

## CLINICAL SIGNS OF THE WINTER DISEASE PHENOMENON IN SEA BREAM (*SPARUS AURATA*, L.)

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### Abstract

This note describes a winter disease syndrome in sea bream (*Sparus aurata*) in 100-200g fish from ovember to April in the Adriatic.

During the winter/spring 1994/95 the winter disease phenomenon appeared in sea bream (*Sparus aurata*,L.) intensively reared in floating cages placed on the Croatian part of the Adriatic sea. One year old fish weighing 100-200g was affected. The fish were observed from November till April. Clinical signs and pathological findings were followed and noted. According to appearance and sequence of symptoms, four phases of this phenomenon could be distinguished.

At the end of February at the sea temperature bellow 14°C, first clinical features appeared.

**Phase I** : characterised by low morbidity and very low mortality.

Some specimens demonstrated sporadically convulsive swimming and a lesser number of floating fish could be noticed. Pathological examination showed digestive tract without food. The livers were normal or enlarged in size, ochre or in patches and friable texture.

**Phase II**: characterised by a high morbidity and low mortality, less than 1%

Fish showed convulsive swimming whereas the number of floating fish notably increased. Focal, yellowish and necrotic lesions on all gill arches, were present.

Ascites and digestive tract without food was found. The intestine were sometimes oedematous with semi-fluid yellowish content. The livers were ochre, enlarged and friable texture. Medium deposit of visceral fat was determined in fish.

During the **Phase III** extremely high morbidity and constant mortality, that reached over 5% , occurred.

Convulsive swimming and a high number of floating fish in the cage were continuously

present. In this phase skin, opercula, fin and tail lesions appeared in diseased fish. Focal, necrotic lesions of all gill arches, were observed. Semi-fluid whitish content dripping out was recorded. Gall bladder appeared distended containing dark green bile. Occasionally white nodules on the spleen were present. In some cases swelling and reddening of the kidney was noticed.

**Phase IV** was characterised by a low morbidity and variant mortality, high but less than 5%.

Induced signs from the phases I, II and III could be found in the observed fish. Total mortality of 11% was recorded at the end of the disease.

The clinical symptoms described were similar to those attributed to A, E and B complex deficiencies in fish (Halver, 1989; Tacon, 1992). Hepatosomatic index was determined at November and at the end of the disease. It was less than 2 in November but increased to more than 2.5 at the end of April. Bacteriology analyses conducted in the phase I was negative. In the phases II, III and IV was positive, but with non specific isolate. Particularly interesting growth rate was characteristic for the fish affected by winter disease. Namely, increasing in length was not followed by body weight.

Considerable mortalities, poor fish health and/or weight losses were focusing the economic importance of this condition in reared sea bream.

### References:

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- Tacon, A.G.J. (1992) Disorders in vitamin nutrition. In Nutritional fish pathology.FAO Fisheries Technical paper,330. Rome, pp.20-35.