

ASSESSMENT OF FISHERIES STOCKS WITH EMPHASIS ON SCOMBRIDAE
IN GULF OF AQABA

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ABSTRACT

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The present study aimed to assess fish stocks of some commercially valuable species from the Jordan's Gulf of Aqaba. Special emphasis was given to the fishery and some biological aspects of two Scombrid species (*Katsuwonus pelamis* and *Euthynnus affinis*). The study was conducted over a period of one annual cycle from July 1999 until June 2000. Stocks of 10 commercially important fish species belong to the families: Scombridae, Carangidae, Triakidae, Scaridae, Mullidae, Caesionidae, Siganidae, Mugilidae, and Serranidae were estimated on a daily basis. Data collection was mainly based on estimates made at the landing site as well as by a direct interview of fishermen. Measurements on the site were utilized to generate data on catch size and the length weight relationship of these. In addition, monthly samples of the two Scombrid fish, *K. pelamis* and *E. affinis*, were collected and analyzed to investigate growth, reproduction and feeding habits. Jordanian fishermen were observed to employ Artisanal fishery using different fishing gear (e.g. gillnet, seine net, traps, hook and line). The fishing methods however were found to differ according to species kind and density. The results showed that the fluctuation in total landing of marine fish could be attributed to the political conditions prevailing in the Gulf of Aqaba, strict security measures and the depletion of the bottom soft communities due to heavy urbanization of the coastal areas. The majority of species composition of the Jordanian fishery included the Above mentioned fishes of which the family Scombridae represented more than 60% of the total catch estimated in the present study. Therefore, proper management to achieve sustainability of these valuable stocks is found to be essential. Growth results for the two species *K. pelamis* and *E. affinis* suggested an allometric form (b value < 3) for both males and females. Moreover, the k values of the condition factor indicating a good degree of well being of these two species. The age classes reported for *K. pelamis*

sample collected during the present investigation were found to be between 5 and 8 years whereas for *E. affinis* between 2-4 years. These results may indicate that scombrid fish migrate to Aqaba Gulf at advance age categories and that the feeding migration is the main reason of its abundance at high season. It was noted also that diet composition of the two species was mostly represented by the small fish *Atherinomorus lacunosus* whose maximum abundance was observed during the season of tunas. The investigation on stomach contents analysis using a combination of numerical, frequency of occurrence, and gravimetric methods revealed that the variation in food items is related to presence or absence of the major food item *A. lacunosus*. However, the other investigated food items such as crustacean and molluscs were found to be of least important. Results also suggest a significance of *A. lacunosus* as an essential link between primary producers, zooplankton being a top predator in the food web for scombrids and other carnivore pelagic species in the Gulf of Aqaba. Monthly variation in Gonadosomatic index (GSI) for *K. pelamis* and *E. affinis* suggest a spawning activity during the period between December and March. Temperature is one of the important factors that influence the reproduction cycle of these two species, which is at its minimum during the period of migration. This could support the assumption that these fishes are mostly migrating for food search in the Gulf of Aqaba. Nevertheless, fish imports to Jordan were substantially increased in recent years. The last decade recorded maximum fish import (66.95 tonnes). However, the consumption per capita still the least (3.6 kg/head) in comparison to the world average (13 kg/head). Therefore, deep-water fishery and Aquaculture could have a good potential to be developed in order to minimize overexploitation of Jordan fishery resources. Measures to manage these resources are discussed in the context of present study.