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ABSTRACT

THE COMBINED EFFECTS OF SALINITY  
AND TEMPERATURE ON THE FEEDING,  
REPRODUCTIVE AND SURVIVAL RATES  
OF *EUPLEURA CAUDATA* (SAY) AND  
*UROSALPINX CINEREA* (SAY)  
(PROSOBRANCHIA: MURICIDAE)



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Studies were conducted under controlled laboratory conditions to determine the combined effects of salinity and temperature on certain fundamental activities of *Urosalpinx cinerea* and *Eupleura caudata* indigenous to Long Island Sound. The results indicated that oyster drills demonstrate changes in their rates of feeding, reproduction and survival in response to changes in salinity and temperature.

The feeding rates of *U. cinerea* and *E. caudata* are affected by both salinity and temperature. Both drill species consumed few *Crassostrea virginica* spat at the lowest temperature and salinity combination studied (15.0°C, 12.5 ppt). The rate of feeding increased with increased temperature and salinity, with the maximum feeding observed at the highest combination studied (25.0°C, 26.5 ppt). At all temperature and salinity combinations *U. cinerea* consumed more oyster spat than did *E. caudata*. It would seem, therefore, that *U. cinerea* is probably the more voracious predator of *C. virginica*.

Both gastropods exhibited cannibalism in the presence of alternative food sources, but *E. caudata* did so to a greater extent than *U. cinerea*. Cannibalism increased as feeding rates increased and the highest incidence of cannibalism was observed at optimum feeding conditions. In all instances in which active cannibalism was observed the predators were female drills.

The mortality rates of both species of drills increased with increasing temperature and decreasing salinity. The highest mortality occurred at the lowest salinity and highest temperature combination (25.0°C, 12.5 ppt) and the lowest, at the highest salinity and lowest temperature (15.0°C, 26.5 ppt). *Eupleura caudata* was less tolerant than *U. cinerea* to low salinities at all temperatures.

The number of egg cases deposited by *U. cinerea* and *E. caudata* also was temperature and salinity dependent. *Urosalpinx cinerea* began ovipositing at 20.0°C and 20.0 ppt and *E. caudata* began ovipositing at 15.0°C and at 20.0 ppt. The number of egg capsules deposited by both species of drills increased with each increase in temperature and salinity, with the maximum number deposited at 25.0°C and 26.5 ppt. The number of eggs per capsule did not appear to be affected by temperature and salinity.