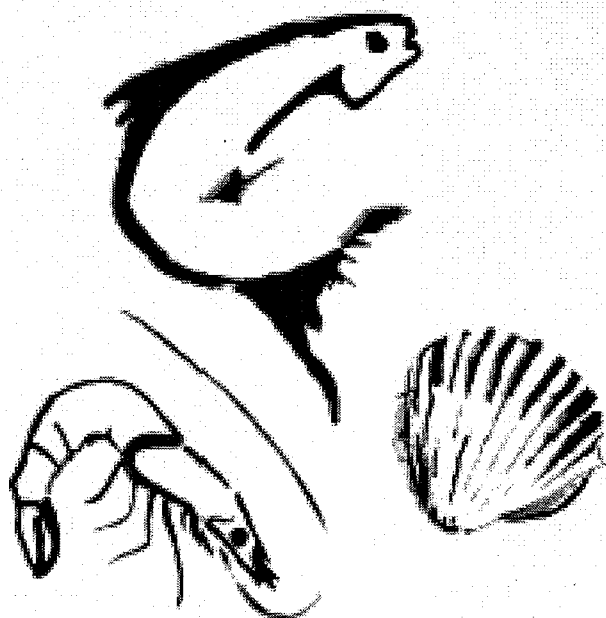


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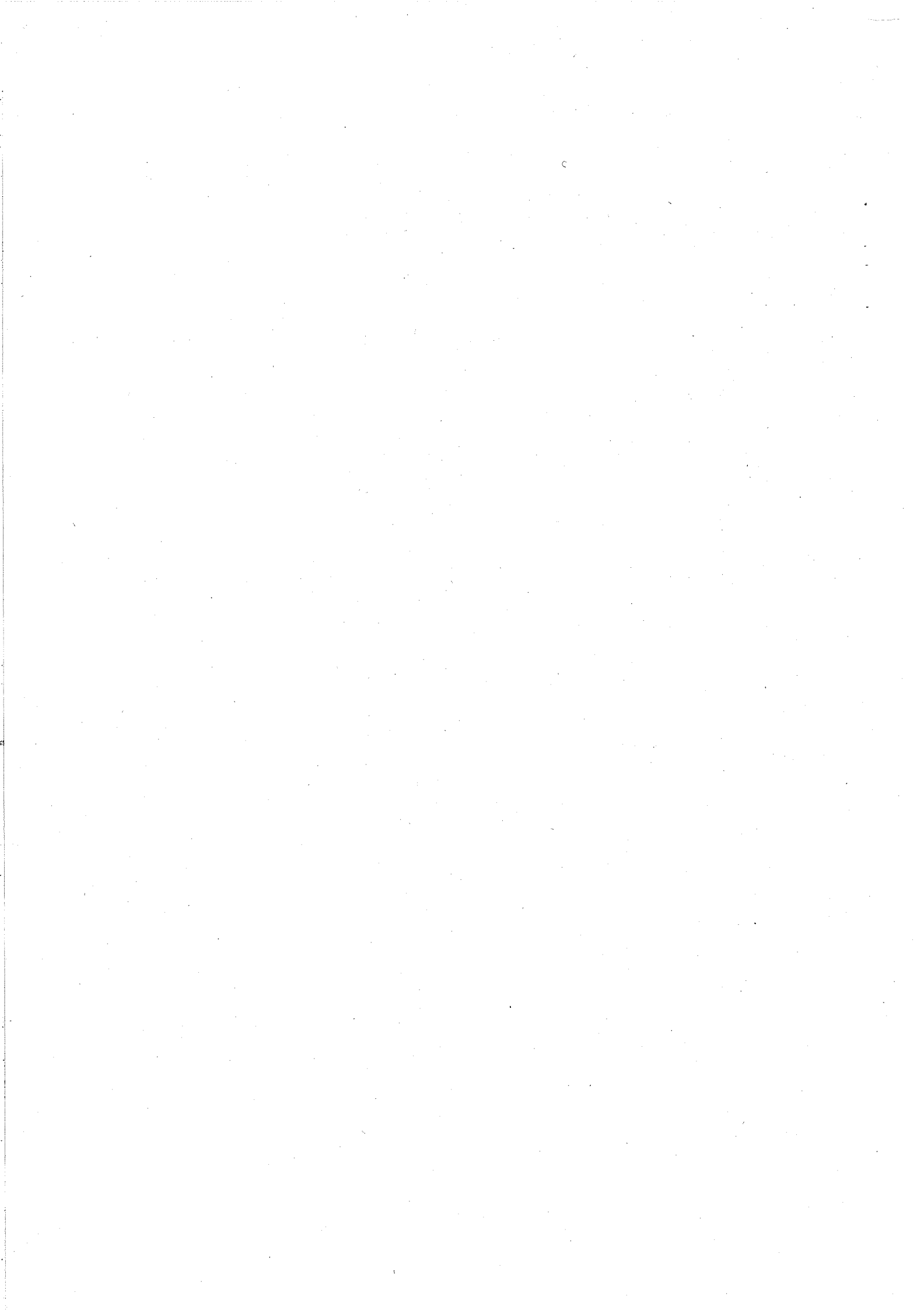
Aquatic Animal Health Programmes their benefits for global food security

Panamá City (Panamá), 28–30 June 2011

ABSTRACT BOOK



Oie



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THE CURRENT STATE OF PLAY: AQUATIC ANIMAL HEALTH PROGRAMMES GLOBALLY AND REGIONALLY

Contribution of aquaculture to food security globally

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Aquaculture – trade issues

Dr Sarah Kahn

OIE Aquatic animal health standards

Dr Barry Hill

Health standards: commodity based approach

Dr Franck Berthe

Aquatic animal health reporting – ensuring transparency

Dr Karim Ben Jebara

Aquaculture and issues of sustainability

Dr Francis Murray

Regional issues – Africa

Prof. Eli Katunguka-Rwakishaya

Regional issues – Asia Pacific

Prof. CV Mohan

Regional issues – Americas

Dr Victor Vidal Martinez

Aquatic animal feed: challenges and opportunities

Mr Alberto Allodi

Laboratory issues – disease, diagnosis and global trends

Dr Fred Kibenge



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Global health issues – Fish

Dr Ricardo Enríquez

Global health issues – Crustaceans

Dr Don Lightner

Global health issues – Molluscs

Dr Ryan Blaise Carnegie

Global health issues – Amphibians

Ms Lisa Schloegel

Food safety and aquatic animals

Dr Lahsen Ababouch

Public sector perspectives and experiences (1)

Dr Manuel Antonio González Cano

Public sector perspectives and experiences (2)

Dr Nguyen Cong Dan

Public sector perspectives and experiences (3)

Dr Jean-Luc Angot

Public sector perspectives and experiences (4)

Dr Florencia A. Massango Cipriano

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SOLUTIONS AND TOOLS TO IMPROVE AQUATIC ANIMAL HEALTH

OIE PVS Tool and aquatic animals

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Dr Geoff Grossel

Professional education and aquatic animal health

Dr Ron DeHaven

Veterinary products and aquatic animals

Dr Peter Smith

Biotechnology advances in pathogen detection and disease prevention

Dr Serge Corbeil

Preventing the risks of invasive species in aquaculture

Dr Chris McKindsey

SESSION 4

CAPACITY BUILDING FOR AQUATIC ANIMAL HEALTH SERVICES

OIE focal point concept and capacity building activities

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FAO capacity building in aquatic animal health

Dr Rohana Subasinghe

Donors' perspectives – EU

Ms Sigrid Cabot

Donors' perspectives – Canada

Dr Tianna MacInnes

Perspectives of a regional organisation

Dr Chumnarn Pongsri

Challenges and tools needed to ensure good governance – the Philippines' experience with the OIE PVS Pathway

Dr Emelinda Lopez



○○○ OBJECTIVES AND EXPECTATIONS FOR THE CONFERENCE

The OIE is proud to present the first Global Conference on 'Aquatic Animal Health Programmes: their benefits for global food security' to be held on 28-30 June 2011, in Panama City, Panama. The conference is both timely and important, because aquaculture is one of the world's fastest growing industries and food derived from aquatic animals is a key source of high quality animal protein for the growing global human population. The conference shows that the OIE and the international community give priority to good governance of aquatic animal health and we are taking steps to support the efforts of developing countries to strengthen governance, using the most appropriate means at our disposal.

The presentations and discussion highlight the important contribution of aquatic animal health programmes to improving aquaculture productivity and sustainability and alleviating poverty globally. Healthy aquatic animals represent high quality protein that is urgently needed to nourish growing human populations, particularly in developing countries. The work of veterinarians and aquatic animal health professionals underpins the achievement of governmental objectives for aquatic animal health, food safety, public health and environmental sustainability. Efficient aquatic animal health programs, consistent with the OIE international standards, depend on good governance of the Aquatic Animal Health Services, comprising both governmental and private sector activities. The involvement of veterinarians and aquatic animal health professionals, working in collaboration with partners, is essential to assure the production of aquaculture products that are safe for human consumption, avoid unwanted impacts on aquatic animal health and the environment, and are appropriately certified to meet international trade requirements. To achieve these goals, key infrastructure elements (such as good governance, modern and appropriate legislation, professional education, appropriate disease prevention and control methods, and efficient public/private partnerships) must be in place. Noting that developing countries face many challenges in meeting international standards in all of these areas, the OIE has developed initiatives to support Members wishing to improve governance and performance of Aquatic Animal Health Services, based on the OIE global PVS Pathway.

The OIE thanks the Government of the Republic of Panama for its great support, notably the Ministry of Agriculture Development; the Ministry of Health, the Panama Food Safety Authority and the Authority for Aquatic Resources. The OIE gratefully acknowledges the support of the European Union, which co-funded the conference.

Welcome to Panama!

Dr Bernard Vallat
OIE Director General



○○○ OBJECTIVES OF THE CONFERENCE

- to raise awareness of the requirements for effective aquatic animal health management, covering all matters under the OIE mandate including sanitary safety of international trade and appropriate certification;
- to highlight the contribution of aquatic animal health programmes to improving the productivity of the aquatic animal sector and thereby global food security;
- to raise awareness of OIE standards and recommendations on the use of veterinary products in aquatic animals;
- to identify practical steps to address any risks arising from aquatic animal production for food safety, public health and the environment;
- to raise awareness of the need to improve the education of veterinarians and other aquatic animal health professions on aquatic animal health, including disease surveillance, control and reporting;
- to brainstorm on the challenges and the tools needed to reinforce good governance in the aquatic animal production sector; and
- to provide practical guidance on how OIE Members (particularly developing countries) can mobilise governments and donors with the goal of improving Aquatic Animal Health Services, including the role of Veterinary Services (as appropriate), to meet the OIE standards for competent services, good governance, aquatic animal disease prevention and control.

