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Prey Abundance's Impact on Two Piscivorous Species of Coral Reef Fish's Eating Ecology

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Abstract

Few studies have looked at how the diet of piscivorous fish responds to changes in the abundance of their prey, despite the potential significance of predation as a factor regulating coral reef fish ecosystems. This two-year study at Lizard Island on the northern Great Barrier Reef in Australia focused on two species of rock cod, Cephalopholis cyanostigma (Valenciennes, 1828) and Cephalopholis boenak (Bloch, 1790) (Serranidae), and tracked their consumption in two distinct environments (patch and contiguous reef). Rock-cod abundance was tracked concurrently with the abundance and family structure of their prey. The majority of the diet data was gathered from regurgitated samples, which roughly 60% of the prey ingested and were unrepresentative in composition.

Keywords: Ecology; Piscivorous; Coral Reef

Introduction

The dynamics of populations may be significantly impacted by predation. Taylor, 1984, Murdoch, and Oaten, 1975, as well as the composition of ecological communities 1966 by Paine; 1975 by Connell; 1987 by Menge and Sutherland [1,3]. Predation received comparatively little attention as a process that may be structuring coral reef fish communities despite a lengthy history of research in other habitats. Several researchers have attempted to address this issue over the past ten years, including Caley, 1993; Hixon and Beets, 1993; Carr and Hixon, 1995; Connell, 1996; Connell, 1997; Connell, 1998a; Beets, 1997; Beukers and Jones, 1997; Eggleston et al., 1997; Hixon and Carr, 1997; Planes and Lecaillon, 2001; and Webster, 2002 [2,4].

Using regurgitated prey, nutritional analysis is validated

In comparison to 60.53% in summer 1997, C. cyanostigma regurgitated 57.14% of the prey it had eaten in winter 1996. Similarly, in the summer of 1997, C. boenak regurgitated 62.50% of its prey. In both the regurgitated and dissected samples, the relative proportions of fish and invertebrates were quite similar. For C. cyanostigma, the proportion of fish was 62.50% in the regurgitated samples in the winter and 78.26% in the summer, vs 66.66% and 70.00% in the dissected samples, respectively [5,6]. The food and feeding habits of two piscivorous rock-cod species—Cephalopholis cyanostigma and Cephalopholis boenak (Serranidae)—at Lizard Island in Australia's northern Great Barrier Reef were investigated in this study. In order to track the same populations across time, dietary data was mostly gathered via regurgitated samples. The family structure and abundance of prey communities that had been observed at the same locations and dates were then compared to the results from this study. As a result, it was possible to quantify prey selectivity and look into how predators adjusted their eating rates in response to changes in prey availability. As two of the most prevalent piscivores on Lizard Island, the two target species were perfect for the proposed study [7, 8].

Conclusion

Few researchers have looked into how predators and prey interact on coral reefs. This study has demonstrated that an in-depth analysis of predator-prey relationships may be carried out by integrating dietary analyses of piscivorous fish with details on the quantity and make-up of their prey. Most notably, this strategy enabled us to investigate the characteristics of prey selection and the impact of prey abundance on piscivorous fish feeding rates [9, 10].

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Conflict of Interest

None.

References

1. Abaychi JK, Dou Abal AA (1985) Trace metals in Shatt Al-Arab River, Iraq. Water Research 19: 457-462.
2. Ogunfowokani AO, Subiojo OI, Fatoki OS (2003) Isolation and determination of polycyclic aromatic hydrocarbons in surface runoff and sediments. Water Air and Soil Pollution 147: 245-261.
3. Al-Imarah FJM, Al-Khafaji BY, Moharned ARM (1998) Trace metals in waters, sediments and fishes from Northwest Arabian Gulf. Bull Nat Inst Occanogr Fish A.R.E 24: 403-416.
4. Al-Khafaji BY, Al-Imarah FJM, Mohamed ARM (1997) Trace metals in water, sediments and green black Mallet (*Liza Subviridis*, *Valencielles*, 1836) of the Shatt Al-Arab Estuary, NW Arabian Gulf *Marina Mesopotamica* 12: 7-23.
5. Baumard P, Budzinski H, Garrigues P, Sorbe JC, Burgeot T, et al. (1998) Concentration of PAH in various marine organisms in relation to those in sediments to trophic level. Mar Pollut Bull 36: 951-960.
6. Baumard P, Budzinski H, Garrigues P (1998) Polycyclic Aromatic Hydrocarbons (PAHs) in sediments and mussels of the western Mediterranean Sea. Environ Toxicol Chem 17: 765-776.

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7. Cheng-Di D, Chih-Feng C, Chiu-Wen C (2012) Determination of Polycyclic Aromatic Hydrocarbons in Industrial Harbor Sediments by GC-MS. Int J Environ Res Public Health 9: 2175-2188.

8. Nasher E, Heng LY, Zakaria Z, Salmijah S (2013) Assessing the Ecological Risk of Polycyclic Aromatic Hydrocarbons in Sediments at Langkawi Island, Malaysia. The Scientific World Journal 13.

9. López GI (2017) Grain size analysis. Encyclopedia of Earth Science Series Encyclopedia of Geoarchaeology, Allan S Gilbert Springer 341-348.

10. Li G, Xia X, Yang Z, Wang R, Voulvoulis N (2006) Distribution and sources of polycyclic aromatic hydrocarbons in the middle and lower reaches of the Yellow River, China. Environ Pollut 144: 985-993.