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〈NOTE〉

Catch Yield Fluctuation and Relative Growth of the Purplish Washington clam *Saxidomus purpuratus* (Sowerby) in the South Sea, Korea

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The purplish Washington clam, *Saxidomus purpuratus*, is one of the important commercial bivalves in the south sea, Korea. According to fishery data of the diving boat of Fisheries Cooperative in Korea, Annual yield of this species was between 7,000~9,000 MT from 1995 to 1999. With increasing demand of stock management of this clam, it draws particular attention to the mariculturists. However, the basic biological studies on this species are not readily available.

A study on the gametogenesis and reproductive cycle (Chung et al., 1999) and a few other works which also dealt with the spawning season of *S. purpuratus* (Kim, 1969; Kim, 1971; Chung and Kim, 1994) have been reported. The histochemical study on the mucosubstances in the foot has been reported (Ahn, 1992; Kang, 1998). Also the freeze denaturation and preliminary survey on the biology have been reported (Jung, 1992; Wei et al., 1982).

This paper deals with the catch yield fluctuation and relative growth of the purplish Washington clam, *S. purpuratus*. The catch yield fluctuation and catch per unit effort (CPUE) were analyzed based on using fishery data in six branches ie. Busan, Masan, Samchonpo, Namhae, Tongyeong and Yeosu of the diving boat of Fisheries Cooperative in the south sea, Korea from 1995 to 1999. About 90 samples of *S. purpuratus* were collected bimonthly to measure shell length (SL), shell height (SH), shell width (SW) and total weight (TW) at the Yeosu branch of the diving boat of Fisheries Cooperative in the south sea, Korea from March to December, 2000. The equations estimated the relative growth between shell length (SL) and shell height (SH), between shell length (SL) and total weight (TW) by the Huxely method (1932). The cohorts based on the frequency distribution of shell height were separated by the ELEFAN Model (ICLARM Inc., 1990).

The annual catch yield fluctuation of *S. purpuratus* in the south sea, Korea peaked at 8,637 MT in 1997, and the mean annual catch yield was represented as 7,867 MT. The number of boats continued to increase from 132 boats to 177 boats. The CPUE was low at 40,227 kg/boat in 1998, but it was high at 63,485 kg/boat in 1996 (Table 1).

The annual total catch of *S. purpuratus* in the Yeosu branch peaked at 3,346 MT in 1996. Also, the Masan branch presented the highest value of 2,721 MT in 1996. In the Busan branch the peak was at 3,000 MT in 1999. The total catch of these three branches was 98.7% of the annual mean total catch from the six branches, but the branches of Samchonpo, Namhae and Tongyeong combined were 1.3% of that (Fig. 1).

The numbers of cohort were four groups based

Table 1. Total catch yield, number of boats and catch per unit effort (CPUE) of *Saxidomus purpuratus* based on using fishery data of the diving boat of Fisheries Cooperative in the south sea, Korea from 1995 to 1999

Year	Catch yield (MT)	No. of boats	CPUE (kg/boat)
1995	7,223	133	54,308
1996	8,380	132	63,485
1997	8,637	174	49,638
1998	7,080	176	40,227
1999	8,023	177	45,328
Mean	7,867	158	50,597

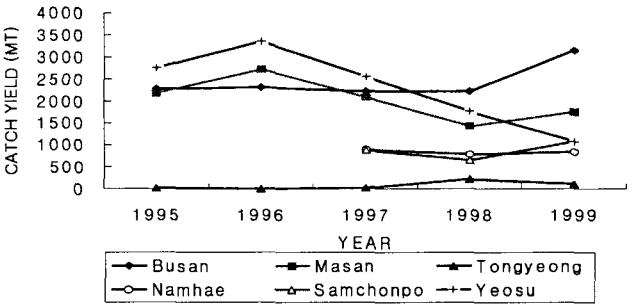

Fig. 1. The change of total catch of *Saxidomus purpuratus* at the six branches of diving boat of Fisheries Cooperative in the south sea, Korea from 1995 to 1999.

on frequency distribution of shell height. The mode of the 1st cohort was 3.56±0.45 cm, the 2nd cohort was 5.21±0.43 cm, the 3rd cohort was 7.44±0.38 cm and the 4th cohort was 8.78±0.41 cm. Thereafter the shell height to be recruited on the fishing ground was 2.65±0.45 cm (Fig. 2).

The relationship between the shell length (SL) and the total weight (TW) was represented $TW = 1.9477 \times 10^{-4} SL^{3.0565}$ (Fig. 3), and also was estimated between the shell length (SL) and the shell height (SH), which was $SH = 0.8731 - 4.6729 \times SL$ (Fig. 4). The relationship between the shell length (SL) and shell width (SW) could be derived from 1,437 combined individuals, the relationship yielded $SW = 0.5443\ SL - 0.0117$ (Fig. 5).

