NATIONAL AQUACULTURE
TRAINING INSTITUTE

Biosecurity: What are the Opportunities for the Ornamental Fish Industry?

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What are the challenges

- Ornamental fish industry faces challenges from many different areas:
  - Increased competition from other hobbies and pastimes
  - Uncertain and changing legislative changes
  - Invasive species and environmental issues
  - Animal welfare
  - Biosecurity

WWF

What are the challenges?

- Challenges are from government (legislation changes), also advocacy groups (environmental & animal rights groups)

- Both can have significant changes (costs, market access)

Australian Marine Conservation Society

What are the opportunities?

- These ‘challenges’ are impacting legislation that affects the import and trade in ornamental fish industry.
  - Increased costs, complexity of business

- We need to make improvements at all levels of the industry from grower to retailer
  - Improving farming systems
  - training and quality control through quality assurance systems will be some of the key drivers for this in the future.
    - ➢ These are all about building confidence in our industry

- Similar to agriculture and fisheries sectors, food safety

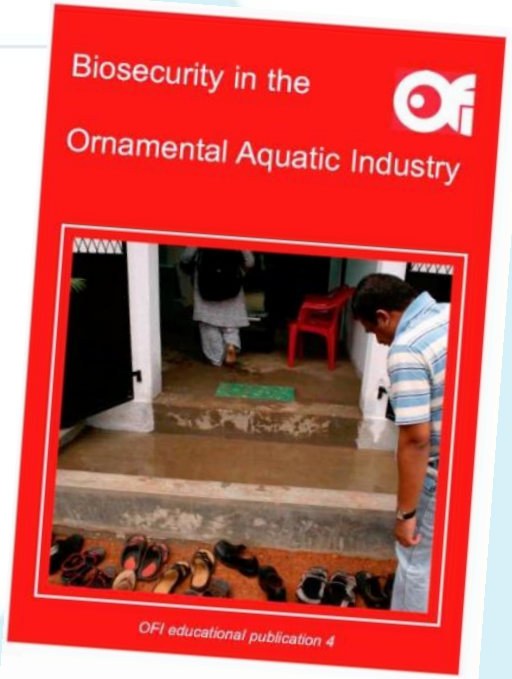
Biosecurity – what is it?

- So what is biosecurity?
  - measures to prevent or control disease spread

- Biosecurity not just about fish disease
  - Increased antibiotic resistance in bacteria within our industry which can impact treatment of other animals and people
  - Also increased zoonotics particularly TB – there is anecdotal data to suggest increased incidence in many fish rooms in the industry and that some of these infection as are proving harder to treat
  - ➢ Confidence in your product!

Biosecurity and Quality

- Essential to maintain export credentials to Australia, Canada, USA, and the EU
- Regulations are becoming stricter in many countries
  - Australia, Canada, EU all had recent changes
- International trade is likely to become more regulated / restricted due to disease transfer risks
- There is growing need to set up your facility as ‘Disease Free’ / ‘Biosecure’
  - Be vigilant



Biosecurity starts at the farm!

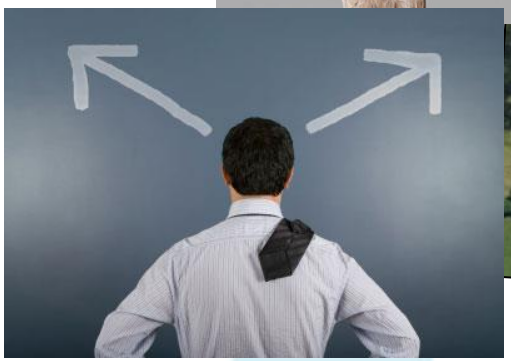
- So what are some of the biosecurity risks?
  - Unsafe water source contaminated by fish and vector species
  - Allowing vector species such as animals, birds, reptiles etc to access the farm and potentially introduce and/or spread disease
  - Poor husbandry, inadequate diet etc that induces stress and reduces fish disease resistance
  - Incorrect diagnosis and/or incorrect treatment of disease
  - Mixing fish from different sources
  - Lack of hygiene
  - Lack of systems and protocols

- So how can these risks be managed?

