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The ontogeny of parapodia and setae in *Laeonereis culveri* (Webster) (Polychaeta: Nereididae)

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Abstract

The ontogeny of parapodia on the first four larval trunk segments was followed toward maturity in the nereidid *Laeonereis culveri*. The morphologies ultimately attained by the parapodia include cephalic, uniramous, and biramous forms. Setal types and arrangements were also determined for all setigers present on discrete life history stages from larva to adult. The results showed pronounced differences in parapodial morphology and setation between larvae, postlarval juveniles, and adults. These differences stem from the sequential development of parapodial processes and setae. Taxonomists rely heavily on adult setation and parapodial morphology to characterize nereidid species, but since these features vary ontogenetically, their adult states cannot be used to distinguish species during earlier life history phases.

Key words: polychaete, parapodial morphology, setal succession, tentacular cirri

Introduction

Parapodia and setae have morphological features characteristic of species in the Nereididae. Ontogenetic changes in these features occur during life histories but are seldom documented. This account provides such documentation for *Laeonereis culveri* (Webster), a coastal species ranging from southern New England to eastern South America (Pettibone 1971) and adds to previously published observations on the reproduction and development of the species (Mazurkiewicz 1975).

Materials and methods

The study is based on microscopic examinations and camera lucida illustrations of excised parapodia from worms of a Connecticut population cultured in the laboratory (Mazurkiewicz 1975), including nectochaete larvae (3–7setigers), postlarval juveniles, and adults.

The external development of parapodia originating on the first four larval trunk segments was followed to adulthood. Throughout this report they are designated according to their respective larval segments as the first, second, third and fourth parapodia. Additionally, setal types and arrangements were recorded for select life history stages in a search for successional patterns.

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