

Growth and reproduction of the bivalve *Spisula subtruncata* (da Costa) in Dutch coastal waters

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Abstract

The bivalve *Spisula subtruncata* is usually abundant in shallow coastal waters along the Dutch coast. However, its biomass has been decreasing since 1995. In order to assess whether reproductive failure may be the cause of the observed decline over the last decades, the energy investment in reproduction of a population of *S. subtruncata* from central Dutch coastal waters was studied. The population studied consisted of individuals of up to four years old. Shell length reached maximum values of around 32 mm and individual total body, somatic and gonadal ash-free dry mass reached maximum values of about 278 mg AFDM, 252 mg AFDM and 76 mg AFDM, respectively. A clear seasonal cycle in somatic and gonadal mass was observed. Somatic and gonadal mass indices increased in early spring and reached maximum values during summer, followed by a decrease to minimum values at the beginning of the following year. Spawning was in June–July and settlement of spat seems to have occurred in July–August. Mean oocyte diameter was $57.43 \pm 0.03 \mu\text{m}$, corresponding to a volume of $98972 \mu\text{m}^3$. These results suggested that reproductive failure was not the cause of the current population decline. Most likely, unsuccessful settlement of spat and/or severe predation during the first months of life was responsible for the observed patterns.