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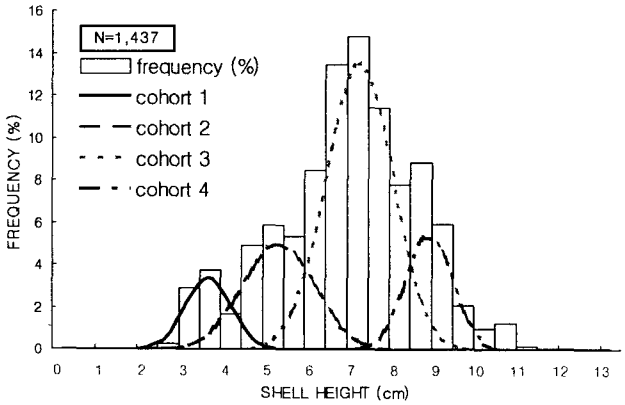

Fig. 2. The frequency distribution of shell height of *Saxidomus purpuratus* and the cohorts were separated by the ELEFAN program in the Yeosu branch of the Diving boat of Fisheries Cooperative from March to December, 2000.

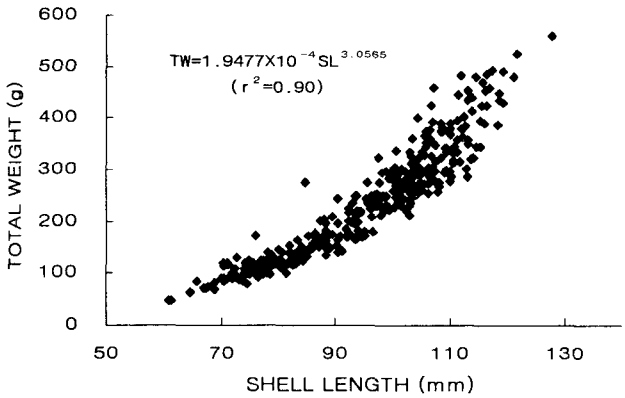

Fig. 3. The relationship between shell length (SL) and total weight (TW) of *Saxidomus purpuratus* in the Yeosu branch of the diving boat of Fisheries Cooperative from March to December, 2000.

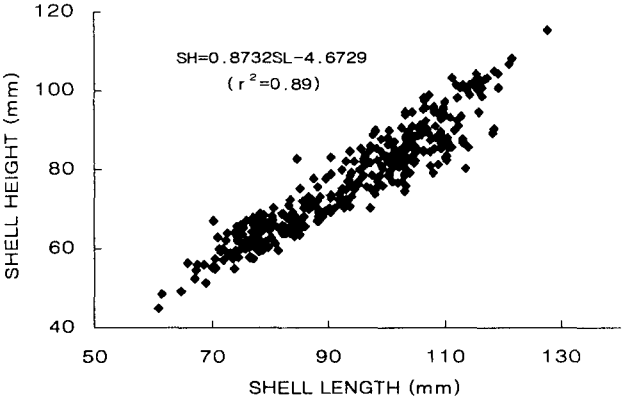

Fig. 4. The relationship between shell length (SL) and shell height (SH) of *Saxidomus purpuratus* in the Yeosu branch of the diving boat of Fisheries Cooperative from March to December, 2000.

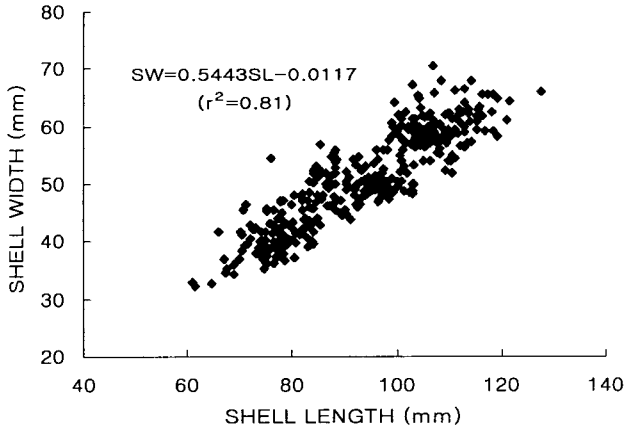

Fig. 5. The relationship between shell length (SL) and shell width (SW) of *Saxidomus purpuratus* in the Yeosu branch of the diving boat of Fisheries Cooperative from March to December, 2000.

diving boat of Fisheries Cooperative in the south sea, Korea for their help in obtaining most of the data for this study.

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