

A preliminary evaluation of the distribution and trophodynamics of demersal fish from Spencer Gulf



Report to the South Australian Department for Environment and Heritage

**SARDI Publication No. F2010/000088-1
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David R. Currie and Shirley J. Sorokin

**SARDI Aquatic Sciences
PO Box 120 Henley Beach SA 5022**

February 2010

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South Australian Research and Development Institute

SARDI Aquatic Sciences
2 Hamra Avenue
West Beach SA 5024

Telephone: (08) 8207 5400

Facsimile: (08) 8207 5406

<http://www.sardi.sa.gov.au>

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Author(s): Dr David R. Currie and Ms Shirley J. Sorokin

Reviewers: Dr Michael A. Steer and Mr Cameron D. Dixon

Approved by: Dr Jason E. Tanner



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EXECUTIVE SUMMARY

1. This report describes the composition, distribution and diets of demersal fishes collected from Spencer Gulf during a quantitative Gulf-wide trawl survey in February 2007.
2. A total of 120 sampling sites extending over 300 km from Point Lowly in the north, to Thistle Island in the south, were surveyed over a four-day period using standard double-rig otter trawl gear employed in commercial prawn fishing.
3. Trawl shots of 30 minutes duration were conducted at each site, and one level fish bin (96L) of homogenised catch was retained and frozen for laboratory analysis.
4. A total of 132 fish species from 65 families were collected from the 120 trawl shots. Monacanthidae (leatherjackets) was the best represented family (12 species) however most families (54%) were represented by just one species.
5. Red mullet *Upeneichthys vlamingii* was the most widespread fish encountered in the Spencer Gulf, and was collected at 93% (111/120) of the survey stations. By comparison, most species had restricted distributions, and more than half of all species collected (71/132) were found at less than 9% (10/120) of sites.
6. Degens leatherjacket *Thamnaconus degeni* was the most abundant species collected during the trawl survey. This fish was found at an average density of 627 per hectare, and accounted for almost 70% of the total catch abundance. In contrast, most fish (81% of species) were not abundant, and were present in densities of less than 1 per hectare.
7. Degens leatherjacket *Thamnaconus degeni* was also dominant in terms of biomass, and accounted for more than 40% of the total catch weight. Most other species (95%) had mean biomasses ranging from less than 1 to 515 grams per hectare, and individually contributed less than 3% to the overall catch.
8. Fish abundance and biomass were highly correlated, with the western flank of the Gulf supporting the highest densities and biomasses of fish, and the eastern flank supporting the lowest numbers of individuals and the lowest biomasses. Species richness, in contrast, was typically elevated in areas supporting low numbers of individuals and biomasses. Notably, the south-eastern region of the Gulf (immediately west and south-west of Port Victoria) supported the most diverse fish communities.

9. Correlation analyses revealed a broad latitudinal gradient in fish abundance, biomass and richness. All three parameters tending to increase towards the south of the Gulf, in association with increasing water depths and decreasing water temperatures.
10. Multivariate cluster analyses were used to evaluate spatial differences in demersal fish community structure in Spencer Gulf. These analyses confirm the presence of a strong environmental gradient between the north and south of the Gulf, and highlight the presence of three distinct fish assemblages (north, central and south) that are closely allied with changes in depth.
11. Small subsets of species with restricted distributions characterised each regional assemblage. Stations comprising the north group were characterised by rough leatherjacket *Scobinichthys granulatus*, Port Jackson shark *Heterodontus portusjacksoni* and skipjack trevally *Pseudocaranx wrighti*. Stations in the central group were typified by Degens leatherjacket *Thamnaconus degeni*, red mullet *Upeneichthys vlamingii*, and silverbelly *Parequula melbournensis*, while stations in the south were characterised by eagle rays *Myliobatis australis* and jack mackerel *Trachurus declivis*.
12. Many of the fish species encountered in the south of the Gulf had open coastal affinities, and their rarity elsewhere in the Gulf appears to be consistent with the intrusion of oceanic waters at the mouth of the Gulf.
13. Dietary examinations of the stomach contents of 871 fish representing 107 species were undertaken during this study. Most of these stomachs (84%) contained identifiable prey items, but a small number (16%) were either empty or contained no recognisable food items.
14. Five feeding guilds were identified from cluster analysis of the stomach contents. These were groups of fish feeding primarily on echinoderms (2 spp), other fish (13 spp), molluscs (11 spp), crustaceans (52 spp) and worms (23 spp).
15. A trophic model was constructed to evaluate levels of food consumption for each fish, and to assess regional differences in the composition and total volume of prey eaten. This model indicated that Degens leatherjacket *Thamnaconus degeni* was the dominant consumer of benthic prey in the central and southern regions of the Gulf (accounting for 43% and 49% of the total food consumption, respectively). In contrast, Skipjack trevally *Pseudocaranx wrighti* was the dominant consumer in the north of the Gulf, where it was estimated to eat approximately 21% of the total prey volume.

16. Total food consumption by demersal fish in Spencer Gulf was estimated to decrease progressively towards the top of the Gulf, with daily food consumption rates in the northern region ($219.55 \text{ g ha}^{-1} \text{ day}^{-1}$) more than 7 times lower than those in the south of the Gulf ($1580.99 \text{ g ha}^{-1} \text{ day}^{-1}$).
17. Crustacean and annelids were the two most important prey items consumed by demersal fish in all three biomes of the Spencer Gulf (north, central, south), and comprised more than 30% and 18% of the total diet, respectively. Our model suggests that almost half a kilogram of crustaceans and worms are consumed daily per hectare in the south of the Gulf. All other prey groups (e.g. molluscs, bryozoans, echinoderm, sponges) are eaten in relatively smaller volumes, and are individually consumed at daily rates of less than 127 grams per hectare in each biome.
18. This research has provided novel insights into the composition, distribution and diets of demersal fish in the Spencer Gulf. As no seasonal replication of sampling was undertaken it remains unclear if observed spatial patterns and trends are temporally robust. Future sampling at a subset of sites surveyed in this study will provide a sound basis for evaluating this question, and for evaluating possible natural and anthropogenic changes to the ecology of demersal fish in Spencer Gulf.

1 INTRODUCTION

1.1 Background

Knowledge of the composition, distribution and diets of demersal fish in Spencer Gulf is needed to underpin ecosystem-based management of fishing and aquaculture in the region. Trophic structure summarises many of the important interdependencies among communities and information on the diets of demersal fishes assists the identification of the factors responsible for changes in ecology. This knowledge improves our ability to predict how benthic communities may react to changes in the abundance of a particular predatory fish, and conversely which species of fish may be most affected by a change in the abundance of a particular prey species.

While many dietary studies on demersal fish have been undertaken throughout southern Australia (e.g. Coleman and Mobley, 1984; Edgar and Shaw, 1995; Parry *et al.*, 1995; Platell *et al.*, 1997; Hindell *et al.*, 2000; Bulman *et al.*, 2001), previous published works from South Australian waters have been limited to an assessment of juvenile King George whiting *Sillaginodes punctata* in Barker Inlet, Gulf St. Vincent (Connolly, 1995), and adult blue-throated wrasse *Notolabrus tetricus* at West Island, Victor Harbor (Shepherd and Clarkson, 2001). Although a recent Fisheries Research and Development Corporation (FRDC) report (Platell and Hall, 2005) addresses many of the data insufficiencies for demersal fish in south-western Australia, it is clear that the knowledge base is also lacking for South Australia, and Spencer Gulf in particular.

In February 2007, SARDI researchers undertook a Gulf-wide survey to quantify the abundance and distribution of marine organisms on the seafloor of Spencer Gulf. This survey was primarily designed to underpin a risk assessment for bycatch in the Spencer Gulf Prawn Fishery, and involved the collection in trawl shots of approximately 4.2 tonnes of marine biota from 120 depth-stratified sampling stations (Currie *et al.*, 2009). During the survey a total of 395 benthic species were captured, including 132 species of fish. These collections offer an unprecedented insight into the composition, abundance, distribution and size-structure of demersal fish in Spencer Gulf. Moreover, as the stomachs of most fish species from each sampling site were preserved, the collections provided an exceptional opportunity to address the knowledge gap for dietary information on demersal fish in Spencer Gulf.

1.2 Objectives

This report synthesises dietary and distributional data on demersal fish collected during a trawl survey of Spencer Gulf during 2007. The objectives of the study were: (1) to provide a synoptic picture of the abundance, biomass and diversity of demersal fishes in Spencer Gulf; (2) to evaluate spatial patterns in community structure; (3) to assess the relative contributions of ambient environmental conditions on observed distributional patterns; (4) to quantify the diets of demersal fish; and (5) to estimate levels of prey consumption in ecologically distinct regions of the Gulf.

Note that Objectives 1-3 of this report include re-analysis of some of those data presented in Currie *et al.* (2009), but for demersal fish species only.

2 METHODS

2.1 Fish sampling

Quantitative samples of fish and other bycatch were collected from 120 sampling stations in Spencer Gulf (Figure 1) by a fleet of eight commercial prawn trawlers, fishing over four consecutive nights (16 - 19 February 2007). Trawl shots of 30 minutes duration were undertaken at each station, and the entire catch transferred to a sorting tray. One 96L sub-sample of the homogenized catch (= level fish bin) was snap-frozen and retained for laboratory analysis, while the remainder was discarded after being measured into level fish bins. An estimate of the total volume of the catch was determined from the sum of fish bins both retained and discarded.

2.2 Dietary composition

All organisms collected during the fieldwork (i.e. 395 algae/plants/invertebrates/fish) were identified in the laboratory to the lowest taxonomic level practicable (i.e. generally species), and were individually counted, sized and weighed. A complete inventory detailing the abundances, biomasses and distributions of each taxon can be found in Currie *et al.* (2009). Voucher specimens of all taxa collected were preserved in 70% ethanol and retained for future reference in the SARDI collection. In addition, the stomachs of 6960 individuals from 132 demersal fish species were dissected and preserved in 10% formaldehyde solution.

Stomach contents of up to 5 fish of each species from each station were examined under a dissecting microscope and the total number, weight and volume of individual prey items recorded (e.g. Windell, 1971). Species of prey were identified by comparison with an extensive reference collection of benthic invertebrates from Spencer Gulf held at SARDI and the South Australian Museum. Due to budgetary limitations, not all stomachs could be processed during this study. In an effort to maximize the information base on regional dietary differences, all fish stomachs collected at four stations within three recognized biomes (north, central, south), were preferentially examined. Those species not represented at the 12 stations were subsequently targeted at other stations elsewhere in the Gulf to provide, where possible, some dietary information on all 132 species collected.

2.3 Statistical analyses

2.3.1 Data standardisation

Measures of fish abundance and biomass were standardised prior to all analyses as either the number (n) or weight (g) per area trawled (hectares, ha). The area A swept by each shot was estimated as follows:

$$A = (H * S * D) / 10,000 \quad \text{Equation 1}$$

where H was the headline length of the net (i.e. 14.63 = 0.5*29.26 m (maximum permissible headline length for a double otter-trawl configuration)), S was the net spread factor (i.e. 0.75) and D was the distance trawled. Division by 10,000 converts the area from square metres to hectares.

2.3.2 Species composition and distribution

A geographical information system (GIS) was employed to characterise and display spatial trends in the abundance, biomass and species richness of the demersal fish assemblages in Spencer Gulf. These same biological metrics were also examined in relation to a range of site-specific environmental factors (e.g. depth, temperature, latitude) using Spearman's rank correlation coefficients, in an effort to determine the main physical factors structuring fish communities in the Gulf.

Variations in demersal fish community structure between the 120 trawl sites were examined using Bray-Curtis (B-C) dissimilarity measures (Bray and Curtis, 1957), in an effort to define the boundaries in Spencer Gulf of ecologically similar regions. The B-C dissimilarity measure was chosen because it is not affected by joint absences, and it has consistently performed well in preserving ecological distance in a variety of simulations on different types of data (Field *et al.*, 1982; Faith *et al.*, 1987). Single square-root transformations were applied to the data before calculating the B-C dissimilarity measures to prevent a small number of heavy and/or abundant species from influencing the dissimilarity measures excessively (Clarke, 1993).

The computer package PRIMER was used to generate B-C dissimilarities and to undertake all multivariate analyses (Clarke and Gorley, 2001). A combination of hierarchical agglomerative clustering (with group-average linking) and non-metric multidimensional scaling (MDS) was initially used to group sites according to their B-C community composition. This was complemented by a similarity percentage test (SIMPER) to determine those fish species contributing most to within and among site groupings. One-way analysis of variance (ANOVA)

was also used to test differences in biomass of the 10 most common fish species across the site groupings. Prior to conducting all ANOVAs, homogeneity of variance was examined using Levene's test and heterogeneity removed using a single squareroot ($\sqrt{}$) transformation. This transformation was used rather than a log (N+x) transformation as it was consistent with the transformation used in the MDS plots, it avoided the arbitrary selection of x and because the results of analyses using log (N+x) and ($\sqrt{}$) are rarely distinguishable (Field *et al.*, 1982; Clarke and Green, 1988).

2.3.3 Dietary composition

Hierarchical agglomerative clustering was also used to examine levels of dietary overlap and partitioning between different fish species. In this analysis, Euclidean distance was employed as the similarity metric, and calculated using the relative volumetric contributions of each prey item as a percentage of the total stomach contents identified for each fish. A total of 31 fish species examined did not contain any discernible gut contents, and were excluded from this assessment. For the remaining 101 species, identifiable prey items were allocated to one of 18 taxonomic groups (i.e. Algae, Annelida, Brachiopoda, Bryozoa, Chordata, Cnidaria, Crustacea, Echinodermata, Echiuroidea, Entoprocta, Hemichordata, Magnoliophyta, Mollusca, Phoronid, Porifera, Pycnogonida, Sipuncula and Urochordata). For reasons of parsimony, five trophic guilds were discriminated in the cluster analysis using an arbitrary Euclidean distance of 90.

2.3.4 Trophic model

Dietary information was integrated with estimates of fish biomass and feeding rates to construct a simple consumption model for demersal fish communities characterising three regions of Spencer Gulf (i.e. north, central, south) defined by our cluster analyses. As no independent consumption rate data were available for any of the fish encountered in Spencer Gulf, food consumption rates for each species were estimated using the multiple regression model of Palomares and Pauly (1989). This empirically based equation uses a combination of fish size, shape, diet and temperature to predict food ingestion rates over time and has the following form:

$$\ln Q/B = -0.1775 - 0.2018 \ln W^\infty + 0.6121 \ln T + 0.5156 \ln A + 1.26F \quad \text{Equation 2}$$

where Q = food consumption, B = biomass, W^∞ = Asymptotic weight (but in this application it is the maximum recorded weight in grams), T = Temperature ($^{\circ}\text{C}$, here it is the mean seabed water temperature recorded by net loggers at 120 trawl sites = 22.7°C), A = aspect ratio of

caudal fin (h^2/s , where h is the height and s is the surface area; calculated for each species from drawings and photographs) and F = dietary type (0 = carnivore, 1 = herbivore).

This equation could not be applied to a small number of fish species (12/132) as they had no discernible caudal fin (i.e. stingrays, eagle rays, ling, catfish, seahorses, seadragons and pipefish). Food consumption estimates for these species were therefore obtained from published estimates presented for similar taxonomic groups.

Estimates of the total daily food consumption of demersal fishes in the north, central and southern regions of Spencer Gulf were determined by summing the product of the mean biomass (B) of each species in each area, and their respective consumption rates (Q/B). The total amount of each prey item consumed in each region was also determined, by multiplying the percentage volume of each prey item in the diet of each fish by its total food consumption.

3 RESULTS

3.1 Composition and distribution of fish communities

3.1.1 Species abundance, biomass and occurrence

In total, 132 fish species from 65 families were collected from the 120 trawl shots undertaken in this study (Appendix 1). Of these families, Monacanthidae (leatherjackets) were by far the best represented (12 species). The Syngnathidae (seahorses, seadragons and pipefish) were the next most speciose family (7 species), followed by Odacidae (rock and weed whiting) (6 species), Pempherididae (bullseyes) and Platycephalidae (flathead) (5 species). A further 42% of families (27/65) were represented by between two and four species; however, the majority of families (54%, 35/65) were represented by just one species.

The red mullet *Upeneichthys vlamingii* was the most widespread fish encountered in Spencer Gulf, and was collected at 93% (111/120) of the survey stations. Seven other species (including the rough leatherjacket *Scobinichthys granulatus*, skipjack trevally *Pseudocaranx wrighti*, toothbrush leatherjacket *Acanthaluteres vittiger*, Degens leatherjacket *Thamnaconus degeni*, silverbelly *Parequula melbournensis*, little scorpion fish *Maxillicosta scabriceps* and spiny gurnard *Lepidotrigla papilio*) were also widely distributed and were found at more than 70% (85/120) of the trawl sites. A further nine species had extensive distributions and were found at between 40% and 60% (47-73/120) of sites. However, most species had restricted distributions and were found at less than 40% (44/120) of sites. Indeed, more than half of all species collected (71/132) were encountered at fewer than 10 trawl sites.

Degens leatherjacket *Thamnaconus degeni* was by far the most abundant species collected during the trawl survey. This small (<20 cm) monacanthid was found at an average density of 627 per hectare, and accounted for almost 70% of the total catch (627/907 individuals per hectare). Seven species (including the skipjack trevally *Pseudocaranx wrighti*, rough leatherjacket *Scobinichthys granulatus*, silverbelly *Parequula melbournensis*, red mullet *Upeneichthys vlamingii*, toothbrush leatherjacket *Acanthaluteres vittiger*, jack mackerel *Trachurus declivis* and slender bullseye *Parapriacanthus elongatus*) were also relatively abundant and found at average densities ranging from 10 to 76 per hectare. A further 17 species (among them King George whiting *Sillaginodes punctata* and ornate cowfish *Aracana ornata*) had densities of between 1 and 10 per hectare, but most fish (81% of species) were not abundant, and were present in densities of less than 1 per hectare. This latter group of relatively rare species included the whiskered prowfish *Neopataecus waterhousii*, Macleays crested

pipefish *Histiogamphelus cristatus*, the rodless anglerfish *Histiophryne cryptacanthus*, the smooth anglerfish *Phyllophryne scortea* and the gulf catshark *Asymbolus vincenti*.

Not only was Degens leatherjacket *Thamnaconus degeni* the most abundant species encountered, this fish was also dominant in terms of biomass, and accounted for more than 40% of the total catch (8266/20223 grams per hectare). A further six species individually contributed more than 3% to the overall standing-stock. These included, in order of descending biomass, the skipjack trevally *Pseudocaranx wrighti*, the eagle ray *Myliobatis australis*, the Port Jackson shark *Heterodontus portusjacksoni*, the red mullet *Upeneichthys vlamingii*, the rough leatherjacket *Scobinichthys granulatus* and the smooth stingray *Dasyatis brevicaudata*. All other species (95%) had mean biomasses ranging from less than 1 to 515 grams per hectare, and individually contributed less than 3% to the overall catch.

3.1.2 Environmental linkages

Species abundance and biomass were highly correlated (Table 1) and the distributional patterns for abundance and biomass were broadly similar (Figure 2). In general, the western flank of the Gulf supported the highest densities and biomasses of fish, while the eastern flank (and particularly the south-eastern region of the Gulf) supported the lowest numbers of individuals and the lowest biomasses. In contrast, species richness was frequently elevated in areas supporting low numbers of individuals and biomasses, with the waters of the south-eastern region of the Gulf (immediately west and south-west of Port Victoria) generally supporting the most diverse fish communities.

Fish abundance, biomass and richness all tended to increase towards the south of the Gulf, as demonstrated by the significant negative correlations between latitude and each of the parameters (Table 1). This trend is further confirmed by the significant positive correlations demonstrated between latitude's proxy (distance from top of Gulf; TOG) and each of the biological variables. As depth characteristically increases towards the south of the Gulf, depth was also weakly correlated with fish abundance, biomass and richness. Similarly, because water temperature in the Gulf co-varies with depth, weak but significant correlations were additionally recorded between temperature and each of the fish metrics.

Table 1. Spearman's rank correlation coefficients between depth, latitude, longitude, distance (from top of Gulf; TOG), bottom temperature, and demersal fish abundance, biomass and richness. The sample-size for all correlations = 120. Significant correlations are denoted at the **1% level and *5% level.

	Depth	Latitude	Longitude	Distance	Temperature	Abundance	Biomass
Depth	.	.	.	.	.	.	.
Latitude	-0.658**	.	.	.	.	.	.
Longitude	-0.630**	0.832**	.	.	.	.	.
Distance from TOG	0.659**	-0.992**	-0.879**	.	.	.	.
Temperature	-0.584**	0.863**	0.683**	-0.851**	.	.	.
Abundance	0.248**	-0.195*	-0.325**	0.207*	-0.241**	.	.
Biomass	0.357**	-0.367**	-0.413**	0.382**	-0.346**	0.803**	.
Richness	0.237**	-0.468**	-0.265**	0.430**	-0.442**	0.080	0.219

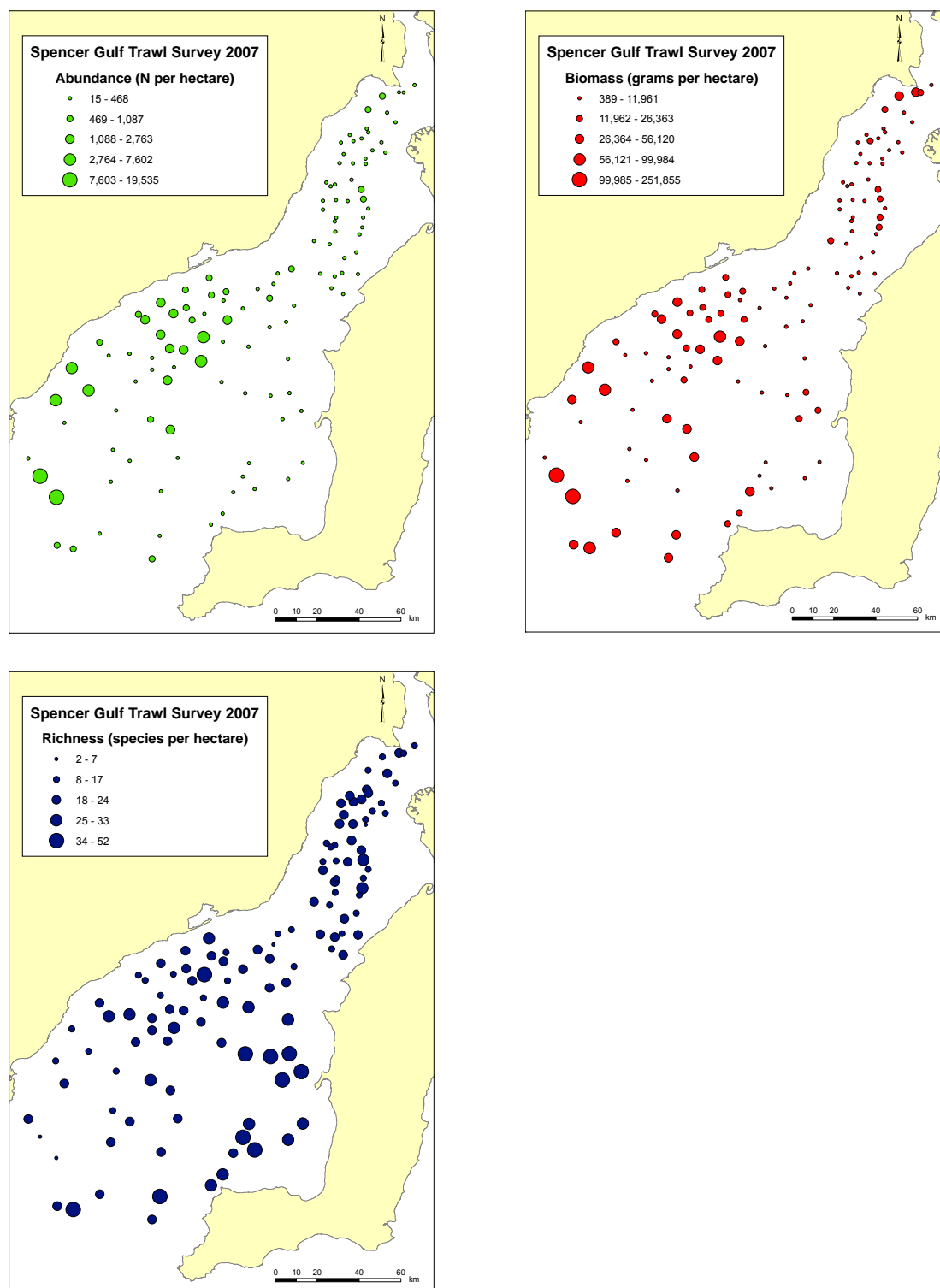


Figure 2. Bubble plots of demersal fish abundance, biomass and richness at 120 trawl sites in the Spencer Gulf surveyed during February 2007. Note all values presented are standardised to an area of one hectare.

3.1.3 Community structure

The MDS ordination (Figure 3a) maps spatial differences in fish community structure at the 120 trawl sites surveyed in Spencer Gulf during February 2007. The stress coefficient of 0.19 indicates that the ordination is not unduly distorted (Clarke, 1993) and a fair representation of the input dissimilarities in two dimensions. When symbols defining stations grouped at the 30% Bray-Curtis similarity cut-level are superimposed on the ordination, a distinct geographical pattern is evident (Figure 3b). Notably, symbols for stations sampled in the north, central and southern regions of the Gulf form discrete groupings, and plot sequentially on the ordination from right to left. This pattern is also present when abundance rather than biomass data are used in the ordination, and highlights a robust and progressive shift in fish community structure between the most northerly and southerly regions of the Gulf (Figure 4).

SIMPER analysis was undertaken to determine which taxa contributed most to similarities within and differences between the three station groupings. Biomasses for the 12 species contributing $\geq 5\%$ to within-group similarity or between group dissimilarity for at least one of the three groupings are given in Table 2. Results from the SIMPER analysis indicate that all station groupings are characterised by relatively small subsets of species with restricted distributions.

The “north” group was the least diverse and consisted of 71 species, 4 (6%) of which were unique to this area of the Gulf and were not recorded elsewhere. These included tommy rough *Arripis georgianus*, tiger pipefish *Filicampus tigris*, six-spine leatherjacket *Meuschenia freycineti*, and the cobbler carpet shark *Sutorectus tentaculatus*. Like many species comprising this group, these fish were poorly represented and never present at more than 20% (11/55) of the region’s sampling stations. Three species representing three families typified this group and contributed more than 10% to the within group similarity (Table 2). Most notably, the rough leatherjacket *Scobinichthys granulatus*, was recognized as the principal species characterising the north group, on account of the organisms exceptionally high biomass ($> 2x$ central and south) and ubiquitous occurrence at all but one of 55 sampling stations in the region. Port Jackson shark *Heterodontus portusjacksoni* and skipjack trevally *Pseudocaranx wrighti*, also characterised this group on account of their high frequency of occurrence at a majority ($> 33/55$, 60%) of the region’s sampling stations.

The “central” group comprised the richest collection of species (112), 20 (18%) of which were found nowhere else in the Gulf. As was the case for the northern group, most fish exclusive to the central region could not be considered locally common, and were never present at more than 20% (10/50) of the trawl sites in the area. This group of regionally rare species included banded stingaree *Urolophus cruciatus*, blue sprat *Spratelloides robustus*, common bullseye *Pempheris multiradiata*, common sawshark *Pristiophorus cirratus*, Gulf catshark *Asymbolus*

vincenti, leafy seadragon *Phycodurus eques*, little rock whiting *Neodax balteatus*, longhead flathead *Leviprora inops*, longray rock whiting *Siphonognathus radiatus*, Macleays crested pipefish *Histiogamphelus cristatus*, ornate wobbegong *Orectolobus maculatus*, rainbow cale *Odax acroptilus*, sculptured seamoth *Pegasus lancifer*, sharpnose weed whiting *Siphonognathus caninis*, snook *Sphyræna novaehollandiae*, southern crested weed fish *Cristiceps australis*, spotted pipefish *Stigmatopora argus*, spotted stingaree *Urolophus gigas*, tubemouth *Siphonognathus argyrophanes* and whiskered prowfish *Neopataecus waterhousii*. By comparison, three species consistently dominated the catch biomasses at a majority of sampling sites (> 47/50, 94%) in the central region, and therefore characterised the area's demersal fish fauna. These included Degens leatherjacket *Thamnaconus degeni*, red mullet *Upeneichthys vlamingii*, and silverbelly *Parequula melbournensis*.

The "south" group supported the second richest collection of species (83), and also displayed the highest level of group fidelity. Almost 20% of species (16/83) collected from the 15 stations in this area of the Gulf were not encountered elsewhere. These included barber perch *Caesioperca rasor*, butterfly perch *Caesioperca lepidoptera*, four-spine leatherjacket *Eubalichthys quadrispinis*, knifejaw *Oplegnathus woodwardi*, little pineapplefish *Sorosichthys ananassa*, magpie perch *Cheilodactylus nigripes*, nannygai *Centroberyx affinis*, rodless anglerfish *Histiophryne cryptacanthus*, roughy *Trachichthys australis*, saddled catshark *Asymbolus* sp. 1, saw shark *Pristiophorus nudipinnis*, senator wrasse *Pictilabrus laticlavus*, sergeant baker *Aulopus* cf *purpurissatus*, smooth anglerfish *Phyllophryne scortea*, smoothspine leatherjacket *Cantheschenia longipinnis* and western roughy *Optivus agrammus*. Most of these fish were uncommon, and never present at more than 40% (6/15) of the trawl sites in the south of the Gulf. In contrast, two species (including the eagle ray *Myliobatis australis* and the jack mackerel *Trachurus declivis*) dominated the catch biomass at most sampling sites (> 8/15, 53%) in the south of the Gulf, and therefore typified the regional biota.