○○○ TOPICS

- analysis of the global aquatic animal health situation;
- roles and responsibilities of Aquatic Animal Health Services and Veterinary Services, including OIE national Delegates and focal points, in aquatic animal health management;
- roles and responsibilities of national and international laboratories for disease diagnosis and reporting and related scientific research;
- effective communication amongst all concerned sectors;
- understanding the OIE role and mandate and the relationships between authorities where there is a shared responsibility for aquatic animal health;
- OIE Members' experiences in aquatic animal health management, including the challenges and priorities of developing countries;
- awareness of the OIE standards and recommendations for aquatic animals and practical advice on how to comply with the standards;
- the use of veterinary products in aquatic animals;
- the education of veterinarians and aquatic animal health professionals in the public and the private sector on their role and responsibilities;
- improvement of governance of Veterinary Services and Aquatic Animal Health Services using the OIE PVS pathway;
- future needs and priorities to support decision makers, international organisations and donors with the objective of strengthening the governance and management of the aquatic animal production sector especially as this relates to animal health, food safety at the production level, and relevant contributions to safeguarding the environment.



○○○ ORGANISATION OF THE CONFERENCE

Steering Committee

Dr Bernard Vallat (Chair)
Dr Luis Barcos
Dr Daniel Chaisemartin
Dr Alain Dehove
Dr Monique Eloit
Dr Sarah Kahn

Scientific Committee

Dr Franck Berthe
Dr Ricardo Enriquez
Dr Olga Haenen
Dr Barry Hill
Dr Huang Jie
Dr Sarah Kahn
Prof. Donald V. Lightner
Dr Gillian Mylrea
Prof. Eli Katunguka-Rwakishaya
Dr Peter Smith
Dr Victor Emilio Vega Barrios
Dr Victor Manuel Vidal

Conference Organisation

Ms Ingrid Arias
Ms Alejandra Torres
Dr Luis Barcos
Ms Claudia Campos
Dr Daniel Chaisemartin
Dr Sarah Kahn
Dr Gillian Mylrea
Dr Victor Emilio Vega Barrios
Ms Alina Gutiérrez Camacho
Dr Filiberto Frago Santamaria
Dr Jose Joaquin Oreamuno

ORGANISATION

○○○ GENERAL INFORMATION

This booklet contains the abstract (in English) of each presentation submitted by 8 April 2011 and approved by the OIE.

Following the conference, abstracts, PowerPoint presentations and the conference recommendations will be made available on the OIE website.

The Conference Proceedings, containing all papers (in English) submitted to and approved by the OIE, will be distributed in hard copy to all registered participants, OIE national Delegates and OIE Focal Points for Aquatic Animals under the National OIE Delegate and will be available for purchase from the OIE publications department.

Venue

Hotel El Panamá
Vía España 111, Street Eusebio A. Morales
P.O. Box 0816-06754
Panamá City, Panamá
Tel.: + 507 215-9182
www.elpanama.com

Language

All sessions feature simultaneous interpretation in English, French and Spanish.

OIE Global Conference on Aquatic Animal Health
“Aquatic Animal Health Programmes: their benefits for global food security”
Panamá City, (Panamá) 28–30 June 2011

PROGRAMME

○ ○ ○ **PROGRAMME**

Day-0: Monday 27 June 2011

Time	Activity	Place
17:00–19:00	Registration	Hotel El Panamá

Day 1: Tuesday 28 June 2011

Opening Session

Time	Theme
08:30–10:00	Registration (continued)
10:00–11:00	OPENING CEREMONY <i>Dr Bernard Van Goethem</i> Director of Directorate D: Animal Health and Welfare in the European Commission's DG Health and Consumers (DG SANCO) <i>Dr Carlos Correa Messuti</i> President of the OIE World Assembly of Delegates and OIE Delegate for Uruguay <i>Dr Bernard Vallat</i> Director General, OIE <i>Representative of the Government of Panama</i>
11.00–11.30	Morning Break Tea / Coffee ☕
11.30–12:15	Keynote Address: Objectives and Expectations for the Conference <i>Dr Bernard Vallat – Director General, OIE</i>
12:15–13:30	Lunch



SESSION 1

THE CURRENT STATE OF PLAY: AQUATIC ANIMAL HEALTH PROGRAMMES GLOBALLY AND REGIONALLY

Objectives: to describe aquatic animal health programmes and issues globally and regionally

Aquatic animal health programmes include: disease diagnosis, surveillance and notification; disease prevention and control; sanitary measures and health certification of aquatic animals and their products; food safety; control of veterinary products; farmed fish welfare; and the role and education of veterinarians and aquatic animal health professionals in the aquaculture sector.

Time	Theme	Speaker
13:30–13:50	Contribution of aquaculture to food security globally	<i>Dr Modadugu Gupta</i> India
13:50–14:10	Aquaculture–Trade issues	<i>Dr Sarah Kahn</i> Head – OIE International Trade Department
14:10–14:40	OIE Aquatic animal health standards	<i>Dr Barry Hill</i> President, OIE Aquatic Animal Health Standards Commission
14:40–15:00	Health standards: commodity based approach	<i>Dr Franck Berthe</i> Secretary General, OIE Aquatic Animal Health Standards Commission
15:00–15:30	Afternoon Break Tea / Coffee	☕
15:30–15:50	Aquatic animal disease reporting – ensuring transparency	<i>Dr Karim Ben Jebara</i> Head – OIE Animal Health Information Department
15:50–16:10	Aquaculture and issues of sustainability	<i>Dr Francis Murray</i> University of Stirling United Kingdom
16:10–16:30	Regional issues – Africa	<i>Prof. Eli Katunguka-Rwakishaya</i> Director, School of Graduate Studies, Makerere University, Uganda
16:30–16:50	Regional issues – Asia Pacific	<i>Prof. CV Mohan</i> Research & Development Manager Network of Aquaculture Centres in Asia – Pacific (NACA)
16:50–17:10	Regional issues – Americas	<i>Dr Victor Vidal Martinez</i> Member – OIE Aquatic Animal Health Standards Commission and Inter-American Aquatic Animal Health Committee
17:10–17:30	Aquatic animal feed: challenges and opportunities	<i>Mr Alberto Allodi</i> Chairman of Fish Feed Committee European Feed Manufacturers' Federation (FEFAC)
17:30–17:50	Laboratory issues – disease, diagnosis and global trends	<i>Dr Fred Kibenge</i> OIE Reference Laboratory expert University of Prince Edward Island, Canada
17:50–18:30		Panel discussion
19:00–21:30		OIE Reception

Day 2: Wednesday 29 June 2011

SESSION 2

THE CURRENT STATE OF PLAY:

INTERNATIONAL AND NATIONAL CHALLENGES AND OPPORTUNITIES

Objectives: to present international and national perspectives and experiences (positive and negative) on the implementation of OIE standards for aquatic animal health.

Time	Theme	Speaker
09:00–09:20	Global health issues – Fish	<i>Dr Ricardo Enríquez</i> Vice President, OIE Aquatic Animal Health Standards Commission
09:20–09:40	Global health issues – Crustaceans	<i>Dr Don Lightner</i> OIE Reference Laboratory expert University of Arizona, United States of America
09:40–10:00	Global health issues – Molluscs	<i>Dr Ryan Blaise Carnegie</i> Virginia Institute of Marine Science United States of America
10:00–10:20	Global health issues – Amphibians	<i>Ms Lisa Schloegel</i> Consultant Research Scientist EcoHealth Alliance United States of America
10:20–10:40	Food safety and aquatic animals	<i>Dr Lahsen Ababouch</i> Fisheries and Aquaculture Department – FAO
10:40–11:00	Public sector perspectives and experiences (1)	<i>Dr Manuel Antonio González Cano</i> OIE Delegate for Panama
11:00–11:30	Morning Break Tea / Coffee	☐
11:30–11:50	Public sector perspectives and experiences (2)	<i>Dr Nguyen Cong Dan</i> Division of Aquatic Animal Health Management Department of Animal Health, Vietnam
11:50–12:10	Public sector perspectives and experiences (3)	<i>Dr Jean-Luc Angot</i> OIE Delegate for France
12:10–12:30	Public sector perspectives and experiences (4)	<i>Dr Florencia A. Massango Cipriano</i> OIE Delegate for Mozambique
12:30–13:00		Panel Discussion
13:00–14:30		Lunch



SESSION 3**SOLUTIONS AND TOOLS TO IMPROVE AQUATIC ANIMAL HEALTH**

Time	Theme	Speaker
14:30–14:50	OIE PVS Tool and aquatic animals	<i>Dr Keren Bar-Yaacov</i> OIE Delegate for Norway
14:50–15:10	Australia's experience in the use of the OIE PVS Tool to improve aquatic animal health	<i>Dr Geoff Grossel</i> Biosécurity Australia
15:10–15:30	Professional education and aquatic animal health	<i>Dr Ron DeHaven</i> Chair OIE <i>ad hoc</i> Group on Veterinary Education
15:30–16:00	Afternoon Break Tea / Coffee	☕
16:00–16:20	Veterinary products and aquatic animals	<i>Dr Peter Smith</i> Chair OIE <i>ad hoc</i> Group on the Responsible Use of Antimicrobials in Aquatic Animals
16:20–16:40	Biotechnology advances in pathogen detection and disease prevention	<i>Dr Serge Corbeil</i> CSIRO, Australian Animal Health Laboratory Australia
16:40–17:00	Preventing the risks of invasive species in aquaculture	<i>Dr Chris McKindsey</i> Chair of the ICES Working Group on Environmental Interactions of Mariculture International Council for the Exploration of the Sea (ICES)
17:00–17:30	Panel discussion	

Day 3: Thursday 30 June

SESSION 4

CAPACITY BUILDING FOR AQUATIC ANIMAL HEALTH SERVICES

Objectives: define needs for capacity building to support strengthening of aquatic animal health services

Time	Theme	Speaker
09:00–09:20	OIE focal point concept and capacity building activities	<i>Dr Mara González Ortiz</i> Deputy Head, OIE Regional Activities Department
09:20–09:40	FAO capacity building in aquatic animal health	<i>Dr Rohana Subasinghe</i> Fisheries and Aquaculture – FAO
09:40–10:00	Donors' perspectives – EU	<i>Ms Sigrid Cabot</i> European Commission (DG SANCO)
10:00–10:20	Donors' perspectives – Canada	<i>Dr Tianna MacInnes</i> Canadian Food Inspection Agency
10:20–10:40	Perspectives of a regional organisation	<i>Dr Chumnarn Pongsri</i> Secretary-General Southeast Asian Fisheries Development Center (SEAFDEC)
10:40–11:00	Challenges and tools needed to ensure good governance – the Philippines' experience with the OIE PVS Pathway	<i>Dr Emelinda Lopez</i> Animal Health Division, Bureau of Animal Industry, Philippines
11:00–11:30	Morning Break Tea / Coffee	☕
11:30–12:15	Panel discussion	
12:15–13:30	Lunch	

CLOSING SESSION

Time	Theme	Speaker
13:30–14:30	Presentation and discussion of Conference Recommendations	<i>Dr Bernard Vallat</i> Director General, OIE <i>Dr Sarah Kahn</i> OIE International Trade Department Governmental Authority of Panama
14:30–15:00	Formal Closing Ceremony	<i>Dr Bernard Vallat</i> Director General, OIE
15:00–16:00	Press Conference	



ABSTRACTS

OBJECTIVES AND EXPECTATIONS FOR THE CONFERENCE

- **Bernard Vallat**
OIE - Director General

Food security has become a major concern today right across the globe. Aquaculture is one of the world's fastest growing industries, and food derived from aquatic animals is an important source of high quality animal protein for the growing global human population. A key objective of the conference is to highlight the important contribution of aquatic animal health programmes to improving aquaculture productivity and sustainability and thereby contributing to food security and poverty alleviation.

