Assessment of the Fish Stock Status for the Spangled Emperor *Lethrinus nebulosus in* the Coast of Balochistan, Pakistan

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INTRODUCTION

Global marine fishing trends

- The global trend of fishing in 2022.
  - Biologically sustainable (60%)
  - Biologically unsustainable (34%)
  - Under-fished (6%)

Pakistan Fisheries

- Marine fisheries are source of income in Sindh and Balochistan of Pakistan's provinces.
- In recent decades, Pakistan fisheries strongly affected by overfishing.
- Overfishing and juvenile catch have been identified by multiple studies in Pakistan.

General Concept of Fishery Data

- Catch & Effort Data
- Biologically Data(Length and size)
- Economics & Social Data

MATERIALS & METHODS

Fishery-dependent

- **Data type:** Length-frequency data
- **Time period:** January-December 2022
- **Source:** Commercial trawling landed in Gwadar, Balochistan.

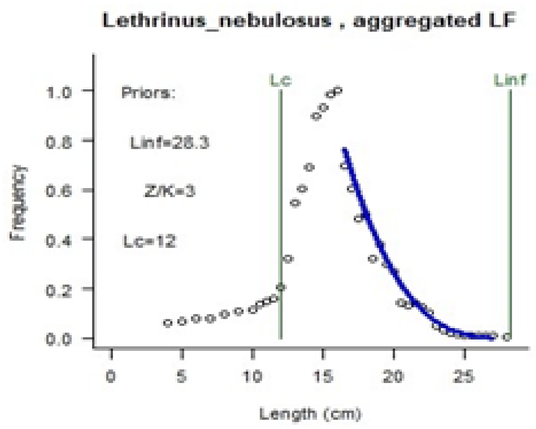
Fishery-independent

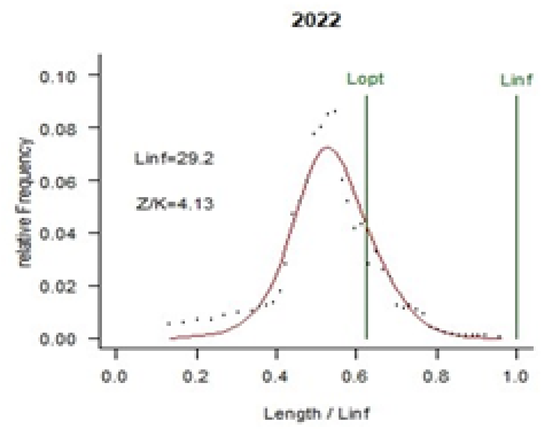
- Data type: Catch & Effort data
- Time period: 2000-2022
- Source: Handbook of Fisheries Statistics, Pakistan.

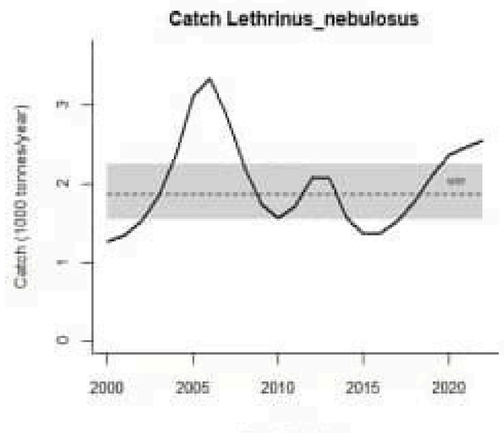
Models

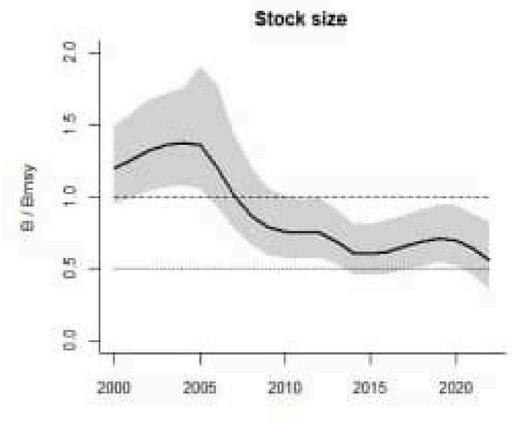
- The LBB approach is a powerful method for estimating the stock status by analyzing LF data from the exploited fishery.
- CMSY is the Monte Carlo based model
- It is suitable for the data limited fisheries stock assessment
- Only catch, CPUE and resilience data is needed

