

Diet composition of Kawakawa (*Euthynnus affinis*) in three major landing sites of Sri Lanka

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Abstract

Information on the feeding habits of fish is important for understanding the ecological relationships of economically important species. Kawakawa (*Euthynnus affinis*), is an economically important neritic tuna species targeted as a food fish in Sri Lanka. This study examined the feeding habits of Kawakawa, to provide baseline information for ecosystem based fisheries management. Specimens were collected from the Negombo, Beruwela and Chilaw landing sites from September 2015 to January 2016. A total of 42 fish (21.4 to 50.4 cm total length and 116.7 to 2,228 g) were collected. All samples were collected from single-day boats, which had been fishing around the offshore areas of the sites studied. The stomach contents of specimens mainly consisted of fish (33.3 %), shrimp (19.0 %), a combination of fish and shrimp (14.3%), and a combination of shrimp and cephalopods (7.2 %). The stomach contents of three of the fish contained other debris such as plastic and leaves. In all, 26 % of stomachs were empty. The fish species that Kawakawa had been feeding on were anchovies and herrings. The larger size fish have been feeding more on small fish than on other food types and the largest number of empty stomachs were observed in the size range 20.1 to 30 cm. The study indicates that Kawakawa are non-selective feeders, feeding on any food item available in the surrounding waters. The presence of plastic in the stomachs of these fish indicates that the coastal waters in the study area are polluted. Further, studies are needed to determine the consequences of this on the physiological health of kawakawa.

Keywords: Neritic tuna, Kawakawa, feeding

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Introduction

Gaining an understanding of the feeding habits of a fish resource helps when developing ecosystem based fisheries management strategies for that resource. In addition, the size increases that are associated with growth of fish are commonly associated with changes in the diet. Therefore, the studying of the feeding habits in relation to the size of the fish is important. Neritic tunas are an important part of the tuna and tuna-like fishery of Sri Lanka. Kawakawa (*Euthynnus affinis*), an important neritic tuna species, is caught in most of the landing sites around the country. It contributes around 10% to the total tuna catch and constitutes about 15% of the total neritic tuna fishery (Haputhantri and Bandaranayake, 2013). Kawakawa has been the second-most abundant species in the total neritic tuna catches of Sri Lanka from 2003 – 2012, while it has dominated the gillnet fishery during this period (Damayanthi, 2014).

Materials and Methods

Kawakawa samples were collected from the 3 major fishery landing sites, namely; Negombo, Chilaw and Beruwela. The samples were placed on ice and transported to the laboratory for

further analysis. Weight (to the nearest 0,1 g), Total Length (TL), Standard Length (TL) and Fork Length (FL) (to the nearest 0.1 cm) were measured for each fish. Stomachs were removed from each fish and the stomach contents analyzed. The total weight of each stomach and the weight of each type of food item was recorded.

Results

Kawakawa were found to primarily consume fish, shrimp, cephalopods and various minor prey items. The main fish types consumed were anchovies and herrings. Fig. 1 shows the percentage of each type of food detected in the stomachs of the fish analyzed.

