

Stock Status of Small Pelagic Fishery in Sultanate of Oman

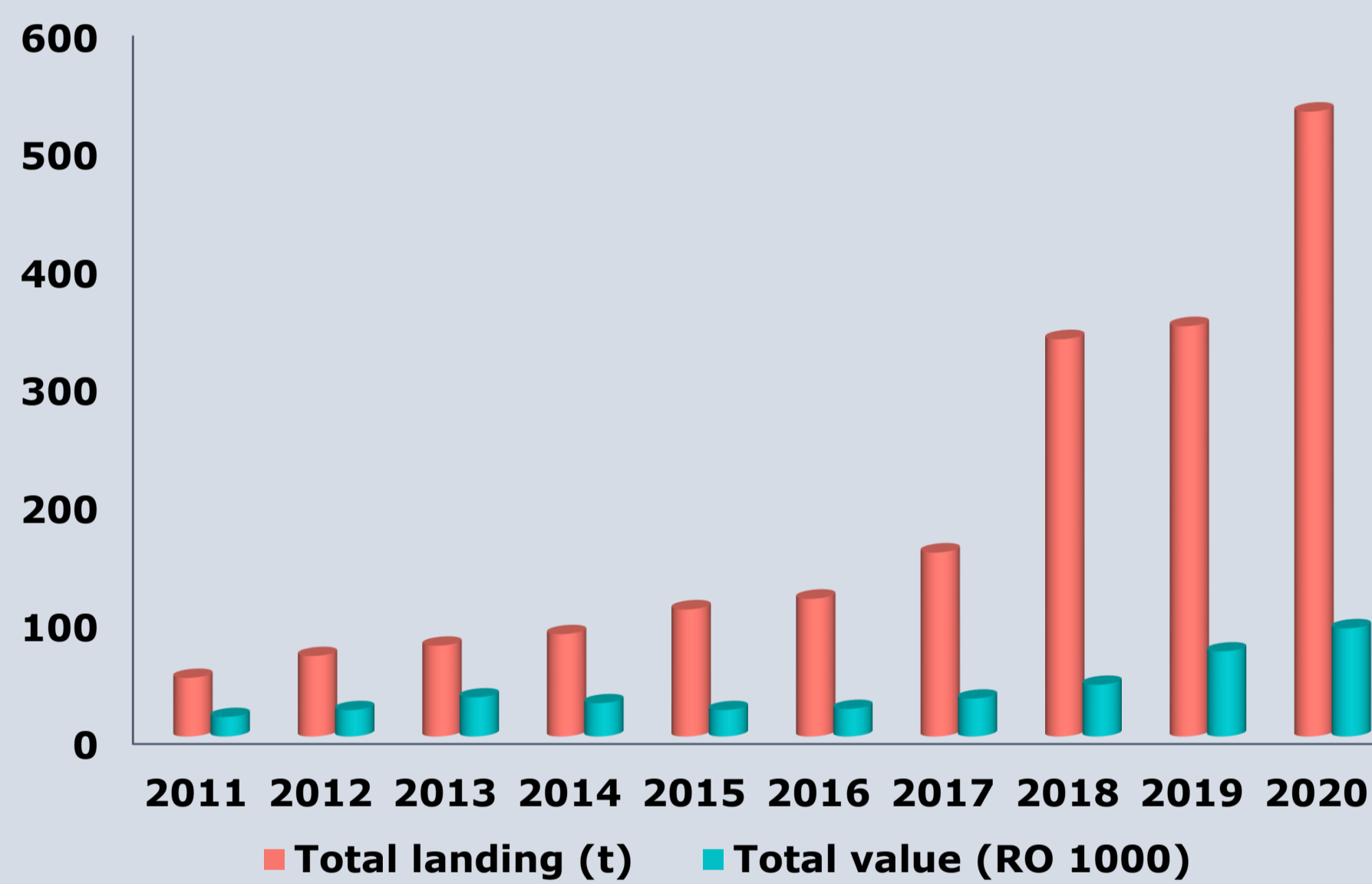


Al-Bulushi. K, Al-Nahdi. A, Al-Anboori. I, Al-Adwai. U
Marine Science and Fisheries Center

Ministry of Agriculture, Fisheries Wealth and Water Resources

Introduction

This study provides an overview of trends in abundance and fishing effort on small pelagic fish stocks assessment in Oman. The project has been undertaken in the context of the primary aim of the Oman Ministry of Agriculture, fisheries wealth and water resources (MAFWR) being to ensure that fisheries are developed and managed for the advantage of the people of Oman in a manner that is sustainable, maintains biodiversity and is consistent with the Code of Conduct for Responsible Fisheries. Small pelagic fisheries contributed for 60% of the total artisanal fishing production with an estimated production of 530 thousand tons during 2020. The MAFWR is now engaging in the development of a coastal fishing fleet and the assessment of the most appropriate management approach for this fishery. The MAFWR's view is that the resource potential within the country's territorial waters limited harvesting capacity, extent of technological advancement, and economic performance of the current traditional fleet, indicates that the current level of exploitation of fish resources is not optimal. Management proposals must therefore be developed in the context of the study findings. Comparison will also be made with the resource assessment project completed in the first phase in 2009 based on the results of the resource survey.