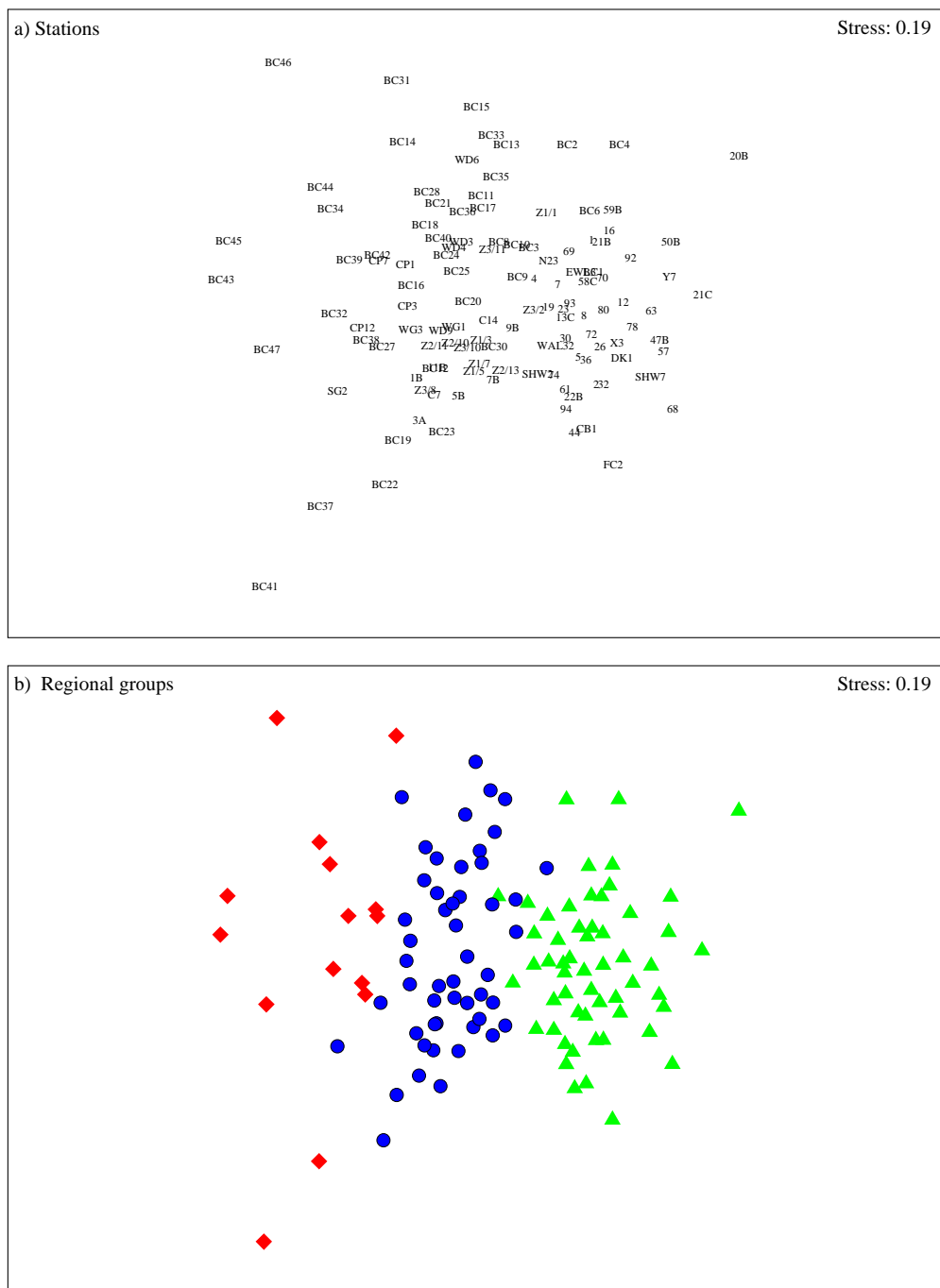


Figure 3. Non-metric MDS plots of a) demersal fish community structure at 120 trawl sites sampled in Spencer Gulf during February 2007, with b) regional symbols superimposed on ordination: green triangles = north (<120 km from top of Gulf (TOG)), blue circles = central (120-230 km from TOG), red diamonds = south (230-300 km from TOG).

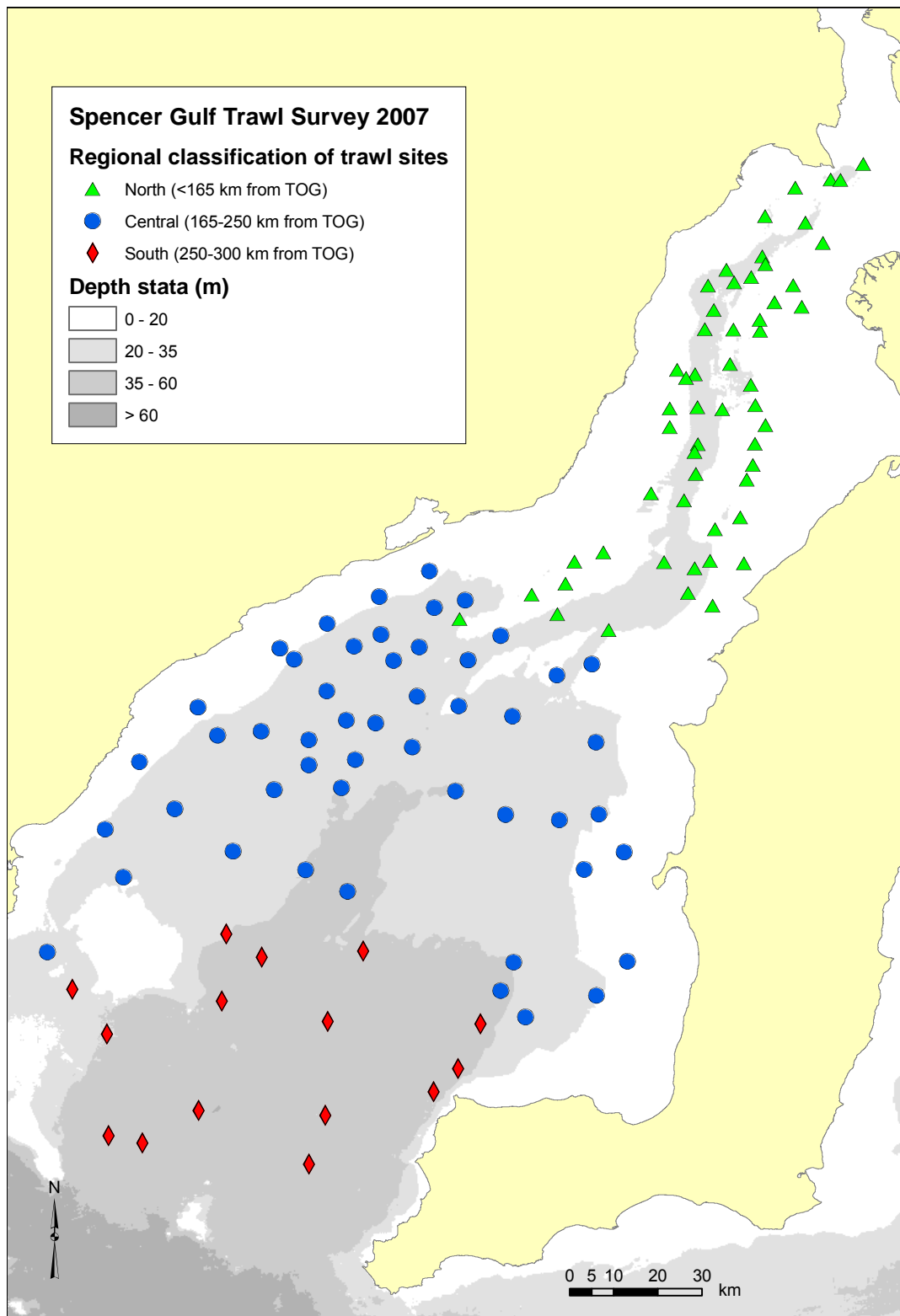


Figure 4. Map of Spencer Gulf showing the locations of 120 trawl sampling sites surveyed during February 2007, and their classification into three regional groups following MDS ordination of fish biomass.

Table 2. Mean biomass ($\text{g ha}^{-1} \pm \text{s.e.}$) of fish in three regional (site) groups identified from MDS classification. Species listed were identified as contributing $\geq 5\%$ to the similarity within and dissimilarity between regional groupings. Those species indicative of each regional grouping (i.e. contributing $\geq 10\%$ to the total similarity within a group) are highlighted in bold. Species are ranked in order of decreasing biomass across all station groupings.

Species	Common Name	Region		
		North (n = 55)	Central (n = 50)	South (n = 15)
<i>Thamnaconus degeni</i>	Degens Leatherjacket	178.8 \pm 39.6	9639.4 \pm 2385.6	33339.4 \pm 22191.9
<i>Pseudocaranx wrighii</i>	Skipjack Trevally	1113.8 \pm 246.6	1946.1 \pm 426.4	1122.1 \pm 461.1
<i>Myliobatis australis</i>	Eagle Ray	384.6 \pm 209.0	40.5 \pm 40.5	8262.6 \pm 2844.3
<i>Heterodontus portusjacksoni</i>	Port Jackson Shark	1054.6 \pm 165.9	849.0 \pm 155.8	24.5 \pm 19.3
<i>Upeneichthys vlamingii</i>	Red Mullet	333.7 \pm 63.5	1281.7 \pm 193.9	781.1 \pm 343.6
<i>Scobinichthys granulatus</i>	Rough Leatherjacket	1209.5 \pm 162.5	454.8 \pm 115.5	80.8 \pm 40.6
<i>Trachurus declivis</i>	Jack Mackerel	4.5 \pm 3.1	88.9 \pm 40.9	3807.5 \pm 1526.6
<i>Parequula melbournensis</i>	Silverbelly	32.0 \pm 9.1	868.3 \pm 127.2	254.3 \pm 116.8
<i>Neoplatycephalus richardsoni</i>	Tiger Flathead	41.3 \pm 10.8	377.0 \pm 86.9	672.3 \pm 175.5
<i>Acanthaluteres vittiger</i>	Toothbrush Leatherjacket	92.3 \pm 14.5	420.2 \pm 89.5	80.3 \pm 43.7
<i>Pseudorhombus jenynsii</i>	Small Tooth Flounder	399.7 \pm 58.0	15.9 \pm 6.2	33.4 \pm 26.2
<i>Urolophus paucimaculatus</i>	Sparsely-Spotted Stingaree	3.1 \pm 3.1	95.7 \pm 24.6	531.2 \pm 194.0

3.1.4 Regional differences in biomass

The distributional patterns of many of the most common species (Appendix 1 and 2) reflect the regional differences summarised in the fish community analysis (Figure 3b and 4). The distributional patterns of biomass of the 10 species with the greatest overall standing-stocks were analysed more quantitatively (Table 3) and showed similar patterns to those observed in the MDS plot (Figure 3b). Degens leatherjacket *Thamnaconus degeni* and silverbelly *Parequula melbournensis*, were both found in significantly lower biomasses in the north region. Red mullet *Upeneichthys vlamingii*, in comparison, was present in significantly higher biomass in the central region. Port Jackson shark *Heterodontus portusjacksoni* and rough leatherjacket *Scobinichthys granulatus* were both found in significantly lower biomasses in the south region, while the eagle ray *Myliobatis australis* was present in significantly higher biomass in the south of the Gulf. The distribution patterns of the four remaining species dominating the standing-stock showed no consistently significant differences between regions of Spencer Gulf.

Table 3. Results of one-way ANOVA tests for differences in fish biomass across three regions of Spencer Gulf identified from MDS ordination. Species that display significant ($p < 0.05$) differences in biomass across the three areas are highlighted bold. Homogeneous groups of means identified from post hoc SNK tests are highlighted by similar shades of grey backfill. Note all biomass estimates are based on single square-root ($\sqrt{\cdot}$) transformed data.

Species	Common Name	Region			F(2,117)	p
		North (n=55)	Central (n=50)	South (n=15)		
<i>Thamnaconus degeni</i>	Degens Leatherjacket	8.76 ± 1.37	65.48 ± 10.45	76.79 ± 44.27	9.084	<0.001
<i>Pseudocaranx wrightii</i>	Skipjack Trevally	24.98 ± 3.01	31.40 ± 4.43	23.28 ± 6.44	0.963	0.385
<i>Myliobatis australis</i>	Eagle Ray	5.15 ± 2.58	0.90 ± 0.90	63.07 ± 17.49	32.427	<0.001
<i>Heterodontus portusjacksoni</i>	Port Jackson Shark	23.99 ± 2.98	22.65 ± 2.62	1.73 ± 1.24	8.314	<0.001
<i>Upeneichthys vlamingii</i>	Red Mullet	14.70 ± 1.48	32.15 ± 2.25	21.82 ± 4.67	19.954	<0.001
<i>Scobinichthys granulatus</i>	Rough Leatherjacket	30.85 ± 2.19	15.97 ± 2.02	5.65 ± 1.87	23.728	<0.001
<i>Dasyatis brevicaudata</i>	Smooth Stingray	9.34 ± 4.32	3.40 ± 2.25	0.00 ± 0.00	1.276	0.283
<i>Trachurus declivis</i>	Jack Mackerel	0.47 ± 0.28	4.25 ± 1.20	47.44 ± 10.55	58.527	<0.001
<i>Parequula melbournensis</i>	Silverbelly	3.52 ± 0.60	25.74 ± 2.05	10.84 ± 3.13	56.987	<0.001
<i>Orectolobus maculatus</i>	Ornate Wobbegong	0.00 ± 0.00	5.58 ± 3.93	0.00 ± 0.00	1.407	0.249

The mean biomass of each species and the total biomass of fish differed between the three regions. The total biomass of fish was lowest in the north and highest in the south (Figure 5). The biomass in the south was higher than the central region primarily because of the lower catches of Degens leatherjacket *Thamnaconus degeni* and eagle ray *Myliobatis australis* in the central region. This difference was partly due to two exceptionally large catches of Degens leatherjacket *Thamnaconus degeni* (> 240,000 grams per hectare) in the south of the Gulf immediately west of Boston Bay. The biomass of fish in the north region was lower than the central and southern regions primarily because Degens leatherjacket *Thamnaconus degeni* was much less common in the north.

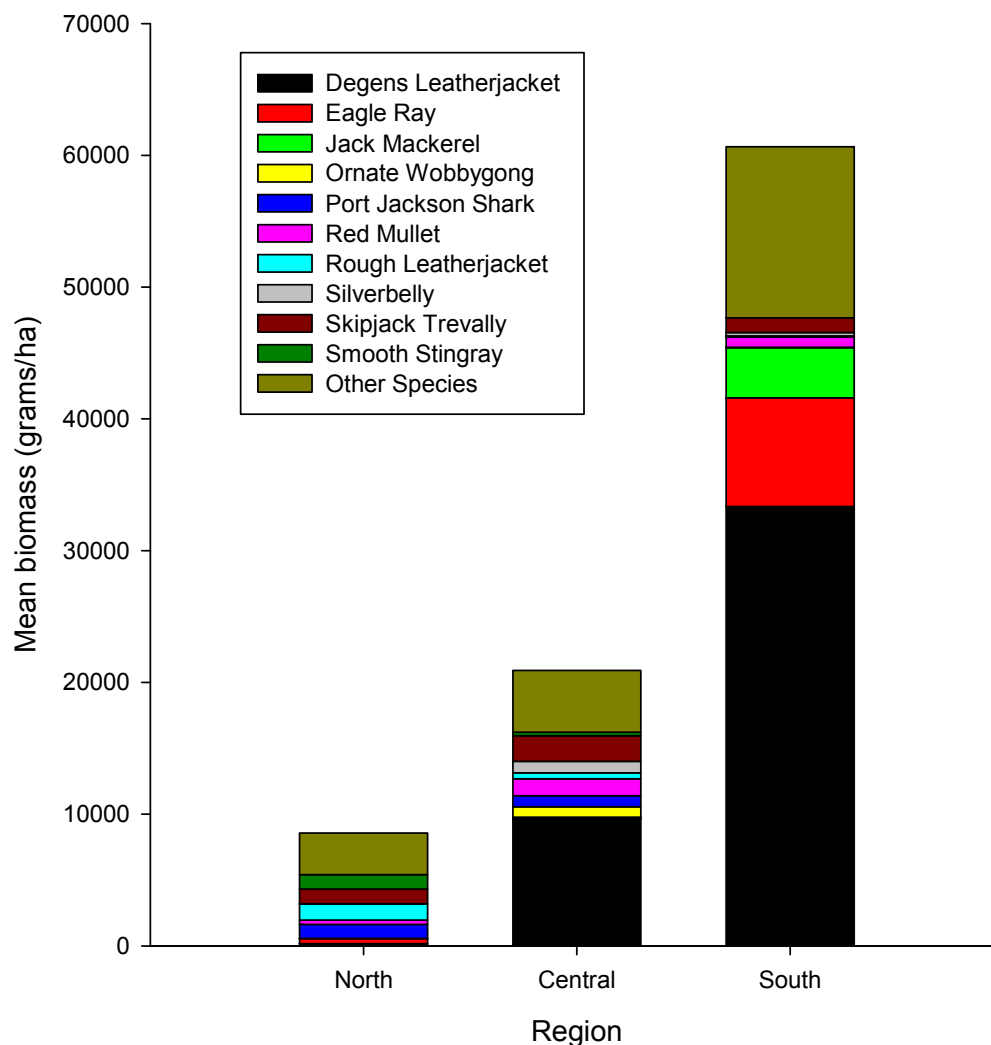


Figure 5. Mean biomass (grams per hectare) of the 10 most common species in each of three regions of Spencer Gulf identified in MDS ordination (Figure 3b).

3.2 Fish diets

3.2.1 Differences in prey composition between species

The stomachs of 25 of the 132 fish species collected during the study were not available for examination, either because the fish were particularly large and released immediately after capture, or their stomachs were not dissected out as the specimen was required as a voucher for the reference collection. As a result, the stomach contents of 871 fish representing 107 species were examined during this study. While the total number of stomachs inspected per species ranged from 1-55, most species (70%) had between 2 and 20 stomachs examined. Of the total number of stomachs examined 140 (16%) were found to be empty. As these empty

stomachs included all representatives of six apparently rare species, dietary information was determined for a total 101 species in this study. These data are summarised for all species in Appendix 2, while those 10 species with greatest average biomass are considered in more detail below.

Degens leatherjacket *Thamnaconus degeni*

Analysis of the stomach contents of 27 Degens leatherjacket *Thamnaconus degeni* indicated that this species has a wide dietary range, and feeds on crustaceans (31%), algae (27%), bryozoans (16%) and annelids (11%). Many of the most common crustaceans in the diet were small in size (<5 mm) and difficult to identify beyond the level of family. These included several slender-bodied crustaceans in the family Astacillidae, as well an indeterminate number of species within the sub-classes Ostrocooda and Cirripedia, and the order Amphipoda. The fish was also found to consume small volumes of molluscs (7%), cnidarians (6%), seagrasses (2%), pycnogonids (<1%) and sponges (<1%).

Skipjack trevally *Pseudocaranx wrighti*

The stomach contents of 42 skipjack trevally *Pseudocaranx wrighti* indicated that this species feeds primarily on small crustaceans (67%) and annelids (33%). Due to the small size and well-digested condition of the prey items dissected from the stomachs of this fish, it was not generally possible to accurately identify the prey items to species level. Nevertheless, undigested Ostrocods valves were frequently recognised in the stomachs of many fish examined, and were evidently a significant (15%) component of the total crustacean ration.

Eagle Ray *Myliobatis australis*

The stomach contents of only one eagle ray was retained and examined during the study, as this large ray was invariably released alive immediately after capture. This individual was found to feed primarily on sessile annelids from the family Pectinariidae (95%). The stomach was also found to contain a small volume of gammarid crustaceans (5%).

Port Jackson shark *Heterodontus portusjacksoni*

Analysis of the stomach contents of 14 Port Jackson sharks *Heterodontus portusjacksoni* indicated they consumed mostly molluscs (50%), most notably squid *Sepioteuthis australis*. Crustaceans, including sand crabs *Ovalipes australiensis* and prawns, were also found to be a significant (41%) component in the diet of this small horn shark. Other minor prey items consumed included polychaete worms (5%), fish (4%) and sipunculids (<1%).

Red mullet *Upeneichthys vlamingii*

Red Mullet was the fifth most abundant fish collected from Spencer Gulf, and also constituted the fifth highest biomass. On account of its prevalence at all 12 sampling stations targeted for

dietary studies, the stomachs of this small (<24 cm) mullet were also the most intensively examined (55 fish). Crustaceans (including prawns, crabs, ostracods, tanaids and amphipods) were the dominant prey group and collectively accounted for 81% of all food consumed by this fish. Red mullet was also found to consume small volumes of polychaete worms (18%), as well as the occasional fish (2%).

Rough leatherjacket *Scobinichthys granulatus*

Rough leatherjacket was the third most abundant species and constituted the sixth highest biomass of all fish captured during the trawl survey. This species was also found to have one of the broadest diets of all fish examined. While algae were clearly an important prey item for rough leatherjacket (constituting 30% of the total food volume obtained from 35 fish stomachs) a large, and diverse, range of other taxa were also consumed. These included, in descending levels of volume, echinoderms (16%), crustaceans (11%), hydroids (10%), molluscs (8%), bryozoans (6%), ascidians (6%), sponges (6%) annelids (3%), seagrasses (3%), pycnogonids (<1%), sipunculids (<1%) and brachiopods (<1%).

Smooth stingray *Dasyatis brevicaudata*

Despite its high average standing-stock in Spencer Gulf, smooth stingray *Dasyatis brevicaudata* (rank biomass = 7) were not abundant (rank = 90) or widely distributed (8/120 stations). These large rays (>1 m length), are armed with large serrated spines and are treated with considerable caution by the deck crews on trawlers, as they have caused the death of at least one person in southern Australia. Due to the dangers involved in handling these rays, all individuals were released immediately after capture, and no stomachs were collected for examination. No comparable data are available elsewhere in South Australia for this species; however studies in Victoria's Port Phillip Bay (Parry *et al.*, 1995) suggest that these rays feed predominantly on crustaceans (up to 80% of total prey volume, n = 12), and to a lesser extent fish, polychaete worms and molluscs.

Jack mackerel *Trachurus declivis*

Analysis of the stomach contents of 20 jack mackerel *Trachurus declivis* indicate that they feed primarily on fish (70%). Small crustaceans (< 5 mm; including prawns, mysids, amphipods and leptostracids) were also found to be consumed in small volumes (24%) by this schooling mackerel, as were polychaete worms (6%).

Silverbelly *Parequula melbournensis*

A total of 36 silverbelly *Parequula melbournensis* stomachs were examined during the study. This indicated that polychaete worms were the main prey item consumed by this fish (the ninth most significant species in terms of biomass in Spencer Gulf). Annelids (including free-living nereids and sedentary terebellids and pectinarids) collectively accounted for 66% of all food

consumed by this species. Echiurans were also found to be an important component of this fish's diet, and comprised a further 23% of the total dietary intake. Other less important prey items consumed by this bottom-feeder included crustaceans (4%), echinoderms (4%), bryozoans (2%), molluscs (1%) and sponges (<1%).

Ornate wobbegong *Orectolobus maculatus*

The ornate wobbegong *Orectolobus maculatus* was the tenth most important demersal fish in Spencer Gulf in terms of biomass, however like the smooth stingray this large (> 2 m length) shark was neither abundant (rank = 119) nor widely distributed (2/120 stations) in the Gulf. Indeed, only two individuals were captured during the trawl survey and both were immediately released as they posed a danger to the crew. As a result, no gut samples were obtained for this species. Previous dietary studies on this species in New South Wales (Huvneers *et al.*, 2007) have shown that the shark feeds primarily on bony fishes (including snapper and slimy mackerel), and to a lesser extent octopuses and cartilaginous fish (i.e. Port Jackson shark).

3.2.2 Multivariate analyses of guild structure

Five species groupings were separated following cluster analyses of the 101 fish species found to contain recognizable prey items in their guts (Figure 6). Group a, was the smallest group and contained just two fish species (blue morwong *Nemadactylus douglasii* and short boarfish *Parazanclistius hutchinsi*). As both of these fish fed almost exclusively on ophiuroids and echinoids, and because no other species consumed anywhere near the quantity of echinoderms in their diets, this group was recognised as a discrete guild of echinoderm specialists (Table 4, Figure 7). Group b, consisted of 13 species that primarily consumed fish. This piscivorous fish group included jack mackerel *Trachurus declivis*, red gurnard *Chelidonichthys kumu*, snapper *Chrysophrys auratus*, tiger flathead *Neoplatycephalus richardsoni*, toothy flathead *Neoplatycephalus aurimaculatus*, yank flathead *Platycephalus speculator*, longhead flathead *Leviprora inops*, cobbler carpet shark *Sutorectus tentaculatus*, common stargazer *Kathetostoma laeve*, barracouta *Thyrsites atun*, red cod *Pseudophycis bachus*, sergeant baker *Aulopus cf purpurissatus* and snook *Sphyræna novaehollandiae*. Group c, contained 11 species that consumed large quantities of molluscs. Notable members of this group included the spiky globefish *Diodon nictemerus*, the senator wrasse *Pictilabrus laticlavus* and the elephant fish *Callorhynchus milii*, all of which have highly modified mouthparts, adapted to crushing hard-shelled invertebrates. Group d, was the largest guild, and contained 52 species that primarily consumed crustaceans (mainly crabs, prawns and amphipods). Some of the more common species included in this group of crustacean specialists were the small tooth flounder *Pseudorhombus jenynsii*, little scorpion fish *Maxillcosta*

scabriceps and slender bullseye *Parapriacanthus elongatus*. Other less abundant and/or widespread species in the crustacean guild included the saw shark *Pristiophorus nudipinnis*, sculptured seamoth *Pegasus lancifer*, bigbelly seahorse *Hippocampus abdominalis* and estuary catfish *Cnidogobius macrocephalus*. The fifth group, Group e, consisted of 23 species that mainly consumed polychaete worms. Included among this group of worm specialists were the King George whiting *Sillaginodes punctata*, silver whiting *Sillago bassensis*, silverbelly *Parequula melbournensis*, crested flounder *Lophonectes gallus* and coastal stingaree *Urolophus orarius*. It is notable that Group e, also contained a sub-group of species whose diets contained large quantities of algae. This herbivorous sub-group included seven species of leatherjacket (i.e. velvet *Meuschenia scaber*, toothbrush *Acanthaluteres vittiger*, Degens *Thamnaconus degeni*, bridled *Acanthaluteres spilomelanurus*, rough *Scobinichthys granulatus*, Gunn's *Eubalichthys gunnii* and mosaic *Eubalichthys mosaicus*), as well as striped perch *Pelates octolineatus* and longsnout boarfish *Pentaceropsis recurvirostris*.

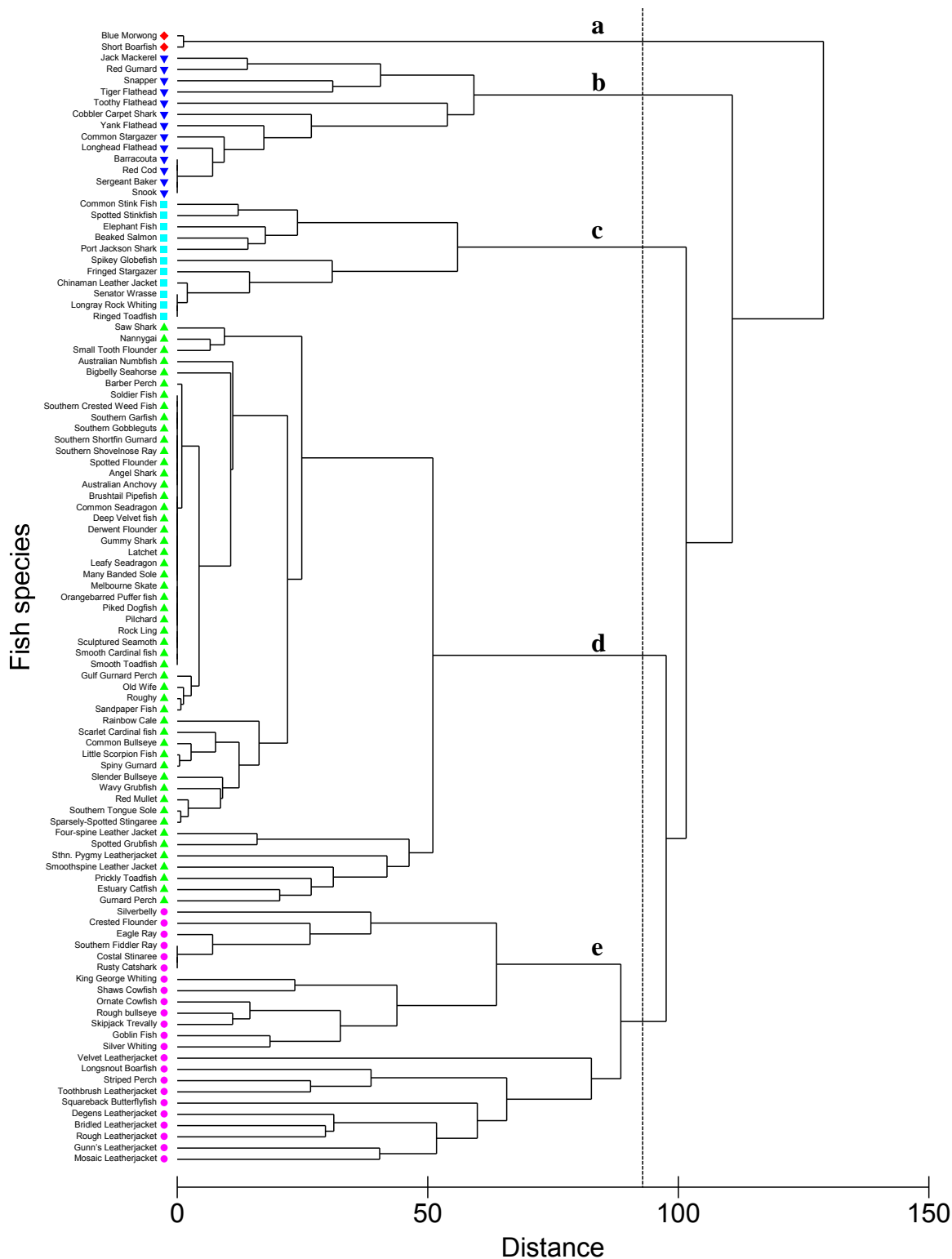


Figure 6. Dendrogram of similarities (Euclidean distance) in dietary composition of 101 fish species collected from Spencer Gulf. Five feeding guilds are recognised (a = echinoderm specialists, b = piscivorous fish, c = mollusc specialists, d = crustacean specialists, e = worm specialists).

