

(Please note that this report was written in 2004 when AISA was operating as MISA)

Report back on:

International Conference on Molluscan Shellfish Safety (ICMSS) 14-18 June 2004,
the RSA/Ireland/EU Meeting 18 June 2004,
Quasimemme workshop 19 June 2004
and RSA/Ireland workshop 21 June 2004

by Dr. Lizeth Botes

25 June 2004

International Conference on Molluscan Shellfish Safety (ICMSS)

14-18 June 2004: (hosted by the Ireland Marine Institute & National University of Ireland, and attended by Sara Dien [DTI-TISA] and Dr. Lizeth Botes [DEDT, MISA])

The aim of the ICMSS Conferences has been described as a conference “where useful, enriching debate and interchange of knowledge flow easily on a broad spectrum in the area of shellfish safety”. This conference is unique in that it brings together members from the European Commission and United States Food & Drug Administration (that sets the standards for import/export), regulators, industry, scientists and aquaculture development agencies where (in the case of the conference in Ireland) topics such as that listed below are discussed:

1. Microbiological Status of Shellfish, Shellfish Viruses & Pathogens (on Monday),
2. Biotxin contamination, HAB mitigation and depuration (on Tuesday),
3. Toxicology of shellfish toxins (on Wednesday),
4. Quality Assurance, Consumer safety and Emerging analytical methods for detection of toxins (on Thursday) and
5. Regulation and management of shellfish safety (on Friday) were discussed.

Countries such as Ireland and New Zealand (leaders in this field) had between 10-12 representatives that represented their regulators, industry and scientists. This is certainly something South Africa as a country should aim towards.

I presented an oral presentation (Tuesday) on: **THE POTENTIAL THREAT OF ALGAL BLOOMS TO THE ABALONE *HALIOTIS MIDAE* MARICULTURE INDUSTRY SITUATED AROUND THE SOUTH AFRICAN COAST.**

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NB issues (regarding South Africa) picked up during the conference:

1. Around the world legal controls for shellfish sanitation are based on bacterial indicators of faecal pollution (*E.coli* or faecal coliforms), however, it's now well recognised that bacterial indicators are not good enough as a general indicator (*E.coli* can be more easily removed than viruses). New microbiological and bacteriological regulations are in the process of being set by the EU. Methods to improve the detection and management of

viruses should include molecular approaches (PCR'ing for detections, real-time PCR'ing for standardization).

2. Mouse bioassay vs HPLC or LCMS was greatly discussed and the sooner we move to LCMS the better, as it is high on the EU agenda to do away with Mouse bioassays.
3. Shellfish safety does not only depend on national collaboration but also international collaboration (see workshop between RSA & Ireland at the end of the report).
4. Industry is an important catalyst. They need a good perception of the science, business and compliance. Good relationships need to be fostered between regulators, scientists and industry. Symbiotic relationships such as Forums/committees/information sharing workshops (NZ: Marlborough Sounds Advisory group, Biotoxin Technical Advisory committee, Biotoxin science workshops, Ireland: Molluscan Shellfish Safety committee, Biotoxin or Virus science workshops) are needed between industry, government and scientists. Transparency is necessary to make the symbiotic relationship work. Need to understand the trade-off between human safety and business livelihood of industry.
5. Industry/State partnerships should be formed
6. Should make use of logos to promote our products (Proudly South African logo) and (if we can get ourselves EU approved) to show that we are EU approved.
7. Should have a Food Safety Authority (comprising members of Dept of Health, SABS, etc) and Seafood quality schemes.
8. Should have a small group of industry, scientists and regulators going to the next ICMSS 2007 Conference. Exposure!!

RSA/Ireland/EU Meeting 18 June 2004:

Attended by Micheal O’Cinneide (Director: Marine Institute), Paulo Luciano (European Commission), Paulo Ciracatto (European Commission), Sara Dien (DTI-TISA) and Dr. Lizeth Botes (DEDT, MISA)

This meeting was mainly around the process of getting EU approval.

1. Paulo Luciano explained that a pre-mission questionnaire/application form (E group/F group Michael Scannell contact person for developing countries) needs to be completed by the competent authority for exports.
2. Within about a week (or two) they will acknowledge receipt of the application form.
3. They will go through the application form and assess if the country (RSA) is ready to be assessed and whether they should send a mission out. If the country is ready, they put a group of people together and make the necessary arrangements to send the mission. If the country is not ready, they will inform the country with reasons of why they feel that the country is not ready. This can take up to 6 months.
4. When the mission arrives in the country they will have a meeting with all concerned, then visit the competent authority, laboratories etc. After 2 weeks the visit is ended with another meeting. The mission will compile a report that will have the following in the table of contents:

Example of Table of contents:

- i Introduction
- ii Objectives of the mission
- iii Legal basis for the mission
- iv Background
 - a) Production
 - b) Key figures related to fish and bivalve molluscs production
 - c) Previous missions
- v Main findings
 - a) Legislation
 - b) Competent Authority
 - Central level

- Departmental level
- Training
- c) Other Authorities
- d) Laboratories
 - National Reference Laboratories
 - Network of laboratories
- e) Approval/suspension of establishments
- f) Official control
 - Fishery Products
 - Own-checks
 - Medical supervision of staff handling foodstuffs
 - System of control for products
 - Bivalve molluscs

vi Conclusions

- a) Legislation
- b) Competent Authority
- c) Laboratories
- d) Approval/suspension of establishments
- e) Official control
- f) General Conclusion

vii Closing meeting

viii Recommendations

- a) Competent authority
- b) Laboratories
- c) Approval/suspension of establishments
- d) Official control
- e) Written guarantees

ix Addendum to the Mission Report

5. This report with recommendations is then sent to the EC. A committee will decide whether or not the country is approved or not. This can take up to 6 months.

