

Food Webs for the Fly River Fish Fauna.

Report prepared for

Ok Tedi Mining Ltd

By

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1 Introduction

There have been three previous attempts to construct food webs for Fly River fishes (Maunsell and Partners, 1982; OTML, 1988; and Power, unpub. dat.; see review by Wetland Research & Management, 1998) each of which differed in level of complexity. Although conceptually correct, concerns were expressed by the Ok Tedi Peer Review Group in August 1997 about the accuracy of these food webs, particularly that of Power *et al.* (unpub. dat.). Therefore, in August 1997, the OTML Peer Review Group highlighted the need for a more detailed food web, considering more of the species of fish in the river system. The proposed food web would identify and detail interactions between the fish species and different food sources within the system and would assist with assessing the likely indirect effects of the mine on different components of the fish fauna either via bottom-up or top down responses.

As a precursor to constructing the food web for the Fly River fish fauna, a targeted review of available dietary data on the fish fauna was commissioned, to identify available data sources, to determine the extent and quality of the data, and, to assess what additional information was required to detail food web linkages for Fly River fishes (Wetland Research & Management, 1998).

The review identified the extensive and comprehensive database on stomach contents developed by OTML as the main data source (17067 records on stomach contents for 64 species of fish, of which 10961 had items in the stomach, and 6106 had empty stomachs), which was well supported by the less extensive, but equally valuable baseline studies by Roberts (1978) and Maunsell and Partners (1982). Also, the review determined that there was reasonably good concordance in dietary intake between the baseline studies and OTML database, although there were some differences, which probably related to habitat differences (riverine versus floodplain populations, or upper versus lower catchment sites), or opportunistic feeding on items available seasonally/sporadically.

Given the available database on dietary intake by fish from the Fly River, it was considered unlikely that a species-specific food web model could be constructed for all Fly River fish species without extensive additional work. However, there were sufficient, good quality data for the classification of the majority of common species in the system to functional groups/guilds (e.g. piscivores, terrestrial insectivores, molluscivores etc), from which food webs could be constructed at the 'functional' level for the fish assemblages if not for the whole community.

Preliminary analysis of the OTML data by Wetland Research & Management, (1998) identified significant differences in dietary intake between floodplain and riverine populations of many species, and it was recommended that habitat-specific food web models, for floodplain and riverine fish populations be constructed. Therefore, on the basis of these recommendations, this report presents functional food webs for floodplain and riverine fish faunas.

2 Methods

Food webs were prepared using the OTML database, containing data collected and processed using standardised protocols between 30th April 1983 and 10th May 1994. These included catching fish with a combination of gill netting, seine netting, rotenone and/or trapping and either dissecting fish in the field, and returning stomachs to the laboratory for examination, or else preserving fish in formalin (small fish) or freezing (larger fish), and then returning whole fish to the laboratory.

Table 1. Categories and sub-categories for describing fish stomach content

Category	Description	Sub-category	Description
1	Aquatic insects	1a	???
		1b	Ephemeroptera
		1c	Diptera
		1d	Hemiptera - aquatic - semi-aquatic
		1e	Odonata -Zygoptera -Anisoptera
		1f	Lepidoptera
		1g	Trichoptera
		1h	Coleoptera - adults - larvae
2	Terrestrial insects	2a	Terrestrial insects (not Arachnida)
		2b	???
		2c	Arachnida
3	Aquatic plants	3a	Aquatic macrophytes
		3b	Phytoplankton
4	Terrestrial plants	4a	Fruits
		4b	Seeds
		4c	Leaves
		4d	Other
5	Crustaceans	5a	Micro-crustaceans - copepods - ostracods - cladocerans - conchostracans
		5b	Decapods other than <i>Macrobrachium</i>
		5c	Isopoda
		5d	<i>Macrobrachium</i>
6	Fish	6a	<i>Nematalosa</i>
		6b	Fish other than <i>Nematalosa</i>
7	Other vertebrates		Other vertebrates
8	Molluscs	8a	Gastropod molluscs
		8b	Bivalve molluscs
9	Worms	9a	Turbellaria - Platyhelminthes
		9b	Nematodes
		9c	Annelids - oligochaetes - polychaetes - hirudinea
10	Detritus/sediment		Detritus/sediment
11	Unidentified invertebrate material		Unidentified invertebrate material
12	Unidentified plant material		Unidentified plant material
13	Aquatic Eggs		Unidentified aquatic eggs

Each stomach was examined under binocular microscope. First, the fullness of each stomach was ranked as 0 (empty), 1 (quarter full), 2 (half full), 3 (full) or 4 (distended). Then the contents were classified into 10 categories (Table 1), and the approximate volume of the stomach contents occupied by each category recorded to the nearest 10%. These values were then scored from 1 (10%) to 10 (100%). The 10 main categories were selected to encompass all major food items encountered and corresponded to functional food sources (e.g. aquatic invertebrates, fish, crustacea, terrestrial plants etc). In some instances the 10 major food categories were further classified into sub-categories to better define stomach contents (e.g. aquatic insects (Category 1) were sub-divided into major orders; Ephemeroptera (Sub-category 1b), Diptera (Sub-category 1c), Hemiptera (Sub-category 1d) etc.).

However, because sub-categories were seldom used in practice, all analyses in this report were restricted to the 10 main categories. In 1994, additional categories were added to better describe stomach contents. Data for categories 11 (unidentified invertebrate material) and 12 (unidentified plant material) were apportioned to categories 1 & 2 and 3 & 4 respectively to allow comparison with the earlier data.

Prior to any analyses, sites were classified into either riverine or floodplain habitat so that habitat-specific food webs could be prepared (Wetland Research & Management, 1998); 30 species were sampled from both habitats, 29 species from riverine only and 5 species from floodplain habitat only. Fish with empty stomachs were not included in any analyses.

Using these data, food webs were then prepared to portray two important aspects;

- 1.) the relative importance of each food source/trophic source to each species, and,
- 2.) the relative importance of each food source/trophic source at an ecosystem level.

2.1 SPECIES-SPECIFIC DIETARY ANALYSIS

The aim of the species-specific analysis was to calculate the mean percentage composition of each the 10 dietary categories (*viz.* food sources) to the stomach content of each species, and thereby determine the relative importance of each food source to each species. Prior to analysis, stomach fullness categories were converted to proportions (empty = 0, quarter full = 0.25, half full = 0.5, full = 1.0 and distended = 1.1), and then category scores were converted to percentage of total stomach volume ((category score*10)* stomach fullness proportion). This then provided the percentage of stomach volume occupied by each food source.

2.2 ECOSYSTEM-LEVEL ANALYSIS

The species-specific dietary analysis detailed above demonstrated the importance of each food source to the diet of each species, but did not reflect the importance of that food source at the ecosystem level (e.g. how much does that food source contribute to carbon flow through the ecosystem). For example, a certain food source maybe the dominant source for one species only, and so critical for the maintenance of that

species, but, because that species is uncommon in the system, the food source is not utilised to any great extent by the whole fauna. Conversely, a food source may be a minor component of the diet of many very common species, and so, at an ecosystem level, that food source is heavily utilised and maybe very important. Therefore, it was necessary to calculate the relative importance of each food source at the ecosystem level.

On the assumption that stomach volume is proportional to fish weight, the mean percentage composition of stomach content by each dietary category for each species was multiplied by the proportion of total catch biomass of that species to produce scores for the proportion of total fish community stomach volume contributed by each dietary category in each species. For this purpose, all catch data from gill and seine netting and rotenone sampling from standardised OTML monitoring were used. Only catch data collected over the period in which stomach contents data were taken were used in analyses (1983 – 1994), and all sites sampled in the Lower Ok Tedi, Upper and Middle Fly were included, separating floodplain from riverine data. The resulting scores were then summed for each dietary category to give the relative proportion of all stomach volume taken-up by each dietary category. Dietary categories equate to the food sources in the food webs, therefore indicating the relative importance of each food source.

3 Results

Food webs for Riverine and Floodplain fish assemblages are presented in Figure 1 and 2. Because data used to construct the food webs were derived from stomach content analysis of fish, the food web emphasises the position of fish in the ecosystem, with assumed linkages between food sources and lower trophic levels (e.g. aquatic invertebrates consume epiphyton and detritus in equal proportions), and between fish and higher levels (e.g. it was not possible to quantify the relative proportions of each primary fish trophic group to piscivorous fish).

The mean percentage composition of each dietary category to each species, by floodplain and riverine habitats, are listed in Appendix 1. These data are included in the respective food webs by converting the mean percentage composition to four categories or ‘Dietary Scores’, reflecting the relative importance of each dietary category:

Dietary score	Percentage of stomach occupied
1	< 5
2	≥ 5 to ≤ 20
3	≥ 20 to ≤ 50
4	≥ 50

On each food web, species are listed under each food source utilised by that species. The Dietary Score in parenthesis beside each species name reflects the relative importance to stomach content of that dietary source. Because of the potentially large number of species using each dietary source, only species in which a food source comprised ≥ 10 % of stomach volume were included in each food web, although all species are listed in Appendix 1.

