

# Seasonal Quantification of Protein in *Nematalosa nasus* (Clupeidae) in Coastal Waters of Pakistan

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## ABSTRACT

One of the most valuable families of fishes for food is the Clupeidae which have an important source of protein for the world's protein supplies. It's also helping the economics of maritime nations and those that import fish for animal feed (Blaxter and Hunter, 1982). Fishes of the Clupeidae family, mostly marine and tropical, have been classified into 58 genera and 239 species (Frick et al., 2020). The anadromous clupeid fish *Nematalosa nasus*, sometimes referred to as the Bloch's gizzard shad, inhabits marine, pelagic, and neritic habitats (Riede, 2004). This fish is primarily found in the Indo-Pacific, which includes the western, eastern and western central to north-west Pacific oceans (Taher, 2010; Mohsin and Ambak, 1996). It is also one of the major fish that are exploited for commercial purposes along the various Indian Ocean coasts (Mukherjee et al., 2016).

## OBJECTIVE

Investigating the dynamic protein profile of *N. nasus* in connection to seasonal environmental changes is the goal of this study.

## METHOD

The Bradford Method was used to estimate the protein content into the tissue of the fish. A thorough evaluation of protein content was obtained by averaging data from several sample locations during each season. Mini tab was used for the statistical analysis of obtained data.

## RESULTS

Protein content in *Nematalosanasus* across during four seasons revealed that, During the Post Monsoon season, the highest protein concentration was observed 255.26mg/ml in November 2021, while the lowest was observed 139.81mg/ml in October 2022. In the North East Monsoon season, the maximum protein content occurred 219.89mg/ml in December 2021 and minimum value were recorded in January 2023 which is 62.32mg/ml. same as the Maximum value was obtained during the Pre Monsoon season in March 2023 is 222.97 and lowest in April 2023 is 72.22mg/ml alongwith these, In the Southwest season, the highest protein content was noted in August 2022, at 143.59mg/ml, while the lowest was during Jun 2022 with a value of 96.23. These variations highlight how *N. nasus*'s nutritional profile is dynamic and responds to seasonal environmental variations; hence, a more detailed understanding of the species' eating habits in coastal waters is necessary.

## CONCLUSION

The study shows that *N. nasus*'s protein concentration varies significantly with the seasons. Higher protein concentrations are seen during post-monsoon times, which may be caused by external influences influencing the fish's eating patterns. On the other hand, reduced protein levels are seen during the pre-monsoon and north-east seasons, suggesting possible changes in dietary habits. The season in the Southwest indicates an

intermediate protein content. These results highlight the significance of taking seasonal fluctuations into account when evaluating *N. nasus*'s nutritional ecology. In addition to providing important new information on the nutritional dynamics of *N. nasus*, this study leaves the groundwork for further ecological and fisheries management research in Pakistan's coastal regions.

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