Vol. 59: 177–178, 2004 | DISEASES OF AQUATIC ORGANISMS Dis Aquat Org | Published May 5

REPLY COMMENT

Impact of *Steinhausia mytilovum* on its host: reply to Comtet (2004)

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Biotic interactions have been an intriguing part of marine research in recent years (Ross 1971). However they are hard to study in animals like molluscs, where the classification of such interactions (parasitism, commensalism) is not always an easy task, since there are no distinctive phenotypic features of the host, even in the case of a single parasitic infection (Gosling 1992, Bower et al. 1994). The problems are more complex when there are multiple parasitic infections in a single host (Rayyan et al. 2004). Moreover, the presence of a parasite may inhibit the growth of other parasitic forms inside the same host, e.g. the hydrozoan *Eugymnanthea inquilina*, with its toxic nematocysts, can create a microhabitat hostile to other metazoan or protozoan parasites inside the mussels.

Therefore, the Comment by Comtet (2004, this issue) on Rayyan & Chintiroglou (2003) was most interesting and inspired this Reply Comment. It is true that there is some controversy regarding the impact of *Steinhausia mytilovum* on mussels. The possibility that this parasite could affect the fertility of the mussels has been investigated in recent years (Bower 1992).

The measurements of abiotic parameters in the study area in the Thermaikos Gulf (Rayyan & Chintiroglou 2003, Rayyan et al. 2004) showed no significant differences in space and time. The results (min–max) in brief were: Station 1: S/psu = 34–36.3, T = 11.86–27.96°C, DO_2 = 6.9–8.3 ppm; Station 2: S/psu = 35.4–36.8, T = 13.5–27.62°C, DO_2 = 6.02–7.4 ppm; Station 3: S/psu = 35.2–36.7, T = 11.64–23.9°C, DO_2 = 6.4–7.6 ppm. All measurements and sampling took place every 2 mo (Sep 2000 to Nov 2001), to ensure that all stages of gametogenesis were included in the study. The highest frequency of parasitism was detected in the period between April and July. As regards food availability, the study area is rich in nutrients, due to the adjacent estuaries and the cyclonic circulation of the waters (Stergiou et al. 1997), which implies an equal distribution of nutrients, especially on the southern coasts of the Gulf. However, Station 2 is richer in nutrients than the other two, due to its proximity to the main sources of urban and industrial pollution in the Gulf (NCMR 1996). Nevertheless, the distribution pattern of the condition index is the same at all stations, i.e. significantly different between mussels infected by *Steinhausia mytilovum* and mussels with no parasites. In conclusion, pollution is not a decisive factor in the results of Rayyan & Chintiroglou (2003).

As regards the presence of other parasites in the samples (e.g. *Marteilia* sp., as Comtet noted), histological study of the samples confirmed the presence of *Marteilia*, but not in the samples used for the analyses in Rayyan & Chintiroglou (2003) (these unpublished data will be the subject of a future study). Two categories of samples were used in that study: (a) mussels which contained no parasitic organism and (b) mussels which contained only *Steinhausia mytilovum.* It should be noted that the parasitism inflicted by viruses or bacteria was ignored, as is usually done in similar studies.

I would also like to comment on the study of Virvilis et al. (2003), referred to by Comtet. The samples examined by the authors originated mostly from natural bivalve populations located in the heavily polluted areas of the Thermaikos Gulf. In addition, the study focused on the spatial distribution of *Marteilia* sp., but not on the spatiotemporal distribution. Finally, the authors claim that *Marteilia* is responsible for the extinction of *Ostrea* sp. populations in the gulf, without considering, however, the ever-growing problem of the anthropogenic impact on the natural bivalve populations (Arsenoudi et al. 2003).

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Editorial responsibility: Otto Kinne (Managing Editor), Oldendorf/Luhe, Germany

Submitted: April 27, 2004; Accepted: April 29, 2004
Proofs received from author(s): April 30, 2004