Riverine Food Web

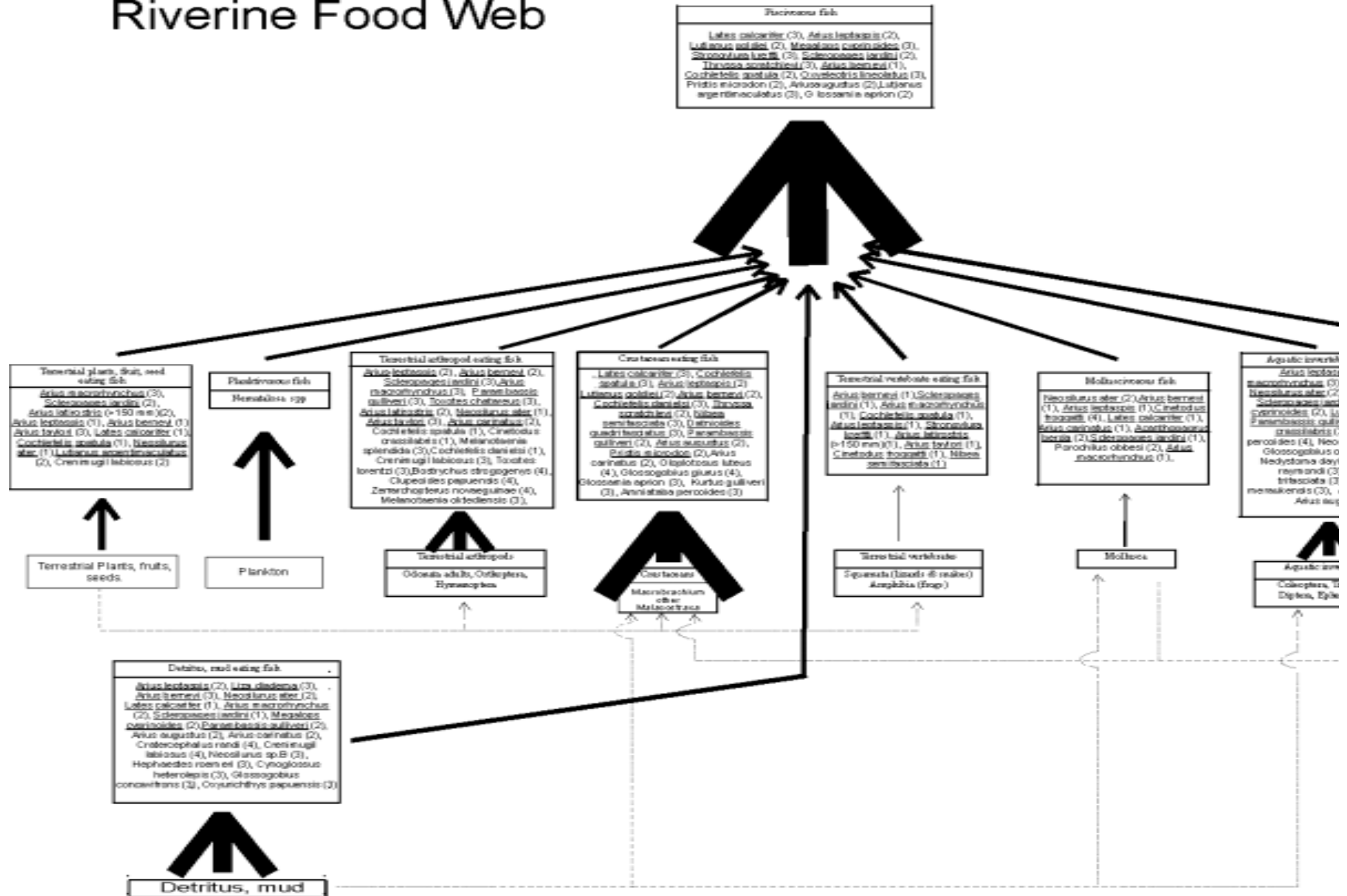


Figure 1. Food web for fish populations in the Fly River channel. Arrows indicate the proportional use of each food source by the fish fauna, broken lines indicate assumed linkages. Species names underlined are the top 10 species utilising each food source in terms of stomach volume and abundance of the species in the river channel. Numbers in parentheses are Dietary Categories indicating percentage of stomach volume occupied by each food source (1 = $\leq 5\%$; 2 = $> 5\% \& \leq 20\%$; 3 = $> 20\% \& \leq 50\%$; 4 = $> 50\%$) (see Appendices 1 & 2 for data for all species).

Floodplain Food Web

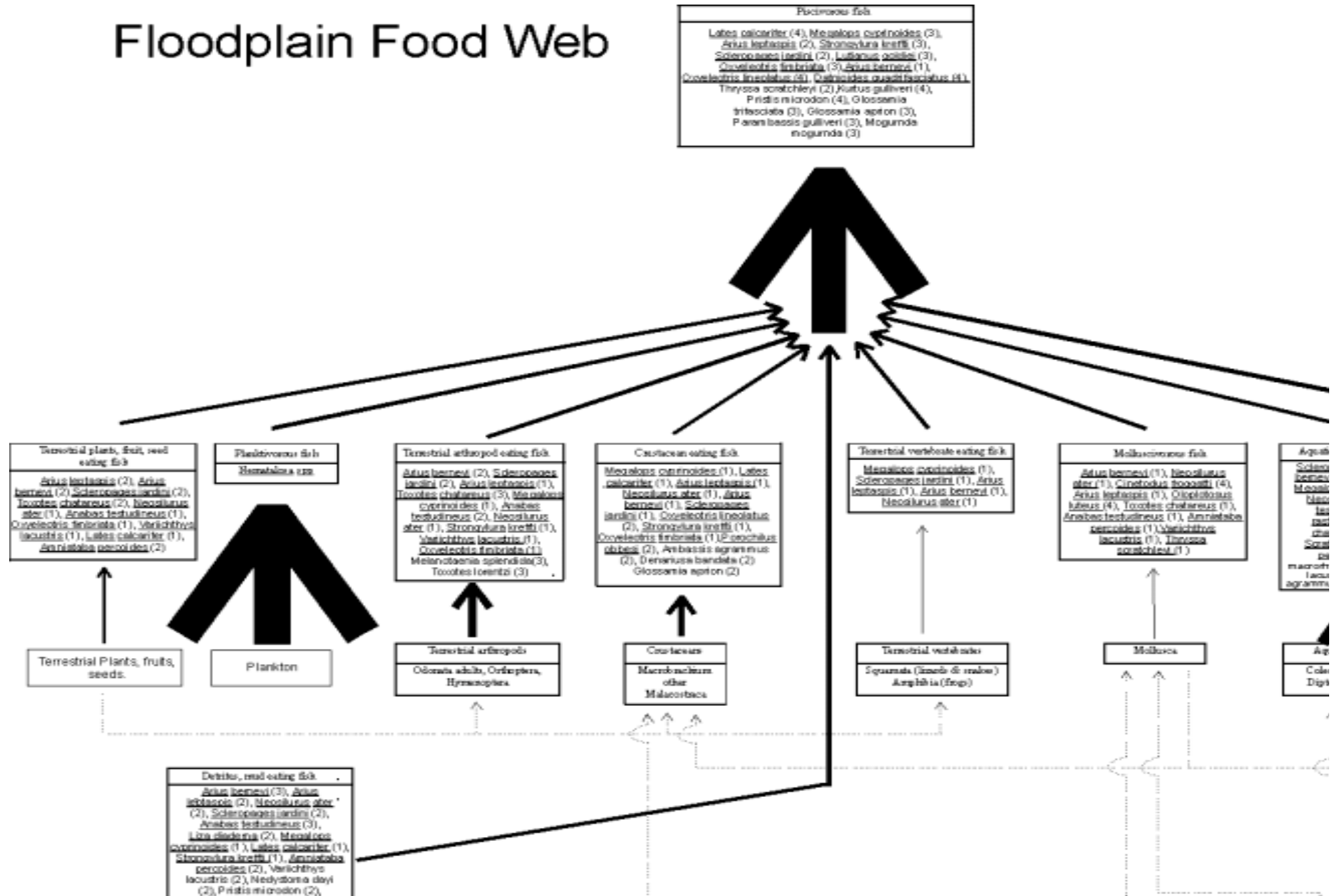


Figure 2. Food web for fish populations on the Fly River floodplain. Arrows indicate the proportional use of each food source by the fish fauna, broken lines indicate assumed linkages. Species names underlined are the top 10 species utilising each food source in terms of stomach volume and abundance of the species on the floodplain. Numbers in parentheses are Dietary Categories indicating percentage of stomach volume occupied by each food source (1 = $\leq 5\%$; 2 = $> 5\% \& \leq 20\%$; 3 = $> 20\% \& \leq 50\%$; 4 = $> 50\%$) (see Appendices 1 & 2 for data for all species).

Scores for the proportion of total fish community stomach volume contributed by each dietary category in each species are summarised in Appendix 2. The relative proportion of all stomach volume taken-up by each dietary category was then used to weight the importance of each food source in each food web, with heavier arrows indicating greater utilisation of a food source (Figures 1 & 2). The 10 highest ranked species in each food source are presented in each food web (species names which are underlined), with the actual importance of that food source to stomach content indicated in parenthesis (Dietary Scores from 1 – 4 as per above).

During the initial processing of stomach contents, there was a tendency to allocate all unidentifiable matter to the detritus/mud category. This resulted in most species of fish having some apparent consumption of detritus/mud, even pelagic species such as *Megalops cyprinoides* and *Strongylura krefftii*. Therefore, this practice will have resulted in an over-estimation of the relative importance of detritus/mud as a food source for fish in the above consideration of food webs.

Of particular importance, all stomach contents of the herrings, *Nematalosa* spp. that were analysed were listed as detritus/mud. Other evidence has indicated that the Fly River herring species are planktivorous (R&D Environmental 1998). Therefore, for the purposes of the above analyses, the stomach contents of herrings were considered to be plankton. However, the estimate of the average herring stomach volume occupied by plankton was based on only four specimens (13 other specimens examined had empty stomachs), and therefore may not have reliably estimated plankton consumption by these very abundant species.

Although worms were identified in the stomach contents analysis as a separate food category, there was no distinction made between parasitic worms resident in the gut and free-living forms that would have been consumed. Therefore, worm consumption was not included as a separate food category in the food webs presented in Figures 1 and 2.

4 Discussion

The differences in feeding preferences between riverine and floodplain habitats identified by Wetland Research & Management (1998) are evident from these food webs, with plankton, aquatic invertebrates and aquatic plants more important food source in the floodplain than the river, and the opposite true for crustacea, terrestrial invertebrates, and piscivory. The food webs highlight piscivory as a dominant feeding mode in both the riverine and the floodplain habitats, with planktivory co-dominant on the floodplain.

Because there are limited data on the species composition of fish ingested by piscivores, it was not possible to place any ecosystem weighting on the relative importance of each functional group to piscivores.

A potential source of error in these analyses is that they assume that the standing stock of stomach contents at the time of collection of fish specimens was indicative of the consumption of foods over time. However, some food types would be digested much faster than others. For example, the stomach residence time of plankton would be expected to be much shorter than the residence time of ingested fish. Therefore, these analyses will have over-emphasised the relative importance of slowly digested items, such as fish and terrestrial plant matter, and under-emphasised the relative importance of rapidly digested food items such as plankton and many aquatic invertebrates.

Wetland Research & Management (1998) recommended the use of stable isotopes as a valuable adjunct to dietary intake studies and the construction of food webs. This recommendation is here further endorsed. The food webs presented in this report are based entirely on analysis of fish stomach contents. Determination of both $\delta^{13}\text{C}$ carbon and $\delta^{15}\text{N}$ nitrogen signatures for fish species and primary food sources will assist in confirming dietary sources, differentiating between ingested and assimilated food items, determining the trophic levels of consumers and assist with determining the relative contributions of non-fish compartments to the food webs. Nevertheless, the food webs generated by this study should provide useful input into the analysis of the stable isotope results, and will provide a basis from which to develop carbon flux based food webs.

5 Acknowledgments

The authors thank all present and previous staff of the Environment Department, Ok Tedi Mining Limited who assisted in the collection of dietary and fish catch data. In particular, the authors thank Kent Hortle who processed the majority of stomach samples to produce the very extensive database on fish stomach contents.

6 References

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7 Appendices

Appendix 1. Mean (+ standard deviation in parenthesis) percentage stomach contents for each dietary category for each fish species in riverine and floodplain habitats, indicating number of fish with stomach contents.

