

PRELIMINARY REPORT OF INFESTATION BY ISOPOD *CERATOTHOA OESTROIDES* (RISSE, 1826), IN MARINE CULTURED FISH

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Abstract

By preliminary identification an isopod identified as *Ceratothoa oestroides* (Risso, 1926), caused mortality outbreaks in cage cultured fish. This parasitism and its effects can cause high losses in juvenile populations of cultured sea bass (*Dicentrarchus labrax* L.) and sea bream (*Sparus aurata*). In older and market sized fish, bass in particular, the effect of parasitism is mainly related to growth retardation. The source of the parasite and route of infection seems to be through contact with wild fish in the cage environment.

Introduction

In the past few years, occasional parasitic invasions in cage culturing systems have been reported by the fish farmers in Croatia. Among the cage cultured fish, mortality outbreaks, frequently at epizootic level, were reported to be caused by an isopod. By preliminary identification this isopod has been recognised to be *Ceratothoa oestroides* (Risso, 1826), (Trilles *et. al.*, 1989).

Epizootiology

Adult isopods (Fig.1) could be found any time during the year in market size bass (*Dicentrarchus labrax*, L.) as distinguished from market size bream (*Sparus aurata* L.). The pair of adult isopods, are found to be placed in the fish mouth occupying most of the oral and branchial cavity. In the conditions of increasing sea temperature parasitic invasions usually become more intensive. In such conditions namely, the mature female isopod releases about 450-550 juveniles in the oral cavity of the adult fish. This number has been counted in 50 specimens. Free-swimming juveniles very soon abandon such host searching for a more appropriate one. According to our observation it is likely to be younger fish in rearing environment which seems to consider the juvenile parasite as attractive "live food". In this parasite's life stage we have not noticed host prevalence, namely all reared fry species seem to be suitable host. By the time parasite and the host together develop into adult individuals, where reared fish becomes the final host.

Living in association with host such fish remain persisting carrier and reservoir of adult parasites in culturing habitat.

In mariculture facilities, cage culturing systems in particular, abundance of different wild fish species around the breeding cages are present permanently. Free exchange of any organisms between the cultured and the fish from the surrounding environment is inevitable. This condition contributes to the occurrence and development of variety problems which may affect fish health. In culturing habitats we observed, most recurrent wild fish species are bogue (*Boops boops*), mullet (*Liza aurata*), goldfin (*Boops salpa*), and striped bream (*Lithognathus mormyrus*). During the observations this parasitic isopod has been found in a bogue. This circumstance led us to suggest a source of parasitic isopod and the route of infestation in cultured fish. According to our observation transmission is direct from fish to fish. The period, though, that parasite juveniles can spend without a host is uncertain. However once introduced into culturing habitat the infested fish together with wild fish in the cage environment, increase the number of parasite itself and therefore potentiality for invasion the culturing stock.

The effect of parasitism

Degree of infested fish and intensity of parasitic invasion frequently leads to epizootic, and it appears to be high in bass and bream fingerlings up to 10gr. The losses due to the

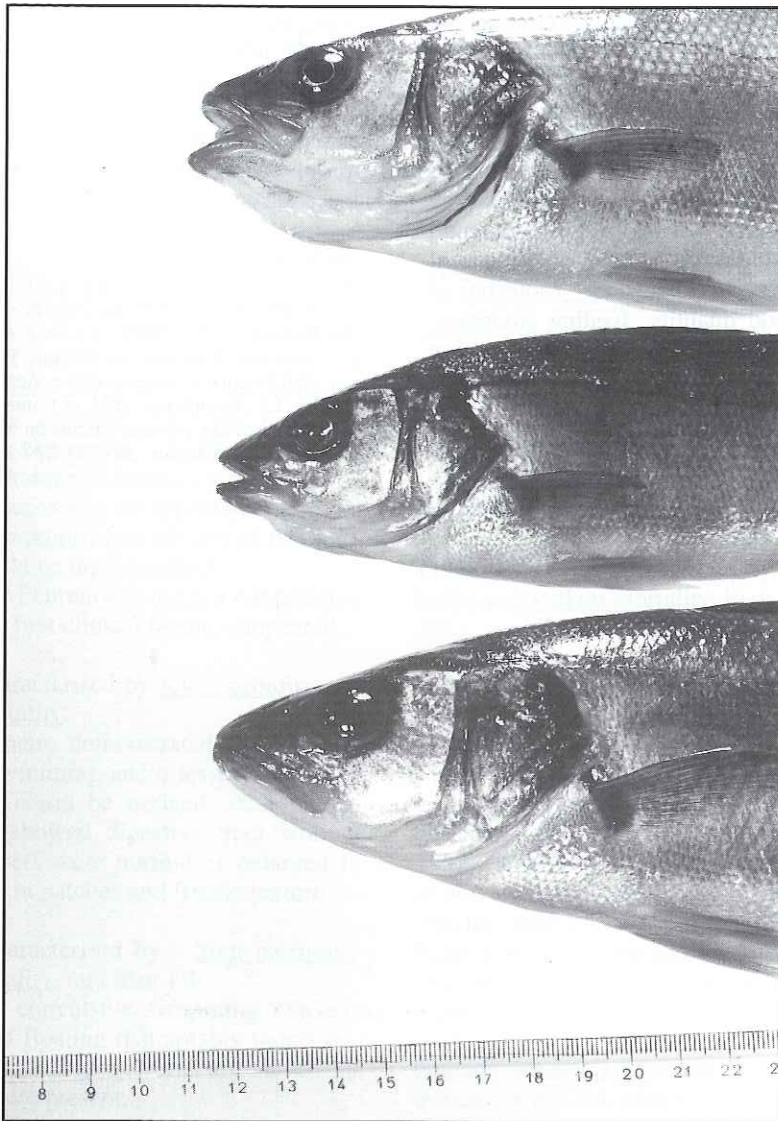


Figure 1 Infected market size sea bass (upper two) and uninfected (lower).

parasitism generally, can reach 10 to 20 % in the affected population. It seems presumably to be due to the very low host specificity by the juveniles of *Ceratomyxa oestroides*. In parasites early life stage the dominant pathology is related to the gill tissue damage, which leads to the respiratory failure and finally to death of the host. This seems to

correlate to the intensity of parasites per host and secondary infections. In older and market size fish the effect of parasitism appears to be direct and indirect. Reduction in growth (about 20%) as a direct consequence of parasite was found to be significant, but on the other hand most of the infected fish reached market size (Bavevic, pers. comm.),

(Fig.2). Constant source of parasite in culturing habitat and devastating effect which this parasite can perform, causing epizootic in fingerlings in the first place, is focusing the extension of this parasitic isopod.

According to some authors (Fijan, 1982; Sindermann,1990), factors which are able to induce parasitic manifestation are stock quality, stocking density, environmental conditions, biological and physiological characteristics of parasite, zootechnical measures, food quantity, feeding strategies, etc. These partially described factors are interlacing and are capable to stimulate parasitic activation. There can be no doubt that economic effect of parasitism should increase the interest concerning the biology

and life cycle of this parasite(generation time, etc.).

So far, non specific methods like preventive measures remain most important aim in control of *Ceratothoa oestroides*. Further research of alternative approach in terms of prophylactic measures for its control are necessary.

References

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