Table 4. Proportion of main dietary components (mean % of total prey biomass) in the guts of 101 fish allocated to five feeding guilds by cluster analysis (a = echinoderm specialists, b = piscivorous fish, c = mollusc specialists, d = crustacean specialists, e = worm specialists).

Prey item	Feeding guild				
	a (n=2)	b (n=13)	c (n=11)	d (n=52)	e (n=23)
Algae	0	0.38	1.63	0.19	17.35
Annelida	0	1.29	4.85	3.50	42.08
Brachiopoda	0	0	0	0	0
Bryozoa	0	0	0.47	0.67	4.32
Chordata	0	78.18	0.33	1.09	0.19
Cnidaria	0	0	0.79	0.14	3.74
Crustacea	0.44	11.65	17.98	89.20	16.70
Echinodermata	99.56	0.59	0.36	2.39	1.58
Echiuroidea	0	0	0	0	1.00
Entoprocta	0	0	0.55	0	0
Hemichordata	0	0	0	0.09	0
Magnoliophyta	0	1.54	0.27	0.76	1.03
Mollusca	0	6.33	72.77	1.95	2.08
Phoronid	0	0	0	0	0.54
Porifera	0	0	0	0.01	4.49
Pycnogonida	0	0	0	0	0.03
Sipuncula	0	0	0.01	0	1.93
Urochordata	0	0.04	0	0	2.95

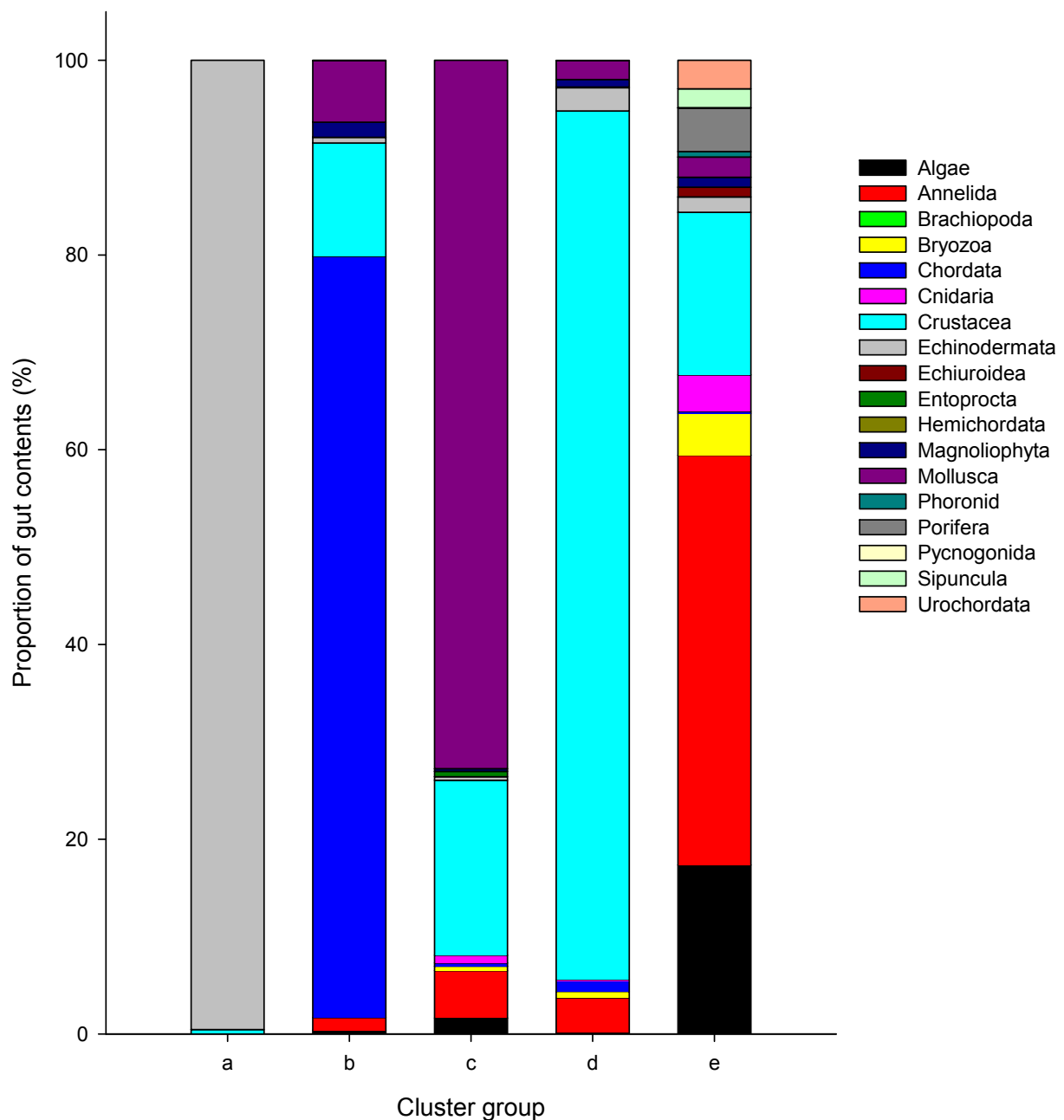


Figure 7. Proportional biomass of main dietary components in the guts of fish comprising five feeding guilds identified from cluster analysis (a = echinoderm specialists, b = piscivorous fish, c = mollusc specialists, d = crustacean specialists, e = worm specialists).

3.3 Trophic model

Daily food consumption/biomass ratios (Q/B) ranged from 0.60 in the Melbourne skate *Dipturus whitleyi*, to 6.33 in the sharpnose weed whiting *Siphonognathus caninis*, and had a mean value of 2.95 (n = 132). The product of these consumption ratios and the mean standing-stocks for

each fish species occurring in the north, central, and southern regions of Spencer Gulf are summarised in Appendix 3. This table suggests that Degens leatherjacket *Thamnaconus degeni* are the dominant consumers of benthic prey in the central and southern regions of the Gulf, where they account for 43% and 49% of the total food consumption, respectively. This same species appeared to eat less than to 2% of all food consumed in the northern region of the Gulf as a consequence of its low standing-stock and below average Q/B ratio. By comparison, the skipjack trevally *Pseudocaranx wrighti* was the dominant consumer in the north of the Gulf, and was estimated to eat approximately 21% of the total prey volume consumed by fish in this region of the Gulf. Other important consumers in the north (accounting for between 7% and 16% of the total prey volume) include the smooth stingray *Dasyatis brevicaudata*, rough leatherjacket *Scobinichthys granulatus* and Port Jackson shark *Heterodontus portusjacksoni*.

Comparisons of the total food consumption by fish in each of the three regions of Spencer Gulf indicate that food consumption decreases progressively towards the top of the Gulf, with daily food consumption rates in the northern region ($219.55 \text{ g ha}^{-1} \text{ day}^{-1}$) almost an order of magnitude lower than those in the south of the Gulf ($1580.99 \text{ g ha}^{-1} \text{ day}^{-1}$) (Table 5, Figure 8).

Table 5. Estimates of prey consumption ($\text{g ha}^{-1} \text{ day}^{-1}$) by demersal fish in three regions (north, central, south) of Spencer Gulf. Measures presented for each prey item are derived from their relative volumetric contributions in the diets of 132 fish (Appendix 2) and regional estimates of daily food consumption by each species as determined by Q/B model (Appendix 3). Note that the dietary compositions of 31 fish were drawn from sympatric species (same genus and/or Family) in this summary, as stomachs were either not collected or empty.

Prey Item	North (%)	Central (%)	South (%)
Algae	16.26 (7.41)	72.52 (14.02)	211.44 (13.37)
Annelida	40.04 (18.24)	99.74 (19.28)	430.91 (27.26)
Brachiopoda	0.01 (<0.01)	.	.
Bryozoa	2.49 (1.13)	37.68 (7.28)	126.64 (8.01)
Chordata	24.15 (11.00)	26.12 (5.05)	166.97 (10.56)
Cnidaria	4.20 (1.91)	15.72 (3.04)	43.41 (2.75)
Crustacea	103.85 (47.30)	204.09 (39.44)	483.13 (30.56)
Echinodermata	4.56 (2.08)	4.76 (0.92)	17.35 (1.10)
Echiuroidea	0.32 (0.15)	8.75 (1.69)	2.56 (0.16)
Entoprocta	0.06 (0.03)	0.09 (0.02)	0.2 (0.01)
Hemichordata	.	0.05 (0.01)	0.26 (0.02)
Magnoliophyta	2.76 (1.26)	8.09 (1.56)	17.36 (1.10)
Mollusca	16.05 (7.31)	33.02 (6.38)	67.56 (4.27)
Phoronid	0.39 (0.18)	0.32 (0.06)	1.18 (0.07)
Porifera	1.83 (0.83)	2.64 (0.51)	5.6 (0.35)
Pycnogonida	0.07 (0.03)	1.11 (0.21)	3.77 (0.24)
Sipuncula	0.94 (0.43)	2.01 (0.39)	2.06 (0.13)
Urochordata	1.57 (0.72)	0.72 (0.14)	0.59 (0.04)
Total	219.55	517.43	1580.99

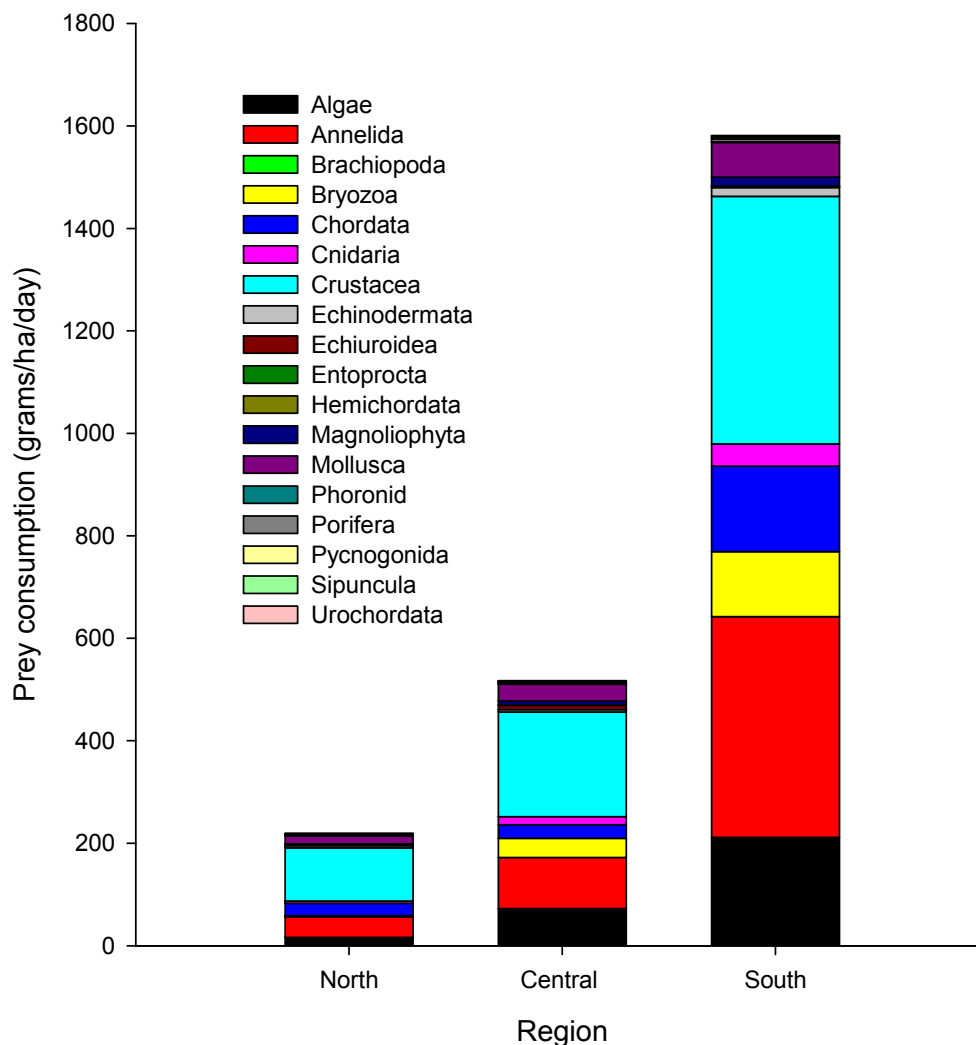


Figure 8. Estimates of total prey consumption ($\text{g ha}^{-1} \text{day}^{-1}$) by 132 demersal fish in three regions (north, central, south) of Spencer Gulf.

Crustaceans were the most important food item consumed in the north of the Gulf, where they comprised almost half (47%) of the total demersal fish diet (Table 5, Figure 8). The same taxonomic group were also the principal prey item in the diets of fish inhabiting the central and southern regions of the Gulf, although they comprised a relatively smaller proportion of the total daily diet (39% and 30%, respectively). Annelids were the second most important prey item consumed by demersal fish in all three regions of Spencer Gulf. Most notably, annelids comprised over a quarter (27%) of the diet of fish in the south of the Gulf; with almost half a kilogram of worms been consumed daily per hectare (Table 5). In contrast, annelids accounted for 18% of the diet of fish in the north, and 19% of the diet of fish in the central region of the Gulf. Two other prey items (fish and algae) were relatively important at a regional level, and

comprised more than 10% of the total diet. All other prey groups (e.g. molluscs, bryozoans, echinoderms, sponges) were eaten in relatively much smaller volumes, and were individually consumed at rates of less than $127 \text{ g ha}^{-1} \text{ day}^{-1}$.

4 DISCUSSION

4.1 Species composition and distribution

Although the 132 fish species collected from Spencer Gulf represent only a small component of the total Australian fish fauna (>4500 species; Hoese *et al.*, 2007), the species richness is relatively high when compared with other estuarine environments. For example, much fewer species (77) were collected from a similar number of trawl shots (110) in Port Phillip Bay, Victoria (Parry *et al.*, 1995). A relatively small number of species (88) were also collected from an equivalent number of trawl shots (105) in Port Curtis estuary, south-east Queensland (Currie and Connolly, 2006), while in a survey of the Hawkesbury estuary, New South Wales (Gray *et al.*, 1990), 75 fish species were collected from more than twice as many trawl shots (267). On the basis of these preliminary comparisons it is tempting to suggest that demersal fish diversity in Spencer Gulf is high by Australian standards. Nevertheless, such comparisons are invariably confounded by several factors including differences between studies in the range and areas of habitats surveyed and the types of trawl gear employed. It is particularly noteworthy that inshore waters (<10 m depth) were not sampled for demersal fish during the present study, as commercial prawn trawling is currently not permitted in these shallow areas of the Gulf. These coastal bedforms can support extensive seagrass beds, particularly in the north (Seddon *et al.*, 2000), and may also sustain quite distinct and diverse fish communities (e.g. Jenkins *et al.*, 1997). It therefore seems likely that additional sampling in these nearshore habitats would uncover additional fish species, and result in an even higher overall measure of species richness for the Gulf.

While species composition and relative biomass varied between sites, a small group of benthic scavengers dominated the catch throughout Spencer Gulf. This group including Degens leatherjacket *Thamnaconus degeni*, skipjack trevally *Pseudocaranx wrighti* and Rough leatherjacket *Scobinichthys granulatus*, collectively accounted for over half the total catch weight and more than four-fifths of the total abundance. In contrast, most species had restricted distributions and were collected in relatively smaller numbers and biomasses. This pattern of dominance by a small number of widespread species is not particularly unusual in the fish faunas of large estuaries, but the prevalence of scavenging species is noteworthy, particularly in light of the large volumes of bycatch discarded annually in Spencer Gulf, and made available as a food source for scavenging species (Svane *et al.*, 2008). Several studies have suggested that the practice of discarding unwanted catch may lead to increases in the size of some scavenging populations (Wassenberg and Hill, 1990; Kaiser and Spencer, 1996; Ramsay *et al.*, 1998). It is, however, uncertain if the prevalence of benthic scavengers in Spencer Gulf reflects

a response to increased food generated by prawn fishing activities, as no studies of the ecosystem before fishing commenced were undertaken.

In addition to fishing, numerous biological and physical factors are reported to affect the distributional patterns of estuarine fish fauna. Major physical influences include depth (Simier *et al.*, 2004), temperature (Loneragan *et al.*, 1987), salinity and turbidity (Cyrus and Blaber, 1992), while important biological factors include predation (Levin *et al.*, 1997), competition (Scharf *et al.*, 2009) and recruitment (Nicholson *et al.*, 2008). Estuarine fish may also respond to a range of other anthropogenic impacts where present, including organic enrichment (Gray *et al.*, 2002), chemical pollution (Eddy, 2005) and aquaculture (Gowen and Bradbury, 1987). Few generalisations on the dominant processes structuring estuarine fish communities have emerged so far, probably as structuring forces vary between estuaries.

In the current study, a strong shift in community structure was observed between the north and south of the Gulf that was best explained in our analyses by variations in latitude and depth. It is, however, unlikely that either variable is a primary casual factor structuring demersal fish in Spencer Gulf. This is because depth co-varies with latitude and with many other environmental variables (e.g. temperature and salinity) that can directly affect the distribution and community composition of demersal fish. Studies conducted elsewhere in temperate Australia (Potter and Hyndes, 1994; Edgar *et al.*, 1999) have generally concluded that salinity predominantly structures diversity and community composition of estuarine fish, and it seems reasonable to infer that the large north-south salinity gradient reported for the Spencer Gulf (Δ 10 PSU, Nunes and Lennon, 1986) also plays an pivotal role in structuring the demersal fish communities of the Spencer Gulf.

4.2 Dietary composition

The demersal fish assemblages of Spencer Gulf displayed dietary patterns that were broadly consistent with other estuarine fish assemblages elsewhere in southern Australia. Notably, in this and other studies (e.g. Edgar and Shaw, 1995; Parry *et al.*, 1995) crustaceans were the dominant dietary component. Over half of all fish species examined from Spencer Gulf had some combination of crabs, prawns or amphipods as the main food item in their diet. Smaller groups of demersal fish species also preferentially targeted annelids, fish, molluscs and echinoderms, however most fish displayed broad levels of dietary overlap.

The prevalence of crustaceans in the diets of a majority of fish appears to reflect their generally high abundance and standing-stock in Spencer Gulf. After fish, crustaceans were found to be

the most common taxa represented in trawl shots across the Gulf, and accounted for over a quarter of the total abundance, and almost one-third of the total catch biomass (Currie *et al.*, 2009). Sponges, by comparison (which are the next most common macrofaunal taxa collected from the Gulf; see Currie *et al.*, 2009) were disproportionately represented in the diets of fish. This taxon was found in the stomachs of less than 8% of species examined (mostly leatherjackets, 6 spp), and probably reflects their unpalatable nature and low nutritional value (Duffy and Paul, 1992). Conversely, annelids and molluscs appear to be over-represented in the diets of fish in Spencer Gulf, with neither taxa accounting for more than 1% of the total abundance or biomass of the catch at any of the 120 trawl sites surveyed. It is likely that many annelids and molluscs passed through the large-mesh (4.5 cm) trawl gear employed during this study, and were consequently not effectively sampled. As a result, the densities and standing stocks of both taxa on the seafloor of Spencer Gulf are probably under-estimated - as is suggested by our dietary data.

A number of other potential sources of error are recognised for this preliminary dietary study. Firstly, our volumetric assessment takes no account of that fact that different prey items are digested at differing rates and therefore may not be representative of the actual volumes in which they were consumed (Hyslop, 1980). Secondly, our dietary estimates for each species are derived from a random selection of individual fish of variable size and therefore may be subject to size-related biases, particularly in those species where marked ontogenic shifts in diet occur. Thirdly, our estimates are drawn from a number of different trawl sites, and do not specifically consider geographical variations in prey availability. Finally, our snap-shot survey takes no account of the biology of the fish themselves, and potential seasonal changes in abundance that are associated with reproduction and/or migration. Because we did not specifically examine these sources of error, our results should simply be considered as general averages of dietary composition and guild structure in the Gulf. More robust assessments of the diets of fish in Spencer Gulf as they relate to size, depth, sex and habitat, are certainly possible, and should be undertaken in any future studies.

4.3 Trophic model

Estimates for total fish consumption in Spencer Gulf (219.55-1580.99 g ha⁻¹ day⁻¹) were generally consistent with the results of other previous studies in temperate Australia. For example, Edgar and Shaw (1995) reported total consumption of small fish over seagrass habitats in Westernport at approximately 20 g m⁻² year⁻¹ (= 548 g ha⁻¹ day⁻¹), while Officer and Parry (1997), estimated consumption at 269-848 g ha⁻¹ day⁻¹ for demersal fish communities in

Port Phillip Bay. As is the case in Spencer Gulf, Officer and Parry (1997) also observed that consumption increased with increasing depth in Port Phillip Bay.

Total food consumption by demersal fish in Spencer Gulf increased progressively between the shallow north and the deeper waters of the south, and broadly reflected a general increase in total fish biomass towards the south of the Gulf. This difference may be explained, at least in part, by variations in trawl efficiency between the shallow northern waters (where the topographic relief is relatively high) and the deeper southern waters (where the bedforms are flatter); with the net operating less efficiently in the north and under-representing the abundance and biomass of the regions fish. It is, however, unlikely that such variations in sampling efficiency would have accounted for the large magnitude of the difference (>7x biomass and consumption). The exceptionally high biomasses of Degens leatherjacket *Thamnaconus degeni* at two sites in the south of the Gulf, immediately east of Boston Bay, provide another possible explanation for the gross difference in consumption between the north and south of the Gulf. However, even when this species is excluded from our analyses, biomass and consumption rates are still estimated to be nearly 4x higher in the south than in the north of the Gulf.

The relatively high consumption rates by fish in the deep southern waters of the Gulf in comparison to those in shallow northern waters, may suggest that fish are overexploited in the shallower northern waters and unable to consume all of the available prey resources. Alternatively, and perhaps more likely, trophic linkages may be shorter in the south of the Gulf than they are in the north. Some support for this latter hypothesis may be found in the observation that primary producers (i.e. algae) and benthic detritivores (i.e. annelids) are proportionally better represented in the stomachs of fish in the south of the Gulf, while intermediate predators (i.e. squid and cuttlefish) are relatively more important in the diets of fish from the north.

4.4 Future research

Like many estuaries world-wide, Spencer Gulf is the locus of a growing population. As this population increases, so too does the potential for environmental degradation. Many localised changes to the water quality and the estuarine biota have already been documented (e.g. Ward and Hutchings 1996; Fernandes *et al.*, 2007; Svane *et al.*, 2009). If estuarine communities are to be protected it is necessary that they are adequately documented and their conservation values assessed. This study provides important information on the distribution and diets of demersal fishes in Spencer Gulf, and provides a quantitative baseline for future assessment of ecological change.

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Appendix 1. Mean abundance ($n\ ha^{-1} \pm s.e.$), biomass ($g\ ha^{-1} \pm s.e.$) and frequency of occurrence (n stations at which present, with % in brackets) of demersal fish from 120 trawl sampling stations in Spencer Gulf.

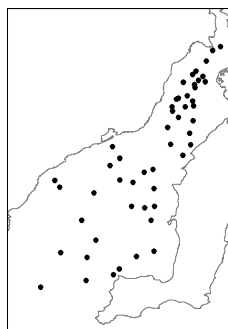
Family	Code	Common Name	Scientific Name	Stations	Biomass	Abundance
Antennariidae	F124	Smooth Anglerfish	<i>Phyllophryne scortea</i>	1 (0.8)	0.041 \pm 0.041	0.01 \pm 0.01
	F127	Tasselled Anglerfish	<i>Rhycherus filamentosus</i>	2 (1.7)	0.837 \pm 0.669	0.018 \pm 0.014
	F129	Rodless Anglerfish	<i>Histiophryne cryptacanthus</i>	1 (0.8)	0.322 \pm 0.322	0.006 \pm 0.006
Aploactinidae	F108	Deep Velvet fish	<i>Kanekonia queenslandica</i>	4 (3.3)	0.104 \pm 0.054	0.033 \pm 0.016
Apogonidae	F043	Scarlet Cardinal fish	<i>Vincentia badia</i>	43 (35.8)	10.927 \pm 3.523	1.665 \pm 0.512
	F048	Southern Gobbleguts	<i>Vincentia conspersa</i>	9 (7.5)	1.45 \pm 0.745	0.176 \pm 0.079
	F049	Smooth Cardinal fish	<i>Vincentia macrocauda</i>	3 (2.5)	1.537 \pm 1.343	0.15 \pm 0.106
Arripidae	F126	Tommy Rough	<i>Arripis georgianus</i>	1 (0.8)	0.182 \pm 0.182	0.006 \pm 0.006
Aulopidae	F119	Sergeant Baker	<i>Aulopus cf purpurissatus</i>	1 (0.8)	66.61 \pm 66.61	0.089 \pm 0.089
Berycidae	F062	Nannygai	<i>Centroberyx affinis</i>	4 (3.3)	70.66 \pm 56.09	0.448 \pm 0.319
Bothidae	F034	Crested Flounder	<i>Lophonectes gallus</i>	29 (24.2)	5.947 \pm 1.473	0.286 \pm 0.071
Callionymidae	F006	Spotted Stinkfish	<i>Repomucenus calcaratus</i>	58 (48.3)	135.441 \pm 26.151	9.896 \pm 1.987
	F022	Common Stink Fish	<i>Foetorepus calaupopomus</i>	38 (31.7)	75.353 \pm 26.524	3.159 \pm 1.844
Callorhynchidae	F079	Elephant Fish	<i>Callorhynchus milii</i>	7 (5.8)	53.862 \pm 28.675	0.073 \pm 0.031
Carangidae	F009	Skipjack Trevally	<i>Pseudocaranx wrighti</i>	102 (85)	1461.669 \pm 219.937	75.739 \pm 12.066
	F035	Jack Mackerel	<i>Trachurus declivis</i>	33 (27.5)	515.063 \pm 218.15	11.307 \pm 4.76
Chaetodontidae	F058	Squareback Butterflyfish	<i>Chelmonops curiosus</i>	7 (5.8)	1.735 \pm 0.908	0.056 \pm 0.025
Cheilodactylidae	F105	Blue Morwong	<i>Nemadactylus douglasii</i>	3 (2.5)	27.293 \pm 26.679	0.018 \pm 0.011
	F120	Magpie Perch	<i>Cheilodactylus nigripes</i>	1 (0.8)	25.879 \pm 25.879	0.045 \pm 0.045
Clinidae	F051	Southern Crested Weed Fish	<i>Cristiceps australis</i>	3 (2.5)	0.1 \pm 0.065	0.02 \pm 0.014
Clupeidae	F074	Pilchard	<i>Sardinops neopilchardus</i>	12 (10)	1.039 \pm 0.418	0.141 \pm 0.056
	F080	Sandy Spratt	<i>Hyperlophus vittatus</i>	13 (10.8)	0.846 \pm 0.458	0.266 \pm 0.127
	F133	Blue Sprat	<i>Spratelloides robustus</i>	1 (0.8)	0.135 \pm 0.135	0.02 \pm 0.02
Cynoglossidae	F060	Southern Tongue Sole	<i>Cynoglossus broadhursti</i>	27 (22.5)	14.405 \pm 3.333	0.309 \pm 0.071
Dasyatidae	F097	Black Stingray	<i>Dasyatis thetidis</i>	3 (2.5)	302.562 \pm 184.373	0.015 \pm 0.01
	F098	Smooth Stingray	<i>Dasyatis breviceaudata</i>	8 (6.7)	610.034 \pm 288.931	0.038 \pm 0.015
Diodontidae	F016	Spikey Globefish	<i>Diodon nithemerus</i>	51 (42.5)	228.293 \pm 47.299	0.922 \pm 0.175
Engraulidae	F125	Australian Anchovy	<i>Engraulis australis</i>	10 (8.3)	0.789 \pm 0.296	0.127 \pm 0.045
Enoplosidae	F076	Old Wife	<i>Enoplosus armatus</i>	9 (7.5)	24.548 \pm 14.622	0.178 \pm 0.101
Gempylidae	F050	Barracouta	<i>Thyrsites atun</i>	18 (15)	27.635 \pm 11.756	0.476 \pm 0.183
Gerreidae	F019	Silverbelly	<i>Parequula melbournensis</i>	89 (74.2)	408.251 \pm 65.614	27.375 \pm 4.415
Gonorynchidae	F064	Beaked Salmon	<i>Gonorynchus greyi</i>	26 (21.7)	16.583 \pm 4.88	0.256 \pm 0.064
Hemiramphidae	F075	Southern Garfish	<i>Hyporhamphus melanochir</i>	7 (5.8)	0.502 \pm 0.333	0.053 \pm 0.027
Heterodontidae	F031	Port Jackson Shark	<i>Heterodontus portusjacksoni</i>	73 (60.8)	840.167 \pm 103.799	0.872 \pm 0.103
Hypnidae	F057	Australian Numbfish	<i>Hypnos monopterygium</i>	6 (5)	56.556 \pm 27.084	0.054 \pm 0.029
Labridae	F117	Senator Wrasse	<i>Pictilabrus laticlavus</i>	2 (1.7)	15.187 \pm 11.371	0.055 \pm 0.046
	F130	Blackspotted Wrasse	<i>Austrolabrus maculatus</i>	2 (1.7)	0.18 \pm 0.138	0.01 \pm 0.007
Monacanthidae	F010	Rough Leatherjacket	<i>Scobinichthys granulatus</i>	105 (87.5)	753.959 \pm 96.939	43.435 \pm 6.564
	F011	Bridled Leatherjacket	<i>Acanthaluteres spilomelanurus</i>	50 (41.7)	44.365 \pm 14.967	4.338 \pm 0.98
	F020	Velvet Leatherjacket	<i>Meuschenia scaber</i>	5 (4.2)	4.058 \pm 3.08	0.093 \pm 0.057
	F021	Toothbrush Leatherjacket	<i>Acanthaluteres vittiger</i>	98 (81.7)	227.464 \pm 40.87	13.288 \pm 2.488
	F032	Mosaic Leatherjacket	<i>Eubalichthys mosaicus</i>	26 (21.7)	40.457 \pm 24.552	0.255 \pm 0.094
	F047	Gunn's Leatherjacket	<i>Eubalichthys gunnii</i>	3 (2.5)	0.689 \pm 0.451	0.013 \pm 0.009
	F054	Degens Leatherjacket	<i>Thamnaconus degeni</i>	91 (75.8)	8265.789 \pm 3022.903	627.412 \pm 239.491
	F055	Sthn. Pygmy Leatherjacket	<i>Brachaluteres jacksonianus</i>	33 (27.5)	2.496 \pm 0.631	0.465 \pm 0.107
	F111	Chinaman Leather Jacket	<i>Nelusetta ayraudi</i>	3 (2.5)	1.147 \pm 0.741	0.017 \pm 0.011
	F114	Six-spine Leather Jacket	<i>Meuschenia freycineti</i>	1 (0.8)	0.79 \pm 0.79	0.007 \pm 0.007
Moridae	F121	Smoothspine Leather Jacket	<i>Cantheschenia longipinnis</i>	1 (0.8)	19.565 \pm 19.565	0.222 \pm 0.222
	F122	Four-spine Leather Jacket	<i>Eubalichthys quadrispinis</i>	1 (0.8)	12.539 \pm 12.539	0.089 \pm 0.089
Moridae	F106	Red Cod	<i>Pseudophycis bachus</i>	3 (2.5)	1.849 \pm 1.482	0.01 \pm 0.006
Mullidae	F008	Red Mullet	<i>Upeneichthys vlamingii</i>	111 (92.5)	784.591 \pm 103.311	26.269 \pm 2.901
Myliobatidae	F061	Eagle Ray	<i>Myliobatis australis</i>	13 (10.8)	1225.967 \pm 433.589	0.146 \pm 0.048
Neosebastidae	F003	Little Scorpion Fish	<i>Maxillcosta scabriceps</i>	88 (73.3)	58.55 \pm 8.131	4.55 \pm 0.587