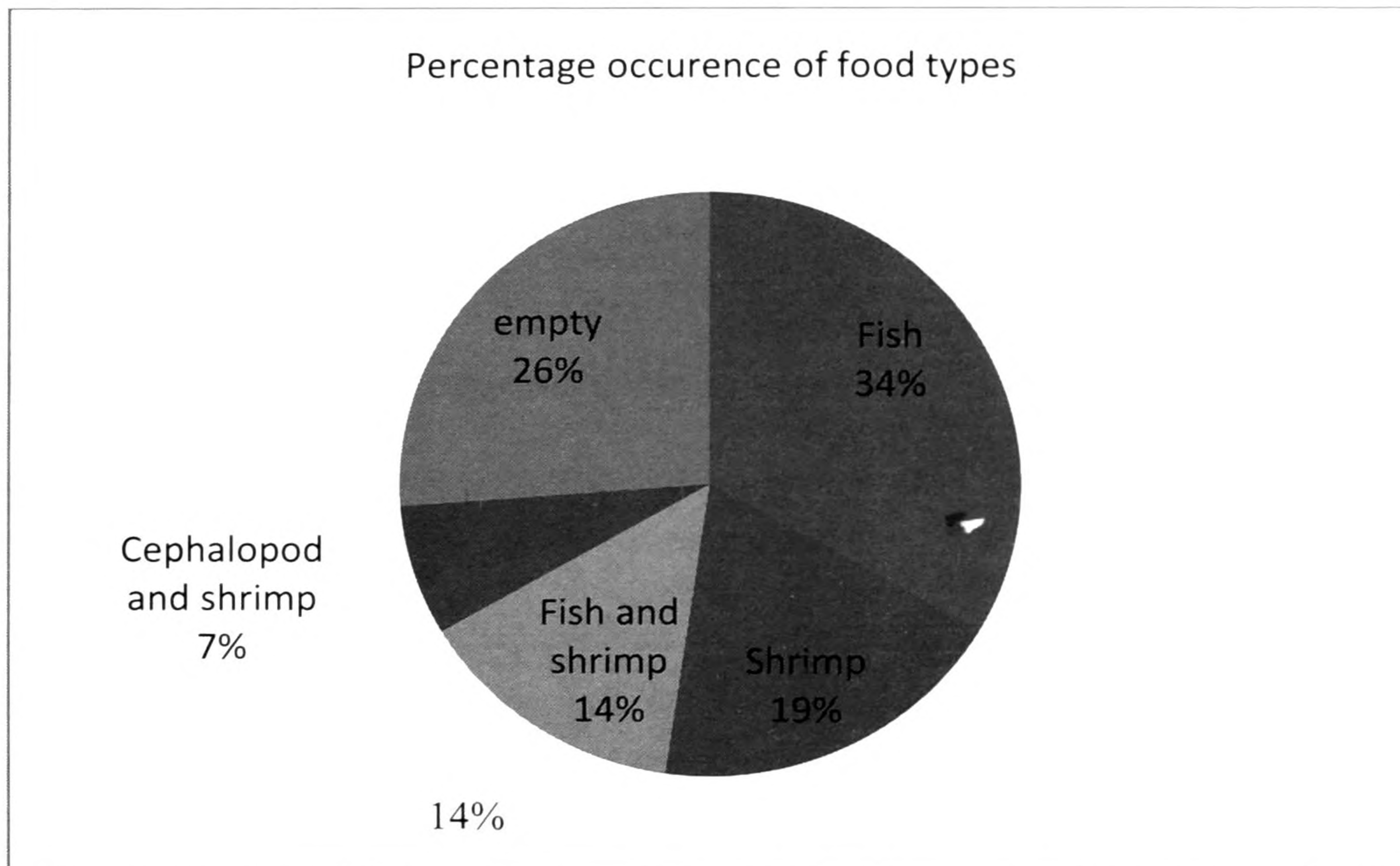


Fig.1: The percentages of each type of food in the fish analyzed.

Out of the 42 stomachs analyzed, 13 (33.3 %) contained only fish, 7 (19.0 %) contained shrimp and 5 (14.3 %) contained fish and shrimp both. Out of the total, 7.2% of the specimens contained both shrimp and cephalopods. Three of the stomachs which contained shrimp also contained debris items such as plastic and undigested plant leaves. Stomachs of 11 (26.2 %) fish were empty and did not contain any food items. Fig.2 shows the different food types in the different length classes of Kawakawa.