NB!!! Please take note:

1. The competent authority and lead agencies will also be assessed.
 2. No additional information that is sent to the EU after the mission will be accepted.
 3. EU is busy updating legislation (more stringent viral legislation).
 4. ASP-Elisa test kit is accepted by the EU
 5. It should be mentioned that we have a track record of exporting other products into the EU, a case study can be built around the abalone situation. Biotoxin screening kits can be used when building such cases.
- 5. The concern exist that we're not ready yet and we've therefore negotiated with the Marine Institute that one of their personnel (who has previously been on EU missions one of which to a developing country) visit South Africa to do a friendly pre-audit which will be paid by DTI (see RSA/Ireland workshop on 21 June 2004).**

Quasimeme workshop 19 June 2004:

The Quasimeme (Quality Assurance of Information in Marine Environmental Monitoring) workshop was attended by Dr. Lizeth Botes (DEDT, MISA).

The Quasimeme Laboratory Performance studies are incredibly important in that monitoring techniques are standardized and the performance of various laboratories is assessed by the Quasimeme Scientific Assessment Group to determine their competence.

Not only are poor performance areas identified but improvement programmes are initiated to increase competence.

Participants in the Quasimeme LP studies can use the assessment to:

- Validate internal laboratory quality assurance
- Support accreditation
- Support quality assurance of environmental monitoring data
- Provide data for national or international programmes

Participation in the Quasimeme LP studies is open to all institutes and companies worldwide that make chemical measurements in seawater, sediment and biological materials, and require external assurance.

RSA/Ireland workshop 21 June 2004:

Hosted by the Marine Institute and attended by David Lyons (Food Safety Authority of Ireland), Micheal O’Cinneide (Marine Institute, Ireland), Dr. Terry McMahon (Marine Institute, Ireland), Joe Silke (Marine Insitute, Ireland), David Clarke (Marine Institute, Ireland), Mark Norman (Maricultural Research and Development Agency, Ireland), Sara Dien (DTI-TISA, South Africa) and Dr. Lizeth Botes (DEDT, MISA, South Africa)

This workshop was a follow up on discussions at the HABTech workshop 2003, 26 – 30 November 2003, New Zealand(A Workshop on Harmful Algal Bloom and Marine Biotoxin Monitoring). Myself and John Foord investigated the Shellfish Sanitation programmes of Ireland and New Zealand. An extraction of the Irish perspective is provided below:

IRISH PERSPECTIVE

Europe produces large amounts of molluscan shellfish commercially for human consumption for both local and international markets. Ireland commercially produces 35 000 T of shellfish including mussels, oysters, scallops, clams and abalone. It also has razor clams, cockles and sea urchins. The Food Safety Authority in Ireland is responsible for ensuring the safety of these products for human consumption. The Food Safety Authority gives directives to the Department of Marine and Natural Resources. The Department of Marine and Natural Resources controls the movement of molluscan shellfish primarily to prevent the introduction and spread of disease and is also responsible for the sampling of shellfish and growing water. The Department of Marine and Natural Resources gives directives to the [Marine Institute](#), which is responsible for the monitoring of the growing water.

The Marine Institute has a biotoxin unit where the phytoplankton is monitored and the biotoxin levels in the shellfish are determined using both the mouse bioassay and chemical methods such as the LC-MS. The biotoxin unit, consisting of 18 staff members are also responsible for monitoring and communications. The sampling team from the Department of Marine and Natural Resources submits the samples to the biotoxin unit for the biotoxin analyses. Some of the biotoxin analyses such as the mouse bioassays are subcontracted to private labs of which there are two that are currently being used.

Water Quality Monitoring

Ireland uses a three tiered approach to biotoxin monitoring, which includes phytoplankton monitoring, biotoxin monitoring using mouse bioassays and biotoxin monitoring using chemical methods such as the LC-MS. The marine institute has also established a working relationship with all stakeholders (government, Food Safety Authority, agencies responsible for monitoring and research as well as the industry).

The production areas are monitored in the winter months for residues, biotoxins, phytoplankton, microbiological organisms, heavy metals and radionuclides. Industry covers 75% of the monitoring costs and Government 25 % in kind.

Chemical residues

The main chemical residues that are monitored are trace metals (lead, copper, mercury, zinc, cadmium, arsenic, tin and antimony), polychlorinated biphenyls, organochlorine pesticides and aquaculture veterinary drug residues in accordance with [96/23/EC](#). Less than one per cent of the tests showed that the levels in the shellfish exceeded the regulatory limits (<http://www.marine.ie/industry+services/aquaculture/monitoring+overview/index.htm>).

