

REPRODUCTION PERFORMANCE OF WILD BROODSTOCK CORAL TROUT (*Plectropomus leopardus*)

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ABSTRACT

Coral trout is an important export commodity in many countries in southeast Asia. In Indonesia, the export of grouper currently relies on capture fisheries. To ensure sustainability of the wild catch as well as to develop mariculture, we need to better understand the performance of wild broodstock. The aim of this study was to understand the relationship size and maturation in the wild in order to identify potential spawners to be used as broodstock. A total of 311 fish from 14 areas in Indonesia were sampled between May 2002 and September 2004. Performance parameters measured included standard length, body weight and gonad size. Histological analysis of the gonad shows that this species was a protogynous hermaphrodite with sex reversal from female to male. About 75% of the samples were female, 11% were male and 12% were hermaphrodites. The batch fecundity of female coral trout from 1.2-2.7 kg weight were varied from 45,768-492,243 eggs. The minimum size of mature coral trout that could be used as mariculture broodstock were 1 and 1.5 kgs for females and males respectively.

KEYWORDS: coral grouper size, gonad somatic index, fecundity

INTRODUCTION

Coral trout (*Plectropomus leopardus*) is an important export commodity in Indonesia that currently relies on capture fisheries. To ensure the sustainability of its abundance as a wild resources and its mariculture development as well, an understanding the performance relationship of its size and maturation is important.

The demand for grouper is rapidly increasing in Asia and the Pacific. Groupers are marine species that have a wide market and achieve a relatively high price particularly when sold internationally in countries such as Singapore, Hongkong, Taiwan, and Southern China (Rimmer *et al.*, 2004). Hongkong imported 30,000 ton of live grouper during the last 20 years (Anonymous, 2005). The price of live coral trout is Rp.300.000,-/kg (approximately 30 US\$) to fishermen. The coral trout grouper culture has not been developed successfully yet, as a consequence those are marketed were mostly resulted from capture fishery. Exported grouper from Bali Province was 1,613 ton in 2001 (Anonymous, 2002); 2,082 ton in 2002 (Anonymous, 2003); 2,861 ton in 2003 (Anonymous, 2004); 1,181 ton in 2007, and 507 ton until August 2008 (Anonymous, 2009) respectively.

Since its culture still relies on seasonally wild juveniles supply, development of hatchery for this species has been implemented in the Research Institute for Mariculture, Gondol. It is understood that the success of hatchery is relies on the quality of the broodstock which caught from nature. The objectives of this study is to understand the reproduction performance of wild broodstock in order to support the hatchery technology development of coral trout (*Plectropomus leopardus*).

MATERIALS AND METHODS

Field Sampling

Reproductive parameters were determined by examination of 311 coral trout, *Plectropomus leopardus* (Figure 1), then wild fish ovary samples were collected from May 2002 to September 2004 within 14 different areas of Indonesia (Figure 2). All fish were measured in standard length (cm) and weighed (g). Gonads were removed and preserved in 4% formalin for further analyzed at the laboratory of Gondol Research Institute for Mariculture.