectures were especially useful for my understanding, since I don't come from an aquaculture background. I also enjoyed the 'pick a fish out of the pencil case' exercise because it re-enforced the concepts in a practical way.*
- *The knowledge of and the delivery by the presenters, particularly Dr Cameron and Dr Caraguel*
- *Learnt a lot to take home*
- *Realizing I know more about epidemiology than I thought and how to use it day to day*
- *Having disease surveillance concepts explained well.*
- *Learning about the theory of surveillance techniques*
Excellent relationships
Fun time
- *Talking about sampling methods and developing an understanding of how to manipulate DSe, DSp and P* to suit your situation*
- *Very relevant to the most interesting aspects of my work. Ability to meet people with similar interests*
- *All of it. The workshop clarified things for me and was a good reminder to think outside the area I normally work in (e.g. diagnostic test vs diagnostic procedure)*
- *Networking*
Content was excellent and delivered at a standard that everyone could understand despite the large range in skills/knowledge of participants
- *Talking about the broad concepts you need to consider when planning surveillance activities.*
- *Networking with colleagues(2)*

- *Focusing on how to make current surveillance programmes, and investigations better, eg POMS, AGD evaluation*

3. What was the worst thing about the workshop?

- *I would have got considerably more out of the workshop if I had the materials 2 weeks earlier so I could read them.*
- *No bad aspects.*
- *Nil*
- *All good*
- *No comment*
- *The equations*
- *Feeling short of time*
- *Location*
- *Was a lot to remember, but I have your contact details.*
- *Haphazard breaks - hard to plan if you needed to sort work out*
- *I found it very hard to grasp the technical side of calculating sensitivity, specificity, sample size etc. I do understand that there is a broad range of skills in the group, so while I have no background in epidemiology, this stuff may have been very helpful for other people. Also, we needed more breaks (or at least needed to keep them to their scheduled times).*
- *The seats - my bum is usually sore by the end of the day*
- *Personally would have like some elements more advanced, but difficult to achieve given mixed starting level of group*

4. My comments about the presenters:

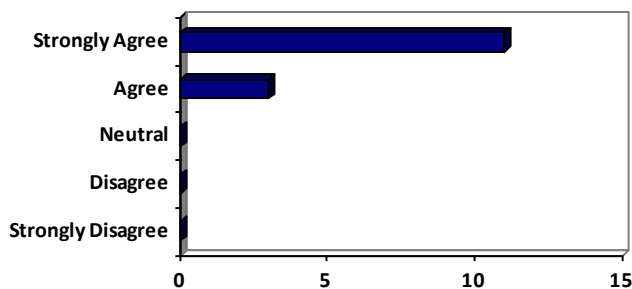
- *Excellent, a difficult subject area to teach but I understood it.*
- *Excellent. Very interesting. Good breadth of experience and knowledge. Good mix of topics and areas of interest.*
- *Very knowledgeable and interacted in a manner that made learning enjoyable*
- *Excellent - particularly Cameron and Charles*
- *Great - entertaining*
- *Excellent*
- *Excellent presenters
Barbara Novak's accent and delivery difficult*
- *Very informative, and held my attention though comical bantering and subtle insults of each other (funny guys). Great use of teaching aids i.e. changing it up between power point and white board*
- *Excellent*
- *Well presented. Not sure if Cameron and Caraguel are more like Abbot and Costello, or Cheech and Chong though*
- *Excellent*

- Angus, great. Charles, great (although subject matter a little tricky!)
- Excellent
- They should compliment each other more often.

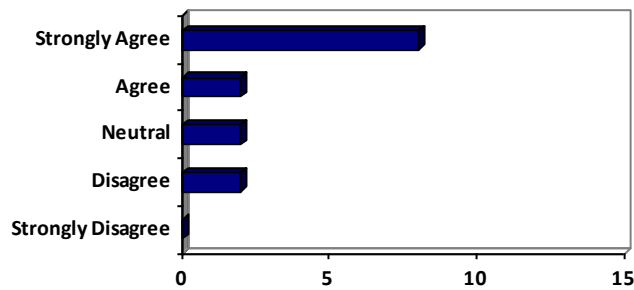
5. If there are opportunities for future similar projects, what should they involve? Similar training for other staff? Training in other topics? What topics? Other suggestions?

- A bit more general background in epidemiology.
- I would be up for any further epidemiology training, including more surveillance training. It has been most interesting to branch out into aquaculture, so would be keen to go more in-depth into the topics we have covered this week.
- Involving key industry participants
- Risk analysis (3)
- Surveillance concepts for AHC/ CVO's, etc...
- Opportunities of this nature are very valuable. A reactive approach whereby workshops are prepared at the time of emerging issues would be fantastic.
- Should be a regular thing but who would fund it?
- More wild population examples
- Advanced skills in data management and use of Excel to do it – how to set up data for easy subsequent analysis by an epidemiologist.
- Advanced surveillance techniques to explore analysis of burden in animal populations
development of surveillance in wild fishery/aquaculture interface

6. The meeting room is good?



7. The lunch and meal breaks are good?

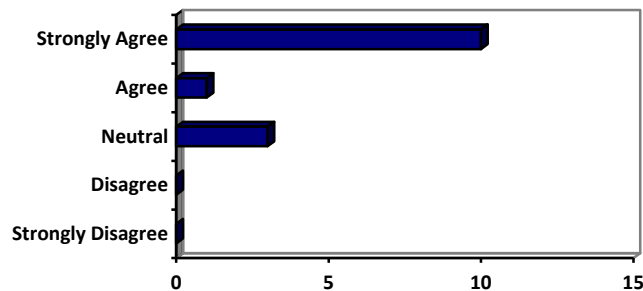


Participants' Comments

Food was generally good, but we needed to keep the breaks to their scheduled times the course content was pretty full on!!).

too many chips

8. The workshop dinner was good?



Participants' Comments

Fresh seafood, good atmosphere and great people

9. My comments about the accommodation are

- *Its fine.*
- *Surprisingly I think the isolation created a better opportunity to get to know the other participants*
- *Fine - good to be all together*
- *Good*
- *Fantastic house, but the sheets were like plastic (lucky I brought my own bed, so I used those sheets instead!)*
- *Isolation was less than ideal*
- *Good facility however, awkward to get to especially if you don't know the area. Needed more information about self catering and transport services etc*
- *Accommodation was nice, and it was a great networking opportunity as we all socialised after class.*
- *Clean comfortable good shower*
- *Adequate, and being remote created a more collegiate environment, counter-intuitively it worked to foster greater inter-industry/agency cooperation*

10. Do you have any general comments or suggestions?

- *Scones at morning tea*
- *Fantastic course! I have really enjoyed it and feel that I have learnt a great deal.*
- *Can you fix the spreadsheet for syndromic surveillance in the download file so it has the calculations on it?*
- *Excellent course. Thanks*
- *Nothing further; thankyou.*
- *Very worthwhile workshop.*
- *Well done!*
- *Great, course! I had a great time and met lots of great people :)*
- *I enjoyed the basketball*
- *Dinner was absolutely stellar!*

Appendix 5: Characteristics of surveillance programmes according to their intended purpose

