

THE EFFECT OF ARTIFICIAL SUBSTRATES ON  
NURSERY PRODUCTION OF *Macrobrachium*  
*rosenbergii* (DE MAN) IN NET CAGES

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BY

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This project paper is submitted to the Faculty of Fisheries  
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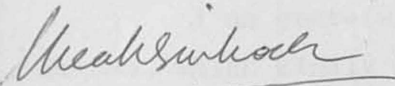
APPROVAL SHEET

The undersigned certify that they have read and do commend to the Faculty of Fisheries and Marine Science, for the acceptance, a project report entitled "THE EFFECT OF ARTIFICIAL SUBSTRATES ON NURSERY PRODUCTION OF Macrobrachium rosenbergii(de Man) IN NET CAGES."

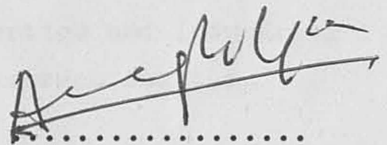
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Date: \_\_\_\_\_

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"Yet I am always with you; you hold me by my right hand. You guide me with your counsel, and afterward you will take me into glory. Whom have I in heaven but you? And being with you, I desire nothing on earth. My flesh and heart may fail, but God is the strength of my heart and my portion forever."

Psalms 73: 24-26

The Holy Bible

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## ABSTRACT

Macrobrachium rosenbergii postlarvae measuring  $1.27 \pm 0.04$  cm and 0.007g were reared in net cages at the rate of 500/m<sup>2</sup> (300/cage) to determine the effects of 0, 1 and 2 substrate levels on the survival and growth. A financial analysis was carried out at the end of the eight week study to evaluate the viability of a 20 cage and 50 cage nursery system using the data from this experiment.

At the stocking density used, the presence of substrates was unable to significantly improve the survival and growth rates. At the end of the study period the mean survival rate for cages with 0, 1 and 2 substrates were 80%, 79% and 77% respectively, and they were similar ( $P > 0.05$ ). The mean total length and weight of the postlarvae in 0, 1 and 2 substrate cages were 4.2cm, 0.90g; 4.1cm, 0.75g and 4.5cm, 1.05g respectively. These values were similar ( $P > 0.05$ ). The values for the NPV, IRR and Benefit Cost Ratio for the 20 cage project were \$2,068, above 0 at 100% discount rate and 1.45 respectively, while values for the 50 cage project were \$4,852, above 0 at 100% discount rate and 1.42 respectively. Even though the results showed that both projects were financially viable, the projected monthly income for the 20 and 50 cage nursery systems were only \$100 and \$244 respectively.

## ABSTRAK

Anak udang Macrobrachium rosenbergii sebesar  $1.27 \pm 0.04$  sm dan  $0.007$  g telah dibesarkan dalam sangkar jaring pada kadar penebaran  $500/m^2$  ( $300/sangkar$ ) untuk menentukan kesan bilangan 0, 1 dan 2 lapisan substrat ke atas kemandirian dan tumbesaran. Suatu kajian analisa kewangan juga telah dijalankan dengan menggunakan maklumat yang diperolehi dari kajian minggu ini untuk menentukan samada sistem semai 20 sangkar dan 50 sangkar menguntungkan atau tidak.

Pada kadar penebaran yang digunakan, lapisan-lapisan substrat tidak berjaya meningkatkan kadar kemandirian dan tumbesaran. Pada penghujung kajian, sangkar-sangkar dengan 0, 1 dan 2 substrat mempunyai kadar kemandirian setinggi 80%, 79% dan 77% dan nilai-nilai ini didapati tidak berbeza ( $P > 0.05$ ). Saiz anak-anak udang yang diperolehi dari sangkar-sangkar 0, 1 dan 2 substrat berukuran  $4.2$  sm,  $0.90$  g ;  $4.1$  sm,  $0.75$  g dan  $4.5$  sm,  $1.05$  g. Nilai-nilai ini tidak berbeza ( $P > 0.05$ ). Angka-angka bagi Nilai Kini Bersih, Kadar Pulangan Dalam dan Nisbah Faedah-Kos bagi projek 20 sangkar adalah \$2,068, lebih dari 0 pada kadar diskaun 100% dan 1.45, manakala angka-angka ini bagi projek 50 sangkar adalah \$4,852, lebih dari 0 pada kadar diskaun 100% dan 1.42. Walaupun keputusan-keputusan ini menunjukkan bahawa kedua-dua projek ini boleh dijalankan tetapi pendapatan bulanan sistem 20 sangkar dan 50 sangkar hanya sebanyak \$100 dan \$244.