Family	Code	Common Name	Scientific Name	Stations	Biomass	Abundance
	F036	Gulf Gurnard Perch	<i>Neosebastes bougainvillii</i>	33 (27.5)	187.367 ± 120.087	1.214 ± 0.718
	F071	Gurnard Perch	<i>Neosebastes pandus</i>	14 (11.7)	62.103 ± 32.514	0.196 ± 0.135
Odacidae	F005	Longray Rock Whiting	<i>Siphonognathus radiatus</i>	4 (3.3)	0.199 ± 0.131	0.02 ± 0.011
	F040	Rainbow Cale	<i>Odax acroptilus</i>	4 (3.3)	0.726 ± 0.361	0.026 ± 0.014
	F041	Tubemouth	<i>Siphonognathus argyrophanes</i>	2 (1.7)	0.084 ± 0.077	0.005 ± 0.004
	F059	Little Rock Whiting	<i>Neodax balteatus</i>	1 (0.8)	0.019 ± 0.019	0.002 ± 0.002
	F093	Slender Weed Whiting	<i>Siphonognathus attenuatus</i>	2 (1.7)	0.016 ± 0.013	0.014 ± 0.012
	F113	Sharpnose Weed Whiting	<i>Siphonognathus caninis</i>	1 (0.8)	0.017 ± 0.017	0.008 ± 0.008
Ophidiidae	F081	Rock Ling	<i>Genypterus tigerinus</i>	13 (10.8)	56.497 ± 28.536	0.1 ± 0.033
Oplegnathidae	F128	Knifejaw	<i>Oplegnathus woodwardi</i>	1 (0.8)	0.095 ± 0.095	0.002 ± 0.002
Orectolobidae	F085	Cobbler Carpet Shark	<i>Sutorectus tentaculatus</i>	11 (9.2)	183.684 ± 66.213	0.109 ± 0.037
	F100	Ornate Wobbegong	<i>Orectolobus maculatus</i>	2 (1.7)	327.668 ± 235.236	0.005 ± 0.003
Ostraciidae	F025	Ornate Cowfish	<i>Aracana ornata</i>	47 (39.2)	109.939 ± 35.205	1.868 ± 0.618
	F038	Shaws Cowfish	<i>Aracana aurita</i>	30 (25)	103.029 ± 20.577	1.031 ± 0.3
Paralichthyidae	F002	Small Tooth Flounder	<i>Pseudorhombus jenynsii</i>	55 (45.8)	194.012 ± 31.909	1.713 ± 0.29
Parascylliidae	F087	Rusty Catshark	<i>Parascyllium ferrugineum</i>	4 (3.3)	15.805 ± 12.096	0.055 ± 0.045
Pataecidae	F084	Whiskered Prowfish	<i>Neopataecus waterhousii</i>	1 (0.8)	0.005 ± 0.005	0.003 ± 0.003
Pegasidae	F072	Sculptured Seamoth	<i>Pegasus lancifer</i>	8 (6.7)	0.187 ± 0.08	0.067 ± 0.027
Pempheridae	F004	Slender Bullseye	<i>Parapriacanthus elongatus</i>	70 (58.3)	57.367 ± 14.76	10.458 ± 2.62
	F033	Rough bullseye	<i>Pempheris klunzingeri</i>	17 (14.2)	69.901 ± 35.254	1.442 ± 0.7
	F132	Common Bullseye	<i>Pempheris multiradiata</i>	1 (0.8)	0.312 ± 0.312	0.036 ± 0.036
	F014	Longsnout Boarfish	<i>Pentaceropsis recurvirostris</i>	9 (7.5)	27.105 ± 12.826	0.04 ± 0.014
	F015	Short Boarfish	<i>Parazanclistius hutchinsi</i>	7 (5.8)	9.292 ± 7.052	0.063 ± 0.045
Pinguipedidae	F024	Spotted Grubfish	<i>Parapercis ramsayi</i>	19 (15.8)	4.356 ± 1.438	0.209 ± 0.065
	F028	Wavy Grubfish	<i>Parapercis haackei</i>	32 (26.7)	2.396 ± 0.586	0.641 ± 0.15
Platycephalidae	F018	Tiger Flathead	<i>Neoplatycephalus richardsoni</i>	68 (56.7)	260.032 ± 46.733	3.655 ± 0.69
	F029	Rock Flathead	<i>Thysanophrys cirronasa</i>	17 (14.2)	11.021 ± 3.467	0.12 ± 0.032
	F030	Yank Flathead	<i>Platycephalus speculator</i>	42 (35)	113.141 ± 21.602	0.656 ± 0.133
	F083	Longhead Flathead	<i>Leviprora inops</i>	4 (3.3)	10.622 ± 6.789	0.039 ± 0.028
	F109	Toothy Flathead	<i>Neoplatycephalus aurimaculatus</i>	14 (11.7)	26.471 ± 8.562	0.149 ± 0.045
Pleuronectidae	F026	Derwent Flounder	<i>Taratretis derwentensis</i>	6 (5)	1.65 ± 0.773	0.037 ± 0.018
	F068	Spotted Flounder	<i>Ammotretis lituratus</i>	6 (5)	1.959 ± 1.01	0.021 ± 0.009
Plotosidae	F094	Estuary Catfish	<i>Cnidoglanis macrocephalus</i>	2 (1.7)	2.403 ± 1.861	0.016 ± 0.012
Pristiophoridae	F089	Saw Shark	<i>Pristiophorus nudipinnis</i>	6 (5)	54.096 ± 35.37	0.574 ± 0.492
	F101	Common Sawshark	<i>Pristiophorus cirratus</i>	1 (0.8)	0.446 ± 0.446	0.003 ± 0.003
Rajidae	F082	Melbourne Skate	<i>Dipturus whiteyi</i>	10 (8.3)	59.725 ± 29.059	0.052 ± 0.019
Rhinobatidae	F073	Southern Fiddler Ray	<i>Trygonorrhina fasciata</i>	17 (14.2)	131.244 ± 46.107	0.09 ± 0.025
	F088	Southern Shovelnose Ray	<i>Aptychotrema vincentiana</i>	10 (8.3)	20.748 ± 8.44	0.085 ± 0.031
Scyliorhinidae	F116	Saddled Catshark	<i>Asymbolus sp. 1</i>	1 (0.8)	12.184 ± 12.184	0.045 ± 0.045
	F135	Gulf Catshark	<i>Asymbolus vincenti</i>	1 (0.8)	0.561 ± 0.561	0.003 ± 0.003
Serranidae	F066	Butterfly Perch	<i>Caesioperca lepidoptera</i>	1 (0.8)	1.658 ± 1.658	0.01 ± 0.01
	F118	Barber Perch	<i>Caesioperca rasor</i>	1 (0.8)	20.187 ± 20.187	0.267 ± 0.267
Sillaginidae	F001	King George Whiting	<i>Sillaginodes punctata</i>	51 (42.5)	161.891 ± 37.939	1.109 ± 0.2
	F013	Silver Whiting	<i>Sillago bassensis</i>	44 (36.7)	259.157 ± 118.422	5.921 ± 2.938
Soleidae	F069	Many Banded Sole	<i>Zebrias scalaris</i>	4 (3.3)	0.305 ± 0.162	0.011 ± 0.006
Sparidae	F063	Snapper	<i>Chrysophrys auratus</i>	36 (30)	92.185 ± 35.81	0.622 ± 0.143
Sphyraenidae	F037	Snook	<i>Sphyraena novaehollandiae</i>	10 (8.3)	26.119 ± 9.549	0.088 ± 0.034
	F092	Striped Seapike	<i>Sphyraena obtusata</i>	2 (1.7)	22.823 ± 22.632	0.047 ± 0.045
Squalidae	F110	Piked Dogfish	<i>Squalus megalops</i>	3 (2.5)	12.446 ± 12.001	0.045 ± 0.04
Squatinae	F077	Angel Shark	<i>Squatina australis</i>	14 (11.7)	94.87 ± 35.353	0.064 ± 0.017
Syngnathidae	F027	Tiger Pipefish	<i>Filicampus tigris</i>	7 (5.8)	0.298 ± 0.116	0.055 ± 0.021
	F044	Brushtail Pipefish	<i>Leptoichthys fistularius</i>	7 (5.8)	0.149 ± 0.061	0.052 ± 0.023
	F045	Leafy Seadragon	<i>Phycodurus eques</i>	10 (8.3)	0.941 ± 0.511	0.092 ± 0.037
	F046	Common Seadragon	<i>Phyllopteryx taeniolatus</i>	10 (8.3)	2.472 ± 1.485	0.239 ± 0.161
	F078	Spotted Pipefish	<i>Stigmatopora argus</i>	5 (4.2)	0.05 ± 0.029	0.023 ± 0.014
	F095	Bigbelly Seahorse	<i>Hippocampus abdominalis</i>	11 (9.2)	1.693 ± 0.639	0.192 ± 0.073

Family	Code	Common Name	Scientific Name	Stations	Biomass	Abundance
	F107	Macleays Crested Pipefish	<i>Histiogamphelus cristatus</i>	1 (0.8)	0.012 ± 0.012	0.003 ± 0.003
Terapontidae	F007	Striped Perch	<i>Pelates octolineatus</i>	41 (34.2)	139.397 ± 34.576	2.722 ± 0.732
Tetraodontidae	F017	Ringed Toadfish	<i>Omegophora armilla</i>	12 (10)	9.799 ± 3.623	0.126 ± 0.043
	F042	Orangebarred Puffer fish	<i>Polyspina piosae</i>	25 (20.8)	10.953 ± 3.681	0.922 ± 0.322
	F056	Prickly Toadfish	<i>Contusus breviceaudus</i>	11 (9.2)	3.426 ± 1.211	0.105 ± 0.035
	F086	Smooth Toadfish	<i>Tetractenos glaber</i>	16 (13.3)	34.365 ± 12.112	0.228 ± 0.07
Tetrarogidae	F052	Soldier Fish	<i>Gymnapistes marmoratus</i>	24 (20)	40.07 ± 24.782	3.344 ± 2.093
	F112	Goblin Fish	<i>Glyptauchen panduratus</i>	2 (1.7)	0.274 ± 0.201	0.021 ± 0.015
Trachichthyidae	F065	Roughy	<i>Trachichthys australis</i>	3 (2.5)	8.739 ± 5.939	0.125 ± 0.092
	F067	Sandpaper Fish	<i>Paratrachichthys macleayi</i>	7 (5.8)	2.209 ± 1.238	0.115 ± 0.062
	F123	Western Roughy	<i>Optivus agrammus</i>	1 (0.8)	0.267 ± 0.267	0.045 ± 0.045
	F131	Little Pineapplefish	<i>Sorosichthys ananassa</i>	1 (0.8)	0.11 ± 0.11	0.006 ± 0.006
Triakidae	F099	Gummy Shark	<i>Mustelus antarcticus</i>	3 (2.5)	111.2 ± 107.758	0.016 ± 0.01
	F023	Spiny Gurnard	<i>Lepidotrigla papilio</i>	85 (70.8)	110.273 ± 20.5	8.272 ± 1.279
	F090	Latchet	<i>Pterygotrigla polyommata</i>	3 (2.5)	0.952 ± 0.705	0.069 ± 0.053
	F091	Southern Shortfin Gurnard	<i>Lepidotrigla spinosa</i>	17 (14.2)	42.152 ± 17.675	1.313 ± 0.5
	F104	Red Gurnard	<i>Chelidonichthys kumu</i>	4 (3.3)	18.376 ± 10.729	0.06 ± 0.046
Uranoscopidae	F012	Common Stargazer	<i>Kathetostoma laevis</i>	19 (15.8)	300.104 ± 158.641	0.254 ± 0.101
	F070	Fringed Stargazer	<i>Ichthyoscopus barbatus</i>	7 (5.8)	3.784 ± 1.823	0.028 ± 0.013
Urolophidae	F039	Costal Stingaree	<i>Urolophus orarius</i>	11 (9.2)	13.56 ± 5.859	0.058 ± 0.019
	F053	Sparsely-Spotted Stingaree	<i>Urolophus paucimaculatus</i>	32 (26.7)	107.731 ± 29.842	0.845 ± 0.279
	F096	Spotted Stingaree	<i>Urolophus gigas</i>	1 (0.8)	1.811 ± 1.811	0.002 ± 0.002
	F134	Banded Stingaree	<i>Urolophus cruciatus</i>	1 (0.8)	0.38 ± 0.38	0.003 ± 0.003

Appendix 2. Distribution and diets of 132 demersal fish species collected from 120 trawl stations in Spencer Gulf during February 2007.

F001 *Sillaginodes punctata* (Cuvier, 1829) (Chordata, Sillaginidae) CAAB 37 330001



Common name = King George Whiting

Length = To 434 mm

Depth range = 12 - 44 m

Stations = 1, 12, 13C, 20B, 21B, 21C, 22B, 30, 36, 44, 50B, 58C, 61, 69, 7, 70, 78, 8, 80, 92, 93, BC1, BC10, BC11, BC13, BC15, BC17, BC20, BC24, BC27, BC28, BC3, BC32, BC36, BC38, BC39, BC40, BC42, BC44, BC46, BC9, CP7, N23, WD3, WD4, WG1, X3, Y7, Z1/1, Z3/11, Z3/2

Average biomass = 161.890 g/ha

Rank biomass = 20

Average abundance = 1.109/ha

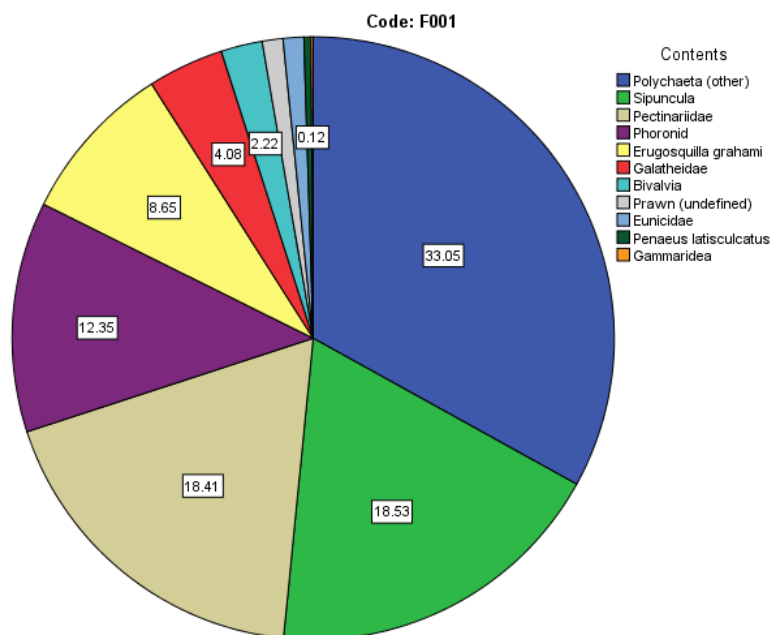
Rank abundance = 24

Dietary Summary

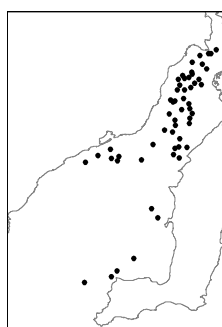
Number of guts examined = 19

Proportion of guts empty = 5%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Eunicidae	0.18	1.11
Annelida	Pectinariidae	2.98	18.41
Annelida	Polychaeta (other)	5.35	33.05
Crustacea	<i>Erugosquilla grahami</i>	1.40	8.65
Crustacea	Galatheidae	0.66	4.08
Crustacea	Gammaridea	0.02	0.12
Crustacea	<i>Penaeus latisulcatus</i>	0.06	0.37
Crustacea	Prawn (undefined)	0.18	1.11
Mollusca	Bivalvia	0.36	2.22
Phoronid	Phoronid	2.00	12.35
Sipuncula	Sipuncula	3.00	18.53



F002 *Pseudorhombus jenynsii* (Bleeker, 1855) (Chordata, Paralichthyidae) CAAB 37 460002



Common name = Small Tooth Flounder

Length = To 351 mm

Depth range = 12 - 41.5 m

Stations = 1, 12, 13C, 16, 19, 21B, 21C, 22B, 23, 26, 30, 32, 36, 4, 44, 47B, 50B, 57, 58C, 59B, 61, 63, 68, 69, 7, 72, 74, 78, 8, 80, 92, 93, 94, 9B, BC1, BC2, BC3, BC40, BC42, BC44, C14, CB1, CP7, DK1, EWL3, FC2, SHW2, WD4, WD6, X3, Z1/1, Z1/3, Z1/5, Z2/13, Z3/2

Average biomass = 194.012 g/ha Rank biomass = 17

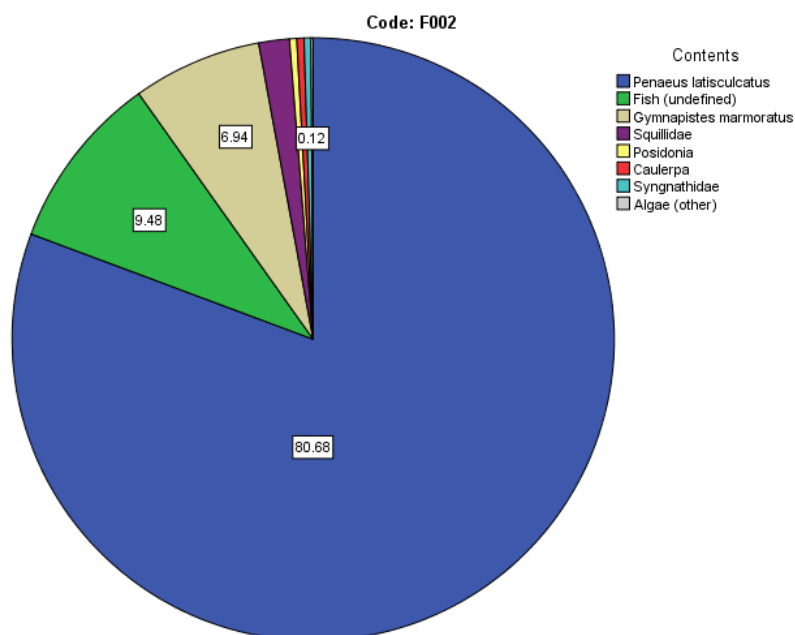
Average abundance = 1.713/ha Rank abundance = 19

Dietary Summary

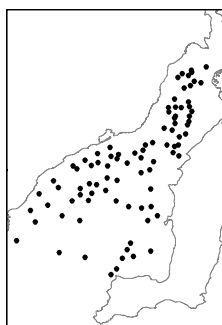
Number of guts examined = 17

Proportion of guts empty = 47%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae (other)	0.04	0.12
Algae	Caulerpa	0.12	0.39
Chordata	Fish (undefined)	2.94	9.48
Chordata	<i>Gymnapistes marmoratus</i>	2.15	6.94
Chordata	Syngnathidae	0.11	0.36
Crustacea	<i>Penaeus latisculcatus</i>	25.01	80.68
Crustacea	Squillidae	0.51	1.65
Magnoliophyta	Posidonia	0.12	0.39



F003 *Maxilllicosta scabriceps* Whitley, 1935 (Chordata, Neosebastidae) CAAB 37 287007



Common name = Little Scorpion Fish (Little Gurnard Perch)

Length = To 124 mm

Depth range = 12 - 43 m

Stations = 1, 11B, 13C, 16, 19, 1B, 2, 21B, 21C, 23, 26, 3A, 4, 47B, 5, 58C, 59B, 61, 63, 68, 69, 70, 72, 74, 78, 7B, 8, 80, 92, 93, 9B, BC1, BC10, BC11, BC12, BC15, BC16, BC17, BC18, BC19, BC2, BC20, BC21, BC22, BC23, BC24, BC25, BC27, BC28, BC3, BC30, BC35, BC36, BC38, BC39, BC4, BC40, BC42, BC6, BC8, BC9, C14, C7, CP1, CP12, CP3, CP7, EWL3, N23, SHW2, SHW7, WAL32, WD3, WD4, WD6, WD9, WG1, WG3, Y7, Z1/1, Z1/3, Z1/5, Z1/7, Z2/10, Z2/11, Z2/13, Z3/11, Z3/2

Average biomass = 58.550 g/ha Rank biomass = 38

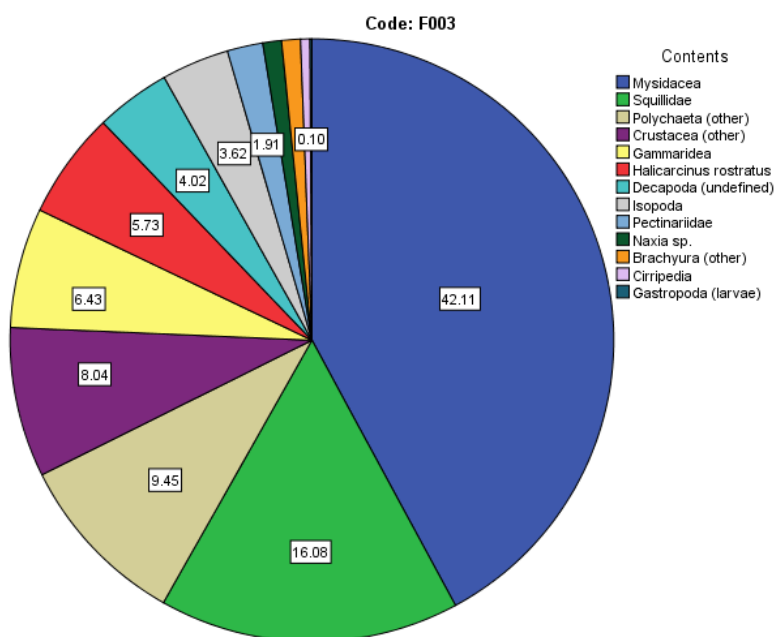
Average abundance = 4.550/ha Rank abundance = 12

Dietary Summary

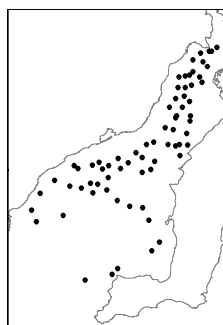
Number of guts examined = 27

Proportion of guts empty = 19%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Pectinariidae	0.05	1.91
Annelida	Polychaeta (other)	0.24	9.45
Crustacea	Brachyura (other)	0.03	1.01
Crustacea	Cirripedia	0.01	0.50
Crustacea	Crustacea (other)	0.20	8.04
Crustacea	Decapoda (undefined)	0.10	4.02
Crustacea	Gammaridea	0.16	6.43
Crustacea	<i>Halicarcinus rostratus</i>	0.14	5.73
Crustacea	Isopoda	0.09	3.62
Crustacea	Mysidacea	1.05	42.11
Crustacea	<i>Naxia</i> sp.	0.03	1.01
Crustacea	Squillidae	0.40	16.08
Mollusca	Gastropoda (larvae)	0.00	0.10



F004 *Parapriacanthus elongatus* (McCulloch, 1911) (Chordata, Pempherididae) CAAB 37 357002



Common name = Slender Bullseye (Elongate Bullseye)

Length = To 100 mm

Depth range = 12 - 41.5 m

Stations = 1, 12, 13C, 19, 1B, 2, 21C, 22B, 32, 36, 3A, 4, 44, 47B, 50B, 57, 5B, 61, 68, 7, 70, 72, 74, 78, 7B, 8, 80, 92, 93, 94, 9B, BC1, BC10, BC12, BC14, BC16, BC19, BC2, BC20, BC23, BC24, BC25, BC28, BC3, BC30, BC33, BC36, BC42, BC44, BC6, BC8, BC9, C7, CB1, CP7, FC2, N23, SHW2, WAL32, WD3, WD9, WG1, WG3, Y7, Z1/7, Z2/10, Z2/11, Z3/10, Z3/11, Z3/2

Average biomass = 57.367 g/ha Rank biomass = 39

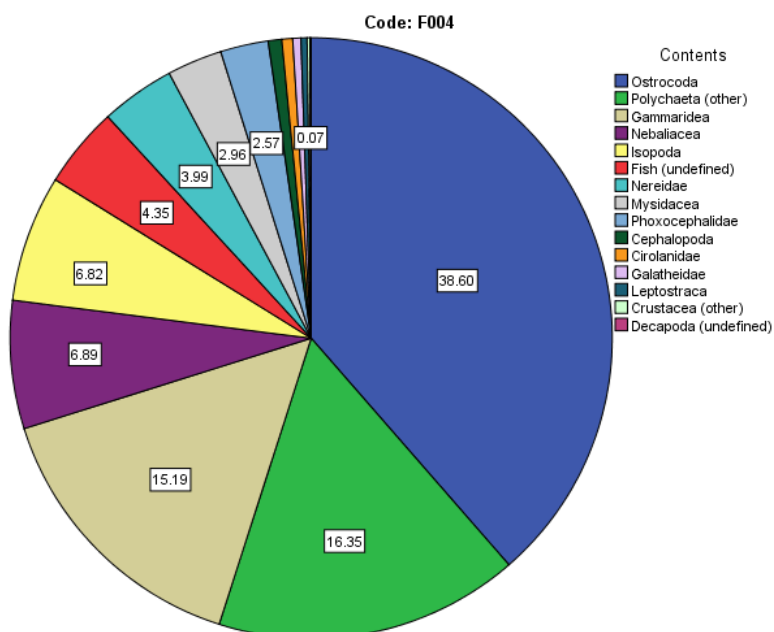
Average abundance = 10.458/ha Rank abundance = 8

