



Opening ratio of bottom trawl and estimating the total allowable catch in shrimp fisheries management

Momeni M. ^{1*}; Darvishi M. ¹; Safaei M. ^{2,3}; Behzadi S. ¹; Daghooghi B. ¹; Salarpouri A. ¹

1-Persian gulf and Oman sea Ecology Research Institute, Iranian Fisheries Science Research Institute, Agricultural Research, Education and Extension Organization, Bandar Abbas, Iran.

2-Fisheries Department, University of Hormozgan, Bandar Abbas, P.O. Box: 3995, Iran

3-Mangrove Forest Research Center, University of Hormozgan, Bandar Abbas, P.O. Box: 3995, Iran

* Corresponding author's email: msmk63@yahoo.com

Abstract:

Total allowable catch of shrimp during the fishing season is one of the important components in shrimp fishing management, which provides sufficient number of spawners for natural regeneration of next year's stock. The total allowable catch of shrimp is estimated from standing stock biomass which is done by fishing vessels in the shrimp habitat area. One of the important factors in estimate TAC is the width of trawling that is related to the fishing gear called the width of the trawling area. Accurate calculation of this factor makes an acceptable estimate of the TAC and provides more protection for the stock. In this study 64 fishing vessels of different classes with different tonnages and sizes were examined. Measurement of different parts of fishing tools and gear was done using small motor boats and during trawling in fishing season in October and November 2017. This study determined that the width of the trawling area had the highest correlation with the distance between the fishing arms and the length of the head rope. It was found that relationship ($Y=0.9919X+1.627$) established between the distance of fishing arms (X) and the width of the swept area (Y). Also, The width of path swept by trawl was estimated as a ratio of the length of the upper rope to an average of 0.273 with a standard error of 0.01. The results of estimating the width of path swept using the distance of the fishing arms showed a significant difference with the results of this estimate using the length of the head rope ($P < 0.05$). Present study found that estimating the width of swept area using the distance between the fishing arms is more accurate than using the length of head rope.

Keywords: shrimp, trawl, Persian Gulf, total allowable catch