Given the rapid emergence and re-emergence of diseases, programs for aquatic animal health are more important than ever. Efficient aquatic animal health programmes can make aquaculture products safe and affordable, enabling countries to increase production in an environmentally sustainable way and to facilitate safe trade in aquaculture products in a continually growing world market.

It is my expectation that the conference will demonstrate the need for aquatic animal health programs to be consistent with the OIE international standards, and the need for good governance of the Veterinarian Services and Aquatic Animal Health Services (AAHS) to support efficient and sustainable aquaculture production.

Aquatic animal health services face particular governance challenges. These services include both governmental and private sector activities. The governmental authority retains the overall responsibility for key activities, such as disease detection and reporting, management of disease outbreaks, use of veterinary products, and certification as well as supporting the development of appropriate alliances between public and private sector. The conference will highlight key responsibilities of governmental authorities to establish the regulatory frameworks for the production of aquaculture products that are safe for human consumption, avoid unwanted impacts on aquatic animal health and the environment, and are appropriately certified to meet international trade requirements. Presentations will cover the key infrastructure elements such as good governance, modern and appropriate legislation, professional education and public/private partnerships, which are the building blocks of an efficient framework.

Participants will also be informed about the current aquatic animal health situation at the global and regional levels and future trends.

The conference will also provide a better understanding of the scientific and technical requirements for effective aquatic animal health programs, covering matters under the OIE mandate, including disease diagnosis, surveillance and notification; disease prevention and control; sanitary measures and health certification of aquatic animals and their products; food safety; control of veterinary products; farmed fish welfare; and the role and education of veterinarians and aquatic animal health professionals in the aquaculture sector.

Presentations will be made on the roles and responsibilities of OIE national Delegates and focal points in aquatic animal health management, and information provided on OIE initiatives to support Members wishing to improve performance of AAHS and Veterinary Services using the OIE PVS Pathway for good governance.

To strengthen the global capacity for aquatic disease prevention, detection, and control, the OIE has established a global network of Reference Laboratories and Collaborating Centres for aquatic animal diseases and key topics in 13 countries. The OIE is taking steps to improve the world distribution of expertise through its laboratory twinning projects.

Finally, this conference will provide practical guidance and tools to help developing countries and those with 'transition economies' to attract donor support to develop and implement strategies to strengthen aquatic animal health programmes in line with OIE international standards. This is a prerequisite to improved aquatic animal health and food safety and sustainable aquaculture.

Keywords: OIE– aquatic animal health programmes - OIE PVS Pathway– Aquatic Animal Health Services - Veterinary Services



CONTRIBUTION OF AQUACULTURE TO FOOD SECURITY GLOBALLY

- **Modadugu V Gupta**
Hyderabad, India

Fish considered as 'rich food for poor people' is an excellent source of affordable, high quality protein. More than 1 billion people get at least 20% and 3 billion people get 15% of their animal protein from fish. Aquaculture has been playing a significant role in global food production and is the fastest growing food producing sector, with an annual growth of over 8% in the last three decades. The sector has been contributing to food, nutritional and livelihood security and alleviation of poverty in developing countries. Aquaculture production accounts for nearly half of the food fish supply globally. The aquaculture contribution to per capita consumption of fish has increased from 14% in 1986 to 30% in 1996, to 47% in 2006. The contribution of fish to the total protein intake of people in poor households is relatively high.

Developing countries account for 90% of the aquaculture production providing livelihood directly and indirectly to millions of people in rural areas. The global trade in aquaculture products is becoming increasingly important. It is the main foreign exchange earning source for some developing countries, financing other food imports, and has significant impact on food security. Wealth generated by households and small enterprises through aquaculture is making a significant contribution to rural development. Studies have shown aquaculture is an ideal enterprise for the empowerment of rural women.

It is estimated that the world will need an additional 20-30 million tons of food fish by 2020 to meet the increasing demand. With capture fisheries having plateaued, aquaculture is expected to play a major role in bridging the gap between supply and demand.

This paper discusses the issues that need to be addressed to increase the contribution of aquaculture to food security.

Keywords: aquaculture - food security - OIE





AQUACULTURE – TRADE ISSUES

- **Sarah Kahn¹ and A.B.Thiermann²**

1 Head, International Trade Department, OIE, Paris, France

2 President, OIE Terrestrial Animal Health Standards Commission, Paris, France

The World Trade Organization (WTO) is the intergovernmental organisation with the legal power to encourage adherence to international standards and mediate trade disputes. The WTO, with the signing of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), recognises the OIE as the reference standard setting organisation for animal health and zoonoses. To assist with the implementation of the SPS Agreement and facilitate trade, the WTO has created the SPS Committee. In addition, the Standards and Trade Development Facility (STDF), founded by the OIE, the WTO, FAO, the World Bank and the World Health Organization, provides a mechanism for donors to coordinate the support of projects aimed at improving Members' capacities to meet the obligations of WTO Membership.

Good governance and the credibility of national Veterinary Services are essential components in safe trade, and are ultimately demonstrated when importing countries accept official health certification provided by exporting countries. The responsibility for aquatic animal health may rest fully or partially with the Veterinary Services, or other governmental agencies may have this role. Regardless of the involvement of veterinarians in the Aquatic Animal Health Services (AAHS), it is clear that OIE standards can only be implemented effectively and health certification accepted internationally if the AAHS can demonstrate their effectiveness and credibility in a transparent manner. This is the global good offered to countries entering the OIE PVS Pathway, i.e. a transparent means to demonstrate the steps taken to assure good governance of the veterinary services or the AAHS. Ultimately, the biggest challenge for the international community is to create the incentives and generate the political will for strengthening VS and AAHS and providing for the universal recognition and application of the established international sanitary standards and, through this, fair and safe trade.

Keywords: SPS Agreement – OIE standards – OIE PVS Pathway – STDF

OIE AQUATIC ANIMAL HEALTH STANDARDS

- **Barry Hill**
President, OIE Aquatic Animal Health Standards Commission

Aquatic animal health is of increasing importance, not least because of expanding worldwide farming of aquatic animals for essential food supply at the local level and for export trade. Disease outbreaks are causing significant losses in aquaculture production throughout the world and are having a major detrimental impact in some countries and regions. Because of this rapid growth in aquaculture worldwide and the disease risks associated with the increasingly globalised trade in live aquatic animals and their products, OIE activities in the field of aquatic animal health are of relevance to all regions of the world. OIE prepares standards to help countries prevent, detect and manage outbreaks of listed diseases and to facilitate safe trade in aquatic animals (amphibians, crustaceans, fish and molluscs) and their products. These standards are published in the *Aquatic Animal Health Code (OIE Aquatic Code)* and the *Manual of Diagnostic Tests for OIE Aquatic Animals (Aquatic Manual)*. The *OIE Aquatic Code* details health measures to be used by Competent Authorities of importing and exporting countries to avoid the transfer of agents pathogenic for aquatic animals or humans, while avoiding unjustified sanitary barriers. Criteria to assess 'safe' aquatic animal products are provided and each specific disease chapter provides recommendations to prevent the disease in question being introduced into an importing country. The *OIE Aquatic Code* also provides, inter alia, standards for notification of diseases and epidemiological information, handling, disposal and treatment of aquatic animal waste, aquatic animal production food safety, prudent use of antimicrobial agents in veterinary medicine and welfare of farmed fish. The *Aquatic Manual* provides a uniform approach to the diagnosis of, and surveillance for, the diseases listed in the *OIE Aquatic Code*, so that disease notification obligations and the requirements for health certification in connection with international trade in aquatic animals and aquatic animal products can be met. The adoption of the standards in the *OIE Aquatic Code* and the *Aquatic Manual* follow the established, democratic procedures of the OIE, involving formal approval by National Delegates of the 178 OIE Members.

Keywords: *OIE Aquatic Code* – *Aquatic Manual* – aquatic animal health – OIE standards





HEALTH STANDARDS: COMMODITY BASED APPROACH

- **Franck Berthe**
Secretary General, OIE Aquatic Animal Health Standards Commission

Globally there is an increasing production and trade in aquatic animal products. The volume of trade in aquatic animal products is significantly greater compared to trade of live aquatic animals. The OIE *ad hoc* Group on Safety of Products Derived from Aquatic Animals (AHG) developed criteria for the assessment of products eligible for inclusion in the two categories of products in the disease specific chapters of the OIE *OIE Aquatic Code*: i) products that can be traded irrespective of country disease status and ii) products for retail trade for human consumption.

The criteria for assessing the safety of aquatic animal products, irrespective of country disease status, are based on the absence of the disease agent in the traded commodity or inactivation of the disease agent by processing. The second set of criteria developed to assess the safety of aquatic animal products for retail trade destined for human consumption are based on the expected volume of waste and absence of the pathogen in the waste tissue. The two sets of criteria include a number of assumptions that are assumed to be fulfilled prior to assessing products.

After the criteria were adopted by the World Assembly, the AHG performed assessments for products known to be traded internationally.

Although, the OIE definition for 'commodities' includes live animals of all life forms, assessments focused on non-viable products derived from aquatic animals: for human consumption, for aquatic animal feed and for other purposes (e.g. leather produced from fish skin). Assessments were performed based on available scientific information. Although the OIE defines trade in these defined products as 'safe', per se, there is still a need to address compliance with the OIE quality standards for aquatic animal health services, as set out in relevant provisions of the OIE *OIE Aquatic Code* including through the application of the OIE PVS Pathway for Good Governance.

