

Site selection of cage culture considering suitable habitat of cultured species (case study: Asian seabass cage culture in Bushehr-Tangestan offshores)

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Abstract

According to rapid growth of mariculture, site selection of cages in open seas becomes an essential part of sustainable development of the aquaculture industry. To achieve this goal, there are several criteria for site selection. One of these criteria is paying attention to habitat conditions that meet the physiological and ecological requirements of cultured species. Nowadays, using habitat suitability models we can avoid establishing cages through unsuitable range for cultured species. In this study, we used maximum entropy, Maxent model, to map suitable range of Asian seabass (*Lates calcarifer*) on Persian Gulf to investigate whether cages for farming this species in Bushehr off-shores are located in suitable area. We obtained Asian seabass presences from IOBS database. To avoid model bias, we removed records less than 9 km in distance (compatible with the resolution of environmental layers). We also consider a 10 km buffer around lands and remove all records inside. Finally, 56 presence points and 18 environmental variables were included in the model. Results demonstrated that the most important factors limit Asian seabass presence in an area were minimum Primary productivity, minimum diffuse attenuation, and maximum Nitrate. Based on the result, cages of Asian seabass are located in nearly suitable area. Such a study before site selection leads to long-term sustainable mariculture products.

Keywords: cage culture, site selection, Habitat Suitability, Maxent, Asian seabass