Fish Species	Habitat Type	No. fish	CAT1	CAT2	CAT3	CAT4	CAT5	CAT6	CAT7	CAT8	CAT9	CAT10
<i>Pristis microdon</i>	Riverine	28	0.9 (4.72)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	15.6 (21.51)	14.9 (23.25)	0.0 (0.00)	0.0 (0.00)	0.2 (0.94)	6.3 (17.68)
<i>Pristis microdon</i>	Floodplain	2	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	50.0 (70.71)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	12.5 (11.02)
<i>Megalops cyprinoides</i>	Riverine	32	13.6 (22.63)	1.2 (4.77)	0.0 (0.00)	0.0 (0.00)	1.1 (4.71)	34.1 (42.28)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	9.2 (1.76)
<i>Megalops cyprinoides</i>	Floodplain	73	3.7 (10.10)	0.5 (4.10)	0.0 (0.00)	0.0 (0.00)	4.3 (17.86)	42.7 (32.85)	1.4 (11.70)	0.0 (0.00)	0.0 (0.00)	0.2 (28.17)
<i>Clupeoides papuensis</i>	Riverine	600	17.1 (32.21)	58.3 (41.43)	0.2 (2.50)	0.0 (0.46)	0.1 (2.09)	0.1 (1.47)	0.0 (0.00)	0.2 (4.49)	0.0 (0.00)	0.6 (3.93)
<i>Nematalosa papuensis</i>	Floodplain	1	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	25.0 .
<i>Nematalosa flyensis</i>	Riverine	1	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	100.0 .
<i>Nematalosa spp</i>	Riverine	1	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	25.0 .
<i>Nematalosa spp</i>	Floodplain	1	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	50.0 .
<i>Thryssa scratchleyi</i>	Riverine	370	6.8 (17.26)	2.5 (9.33)	0.0 (0.00)	0.4 (5.23)	16.4 (29.52)	25.2 (33.39)	0.1 (2.60)	0.0 (0.54)	0.0 (0.26)	0.7 (6.75)
<i>Thryssa scratchleyi</i>	Floodplain	99	23.9 (26.34)	1.0 (5.33)	0.0 (0.00)	0.0 (0.00)	0.8 (5.61)	19.2 (31.15)	0.0 (0.00)	0.2 (1.51)	0.0 (0.00)	2.6 (4.14)
<i>Thryssa rastrosa</i>	Riverine	24	20.4 (26.82)	2.3 (10.21)	0.0 (0.00)	0.0 (0.00)	2.3 (7.07)	6.3 (21.17)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	7.3 (0.00)
<i>Thryssa rastrosa</i>	Floodplain	54	70.9 (33.36)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	1.0 (4.57)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (11.61)
<i>Scleropages jardini</i>	Riverine	134	7.4 (16.45)	22.6 (26.11)	2.4 (8.21)	16.7 (24.71)	3.0 (14.26)	11.4 (21.11)	0.9 (6.62)	0.1 (1.30)	0.3 (1.54)	4.0 (11.78)
<i>Scleropages jardini</i>	Floodplain	215	26.7 (32.26)	14.9 (22.31)	2.8 (9.90)	7.4 (16.82)	1.4 (8.50)	11.5 (24.50)	1.2 (8.70)	0.0 (0.00)	1.9 (8.54)	6.2 (12.10)
<i>Arius leptaspis</i>	Riverine	252	5.0 (13.35)	8.9 (15.42)	1.9 (9.95)	2.5 (8.63)	5.4 (14.67)	12.0 (25.08)	0.1 (1.26)	0.4 (2.27)	0.1 (0.90)	13.7 (17.44)
<i>Arius leptaspis</i>	Floodplain	337	9.2 (18.88)	4.3 (9.54)	4.2 (12.04)	7.0 (18.09)	2.8 (12.32)	13.6 (25.27)	0.4 (4.38)	0.1 (1.31)	0.5 (3.90)	11.0 (19.37)
<i>Arius latirostris</i>	Riverine	1034	24.4 (28.30)	13.3 (21.99)	0.1 (1.49)	12.0 (25.13)	2.6 (12.25)	0.5 (4.44)	0.1 (3.08)	0.0 (0.00)	0.6 (3.79)	9.0 (17.54)
<i>Arius carinatus</i>	Riverine	85	25.6 (30.11)	7.6 (17.17)	0.0 (0.00)	2.3 (12.87)	8.6 (21.63)	4.0 (16.50)	0.0 (0.00)	1.5 (7.14)	0.0 (0.00)	7.7 (14.17)
<i>Arius augustus</i>	Riverine	57	6.9 (20.86)	1.0 (5.13)	0.0 (0.00)	1.6 (11.92)	12.2 (20.81)	15.5 (25.98)	0.2 (1.66)	0.2 (1.32)	0.0 (0.00)	5.4 (11.04)
<i>Arius berneyi</i>	Riverine	451	5.7 (13.71)	17.3 (23.54)	1.5 (7.16)	4.1 (13.90)	6.4 (16.39)	4.3 (12.80)	0.6 (5.14)	4.2 (10.20)	0.1 (1.14)	23.1 (24.66)
<i>Arius berneyi</i>	Floodplain	821	11.6 (18.55)	12.4 (19.90)	12.8 (27.33)	5.7 (15.33)	2.0 (8.42)	3.8 (13.60)	0.1 (1.59)	1.8 (6.47)	0.8 (6.76)	23.4 (25.21)
<i>Cinetodus crassilabris</i>	Riverine	32	25.6 (27.01)	2.7 (6.60)	0.0 (0.00)	1.4 (6.38)	11.4 (19.35)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	3.4 (7.72)
<i>Arius macrorhynchus</i>	Riverine	464	21.6 (34.63)	22.2 (28.88)	0.5 (5.20)	21.0 (28.95)	0.5 (4.39)	0.7 (7.15)	0.7 (6.14)	0.0 (0.93)	0.0 (0.46)	6.1 .
<i>Arius macrorhynchus</i>	Floodplain	1	40.0 .	5.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	0.0 .	5.0 (15.25)

Fly River Food Webs

Fish Species	Habitat Type	No. fish	CAT1	CAT2	CAT3	CAT4	CAT5	CAT6	CAT7	CAT8	CAT9	CAT10
<i>Arius taylori</i>	Riverine	125	10.5 (19.46)	23.7 (24.85)	0.0 (0.00)	24.3 (26.43)	3.3 (14.44)	0.8 (5.94)	1.6 (10.17)	0.2 (1.26)	2.6 (6.76)	1.9 (6.11)
<i>Cinetodus froggatti</i>	Riverine	76	2.5 (7.38)	0.1 (0.57)	0.2 (1.43)	0.6 (5.16)	0.3 (1.81)	0.8 (5.83)	3.4 (17.78)	49.6 (41.74)	0.7 (4.03)	0.6 (0.00)
<i>Cinetodus froggatti</i>	Floodplain	27	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	65.9 (36.80)	0.0 (0.00)	0.0 (4.16)
<i>Nedystoma dayi</i>	Riverine	144	33.9 (28.86)	2.3 (10.35)	0.1 (0.83)	1.0 (6.54)	2.8 (13.18)	2.6 (8.93)	0.2 (1.72)	0.2 (1.29)	0.0 (0.00)	13.8 (8.84)
<i>Nedystoma dayi</i>	Floodplain	2	18.8 (8.84)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	18.8 (17.40)
<i>Cochlefelis spatula</i>	Riverine	161	3.2 (8.98)	1.5 (6.04)	0.0 (0.00)	1.7 (9.73)	38.8 (35.24)	6.7 (18.45)	0.4 (5.52)	0.0 (0.00)	0.0 (0.00)	3.5 (8.96)
<i>Cochlefelis danielsi</i>	Riverine	41	4.0 (10.38)	4.6 (16.26)	0.0 (0.00)	0.0 (0.00)	41.1 (35.65)	2.9 (15.85)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.9 (3.86)
<i>Neosilurus ater</i>	Riverine	64	13.8 (18.80)	3.5 (11.70)	1.0 (4.10)	1.3 (10.00)	0.4 (2.05)	1.1 (6.50)	0.0 (0.00)	8.6 (20.35)	0.0 (0.00)	16.6 (21.33)
<i>Neosilurus ater</i>	Floodplain	255	14.3 (19.82)	1.5 (7.11)	5.6 (15.85)	1.0 (4.21)	4.9 (12.05)	0.1 (1.57)	0.1 (0.98)	2.3 (11.43)	0.0 (0.22)	17.8 (24.41)
<i>Neosilurus equinus</i>	Riverine	110	45.2 (34.07)	9.6 (19.51)	1.8 (3.91)	0.0 (0.00)	0.6 (4.68)	0.0 (0.24)	0.0 (0.00)	0.5 (3.04)	0.1 (1.06)	2.4 (7.35)
<i>Neosilurus sp B</i>	Riverine	2	17.5 (10.61)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	45.0 (63.64)
<i>Oloplotosus luteus</i>	Riverine	1	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0 (0.00)
<i>Oloplotosus luteus</i>	Floodplain	2	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	80.0 (42.43)	0.0 (0.00)	0.0
<i>Porochilus obbesi</i>	Riverine	16	14.4 (15.90)	0.0 (0.00)	3.1 (7.27)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	19.1 (25.57)	0.0 (0.00)	5.6 (15.57)
<i>Porochilus obbesi</i>	Floodplain	83	12.9 (16.06)	0.5 (3.49)	10.6 (16.76)	0.8 (3.22)	11.0 (19.70)	0.3 (2.74)	0.0 (0.00)	0.0 (0.00)	0.2 (2.20)	10.5 (7.93)
<i>Porochilus meraukensis</i>	Riverine	2	25.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)
<i>Craterocephalus randi</i>	Riverine	126	10.5 (24.54)	0.8 (5.01)	1.4 (5.30)	0.0 (0.00)	0.8 (8.06)	0.0 (0.00)	0.0 (0.00)	2.1 (12.41)	0.0 (0.00)	57.3 (40.84)
<i>Crenimugil labiosus</i>	Riverine	2	0.0 (0.00)	35.0 (49.50)	0.0 (0.00)	15.0 (21.21)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	50.0 (70.71)
<i>Liza alata (diadema)</i>	Riverine	7	15.7 (41.58)	0.0 (0.00)	12.1 (19.12)	0.8 (2.08)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	41.4 (7.07)
<i>Liza alata (diadema)</i>	Floodplain	2	0.0 (0.00)	0.0 (0.00)	32.5 (24.75)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	5.0 (28.39)
<i>Melanotaenia splendida</i>	Riverine	1373	4.3 (14.82)	26.2 (34.79)	14.2 (26.28)	0.7 (5.34)	0.0 (1.36)	0.0 (0.00)	0.0 (0.00)	0.0 (0.35)	0.0 (0.41)	13.2 (0.00)
<i>Melanotaenia splendida</i>	Floodplain	3	0.0 (0.00)	25.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (22.91)
<i>Melanotaenia oktediensis</i>	Riverine	16	10.0 (23.09)	27.7 (34.03)	18.6 (21.98)	3.8 (15.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	12.0 (19.90)
<i>Strongylura krefftii</i>	Riverine	107	0.5 (4.83)	1.2 (5.18)	0.1 (0.73)	0.1 (1.45)	1.6 (11.36)	48.6 (35.41)	1.0 (10.63)	0.0 (0.00)	0.0 (0.00)	0.4 (5.18)
<i>Strongylura krefftii</i>	Floodplain	126	0.2 (2.23)	0.4 (4.45)	0.0 (0.02)	0.0 (0.02)	1.3 (9.80)	45.5 (31.31)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.8 (3.05)
<i>Zenarchopterus novaeguinae</i>	Riverine	560	1.1 (6.78)	53.0 (33.16)	0.2 (2.52)	1.9 (8.33)	0.0 (0.00)	0.0 (0.53)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.7 (4.14)
<i>Ambassis agrammus (reticulata)</i>	Riverine	291	22.1 (24.89)	6.3 (15.48)	1.0 (5.61)	0.0 (0.15)	0.5 (3.14)	1.5 (9.39)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	7.5 (0.00)
<i>Ambassis agrammus (reticulata)</i>	Floodplain	16	22.5 (10.76)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	15.0 (24.14)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (14.42)

