Life history and reproductive biology of the invasive amphipod *Corophium curvispinum* (Crustacea: Amphipoda) in the Lower Rhine

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With 7 figures and 3 tables in the text

**Abstract:** The highly invasive tubicolous exotic amphipod, *Corophium curvispinum* SARS 1895 was sampled from stones over a period of 24 months (March 1992–February 1994) from two locations (Lobith and Nijmegen) in the Lower Rhine. *C. curvispinum* breeds from April to October, producing three generations per year. The breeding season was strongly correlated with water temperature. Reproduction generally began in March and was well established by May. The overwintering generation died during June/July, but reproduction continued until October as a result of breeding of summer generation individuals. Females comprised 60 to 80% of the population. The percentage of males was lowest in May/June. The mean number of eggs per brood of *C. curvispinum* in the Lower Rhine is one of the highest ever recorded for the species and showed a positive correlation with chlorophyll-a. A significant difference between sites (Lobith and Nijmegen) was observed for brood size. In contrast, no significant differences were found between sites for breeding season, population structure and sex ratio. The percentage egg loss from the brood pouch of *C. curvispinum* is high when compared with other *Corophium* species. Our results suggest that water temperature can be regarded as an important factor in regulating breeding seasons in the Lower Rhine, but that brood size could vary in association with food availability. The life history traits and environmental factors which facilitate the success of *C. curvispinum* in the Lower Rhine are discussed.

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