Sea ranching of holothuria atra: stocking density and time

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Abstrak

Strong market demand and uncontrolled exploitation and/or the inadequate management of fisheries have caused many stocks of sea cucumbers to be overexploited. One suggested effort to overcome this problem is sea ranching. Stocking density is the most important consideration in sea cucumber rearing; therefore, this present work is aimed at elucidating the best stocking density for sea ranching of Holothuria atra. H. atra was taken from the Panjang Island, Jepara waters and reared in bottom cages in Teluk Awur waters, Jepara with a density of 30, 20, or 10 individuals per cage measuring 2 m Ã— 2 m Ã— 1.8 m (with bottom area of 4 m2). Stocking times of H. atra were at the initial time of cage installation, the second and the third months after installation. Bottom sediment characteristics (i.e., chlorophyll a, b, phaeophytin, and total carotene) of the sea cucumber habitat and water quality in the cages were measured monthly during the study. The results showed that growth of H. atra fluctuated; low stocking density yielded a higher weight gain than high stocking density did. The highest weight gain was present in the density of 10 individuals/cage in the second stocking month. The highest survival rate of H. atra was seen in the condition of 30 individuals/cage (93%) at the third stocking month, which means that these sea cucumbers were only reared for three months. The highest mortality occurred at a density of 20 individuals/cage with the survival rate being low (45%) at the first stocking time or in the fifth month of rearing. There was fission evidence among H. atra reared in the cages, resulting in smaller organisms. Among the water quality parameters, the concentration of chlorophyll a, b, phaeophytin, and carotene in the sediment fluctuated according to the time of sea cucumber rearing caused by their feeding and bioturbation. The study results suggested to stock H. atra at low density during the second stocking month to get higher growth.