

CASE STUDY 1

History

A sea bass (*Dicentrarchus labrax*) and sea bream (*Sparus auratus*) hatchery in the Mediterranean region is experiencing very high mortalities in the sea bass fry and juveniles. Oral antibiotic therapy (oxytetracycline) has been prescribed and a ten day course completed, however, mortalities continue to increase daily and appear to be spreading to other life stages of the bass. Sea bream juveniles in the same hatchery appear unaffected, in good health and with no significant mortalities.

Clinical signs – sea bass

- ✚ Decreased feeding
- ✚ Fish near water surface
- ✚ High mortalities
- ✚ Some circling behaviour and cork-screw swimming
- ✚ Some fish appear belly-up near bottom of the tank
- ✚ No skin lesions

Differential diagnosis

- ✚ Nodavirus infection
- ✚ Rickettsiosis
- ✚ Vibriosis
- ✚ Internal parasitic infection (myxosporidea)

Methods for investigation

- ✚ Histopathology*
- ✚ Parasitology*
- ✚ Bacteriology*
- ✚ Virology*

* see “Sampling for Disease Diagnosis”

Findings

Parasitology: low level of *Trichodina* sp. on the skin.

Bacteriology: no significant fish pathogen isolated.

Histopathology: vacuolation and neuronal degeneration in brain, spinal cord and retina of the eye, otherwise no significant pathology (Figure 1).

Virology: isolation of nodavirus on SSN-1 cell lines.

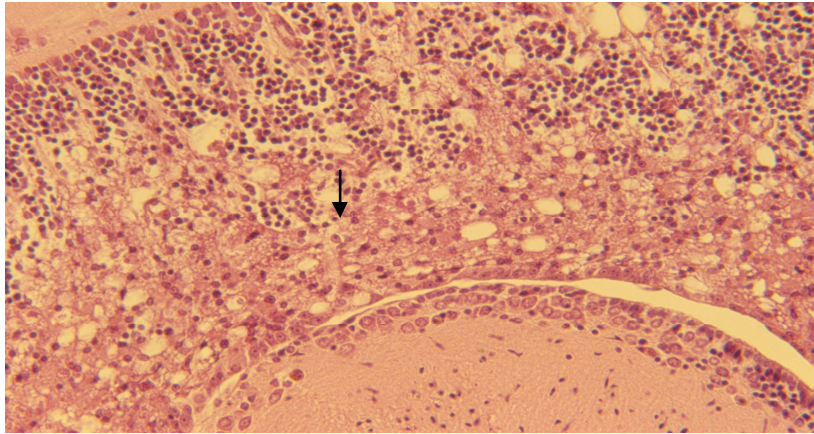


Figure 1. Histological section of the optic tectum (part of midbrain) of sea bass showing vacuolation (arrow) and neuronal degeneration (Copyright H. Rodger).

Diagnosis

Nodavirus infection.

Action

No treatment available, however, the farm can manage the disease through the following:

- a) Remove affected livestock.
- b) Disinfect and clean hatchery and equipment.
- c) Institute strict biosecurity measures (see Biosecurity section)
- d) Restock with fish from certified sources and disinfect eggs.
- e) Sterilize incoming seawater.
- f) Improve hygiene and sterilization of facility and equipment between batches of fish.
- g) Reduce stocking densities.

References & further reading

Munday, B. L. & Nakai, T. (1997) Special topic review: Nodaviruses as pathogens in larval and juvenile marine finfish. **World Journal of Microbiology & Biotechnology**, 13, 375 – 381.

Munday, B. L., Kwang, J. & Moody, N. (2002) Betanodavirus infections of teleost fish: a review. **Journal of Fish Diseases**, 25, 127 – 142.