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## REGIONAL COMMISSION FOR FISHERIES

### Seventh Meeting of the Working Group on Fisheries Management

Kuwait, State of Kuwait, 5-7 November 2013

### Preparatory work to the regional joint Kingfish stock assessment workshop

#### Executive Summary

The purpose of this paper is to provide information in preparation of the FAO/RECOFI regional workshop on the joint Kingfish stock assessment.

#### The WGFM is invited to:

- review and comment the objectives and the draft agenda of the workshop with particular attention to the necessary preparatory work to be carried out by each RECOFI member country.

## Background information

The narrow-barred Spanish mackerel, *Scomberomorus commerson* (Lacepede, 1800) is one of the most commercially important species in the RECOFI region that covers seven countries, Bahrain, Iran, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, and United Arab Emirates. Its total landings from the RECOFI countries reached 44.5K tonnes in 1988, but has since dropped dramatically to 24.5K tonnes in 2008, only about half of its peak level.

Kingfish provides the largest single-species landings in the RECOFI region, with a value of 310 million US dollars. The kingfish fisheries are income sources and support to the livelihoods of thousands of local fishermen. Kingfish is a daily delicacy and provides food security to the local communities. The social and economic importance of the kingfish fisheries in these countries and the alarming decline in landings have attracted a great attention of government authorities and resulted in scientific interest and research in recent years (Dudley et al., 1992; Bertignac and Yesaki, 1993; Abdessalaam et al., 1995; Siddeek and Al-Hosni, 1998; Al-Hosni and Siddeek, 1999; De Rodellec et al., 2001; Al-Oufi et al., 2002; Claereboudt et al., 2004, 2005; McIlwain et al., 2005).

Kingfish is a highly migratory species. Direct sequencing analysis of mtDNA (Hoolihan et al. 2006) also suggests a single genetic stock in the Arabian Gulf, Gulf of Oman and the Arabian Sea. Although detailed distribution and seasonal migratory route of kingfish in the region are unclear, there is little doubt that the countries share a single stock. Therefore, joint effort is needed in scientific research, data collection, and the design of management regulatory measures. Unfortunately, little cooperation has been seen and all studies are country-based and locally focused. The kingfish resources in these countries remain virtually open access. It is important to review biological and ecological characteristics of kingfish and the state of the kingfish fisheries in the region, then analyze the potential gains in production in which some simple regulations can result, and finally discuss the legitimate demand for joint effort and cooperation in maintaining the long-term sustainability of shared fish stocks like kingfish based on international instruments.

## Objectives of the kingfish workshop

- To provide fishery scientists, managers and decision-makers of the RECOFI countries with an opportunity to meet and discuss the common issues related to kingfish fisheries from data collection, research, management strategy and regulations,
- To provide a platform for scientists to work together on real kingfish data, conduct stock assessment and develop science-based management strategy for the long term sustainability of the fishery and the social and economic benefits of the region
- To discuss and develop a cost-effective and practical institutional arrangement and a regional plan for cooperation and collaboration in the sustainable management of the shared kingfish resource

## Draft Agenda of the kingfish stock assessment workshop

1. Presentation from country:
  - Landings and trends
  - Current state of the kingfish fishery
  - Concerns and issues require management attention
  - Research projects and their results if there is any
2. Review of the existing published results
  - Growth estimation
  - Mortality rate estimation
  - Models applied
  - Conclusions achieved
3. Estimation of growth equation from length frequency data
  - The von Bertalanffy growth equation

- Data requirements for fitting the equation
  - Using software to estimate the equation from lengthy frequency data
4. Estimation of total mortality from length frequency data
    - The theory behind the estimation of total mortality from time series length frequency data
    - Using a software to estimate total mortality from time series length frequency data
    - Estimation of natural mortality
    - Estimation of exploitation rate based on natural mortality, fishing mortality and total mortality rates
  5. Catch only methods for stock assessment
    - Yield per recruit model
    - Surplus production model
    - How to fit these models to data
    - Key parameters from the modelling that can be used for determining stock status and for management purposes
  6. Designing management
    - Management objectives
    - Designing regulations to achieve the objectives

### **Data requirements of the workshop**

Each country should bring

1. Length frequency data over a certain time period
2. Full catch statistic time series data
3. Fishing effort data or data on numbers of fishing vessels and fishermen engaged in the fishery
4. Any other data available for example types of gear and vessels, fishing locations, market price

### **Skill requirements**

1. Knowledge of the kingfish fishery
2. Knowledge of basic stock assessment theory and models as this is not a training course, but a workshop

Numerical skills, using Excel ( better competent in R or other programming languages)