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Mariculture potential of introduced oysters *Saccostrea cucullata tuberculata* and *Crassostrea echinata*, and a histological study of reproduction of *C. echinata*

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Abstract

Brood stock of the large tropical intertidal oysters *S. c. tuberculata* and *C. echinata* introduced to Guam in 1978 and 1979, respectively, were kept in 1-m² cages in Sasa Bay and their growth and reproductive condition monitored. Weight of tagged *S. c. tuberculata* increased by 25.4% in 255 days; weight of tagged *C. echinata* at an inner bay site increased by 137.7% in 660 days and at a site near the mouth of the bay by 50.6% in 453 days. Based on a mean wet flesh weight of 6.5% of total weight, optimum growth rates for adult *C. echinata* at a density of 50 oysters per square metre, and a ratio of oyster-tray area to water area of 2/3, an estimated potential yield of 2445-3260 kg flesh weight ha⁻¹ year⁻¹ could be produced in Sasa Bay. Fouling by the smaller indigenous oyster *S. cucullata* was considerable (mean number of *S. cucullata* per *C. echinata* shell, 34), but growth was highest in areas where fouling was highest. Therefore, it appeared that competition for food was not a problem.

Histological examination revealed one complete (plus partial second) gametogenic cycle during 1980. The major peak in spawning activity was in March and the development of another was evident in late November. Environmental parameters (exogenous factors) that were monitored did not act as cues for spawning.

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