Total landing (thousand tons) and value (RO 1000) of small pelagic during 10 years

Objectives

1. To investigate the biological characteristics and population dynamics of three small pelagic species in Omani waters.
2. To investigate the relationships between small pelagic fish and their physical environment at different time-scales in the Arabian Sea and Sea of Oman.
3. To detect genetic differentiation between small pelagic populations from the Arabian Sea and Sea of Oman.
4. To evaluate the population stock of four small pelagic species in the Omani fisheries, to support the management of sustainable harvest in different scenarios.

Methodology

The project started from Jan 2022 -Dec 2024. Samples of target species (Table) were collected monthly from 4 different landing sites on coastal strip of Sea of Oman and Arabian Sea. Fish individuals were taken from the random length frequency for further detailed biological examination. Data on total, fork length, weight, sex, and maturity stage were recorded and collected. Otolith samples were also removed and stored in dry, clean and labelled envelope. Oceanographic data on physico-chemical parameters of the seawater in the sampling location was collected, which was located at same depths of fish caught. Temperature, salinity, dissolved oxygen concentration and depths were recorded by CTD deployment.

Common name Scientific name

Indian oil sardine *Sardinella longiceps*

Indian mackerel *Rastrelliger kanagurta*

Indian scad *Decapterus russelli*

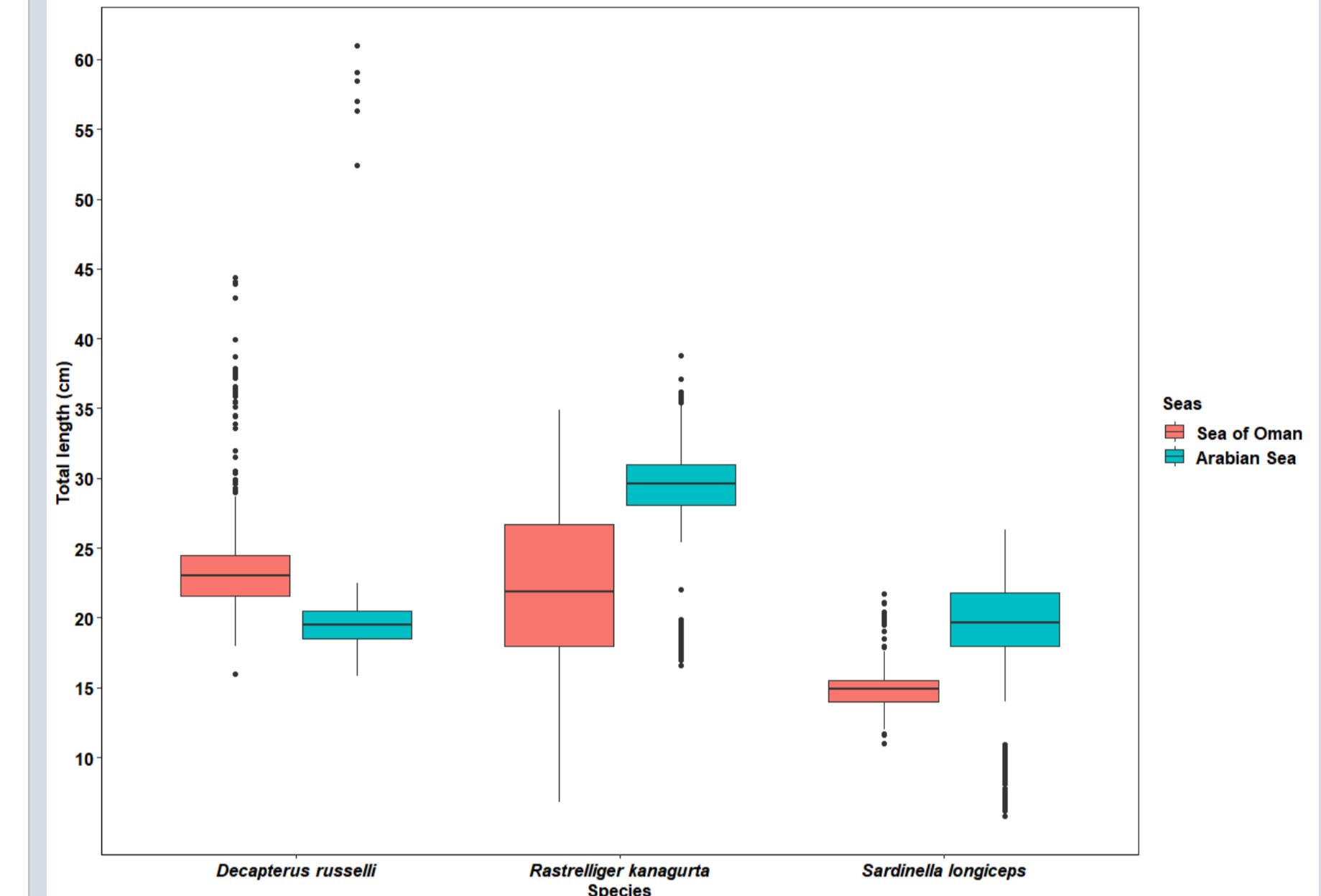
Analysis of data using R platform:

