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THE COMMUNITY STRUCTURE OF FISH AND PRAWNS IN SMALL
MANGROVE CREEKS IN SUNGAI SEMENTA KECIL, SELANGOR,
PENINSULAR MALAYSIA

CLOSED STACKS

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Abstrak

Kajian mengenai struktur komuniti ikan dan udang di dalam ceruk kecil di kawasan bakau pada jalan masuk di Sungai Sementa Kecil, Selangor, Semenanjung Malaysia ini telah dijalankan dari September 1992 hingga September 1993. Tiga tapak kajian telah dipilih, iaitu Tapak I, II dan III. Beberapa kajian telah dilakukan termasuklah mengenai komponen spesies, kelimpahan, kepelbagaian, kesamaan, kematangan jantina dan ekologi pemakanan bagi spesies ikan dan udang yang telah ditangkap. Bilangan spesies ikan pada Tapak I, II dan III adalah 29, 19 dan 36 masing-masing. Bagi udang pula, bilangan spesies pada tapak I, II dan III adalah 9, 4 dan 5 masing-masing. Kebanyakan spesies ikan tersebut adalah dari jenis berkumpulan (lebih daripada 70%) dan mempunyai nilai ekonomi yang rendah. Berlawanan dengan spesies udang, walaupun spesies yang didapati adalah sedikit tetapi mempunyai nilai ekonomi yang tinggi, di mana tiga dari spesies yang ditangkap adalah Penaeus spp. Purata jumlah berat basah bulanan pada Tapak I, II dan III adalah 1459.2g, 1510.3g dan 2014.7g masing-masing. Manakala bagi spesies udang nilai-nilai tersebut adalah 318.9g, 253.0g dan 668.2g pada Tapak I, II dan III masing-masing. Purata biomas ikan adalah tertinggi pada Tapak III (78.1 g/m^2), diikuti oleh Tapak I (44.2 g/m^2) dan II (38.4 g/m^2). Purata biomas bagi udang pula adalah 25.9 g/m^2 pada Tapak III, 9.7 g/m^2 pada Tapak I dan 6.5 g/m^2 pada Tapak II.

Ambassis gymnocephalus merupakan spesies yang paling utama dari segi bilangan individu di mana ia mengandungi 8.4 hingga 96.0% dari jumlah tangkapan bulanan pada ketiga-tiga tapak kajian. Ini diikuti oleh *Ilisha megaloptera*, *Stolephorus tri*, *Thryssa kamalensis*, *Thryssa mystax* dan *Liza melinoptera*. Bagi spesies udang pula, *Penaeus merguiensis* adalah spesies yang utama dari segi bilangan individu pada kesemua tapak kajian diikuti oleh *Metapenaeus brevicornis* dan *Macrobrachium* sp.. Analisis bagi pengkayaan spesies (D), kepelbagaiannya (H') dan kesamaan (J) untuk spesies ikan di antara tapak kajian menunjukkan Tapak III mempunyai nilai tertinggi bagi kesemua indeks di atas. Manakala bagi spesies udang, Tapak I yang mempunyai nilai yang tertinggi. Kebanyakan individu bagi komuniti ikan dan udang yang dijumpai pada kesemua tapak kajian adalah pada peringkat juvenil. Tapak I, II dan III mengandungi 20.8%, 18.8% dan 20.8% peringkat juvenil masing-masing. Bagi spesies udang pula, peringkat juvenil bagi tapak I, II dan III adalah 68.5%, 58.6% dan 70.2% masing-masing.

Tiga spesies ikan yang utama di ketiga-tiga tapak kajian ini telah diuji jenis pemakanannya. *Ambassis gymnocephalus* merupakan pengguna zooplanktivore di mana mysid adalah makanan utamanya. *Stolephorus tri* juga dikenali sebagai zooplanktivore dengan *Acetes* sebagai makanan utamanya. Manakala bagi *Liza melinoptera*, debris adalah makanan utamanya dan dikenali sebagai detritivore. Pada keseluruhannya, kajian ini menunjukkan

peranan ceruk kecil di kawasan bakau sebagai tapak pemakanan dan pembiakan bagi kebanyakan spesies ikan dan udang yang dijumpai.

Abstract

A study of the community structure of fish and prawns in small mangrove creeks in an inlet Sungai Sementa Kecil, Selangor, Peninsular Malaysia, was carried out from September 1992 to September 1993. The fish and prawns communities in three sites (I, II and III) were examined with respect to species composition, abundance, diversity, similarity, sexual maturity and feeding ecology. The number of fish species collected from Sites I, II and III were 29, 19 and 36 species respectively. For prawns, the number of species at the above sites were 9, 4 and 5 respectively. Most of fish species caught in these small mangrove creeks are schooling fish (more than 70%) of low economic value. In contrast, the prawns were few in species and dominated by three *Penaeus* spp. of high economic value. The monthly average total wet weight of fish sampled at Sites I, II and III were 1459.2g, 1510.3g and 2014.7g respectively. The total wet weight of prawns, this indice were 318.9g, 253.0g and 668.2g at Sites I, II and III respectively. The average biomass of fish was highest at Site III (78.1g/m^2), followed by Sites I (44.2g/m^2) and II (38.4g/m^2). The biomass of prawns for the sites were : 25.9g/m^2 at Site III, 9.7g/m^2 at Site I and 6.5g/m^2 at Site II.

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Ambassis gymnocephalus was found to be the numerically dominant species, consisting of 8.4 to 96.0% of the monthly catch, in all the three sites. *Ilisha megaloptera*, *Stolephorus tri*, *Thryssa kamalensis*, *Thryssa mystax* and *Liza melinoptera* were the other numerically co-dominant species. *Penaeus merguiensis* was found to be the numerically dominant prawn species for all the sites (I, II and III) followed by *Metapenaeus brevicornis*. *Macrobrachium sp.* was often found in the catches.

Analysis for species richness (D), diversity (H') and similarity (J) for fish species between sites showed that Site III had the highest values. In contrast, prawns showed the highest values for these indices at Site I. The fish and prawn communities of these three small mangrove creeks comprised mainly of juveniles of undetermined sex. Sites I, II and III had 20.8%, 18.8% and 20.8% of juveniles in the population of fish respectively. Whereas for Sites I, II and III juvenile prawns comprised 68.5%, 58.6% and 70.2% of the population respectively.

The three main species of fish in the small creeks had interesting feeding habits. *Ambassis gymnocephalus* is a zooplanktivore feeding mainly on mysids. *Stolephorus tri* is also a zooplanktivore feeding on *Acetes*. *Liza melinoptera* is a bottom feeder consuming mainly unidentified debris and is considered a detritivore. This study indicates the role of small mangrove creeks as feeding and nursery grounds for many fish and prawn species.

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