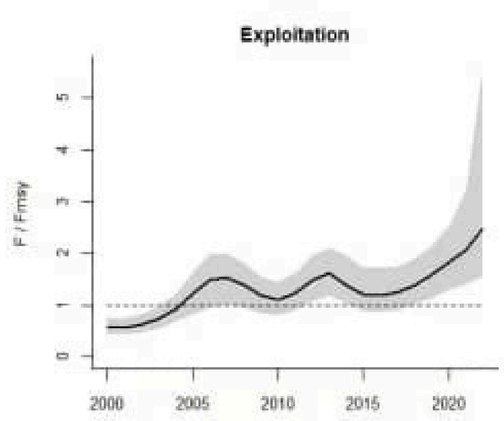
RESULTS

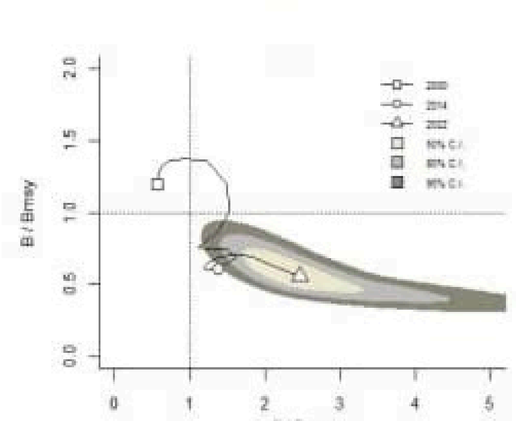


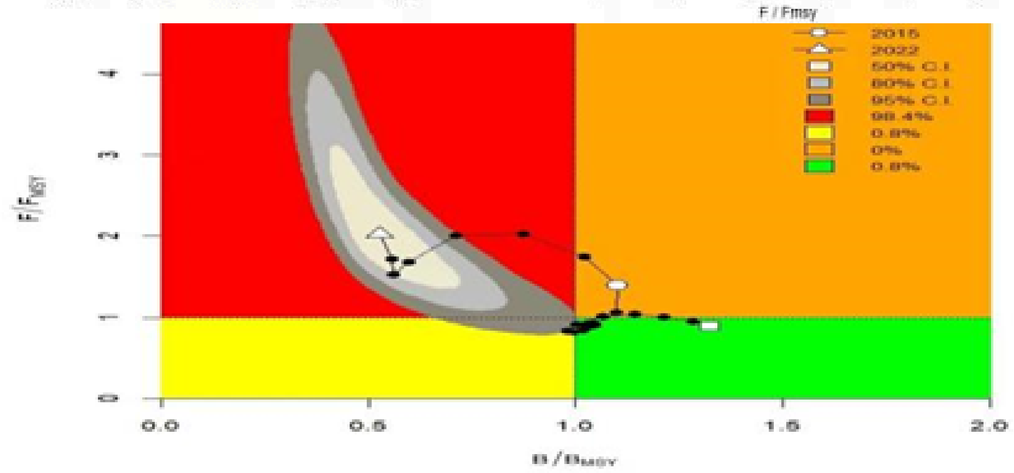












RECOMMENDATIONS

1. Sustainability of an overfished fishery, needs to undertake ***continuous monitoring of the stock assessment.***
2. These results will aid for further research and formulating management strategies.
3. Detailed study for the ***protection and conservation of the nursery and breeding grounds, is recommended.***
4. Hence, proper implementation of the ***mesh size regulations, close season, total allowable catch (TAC), and controlling the expansion of fishing fleets also recommended.***

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