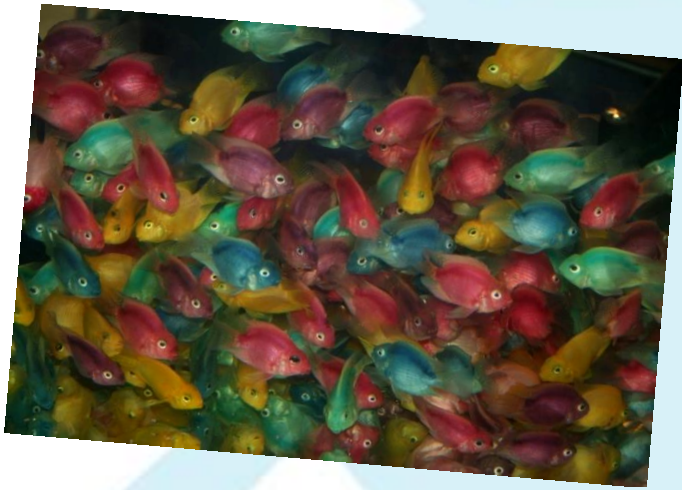
Biosecurity – it starts at the farm!

- Most of these issues are due to a lack of control over the culture environment due to the technology employed by most farmers.

- The lack of trained personnel can also be a problem and can lead to poor decision-making by staff



