Abstract

Using catch and effort data recorded in sport fishing conducted in the ports of Mazatlan, Sin. and Buena Vista, BCS, Mexico, during 1979-2005 and 1985-2006, respectively, build a year "type" or average, and developed a deterministic model in discrete time space to simulate the seasonal mass movements that perform the sailfish (Istiophorus platypterus) in the Exclusive Economic Zone of the Mexican Pacific. The model parameters are the migration rates that define the movements, which were estimated by minimizing the squared differences between predicted by the model and the catch per unit effort (number of organisms per trip) observed in sport fishing in typical year. The results are consistent with the existence of a single stock in the region, which conducts coastal latitudinal displacement during the summer from a point south of the Mexican Pacific, toward the north in direction to the Gulf of California, and then returning to the south at the end this season. It shows a better fit of the model when simulating a mortality rate of 0.019 times per day abundance for the northern Mexican Pacific (equivalent to z = 0.013/month). This scenario is consistent with previously reported conceptual migration patterns, due to this it is considered that the proposed model can be a useful tool for predicting changes in regional abundance and in general to elucidate the behavior of the stock.

Keywords

Sailfish, Istiophorus platypterus, migration, spatially explicit model, Mexican Pacific.