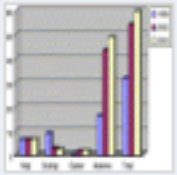

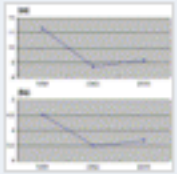

Benefit and cost analysis of mariculture based on ecosystem services

Wei Zheng[a, b], Honghua Shi[a, b], , Shang Chen[b], Mingyuan Zhu[b]

[a] College of Environmental Science and Engineering, Ocean University of China, Qingdao 266100, China

[b] Key Lab for Science and Engineering of Marine Ecology and Environment, First Institute of Oceanography, SOA, Qingdao 266061, China

http://dx.doi.org/10.1016/j.ecolecon.2007.12.005, How to Cite or Link Using DOI

Abstract

As a life-supporting system, marine ecosystem provides various services for human being. Based on ecosystem services, we developed a Benifit and Cost Analysis model to balance the conflicts between economic income and environmental loss caused by mariculture activities. This model not only calculates market income of mariculture but also monetizes the positive and negative effects of mariculture activities on ecosystem services. In this model, three indices, the NPV (Net Present Value), BCR (Benefit to Cost Ratio) and RC (Relative Coefficent) with consideration of discount rate, are developed to assess and prioritize the candidate mariculture modes. This Benefit and Cost Analysis model was applied to Sanggou Bay, one typical mariculture bay in China, to identify sustainable mariculture mode. In this paper, we find that benefit and cost analysis based on ecosystem services value provides a convenient and effective tool to compare different exploitation modes of marine ecosystem.

Keywords

Beneft and cost analysis; Marine ecosystem services; Mariculture mode; Sanggou Bay