ชีววิทยาและการประเมินทรัพยากรปูม้า Portunus pelagicus (Linnaeus, 1758) บริเวณอ่าวไทยตอนบน

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บทคัดย่อ

Biology and Stock Assessment of Blue Swimming Crab

*Portunus pelagicus* (Linnaeus, 1758) in the Upper Gulf of Thailand

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Abstract

A study on the biology and stock assessment of blue swimming crab (*Portunus pelagicus*) in the upper Gulf of Thailand was conducted from November 2003 to December 2004. The samples were collected monthly from crab gill net, small scale crab trap, commercial crab trap, otter board trawl (operated near shore), beam trawl, pair trawl and push net from the landing sites in Samut Prakan and Chon Buri provinces. The results show that the carapace width of crab ranging 3.25 to 19.25 cm. The spawning grounds (based on the abundance of berried female) mostly occurred offshore and at depths more than 15 meters. The berried female was found all year round with two prominent peaks during January to May and November to December. The carapace width of crab at 50% capture of female first maturity size was found at 9.47 cm. The average size of female crab caught from small scale crab trap, push net, otter board trawl (operated near shore), beam trawl, crab gill net, otter board trawl (operated offshore), pair trawl and commercial crab trap were 7.97  8.33  8.82  8.92  10.23 11.84  11.92 and 12.39 cm, respectively. While these fishing gear types caught the female crab size less than size at first maturity as 79.64, 68.02, 59.14, 51.52, 22.22, 10.98, 7.21 and 0.86%, respectively. The sex ratio of male and female was 1:1.03.

The estimated growth parameters of blue swimming crab in the upper Gulf of Thailand revealed that the curvature parameter (K) was 1.47 per year and the asymptotic carapace width (*L*∞) was 19.83 cm and the carapace width at first capture (*L*50%) was 9.39 cm. The total mortality coefficient (Z) and the natural mortality coefficient (M) were 7.84 and 2.63 per year, respectively. Fishing mortality coefficient (F) was 5.21 per year and the exploitation rate (E) was 0.6645 per year. The assessment of blue swimming crab using Thompson and Bell analysis indicated that the maximum sustainable yield (MSY) was 8,443 tones and the maximum sustainable economic yield (MSE) was 871,299 thousand Baht. The status of blue swimming crab in the upper Gulf of Thailand in 2004 revealed that there were 15 percent over the estimated MSY and 30 percent over the estimated MSE. It is recommended that the management of blue swimming crab should be reduced fishing effort by 15-30 percent from the present level.

Key words: biology, stock assessment, blue swimming crab, the upper Gulf of Thailand

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