Keywords: OIE *OIE Aquatic Code* – commodity – risk assessment – international trade

AQUATIC ANIMAL DISEASE REPORTING – ENSURING TRANSPARENCY

- **Karim Ben Jebara**

Head, OIE Animal Health Information Department

WAHIS, an internet-based computer system, enables OIE Members to process data on animal diseases and inform the international community of relevant epidemiological events and developments for over 100 animal diseases, including 26 aquatic animal diseases (AADs). The information generated is available through the World Animal Health Information Database Interface (WAHID).

For diseases reported present during a given six-month period, countries can provide quantitative data on number of outbreaks, mortality and morbidity rates, and/or number of affected animals. For diseases that are present and notifiable within a country, the OIE recommends that the country provide quantitative data by month and by first administrative division, which is the most detailed quantitative data that the system can process. Before the launch of the OIE notification system in 2005, information on AADs was only collected annually. The forthcoming new version of WAHIS will separate the six-monthly report for AADs from terrestrial animal diseases. In 2009, 114 countries reported AADs and even more are expected to do so as a result of these improvements.

The OIE's tracking procedure for non-official animal disease information has also improved transparency with an average of two additional immediate notifications of AADs being received each year. In 2010, six countries agreed to correct their historical data on AADs thanks to this tracking activity.

Since 2004, the OIE has developed the WAHIS Regional Core strategy, to help OIE Members meet their regional requirements and their obligations to notify diseases to the OIE, while avoiding duplication. For aquatic animal diseases, the Network of Aquaculture Centres in Asia-Pacific (NACA), the OIE Regional Representation for Asia and the Pacific and the OIE Headquarters have embarked on developing a Regional Core to enable OIE/NACA Members to provide and share more information than that required by the OIE for OIE listed diseases, especially data on AADs of regional importance. This will further improve transparency, knowledge and efficiency of data collection on AADs in the region and improve knowledge of the aquatic animal health situation worldwide.

Keywords: Transparency – aquatic animal health information – notification – WAHIS – WAHID





AQUACULTURE AND ISSUES OF SUSTAINABILITY

- **David C. Little and Francis J. Murray**
Institute of Aquaculture, University of Stirling, Scotland

Aquaculture sustainability is defined in terms of both 'strong' and 'weak' approaches and the relevance of this dichotomy is explained with regard to sustainable market opportunities and global food security. Identifying useful boundaries for assessing sustainability is a challenge. Global value chains link production and consumption of farmed seafood across continents and a growing international trade increasingly substitutes for diminishing and inconsistent supplies from wild stocks. Several factors challenge the sustainability of aquaculture in tandem with its rapid rise to importance in supporting aquatic food security.

Modern commercial aquaculture systems remain relatively open to their immediate environments and, since they are resource intensive, are increasingly dependent on distant sources of feed and other inputs. The openness or porosity of production systems raises issues of both pathogen exclusion and biodiversity impacts. A key issue is the level to which isolation from the 'environment' is possible or desirable. Strategies to manage interactions to achieve a balance between the needs of the production system, the species farmed and the integrity of the environments that support them are presented and discussed. Pressures on water and land resources are forcing both intensification and stimulating integration, although these may be contradictory approaches.

Tracing sustained seafood supplies to availability of basic nutrients and energy suggest the vulnerability of emerging aquatic food production systems. The challenges of meeting energy and nutrient needs in the coming decades will stimulate emergence of ever more efficient systems but competitiveness with other sectors of food production will be critical.

The EC FP7 research project SEAT (Sustaining Ethical Aquaculture Trade) is using Life Cycle Analysis as a core tool to assess the broader impacts of aquaculture on the global environment, allied to detailed modelling of local environmental impacts. In addition, aspects of particular importance such as water use and social and economic impacts require assessment both local to production and along the value chain. The ethical dimensions and contradictions of Asian production systems based on trade with Europe are considered.

Keywords: OIE – SEAT – sustainability

THE ROLE OF AQUATIC ANIMAL HEALTH PROGRAMMES IN PROMOTING FOOD SECURITY IN AFRICA

● **Eli Katunguka-Rwakishaya**
Makerere University, Uganda

In Africa, nearly 10 million people depend on fishing, fish farming, fish processing and trading fish. Fishing produces 7.3 million tonnes of fish per year, more than 90 % caught by small scale fishermen. Fish provides the main source of protein for the majority of Africans and yet fish consumption per capita in sub-Saharan Africa is the lowest in the world. This may be associated with population growth, to over one billion, and increased demand from an expanding affluent urban population and rural communities. Fish also provides exports worth some US\$2.7 billion annually.

In recent years a decline in marine fisheries and a steady increase in aquaculture production have been noted. Despite its enormous potential, the sub-Saharan region remains a minor player in the field of aquaculture. There are encouraging signs in the continent from Nigeria, leading in catfish aquaculture production, tilapia and other fresh water fishes, black tiger shrimp in Madagascar, production of niche species such as abalone in South Africa, and tilapia production in Egypt, Uganda and Kenya. Most fisheries and aquaculture in Africa is based on its lakes, rivers and inland waters, hence the burden of OIE listed diseases is not enormous. However the region has witnessed damaging outbreaks of epizootic ulcerative syndrome in the Zambezi river basin and Koi herpes-virus in South Africa.

The aquatic animal health programmes, including disease diagnosis, surveillance, notification and certification of aquatic animals and their products have given impetus to enhanced trade in aquatic commodities, leading to a dramatic increase in people employed in the fish production and processing sectors and to increased revenue to developing countries in Africa.

Keywords: Aquaculture – OIE – fish – Africa



AQUACULTURE AND AQUATIC ANIMAL HEALTH MANAGEMENT ISSUES IN THE ASIA – PACIFIC REGION

- **CV Mohan**
Network of Aquaculture Centres in Asia-Pacific (NACA)

Aquaculture is the fastest growing food production sector in the world. In 2008, about 53 million tonnes of farmed fish and shellfish was produced globally. More than 90% of this was produced in Asia. Global trade in seafood in 2008 was US\$ 102 billion. The epidemic spread and devastating impacts of aquatic animal diseases in the Asia-Pacific Region have clearly demonstrated the risks associated with international trade and the vulnerability of aquaculture systems to disease emergencies. Implementation of effective national/regional bio-security strategies is essential to address health issues effectively, support sustainable aquaculture development and comply with international standards (e.g. *OIE OIE Aquatic Code*).

Development and adoption of the FAO/NACA 'Asia regional technical guidelines (TG) for responsible movement of live aquatic animals' by 21 Asia-Pacific countries was a major advance facilitated by NACA during 1999-2001. Considerable progress has been made in the areas of disease diagnosis, aquatic animal health certification and quarantine, disease surveillance and reporting and farm level health management. The quarterly aquatic animal disease (QAAD) reporting system in the Asia-Pacific region, a joint activity among NACA, FAO and OIE Regional Representation (Tokyo) since the second quarter of 1998, is testimony to this progress. The QAAD disease list includes all diseases listed by OIE in the latest edition of the *OIE Aquatic Code*, plus other diseases of concern to the Asia-Pacific region. Over the coming 2-3 years, the regional QAAD reporting system will be gradually transformed to OIE-NACA WAHIS Regional Core to support online reporting. NACA works closely with the OIE and FAO to promote the role of the region in contributing to the international standard setting process through the work of the Asia regional advisory group on aquatic animal health.

The Asia-Pacific region is now in a much better state of preparedness to deal with aquatic animal disease emergencies and meet international standards. Continued national commitment must be ensured for effective implementation of bio-security governance and to improve compliance to international standards so as to promote sustainable aquaculture and responsible international trade.

Keywords: OIE – NACA – QAAD – WAHIS – Asia – Pacific – health management – biosecurity – transboundary diseases – disease reporting – international standards



REGIONAL AFFAIRS IN THE AMERICAS: REPORTING ON DISEASES OF AQUATIC ANIMALS IN OIE MEMBER COUNTRIES OF THE AMERICAS

- **Víctor Vidal Martínez**

Member of the OIE Aquatic Animal Health Standards Commission
Research and Advanced Studies Center of the National Polytechnic Institute of Mexico (CINVESTAV-IPN)

One of the most important challenges to the Americas is to build capacity to diagnose and report diseases of aquatic animals, as shown in the study reported in this paper. The objective of this study was to determine the capacity of OIE Members in the Americas for reporting OIE listed diseases of aquatic animals.

An analysis was made of the information available on OIE listed diseases for the Americas in the OIE Handistatus II and WAHID databases between 1996 and 2010. The continent was divided into four sub regions: South America from Colombia to Argentina; Central America from Panama to Mexico; the Caribbean including the Greater and Lesser Antilles and North America, comprising Canada and the United States. The data were interpreted in terms of the number of years that a sub region had reported the diagnosis of OIE listed diseases of fish, molluscs, crustaceans and amphibians.

The results showed that North America was the only sub region that maintained disease reporting throughout the 15 years analysed. In South America, five countries maintained disease reporting for periods of 11 – 15 years but seven countries provided no disease reports for aquatic animals. In Central America, four countries maintained disease reporting for 6–10 years and three provided no disease reports for aquatic animals. In the Caribbean, only one country maintained disease reporting for 11–15 years, whereas eight countries had zero participation. The differences in performance are best explained by the small number of professionals trained and engaged in diagnosis of aquatic animal diseases, as well as the lack of reliable laboratories. The potential consequences for biosecurity and trade are emphasised. The OIE project on laboratory twinning is a viable option for building diagnostic capacity, that will contribute to the success of the 'One World, One Health' strategic framework as it pertains to diseases of aquatic animals in the Americas.

Keywords: OIE listed disease – diagnostic reporting – aquatic organisms – Americas





AQUATIC ANIMAL FEED: CHALLENGES AND OPPORTUNITIES

- **Alberto Allodi**
European Feed Manufactures' Federation

Global demand for seafood is increasing, and can only be met through aquaculture. However, concerns have been expressed on the sustainability of aquatic animal farming, as traditionally marine raw materials such as fish meal and fish oil are major components of aquaculture feeds. Reduction fisheries, which provide the raw materials for fish meal and oil production, although increasingly well managed, rely on wild fish stocks, which are limited resources. Significant efforts have therefore been devoted by the feed industry towards reducing reliance on marine ingredients. Raw material characterization, identification of novel feed ingredients and an improved understanding of critical nutrients that limit our ability to replace fish meal and fish oil all need to be addressed. Research on the possible effects of innovative feed formulations on fish health and welfare has demonstrated that properly balanced formulations do not negatively affect animal health. The feed industry acknowledges the importance of international standards of the OIE and Codex in formulating feed for the production of safe food products. New research findings allow the industry to formulate feed more efficiently and to reduce the input of marine raw materials, so that fish farmers can become “net fish protein producers” and thereby ensure a sustainable supply of high quality protein based on healthy seafood for a growing world population.