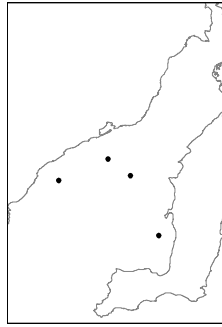
Dietary Summary

Number of guts examined = 37

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Nereidae	0.55	3.99
Annelida	Polychaeta (other)	2.25	16.35
Chordata	Fish (undefined)	0.60	4.35
Crustacea	Cirolanidae	0.08	0.58
Crustacea	Crustacea (other)	0.02	0.15
Crustacea	Decapoda (undefined)	0.01	0.07
Crustacea	Galatheidae	0.06	0.44
Crustacea	Gammaridea	2.09	15.19
Crustacea	Isopoda	0.94	6.82
Crustacea	Leptostraca	0.04	0.33
Crustacea	Mysidacea	0.41	2.96
Crustacea	Nebaliacea	0.95	6.89
Crustacea	Ostrocooda	5.32	38.60
Crustacea	Phoxocephalidae	0.36	2.57
Mollusca	Cephalopoda	0.10	0.73



F005 *Siphonognathus radiatus* (Quoy & Gaimard, 1834) (Chordata, Odacidae) CAAB 37 385007

Common name = Longray Rock Whiting

Length = To 166 mm

Depth range = 14.8 - 21.5 m

Stations = BC11, BC13, BC33, Z3/11

Average biomass = 0.199 g/ha Rank biomass = 115

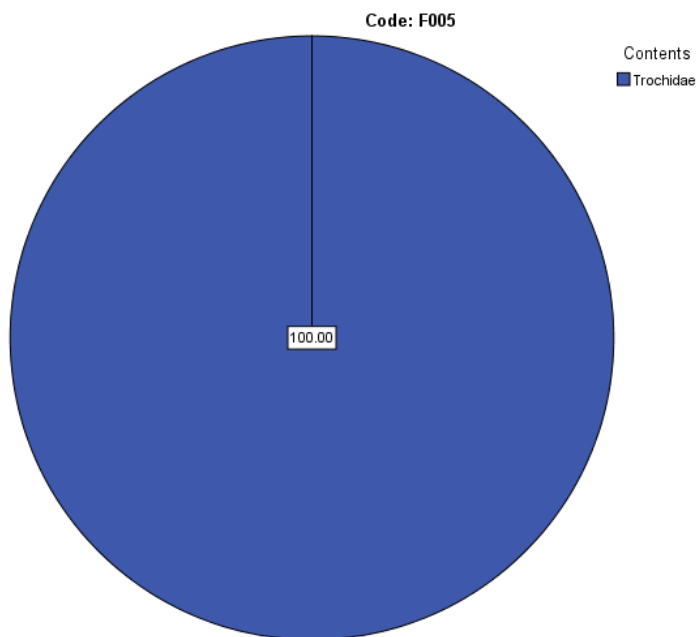
Average abundance = 0.020/ha Rank abundance = 101

Dietary Summary

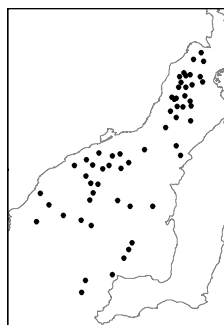
Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Mollusca	Trochidae	0.03	100.00



F006 *Repomucenus calcaratus* (Macleay, 1881) (Chordata, Callionymidae) CAAB 37 427015



Common name = Spotted Stinkfish (Spotted Dragonet)

Length = To 226 mm

Depth range = 12 - 44.5 m

Stations = 1, 11B, 12, 13C, 19, 21C, 22B, 26, 30, 32, 36, 5, 58C, 5B, 61, 69, 72, 74, 78, 7B, 8, 80, 93, 94, BC1, BC12, BC19, BC22, BC24, BC25, BC27, BC3, BC30, BC42, BC44, BC47, C14, CB1, CP1, CP12, CP3, DK1, FC2, SG2, SHW7, WD4, WD9, WG1, WG3, X3, Z1/3, Z1/5, Z1/7, Z2/10, Z2/13, Z3/10, Z3/11, Z3/8

Average biomass = 135.441 g/ha Rank biomass = 22

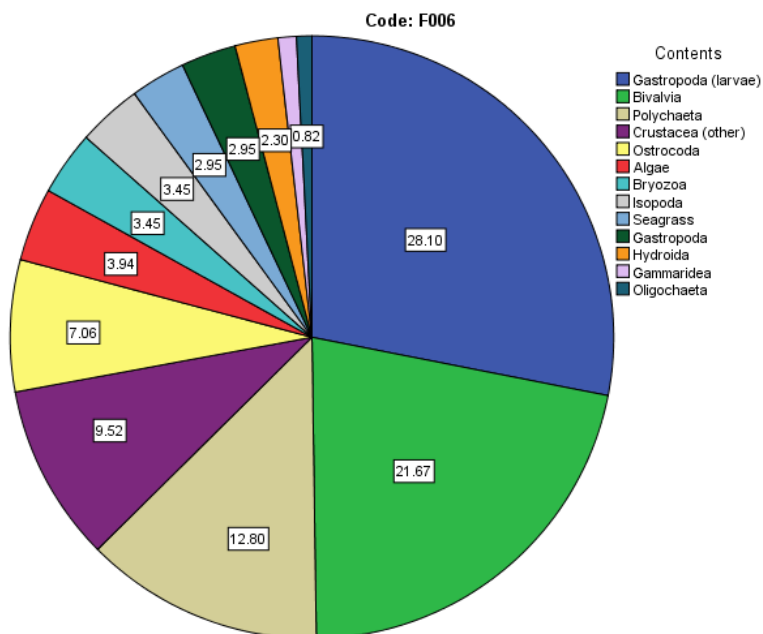
Average abundance = 9.895/ha Rank abundance = 9

Dietary Summary

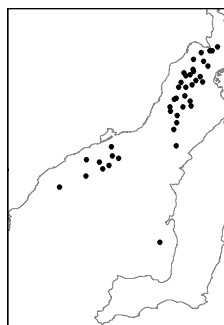
Number of guts examined = 16

Proportion of guts empty = 19%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	0.06	3.94
Annelida	Oligochaeta	0.01	0.82
Annelida	Polychaeta	0.19	12.80
Bryozoa	Bryozoa	0.05	3.45
Cnidaria	Hydroida	0.04	2.30
Crustacea	Crustacea (other)	0.15	9.52
Crustacea	Gammaridea	0.01	0.98
Crustacea	Isopoda	0.05	3.45
Crustacea	Ostrocodia	0.11	7.06
Magnoliophyta	Seagrass	0.05	2.95
Mollusca	Bivalvia	0.33	21.67
Mollusca	Gastropoda	0.05	2.95
Mollusca	Gastropoda (larvae)	0.43	28.10



F007 *Pelates octolineatus* (Jenyns, 1840) (Chordata, Terapontidae) CAAB 37 321020



Common name = Striped Perch (Western Striped Grunter)

Length = To 250 mm

Depth range = 12 - 25.5 m

Stations = 12, 13C, 19, 2, 21B, 21C, 22B, 23, 26, 30, 32, 36, 44, 47B, 50B, 57, 58C, 63, 68, 69, 70, 72, 8, 80, 92, 93, 94, BC1, BC11, BC33, CB1, FC2, X3, Z1/1, Z1/5, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 139.397 g/ha Rank biomass = 21

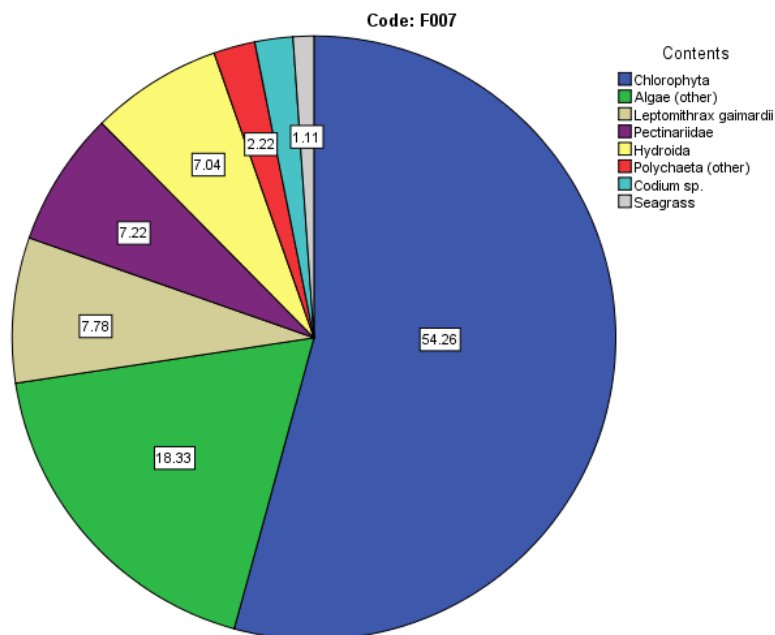
Average abundance = 2.722/ha Rank abundance = 17

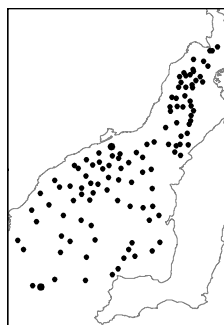
Dietary Summary

Number of guts examined = 6

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae (other)	1.98	18.33
Algae	Chlorophyta	5.86	54.26
Algae	<i>Codium</i> sp.	0.22	2.04
Annelida	Pectinariidae	0.78	7.22
Annelida	Polychaeta (other)	0.24	2.22
Cnidaria	Hydroida	0.76	7.04
Crustacea	<i>Leptomithrax gaimardii</i>	0.84	7.78
Magnoliophyta	Seagrass	0.12	1.11



F008 *Upeneichthys vlamingii* (Cuvier, 1829) (Chordata, Mullidae) CAAB 37 355029

Common name = Red Mullet (Bluespotted Goatfish)

Length = To 235 mm

Depth range = 12 - 54.5 m

Stations = 1, 11B, 12, 13C, 16, 19, 1B, 20B, 21B, 21C, 22B, 23, 26, 30, 32, 36, 3A, 4, 44, 47B, 5, 50B, 57, 58C, 59B, 5B, 63, 69, 7, 70, 72, 74, 78, 7B, 8, 80, 92, 93, 94, 9B, BC1, BC10, BC11, BC12, BC13, BC14, BC15, BC16, BC17, BC18, BC19, BC2, BC20, BC21, BC22, BC23, BC24, BC25, BC27, BC28, BC3, BC30, BC31, BC32, BC33, BC34, BC35, BC36, BC37, BC38, BC39, BC4, BC40, BC42, BC43, BC44, BC45, BC46, BC6, BC8, BC9, C14, C7, CB1, CP1, CP12, CP3, CP7, DK1, EWL3, N23, SG2, SHW2, WD3, WD4, WD6, WD9, WG1, WG3, Y7, Z1/1, Z1/3, Z1/5, Z1/7, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 784.591 g/ha Rank biomass = 5

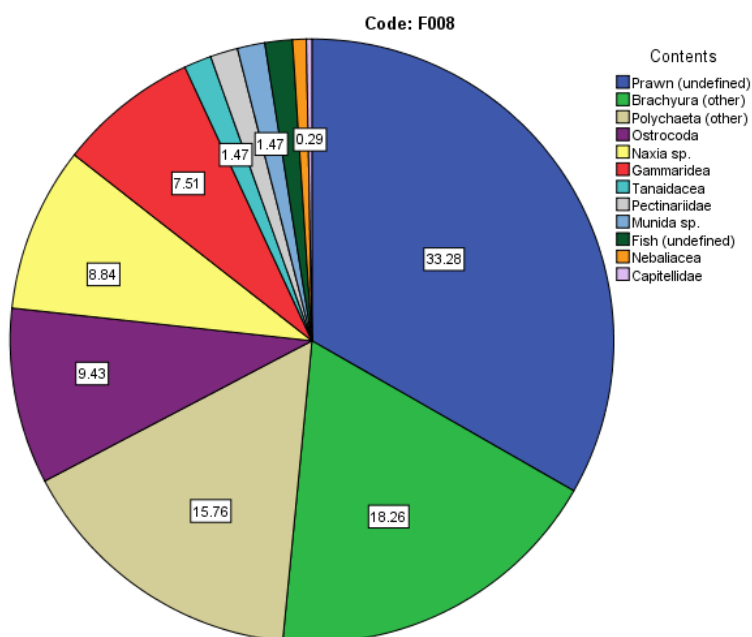
Average abundance = 26.269/ha Rank abundance = 5

Dietary Summary

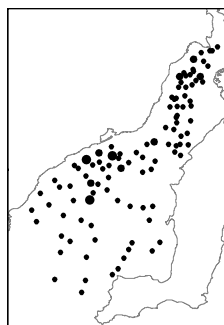
Number of guts examined = 55

Proportion of guts empty = 38%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Capitellidae	0.01	0.29
Annelida	Pectinariidae	0.05	1.47
Annelida	Polychaeta (other)	0.54	15.76
Chordata	Fish (undefined)	0.05	1.47
Crustacea	Brachyura (other)	0.62	18.26
Crustacea	Gammaridea	0.25	7.51
Crustacea	<i>Munida</i> sp.	0.05	1.47
Crustacea	<i>Naxia</i> sp.	0.30	8.84
Crustacea	Nebaliacea	0.03	0.74
Crustacea	Ostrocooda	0.32	9.43
Crustacea	Prawn (undefined)	1.13	33.28
Crustacea	Tanaidacea	0.05	1.47



F009 *Pseudocaranx wrighti* (Whitley, 1931) (Chordata, Carangidae) CAAB 37 337063



Common name = Skipjack Trevally

Length = To 204 mm

Depth range = 12 - 54.5 m

Stations = 1, 11B, 12, 13C, 16, 19, 1B, 2, 21B, 21C, 22B, 23, 26, 30, 32, 36, 3A, 4, 44, 47B, 5, 50B, 57, 58C, 5B, 61, 63, 68, 7, 70, 72, 74, 78, 7B, 8, 80, 92, 93, 94, 9B, BC1, BC10, BC11, BC12, BC14, BC19, BC20, BC21, BC22, BC23, BC24, BC25, BC27, BC28, BC3, BC30, BC31, BC32, BC33, BC34, BC36, BC38, BC39, BC42, BC43, BC44, BC47, BC6, BC8, BC9, C14, C7, CB1, CP1, CP12, CP3, CP7, DK1, EWL3, FC2, N23, SG2, SHW2, WAL32, WD3, WD4, WD9, WG1, WG3, X3, Y7, Z1/1, Z1/3, Z1/5, Z1/7, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 1,461.669 g/ha Rank biomass = 2

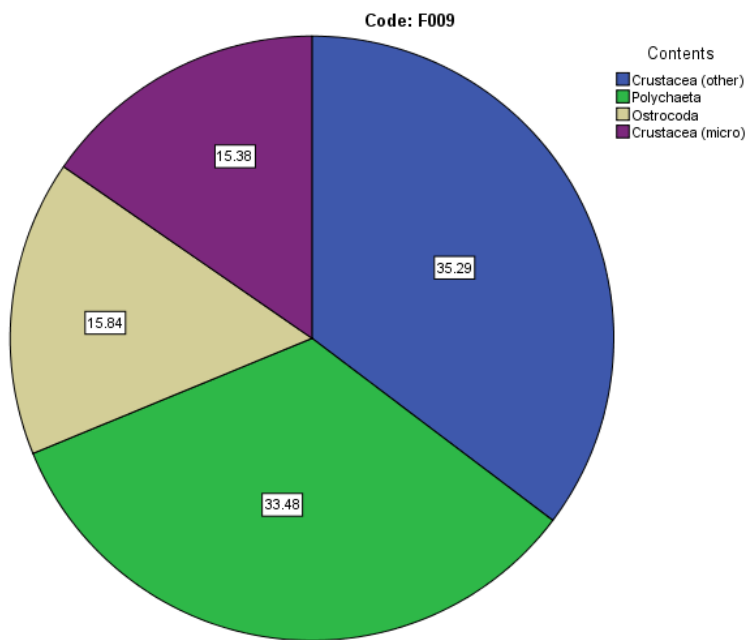
Average abundance = 75.739/ha Rank abundance = 2

Dietary Summary

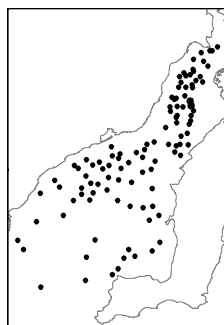
Number of guts examined = 42

Proportion of guts empty = 52%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.37	33.48
Crustacea	Crustacea (other)	0.39	35.29
Crustacea	Crustacea (micro)	0.17	15.38
Crustacea	Ostrocooda	0.17	15.84



F010 *Scobinichthys granulatus* (Shaw, 1790) (Chordata, Monacanthidae) CAAB 37 465007



Common name = Rough Leatherjacket

Length = To 218 mm

Depth range = 12 - 44 m

Stations = 1, 11B, 12, 13C, 16, 19, 1B, 2, 20B, 21B, 21C, 22B, 23, 26, 30, 32, 36, 3A, 4, 44, 47B, 5, 50B, 57, 58C, 59B, 5B, 61, 63, 69, 7, 70, 72, 74, 78, 7B, 8, 80, 92, 93, 94, 9B, BC1, BC10, BC11, BC12, BC13, BC15, BC16, BC17, BC18, BC19, BC2, BC20, BC21, BC24, BC25, BC28, BC3, BC30, BC32, BC33, BC35, BC36, BC37, BC39, BC4, BC40, BC42, BC44, BC46, BC6, BC8, BC9, C14, C7, CB1, CP12, CP3, CP7, DK1, EWL3, FC2, N23, SHW2, SHW7, WAL32, WD3, WD4, WD6, WD9, WG1, WG3, X3, Y7, Z1/1, Z1/5, Z1/7, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 753.959 g/ha

Rank biomass = 6

Average abundance = 43.435/ha

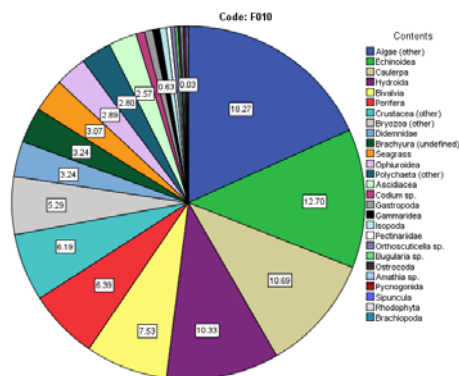
Rank abundance = 3

Dietary Summary

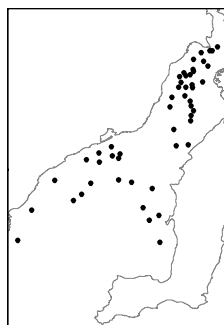
Number of guts examined = 35

Proportion of guts empty = 3%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae (other)	3.69	18.27
Algae	Caulerpa	2.16	10.69
Algae	<i>Codium</i> sp.	0.16	0.79
Algae	Rhodophyta	0.03	0.15
Annelida	Pectinariidae	0.08	0.40
Annelida	Polychaeta (other)	0.56	2.80
Brachiopoda	Brachiopoda	0.01	0.03
Bryozoa	<i>Amathia</i> sp.	0.04	0.20
Bryozoa	Bryozoa (other)	1.07	5.29
Bryozoa	<i>Bugularia</i> sp.	0.05	0.25
Bryozoa	<i>Orthoscuticella</i> sp.	0.08	0.40
Cnidaria	Hydroida	2.09	10.33
Crustacea	Brachyura (undefined)	0.66	3.24
Crustacea	Crustacea (other)	1.25	6.19
Crustacea	Gammaridea	0.13	0.63
Crustacea	Isopoda	0.13	0.62
Crustacea	Ostrocooda	0.05	0.25
Echinodermata	Echinoidea	2.56	12.70
Echinodermata	Ophiuroidea	0.58	2.89
Magnoliophyta	Seagrass	0.62	3.07
Mollusca	Bivalvia	1.52	7.53
Mollusca	Gastropoda	0.15	0.76
Porifera	Porifera	1.29	6.39
Pycnogonida	Pycnogonida	0.04	0.18
Sipuncula	Sipuncula	0.03	0.15
Urochordata	Ascidiacea	0.52	2.57
Urochordata	Didemnidae	0.66	3.24



F011 *Acanthaluteres spilomelanurus* (Quoy & Gaimard, 1824) (Chordata, Monacanthidae) CAAB 37 465043



Common name = Bridled Leatherjacket

Length = To 150 mm

Depth range = 12 - 25 m

Stations = 12, 13C, 19, 20B, 21C, 23, 26, 30, 32, 36, 44, 47B, 50B, 57, 58C, 59B, 68, 7, 70, 72, 74, 92, 93, 94, BC1, BC12, BC13, BC15, BC17, BC18, BC2, BC20, BC21, BC23, BC28, BC3, BC33, BC35, C14, CB1, DK1, FC2, WD3, WD6, Z1/1, Z1/3, Z1/5, Z2/11, Z2/13, Z3/2

Average biomass = 44.365 g/ha

Rank biomass = 44

Average abundance = 4.338/ha

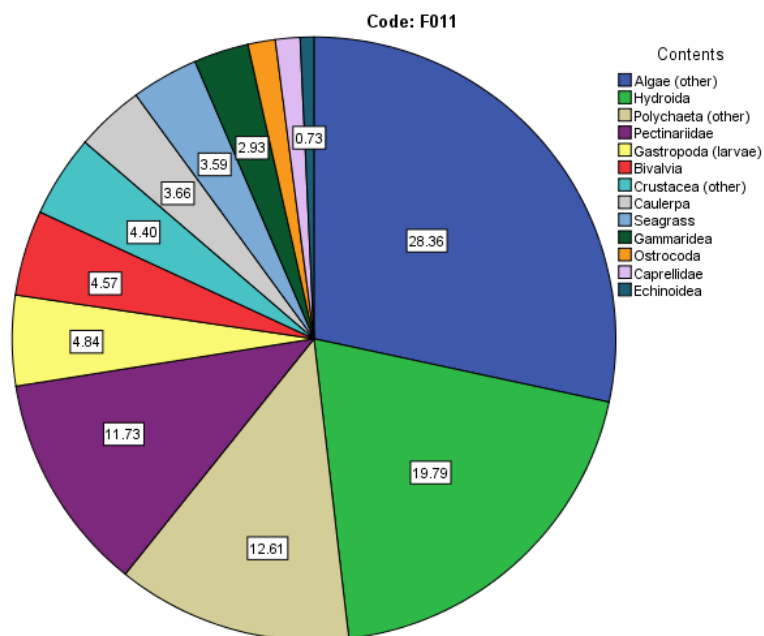
Rank abundance = 13

Dietary Summary

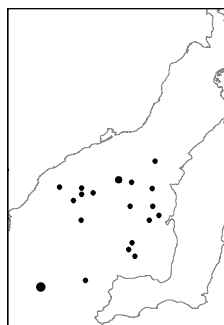
Number of guts examined = 17

Proportion of guts empty = 6%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae (other)	0.97	28.36
Algae	Caulerpa	0.13	3.66
Annelida	Pectinariidae	0.40	11.73
Annelida	Polychaeta (other)	0.43	12.61
Cnidaria	Hydroida	0.67	19.79
Crustacea	Caprellidae	0.04	1.32
Crustacea	Crustacea (other)	0.15	4.40
Crustacea	Gammaridea	0.10	2.93
Crustacea	Ostrocooda	0.05	1.47
Echinodermata	Echinoidea	0.03	0.73
Magnoliophyta	Seagrass	0.12	3.59
Mollusca	Bivalvia	0.16	4.57
Mollusca	Gastropoda (larvae)	0.17	4.84



F012 *Kathetostoma laevis* (Bloch & Schneider, 1801) (Chordata, Uranoscopidae) CAAB 37 400003

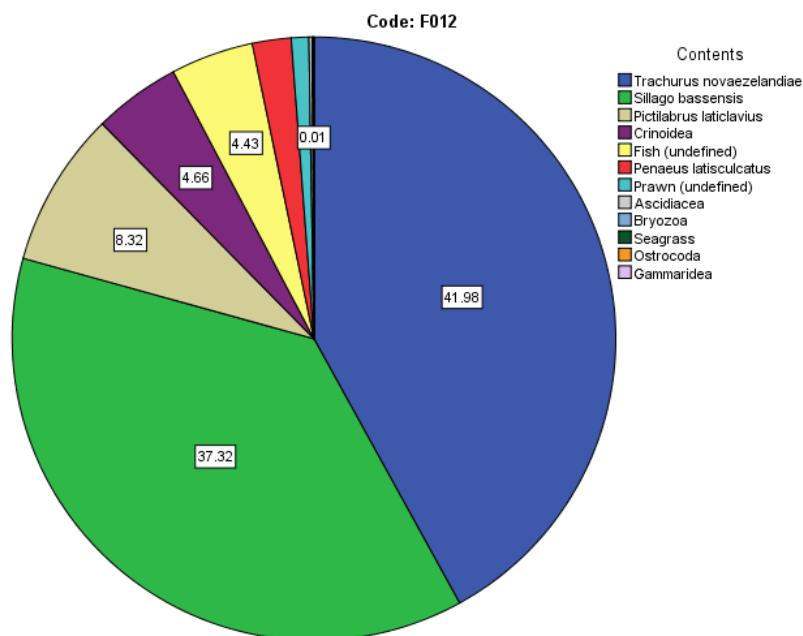


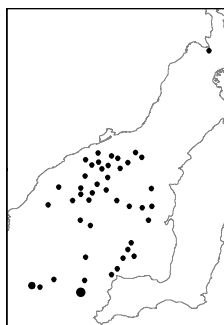
Common name = Common Stargazer
 Length = To 571 mm
 Depth range = 17 - 44 m
 Stations = BC11, BC13, BC15, BC16, BC17, BC18, BC21, BC24, BC27, BC28, BC40, BC44, BC46, CP1, CP3, WAL32, WD4, WD6, WG1
 Average biomass = 300.104 g/ha Rank biomass = 12
 Average abundance = 0.254/ha Rank abundance = 43

Dietary Summary

Number of guts examined = 6
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Bryozoa	Bryozoa	0.08	0.04
Chordata	Fish (undefined)	9.50	4.43
Chordata	<i>Pictilabrus laticlavus</i>	17.84	8.32
Chordata	<i>Sillago bassensis</i>	80.00	37.32
Chordata	<i>Trachurus novaezelandiae</i>	90.00	41.98
Crustacea	Gammaridea	0.02	0.01
Crustacea	Ostrocooda	0.04	0.02
Crustacea	<i>Penaeus laticulcatus</i>	4.46	2.08
Crustacea	Prawn (undefined)	2.00	0.93
Echinodermata	Crinoidea	10.00	4.66
Magnoliophyta	Seagrass	0.04	0.02
Urochordata	Ascidiacea	0.40	0.19



F013 *Sillago bassensis* Cuvier, 1829 (Chordata, Sillaginidae) CAAB 37 330002

Common name = Silver Whiting (Sthn. School Whiting)

Length = To 292 mm

Depth range = 15 - 54.5 m

Stations = 11B, 1B, 3A, 4A, 5B, 7B, 9B, BC11, BC16, BC17, BC18, BC21, BC22, BC24, BC27, BC28, BC39, BC40, BC42, BC43, BC44, BC45, BC46, BC47, BC8, CP1, CP12, CP3, CP7, SG2, WD3, WD4, WD9, WG1, WG3, Z1/3, Z1/5, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 259.157 g/ha Rank biomass = 14

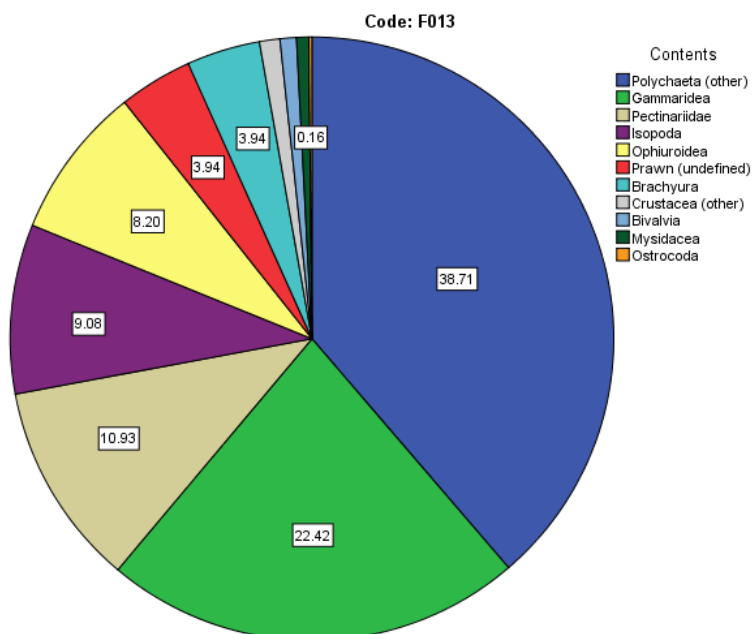
Average abundance = 5.921/ha Rank abundance = 11