- > [Morphometric characteristics](#)
- > [Biological characteristics](#)
- > [Stock assessment](#)

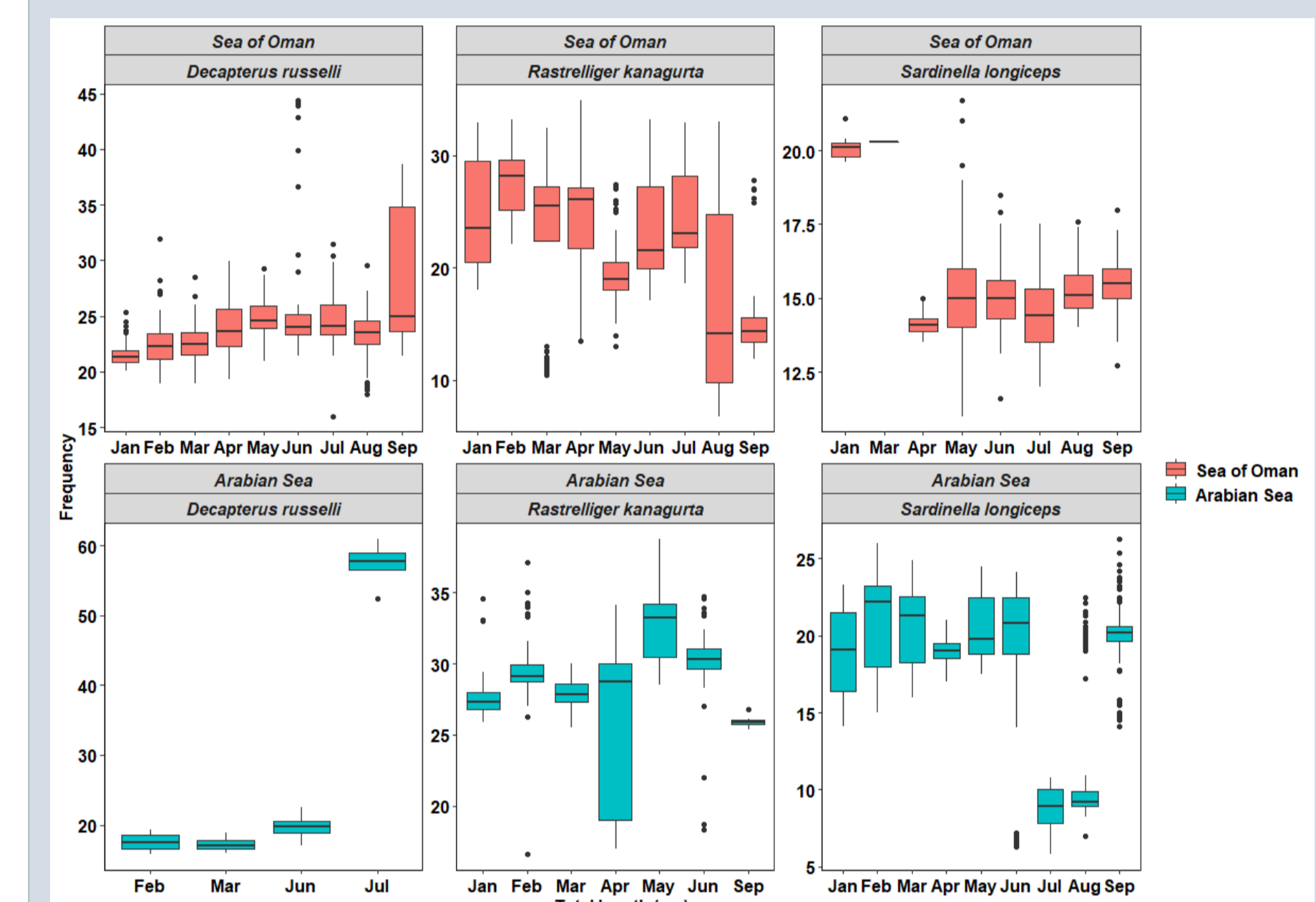


Map of study areas, two locations in Sea of Oman and two in the Arabian Sea

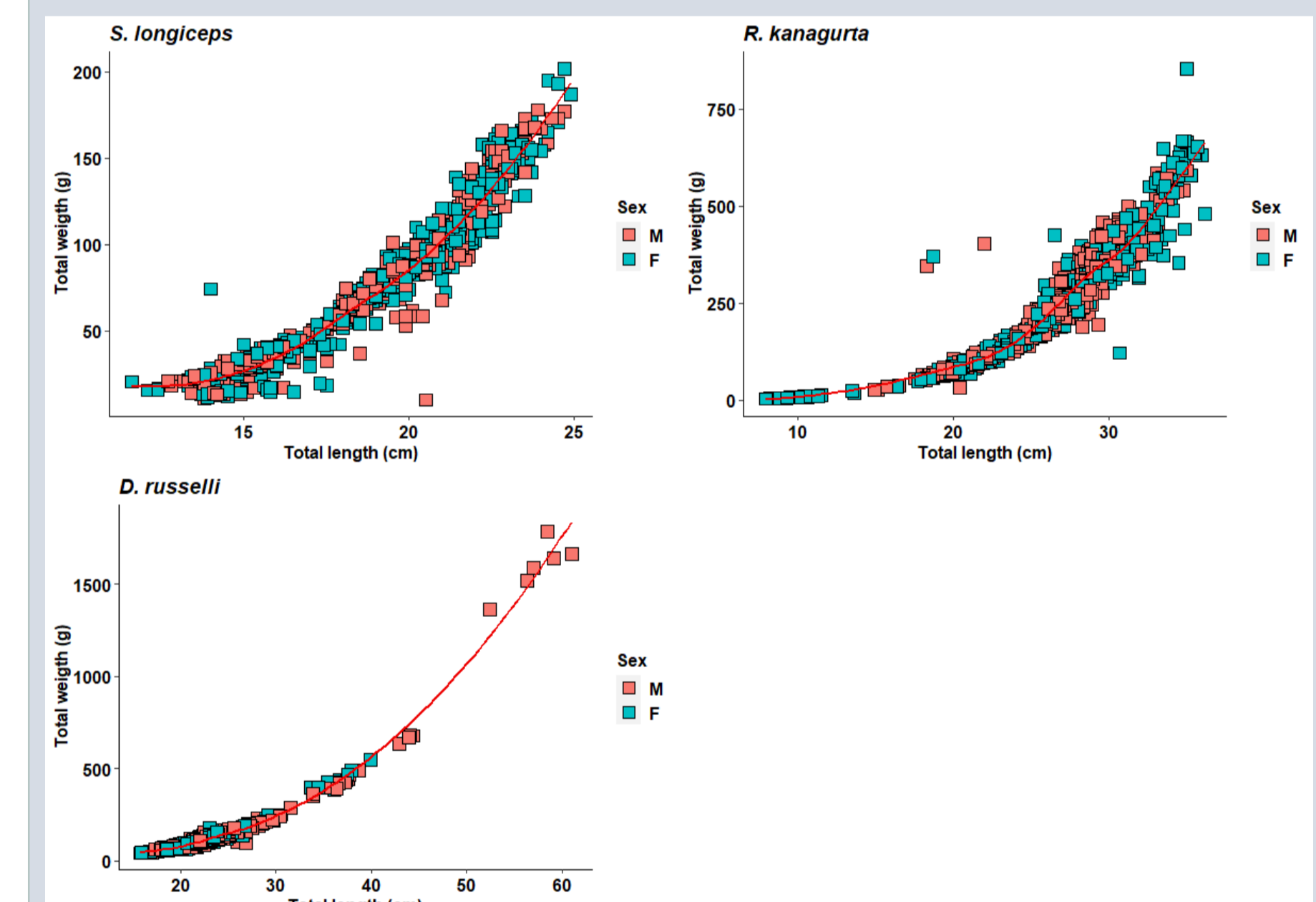
Result



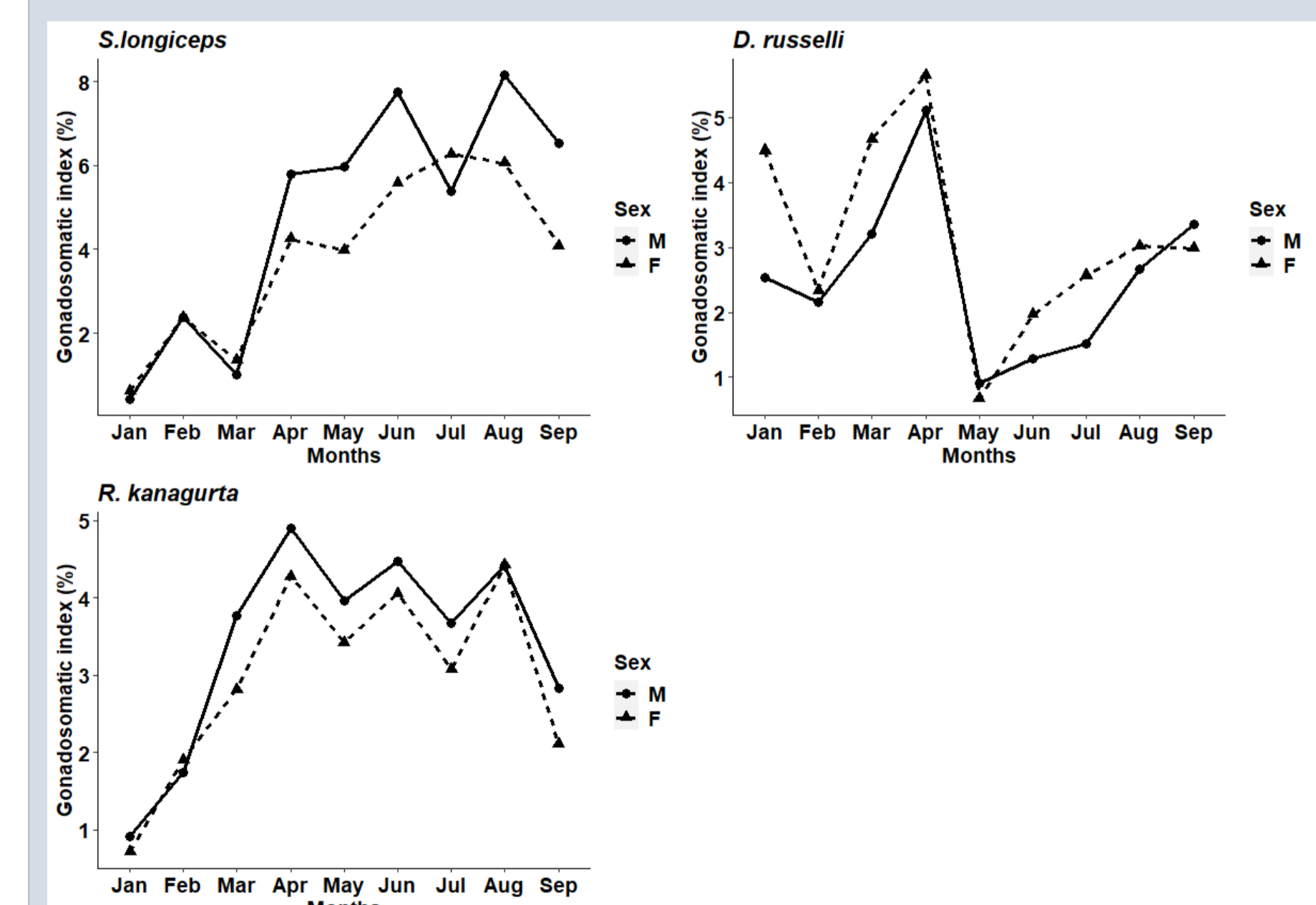
Mean, Min, Max length(cm) for target species in sea of Oman and Arabian sea



Monthly length frequency of target species in Sea of Oman and Arabian Sea



Length-weight relationship of target species for both sexes



Monthly average Gonado-Somatic Index (GSI) of target species for both sexes

Expected Results

- o Identifying the stock status for the target species and comparing it with previous studies.
- o Determining the genetic traits of species and thus contributing to the developing appropriate for fisheries management.
- o Reference points and precautionary indicators for the development of small pelagic fisheries.
- o Statistical analyses comparisons between biological variations and morphometric changes and evaluate fish stocks in the past ten years.
- o Relate small pelagic fish abundance and life history events with physical, chemical and environmental parameters.

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