Fly River Food Webs

Fish Species	Habitat Type	No. fish	CAT1	CAT2	CAT3	CAT4	CAT5	CAT6	CAT7	CAT8	CAT9	CAT10
<i>Denariusa bandata</i>	Floodplain	5	14.0 (8.94)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	10.5 (7.98)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.5 (1.12)
<i>Parambassis gulliveri</i>	Riverine	599	10.0 (24.77)	24.3 (38.89)	0.0 (0.51)	0.2 (1.94)	7.9 (23.28)	2.3 (10.95)	0.1 (1.44)	0.0 (0.00)	0.0 (1.02)	7.9 (12.50)
<i>Parambassis gulliveri</i>	Floodplain	4	12.5 (14.43)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	27.5 (55.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	6.3 (14.17)
<i>Lates calcarifer</i>	Riverine	220	0.1 (1.76)	0.0 (0.17)	0.1 (1.27)	0.2 (1.82)	20.9 (31.29)	36.1 (39.45)	0.0 (0.00)	0.0 (0.67)	0.0 (0.00)	1.1 (4.52)
<i>Lates calcarifer</i>	Floodplain	108	0.0 (0.00)	0.0 (0.00)	1.0 (9.66)	0.0 (0.48)	4.4 (18.04)	70.7 (37.18)	0.0 (0.00)	0.0 (0.00)	0.1 (0.96)	0.6 (10.54)
<i>Datnioides quadrifasciatus</i>	Riverine	10	2.5 (7.91)	2.5 (7.91)	0.0 (0.00)	0.0 (0.00)	35.0 (37.64)	2.5 (7.91)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0
<i>Datnioides quadrifasciatus</i>	Floodplain	1	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0 (0.00)
<i>Hephaestes roemeri</i>	Riverine	41	19.3 (29.22)	3.3 (15.56)	16.2 (24.85)	3.9 (16.86)	10.2 (20.19)	0.1 (0.78)	0.0 (0.00)	1.0 (4.36)	0.2 (1.56)	27.8 (34.14)
<i>Hephaestes raymondi</i>	Riverine	10	33.5 (41.77)	13.5 (19.16)	2.5 (7.91)	0.0 (0.00)	0.0 (0.00)	10.5 (31.49)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	6.0 (12.65)
<i>Pingalla lorentzi</i>	Riverine	2	0.0 (0.00)	0.0 (0.00)	30.0 (28.28)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	7.5 (10.61)
<i>Amniataba percoides (affinis)</i>	Riverine	4	65.0 (50.66)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	27.5 (55.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	12.5 (15.52)
<i>Amniataba percoides (affinis)</i>	Floodplain	108	18.9 (23.74)	1.2 (3.44)	12.5 (24.54)	6.0 (12.58)	1.2 (2.71)	9.6 (18.97)	0.0 (0.00)	1.3 (5.16)	0.0 (0.00)	12.5 (25.00)
<i>Glossamia aprion</i>	Riverine	22	7.3 (22.02)	5.0 (11.34)	0.0 (0.00)	2.7 (12.79)	20.2 (37.08)	13.6 (31.55)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	5.7 (3.76)
<i>Glossamia aprion</i>	Floodplain	113	10.6 (22.16)	0.7 (5.00)	0.5 (3.21)	0.0 (0.00)	10.4 (23.16)	32.7 (36.74)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.4 (13.21)
<i>Glossamia trifasciata</i>	Riverine	4	31.3 (12.50)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (11.18)
<i>Glossamia trifasciata</i>	Floodplain	5	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	6.6 (14.76)	45.4 (41.45)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	5.0 (0.00)
<i>Lutjanus argentimaculatus</i>	Riverine	7	5.7 (15.12)	0.0 (0.00)	19.3 (28.93)	16.4 (21.35)	0.0 (0.00)	31.4 (50.47)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	14.3 (25.07)
<i>Lutjanus goldiei</i>	Riverine	7	4.3 (9.32)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	11.4 (20.35)	13.6 (19.30)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	2.9
<i>Lutjanus goldiei</i>	Floodplain	1	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0 (7.56)
<i>Acanthopagrus berda</i>	Riverine	4	0.0 (0.00)	1.3 (2.50)	0.0 (0.00)	1.3 (2.50)	10.0 (11.55)	0.0 (0.00)	0.0 (0.00)	18.8 (23.94)	0.0 (0.00)	6.3 (12.50)
<i>Nibea semifaciata</i>	Riverine	23	2.4 (10.43)	0.1 (0.52)	0.0 (0.00)	0.0 (0.00)	31.3 (24.77)	13.3 (28.43)	0.4 (2.09)	0.0 (0.00)	0.0 (0.00)	1.8
<i>Nibea semifaciata</i>	Floodplain	1	0.0	0.0	17.5	0.0	7.5	0.0	0.0	0.0	0.0	0.0 (6.67)
<i>Toxotes chatareus</i>	Riverine	210	6.8 (21.01)	32.4 (30.30)	9.8 (21.73)	2.0 (7.58)	0.3 (2.41)	1.4 (8.94)	0.0 (0.00)	0.0 (0.24)	0.7 (7.13)	0.9 (4.81)
<i>Toxotes chatareus</i>	Floodplain	158	5.6 (16.41)	42.7 (36.71)	8.4 (23.19)	13.1 (27.97)	0.3 (2.95)	1.8 (10.54)	0.0 (0.00)	0.7 (6.19)	0.0 (0.00)	1.2 (4.09)
<i>Toxotes lorentzi</i>	Riverine	12	6.9 (9.42)	26.0 (17.34)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	2.5 (8.66)	0.0 (0.00)	0.0 (0.00)	0.0 (0.57)
<i>Toxotes lorentzi</i>	Floodplain	19	9.3 (23.89)	33.7 (28.12)	3.7 (16.06)	1.6 (6.88)	1.6 (6.88)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.1 (0.00)
<i>Glossogobius giurus</i>	Riverine	3	8.3 (14.43)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	70.0 (60.83)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)

Fly River Food Webs

Fish Species	Habitat Type	No. fish	CAT1	CAT2	CAT3	CAT4	CAT5	CAT6	CAT7	CAT8	CAT9	CAT10
<i>Glossogobius concavifrons</i>	Riverine	9	34.7 (34.52)	8.9 (26.67)	0.0 (0.00)	0.0 (0.00)	0.8 (2.50)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	25.0 (43.01)
<i>Oxyurichthys papuensis</i>	Riverine	46	8.8 (14.68)	0.0 (0.00)	19.2 (23.80)	0.1 (0.37)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	24.7 (16.21)
<i>Mogurnda mogurnda</i>	Floodplain	1	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0
<i>Oxyeleotris fimbriata</i>	Riverine	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 (5.34)
<i>Oxyeleotris fimbriata</i>	Floodplain	46	3.4 (7.66)	0.5 (3.69)	0.3 (1.63)	1.0 (6.63)	4.7 (15.99)	32.2 (29.69)	0.0 (0.00)	0.0 (0.00)	0.7 (3.74)	1.4
<i>Oxyeleotris lineolatus</i>	Riverine	4	2.5 (5.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	28.8 (21.75)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	6.3 (1.69)
<i>Oxyeleotris lineolatus</i>	Floodplain	55	2.5 (13.77)	0.5 (3.37)	0.4 (2.97)	0.2 (1.35)	12.7 (24.90)	58.4 (39.09)	0.0 (0.00)	0.0 (0.00)	0.9 (6.74)	0.2 (12.50)
<i>Bostrychus strogogenys</i>	Riverine	1	0.0	110.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Kurtus gulliveri</i>	Riverine	27	3.5 (8.18)	2.6 (13.47)	0.0 (0.00)	0.5 (2.41)	31.6 (38.00)	5.9 (12.15)	0.0 (0.00)	0.4 (1.92)	0.0 (0.00)	1.7 (0.00)
<i>Kurtus gulliveri</i>	Floodplain	2	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	62.5 (53.03)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (6.04)
<i>Cynoglossus heterolepis</i>	Riverine	6	19.2 (17.15)	0.0 (0.00)	0.8 (2.04)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	25.8 (38.13)
<i>Anabas testudineus</i>	Floodplain	48	20.4 (30.63)	8.0 (18.48)	7.7 (16.21)	2.7 (8.25)	0.0 (0.00)	0.8 (4.04)	0.0 (0.00)	1.0 (7.22)	0.2 (1.44)	23.2 (27.47)
<i>Clarias batrachus</i>	Floodplain	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0
<i>Tetranesodon conorhynchus</i>	Riverine	4	12.5 (25.00)	6.3 (12.50)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	6.3 (12.50)	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)	12.5 (25.00)
<i>Terapon (jamoerensis/Varia)</i>	lacustris Riverine	14	8.4 (19.89)	0.4 (1.34)	28.0 (27.74)	1.8 (6.68)	0.0 (0.00)	1.8 (6.68)	0.0 (0.00)	2.1 (6.71)	0.0 (0.00)	3.9 (17.74)
<i>Terapon (jamoerensis/Varia)</i>	lacustris Floodplain	86	23.6 (31.36)	3.5 (14.83)	28.2 (32.01)	3.0 (13.38)	0.3 (2.40)	0.8 (4.51)	0.0 (0.00)	0.6 (2.63)	0.0 (0.00)	5.9 (11.12)

Fly River Food Webs

Appendix 2 Contributions to the total fish community stomach volume by each species in each feeding group. The number of fish with stomach contents examined for each species, proportion of the stomach volume of that species taken up by each food category, and the proportion of the total catch from lower Ok Tedi and Upper and Middle Fly riverine and floodplain sites constituted by each species are also given.