Keywords: aquaculture feed – sustainability – food security; OIE and Codex standards

LABORATORY ISSUES – AQUATIC ANIMAL DISEASE, DIAGNOSIS AND GLOBAL TRENDS

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Aims/Objectives: To illustrate the importance of diseases of aquatic animals (fish, crustaceans, molluscs, amphibians) in general and specifically infectious salmon anaemia (ISA) globally and regionally. To provide an overview of current trends in laboratory diagnosis and pathogen surveillance and identify challenges faced by diagnostic laboratories for aquatic animal diseases.

Discussion / Conclusions: Aquaculture is the world's fastest-growing sector producing food of animal origin. The emergence and spread of serious diseases is a major threat to aquaculture, and robust methods for laboratory diagnosis and pathogen surveillance are needed to reduce the risks. This is facilitated by the work of OIE Reference Laboratories and the use of rapid and sensitive diagnostic methods such as real-time RT-PCR/PCR for early detection of infection before clinical signs develop. The 2007 – 2011 spread of ISA in the Atlantic salmon industry in Chile is a powerful example of a major disease outbreak being diagnosed and managed through the use of real-time RT-PCR testing.

Keywords: Aquatic – diagnosis – ISA – OIE



ANALYSIS OF THE GLOBAL FISH HEALTH SITUATION, CHALLENGES AND OPPORTUNITIES

- **Ricardo Enríquez**
Vice President of the OIE Aquatic Animal Health Standards Commission

Fish disease outbreaks are increasing alongside of growing international trade and intensification of aquaculture production. Although local pathogens combined with other factors, such as poor husbandry and inadequate water quality, are the most common causes of disease outbreaks in fish farming, the introduction of 'exotic' pathogens through international trade in live aquatic animals and their products continues to be associated with new epizootics. Some examples of international spread of important fish pathogens will be discussed in the presentation.

Without effective implementation of biosecurity measures, trans-boundary spread of diseases in fish will continue to have serious economic impact. Fish diseases, whether infectious, non-infectious or opportunistic, may present subclinical or clinical effects, accompanied by a net decrease in production. Serious fish diseases may first be seen as massive mortalities and often associated with reduced efficiency of the production process. Some relevant data will be presented.

One of the OIE's main objectives is to ensure the sanitary safety of international trade in live (aquatic) animals and their products. OIE standards address the detection and early notification of listed diseases and new epidemiological events, as well as standards for disease prevention and management, including contingency planning. By implementing the OIE standards, Members can prevent the dissemination of transboundary diseases of fish and facilitate safe and sustainable aquaculture production. The OIE Aquatic Animal Health Standards Commission plays a key role in assuring the development of appropriate standards for implementation by OIE Members.

Keywords: OIE standards – transboundary diseases of fish – OIE Aquatic Animal Health Standards Commission



THE GLOBAL HEALTH ISSUES – CRUSTACEANS

- **Don Lightner and R.M. Redman**

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A discussion of the global status of shrimp diseases might best begin with a review of the diseases currently listed by the World Animal Health Organisation (the OIE), those diseases which were recently removed from the list, and those recently considered for listing. The OIE has, among its many responsibilities, the listing of diseases (terrestrial and aquatic) which may pose risks of being transferred to new regions or countries as a consequence of global trade. Because of their economic importance and their potential for transfer with live or dead crustacean commodities, the OIE has eight crustacean diseases listed in the 13th edition (2010) of the *Aquatic Code (OIE Aquatic Code)*. Of the eight listed crustacean diseases, six are diseases of penaeid shrimp (one bacterial disease and five diseases of viral etiology), the seventh is a viral disease of the freshwater prawn, *Macrobrachium rosenbergii*, and the eighth disease is caused by infection by a phycomycetous fungus in freshwater crayfish. Two diseases were listed by the OIE as 'under study' in the 12th edition (2009) of the *OIE Aquatic Code*. One of the two, necrotising hepatopancreatitis (NHP), was listed in 2010, while the other, a disease of farmed spiny lobsters (*Panulirus* spp.) due to infection by a rickettsial-like bacterium, was removed from 'under study' status and not listed. OIE listing gives diseases global recognition, especially in relation to trade in crustacean commodities (i.e. live crustaceans or commodity products made from hosts infected with listed disease agents). However, there are also emerging diseases that are not listed by OIE that are important regionally, and in some cases globally, to the shrimp farming industry. Included in this review are the current OIE listed diseases of crustacea, especially of the penaeid shrimp, and several examples of emerging diseases that are of potential importance globally.

Keywords: OIE – disease – crustacean viral – fungal – bacterial



GLOBAL HEALTH ISSUES – MOLLUSCS

- **Ryan Blaise Carnegie**
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This presentation aims to provide perspective on contemporary challenges and opportunities in the management of molluscan health.

While challenges remain from pathogens such as *Bonamia* spp. and *Perkinsus* spp., the list of critical contemporary issues begins and ends with emerging herpes viral diseases. A viral ganglioneuritis, listed by OIE as infection with abalone herpes-like virus, continues to plague abalone populations in Taiwan and Australia, but more troublesome has been the emergence of the molluscan herpes viral strain "OsHV-1 μ var" in populations of the Pacific oyster, *Crassostrea gigas*, a key global aquaculture species. This virus has been associated with high oyster mortality in Europe, Australia and New Zealand. These outbreaks have raised basic questions about viral diversity and evolution, especially with respect to virulence, and about mechanisms for transmission. They have also raised questions about our ability to detect and manage viral diseases of molluscs, particularly against a backdrop of international trade. The OsHV-1 μ var story is hardly one of a successful response to a serious emerging disease, but we can learn lessons from it.

Although infection with ostreid herpesvirus-1 has not been listed as an emerging disease because it does not meet the OIE criteria for listing (*OIE Aquatic Code Article 1.2.2.*), the Aquatic Animal Health Standards Commission has recommended that a chapter be developed on this infection for the *Aquatic Manual* to provide guidance for Members on this disease.

As human impacts on marine environments deepen, we are increasingly aware that environmental stressors may interact with pathogens and affect disease processes, though not always predictably. Some anthropogenic inputs may exacerbate diseases. It has been suggested, for example, that immunosuppression in the oyster *Saccostrea glomerata* in Australia caused by agricultural runoff has heightened susceptibility to disease caused by *Marteilia sydneyi*. Conversely, a recent study found that dinoflagellate *Prorocentrum minimum* may adversely affect the protistan pathogen *Perkinsus olseni*, raising the possibility that an external stressor such as a harmful algal bloom may actually help to mitigate molluscan diseases. Our understanding of marine molluscan diseases and identification of optimal strategies for their management will benefit from an understanding of these complex interactions. This promises to be a dynamic area of future research.

Keywords: OIE listed disease – molluscan diseases – herpes virus – OsHV – multiple stressors



GLOBAL HEALTH ISSUES – AMPHIBIANS

- **Peter Daszak^{1*}, Lisa M. Schloegel¹, Andrew A. Cunningham^{2*}, Richard Speare^{3*} and Barry Hill^{4*}**
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The global trade in amphibians for food and the ornamental pet industry entails the transport of tens of millions of live animals each year. In addition to the impact that harvesting wild animals can have on the long-term sustainability of anuran populations, there is mounting evidence that the emerging pathogens *Batrachochytrium dendrobatidis* (chytridiomycosis) and ranaviruses, are spread through this trade. The link between these pathogens, and amphibian population decline and, for some species, extinction, suggests that the epidemiological impact of the trade is significant, and may negatively affect conservation and trade economics. This presentation provides a brief assessment of the volume of the global trade in live amphibians, the risk of individuals harboring infection, and information on the recent listing by the World Organisation for Animal Health (OIE) of two diseases of amphibians, i.e. Infection with *Batrachochytrium dendrobatidis* and Infection with ranavirus in the OIE *Aquatic Animal Health Standards Code*, making them notifiable diseases.

Keywords: Amphibian diseases – amphibian trade – OIE standards



FOOD SAFETY AND AQUATIC ANIMALS

- **Lahsen Ababouch**

Fisheries and Aquaculture Department. Food and Agriculture Organization of the United Nations (FAO)

While fish supply from wild capture fisheries has stagnated over the years, the demand for fish and fish products continues to rise. Consumption has more than doubled since 1973. This increasing demand has been steadily met by a robust increase in aquaculture production, estimated at an average 8.3% yearly growth during the period 1970 – 2008. This trend is projected to continue, with the contribution of aquaculture to fish food supply estimated to reach 60 % by 2020, if not before.

Likewise, fish and seafood are the most traded food commodity. Around 32 to 40 % of fish globally harvested entered international trade over the last 40 years, increasing in value from a mere US\$8 billion in 1976 to an estimated export value of US\$102 billion in 2008. Aquaculture production contributes significantly to this fish trade. Developing countries contribute almost 50 % in value of world fish exports. On the other hand, three main import markets: the European Union, Japan and the United States of America, represented a total of 70% of the import value in 2008. These markets dominate international fish trade in terms of prices as well as market access requirements, especially fish safety and quality requirements.

Consumer protection has been and will remain a major concern for many countries. The recurring food and feed scares of last decades (bovine spongiform encephalopathy BSE, dioxins, avian flu, SARS, melamine) exacerbate this concern and frequently make headlines in the media. Likewise, the increased globalization of fish trade has highlighted the risk of cross-border transmission of hazardous agents and the rapid development of aquaculture has been accompanied by the emergence of food safety concerns such as microbial food infections and residues of veterinary drugs.

Many countries responded by the enactment of a range of public regulatory frameworks for food safety and quality and for the protection of the environment from negative impacts of aquaculture. Official standards published by the OIE and the FAO/WHO Codex Alimentarius Commission are the technical references for health and safety measures affecting international trade that are adopted by Members of the World Trade Organization. In addition, a range of related standards have been introduced by the private sector (processors, retailers) or NGOs.

This presentation will review safety and quality issues related to aquaculture production and the appropriate systems to manage these risks, as well as highlighting the need for well-designed practices to manage aquatic animal health and provide the basis for the application of Good Aquaculture Practices and HACCP in aquaculture.

Keywords: Good Aquaculture Practices – OIE standards – Codex standards – public regulatory frameworks – food safety



PANAMANIAN AQUACULTURE INDUSTRY DEVELOPMENT AND FUTURE

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1 National Directorate of Animal Health

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The Republic of Panama is located in Central America, has the advantage of having coasts in the Pacific Ocean and the Caribbean Sea, which offers privileged access to the enormous wealth offered by these two seas.