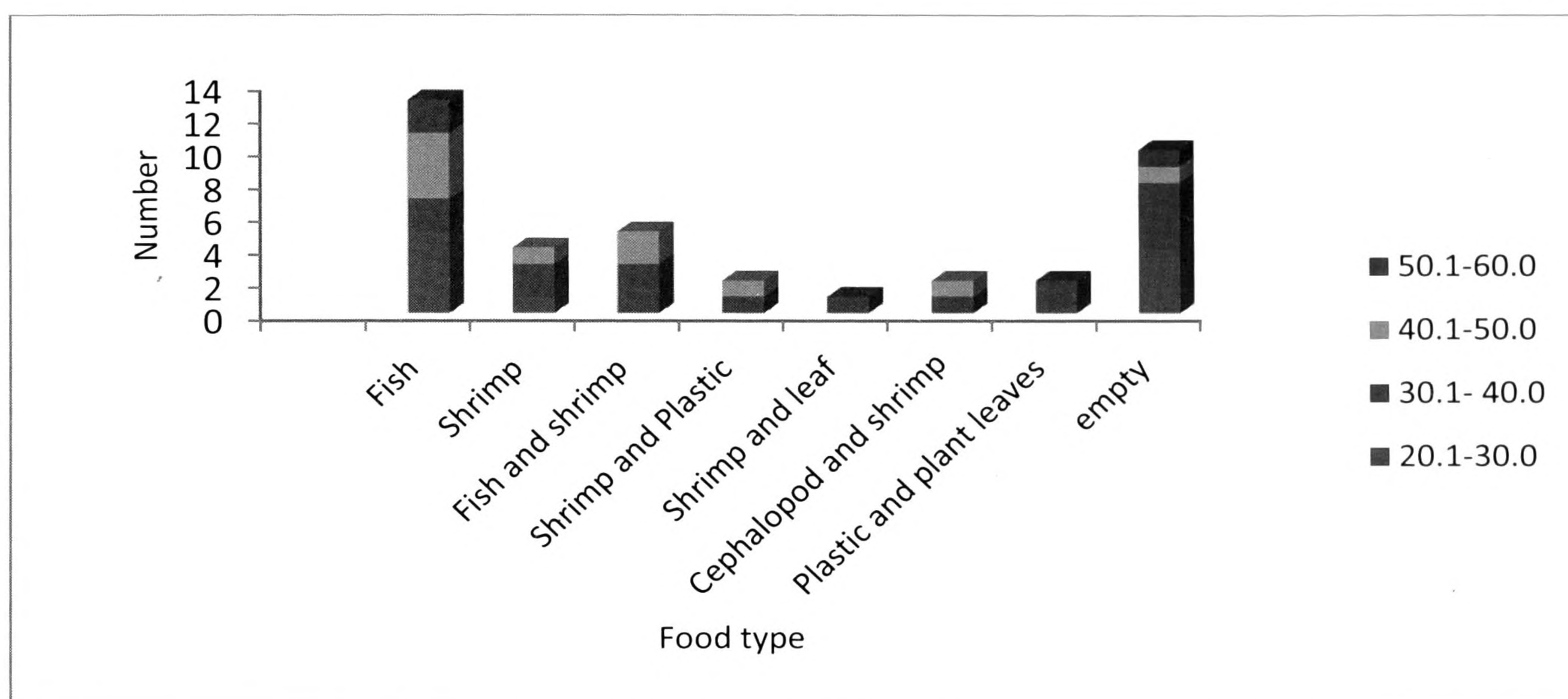


Fig.2: Different food types in the length classes

The smaller size classes have consumes mostly small fish types. Shrimps have been consumed in similar proportion by all size classes.

Discussion

The fish have been feeding on small fish such as herrings and anchovies as well as on shrimps and cephalopods. This shows that Kawakawa fish are non-selective feeders, feeding on any food item available in the surrounding waters. The high number of empty stomachs in the smaller size groups indicates that there might have been a lack of availability of food items, mainly small fish types, in the areas that the fish were feeding. In addition, it indicates that the fish may be regurgitating their stomach contents during capture due to stress. The occurrence of plastic and plant leaves in the stomachs may indicate that the waters around the areas studied may be polluted to a certain extent.

Conclusion

This study shows that small fish types form the dominant prey item of Kawakawa, followed closely by shrimp and that they are non-selective feeders. A large percentage of empty stomachs may indicate that there might be a scarcity of prey around the coastal areas studied.

References

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