Riverine sites.

Species	#fish	prop.diet	prop.catch	Contribution
1. Aquatic Insectivores				
<i>ARIUS LEPTASPIS</i>	252	0.0495	0.1602	0.0079
<i>ARIUS MACRORHYNCHUS</i>	464	0.2159	0.0309	0.0067
<i>LIZA DIADEMA</i>	7	0.1571	0.0415	0.0065
<i>NEOSILURUS ATER</i>	64	0.1384	0.0315	0.0044
<i>ARIUS BERNESI</i>	451	0.0561	0.0570	0.0032
<i>SCLEROPAGES JARDINI</i>	134	0.0744	0.0377	0.0028
<i>MEGALOPS CYPRINOIDES</i>	32	0.1364	0.0159	0.0022
<i>LUTJANUS GOLDIEI</i>	7	0.0429	0.0425	0.0018
<i>PARAMBASSIS GULLIVERI</i>	599	0.0995	0.0177	0.0018
<i>CINETODUS CRASSILABRIS</i>	32	0.2563	0.0066	0.0017
<i>ARIUS CARINATUS</i>	85	0.2558	0.0063	0.0016
<i>COCHLEFELIS SPATULA</i>	161	0.0320	0.0294	0.0009
<i>ARIUS LATIROSTRIS >150mm</i>	327	0.0532	0.0171	0.0009
<i>THRYSSA SCRATCHLEYI</i>	370	0.0679	0.0120	0.0008
<i>TOXOTES CHATAREUS</i>	210	0.0680	0.0106	0.0007
<i>LATES CALCARIFER</i>	220	0.0015	0.3568	0.0005
<i>ARIUS AUGUSTUS</i>	57	0.0680	0.0056	0.0004
<i>ARIUS TAYLORI</i>	125	0.1040	0.0034	0.0003
<i>COCHLEFELIS DANIELSI</i>	41	0.0402	0.0058	0.0002
<i>THRYSSA RASTROSA</i>	24	0.2042	0.0011	0.0002
<i>NEDYSTOMA DAYI</i>	144	0.3394	0.0007	0.0002
<i>HEPHAESTES ROEMERI</i>	41	0.1928	0.0011	0.0002
<i>NIBEA SEMIFASCIATA</i>	23	0.0239	0.0056	0.0001
<i>AMBASSIS AGRAMMUS</i>	291	0.2211	0.0006	0.0001
<i>OXYELEOTRIS LINEOLATUS</i>	4	0.0250	0.0049	0.0001
<i>DATNIOIDES QUADRIFASCIATUS</i>	10	0.0250	0.0048	0.0001
<i>LUTJANUS ARGENTIMACULATUS</i>	7	0.0571	0.0019	0.0001
<i>AMNIATABA PERCOIDES</i>	4	0.6500	0.0001	7.2E-5
<i>NEOSILURUS EQUINUS</i>	110	0.4516	0.0002	7.2E-5
<i>MELANOTAENIA SPLENDIDA</i>	1373	0.0434	0.0011	4.7E-5
<i>STRONGYLURA KREFFTI</i>	107	0.0047	0.0096	4.5E-5
<i>CLUPEOIDES PAPUENSIS</i>	600	0.1708	0.0002	3.2E-5
<i>POROCHILUS OBBESI</i>	16	0.1438	0.0002	2.4E-5
<i>CINETODUS FROGGATTI</i>	76	0.0238	0.0009	2.2E-5
<i>GLOSSAMIA APRION</i>	22	0.0727	0.0002	1.6E-5
<i>VARIICHTHYS LACUSTRIS</i>	14	0.0839	9.6E-5	8.0E-6
<i>KURTUS GULLIVERI</i>	27	0.0352	0.0001	5.1E-6
<i>PRISTIS MICRODON</i>	28	0.0089	0.0006	5.1E-6
<i>ZENARCHOPTERUS NOVAEGUINAE</i>	560	0.0109	0.0003	3.8E-6
<i>OXYURICHTHYS PAPUENSIS</i>	46	0.0880	3.6E-5	3.2E-6
<i>CRATEROCEPHALUS RANDI</i>	126	0.1050	2.8E-5	2.9E-6
<i>GLOSSAMIA TRIFASCIATA</i>	4	0.3125	7.9E-6	2.5E-6
<i>TOXOTES LORENTZI</i>	12	0.0688	3.0E-5	2.1E-6
<i>GLOSSOGOBUS GIURUS</i>	3	0.0833	2.3E-5	2.0E-6
<i>CYNOGLOSSUS HETEROLEPIS</i>	6	0.1917	5.4E-6	1.0E-6
<i>HEPHAESTES RAYMONDI</i>	10	0.3350	7.8E-7	2.6E-7
Total				0.0471

Fly River Food Webs

2. Terrestrial Insectivores

ARIUS LEPTASPIS	252	0.0886	0.1602	0.0142
ARIUS BERNEYI	451	0.1721	0.0570	0.0098
SCLEROPAGES JARDINI	134	0.2257	0.0377	0.0085
ARIUS MACRORHYNCHUS	464	0.2213	0.0309	0.0068
PARAMBASSIS GULLIVERI	599	0.2431	0.0177	0.0043
TOXOTES CHATAREUS	210	0.3189	0.0106	0.0034
ARIUS LATIROSTRIS >150mm	327	0.1908	0.0171	0.0033
NEOSILURUS ATER	64	0.0345	0.0315	0.0011
ARIUS TAYLORI	125	0.2366	0.0034	0.0008
ARIUS CARINATUS	85	0.0759	0.0063	0.0005
COCHLEFELIS SPATULA	161	0.0151	0.0294	0.0004
THRYSSA SCRATCHLEYI	370	0.0247	0.0120	0.0003
MELANOTAENIA SPLENDIDA	1373	0.2618	0.0011	0.0003
COCHLEFELIS DANIELSI	41	0.0457	0.0058	0.0003
MEGALOPS CYPRINOIDES	32	0.0120	0.0159	0.0002
ZENARCHOPTERUS NOVAEGUINAE	560	0.5304	0.0003	0.0002
CINETODUS CRASSILABRIS	32	0.0266	0.0066	0.0002
DATNIOIDES QUADRIFASCIATUS	10	0.0250	0.0048	0.0001
STRONGYLURA KREFFTI	107	0.0121	0.0096	0.0001
CLUPEOIDES PAPUENSIS	600	0.5829	0.0002	0.0001
CRENIMUGIL LABIOSUS	2	0.3500	0.0003	9.7E-5
ARIUS AUGUSTUS	57	0.0096	0.0056	5.4E-5
LATES CALCARIFER	220	0.0001	0.3568	4.1E-5
HEPHAESTES ROEMERI	41	0.0329	0.0011	3.8E-5
AMBASSIS AGRAMMUS	291	0.0632	0.0006	3.6E-5
THRYSSA RASTROSA	24	0.0229	0.0011	2.6E-5
NEDYSTOMA DAYI	144	0.0227	0.0007	1.5E-5
NEOSILURUS EQUINUS	110	0.0957	0.0002	1.5E-5
GLOSSAMIA APRION	22	0.0500	0.0002	1.1E-5
TOXOTES LORENTZI	12	0.2604	3.0E-5	7.9E-6
NIBEA SEMIFASCIATA	23	0.0011	0.0056	6.0E-6
ACANTHOPAGRUS BERDA	4	0.0125	0.0004	5.1E-6
KURTUS GULLIVERI	27	0.0259	0.0001	3.8E-6
CINETODUS FROGGATTI	76	0.0007	0.0009	6.0E-7
VARIICHTHYS LACUSTRIS	14	0.0036	9.6E-5	3.4E-7
CRATEROCEPHALUS RANDI	126	0.0077	2.8E-5	2.1E-7
HEPHAESTES RAYMONDI	10	0.1350	7.8E-7	1.1E-7
Total				0.0552

3. Aquatic Herbivores

LIZA DIADEMA	7	0.1214	0.0415	0.0050
ARIUS LEPTASPIS	252	0.0191	0.1602	0.0031
TOXOTES CHATAREUS	210	0.0980	0.0106	0.0010
SCLEROPAGES JARDINI	134	0.0244	0.0377	0.0009
ARIUS BERNEYI	451	0.0150	0.0570	0.0009
LATES CALCARIFER	220	0.0015	0.3568	0.0005
LUTJANUS ARGENTIMACULATUS	7	0.1929	0.0019	0.0004
NEOSILURUS ATER	64	0.0102	0.0315	0.0003
HEPHAESTES ROEMERI	41	0.1623	0.0011	0.0002
MELANOTAENIA SPLENDIDA	1373	0.1418	0.0011	0.0002
ARIUS MACRORHYNCHUS	464	0.0047	0.0309	0.0001
VARIICHTHYS LACUSTRIS	14	0.2804	9.6E-5	2.7E-5
ARIUS LATIROSTRIS >150mm	327	0.0006	0.0171	1.0E-5
OXYURICHTHYS PAPUENSIS	46	0.1918	3.6E-5	7.0E-6
STRONGYLURA KREFFTI	107	0.0007	0.0096	6.7E-6
PINGALLA LORENTZI	2	0.3000	2.0E-5	6.1E-6
AMBASSIS AGRAMMUS	291	0.0095	0.0006	5.4E-6
PARAMBASSIS GULLIVERI	599	0.0003	0.0177	5.2E-6
POROCHILUS OBBESI	16	0.0313	0.0002	5.2E-6
NEOSILURUS EQUINUS	110	0.0109	0.0002	1.7E-6
CINETODUS FROGGATTI	76	0.0016	0.0009	1.5E-6
ZENARCHOPTERUS NOVAEGUINAE	560	0.0017	0.0003	6.1E-7
NEDYSTOMA DAYI	144	0.0007	0.0007	4.7E-7
CRATEROCEPHALUS RANDI	126	0.0137	2.8E-5	3.8E-7
CLUPEOIDES PAPUENSIS	600	0.0015	0.0002	2.8E-7
CYNOGLOSSUS HETEROLEPIS	6	0.0083	5.4E-6	4.5E-8
HEPHAESTES RAYMONDI	10	0.0250	7.8E-7	2.0E-8
Total				0.0127