The most important aquaculture product exported from Panama is shrimp, from both wild and culture fisheries.

The volume of production allows for significant export to international markets, the main importing countries being the United States of America, Europe and Japan.

The Panamanian fishing industry includes three modes: industrial, artisanal and aquaculture.

It is noteworthy that the aquaculture industry provides great benefits to the country, as the value of production is more than 70 million dollars a year, generating about 40 thousand jobs and making a significant direct and indirect contribution to reducing the rate of unemployment and increasing the quality of life of those involved.

Application of the OIE standards for aquatic animal health, monitoring and disease reporting is important to maintain the confidence of trading partners in the health and quality of Panamanian aquaculture products.

In Panama the competent authorities for aquatic health and aquaculture are found in several public sector institutions, principally:

- Ministry of Agricultural Development, National Directorate of Animal Health (MIDA/ DINASA)
- Ministry of Health (MINSA)
- Panamanian Food Safety Authority (AUPSA)
- Aquatic Resources Authority of Panama (ARAP)

Within the Department of Epidemiology, in DINASA, the National Aquatic Animal Health Programme is responsible for surveillance, control and monitoring of aquatic organisms and their diseases in the country and drawing up the parameters to establish import requirements, as well as control and checks on the use and mobilization of wild stocks.

Health mechanisms adopted to prevent and control diseases of aquatic organisms in Panama

- Selection of animals for reproduction with checking by PCR
- Control over host animals and their movement
- Disease control and monitoring in farms, with involvement of laboratories
- Inspection, training and disease simulation exercises.

Notably, in 2007, Panama was the first country to perform simulation for diseases with economic impact on the cultivation of marine shrimp.

Prospects for Panama

Panama has the potential to increase shrimp exports to a figure of \$ 180 million annually, to promote and encourage export of tilapia, trout and cobia for their high quality, and to open new export markets. This depends on maintaining the aquatic animal health status and improving surveillance and control to prevent the entry of diseases that may affect the health of shrimp and other aquatic production systems. Maintaining approval for export markets by strengthening implementation of the OIE standards for aquatic disease control and reporting is important to ensure maintenance and expansion of export markets for the future.

Keywords: Panamanian aquaculture industry – shrimp diseases – OIE standards



FIVE-YEAR STRATEGY FOR AQUATIC ANIMAL HEALTH MANAGEMENT IN VIETNAM

- **Nguyen Cong Dan and Le Van Khoa**
Department of Animal Health, Vietnam

Vietnam is endowed with an abundant supply of water resources that are ideal for fisheries and aquaculture. It has 3,260 km long coastline, 112 estuaries, 1 million km² of Exclusive Economic Zone (EEZ) and more than 4,000 islands which form many bays, straits and lagoons. Aquaculture production has been increasing during the last 3 decades largely due to the production of black tiger shrimp, white shrimp and pangasius catfish. Other important cultured species include molluscs, cobia, grouper, sweet snail, tilapia, snake-head and sea weeds. The total export earnings from the fisheries and aquaculture sector in 2010 was more than US\$4 billion, a large increase from US\$1 billion in 1999. Aquaculture and fisheries industries are estimated to employ more than 5 million people.

The Vietnamese Government is strongly aware that aquaculture is a key industry to provide food security and alleviate poverty as well as provide foreign currency return. Species diversification and intensification have resulted in increased production but disease outbreaks and water pollution have caused great production losses. The government of Vietnam has, therefore, recognized the urgent need to implement comprehensive health management strategies and policies in order to sustain the rapidly developing aquaculture sector.

Vietnam's Aquatic Animal Health Services (AAHS) were formerly run by the National Fisheries Quality Assurance and Veterinary Drugs (NAFIQAVED). Since January 2008, when the Ministry of Fisheries (MoFi) and the Ministry of Agriculture and Rural Development (MARD) merged, this has become the responsibility of the Department of Animal Health (DAH). However, some responsibilities are held by two other Departments under MARD, the National Agro Forestry and Fisheries Quality Assurance Department (NAFIQAD) and the Aquaculture Directorate (DAQ). This presentation will describe the current situation with aquatic animal diseases and the AAHS of Vietnam.

Furthermore, in 2010, DAH supported an OIE expert team to conduct a PVS (Performance of Veterinary Services) evaluation of AAHS in Vietnam. The results have been valuable to assist in the development of a national strategy for 2011 to 2015, which will focus on the following objectives/issues: 1) to build up human capacities, i.e. for professional and technical staff on aquatic animal health; 2) to improve technical authority and capability in laboratory diagnosis, risk analysis, quarantine and inspection, epidemiology, control and early warning; 3) to strengthen cooperation between DAH and other national institutions/organizations such as NAFIQAD and DAQ on aquatic animal health management; and 4) to strengthen international cooperation and private sector involvement in response to new/emerging diseases and trade issues. Details of the strategy will be described in this presentation.

Keywords: Aquatic animal health services – OIE PVS



PUBLIC SECTOR PERSPECTIVES AND EXPERIENCES IN FRANCE RELATING TO THE IMPLEMENTATION OF OIE STANDARDS ON AQUATIC ANIMAL HEALTH

- **Jean-Luc Angot**
OIE Delegate for France

The author begins by summarising the OIE *Aquatic Code* provisions on governance of health inspection services in the aquaculture sector and on technical rules relating to the surveillance and management of aquatic animal diseases. He then explains how these rules are taken into account in the European Union (EU).

Firstly, in accordance with the relevant Treaties, a new legislative text was added to the existing EU secondary legislation in 2006, namely Council Directive 2006/88/EC of 24 October 2006 on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals. Then, in accordance with Articles 61 and 62 of the Directive, the EU Commission proposed measures to implement the Directive, which were duly adopted under the committee procedure.

Secondly, the European Union's institutional system ensures proper implementation of this body of legislation by Member States, through inspections by the competent authorities, both central and local (Veterinary Services). These inspections are carried out by a specialist body of the European Commission, the institution responsible for compliance with treaties and secondary EU legislation: the Food and Veterinary Office (FVO). Located in Ireland, the FVO organises and carries out inspections of sanitary services responsible for implementing European Community legislation in Member States and third countries.

Lastly, the author deals with the particularities of the governance system of services responsible for sanitary inspection of animal production in France, with particular reference to the aquaculture sector. At the central level, a single Ministry is responsible for agriculture, food and fisheries, thereby embracing all animal production sectors "from the farm to the fork". At the local level, all sanitary inspectors, covering the entire livestock and agri-food sector, are under the authority of a single State representative - the prefect - who has a direct chain of command in each of the country's main territorial divisions.

The presentation ends with a general description of how European rules are implemented in France, illustrated with current examples in the French fish farming and shellfish farming sectors.

Keywords: OIE *Aquatic Code* – fish farming sectors



MOZAMBIQUE'S PUBLIC SECTOR PERSPECTIVES AND EXPERIENCES IN THE IMPLEMENTATION OF THE OIE AQUATIC ANIMAL HEALTH STANDARDS

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Aims/Objectives: to present Mozambique's perspectives and experiences (positive and negative) on the implementation of OIE standards for aquatic animal health.

Discussion / Conclusions: Mozambique is a member of the OIE (World Organisation for Animal Health) since 1949. According to the OIE standards for animal health in general and for aquatic animals in particular, the country has to adhere to the objectives of the organization, by complying with the regulations on disease communication and transparency.

In Mozambique the Veterinary Authority is under the Ministry of Agriculture and the Competent Authority for aquatic animal health is under the Ministry of Fisheries. In addition within this Ministry there are different institutions dealing with specific subjects of aquatic animals. Although this arrangement may bring some benefits due to specialisation on specific matters, some challenges arise in the relationships and coordination between veterinary and fisheries authorities.

The demand for improved coordination is even higher for Mozambique as an exporter of aquatic animal products, as reporting on some diseases is a requirement to access markets with strict sanitary regulations such as the European Union.

To fulfil market requirements, since the introduction by the OIE of the Focal Point for Aquatic Animals, some improvements have been observed as there was clarification of the role of each one involved in the disease communication procedures. As an example, capacity building for the Aquatic Animal Focal Points was delivered on the use of OIE World Animal Health Information System (WAHIS) in the Southern African Region (SADC). Newly approved legislation in Mozambique covers animal welfare and includes aquatic animals under the regulation for aquatic animals inspection and compulsory disease reporting to the Competent Authorities.

One critical issue for capacity building is strengthening capabilities for identification of aquatic animal diseases, monitoring and control to prevent their dissemination, as well as improvement of the basic laboratory infrastructure. This is important to ensure good administrative organization and financial capacity of the Competent Authority. With the objective of strengthening capacity, Mozambique recently applied for an Evaluation of Aquatic Health Services using OIE PVS Tool.

Keywords: OIE – aquatic animals – Competent Authority





OIE-PVS TOOL AND AQUATIC ANIMAL HEALTH SERVICES

- **Keren Bar-Yaacov**
OIE Delegate for Norway

The OIE has had the responsibility for setting aquatic animal health standards for more than 50 years. Aquatic animal production based on aquaculture is growing exponentially, and has during the last 5- 10 years already surpassed catch-fisheries measured in volume production in many of the major seafood producing countries world-wide. Aquaculture production represents today an essential asset to the income of developing and in-transition countries; and is an important alternative protein source to terrestrial animal production, assuring food security in a world where protein sources are under continuous pressure. The potential of aquaculture production to grow and support the growing protein needs of the developing and in-transition countries is dependent on good governance.

Intensive production systems and large volumes in limited geographical water systems are posing new challenges to animal health, animal welfare and food safety. Aquatic animal health is a relatively new veterinary field; new and emerging diseases are being discovered at a very rapid rate. Approximately 30 new shrimp diseases have been diagnosed in as many years.

Following the 1st OIE Global Aquatic Animal Health Conference (Norway, 2006), the OIE followed up the recommendations to support good governance of aquatic animal health services (AAHS) by expanding the OIE PVS Tool to specifically address good governance of aquatic animal health. The Tool needed some small adaptations to support this expansion. The most important of these adaptations focus on the fact that AAHS in many countries are not necessarily directly connected to the Veterinary Services. Veterinarians are not always involved in the management of aquatic animal health and there is no equivalent to the Veterinary Statutory Body (responsible for governance of the veterinary profession) for aquatic animal health professionals. Disease surveillance and control in aquaculture is in an open aquatic environment which cannot be managed in the same way as most terrestrial systems. Following the adaptation of the PVS Tool, the OIE performed a first PVS evaluation of AAHS in South-East Asia. Following this evaluation, the Tool was further modified following the feed-back from the PVS evaluation team. Further pilot evaluations are planned to take place in Africa and South America in 2011. Consistent with the approach to the evaluation of veterinary services, the OIE is taking steps to train and accredit aquatic animal health professionals to perform evaluations.

