

Reproductive Ecology of Spanish Mackerel, *Scomberomorus niphonius* in the South Sea, Korea

Yeong Hye Kim, Dong Woo Lee, Jae Bong Lee and Dae Hyeon
Kwon

National Fisheries Research & Development Institute, Busan 619-902

Introduction

Spanish mackerel *Scomberomorus niphonius* is commonly distributed and one of the important fisheries resources particularly in the South Sea, Annual catches of this fish have fluctuates between 6,000 and 20,000t from the later 1970s to the early 2000s, although they began to increase from the later 1970s, fluctuating levels between 10,000-20,000t from 1980s to the early 2000s. In order to stabilize the catch and establish more effective fisheries management, it is necessary to accurately assess the stock size and to understand the life history traits. Informations on the general biology for Spanish mackerel don't have in Korea, however these has been gradually accumulated in Japan. This paper describes spawning season, Fork length at 50% mature, sex ratio and relative growth of Spanish mackerel in the South sea, Korea.

Material and Method

Specimens were collected monthly from commercial landing market from January to December 2003, in the South Sea, Korea. Three types of sampling gear were used: trawl, bottom pair trawl and stow net on anchor. Fork length (FL), body weight (BW), head length (HL) of the fresh samples were measured just after the sampling. Spawning season was compared of two methods, Gonadosomatic Index (GSI) and Condition Factor (k). Fork length of 50% maturity for both sexes was number of matured individual divided by the number of individual at the size class. Sex ratio

is number male divided by number of females. Relative growth was estimated by Huxley method.

Results

Size frequency distribution of spanish mackerel ranged from 246 to 987 mm FL. The mode was 425 mm, this was estimated fork length at age 1 by Kishida et al (1985). The sex of fish over 800mm was all females. So growth of female was much more rapidly than that of male. According to Kishida et al (1985), the oldest male was 4 and female 6 years old respectively.

Relative growths of this species were as follows.

Female : $BW=0.0048FL^{3.0396}$, $BH=-0.0026+0.1450FL$, $HL=0.3675+0.1645FL$

Male : $BW=0.0053FL^{3.0156}$, $BH=-0.0650+0.1516FL$, $HL=0.5154+0.1645FL$

Fatness (*k*) showed gradually increasing from August and decreasing downward from February to May. However Gonadosomatic Index (GSI) was increased from April, reaching peak values to May and rapidly decreased from June. The spawning period was from may to July. Size at first maturity was estimated to be 582.4mm of female and 401.3mm male. A total of 511 randomly selected fish, consisting of 325 females (63.6%), 186 males (36.4%). The male to female sex ratio was 0.57.

References

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