4. Terrestrial Herbivores

ARIUS MACRORHYNCHUS	464	0.2091	0.0309	0.0065
SCLEROPAGES JARDINI	134	0.1674	0.0377	0.0063
ARIUS LATIROSTRIS >150mm	327	0.3515	0.0171	0.0060
ARIUS LEPTASPIS	252	0.0251	0.1602	0.0040
ARIUS BERNEYI	451	0.0413	0.0570	0.0024
ARIUS TAYLORI	125	0.2433	0.0034	0.0008
LATES CALCARIFER	220	0.0017	0.3568	0.0006
COCHLEFELIS SPATULA	161	0.0171	0.0294	0.0005
NEOSILURUS ATER	64	0.0125	0.0315	0.0004
LUTJANUS ARGENTIMACULATUS	7	0.1643	0.0019	0.0003
TOXOTES CHATAREUS	210	0.0200	0.0106	0.0002
ARIUS CARINATUS	85	0.0232	0.0063	0.0001
CINETODUS CRASSILABRIS	32	0.0141	0.0066	9.3E-5
ARIUS AUGUSTUS	57	0.0158	0.0056	8.9E-5
THRYSSA SCRATCHLEYI	370	0.0040	0.0120	4.8E-5
HEPHAESTES ROEMERI	41	0.0390	0.0011	4.5E-5
CRENIMUGIL LABIOSUS	2	0.1500	0.0003	4.2E-5
PARAMBASSIS GULLIVERI	599	0.0015	0.0177	2.7E-5
STRONGYLURA KREFFTI	107	0.0014	0.0096	1.3E-5
MELANOTAENIA SPLENDIDA	1373	0.0066	0.0011	7.1E-6
ZENARCHOPTERUS NOVAEGUINAE	560	0.0191	0.0003	6.7E-6
NEDYSTOMA DAYI	144	0.0097	0.0007	6.5E-6
GLOSSAMIA APRION	22	0.0273	0.0002	6.1E-6
CINETODUS FROGGATTI	76	0.0059	0.0009	5.4E-6
ACANTHOPAGRUS BERDA	4	0.0125	0.0004	5.1E-6
VARIICHTHYS LACUSTRIS	14	0.0179	9.6E-5	1.7E-6
KURTUS GULLIVERI	27	0.0046	0.0001	6.7E-7
AMBASSIS AGRAMMUS	291	8.6E-5	0.0006	4.8E-8
CLUPEOIDES PAPUENSIS	600	0.0003	0.0002	4.7E-8
OXYURICHTHYS PAPUENSIS	46	0.0005	3.6E-5	2.0E-8
Total				0.0286

5. Crustaceavores

LATES CALCARIFER	220	0.2091	0.3568	0.0746
COCHLEFELIS SPATULA	161	0.3879	0.0294	0.0114
ARIUS LEPTASPIS	252	0.0540	0.1602	0.0087
LUTJANUS GOLDIEI	7	0.1143	0.0425	0.0049
ARIUS BERNEYI	451	0.0641	0.0570	0.0037
COCHLEFELIS DANIELSI	41	0.4110	0.0058	0.0024
THRYSSA SCRATCHLEYI	370	0.1643	0.0120	0.0020
NIBEA SEMIFASCIATA	23	0.3130	0.0056	0.0017
DATNIOIDES QUADRIFASCIATUS	10	0.3500	0.0048	0.0017
PARAMBASSIS GULLIVERI	599	0.0789	0.0177	0.0014
SCLEROPAGES JARDINI	134	0.0302	0.0377	0.0011
CINETODUS CRASSILABRIS	32	0.1141	0.0066	0.0008
ARIUS LATIROSTRIS >150mm	327	0.0435	0.0171	0.0007
ARIUS AUGUSTUS	57	0.1224	0.0056	0.0007
ARIUS CARINATUS	85	0.0862	0.0063	0.0005
OLOPLOTOSUS LUTEUS	1	1.0000	0.0004	0.0004
MEGALOPS CYPRINOIDES	32	0.0109	0.0159	0.0002
ARIUS MACRORHYNCHUS	464	0.0050	0.0309	0.0002
STRONGYLURA KREFFTI	107	0.0159	0.0096	0.0002
NEOSILURUS ATER	64	0.0039	0.0315	0.0001
HEPHAESTES ROEMERI	41	0.1024	0.0011	0.0001
ARIUS TAYLORI	125	0.0330	0.0034	0.0001
PRISTIS MICRODON	28	0.1564	0.0006	8.9E-5
KURTUS GULLIVERI	27	0.3157	0.0001	4.6E-5
GLOSSAMIA APRION	22	0.2023	0.0002	4.5E-5
ACANTHOPAGRUS BERDA	4	0.1000	0.0004	4.1E-5
AMNIATABA PERCOIDES	4	0.2750	0.0001	3.1E-5
TOXOTES CHATAREUS	210	0.0026	0.0106	2.8E-5
THRYSSA RASTROSA	24	0.0229	0.0011	2.6E-5
NEDYSTOMA DAYI	144	0.0271	0.0007	1.8E-5
GLOSSOGOBIUS GIURUS	3	0.7000	2.3E-5	1.6E-5
AMBASSIS AGRAMMUS	291	0.0047	0.0006	2.7E-6
CINETODUS FROGGATTI	76	0.0026	0.0009	2.4E-6
NEOSILURUS EQUINUS	110	0.0059	0.0002	9.4E-7
MELANOTAENIA SPLENDIDA	1373	0.0004	0.0011	4.5E-7
CLUPEOIDES PAPUENSIS	600	0.0014	0.0002	2.5E-7
CRATEROCEPHALUS RANDI	126	0.0079	2.8E-5	2.2E-7
Total				0.1178

Fly River Food Webs

6. Piscivores

LATES CALCARIFER	220	0.3615	0.3568	0.1290
ARIUS LEPTASPIS	252	0.1201	0.1602	0.0193
LUTJANUS GOLDIEI	7	0.1357	0.0425	0.0058
MEGALOPS CYPRINOIDES	32	0.3406	0.0159	0.0054
STRONGYLURA KREFFTI	107	0.4857	0.0096	0.0046
SCLEROPAGES JARDINI	134	0.1138	0.0377	0.0043
THRYSSA SCRATCHLEYI	370	0.2515	0.0120	0.0030
ARIUS BERNEYI	451	0.0430	0.0570	0.0025
COCHLEFELIS SPATULA	161	0.0669	0.0294	0.0020
OXYELEOTRIS LINEOLATUS	4	0.2875	0.0049	0.0014
ARIUS AUGUSTUS	57	0.1548	0.0056	0.0009
NIBEA SEMIFASCIATA	23	0.1326	0.0056	0.0007
LUTJANUS ARGENTIMACULATUS	7	0.3143	0.0019	0.0006
PARAMBASSIS GULLIVERI	599	0.0233	0.0177	0.0004
NEOSILURUS ATER	64	0.0105	0.0315	0.0003
ARIUS CARINATUS	85	0.0394	0.0063	0.0002
ARIUS MACRORHYNCHUS	464	0.0067	0.0309	0.0002
COCHLEFELIS DANIELSI	41	0.0293	0.0058	0.0002
TOXOTES CHATAREUS	210	0.0143	0.0106	0.0002
DATNIOIDES QUADRIFASCIATUS	10	0.0250	0.0048	0.0001
ARIUS LATIROSTRIS >150mm	327	0.0054	0.0171	9.3E-5
PRISTIS MICRODON	28	0.1489	0.0006	8.5E-5
THRYSSA RASTROSA	24	0.0625	0.0011	7.1E-5
GLOSSAMIA APRION	22	0.1364	0.0002	3.1E-5
ARIUS TAYLORI	125	0.0080	0.0034	2.7E-5
NEDYSTOMA DAYI	144	0.0250	0.0007	1.7E-5
AMBASSIS AGRAMMUS	291	0.0155	0.0006	8.7E-6
KURTUS GULLIVERI	27	0.0593	0.0001	8.6E-6
CINETODUS FROGGATTI	76	0.0079	0.0009	7.2E-6
VARIICHTHYS LACUSTRIS	14	0.0179	9.6E-5	1.7E-6
HEPHAESTES ROEMERI	41	0.0012	0.0011	1.4E-6
CLUPEOIDES PAPUENSIS	600	0.0008	0.0002	1.6E-7
ZENARCHOPTERUS NOVAEGUINAE	560	0.0002	0.0003	7.8E-8
NEOSILURUS EQUINUS	110	0.0002	0.0002	3.6E-8
Total				0.1813

7. Vertevores

ARIUS BERNEYI	451	0.0063	0.0570	0.0004
SCLEROPAGES JARDINI	134	0.0086	0.0377	0.0003
ARIUS MACRORHYNCHUS	464	0.0070	0.0309	0.0002
COCHLEFELIS SPATULA	161	0.0043	0.0294	0.0001
ARIUS LEPTASPIS	252	0.0008	0.1602	0.0001
STRONGYLURA KREFFTI	107	0.0103	0.0096	9.8E-5
ARIUS LATIROSTRIS >150mm	327	0.0030	0.0171	5.2E-5
ARIUS TAYLORI	125	0.0151	0.0034	5.1E-5
CINETODUS FROGGATTI	76	0.0342	0.0009	3.1E-5
NIBEA SEMIFASCIATA	23	0.0043	0.0056	2.4E-5
THRYSSA SCRATCHLEYI	370	0.0014	0.0120	1.6E-5
PARAMBASSIS GULLIVERI	599	0.0008	0.0177	1.5E-5
ARIUS AUGUSTUS	57	0.0022	0.0056	1.2E-5
NEDYSTOMA DAYI	144	0.0014	0.0007	9.3E-7
TOXOTES LORENTZI	12	0.0250	3.0E-5	7.6E-7
Total				0.0015

8. Molluscivores

NEOSILURUS ATER	64	0.0863	0.0315	0.0027
ARIUS BERNEYI	451	0.0410	0.0570	0.0023
ARIUS LEPTASPIS	252	0.0035	0.1602	0.0006
CINETODUS FROGGATTI	76	0.4956	0.0009	0.0005
LATES CALCARIFER	220	0.0005	0.3568	0.0002
ARIUS CARINATUS	85	0.0144	0.0063	9.1E-5
ACANTHOPAGRUS BERDA	4	0.1875	0.0004	7.7E-5
SCLEROPAGES JARDINI	134	0.0011	0.0377	4.2E-5
POROCHILUS OBBESI	16	0.1906	0.0002	3.1E-5
ARIUS MACRORHYNCHUS	464	0.0004	0.0309	1.3E-5
HEPHAESTES ROEMERI	41	0.0098	0.0011	1.1E-5
ARIUS AUGUSTUS	57	0.0018	0.0056	9.8E-6
ARIUS TAYLORI	125	0.0016	0.0034	5.4E-6
THRYSSA SCRATCHLEYI	370	0.0003	0.0120	4.0E-6
VARIICHTHYS LACUSTRIS	14	0.0214	9.6E-5	2.1E-6
NEDYSTOMA DAYI	144	0.0023	0.0007	1.5E-6
TOXOTES CHATAREUS	210	0.0001	0.0106	1.3E-6
NEOSILURUS EQUINUS	110	0.0048	0.0002	7.6E-7
CRATEROCEPHALUS RANDI	126	0.0206	2.8E-5	5.7E-7
KURTUS GULLIVERI	27	0.0037	0.0001	5.4E-7
CLUPEOIDES PAPUENSIS	600	0.0018	0.0002	3.5E-7
MELANOTAENIA SPLENDIDA	1373	0.0002	0.0011	1.7E-7
Total				0.0065