The PVS evaluation is the first step in the OIE PVS Pathway, which has the objective of strengthening governance and securing investment in key infrastructure elements, such as diagnostic laboratories, legislation and technical capacity of professionals. The PVS Pathway could be as important an asset to good governance in aquatic animal health as it is for the Veterinary Services. Unfortunately, very few OIE Members have requested evaluation of AAHS to date. It is important to assure good collaboration between the OIE, FAO and key donors to help provide the incentives for OIE Members to request a PVS evaluation of their AAHS.

Keywords: OIE PVS Pathway - good governance of Aquatic Animal Health Services - OIE PVS Tool



AUSTRALIA'S EXPERIENCE IN THE USE OF THE OIE PVS TOOL TO IMPROVE AQUATIC ANIMAL HEALTH

- **Geoff Grossel, Y. Hood, K. Gross and R. Perera**
Department of Agriculture, Fisheries and Forestry, Biosecurity Services Group, Australia

Australia has a conservative approach to quarantine to protect our favourable disease status and enhance our access to international aquatic animal markets. To maintain our disease status we use OIE standards including the OIE *Aquatic Code* and PVS Tool in conjunction with a process of structured evaluation and assessment of competent authorities with respect to their market access requests.

Over the past five years we have engaged with competent authorities in several countries to evaluate their capacity to provide aquatic animal health certification and sustain animal health controls and systems. We typically engage in evaluation of the disease freedom of countries, zones and compartments.

Australia's system of evaluation is underpinned by the OIE standards and comprehensively covers a wide range of competencies including legislation, infrastructure, investment, training, resourcing, administration and quality management, laboratory services, animal health controls, health management planning and policy, zoning, surveillance, processing and import/export controls - to name a few. This system of evaluation provides us with the means to facilitate trade in healthy aquatic animals and their products without compromising Australia's biosecurity. This approach also provides opportunities for further cooperative relationships with our trading partners through developing innovative real-time responsive risk management models that have the capacity to give quality evidence-based feedback to our trading partners for the continual improvement of sustainable aquatic animal health controls across the entire pre-border, border and post-border biosecurity continuum.

Keywords: OIE – veterinary legislation – PVS Tool – OIE *Aquatic Code*

PROFESSIONAL EDUCATION AND AQUATIC ANIMAL HEALTH

- **Ron DeHaven**
Chair, OIE *ad hoc* Group on Veterinary Education

Objectives: The OIE *ad hoc* Group on Veterinary Education (AHG) has developed recommendations for minimum competencies expected of veterinary graduates to assure delivery of National Veterinary Services (NVS). The AHG focused its initial efforts on overall competencies rather than competencies for particular animal species. This decision was made in part because of the paucity of existing information singling out specific competencies for aquatic vs. terrestrial species. As the AHG completes its work in 2011, recommendations may be incorporated regarding future OIE development of unique competencies required for the delivery of NVS to prevent, control, and eradicate aquatic animal diseases. These competencies can then be used by Veterinary Education Establishments (VEE) worldwide to enhance core professional and post-graduate curricula in aquatic animal health.

Discussion: Existing AHG recommendations were developed, using stakeholder input and information gleaned from documents regarding the scope of NVS as defined by the OIE, veterinary school curricula, educational accreditation standards, and private practice accreditation programs. Aquatic animal species are not specifically singled out either in educational accreditation standards within the USA or EU, or in the EU day 1 competencies. This does not mean that education in aquatic animal health is not occurring, nor that competencies singling out aquatic animal species should not be included in minimum competencies expected for delivery of NVS. Indeed, the AHG recognizes the existence of several aquatic veterinary and paraveterinary education and training and specialty certification programs throughout the world.

Of particular interest to the OIE may be a program in development by the World Aquatic Veterinary Medical Association. This program will require demonstration of knowledge, skills, and experiences obtained through academic and continuing education programs to certify the competency of veterinarians in providing aquatic animal health care in support of delivery of high-quality National Veterinary Services.

Keywords: OIE *ad hoc* Group on Veterinary Education – aquatic veterinary medical curricula – core aquatic veterinary competencies – continuing veterinary education and professional development





VETERINARY PRODUCTS AND AQUATIC ANIMALS

- **Peter Smith**

Chair, OIE *ad hoc* Group on the responsible use of Antimicrobials in Aquatic Animals

The use of antimicrobial agents in aquaculture raises some unique and important issues. Bacteria possess a remarkable ability to become resistant to antimicrobial agents. The overuse or misuse of these agents automatically leads to a reduction in their therapeutic value with serious consequences for animal health and welfare and the economics of aquaculture. Antimicrobial agents use in aquaculture may also present risks for human health. For these reasons, it is essential that the use of these agents be regulated to ensure that it is both prudent and rational. The OIE initiated the development of standards on this topic in January 2010. This paper will discuss current thinking on the administrative procedures and structures, involving both regulation and monitoring, which will be required to achieve these goals.

The main objective of regulation is to ensure that only those agents that can be demonstrated to be both safe and efficacious are used. This should be achieved by a process of evidence-based licensing. There is, in many jurisdictions, a dramatic shortage of licensed products and it will be argued that increasing the number of licensed products is an essential prerequisite to the efficient management of antimicrobial agent use.

As the emergence of resistant bacteria is a major negative consequence of antimicrobial use, administrative structures are needed to provide a framework for the monitoring and surveillance of these phenomena. However, the protocols and interpretive criteria required to quantify bacterial resistances in aquatic bacteria have not yet been fully developed. It will be argued that these methods are an essential prerequisite for performance of monitoring and surveillance programmes. Therefore, competent authorities and other relevant regulatory bodies need, as a matter of some urgency, to engage with the current international research aimed at harmonizing and validating the required antimicrobial susceptibility testing methods.

Keywords: antimicrobial agents – resistant bacteria – licensed products – OIE standards

BIOTECHNOLOGY AND THE DIAGNOSIS AND SURVEILLANCE OF AQUATIC ANIMAL PATHOGENS

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Over the past two decades, immunological and molecular reagents have made an increasing contribution to the development and improvement of diagnostic tests used for the detection and identification of pathogens of aquatic organisms. These tests are either based on the use of monoclonal/polyclonal antibodies directed against pathogen epitopes (e.g. ELISA, immuno-blot, immuno-histochemistry) or based on amplification/detection of nucleic acid sequence(s) specific to the target pathogens (e.g. polymerase chain reaction (PCR), real-time PCR, loop-mediated isothermal amplification (LAMP), *in situ* hybridisation (Luminex).

The laboratory methods that are considered to be international standards for the detection of aquatic animal diseases are described in the OIE *Aquatic Manual*.

Various assays have been developed in recent years for the major pathogens of finfish (e.g. infectious pancreatic necrosis virus, infectious hematopoietic necrosis virus, viral hemorrhagic septicemia virus, infectious salmon anemia virus, *Piscirickettsia salmonis*, *Vibrio* spp, *Aeromonas* spp., etc.), molluscs (*Bonamia* spp, *Martelia* spp, *Mikrocytos mackini*, *Perkinsus* spp, ostreid herpesvirus-1, abalone herpes-like virus etc.) and crustaceans (e.g. white spot syndrome virus, yellow head virus, infectious myonecrosis virus etc.). Many of these tests have been implemented into routine practice in National and State Government diagnostic laboratories, in private veterinary and pathology clinics as well as in research laboratories around the world. Aquatic animal disease management plans, including health surveillance, export certification, and biosecurity measures, increasingly rely on the use of sensitive and specific biotechnology-based diagnostic tests. As a case study, this presentation describes the emerging abalone herpes-like virus occurring in Australia and the development of diagnostic tests for its detection, study and management.

Keywords: diagnostic tests – aquatic pathogens – OIE *Aquatic Manual*





PREVENTING THE RISK OF INVASIVE SPECIES IN AQUACULTURE

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Aquaculture is one of the most important and fastest growing fisheries sectors, increasing at a rate of 7% per year since the 1970's and today accounts for greater than 50 % of the total fisheries production destined for human consumption. It is an important economic activity in the coastal areas of many countries around the world, offering opportunities to alleviate poverty, boost employment, assist in community development, enhance food security, and reduce overexploitation of natural coastal resources. The importance of aquaculture as a vector for the introduction and spread of aquatic invasive species (AIS) – species that have been introduced to an area outside of their natural range and cause harm – is also evident.

There are two classes of introductions that may result from aquaculture activities. First is the establishment and spread of invasive species that have been intentionally introduced for aquaculture purposes (i.e. the "target" species). Second is the establishment and spread of species that are associated with farmed species or facilitated by aquaculture activities. These may include both "hitchhiking" species (animals and plants that grow in association with the cultured species) and disease causing organisms that may impact target or other species.

The ICES Working Group on the Environmental Interactions of Aquaculture (WGEIM) has considered mechanisms to minimize the risks of invasive species in aquaculture using a risk assessment-based pest management framework. Identification of risk (based on relevant environmental, economic, social, and cultural values) is used to limit the introduction of AIS. If AIS are present, then Hazard Analysis and Critical Control Points (HACCP) principles are used to identify critical control points and potential control measures. A solid understanding of the biology/ecology of the species and ecosystems involved, including an appreciation of how these may change over time (e.g. with successive generations or global climate change), is essential.

Keywords: Aquaculture – aquatic invasive species – risk assessment – Hazard Analysis and Critical Control Points (HACCP)



OIE FOCAL POINT CONCEPT AND CAPACITY BUILDING ACTIVITIES

- **Mara Elma González Ortiz¹ and François Caya¹**
1 OIE Regional Activities Department

As established in its 5th Strategic Plan, the World Organisation for Animal Health (OIE) will pursue capacity building activities in order to meet the objectives of the organisation such as to provide expertise and encourage international solidarity in the control of animal diseases and to improve the legal framework and resources of national Veterinary Services.

The OIE capacity building activities aim to support the Veterinary Services in their efforts to implement the OIE international standards. The OIE general capacity building activities include conferences and workshops conducted at regional, global and sometimes at national level.

The most important global capacity building initiative of the OIE is the evaluation of the Veterinary Services' compliance with the OIE quality standards, done through the OIE PVS Pathway.

Among activities included within the work program of the OIE Regional and Sub-regional Representations, the capacity building of the OIE Delegates and their nominated Focal Points is a key element to help OIE Members to accomplish their obligations as OIE Members, as well as to stimulate participation in the OIE standard-setting process and implement guidelines and standards developed by the OIE.

During the 76th General Session of the World Assembly of the Delegates in May 2008, the importance of the Focal Point for information on animal diseases was reiterated and Delegates were also requested to nominate additional Focal Points for wildlife, veterinary products, animal production food safety, animal welfare and aquatic animals. In 2011, the Delegate will be invited to provide the OIE with a Focal Point for communication.

