

Mackerel (*Scomber Australasicus*) Reproduction in Northeastern Taiwan

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Abstract : Blue mackerel (*Scomber australasicus*) is a crucial target species for Taiwan coastal fisheries and has maintained its status as the highest-produced species. Timely measurement of spawning status is crucial for determining the correct management strategy for this species. The objective of this study was to determine size at maturity, fecundity, batch fecundity, and spawning frequency on the basis of samples collected from Nan-Fang-Ao fishing port in Yilan during the spawning season from 2017 to 2019. Histological sections indicated that the blue mackerel are multiple spawners. A higher percentage of female fish spawned at the peak of the gonadosomatic index. The 50% sizes at maturity were 32.02, 32.13, and 29.64 cm. Mean total fecundity (batch fecundity) was 165 (103), 229 (96), and 210 (68) oocytes per ovary-free weight (g) for 2017, 2018, and 2019, respectively; fecundity was determined through observation of postovulatory follicles (POFs). The spawning frequencies (spawning fraction) in 2017, 2018, and 2019 were 3-10 days (0.13), 4-14 days (0.08), and 4-12 days (0.08), respectively. The spawning frequencies determined through the 3 estimated methods, namely the sums of (a) hydrated and Day 0 POFs; (b) Day 1+ POFs, and (c) all data combined, were 1 spawning event per 8, 10, and 9 days, respectively. The reproduction of the blue mackerel was greater in 2017 than it was in 2018 or 2019, as indicated by the higher batch fecundity and shorter spawning seasons. Environmental factors should also be considered as a major factor influencing successful reproduction and the spawning season.

Keywords : *scomber australasicus*, spawning frequency, batch fecundity, fecundity

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