Fly River Food Webs

9. Vermivores

<i>ARIUS LATIROSTRIS</i> >150mm	327	0.0108	0.0171	0.0002
<i>ARIUS LEPTASPIS</i>	252	0.0009	0.1602	0.0001
<i>SCLEROPAGES JARDINI</i>	134	0.0026	0.0377	9.9E-5
<i>ARIUS TAYLORI</i>	125	0.0262	0.0034	8.8E-5
<i>TOXOTES CHATAREUS</i>	210	0.0073	0.0106	7.8E-5
<i>ARIUS BERNEYI</i>	451	0.0007	0.0570	4.0E-5
<i>PARAMBASSIS GULLIVERI</i>	599	0.0004	0.0177	7.4E-6
<i>ARIUS MACRORHYNCHUS</i>	464	0.0002	0.0309	6.7E-6
<i>CINETODUS FROGGATTI</i>	76	0.0066	0.0009	6.0E-6
<i>HEPHAESTES ROEMERI</i>	41	0.0024	0.0011	2.8E-6
<i>THRYSSA SCRATCHLEYI</i>	370	0.0001	0.0120	1.6E-6
<i>PRISTIS MICRODON</i>	28	0.0018	0.0006	1.0E-6
<i>NEOSILURUS EQUINUS</i>	110	0.0014	0.0002	2.2E-7
<i>MELANOTAENIA SPLENDIDA</i>	1373	0.0002	0.0011	2.2E-7
Total				0.0005

10. Detritivores

<i>ARIUS LEPTASPIS</i>	252	0.1372	0.1602	0.0220
<i>LIZA DIADEMA</i>	7	0.4143	0.0415	0.0172
<i>NEMATALOSA SPP</i>	1	0.2500	0.0541	0.0135
<i>ARIUS BERNEYI</i>	451	0.2306	0.0570	0.0131
<i>NEOSILURUS ATER</i>	64	0.1661	0.0315	0.0052
<i>LATES CALCARIFER</i>	220	0.0110	0.3568	0.0039
<i>ARIUS MACRORHYNCHUS</i>	464	0.0605	0.0309	0.0019
<i>SCLEROPAGES JARDINI</i>	134	0.0400	0.0377	0.0015
<i>MEGALOPS CYPRINOIDES</i>	32	0.0922	0.0159	0.0015
<i>PARAMBASSIS GULLIVERI</i>	599	0.0792	0.0177	0.0014
<i>LUTJANUS GOLDIEI</i>	7	0.0286	0.0425	0.0012
<i>COCHLEFELIS SPATULA</i>	161	0.0347	0.0294	0.0010
<i>ARIUS CARINATUS</i>	85	0.0768	0.0063	0.0005
<i>HEPHAESTES ROEMERI</i>	41	0.2778	0.0011	0.0003
<i>ARIUS AUGUSTUS</i>	57	0.0544	0.0056	0.0003
<i>OXYELEOTRIS LINEOLATUS</i>	4	0.0625	0.0049	0.0003
<i>LUTJANUS ARGENTIMACULATUS</i>	7	0.1429	0.0019	0.0003
<i>CINETODUS CRASSILABRIS</i>	32	0.0344	0.0066	0.0002
<i>ARIUS LATIROSTRIS</i> >150mm	327	0.0089	0.0171	0.0002
<i>MELANOTAENIA SPLENDIDA</i>	1373	0.1322	0.0011	0.0001
<i>CRENIMUGIL LABIOSUS</i>	2	0.5000	0.0003	0.0001
<i>NIBEIA SEMIFASCIATA</i>	23	0.0185	0.0056	0.0001
<i>TOXOTES CHATAREUS</i>	210	0.0088	0.0106	9.3E-5
<i>NEDYSTOMA DAYI</i>	144	0.1378	0.0007	9.2E-5
<i>THRYSSA RASTROSA</i>	24	0.0729	0.0011	8.3E-5
<i>THRYSSA SCRATCHLEYI</i>	370	0.0068	0.0120	8.2E-5
<i>ARIUS TAYLORI</i>	125	0.0190	0.0034	6.4E-5
<i>COCHLEFELIS DANIELSI</i>	41	0.0091	0.0058	5.3E-5
<i>AMBASSIS AGRAMMUS</i>	291	0.0750	0.0006	4.2E-5
<i>STRONGYLURA KREFFTI</i>	107	0.0037	0.0096	3.6E-5
<i>PRISTIS MICRODON</i>	28	0.0625	0.0006	3.5E-5
<i>ACANTHOPAGRUS BERDA</i>	4	0.0625	0.0004	2.6E-5
<i>CRATEROCEPHALUS RANDI</i>	126	0.5732	2.8E-5	1.6E-5
<i>AMNIATABA PERCOIDES</i>	4	0.1250	0.0001	1.4E-5
<i>GLOSSAMIA APRION</i>	22	0.0568	0.0002	1.3E-5
<i>POROCHILUS OBBESI</i>	16	0.0563	0.0002	9.3E-6
<i>OXYURICHTHYS PAPUENSIS</i>	46	0.2467	3.6E-5	9.0E-6
<i>CINETODUS FROGGATTI</i>	76	0.0059	0.0009	5.4E-6
<i>NEOSILURUS EQUINUS</i>	110	0.0241	0.0002	3.8E-6
<i>VARIICHTHYS LACUSTRIS</i>	14	0.0393	9.6E-5	3.8E-6
<i>KURTUS GULLIVERI</i>	27	0.0167	0.0001	2.4E-6
<i>ZENARCHOPTERUS NOVAEGUINAE</i>	560	0.0065	0.0003	2.3E-6
<i>PINGALLA LORENTZI</i>	2	0.0750	2.0E-5	1.5E-6
<i>CYNOGLOSSUS HETEROLEPIS</i>	6	0.2583	5.4E-6	1.4E-6
<i>CLUPEOIDES PAPUENSIS</i>	600	0.0058	0.0002	1.1E-6
<i>HEPHAESTES RAYMONDI</i>	10	0.0600	7.8E-7	4.7E-8
Total				0.0866

14. Planktivores ?

<i>NEMATALOSA SPP</i>	1	0.7500	0.0643	0.0483
Total				0.0483

Floodplain sites.

Species	#fish	prop.diet	prop.catch	Contribution
1. Aquatic Insectivores				
<i>SCLEROPAGES JARDINI</i>	193	0.2861	0.0565	0.0162
<i>ARIUS BERNEYI</i>	747	0.1181	0.0927	0.0109
<i>ARIUS LEPTASPIS</i>	306	0.1001	0.1041	0.0104
<i>MEGALOPS CYPRINOIDES</i>	47	0.0574	0.1472	0.0085
<i>NEOSILURUS ATER</i>	237	0.1486	0.0409	0.0061
<i>ANABAS TESTUDINEUS</i>	48	0.2042	0.0081	0.0016
<i>THRYSSA RASTROSA</i>	54	0.7093	0.0021	0.0015
<i>TOXOTES CHATAREUS</i>	124	0.0653	0.0104	0.0007
<i>THRYSSA SCRATCHLEYI</i>	99	0.2386	0.0025	0.0006
<i>AMNIATABA PERCOIDES</i>	64	0.1863	0.0021	0.0004
<i>VARIICHTHYS LACUSTRIS</i>	86	0.2360	0.0016	0.0004
<i>OXYELEOTRIS FIMBRIATA</i>	46	0.0342	0.0085	0.0003
<i>POROCHILUS OBBESI</i>	83	0.1293	0.0010	0.0001
<i>OXYELEOTRIS LINEOLATUS</i>	55	0.0255	0.0044	0.0001
<i>STRONGYLURA KREFFTI</i>	107	0.0023	0.0271	6.3E-5
<i>AMBASSIS AGRAMMUS</i>	16	0.2250	0.0003	6.1E-5
<i>ARIUS MACRORHYNCHUS</i>	1	0.4000	0.0002	6.0E-5
<i>GLOSSAMIA APRION</i>	113	0.1056	0.0005	5.2E-5
<i>PARAMBASSIS GULLIVERI</i>	4	0.1250	0.0003	3.3E-5
<i>TOXOTES LORENTZI</i>	19	0.0934	0.0001	1.1E-5
<i>NEDYSTOMA DAYI</i>	2	0.1875	9.6E-6	1.8E-6
<i>DENARIUSA BANDATA</i>	5	0.1400	7.5E-6	1.1E-6
Total				0.0581
2. Terrestrial Insectivores				
<i>ARIUS BERNEYI</i>	747	0.1176	0.0927	0.0109
<i>SCLEROPAGES JARDINI</i>	193	0.1537	0.0565	0.0087
<i>ARIUS LEPTASPIS</i>	306	0.0443	0.1041	0.0046
<i>TOXOTES CHATAREUS</i>	124	0.4374	0.0104	0.0045
<i>MEGALOPS CYPRINOIDES</i>	47	0.0074	0.1472	0.0011
<i>ANABAS TESTUDINEUS</i>	48	0.0797	0.0081	0.0006
<i>NEOSILURUS ATER</i>	237	0.0145	0.0409	0.0006
<i>STRONGYLURA KREFFTI</i>	107	0.0047	0.0271	0.0001
<i>VARIICHTHYS LACUSTRIS</i>	86	0.0355	0.0016	5.6E-5
<i>OXYELEOTRIS FIMBRIATA</i>	46	0.0054	0.0085	4.6E-5
<i>TOXOTES LORENTZI</i>	19	0.3368	0.0001	4.1E-5
<i>MELANOTAENIA SPLENDIDA</i>	3	0.2500	0.0001	3.2E-5
<i>THRYSSA SCRATCHLEYI</i>	99	0.0096	0.0025	2.4E-5
<i>OXYELEOTRIS LINEOLATUS</i>	55	0.0045	0.0044	2.0E-5
<i>AMNIATABA PERCOIDES</i>	64	0.0047	0.0021	1.0E-5
<i>ARIUS MACRORHYNCHUS</i>	1	0.0500	0.0002	7.6E-6
<i>POROCHILUS OBBESI</i>	83	0.0054	0.0010	5.3E-6
<i>GLOSSAMIA APRION</i>	113	0.0073	0.0005	3.6E-6
Total				0.0314
3. Aquatic Herbivores				
<i>ARIUS BERNEYI</i>	747	0.1391	0.0927	0.0129
<i>ARIUS LEPTASPIS</i>	306	0.0439	0.1041	0.0046
<i>LIZA ALATA (DIADEMA)</i>	2	0.3250	0.0118	0.0038
<i>NEOSILURUS ATER</i>	237	0.0603	0.0409	0.0025
<i>SCLEROPAGES JARDINI</i>	193	0.0281	0.0565	0.0016
<i>TOXOTES CHATAREUS</i>	124	0.1070	0.0104	0.0011
<i>LATES CALCARIFER</i>	105	0.0105	0.0759	0.0008
<i>ANABAS TESTUDINEUS</i>	48	0.0771	0.0081	0.0006
<i>VARIICHTHYS LACUSTRIS</i>	86	0.2823	0.0016	0.0004
<i>AMNIATABA PERCOIDES</i>	64	0.1500	0.0021	0.0003
<i>POROCHILUS OBBESI</i>	83	0.1060	0.0010	0.0001
<i>NIBEIA SEMIFASCIATA</i>	1	0.1750	0.0004	7.0E-5
<i>OXYELEOTRIS FIMBRIATA</i>	46	0.0033	0.0085	2.8E-5
<i>OXYELEOTRIS LINEOLATUS</i>	55	0.0040	0.0044	1.8E-5
<i>TOXOTES LORENTZI</i>	19	0.0368	0.0001	4.4E-6
<i>GLOSSAMIA APRION</i>	113	0.0051	0.0005	2.5E-6
Total				0.0289

