White Spot Disease in Mozambique

Experiences and lessons learned

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Background

- White Spot Disease (WSD) is considered the most virulent shrimp disease
- It caused devastating impact for shrimp farming in Asia and Americas over the past 20 years
- It is estimated to have cost the world's shrimp farming industry close to ten billion of dollars in lost production

Characteristic of the disease

- It shows typical clinical signs like:
  - a dark-reddish coloration of the whole body;
  - white inclusions (spots) on the carapace and appendages; and
  - a lethargic behavior with a loss of appetite

The virus

- Causative agent of WSD - White Spot Syndrome Virus (WSSV)
- Very wide host range on crustaceans, particularly penaeid prawns, crabs, crayfish and lobsters from marine, brackish or freshwater sources
- Annelids, arthropods or molluscs can be vectors
- Wide geographical distribution, being present in almost all continents

Means of transmition

- Vertical (trans-ovum),
- Horizontal by *per os* consumption of infected tissue, and
- By water-borne routes (viability of free virus in sea water in open ponds is 3-4 days)
- WSD is usually highly lethal, with cumulative mortality in farmed shrimp reaching 100% within 2 to 7 days post infection once a pond is affected

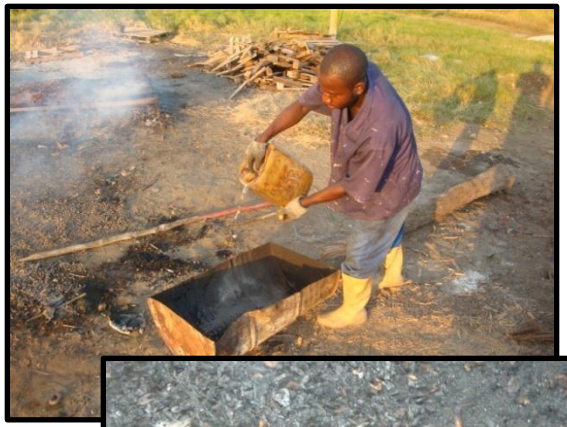
The outbreak (1)

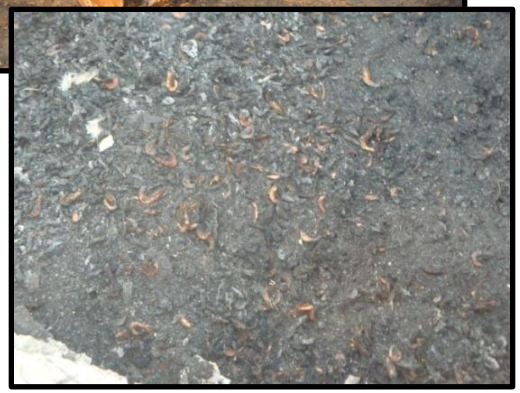
- 1st reported occurrence of WSD in Africa was recently detected in a shrimp farm in Mozambique on August 31st, 2011
- WSD was confirmed by the OIE Reference Laboratory and the outbreak was officially reported by Mozambique CA´s to OIE Headquarters through WAHIS
- Other shrimp aquaculture sites were also detected WSSV positive during late 2011

The outbreak(2)

- As a consequence, all affected production units had to be depopulated, dried out and disinfected, thus inducing a huge economic loss (>500 tons) and unemployment (>800 jobs).

Incineration





Actions taken

- Stamping out exercise,
- Initial epidemiological survey was rapidly performed with the contribution of both public and private stakeholders, aiming at evaluating WSSV distribution on the Mozambican coast
- Technical assistance from OIE and FAO (Nov 2011)

Findings

- First results obtained showed that this virus is already widespread in almost all coastal provinces of Mozambique, affecting several crustacean species including penaeid shrimp and crabs
- Results strongly suggest that WSSV has been present in these waters for several months or years.

Possible causes

- The most probable cause of the outbreak are:
  - Virus in the environment brought to the hatchery with the broodstock
  - Broodstock from the farm taken back to the hatchery
  - The broodstock infected but not showing clinical signs produced infected larvae
  - Transport and/or handling conditions caused stress and then the disease
  - Alive feed given to the animals not tested for WSSV
  - Variation of temperature

Weaknesses found

- Lack of a national strategy for aquatic animal health
- Lack of legislation regarding aquatic animal health defining the role of each stakeholder
- Lack of an AAHS in place and designated NRL
- Lack of a functional general surveillance program
- Epidemiological status of the country previous to the outbreak was unknown
- Weak coordination mechanism between different stakeholders public and private

Lessons learned

- Importance of developing a national strategy for aquatic animal health and of having a functional general surveillance program prior to the first occurrence of an aquatic animal disease, to be prepared for disease prevention, early detection and implementation of an adequate emergency response in case of occurrence;
- Need to have a functional AAHS and NRL;
- **It is possible to have OIE technical assistance.**

The way forward

- The original farming methods used will now have to be adapted to this new sanitary situation
- Need to increase biosecurity levels in rearing facilities
- Need to control movements of all susceptible animals (specially alive) and identifying all possible entries of the virus
- Need of a strong involvement and supervision by the CA`s supported by the surrounding countries
- Domestication programme of broodstock

Current situation

- Three companies restarted the activity
- Biosecurity measures improved
  - Broodstock tested for WSSV individually
  - Quarantine systems applied (while waiting for lab results)
  - PL tested before being transferred to the farm
  - Movement of alive animals controlled
  - System of filtration of water to be pumped to be farm improved
  - Under fisheries CA`s
- Surveillance being redesigned for a 2nd round
- Draft legislation under discussion
- Role of different stakholders under discussion
- Training on PCR of possible NRL took place in Jan 2012

Thank you