

Demand feeding system using an infrared light sensor for brown-marbled grouper juveniles, *epinephelus fuscoguttatus*

Abstract

In general, demand feeding devices are equipped with a mechanical trigger switch. Such a switch is not suitable for juvenile fish with a small body size, because the body weight is insufficient to trigger the feeder. An infrared light sensor that does not require the fish to push a feeder switch is more suitable for small fish. The brown-marbled grouper *Epinephelus fuscoguttatus* is an important fish species in Southeast Asia. The purpose of this study was to compare the growth rates (GRs) of brown-marbled grouper juveniles reared using customised demand feeding devices with an infrared light sensor (the infrared light demand feeder (IRDF) group) and automatic feeding devices (the automatic feeder (AF) group). The results indicated that GRs of standard lengths and body weights showed no significant differences using one-way analysis of variance; however, the standard length of the IRDF group showed a tendency of a higher GR than the AF group. Although the feed conversion ratio (FCR) also showed no significant difference, the FCR of the IRDF group was more efficient, indicating that the IRDF group yielded a more desirable FCR. These results indicate that IRDF can be used in the culture of brown-marbled grouper juveniles. In view of the working schedule of the fish farm staff, IRDF are superior to other feeding devices, because they are less labour-intensive than usual tasks. We conclude that IRDF is a useful feeding system for aquaculture.