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4. Terrestrial Herbivores

<i>ARIUS LEPTASPIS</i>	306	0.0505	0.1041	0.0053
<i>ARIUS BERNEYI</i>	747	0.0288	0.0927	0.0027
<i>SCLEROPAGES JARDINI</i>	193	0.0468	0.0565	0.0026
<i>TOXOTES CHATAREUS</i>	124	0.0496	0.0104	0.0005
<i>NEOSILURUS ATER</i>	237	0.0061	0.0409	0.0002
<i>ANABAS TESTUDINEUS</i>	48	0.0271	0.0081	0.0002
<i>OXYELEOTRIS FIMBRIATA</i>	46	0.0098	0.0085	8.3E-5
<i>VARIICHTHYS LACUSTRIS</i>	86	0.0302	0.0016	4.7E-5
<i>LATES CALCARIFER</i>	105	0.0005	0.0759	3.6E-5
<i>AMNIATABA PERCOIDES</i>	64	0.0074	0.0021	1.6E-5
<i>OXYELEOTRIS LINEOLATUS</i>	55	0.0018	0.0044	8.0E-6
<i>POROCHILUS OBBESI</i>	83	0.0078	0.0010	7.6E-6
<i>TOXOTES LORENTZI</i>	19	0.0158	0.0001	1.9E-6
Total				0.0117

5. Crustaceavores

<i>MEGALOPS CYPRINOIDES</i>	47	0.0670	0.1472	0.0099
<i>LATES CALCARIFER</i>	105	0.0450	0.0759	0.0034
<i>ARIUS LEPTASPIS</i>	306	0.0298	0.1041	0.0031
<i>NEOSILURUS ATER</i>	237	0.0511	0.0409	0.0021
<i>ARIUS BERNEYI</i>	747	0.0204	0.0927	0.0019
<i>SCLEROPAGES JARDINI</i>	193	0.0149	0.0565	0.0008
<i>OXYELEOTRIS LINEOLATUS</i>	55	0.1273	0.0044	0.0006
<i>STRONGYLURA KREFFTI</i>	107	0.0154	0.0271	0.0004
<i>OXYELEOTRIS FIMBRIATA</i>	46	0.0473	0.0085	0.0004
<i>POROCHILUS OBBESI</i>	83	0.1104	0.0010	0.0001
<i>GLOSSAMIA APRION</i>	113	0.1042	0.0005	5.1E-5
<i>TOXOTES CHATAREUS</i>	124	0.0042	0.0104	4.4E-5
<i>AMBASSIS AGRAMMUS</i>	16	0.1500	0.0003	4.0E-5
<i>AMNIATABA PERCOIDES</i>	64	0.0152	0.0021	3.2E-5
<i>NIBEA SEMIFASCIATA</i>	1	0.0750	0.0004	3.0E-5
<i>THRYSSA RASTROSA</i>	54	0.0102	0.0021	2.2E-5
<i>THRYSSA SCRATCHLEYI</i>	99	0.0081	0.0025	2.0E-5
<i>VARIICHTHYS LACUSTRIS</i>	86	0.0035	0.0016	5.5E-6
<i>GLOSSAMIA TRIFASCIATA</i>	5	0.0660	3.5E-5	2.3E-6
<i>TOXOTES LORENTZI</i>	19	0.0158	0.0001	1.9E-6
<i>DENARIUSA BANDATA</i>	5	0.1050	7.5E-6	7.9E-7
Total				0.0229

6. Piscivores

<i>LATES CALCARIFER</i>	105	0.6988	0.0759	0.0530
<i>MEGALOPS CYPRINOIDES</i>	47	0.3596	0.1472	0.0529
<i>ARIUS LEPTASPIS</i>	306	0.1360	0.1041	0.0142
<i>STRONGYLURA KREFFTI</i>	107	0.4500	0.0271	0.0122
<i>SCLEROPAGES JARDINI</i>	193	0.1025	0.0565	0.0058
<i>LUTJANUS GOLDIEI</i>	1	0.2500	0.0152	0.0038
<i>OXYELEOTRIS FIMBRIATA</i>	46	0.4391	0.0085	0.0037
<i>ARIUS BERNEYI</i>	747	0.0344	0.0927	0.0032
<i>OXYELEOTRIS LINEOLATUS</i>	55	0.5837	0.0044	0.0026
<i>DATNIOIDES QUADRIFASCIATUS</i>	1	0.5000	0.0012	0.0006
<i>KURTUS GULLIVERI</i>	2	0.6250	0.0008	0.0005
<i>THRYSSA SCRATCHLEYI</i>	99	0.1919	0.0025	0.0005
<i>TOXOTES CHATAREUS</i>	124	0.0161	0.0104	0.0002
<i>PRISTIS MICRODON</i>	2	0.5000	0.0003	0.0002
<i>GLOSSAMIA APRION</i>	113	0.3265	0.0005	0.0002
<i>PARAMBASSIS GULLIVERI</i>	4	0.2750	0.0003	7.2E-5
<i>AMNIATABA PERCOIDES</i>	64	0.0320	0.0021	6.8E-5
<i>ANABAS TESTUDINEUS</i>	48	0.0083	0.0081	6.7E-5
<i>NEOSILURUS ATER</i>	237	0.0011	0.0409	4.3E-5
<i>GLOSSAMIA TRIFASCIATA</i>	5	0.4540	3.5E-5	1.6E-5
<i>VARIICHTHYS LACUSTRIS</i>	86	0.0081	0.0016	1.3E-5
<i>POROCHILUS OBBESI</i>	83	0.0030	0.0010	2.9E-6
<i>MOGURNDA MOGURNDA</i>	1	0.2500	4.0E-6	1.0E-6
Total				0.1538

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7. Vertevores

MEGALOPS CYPRINOIDES	47	0.0213	0.1472	0.0031
SCLEROPAGES JARDINI	193	0.0137	0.0565	0.0008
ARIUS LEPTASPIS	306	0.0049	0.1041	0.0005
ARIUS BERNEYI	747	0.0008	0.0927	7.3E-5
NEOSILURUS ATER	237	0.0011	0.0409	4.5E-5
Total				0.0045

8. Molluscivores

ARIUS BERNEYI	747	0.0195	0.0927	0.0018
NEOSILURUS ATER	237	0.0239	0.0409	0.0010
CINETODUS FROGGATTI	27	0.6593	0.0003	0.0002
ARIUS LEPTASPIS	306	0.0016	0.1041	0.0002
OLOPLOTOSUS LUTEUS	2	0.8000	0.0001	0.0001
TOXOTES CHATAREUS	124	0.0089	0.0104	9.2E-5
ANABAS TESTUDINEUS	48	0.0104	0.0081	8.4E-5
AMNIATABA PERCOIDES	64	0.0063	0.0021	1.3E-5
VARIICHTHYS LACUSTRIS	86	0.0064	0.0016	1.0E-5
THRYSSA SCRATCHLEYI	99	0.0015	0.0025	3.7E-6
Total				0.0035

9. Vermivores

SCLEROPAGES JARDINI	193	0.0212	0.0565	0.0012
ARIUS BERNEYI	747	0.0091	0.0927	0.0008
ARIUS LEPTASPIS	306	0.0060	0.1041	0.0006
LATES CALCARIFER	105	0.0010	0.0759	7.2E-5
OXYELEOTRIS FIMBRIATA	46	0.0065	0.0085	5.5E-5
OPHIELEOTRIS APOROS	1	0.2500	0.0002	4.8E-5
OXYELEOTRIS LINEOLATUS	55	0.0091	0.0044	4.0E-5
ANABAS TESTUDINEUS	48	0.0021	0.0081	1.7E-5
NEOSILURUS ATER	237	0.0002	0.0409	8.6E-6
POROCHILUS OBBESI	83	0.0024	0.0010	2.4E-6
Total				0.0029

10. Detritivores

ARIUS BERNEYI	747	0.2387	0.0927	0.0221
ARIUS LEPTASPIS	306	0.1154	0.1041	0.0120
NEOSILURUS ATER	237	0.1749	0.0409	0.0072
SCLEROPAGES JARDINI	193	0.0626	0.0565	0.0035
ANABAS TESTUDINEUS	48	0.2318	0.0081	0.0019
LIZA ALATA (DIADEMA)	2	0.0500	0.0118	0.0006
MEGALOPS CYPRINOIDES	47	0.0032	0.1472	0.0005
LATES CALCARIFER	105	0.0062	0.0759	0.0005
STRONGYLURA KREFFTI	107	0.0098	0.0271	0.0003
AMNIATABA PERCOIDES	64	0.1191	0.0021	0.0003
TOXOTES CHATAREUS	124	0.0135	0.0104	0.0001
OXYELEOTRIS FIMBRIATA	46	0.0141	0.0085	0.0001
POROCHILUS OBBESI	83	0.1036	0.0010	0.0001
VARIICHTHYS LACUSTRIS	86	0.0590	0.0016	9.3E-5
THRYSSA SCRATCHLEYI	99	0.0260	0.0025	6.4E-5
PRISTIS MICRODON	2	0.1250	0.0003	4.1E-5
PARAMBASSIS GULLIVERI	4	0.0625	0.0003	1.6E-5
OXYELEOTRIS LINEOLATUS	55	0.0023	0.0044	1.0E-5
ARIUS MACRORHYNCHUS	1	0.0500	0.0002	7.6E-6
NEDYSTOMA DAYI	2	0.1875	9.6E-6	1.8E-6
GLOSSAMIA TRIFASCIATA	5	0.0500	3.5E-5	1.8E-6
GLOSSAMIA APRION	113	0.0035	0.0005	1.7E-6
TOXOTES LORENTZI	19	0.0013	0.0001	1.6E-7
DENARIUSA BANDATA	5	0.0050	7.5E-6	3.8E-8
Total				0.0493

14. Planktivores ?

NEMATALOSA SPP	2	0.3750	0.3770	0.1624
Total				0.1624