

SALINITY AND THE GROWTH OF OYSTERS

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Both the Sydney rock oyster *Saccostrea commercialis* and the Pacific oyster *Crassostrea gigas* are cultivated over a wide range of conditions. However, little is known about the optimum salinity for either species. Therefore, a series of experiments was conducted to determine the optimum range for growth and survival of the Sydney rock and Pacific oyster. The former is native to New South Wales, and the latter is an exotic species which was used to establish new oyster industries in Southern Australia more than thirty years ago and found its way accidentally into Port Stephens.

Experimental salinities were obtained by adding an artificial sea salt mixture (Wood and Ayres, 1977) or rainwater as required to sand-filtered seawater with a salinity of 35 g/l. Sydney rock oyster larvae had the highest growth rates at salinities of 29-39 g/l, and highest survival rates at 27-39 g/l. Two groups of Sydney rock oyster spat with average initial weights of 1.3 mg and 0.61 g grew best at salinities of 25-35 g/l and 20-40 g/l respectively. The equivalent optimum salinity ranges for the growth of Pacific oyster larvae, 1.1 mg spat and 0.68 mg spat were 19-27, 15-30 and 15-45 g/l respectively. Salinity had no significant effect ($P > 0.10$) on survival of spat of either species.

For all age groups studied, growth of Pacific oysters at optimum salinities was considerably faster than that for Sydney rock oysters. This study confirms the reports by Hughes-Games (1977) and King (1977) that adult Pacific oysters may be cultivated in hypersaline ponds of 40 g/l salinity, whereas adult Sydney rock oysters appear to be less suited to hypersaline conditions. However, oyster hatcheries producing Pacific oyster spat should operate with dilute seawater 25 g/l, whereas Sydney rock oyster hatcheries should preferably operate at full oceanic salinities (35 g/l).

HUGHES-GAMES, W.C. (1977). *Aquaculture*. 11: 217.

KING, M.G. (1977). *Aquaculture*. 11: 123.

WOOD, P.C. and AYRES, P.A. (1977). G.B. Min. Agric., Fish Food, Div. Fish., Res. Leaflet No. 39, 11 pp.

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