The OIE also recognizes Reference Laboratories and Collaborating Centres. Among the different activities undertaken, these institutes play an important role in capacity-building by providing technical advice and scientific training to OIE Members. The Laboratory Twinning initiative between Reference Laboratories or Collaborating Centres and candidate national laboratories provides another approach to capacity building by improving diagnostic capacity and expertise around the world.

The OIE constantly updates and improves its capacity building activities. In the interest of undertaking an effective program of capacity building, the OIE collaborates closely with other international organisations as well as with donors.

Keywords: capacity building – OIE-PVS Pathway – focal points – Reference Laboratories – Collaborating Centres – twinning



CAPACITY DEVELOPMENT IN AQUATIC ANIMAL HEALTH: THE ROLES AND RESPONSIBILITIES OF FAO

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Managing aquatic animal health in aquaculture is particularly challenging because of the great diversity of the sector in terms of species cultured, the range of culture environments, the nature of containment, the intensity of farming practices and the variety of systems used. Human and institutional capacity is one of the cornerstones essential for an effective aquatic animal health programme. It is at the heart of any development effort and one of the core values of FAO.

FAO's capacity building efforts are delivered through normative and field programmes. Several mechanisms such as the Technical Cooperation Programme (TCP), Unilateral Trust Fund (UTF) projects and other bilateral and multilateral arrangements provide various opportunities for FAO members to avail of specialised training courses, participate in training workshops and expert consultations and desk studies, at various levels of representation from policy and decision-makers, field personnel as well as farmers.

The range of subjects include, for example, development of national strategies on aquatic animal health and biosecurity frameworks, design and implementation of surveillance programmes, emergency preparedness and contingency plan, disease outbreak investigation, application of risk analysis to aquaculture and improving compliance to international trading standards published by the OIE on aquatic animal health. Through these activities, FAO generates outputs in the form of documentation (e.g. technical guidelines in support of the FAO Code of Conduct for Responsible Fisheries, disease diagnostic guide, extension materials, workshop reports and proceedings, biosecurity factsheets, etc.) that provide further guidance.

This presentation will elaborate on recently past, ongoing and pipeline capacity building activities of FAO, in cooperation with member governments and collaborating partners such as OIE in countries and regions that are at different levels of aquaculture development. The presentation emphasises the need to keep pace with the unprecedented level of aquaculture development in terms of species, systems and technology and the challenges in developing human and institutional capacities.

Keywords: FAO – aquatic animal health – capacity building – sustainable aquaculture – OIE standards



DONORS' PERSPECTIVES – EUROPEAN UNION

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Better Training for Safer Food (BTSF) is a European Commission training initiative covering food and feed law, animal health and welfare and plant health rules. It trains national authority staff involved in official controls in both European Union (EU) Member States, Countries working towards accession with the EU and Third Countries.

BTSF aims to keep participants up-to-date with all aspects of EU law in the areas specified above and ensure that controls are carried out in a uniform, objective, adequate and efficient manner. Efficient controls are an essential factor in maintaining high levels of consumer protection, animal health and plant health. Harmonisation of controls contributes furthermore to a level playing field for food businesses. Participants from national authorities of Third Countries may under certain conditions attend the Member States' training. Training is also organised specifically for representatives of Third Countries, particularly developing Countries in their home countries.

The main objectives of the Third Country training are to help Third Countries better understand and more easily meet EU rules and thus reduce the number of consignments rejected at EU borders. This will in turn give EU consumers access to a more diverse range of safe products. A further objective is to enhance SPS regulatory cooperation with and enhance food standards Third Countries to benefit local consumers and ensure fair trade, particularly with developing countries.

Together with this, BTSF has also developed some additional programmes in Third Countries aiming at strengthening their capacity in animal and plant health; supporting food security through technical and policy advice on animal health, food safety and quality; helping Third Countries produce agro-food products compatible with international standards; contributing to reducing food-borne disease; supporting competitiveness of the agro-food sector and contributing to rural development and employment. The year 2009 saw the launch of the BTSF Africa programme, which includes regional workshops, sustained training missions and, based on a service contract with the OIE, the provision of assistance in the organisation of SPS capacity building activities in Africa that covers regular training and information for OIE national focal points for aquatic animals.

Keywords: European Union – training – veterinary legislation – BTSF



DEFINING NEEDS IN CAPACITY BUILDING – A DONOR'S PERSPECTIVE

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Preventing, detecting and identifying diseases of animal and public health concern can be a challenge for numerous countries. This is perhaps an even greater challenge with aquatic animal health than with terrestrial animal health, due to technical and other issues. In addition, developing strategies to address such challenges can be equally taxing and, in some cases, may require the support and engagement of several Ministries of the national government as well the private sector in the transparent assessment of infrastructure and capacities (including human, financial and physical resources, legislative authority, etc.) in an effort to identify needs in capacity building and priorities for the donor community to support.

Use of the Performance of Veterinary Services (PVS) pathway established by the OIE to evaluate and identify needs for capacity building is a useful approach and could serve as the foundation for eliciting donor support either through financial commitments in specific projects and/or transfer of knowledge through technical and cooperative arrangements such as laboratory twinning.

Donors participate in SPS capacity building projects for numerous reasons: alignment with foreign aid and policy objectives, compliance with international standards for the protection of animals and animal products in a highly integrated global market place and, increasingly, recognition of the security implications for food supplies from deliberate attack (indeed there is considerable untapped potential for collaboration between the animal health and security communities). Whatever the case may be, establishing a coherent path forward based on an objective analysis assists in understanding needs and identifying key partnerships for addressing capacity challenges.

Keywords: OIE – Performance of Veterinary Services (PVS) – country evaluations



CAPACITY BUILDING AT THE REGIONAL LEVEL: WORK OF SEAFDEC IN SOUTHEAST ASIA

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Fisheries are recognized as a very important sector that contributes to food security, livelihood, well-being, and economic development for people all over the world. During the past few decades, however, circumstances have changed where most of the fishery resources have reached their maximum yields or are on the verge of over-exploitation. The contribution and importance of the aquaculture sub-sector has become more prominent. In 2008, global aquaculture production reached 52.5 million tonnes accounting for 36.9% of the total fisheries production (FAO, 2010) with several countries in the Southeast Asian region among the top ten global aquaculture producers. To increase production from aquaculture, intensive culture technologies have been developed and widely practiced, resulting in several negative consequences such as increased use of feeds including low-value fish, high organic discharge and increased pressure to the environment, impact on species diversity, as well as occurrence of aquatic animal diseases. Such circumstances led to increasing use of chemicals and drugs as unnecessarily precautionary practices to prevent disease transmission and outbreaks. Accompanying the rapid and uncontrolled development of aquaculture, there are also emerging requirements to secure the quality and safety of aquaculture products for human consumption, as well as to ensure the health and welfare of aquatic animals.

In Southeast Asia, aquaculture activities are undertaken mostly by small-scale operators, with limited resources, capacity and knowledge, making it difficult to accommodate the emerging situations and requirements. Thus, appropriate capacity building activities are crucial for countries in the region, specifically to build capabilities at the farm level to enable fish farmers to apply the necessary prevention and control measures.

This presentation provides an overview of the capacity building activities of the Southeast Asian Fisheries Development Center (SEAFDEC), an inter-governmental organization working towards the promotion of sustainable fisheries development in the Southeast Asian region,

In summary, the priorities for capacity building activities relevant to aquatic animal health and welfare in the region could include: 1) enhancing capacity of fisheries and aquaculture-related authorities on aspects relevant to animal health and welfare, and food safety of aquaculture products with emphasis on promoting appropriate management and improving the aquaculture environment; 2) development of tool kits that are relevant and applicable for small-scale farmers to enhance their capacity to respond to emerging requirements; 3) strengthening the capacity of veterinary-related authorities on aquatic animal health and welfare as well as collaboration with fisheries and aquaculture-related agencies on relevant issues; and 4) fostering collaboration among countries in the region, and with international and regional organizations for exchanging information, mobilizing expertise, and enhancing national capacities to satisfy animal health and welfare and food safety requirements of aquaculture products. It is anticipated that integrated efforts in human resources development will help to enhance the contribution of fisheries as an ASEAN priority sector to economic development, with a view to the goals of ASEAN Economic Community Building by the year 2015, as targeted by ASEAN and supported by SEAFDEC under the ASEAN-SEAFDEC Strategic Partnership cooperation framework.

Keywords: ASEAN – SEAFDEC – OIE – aquatic animal health



CHALLENGES AND TOOLS NEEDED TO ENSURE GOOD GOVERNANCE THE PHILIPPINES' EXPERIENCE WITH THE OIE PVS PATHWAY

- **Emelinda Lopez**
Animal Health Division, Bureau of Animal Industry, Philippines

The aim of this presentation is to share the Philippines' experiences of following the OIE PVS Pathway and the importance of good governance to support high quality veterinary services.

In the last decade, globalisation of trade and the threat of emerging zoonotic diseases have highlighted the need for countries to strengthen mechanisms and systems to protect human and animal health as well as national economies. Since 2006, the World Organisation for Animal Health (OIE) has been developing a tool to assess the Performance of Veterinary Services (the OIE PVS Tool) of Member Countries with the goal of helping national veterinary services (VS) to meet the OIE quality standards for the prevention and control of animal diseases and the facilitation of safe trade in animals and animal products. The Philippines is presently undertaking a development leap with the formulation of a national strategic plan, the blueprint for a better VS. In 2008, the Philippines first undertook an evaluation of its VS by the OIE – the initial phase of activities along the OIE PVS Pathway – with the leadership and support of the Bureau of Animal Industry (BAI).

The current state of the VS was assessed, weaknesses identified and recommendations made for improvements. As an important follow-up activity, consultations were held with stakeholders of the animal health industry to solicit their support and cooperation for the VS moving along the PVS Pathway. In the following year, a PVS Gap Analysis was conducted by the OIE, allowing for the capture of more details as to the appropriate level of advancement to be achieved and the financial support needed to strengthen the VS. This is to further support the next activity in the PVS Pathway - the development of a Strategic Plan for the Philippine VS. Coincidentally, during this period, the Bureau planned to restructure the VS through modernisation of veterinary legislation. A key step was the development of new draft veterinary legislation and the submission for approval of 'An Act Strengthening the Animal Industry and Veterinary Services in the Philippines'. The implementation of modernised legislation and other elements to improve governance is anticipated to help the Philippines VS move towards achievement of the goals of the PVS Pathway and the realisation of high quality VS in the Philippines.

Keywords: Governance – OIE – PVS Pathway – veterinary legislation