EVALUATION OF SEVERAL COMMONLY CULTURED ALGAL SPECIES AS FOOD FOR SYDNEY ROCK OYSTER *SACCOSTREA COMMERCIALIS* SPAT

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Although Sydney rock oysters (*Saccostrea commercialis*) have been reared in hatcheries for more than ten years the nutritional value of the various algae fed to spat has not been determined. Those species producing the greatest growth in Sydney rock oyster larvae, *Pavlova lutheri, Chaetoceros calcitrans* and T. *Isochrysis* aff. *galbana* have generally been fed to spat. However, different food sources can be beneficial at different stages of the life cycle and the assumption that the best larval food will also produce the most rapid growth in spat could prove costly. The following algal species: *Skeletonema costatum, Chaetoceros calcitrans, Chaetoceros gracilis, Thalassiosira pseudonana, Phaeodactylum tricornutum, Pavlova lutheri*, T. *Isochrysis* aff. *galbana, Tetraselmis suecica, Tetraselmis chui, Dunaliella tertiolecta, Nannochloris atomus* and *Stichococcus* sp. were fed to Sydney rock oyster spat singly and later in combination with the species producing the greatest growth as a single diet (*Skeletonema costatum*).

Groups of hatchery reared spat were placed in plastic mesh envelopes in separate eight litre aerated aquaria for periods of 19-21 days. The oceanic water (35) used in each aquaria was maintained at 25°C and the water changed thrice weekly. Daily algal rations were determined according the equation $Q_R = 0.01W^{-0.33}$, where Q_R is g dry weight of ration/g live weight of bivalve and W is the g live weight of bivalve (Epifanio, 1979). Algae used in combination diets were fed on an equal dry weight basis. The live weight of spat fed each diet was determined weekly and the feed rates adjusted accordingly.

When supplied singly the diatoms: *Skeletonema costatum, Chaetoceros calcitrans, Chaetoceros gracilis*, and *Thalassiosira pseudonana* produced the greatest live weight gain in spat, reflecting findings with other mollusc species (Walne 1970, Enright et al. 1986). When fed in combination with *Skeletonema costatum*, The algae *Chaetoceros gracilis, Tetraselmis suecica, Tetraselmis chui* and T. *Isochrysis* aff. *galbana* produced synergistic live weight gains. The results indicate considerable differences in algal food value between spat and larvae and to achieve greater spat growth the addition of the diatoms *Skeletonema costatum* and *Chaetoceros gracilis* to the spat diet could be beneficial.

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