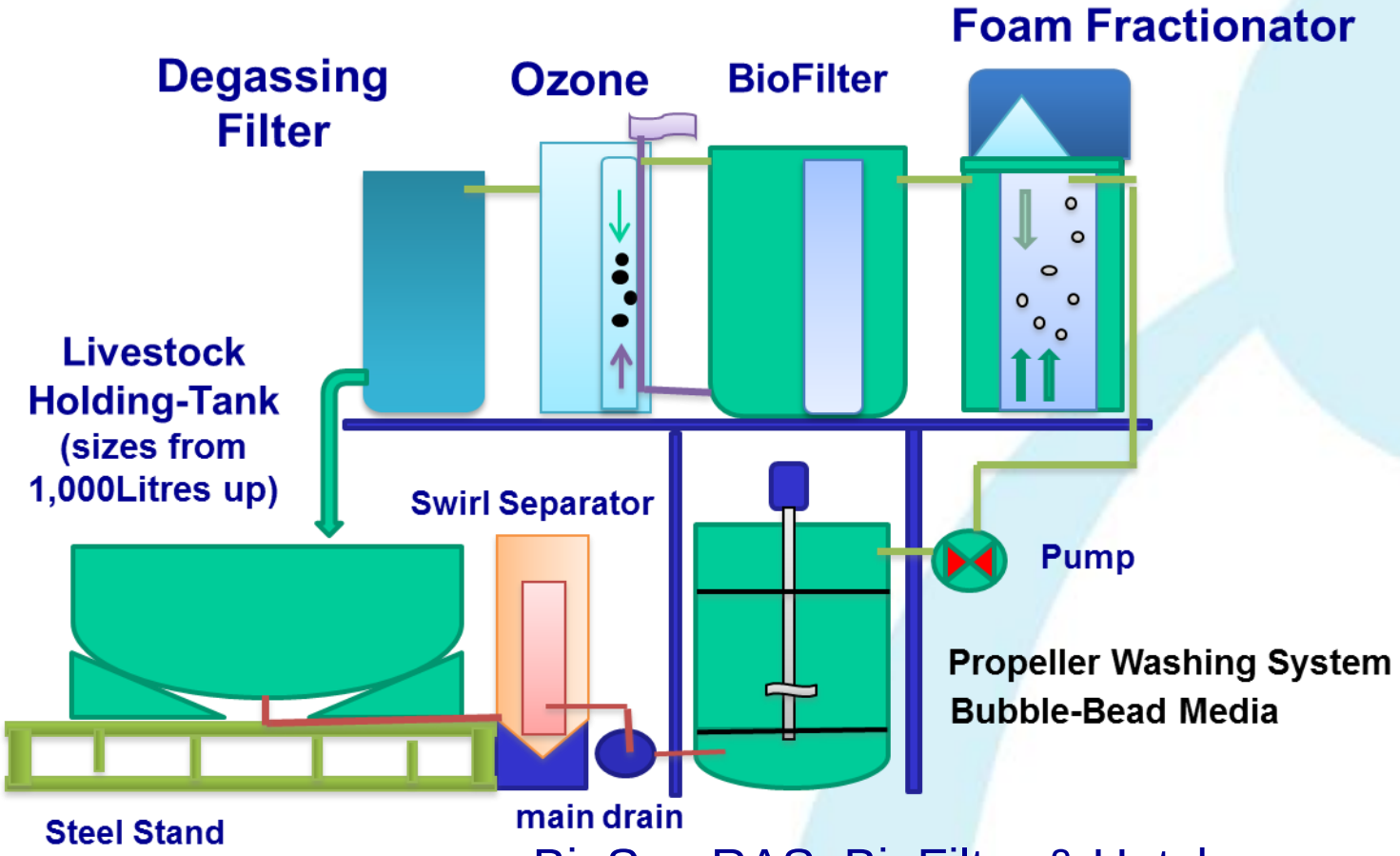
Intensifying production



- Many biosecurity issues for farmers can be addressed by intensifying production through the use of Recirculating Aquaculture Systems (RAS) and implementing basic hygiene protocols

- RAS incorporate
  - some form of pump that drives water
  - holding tank for fish
  - Biological filtration to remove ammonia and other waste products from the water before returning to the tank

Typical design of RAS



BioSec-RAS_BioFilter & Hatchery

R.A.S. design by: RotoMas (Australia)

- Higher productivity or yield
- Easier to work with – less workers

- Uses smaller volumes of water,
- Easier to exclude disease, predators, competitors

- Smaller foot print, can be done in buildings in cities etc
- Easier to optimise water quality for growth and survival of the species

- Shorter and more controlled production cycle (not as subject to weather)

Recirculating Aquaculture Systems

- Increases in density and yield through are linked to level of technology used
  - systems may include ultra violet filtration and ozone treatment for disinfection purposes, temperature control, protein skimmers, and computerised control systems to record and manage water quality.

  ➢ lead to improved biosecurity and production efficiency!

- Biosecurity can increase costs, but will increase profitability
  - Increased survival and farm productivity, reduced DOA, reduced use of medications, and
  - better health and survival for consumer will help retain more hobbyists in the industry.

Third Party Certification

- Quality and third party certification is now expected as normal part of product service in most industries.
- Coffee many companies – using certification for marketing - coffee is socially and eco-friendly
- 'Dolphin Friendly Tuna' has been in for years, now also turtles, seals, other fauna
- The areas of product certification include:
  - Food Safety, Country of Origin, Traceability, Environmental , Social acceptability, Animal Welfare and
  - Biosecurity

Third Party Certification

- For other farming and fisheries industry = market access, No certification = no market access

- Many western supermarkets will not stock products without certification for food safety, as well animal welfare or environmental

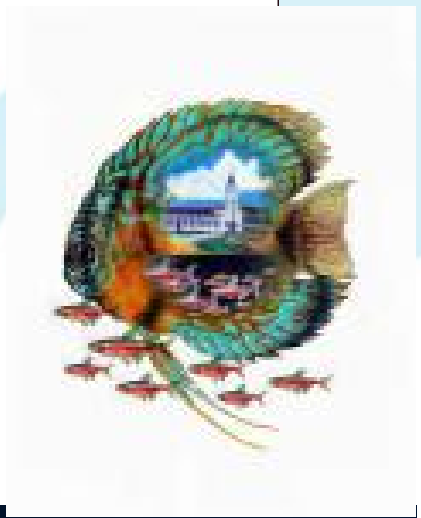
- These are all certification systems that involve a 'third party' who is independent of the company attesting to the company and it's products meeting a certain standard or criteria to achieve its certification
  - ➢ Confidence in your product

Certification – ornamentals

- OATA / OFI / PIJAC / PIAA and many other industry associations currently have code of conducts

ORNAMENTAL FISH INTERNATIONAL
OFI is a worldwide organisation representing all sectors of the ornamental aquatic industry

- There are also some certification systems
  - Singapore has AQUAS – quality focus
  - India has Green Certification – sustainability focus
  - Marine aquarium council – marine focus
  - Project Piaba – sustainability focus
  - Jamaica – traceability, biosecurity focus

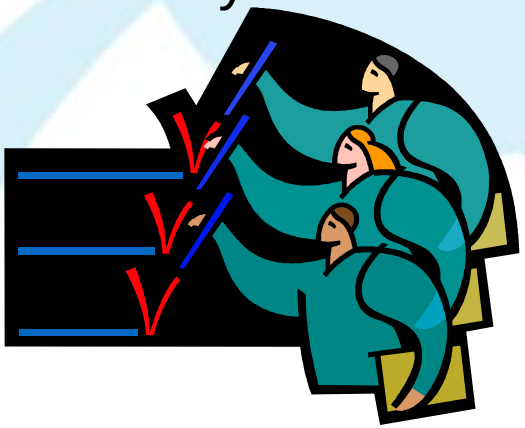


Marine Aquarium Council

Certification – what does industry need?