Phytoplankton monitoring

The [Harmful Algal Bloom Information Service](#) in the Marine Institute receives phytoplankton counts from authorised laboratories in Ireland, evaluate the results and store the information in a database. Using the information they will then publish [reports](#) and an up to date [HAB distribution](#) along the coast on the web for the benefit of both the public and the farmers. The reports include production area, species, open/closed status and the date the status was assigned. Warnings, where necessary, will be sent out by e-mail, fax and SMS.

Biotoxin Monitoring

All shellfish production waters are monitored weekly for the biotoxins ASP, DSP, PSP and AZA. The results are published on the web and includes the site sampled, date sampled, species of concern, bioassay results and the operational status of the bay. The data can be viewed by [Report](#) or by [Production Area](#). Both chemical analytical methods and mouse bioassays are used for the biotoxin analyses.

Microbiological monitoring

The water quality is monitored during winter by testing for the presence of microbiological organisms. The sampling is carried out by official sampling officers. Each growing area is monitored and classified by the Sea Fisheries Control and Management Division of the Department of Marine and Natural Resources. The requirements are stipulated in 91/492/EEC and enforced by Regulation [No. 147 of 1996](#) (Live bivalve molluscs - Health conditions for production and placing on the market).

Quality Assurance

The laboratories and the methods used for the monitoring programme have to be accredited by the Irish National Accreditation Board (INAB). They are audited by the INAB and the European Commission's Food & Veterinary Office and the Food Safety Authority of Ireland (FSAI) in accordance with [Scope Registration Numbers 130T and 140T](#). Lab technicians do not have to be highly qualified although it preferable that they go for IOC training.

New developments

Ireland plays a significant role in setting EU standards for the safety of molluscan shellfish for human consumption and auditing countries wishing to export shellfish to the EU. It is currently looking into whether or not the abalone is also susceptible to the diseases that plague the filter feeders and other means of testing for biotoxins.

Legislation

Ireland is also actively involved with setting regulations for the control of shellfish being imported into the EU. Some new legislation that has recently been published is [2002/225/EEC](#).

General

In discussions with the Irish contingent it became apparent that we need to use our common sense. There is little harmonisation in the EU with regard to water quality monitoring for abalone, although there is a fair amount of research going on in this area. Our situation in South Africa is also very different from that in Europe and we need to come up with a system that works here in South Africa. The most important concept is that we need to be proactive and put a lot of effort into trying to ensure that the products are safe not just do the bare minimum in an attempt to satisfy the EU. All relevant sectors need to get involved and accept responsibility including Industry.

As previously mentioned, the workshop as outlined below followed the workshop in New Zealand, Nov 2003:

- a) Evolution of the Irish and the South African shellfish industry respectively
- b) Pressing shellfish safety issues in South Africa
- c) Recommendations for building relations with Ireland & the EU
- d) In principle agreement of the Marine Institute serving on an International Advisory committee to the Mariculture Institute of South Africa (MISA).

a) An overview of the Irish shellfish industry was provided by the various members present. Sara Dien and myself presented an overview of the South African shellfish industry with a focus on the development of the Mariculture Sector.

Mark Norman discussed some success stories that have played a big role in developing the industry in Ireland. One of the success stories of 'Integrated development' and one that can be of great value in South Africa, was employing individuals with good technician-level skills and a good industry knowledge as 'Regional Aquaculture development officers' that act as a link 'on the ground' between industry and for example MISA. These officers in the various regions assist with permit applications, assist with record keeping systems, dissemination of information (bring science to industry), provide business support, inform industry of funding opportunities available, assist in obtaining funding by linking industry with the incentives (e.g. DTI incentives) available, assist with changing the perception of aquaculture, bring the problems 'on the ground' to MISA

and bring the solution from MISA to industry, play a role in community based projects. Their job descriptions often evolve as the sector/industry evolves.

b) The Director: Micheal O’Cinneide (Marine Institute, Ireland) briefed the meeting on our meeting with the EU on 18 June 2004. It was indicated that both Dr. Terry McMahon and Joe Silke (Marine Institute, Ireland) have been to various countries as part of EU missions.

c) We discussed the possibility of either Joe or Terry visiting South Africa to do a pre-lim audit. Micheal pointed out that Terry has good experience in that he has previously visited a developing country as part of an EU mission. Micheal indicated that the Marine Institute would be happy to have Terry visit South Africa to do a pre-lim audit. If Terry were to visit RSA during the November HAB2004 conference, the Marine Institute would carry the costs (time and conference related fees) if we would pay for the costs involved to have Terry for an extra week. DTI offered to pay these costs, alternatively we can have Terry over at any other time (DTI to pay all costs, MI to pay for his time). It was also suggested that this report be send to Micheal who in turn will the Irish Embassy in South Africa to initiate a bilateral programme between South Africa and Ireland.

d) It was further agreed (in principle) that the Marine Institute would serve on the International Advisory Committee of MISA provided that we give clear indications of the responsibilities of such a committee.