

学 位 論 文 要 旨	
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題 目	Fisheries biology of <i>Evynnis tumifrons</i> (Sparidae) off the southwestern coast of Kyushu, Japan (九州南西部沖におけるチダイ (タイ科) の資源生物学的研究)
<p>The crimson seabream <i>Evynnis tumifrons</i> is endemic to the coastal waters of China, Hong Kong, Japan, South Korea and Taiwan, and is found on the rocky reefs, gravel and sandy bottoms on the continental shelves. <i>E. tumifrons</i> is commercially important fish species and is mainly caught using gillnets, surrounding seine nets and angling. However, its biological aspects have not been sufficiently studied. The present study aims to describe the population biology of <i>E. tumifrons</i> off the southwestern coast of Kyushu, Japan.</p> <p>Fish specimens were mainly collected at Eguchi Fishermen's Cooperative, Hioki City, Kagoshima Prefecture, southern Japan. Fishers' belonging to this cooperative caught the fish using gillnets and surrounding nets. After landing, fish were sorted into eight categories according to their weight by the cooperative's staff. Specimens of various body sizes from these categories were sampled once a month. For reproductive analysis, samples were collected from April 2012 to June 2014. A total of 801 ovaries were examined by histological observation to estimate the degree of ovarian maturation. For growth analysis, a total of 1599 specimens (794 females and 805 males) of various body sizes were collected from all categories once a month from April 2012 to August 2013. In addition, to compensate for the insufficient number of the small sized individuals collected at Eguchi Fishermen's Cooperative, a total of 206 (73 females, 57 males and 76 sexually unknown) small fish caught by set net off Kasasa town in 2004 and with Danish seine and gill net off Ibusuki city from 1999 to 2004 were used for the analysis. Ring marks (outer edges of opaque zones) on the 1805 transversely sectioned otoliths were counted and seasonality in their deposition was validated by marginal increment.</p> <p>The ovarian maturity stages were classified into six categories based on the appearance of the most advanced oocytes, post-ovulatory follicles and atretic oocytes in the ovary as follows: immature, maturing, mature, spawned, spent and resting. Females with the ovaries at maturing, mature, spawned or spent stages were identified as sexually mature individuals, and the size at sexual maturity was estimated to be 179 mm fork length based on 50% maturity size. Monthly changes in gonadosomatic index and the occurrence of mature or spawned maturity stages showed that spawning season lasts from November to May with an intermission in March 2013. The factor responsible for this intermission was considered to be the low water temperature that occurred in the preceding month.</p> <p>Results of observation of transversely sectioned otoliths and monthly changes in marginal increment revealed that one ring mark was formed per year from late spring to early summer seasons. Assuming December as the birth month, ages were assigned to every individual according to the number of ring marks and the value of marginal increments. Growth was estimated by fitting the von Bertalanffy growth function to the length-at-age and weight-at-age data. The estimated growth curves were not significantly different between the sexes. Maximum age observed was 15 years for females and 16 years for males.</p>	