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**MASS PRODUCTION OF TIGER GROUPER,
EPINEPHELUS FUSCOGUTTATUS THROUGH
HATCHERY AND GROW-OUT SYSTEMS**

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Abstrak

MASS PRODUCTION OF TIGER GROUPER, *EPINEPHELUS FUSCOGUTTATUS* THROUGH HATCHERY AND GROW-OUT SYSTEMS

Pengajian ini bertujuan untuk memperolehi pengetahuan asas tentang pengumpulan telur kerapu harimau, *Epinephelus fuscoguttatus* melalui pembiakan semula jadi dalam tangki induk ikan 150-tan. Induk *E. fuscoguttatus* yang terpilih dipindah dari sangkar ke dalam tangki induk ikan. Kualiti air (suhu, oksigen terlarut, pH dan saliniti) disukat dua kali sehari dan induk *E. fuscoguttatus* diberi makan ikan. Net telur dipasang dalam tangki setiap bulan untuk mendapatkan telur *E. fuscoguttatus*. Sejumlah 105 juta telur telah dikumpul sejak dari Mei 2004 hingga November 2004. Pembiakan berlaku pada bulan Julai (46 juta telur), Ogos (24 juta telur) dan Oktober (35 juta telur) 2004. Didapati bahawa pembiakan *E. fuscoguttatus* berkemungkinan adalah berhubung-kait dengan kitaran bulan. Diameter telur yang terbesar ($0.880 \text{ mm} \pm 0.018 \text{ mm}$) (min \pm sisihan piawai) dan peratusan persenyawaan tertinggi ($95.2\% \pm 5.7\%$) merupakan quality telur terbaik dalam pengajian ini. Rekod parameter air menunjukkan bahawa pembiakan berlaku pada suhu 27.6°C , oksigen terlarut 6.52 mgL^{-1} , saliniti 31.5 ppt and pH 7.94 puratanya. Kajian biotelemeteri ke atas *E. fuscoguttatus* dijalankan untuk mengambil suhu badan dan kedalaman induk ikan berada dalam tangki. Data logger mampu mencatat suhu dan kedalaman air pada 2-minit selang selama 30 hari berterusan. Data logger dimasukkan ke dalam abdomen seekor induk betina dan jantan masing-masing. Puratanya, betina berenang sebanyak 1.2 kali/malam hingga 3.8 kali/malam ke permukaan air semasa bertelur. Akan tetapi, ia hanya 0.6 kali/malam semasa tidak bertelur. Daripada pengajian ini, tangki induk ikan 150-tan dengan kedalaman 3-m adalah sesuai untuk pengumpulan telur *E. fuscoguttatus* secara semula jadi. Oleh demikian, sistem tangki induk ikan ini boleh diperkenalkan kepada pusat penetasan ikan lain untuk mendapatkan telur *E. fuscoguttatus* yang berterusan.



Abstract

MASS PRODUCTION OF TIGER GROUPER, *EPINEPHELUS FUSCOGUTTATUS* THROUGH HATCHERY AND GROW-OUT SYSTEMS

This study was performed to get basic knowledge of egg collection on tiger grouper, *Epinephelus fuscoguttatus* through natural spawning in a 150-ton broodfish tank. The chosen *E. fuscoguttatus* were transferred from the net cage into the broodfish tank. Water quality (temperature, dissolved oxygen, pH and salinity) was measured twice per day and the *E. fuscoguttatus* were fed with trash fish. An egg net was set up in the broodfish tank every month to collect the eggs of *E. fuscoguttatus*. Approximately 105 million eggs were collected from May 2004 until November 2004. Spawning occurred in July (46 million eggs), August (24 million eggs) and October (35 million eggs) 2004. There was an obvious relationship between their spawning rhythm and the lunar cycle. The biggest egg diameter ($0.880 \text{ mm} \pm 0.018 \text{ mm}$) (mean \pm S.D.) and the highest fertilization rate ($95.2\% \pm 5.7\%$) were considered the best egg quality. On the other hand, from the water parameter results, spawning could occur at 27.6°C , dissolved oxygen 6.52 mgL^{-1} , salinity 31.5 ppt and pH 7.94 on average. A biotelemetry experiment on *E. fuscoguttatus* was conducted to measure the fish body temperature and the depth, where the fish stayed in the broodfish tank. Data loggers were able to record the temperature and water depth at 2-minute intervals continuously for 30 days. Data loggers were inserted into the abdomen of a female and a male. On average, the female swam between 1.2 times/night and 3.8 times/night to the water surface during the spawning periods. However, it was only 0.6 times/night during the non-spawning periods. From this study, the 150-ton broodfish tank with 3 m depth is suitable for the egg collection of *E. fuscoguttatus* through natural spawning. This broodfish tank system can be introduced to other hatcheries in order to get a constant supply of *E. fuscoguttatus* eggs.