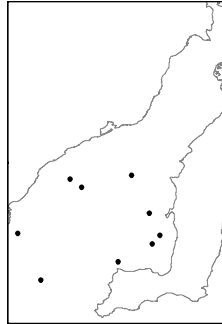
Dietary Summary

Number of guts examined = 20

Proportion of guts empty = 5%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Pectinariidae	0.50	10.93
Annelida	Polychaeta (other)	1.77	38.71
Crustacea	Brachyura	0.18	3.94
Crustacea	Crustacea (other)	0.05	1.09
Crustacea	Gammaridea	1.03	22.42
Crustacea	Isopoda	0.42	9.08
Crustacea	Mysidacea	0.03	0.66
Crustacea	Ostrocooda	0.01	0.16
Crustacea	Prawn (undefined)	0.18	3.94
Echinodermata	Ophiuroidea	0.38	8.20
Mollusca	Bivalvia	0.04	0.87



F014 *Pentaceropsis recurvirostris* (Richardson, 1845) (Chordata, Pentacerotidae) CAAB 37 367003

Common name = Longsnout Boarfish

Length = To 400 mm

Depth range = 14.8 - 44 m

Stations = BC13, BC14, BC18, BC28, BC33, BC35, BC36, BC46, CP7

Average biomass = 27.105 g/ha Rank biomass = 51

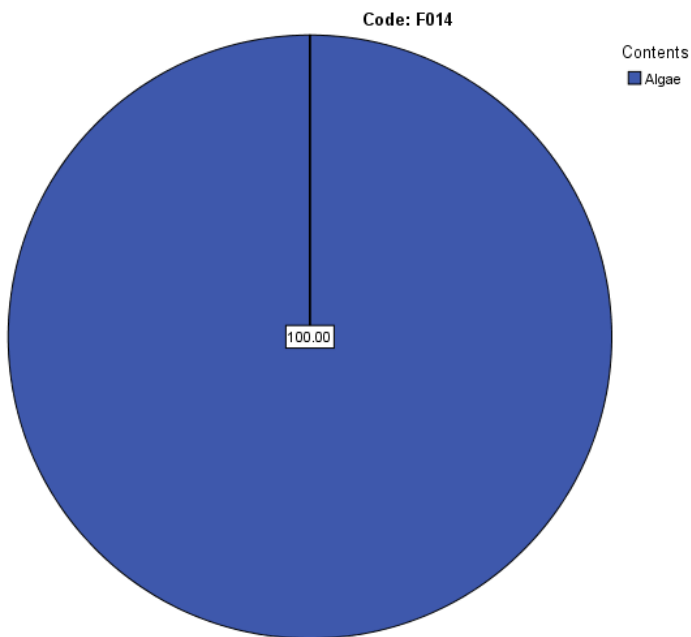
Average abundance = 0.040/ha Rank abundance = 88

Dietary Summary

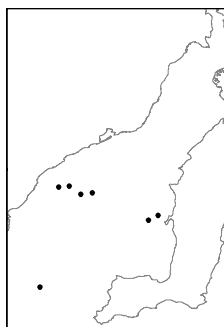
Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	1.50	100.00



F015 *Parazanclistius hutchinsi* Hardy, 1983 (Chordata, Pentacerotidae) CAAB 37 367010

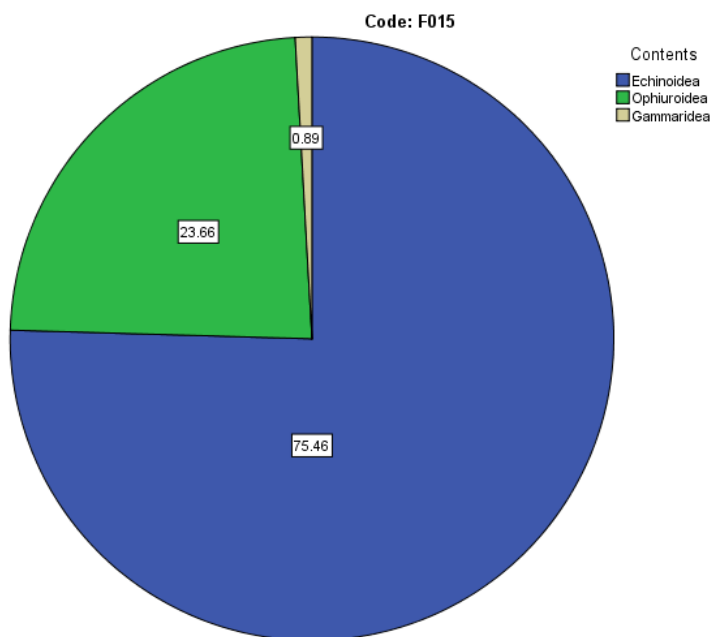


Common name = Short Boarfish
 Length = To 244 mm
 Depth range = 18.7 - 44 m
 Stations = BC11, BC14, BC18, BC28, BC46, WD6, WG1
 Average biomass = 9.292 g/ha Rank biomass = 74
 Average abundance = 0.063/ha Rank abundance = 74

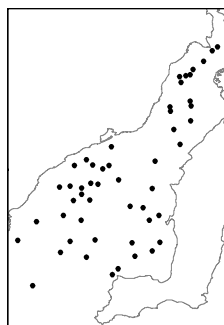
Dietary Summary

Number of guts examined = 2
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Gammaridea	0.03	0.89
Echinodermata	Echinoidea	2.89	75.46
Echinodermata	Ophiuroidea	0.91	23.66



F016 *Diodon nichthemerus* Cuvier, 1818 (Chordata, Diodontidae) CAAB 37 469001



Common name = Spikey Globefish

Length = To 304 mm

Depth range = 13 - 46.5 m

Stations = 11B, 13C, 23, 30, 36, 4, 50B, 57, 58C, 68, 69, 70, 74, 93, 94, BC11, BC12, BC14, BC15, BC16, BC17, BC18, BC21, BC24, BC25, BC27, BC28, BC3, BC30, BC32, BC33, BC34, BC35, BC36, BC38, BC39, BC40, BC42, BC45, CP1, CP7, WAL32, WD3, WD6, WG3, Z1/1, Z1/5, Z1/7, Z2/10, Z3/10, Z3/11

Average biomass = 228.293 g/ha

Rank biomass = 15

Average abundance = 0.922/ha

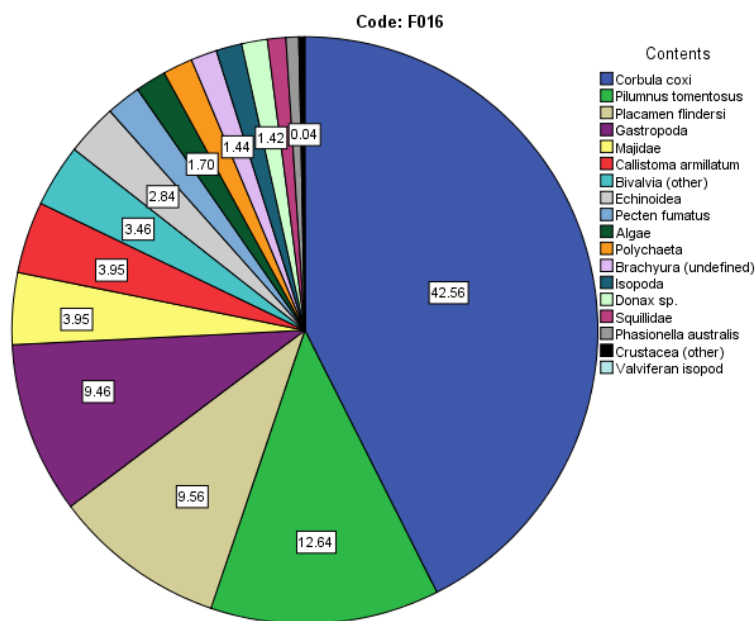
Rank abundance = 27

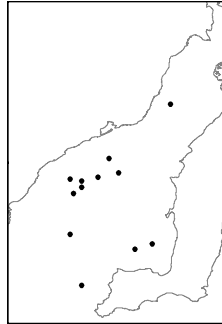
Dietary Summary

Number of guts examined = 17

Proportion of guts empty = 18%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	1.08	1.70
Annelida	Polychaeta	1.04	1.64
Crustacea	Brachyura (undefined)	0.91	1.44
Crustacea	Crustacea (other)	0.18	0.28
Crustacea	Isopoda	0.90	1.42
Crustacea	Majidae	2.50	3.95
Crustacea	<i>Pilumnus tomentosus</i>	8.00	12.64
Crustacea	Squillidae	0.64	1.01
Crustacea	Valviferan isopod	0.03	0.04
Echinodermata	Echinoidea	1.80	2.84
Mollusca	Bivalvia (other)	2.19	3.46
Mollusca	<i>Callistoma armillatum</i>	2.50	3.95
Mollusca	<i>Corbula coxi</i>	26.94	42.56
Mollusca	<i>Donax</i> sp.	0.90	1.42
Mollusca	Gastropoda	5.99	9.46
Mollusca	<i>Pecten fumatus</i>	1.21	1.91
Mollusca	<i>Phasionella australis</i>	0.45	0.71
Mollusca	<i>Placamen flindersi</i>	6.05	9.56



F017 *Omegophora armilla* (Waite & McCulloch, 1915) (Chordata, Tetraodontidae) CAAB 37 467002

Common name = Ringed Toadfish

Length = To 212 mm

Depth range = 14.5 - 44.5 m

Stations = 69, BC14, BC15, BC16, BC18, BC21, BC34, BC36, BC40, BC47, WG3, Z3/11

Average biomass = 9.799 g/ha Rank biomass = 73

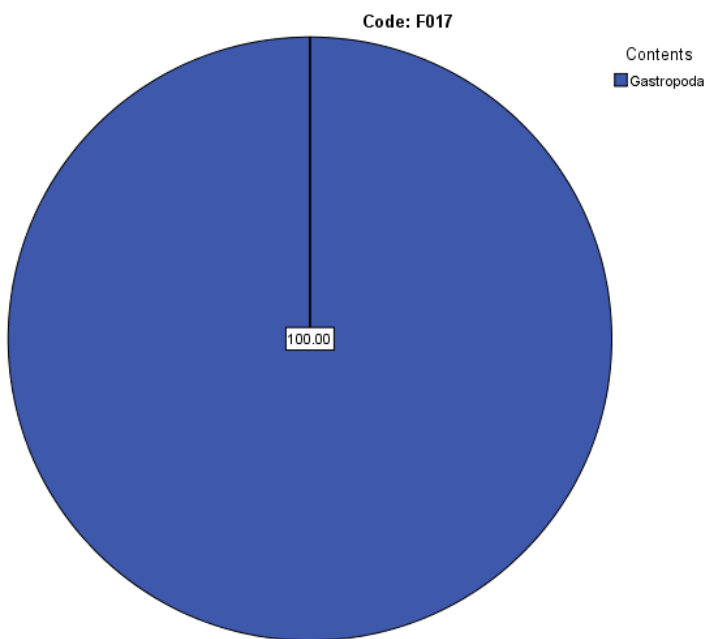
Average abundance = 0.126/ha Rank abundance = 57

Dietary Summary

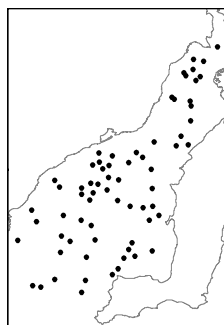
Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Mollusca	Gastropoda	1.80	100.00



F018 *Neoplatycephalus richardsoni* (Castelnau, 1872) (Chordata, Platycephalidae) CAAB 37 296001



Common name = Tiger Flathead

Length = To 462 mm

Depth range = 13 - 54.5 m

Stations = 11B, 13C, 19, 1B, 21B, 22B, 23, 26, 36, 3A, 50B, 58C, 7, 7B, 94, 9B, BC11, BC12, BC15, BC16, BC17, BC18, BC20, BC23, BC24, BC25, BC27, BC28, BC3, BC30, BC31, BC32, BC34, BC35, BC36, BC38, BC39, BC40, BC42, BC43, BC44, BC45, BC46, BC47, BC8, BC9, CB1, CP1, CP12, CP3, CP7, DK1, EWL3, SG2, SHW2, WD3, WD4, WD6, WD9, WG1, WG3, X3, Z1/3, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11

Average biomass = 260.032 g/ha Rank biomass = 13

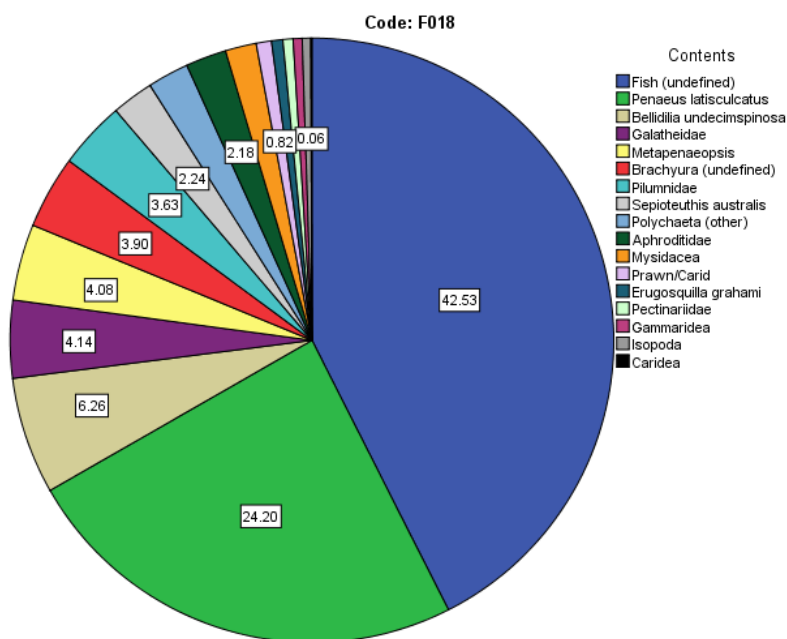
Average abundance = 3.655/ha Rank abundance = 14

Dietary Summary

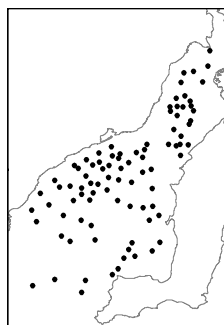
Number of guts examined = 31

Proportion of guts empty = 13%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Aphroditidae	0.36	2.18
Annelida	Pectinariidae	0.09	0.54
Annelida	Polychaeta (other)	0.37	2.21
Chordata	Fish (undefined)	7.03	42.53
Crustacea	<i>Bellidilia undecimspinosa</i>	1.03	6.26
Crustacea	Brachyura (undefined)	0.64	3.90
Crustacea	Caridea	0.01	0.06
Crustacea	<i>Erugosquilla grahami</i>	0.10	0.60
Crustacea	Galatheidae	0.69	4.14
Crustacea	Gammaridea	0.08	0.48
Crustacea	Isopoda	0.08	0.45
Crustacea	Metapenaeopsis	0.67	4.08
Crustacea	Mysidacea	0.28	1.66
Crustacea	<i>Penaeus latisulcatus</i>	4.00	24.20
Crustacea	Pilumnidae	0.60	3.63
Crustacea	Prawn (undefined)	0.14	0.82
Mollusca	<i>Sepioteuthis australis</i>	0.37	2.24



F019 *Parequula melbournensis* (Castelnau, 1872) (Chordata, Gerreidae) CAAB 37 349001



Common name = Silverbelly

Length = To 146 mm

Depth range = 12 - 54.5 m

Stations = 1, 11B, 12, 13C, 19, 1B, 2, 26, 30, 3A, 4, 44, 47B, 5, 58C, 59B, 5B, 68, 69, 7, 70, 7B, 8, 80, 92, 9B, BC1, BC10, BC11, BC12, BC13, BC14, BC15, BC16, BC17, BC18, BC19, BC20, BC21, BC22, BC23, BC24, BC25, BC27, BC28, BC3, BC30, BC31, BC32, BC33, BC34, BC36, BC4, BC40, BC42, BC43, BC44, BC45, BC47, BC6, BC8, BC9, C14, C7, CP1, CP12, CP3, CP7, EWL3, N23, SG2, SHW7, WD3, WD4, WD6, WD9, WG1, WG3, Z1/1, Z1/3, Z1/5, Z1/7, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 408.251 g/ha

Rank biomass = 9

Average abundance = 27.375/ha

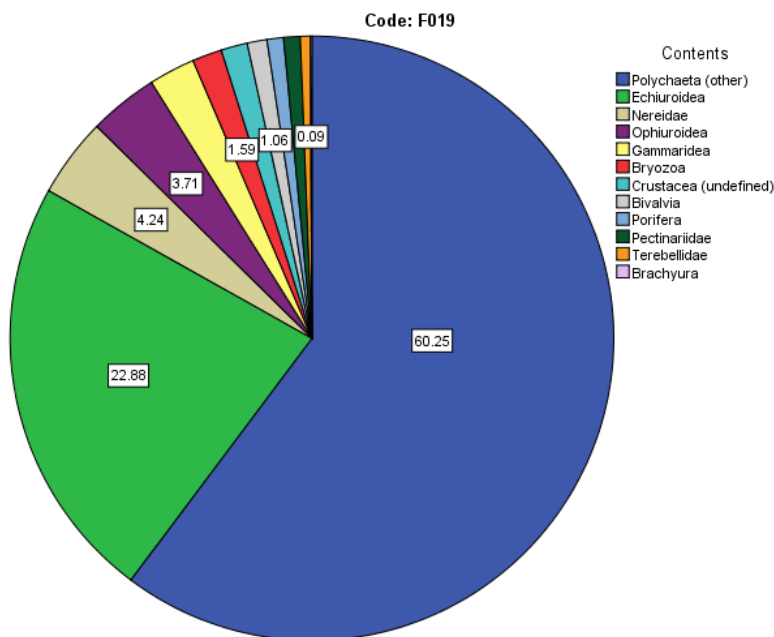
Rank abundance = 4

Dietary Summary

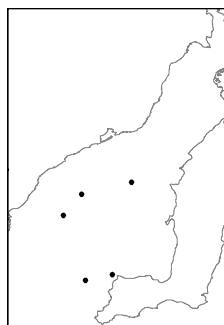
Number of guts examined = 36

Proportion of guts empty = 8%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Nereidae	0.24	4.24
Annelida	Pectinariidae	0.05	0.88
Annelida	Polychaeta (other)	3.41	60.25
Annelida	Terebellidae	0.03	0.53
Bryozoa	Bryozoa	0.09	1.59
Crustacea	Brachyura	0.00	0.09
Crustacea	Crustacea (undefined)	0.08	1.41
Crustacea	Gammaridea	0.14	2.47
Echinodermata	Ophiuroidea	0.21	3.71
Echiuroidea	Echiuroidea	1.30	22.88
Mollusca	Bivalvia	0.06	1.06
Porifera	Porifera	0.05	0.88



F020 *Meuschenia scaber* (Forster, 1801) (Chordata, Monacanthidae) CAAB 37 465005

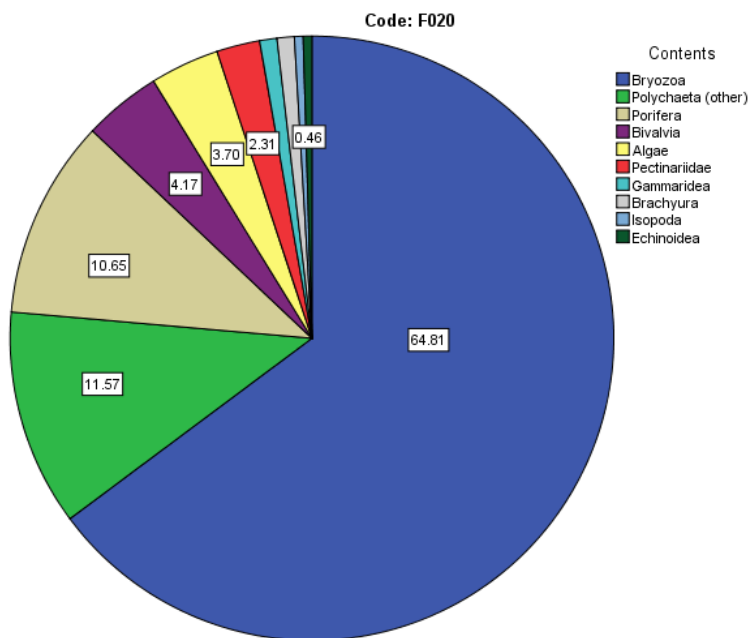


Common name = Velvet Leatherjacket
 Length = To 181 mm
 Depth range = 21.4 - 41.5 m
 Stations = BC13, BC18, BC25, BC42, BC44
 Average biomass = 4.058 g/ha Rank biomass = 78
 Average abundance = 0.093/ha Rank abundance = 64

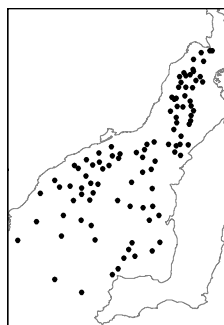
Dietary Summary

Number of guts examined = 4
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	0.16	3.70
Annelida	Pectinariidae	0.10	2.31
Annelida	Polychaeta (other)	0.50	11.57
Bryozoa	Bryozoa	2.80	64.81
Crustacea	Brachyura	0.04	0.93
Crustacea	Gammaridea	0.04	0.93
Crustacea	Isopoda	0.02	0.46
Echinodermata	Echinoidea	0.02	0.46
Mollusca	Bivalvia	0.18	4.17
Porifera	Porifera	0.46	10.65



F021 *Acanthaluteres vittiger* (Castelnau, 1873) (Chordata, Monacanthidae) CAAB 37 465002



Common name = Toothbrush Leatherjacket

Length = To 193 mm

Depth range = 12 - 54.5 m

Stations = 1, 11B, 12, 13C, 16, 19, 20B, 21B, 22B, 23, 26, 30, 32, 36, 4, 44, 5, 57, 58C, 59B, 61, 63, 68, 69, 7, 72, 74, 8, 80, 92, 93, 94, 9B, BC1, BC10, BC11, BC12, BC13, BC14, BC16, BC17, BC18, BC19, BC2, BC20, BC21, BC24, BC25, BC27, BC28, BC3, BC30, BC31, BC32, BC33, BC35, BC36, BC4, BC40, BC42, BC43, BC47, BC6, BC8, BC9, C14, C7, CB1, CP1, CP12, CP3, CP7, DK1, EWL3, FC2, N23, SG2, SHW2, SHW7, WAL32, WD3, WD4, WD6, WD9, WG1, WG3, X3, Z1/1, Z1/3, Z1/5, Z1/7, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 227.464 g/ha Rank biomass = 16

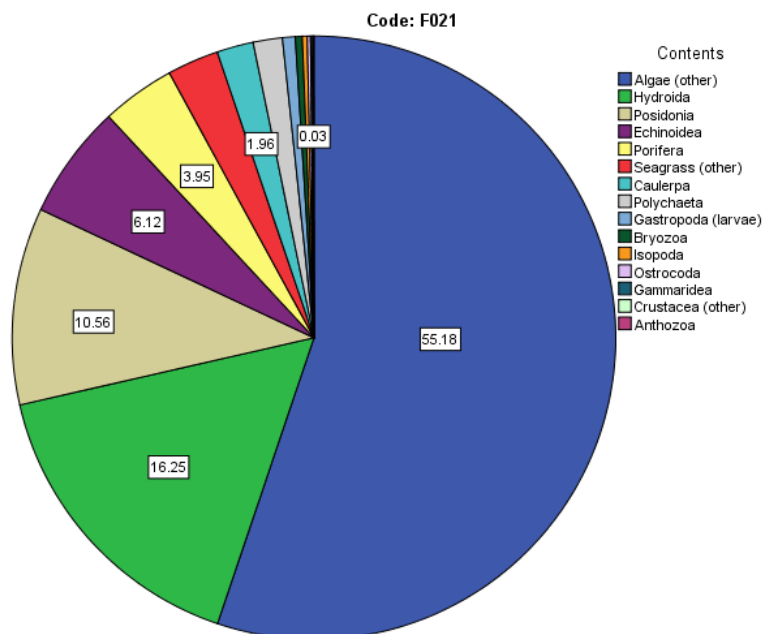
Average abundance = 13.288/ha Rank abundance = 6

Dietary Summary

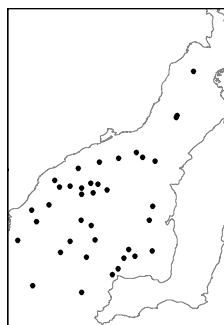
Number of guts examined = 36

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae (other)	14.79	55.18
Algae	<i>Caulerpa</i>	0.53	1.96
Annelida	Polychaeta	0.42	1.57
Bryozoa	Bryozoa	0.10	0.37
Cnidaria	Anthozoa	0.01	0.03
Cnidaria	Hydroida	4.36	16.25
Crustacea	Crustacea (other)	0.02	0.07
Crustacea	Gammaridea	0.02	0.07
Crustacea	Isopoda	0.07	0.26
Crustacea	Ostrocooda	0.05	0.18
Echinodermata	Echinoidea	1.64	6.12
Magnoliophyta	<i>Posidonia</i>	2.83	10.56
Magnoliophyta	Seagrass (other)	0.74	2.76
Mollusca	Gastropoda (larvae)	0.18	0.68
Porifera	Porifera	1.06	3.95



F022 *Foetorepus calauropomus* (Richardson, 1844) (Chordata, Callionymidae) CAAB 37 427001

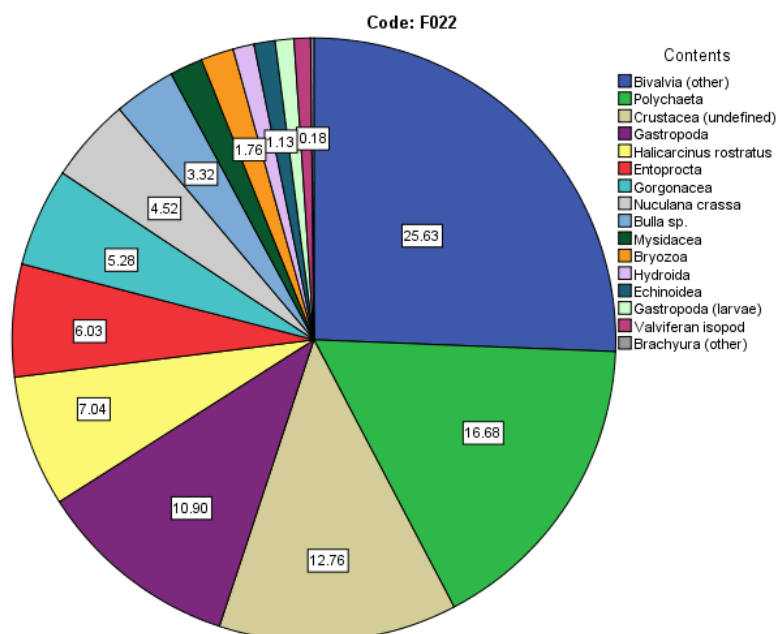


Common name = Common Stink Fish
 Length = To 342 mm
 Depth range = 14 - 46.5 m
 Stations = 1B, 2, 61, 92, 9B, BC11, BC12, BC14, BC16, BC18, BC20, BC22, BC23, BC27, BC28, BC30, BC32, BC34, BC35, BC36, BC38, BC39, BC40, BC42, BC45, BC47, BC8, C7, CP12, CP3, CP7, SG2, WAL32, WD4, WG1, WG3, Z2/11, Z3/2
 Average biomass = 75.353 g/ha Rank biomass = 32
 Average abundance = 3.159/ha Rank abundance = 16

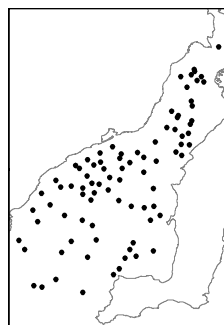
Dietary Summary

Number of guts examined = 10
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	1.33	16.68
Bryozoa	Bryozoa	0.14	1.76
Cnidaria	Gorgonacea	0.42	5.28
Cnidaria	Hydroida	0.09	1.13
Crustacea	Brachyura (other)	0.01	0.18
Crustacea	Crustacea (undefined)	1.02	12.76
Crustacea	<i>Halicarcinus rostratus</i>	0.56	7.04
Crustacea	Mysidacea	0.14	1.76
Crustacea	Valviferan isopod	0.07	0.88
Echinodermata	Echinoidea	0.09	1.13
Entoprocta	Entoprocta	0.48	6.03
Mollusca	Bivalvia (other)	2.04	25.63
Mollusca	<i>Bulla</i> sp.	0.26	3.32
Mollusca	Gastropoda	0.87	10.90
Mollusca	Gastropoda (larvae)	0.08	1.01
Mollusca	<i>Nuculana crassa</i>	0.36	4.52