- Certification MUST add value to the production chain, otherwise why do it?

- So what drives value in our industry?
  - Disease status of fish = market access and profitability
  - Welfare and sustainability = market access
  - Low DOA and good survival of fish = profit
  - Consistent quality = what is ordered
  - Communication



- This does not mean members should expect a premium for their product, still need to be competitive

Third Party Certification

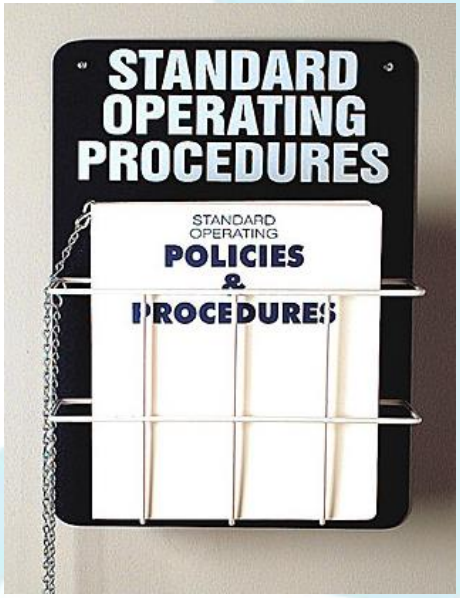
- Biosecurity is the key driver
  - Better biosecurity = less disease/healthier fish = less deaths, DOA = more profit and greater demand
    - ➢Greater confidence in your product!

- The 'premium' for growers and exporters should be increased demand or market access

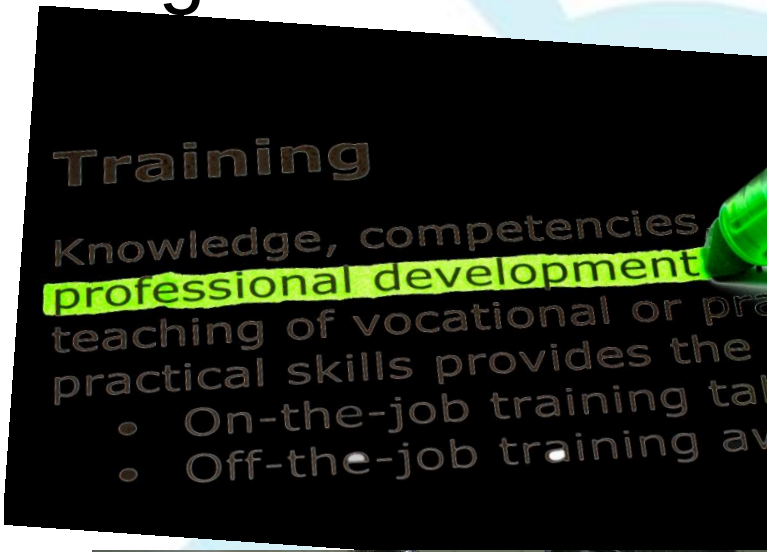
- Governments are creating more legislation health certificates requirements – biosecurity could become a market access issue, developing a
    - ➢**Certification based on this will give governments and consumers confidence in our product and industry**

Training

- The final part of the puzzle which is due in our industry is training
- The other critical aspect of biosecurity is ensuring workers understand the importance of biosecurity and what is required
- Includes the need to have signs, written procedures and operations manuals
- Training of staff is vital to the success of this – they must know and understand what is required of them
  - Correct decision making!



Workplace Training



- Vocational or workplace /trade level training aimed at worker education is best
- Does not need to be complicated and could be dealt with in the workplace
  - Fish husbandry
  - Biosecurity & Fish disease
- However, very few options for training in ornamental fish at present
  - It must be relevant and add value

Workplace Training

- Need for a relevant industry based education package
  - Australia's vocational education system allows for customised training for the workplace
- Already includes training for ornamentals at farming, import and retail level
- This could be adapted and taken up internationally by industry

Thankyou ☺

Any questions?

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