

CURRENT SITUATION AND THE FUTURE OF STOCK ENHANCEMENT OF YELLOWTAIL, *SERIOLA QUINQUERADIATA* IN JAPAN

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Yellowtail *Seriola quinqueradiata* is one of the most important species for fishery stocks in Japan. The annual catches of yellowtail declined to 27,000 tons in 1977 and many attempts to release of artificially produced yellowtail juveniles were made. These were carried out to increase the fisheries resources of this species in the Kii Channel in 1980 and in the Goto waters in 1982. From 1980 to 1990, 280,000 yellowtail juveniles spawned in April and May were released into the Kii Channel. Eighteen thousand were recaptured, with a mean recapture rate of 6.4%. However, the commercial value of the recaptured yellowtail was markedly lower than that of their wild counterparts due to their small size.

In February 1996, eggs were successfully collected from reared broodstock by manipulating both water temperature and photoperiod. From 1998 to 1999, the release of 150,000 juveniles obtained from the advanced spawning in February resulted in a similar size and growth as the wild ones, with an increased recapture rate of 27.7%, and a recapture weight of 7.1 tons in the east of the Seto Inland Sea.

Furthermore, in 2000, advanced spawning techniques under conditions of manipulated water temperature and photoperiod were developed to improve the added value compared with wild-caught juveniles. Thus, owing to the progress in technical developments of broodstock management, larger yellowtail could be produced and the mean body weight of fish reached 2.3 kg (maximum 2.8 kg) in only one year, markedly higher than the wild-caught fish that only grew to 1.5 kg (Figure 1).



Figure 1. Artificially produced yellowtail (upper: body weight 2.8 kg) from advanced spawning in December and reared yellowtail (lower: BW 1.5 kg) from wild-origin. Scale bar = 10 cm.