F023 *Lepidotrigla papilio* (Cuvier, 1829) (Chordata, Triglidae) CAAB 37 288002

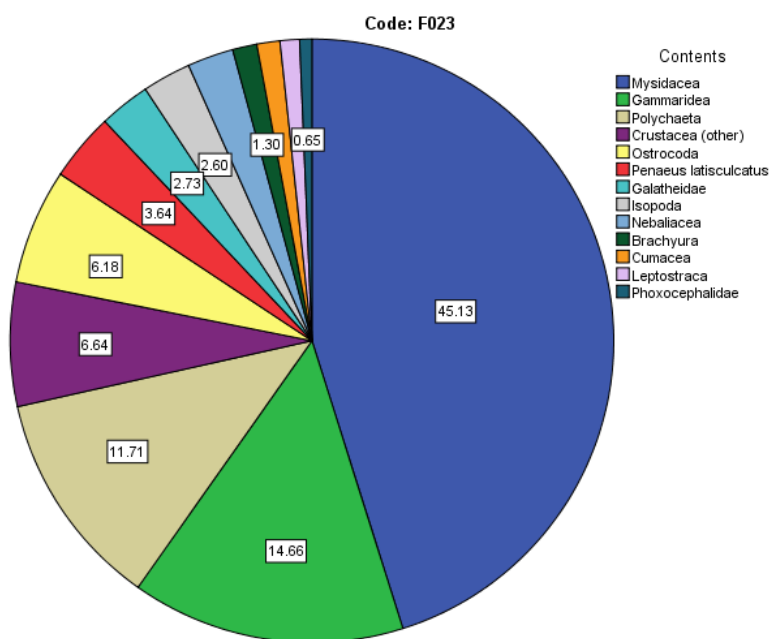


Common name = Spiny Gurnard
 Length = To 170 mm
 Depth range = 12 - 54.5 m
 Stations = 1, 11B, 13C, 16, 1B, 2, 21B, 22B, 23, 3A, 4, 50B, 58C, 5B, 61, 68, 69, 7, 72, 74, 78, 7B, 92, 93, 9B, BC1, BC10, BC11, BC12, BC14, BC15, BC16, BC17, BC18, BC19, BC20, BC22, BC23, BC24, BC25, BC27, BC28, BC3, BC30, BC32, BC34, BC35, BC36, BC37, BC38, BC39, BC4, BC40, BC42, BC43, BC45, BC46, BC47, BC8, C14, C7, CP1, CP12, CP3, CP7, EWL3, SG2, SHW2, WAL32, WD3, WD4, WD6, WD9, WG1, WG3, Y7, Z1/1, Z1/3, Z1/5, Z1/7, Z2/10, Z2/11, Z3/10, Z3/2, Z3/8
 Average biomass = 110.273 g/ha Rank biomass = 26
 Average abundance = 8.272/ha Rank abundance = 10

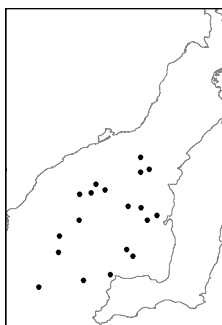
Dietary Summary

Number of guts examined = 32
 Proportion of guts empty = 13%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.45	11.71
Crustacea	Brachyura	0.05	1.30
Crustacea	Crustacea (other)	0.26	6.64
Crustacea	Cumacea	0.05	1.24
Crustacea	Galatheidae	0.11	2.73
Crustacea	Gammaridea	0.56	14.66
Crustacea	Isopoda	0.10	2.60
Crustacea	Leptostraca	0.04	1.04
Crustacea	Mysidacea	1.73	45.13
Crustacea	Nebaliacea	0.10	2.47
Crustacea	Ostrocooda	0.24	6.18
Crustacea	<i>Penaeus laticulcatus</i>	0.14	3.64
Crustacea	Phoxocephalidae	0.03	0.65



F024 *Parapercis ramsayi* Steindachner, 1884 (Chordata, Pinguipedidae) CAAB 37 390002

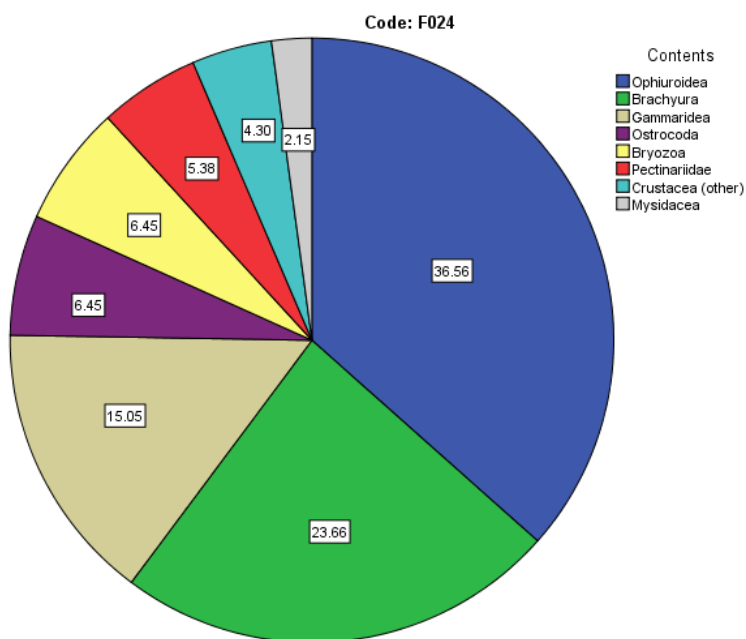


Common name = Spotted Grubfish
 Length = To 170 mm
 Depth range = 17.3 - 44 m
 Stations = 1B, 9B, BC10, BC18, BC24, BC27, BC28, BC31, BC38, BC40, BC42, BC44, BC46, BC9, CP3, WD3, WD6, WG1, WG3
 Average biomass = 4.356 g/ha Rank biomass = 77
 Average abundance = 0.209/ha Rank abundance = 47

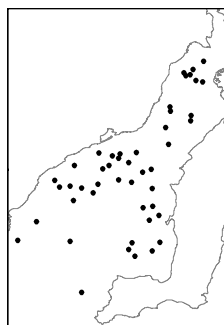
Dietary Summary

Number of guts examined = 5
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Pectinariidae	0.15	5.38
Bryozoa	Bryozoa	0.18	6.45
Crustacea	Brachyura	0.66	23.66
Crustacea	Crustacea (other)	0.12	4.30
Crustacea	Gammaridea	0.42	15.05
Crustacea	Mysidacea	0.06	2.15
Crustacea	Ostrocooda	0.18	6.45
Echinodermata	Ophiuroidea	1.02	36.56



F025 *Aracana ornata* (Gray, 1838) (Chordata, Ostraciidae) CAAB 37 466001



Common name = Ornate Cowfish

Length = To 175 mm

Depth range = 12 - 44.5 m

Stations = 21B, 23, 26, 36, 69, 70, 78, 7B, 93, 94, BC1, BC10, BC11, BC13, BC14, BC15, BC16, BC17, BC2, BC20, BC21, BC28, BC3, BC30, BC33, BC34, BC35, BC36, BC40, BC47, BC8, BC9, C14, CP1, CP3, N23, WD3, WD4, WD6, WG1, WG3, Z1/3, Z1/7, Z2/13, Z3/10, Z3/11, Z3/2

Average biomass = 109.939 g/ha

Rank biomass = 27

Average abundance = 1.868/ha

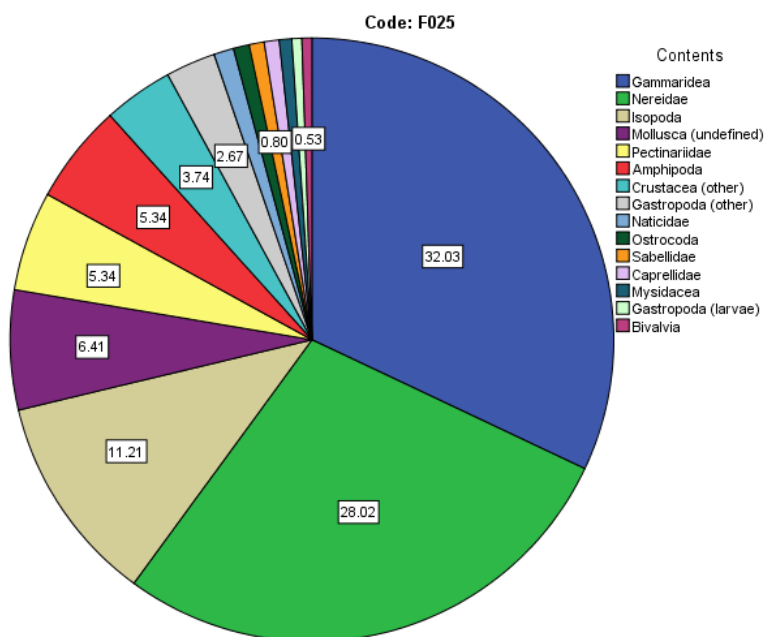
Rank abundance = 18

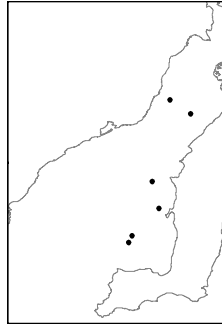
Dietary Summary

Number of guts examined = 6

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Nereidae	2.10	28.02
Annelida	Pectinariidae	0.40	5.34
Annelida	Sabellidae	0.06	0.80
Crustacea	Amphipoda	0.40	5.34
Crustacea	Caprellidae	0.06	0.80
Crustacea	Crustacea (other)	0.28	3.74
Crustacea	Gammaridea	2.40	32.03
Crustacea	Isopoda	0.84	11.21
Crustacea	Mysidacea	0.05	0.67
Crustacea	Ostrocooda	0.06	0.85
Mollusca	Bivalvia	0.04	0.53
Mollusca	Gastropoda (other)	0.20	2.67
Mollusca	Gastropoda (larvae)	0.04	0.53
Mollusca	Mollusca (undefined)	0.48	6.41
Mollusca	Naticidae	0.08	1.07



F026 *Taratretis derwentensis* Last, 1978 (Chordata, Pleuronectidae) CAAB 37 461011

Common name = Derwent Flounder

Length = To 215 mm

Depth range = 13 - 36 m

Stations = 70, BC17, BC3, CP1, CP3, WD6

Average biomass = 1.650 g/ha Rank biomass = 92

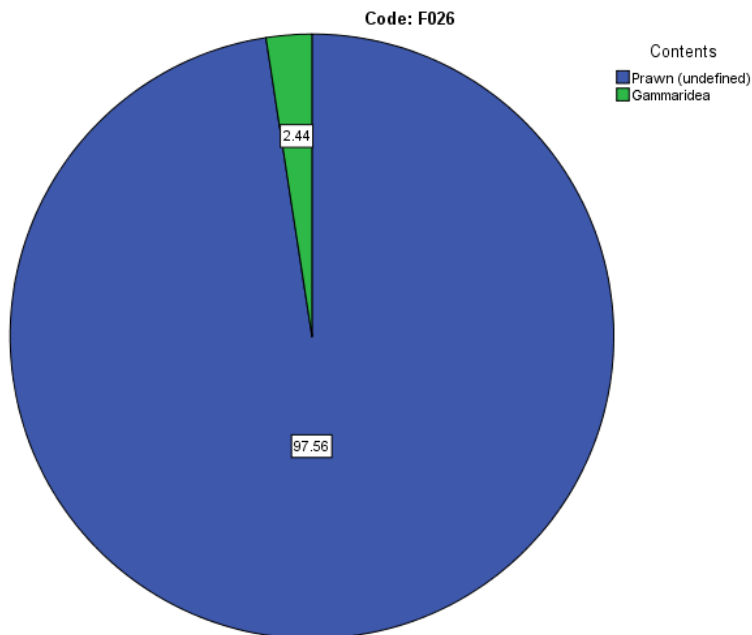
Average abundance = 0.037/ha Rank abundance = 91

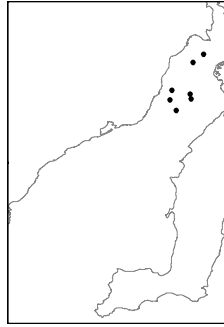
Dietary Summary

Number of guts examined = 2

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Gammaridea	0.00	2.44
Crustacea	Prawn (undefined)	0.10	97.56



F027 *Filicampus tigris* (Castelnau, 1879) (Chordata, Syngnathidae) CAAB 37 282064

Common name = Tiger Pipefish

Length = To 269 mm

Depth range = 14 - 25 m

Stations = 13C, 23, 36, 58C, 61, 70, DK1

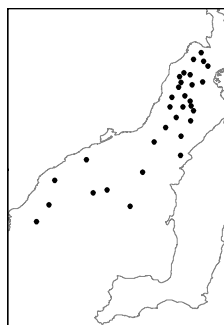
Average biomass = 0.298 g/ha Rank biomass = 112

Average abundance = 0.055/ha Rank abundance = 80

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F028 *Parapercis haackei* (Steindachner, 1884) (Chordata, Pinguipedidae) CAAB 37 390004

Common name = Wavy Grubfish

Length = To 93 mm

Depth range = 12 - 30.5 m

Stations = 1, 12, 13C, 1B, 21C, 26, 30, 32, 36, 47B, 58C, 59B, 61, 70, 74, 78, 80, 93, BC1, BC10, BC20, BC22, BC24, BC3, BC30, CB1, DK1, EWL3, FC2, SHW2, WG1, Z1/5

Average biomass = 2.396 g/ha

Rank biomass = 84

Average abundance = 0.641/ha

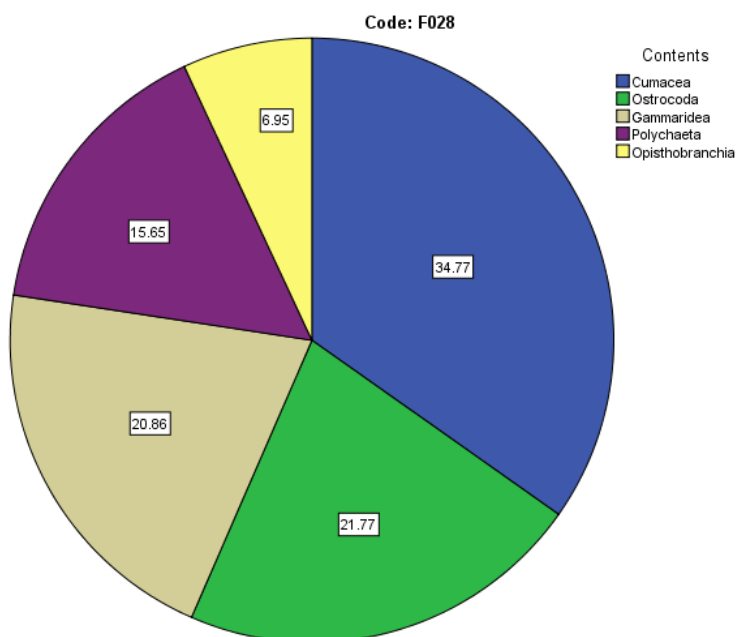
Rank abundance = 31

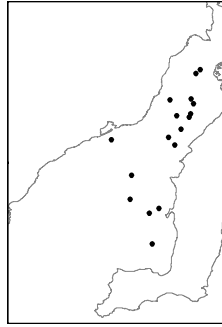
Dietary Summary

Number of guts examined = 4

Proportion of guts empty = 25%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.02	15.65
Crustacea	Cumacea	0.05	34.77
Crustacea	Gammaridea	0.03	20.86
Crustacea	Ostrocooda	0.03	21.77
Mollusca	Opisthobranchia	0.01	6.95



F029 *Thysanophrys cirronasa* (Richardson, 1848) (Chordata, Platycephalidae) CAAB 37 296045

Common name = Rock Flathead

Length = To 298 mm

Depth range = 13 - 28 m

Stations = 16, 21B, 22B, 58C, 59B, 63, 70, BC13, BC24, BC28, BC3, BC36, BC4, EWL3, N23, WD6, Z1/1

Average biomass = 11.021 g/ha Rank biomass = 69

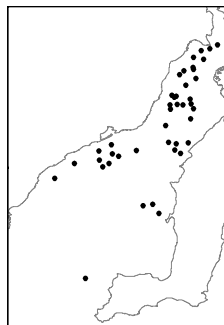
Average abundance = 0.120/ha Rank abundance = 59

Dietary Summary

Number of guts examined = 4

Proportion of guts empty = 50% (remainder consisting of unidentifiable digested material)

F030 *Platycephalus speculator* Klunzinger, 1872 (Chordata, Platycephalidae) CAAB 37 296037

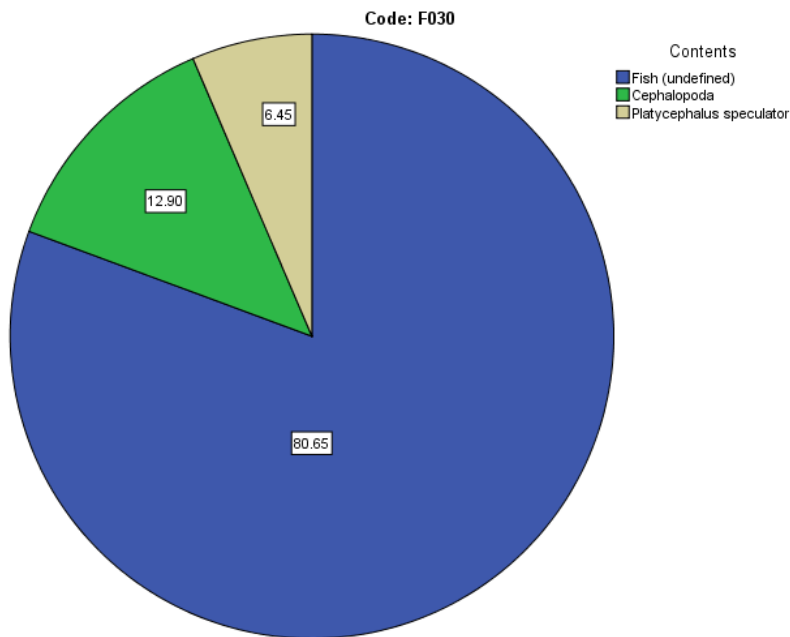


Common name = Yank Flathead
 Length = To 525 mm
 Depth range = 12 - 41.5 m
 Stations = 1, 13C, 16, 19, 21B, 23, 26, 36, 44, 5, 50B, 58C, 59B, 69, 7, 70, 72, 74, 78, 8, 80, 92, BC20, BC3, BC44, BC8, CB1, DK1, FC2, N23, WD3, WD4, WD6, X3, Z1/1, Z1/3, Z1/7, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2
 Average biomass = 113.140 g/ha Rank biomass = 24
 Average abundance = 0.656/ha Rank abundance = 30

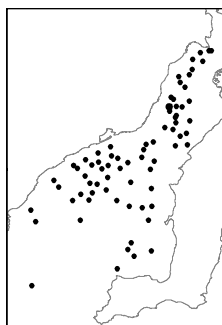
Dietary Summary

Number of guts examined = 6
 Proportion of guts empty = 33%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish (undefined)	2.50	80.65
Chordata	<i>Platycephalus speculator</i>	0.20	6.45
Mollusca	Cephalopoda	0.40	12.90



F031 *Heterodontus portusjacksoni* (Meyer, 1793) (Chordata, Heterodontidae) CAAB 37 007001



Common name = Port Jackson Shark

Length = To 870 mm

Depth range = 13 - 46.5 m

Stations = 11B, 13C, 19, 1B, 2, 23, 30, 36, 3A, 44, 5, 57, 5B, 61, 63, 68, 69, 7, 70, 72, 74, 78, 7B, 80, 93, 9B, BC11, BC12, BC13, BC17, BC18, BC20, BC21, BC23, BC24, BC27, BC28, BC3, BC30, BC36, BC40, BC45, BC6, BC9, C7, CB1, CP1, CP3, CP7, DK1, EWL3, FC2, SHW2, SHW7, WAL32, WD3, WD4, WD9, WG1, WG3, X3, Y7, Z1/1, Z1/3, Z1/5, Z1/7, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 840.167 g/ha Rank biomass = 4

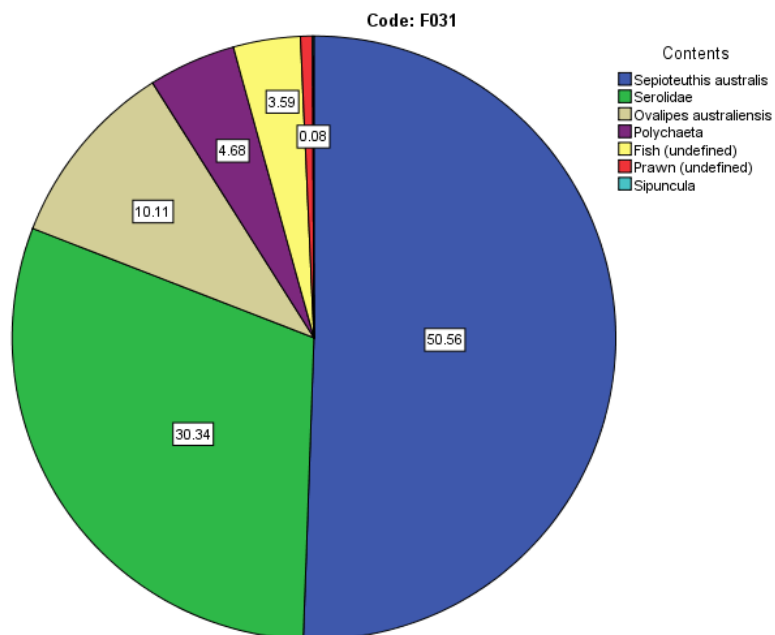
Average abundance = 0.872/ha Rank abundance = 28

Dietary Summary

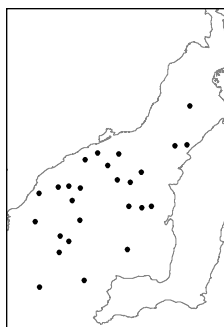
Number of guts examined = 14

Proportion of guts empty = 29%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	7.30	4.68
Chordata	Fish (undefined)	5.60	3.59
Crustacea	<i>Ovalipes australiensis</i>	15.78	10.11
Crustacea	Prawn (undefined)	1.00	0.64
Crustacea	Serolidae	47.34	30.34
Mollusca	<i>Sepioteuthis australis</i>	78.90	50.56
Sipuncula	Sipuncula	0.12	0.08



F032 *Eubalichthys mosaicus* (Ramsay & Ogilby, 1886) (Chordata, Monacanthidae) CAAB 37 465003



Common name = Mosaic Leatherjacket

Length = To 260 mm

Depth range = 16.1 - 44 m

Stations = 19, 58C, 7, BC10, BC11, BC13, BC14, BC15, BC16, BC19, BC21, BC24, BC27, BC30, BC31, BC34, BC38, BC44, BC46, C14, CP3, WD3, WD4, Z1/3, Z1/5, Z3/11

Average biomass = 40.457 g/ha

Rank biomass = 46

Average abundance = 0.255/ha

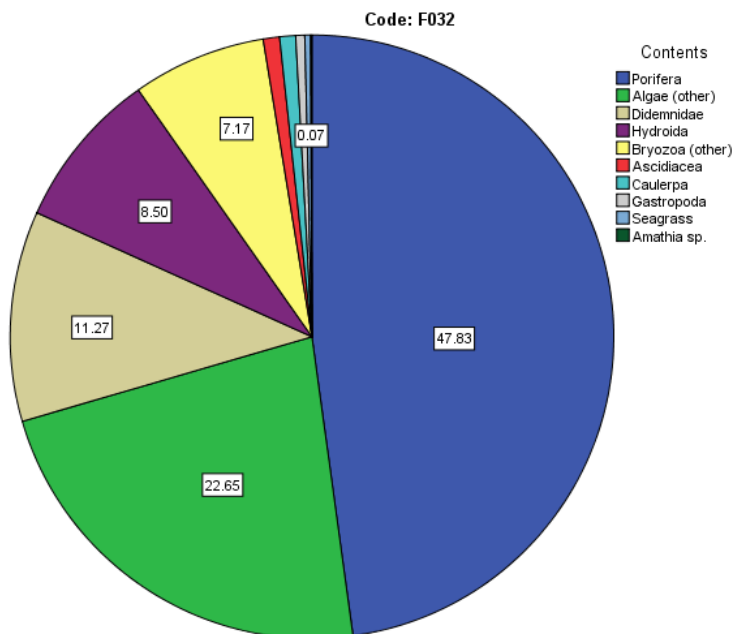
Rank abundance = 42

Dietary Summary

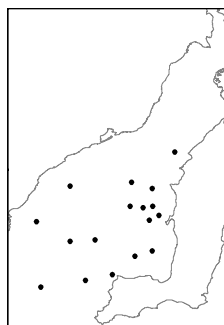
Number of guts examined = 7

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae (other)	28.51	22.65
Algae	Caulerpa	1.08	0.86
Bryozoa	<i>Amathia</i> sp.	0.09	0.07
Bryozoa	Bryozoa (other)	9.02	7.17
Cnidaria	Hydroida	10.70	8.50
Magnoliophyta	Seagrass	0.39	0.31
Mollusca	Gastropoda	0.60	0.48
Porifera	Porifera	60.20	47.83
Urochordata	Ascidiacea	1.10	0.87
Urochordata	Didemnidae	14.18	11.27



F033 *Pempheris klunzingeri* (McCulloch, 1911) (Chordata, Pempheridae) CAAB 37 357003

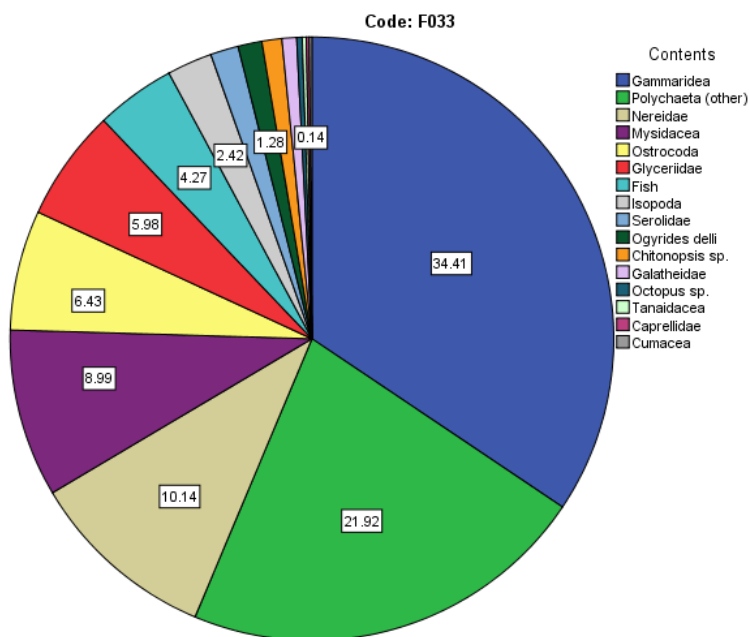


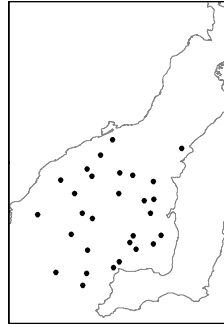
Common name = Rough bullseye
 Length = To 173 mm
 Depth range = 17 - 44 m
 Stations = 16, BC13, BC14, BC17, BC24, BC28, BC30, BC32, BC34, BC36, BC40, BC42, BC44, BC46, WD3, WD4, WD6
 Average biomass = 69.901 g/ha Rank biomass = 34
 Average abundance = 1.442/ha Rank abundance = 21

Dietary Summary

Number of guts examined = 20
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Glyceriidae	0.84	5.98
Annelida	Nereidae	1.42	10.14
Annelida	Polychaeta (other)	3.08	21.92
Chordata	Fish	0.60	4.27
Crustacea	Caprellidae	0.02	0.16
Crustacea	<i>Chitonopsis</i> sp.	0.15	1.07
Crustacea	Cumacea	0.02	0.14
Crustacea	Galatheiidae	0.11	0.78
Crustacea	Gammaridea	4.84	34.41
Crustacea	Isopoda	0.34	2.42
Crustacea	Mysidacea	1.26	8.99
Crustacea	<i>Ogyrides delli</i>	0.18	1.28
Crustacea	Ostrocooda	0.90	6.43
Crustacea	Serolidae	0.21	1.49
Crustacea	Tanaidacea	0.03	0.21
Mollusca	<i>Octopus</i> sp.	0.04	0.30



F034 *Lophonectes gallus* Günther, 1880 (Chordata, Bothidae) CAAB 37 460001

Common name = Crested Flounder

Length = To 229 mm

Depth range = 12 - 54.5 m

Stations = 1, BC11, BC12, BC13, BC15, BC17, BC21, BC27, BC28, BC30, BC33, BC34, BC36, BC39, BC40, BC42, BC43, BC44, BC47, CP1, CP3, CP7, SG2, WD3, WD4, WD9, Z1/1, Z2/11, Z3/8

Average biomass = 5.947 g/ha Rank biomass = 76

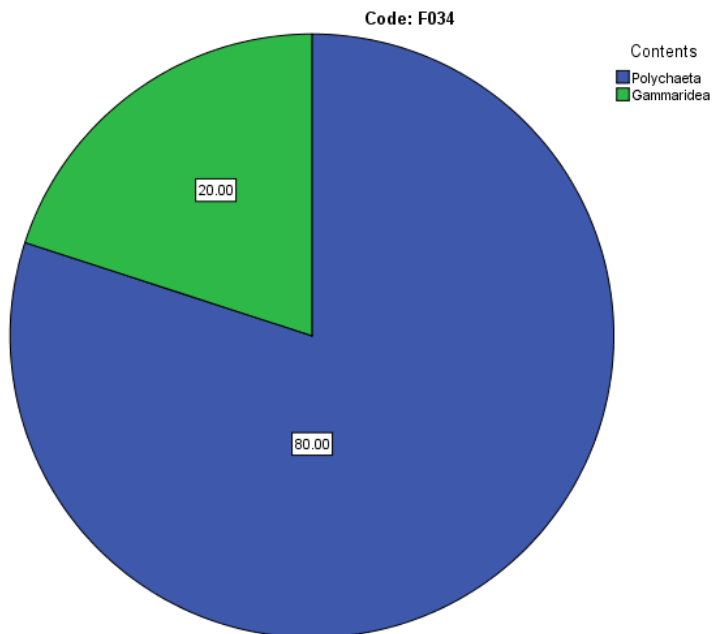
Average abundance = 0.286/ha Rank abundance = 38

