POPULATION PARAMETERS OF SEAHORSES OCCURING AS TRAWL BY-CATCH OFF THE EAST COAST OF PENINSULAR MALAYSIA

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ABSTRAK

Penyelidikan aspek parameter populasi ke atas kuda laut yang ditangkap sebagai tangkapan sampingan termasuk kelimpahan species, nisbah jantina, indeks 'gonosomatic' (GSI), dan 'brood' or 'clutch size'. Penyelidikan ini dijalankan di Pantai Timur Semenanjung Malaysia sebagai asas infomasi untuk pembangunan, pengurusan dan penyelidikan ke atas kuda laut masa depan.

Kelimpahan spesis menunjukkan kelimpahan ketara antara dua spesis manakala nisbah jantina tidak menunjukkan perubahan ketara intraspesis. Perubahan kelimpahan sepsis dan nisbah jantina ditentukan dengan ujian Khi kuasa dua.

Komposisi saiz boleh menentukan kadar tumbersaran dengan menggunakan kaedah von Bertalanffy. Kadar kematian boleh ditentukan dengan menggunakan FiSAT dengan kadar kematian 2.18 dan 1.04 untuk *H. trimaculatus* dan *H. spinosissimus* masing-masing. Kemungkinan *H. trimaculatus* ditangkap pada 75% ialah 13.22 cm manakala kemungkinan *H. spinosissimus* ditangkap pada 75% adalah 11.44 cm. Perhubungan panjang-jisim *H. trimaculatus* boleh dinyatakan dengan satu persamaan iaitu:
$$0.000705 = L^{3.2352}$$

Dan perhubungan panjang-jisim *H. spinosissimus* boleh dinyatakan dengan persamaan:
$$0.00355 = L^{2.7162}$$

GSI, saiz 'brood' atau 'clutch' dan corak penambahan ahli baru boleh menentukan masa penetasan larva. *H. trimaculatus* menetaskan larvanya dari bulan August hingga November manakala *H. spinosissimus* menetaskan larvanya dari bulan Jun hingga Ogos dan September hingga November.

ABSTRACT

Studies on some aspects of population parameters on trawled by-catch seahorses, including species abundance, sex ratio, size composition, gonosomatic indices and brood or clutch size were conducted. This study was carried out in the East Coast of Peninsular Malaysia to obtain baseline information for future development, management and research on seahorses.

Species abundance study shows that the relative abundance of *H. trimaculatus* and *H. spinosissimus* changes significantly from month to month. Studies on sex ratio for both the species show no seasonal changes.

There are significant changes in seasonal size composition for both the species. Size frequency analysis was used to determine the growth parameters following the von Bertalanffy curve using the ELEFAN technique. The instantaneous rate of total mortality (Z) was estimated using FiSAT to be around 2.18 and 1.04 for *H. trimaculatus* and *H. spinosissimus* respectively. The probability of capture estimated using FiSAT gave the probability of capture for *H. trimaculatus* at 75% at a size of 13.22 cm while *H. spinosissimus* at 75% at a size of 11.44 cm. The length-weight relationship of *H. trimaculatus* can be expressed by the equation,

$$W \quad = \quad 0.000705 \ L^{3.2352}$$

while the length-weight relationship for *H. spinosissimus* can be expressed by

$$W \quad = \quad 0.00355 \ L^{2.7162}$$

The gonosomatic indices, brood or clutch size determined were used to generate the recruitment rate and then determine the spawning period for each species of seahorse. There is one spawning of *H. trimaculatus* during the sampling period from August to

November while both the major spawning for *H. spinosissimus* occur from June to August and September to November.