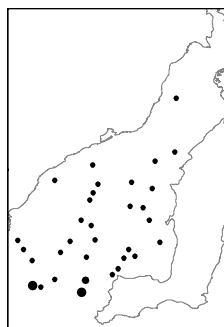
Dietary Summary

Number of guts examined = 4

Proportion of guts empty = 25%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.20	80.00
Crustacea	Gammaridea	0.05	20.00



F035 *Trachurus declivis* (Jenyns, 1841) (Chordata, Carangidae) CAAB 37 337002

Common name = Jack Mackerel

Length = To 230 mm

Depth range = 14.8 - 54.5 m

Stations = 11B, 16, 8, BC13, BC17, BC20, BC24, BC27, BC28, BC32, BC33, BC34, BC35, BC37, BC38, BC39, BC40, BC41, BC42, BC43, BC44, BC45, BC46, BC47, CP12, CP3, CP7, SG2, WAL32, WD3, WG1, WG3, Z2/10

Average biomass = 515.063 g/ha Rank biomass = 8

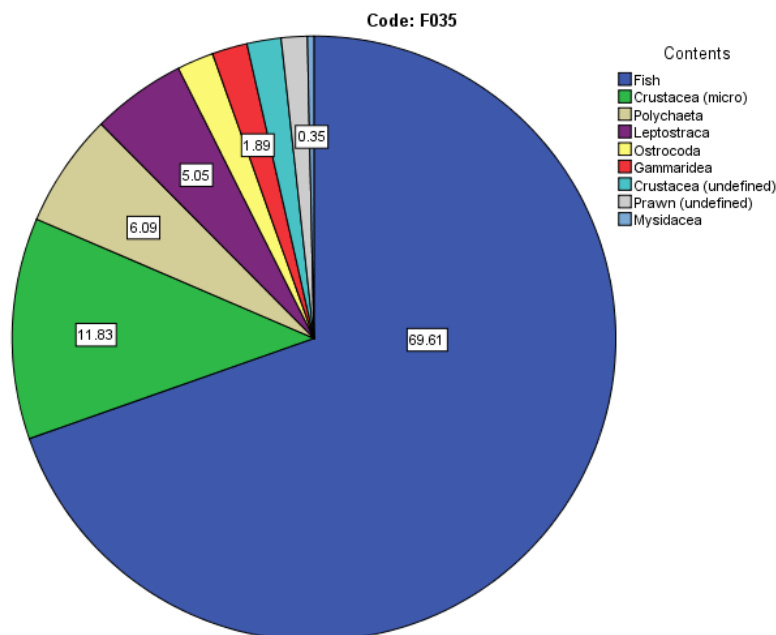
Average abundance = 11.307/ha Rank abundance = 7

Dietary Summary

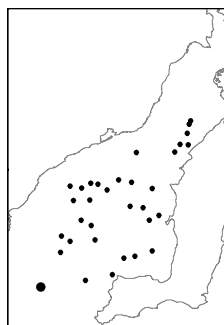
Number of guts examined = 20

Proportion of guts empty = 20%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.35	6.09
Chordata	Fish	4.00	69.61
Crustacea	Crustacea (undefined)	0.10	1.83
Crustacea	Crustacea (micro)	0.68	11.83
Crustacea	Gammaridea	0.11	1.89
Crustacea	Leptostraca	0.29	5.05
Crustacea	Mysidacea	0.02	0.35
Crustacea	Ostrocooda	0.11	1.96
Crustacea	Prawn (undefined)	0.08	1.39



F036 *Neosebastes bougainvillii* (Cuvier, 1829) (Chordata, Neosebastidae) CAAB 37 287004

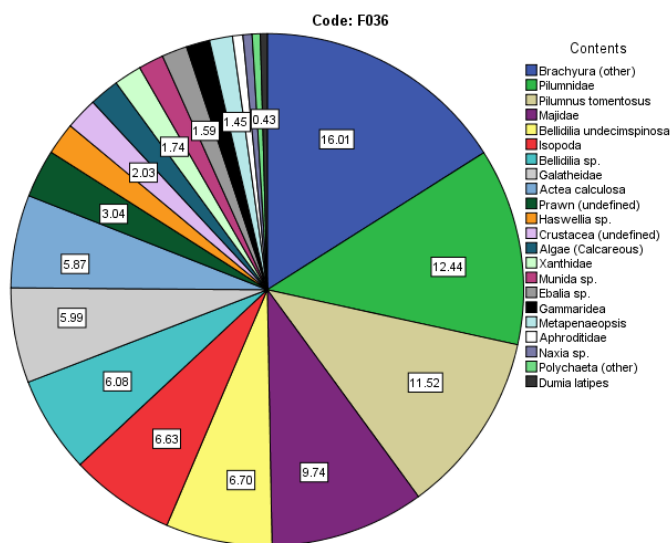


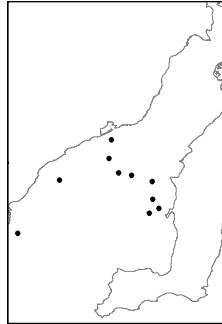
Common name = Gulf Gurnard Perch
 Length = To 279 mm
 Depth range = 13 - 44 m
 Stations = 11B, 16, 1B, 4, 7, BC12, BC13, BC14, BC15, BC16, BC17, BC21, BC24, BC27, BC28, BC3, BC31, BC32, BC34, BC36, BC38, BC4, BC40, BC42, BC44, BC46, BC8, CP12, SG2, WD3, WD6, WG3, Y7
 Average biomass = 187.367 g/ha Rank biomass = 18
 Average abundance = 1.214/ha Rank abundance = 23

Dietary Summary

Number of guts examined = 20
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae (Calcareous)	0.52	1.88
Annelida	Aphroditidae	0.18	0.65
Annelida	Polychaeta (other)	0.14	0.51
Crustacea	<i>Actea calculosa</i>	1.62	5.87
Crustacea	<i>Bellidilia</i> sp.	1.68	6.08
Crustacea	<i>Bellidilia undecimspinosa</i>	1.85	6.70
Crustacea	Brachyura (other)	4.42	16.01
Crustacea	Crustacea (undefined)	0.56	2.03
Crustacea	<i>Dumia latipes</i>	0.12	0.43
Crustacea	<i>Ebalia</i> sp.	0.44	1.59
Crustacea	Galatheidae	1.66	5.99
Crustacea	Gammaridea	0.41	1.48
Crustacea	<i>Haswellia</i> sp.	0.56	2.03
Crustacea	Isopoda	1.83	6.63
Crustacea	Majidae	2.69	9.74
Crustacea	Metapenaeopsis	0.40	1.45
Crustacea	<i>Munida</i> sp.	0.44	1.59
Crustacea	<i>Naxia</i> sp.	0.16	0.58
Crustacea	Pilumnidae	3.43	12.44
Crustacea	<i>Pilumnus tomentosus</i>	3.18	11.52
Crustacea	Prawn (undefined)	0.84	3.04
Crustacea	Xanthidae	0.48	1.74



F037 *Sphyraena novaehollandiae* (Günther, 1860) (Chordata, Sphyraenidae) CAAB 37 382002

Common name = Snook (Shortfin seapike)

Length = To 578 mm

Depth range = 15 - 22 m

Stations = BC11, BC13, BC15, BC17, BC28, BC35, WD4, WD6, Z1/1, Z3/11

Average biomass = 26.119 g/ha Rank biomass = 53

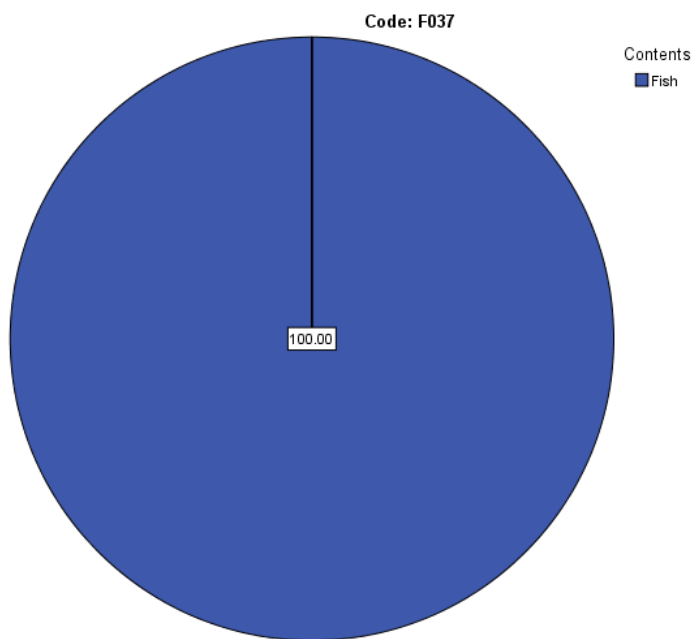
Average abundance = 0.088/ha Rank abundance = 68

Dietary Summary

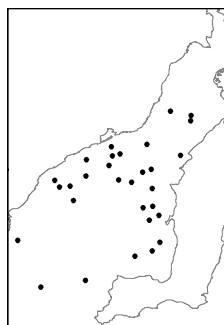
Number of guts examined = 5

Proportion of guts empty = 40%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish	13.80	100.00



F038 *Aracana aurita* (Shaw, 1798) (Chordata, Ostraciidae) CAAB 37 466003

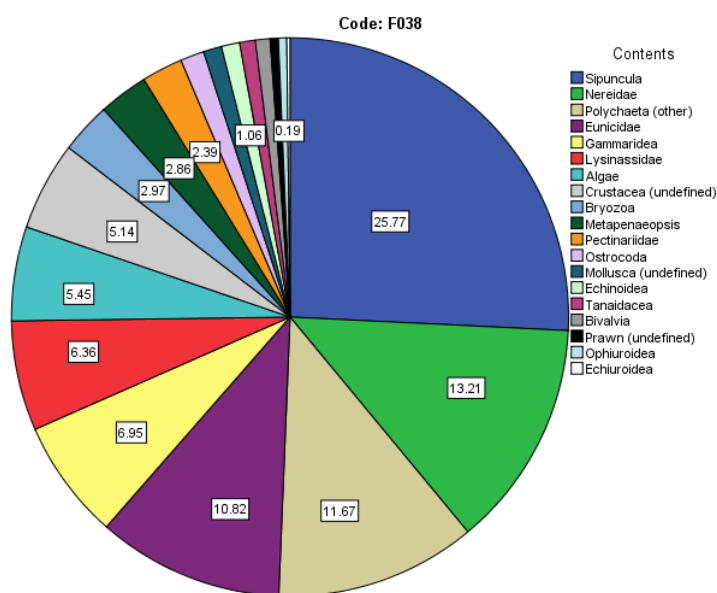


Common name = Shaws Cowfish
 Length = To 189 mm
 Depth range = 12 - 44 m
 Stations = 1, 69, BC10, BC11, BC13, BC14, BC15, BC17, BC2, BC20, BC21, BC28, BC3, BC33, BC35, BC36, BC40, BC44, BC46, BC6, BC9, C14, WD3, WD4, WD6, Z1/1, Z1/5, Z2/13, Z3/11, Z3/8
 Average biomass = 103.029 g/ha Rank biomass = 29
 Average abundance = 1.031/ha Rank abundance = 25

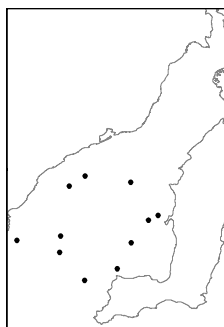
Dietary Summary

Number of guts examined = 7
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	0.51	5.45
Annelida	Eunicidae	1.02	10.82
Annelida	Nereidae	1.25	13.21
Annelida	Pectinariidae	0.23	2.39
Annelida	Polychaeta (other)	1.10	11.67
Bryozoa	Bryozoa	0.28	2.97
Crustacea	Crustacea (undefined)	0.49	5.14
Crustacea	Gammaridea	0.66	6.95
Crustacea	Lysinassidae	0.60	6.36
Crustacea	Metapenaeopsis	0.27	2.86
Crustacea	Ostrocooda	0.13	1.38
Crustacea	Prawn (undefined)	0.05	0.48
Crustacea	Tanaidacea	0.09	0.91
Echinodermata	Echinoidea	0.10	1.06
Echinodermata	Ophiuroidea	0.05	0.48
Echiuroidea	Echiuroidea	0.02	0.19
Mollusca	Bivalvia	0.08	0.85
Mollusca	Mollusca (undefined)	0.10	1.06
Sipuncula	Sipuncula	2.43	25.77



F039 *Urolophus orarius* (Last & Gommon 1987) (Chordata, Urolophidae) CAAB 37 038022

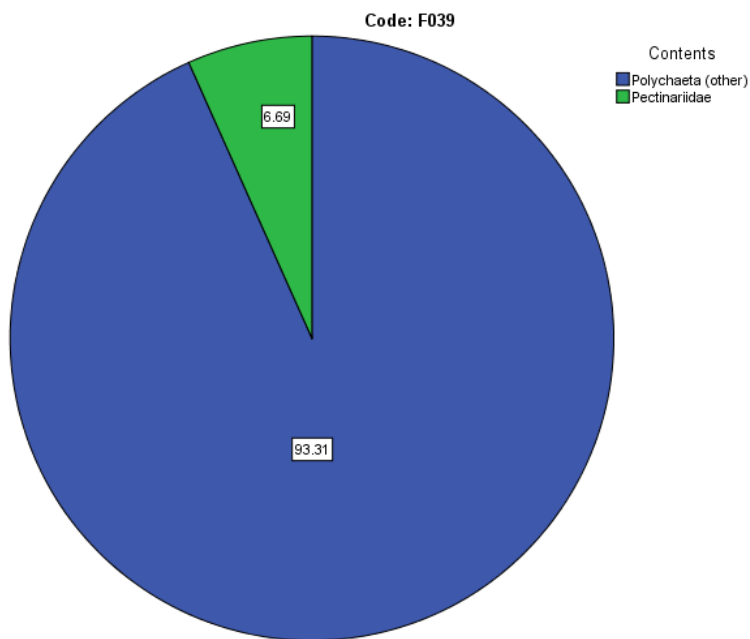


Common name = Coastal Stinaree
 Length = To 342 mm
 Depth range = 18.7 - 43 m
 Stations = BC13, BC14, BC28, BC31, BC35, BC38, BC44, CP1, CP7, WD6, Z3/8
 Average biomass = 13.560 g/ha Rank biomass = 65
 Average abundance = 0.058/ha Rank abundance = 76

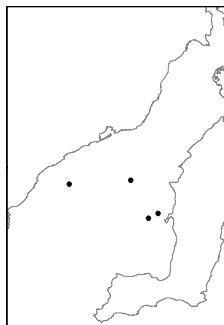
Dietary Summary

Number of guts examined = 3
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Pectinariidae	0.25	6.69
Annelida	Polychaeta (other)	3.48	93.31



F040 *Odax acroptilus* (Richardson, 1846) (Chordata, Odacidae) CAAB 37 385010

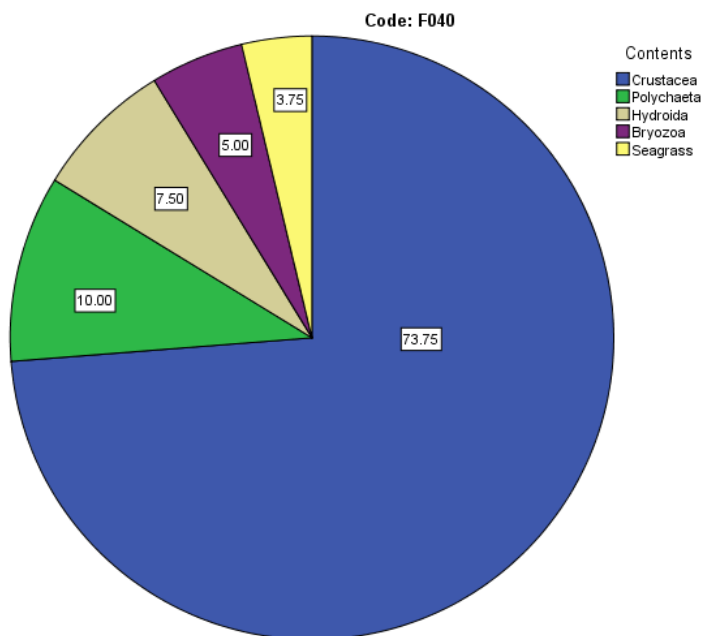


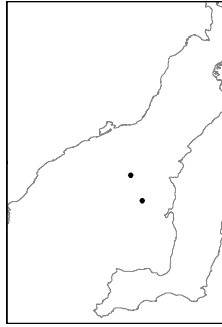
Common name = Rainbow Cale
 Length = To 145 mm
 Depth range = 18.7 - 23 m
 Stations = BC13, BC14, BC28, WD6
 Average biomass = 0.726 g/ha Rank biomass = 103
 Average abundance = 0.026/ha Rank abundance = 95

Dietary Summary

Number of guts examined = 5
 Proportion of guts empty = 40%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.02	10.00
Bryozoa	Bryozoa	0.01	5.00
Cnidaria	Hydroida	0.01	7.50
Crustacea	Crustacea	0.15	73.75
Magnoliophyta	Seagrass	0.01	3.75



F041 *Siphonognathus argyrophanes* (Richardson, 1858) (Chordata, Odacidae) CAAB 37 385008

Common name = Tubemouth

Length = To 302 mm

Depth range = 21.4 - 23.5 m

Stations = BC13, WD3

Average biomass = 0.084 g/ha

Average abundance = 0.005/ha

Rank biomass = 125

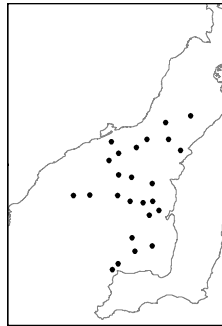
Rank abundance = 118

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F042 *Polyspina piosae* (Whitley, 1955) (Chordata, Tetraodontidae) CAAB 37 467049



Common name = Orangebarred Puffer fish

Length = To 100 mm

Depth range = 12 - 41 m

Stations = 1, 11B, 78, BC13, BC15, BC17, BC21, BC24, BC28, BC3, BC36, BC40, BC42, BC6, BC8, CP1, CP7, N23, WD3, WD4, WD6,

WD9, Z1/1, Z3/11, Z3/2

Average biomass = 10.953 g/ha

Rank biomass = 70

Average abundance = 0.922/ha

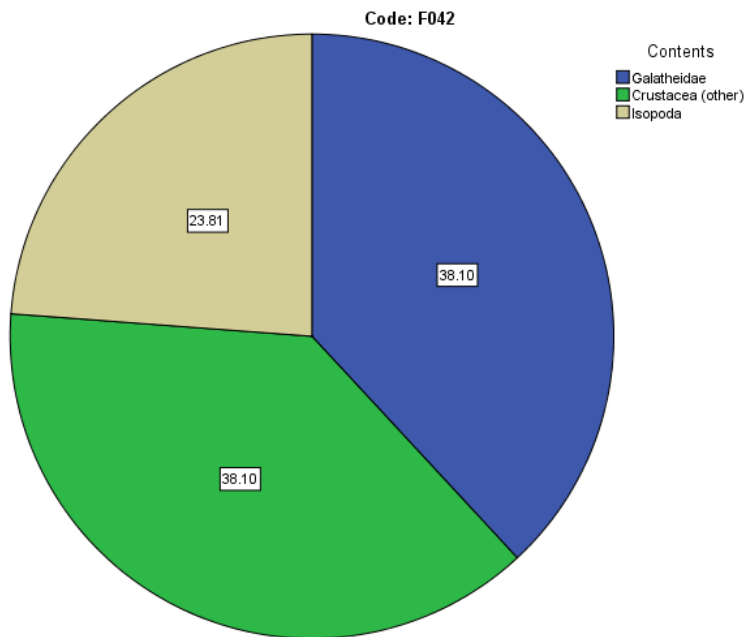
Rank abundance = 26

Dietary Summary

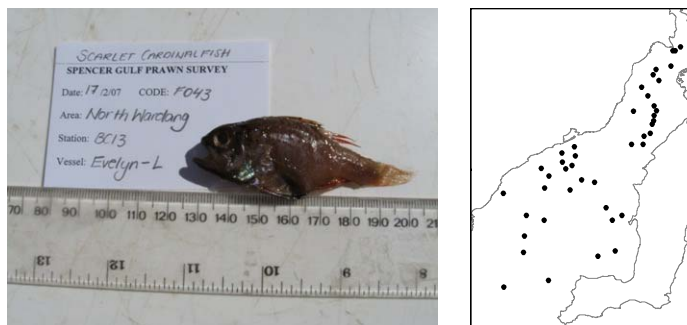
Number of guts examined = 5

Proportion of guts empty = 40%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea (other)	0.20	38.10
Crustacea	Galatheidae	0.20	38.10
Crustacea	Isopoda	0.13	23.81



F043 *Vincentia badia* (Allen, 1987) (Chordata, Apogonidae) CAAB 37 327120



Common name = Scarlet Cardinal fish

Length = To 106 mm

Depth range = 13 - 44 m

Stations = 12, 1B, 21B, 23, 32, 4, 44, 47B, 50B, 57, 58C, 59B, 69, 93, BC13, BC15, BC16, BC19, BC2, BC25, BC27, BC28, BC3, BC31, BC36, BC38, BC4, BC40, BC44, BC46, C7, EWL3, N23, WD3, WD6, Y7, Z1/1, Z1/3, Z2/11, Z2/13, Z3/10, Z3/11, Z3/8

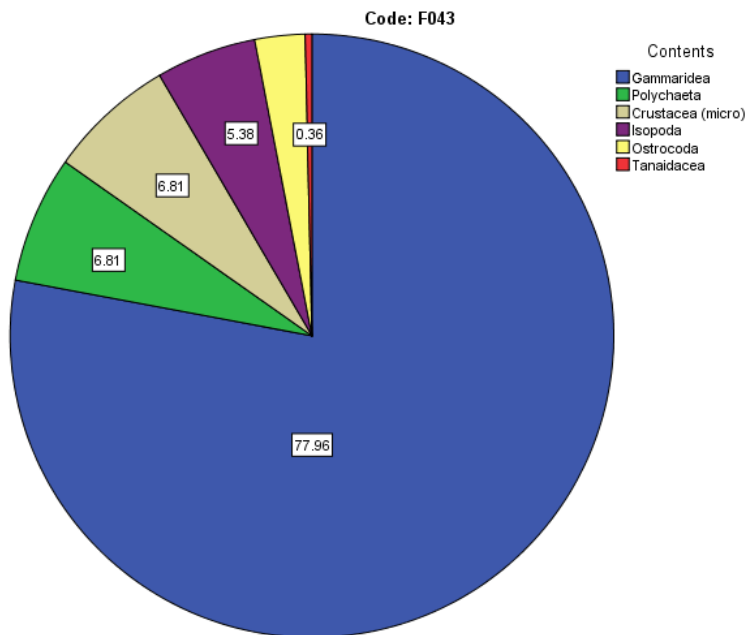
Average biomass = 10.927 g/ha Rank biomass = 71
 Average abundance = 1.665/ha Rank abundance = 20

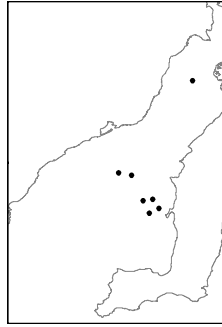
Dietary Summary

Number of guts examined = 13

Proportion of guts empty = 15%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.10	6.81
Crustacea	Crustacea (micro)	0.10	6.81
Crustacea	Gammaridea	1.09	77.96
Crustacea	Isopoda	0.08	5.38
Crustacea	Ostrocooda	0.04	2.69
Crustacea	Tanaidacea	0.00	0.36



F044 *Leptoichthys fistularius* Kaup, 1853 (Chordata, Syngnathidae) CAAB 37 282013

Common name = Brushtail Pipefish

Length = To 481 mm

Depth range = 14 - 23.5 m

Stations = 20B, BC13, BC15, BC28, WD3, WD4, WD6

Average biomass = 0.149 g/ha Rank biomass = 119

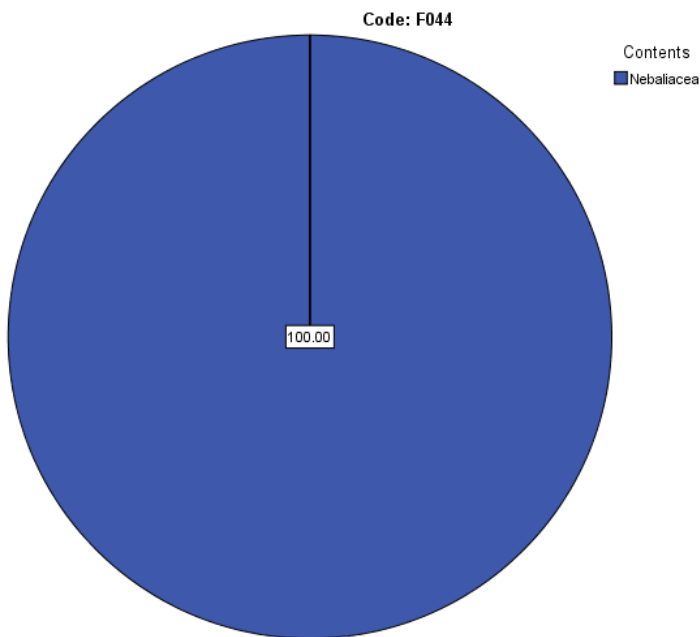
Average abundance = 0.052/ha Rank abundance = 83

Dietary Summary

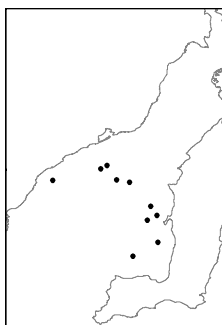
Number of guts examined = 2

Proportion of guts empty = 50%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Nebaliacea	0.00	100.00



F045 *Phycodurus eques* (Günther, 1865) (Chordata, Syngnathidae) CAAB 37 282001

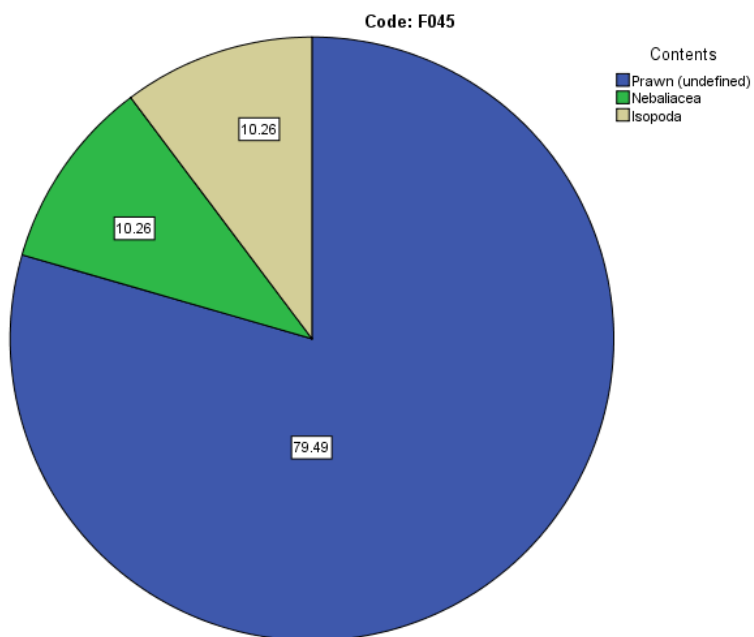


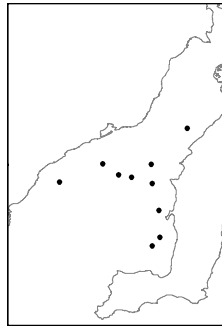
Common name = Leafy Seadragon
 Length = To 279 mm
 Depth range = 14.8 - 26 m
 Stations = BC13, BC15, BC20, BC28, BC33, BC40, WD4, WD6, Z3/10, Z3/11
 Average biomass = 0.941 g/ha Rank biomass = 98
 Average abundance = 0.092/ha Rank abundance = 65

Dietary Summary

Number of guts examined = 2
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Isopoda	0.04	10.26
Crustacea	Nebaliacea	0.04	10.26
Crustacea	Prawn (undefined)	0.31	79.49



F046 *Phyllopteryx taeniolatus* (Lacépède, 1804) (Chordata, Syngnathidae) CAAB 37 282002

Common name = Common Seadragon

Length = To 286 mm

Depth range = 14.8 - 25.5 m

Stations = BC11, BC13, BC15, BC17, BC33, BC36, BC9, WD6, Y7, Z3/10

Average biomass = 2.472 g/ha Rank biomass = 82

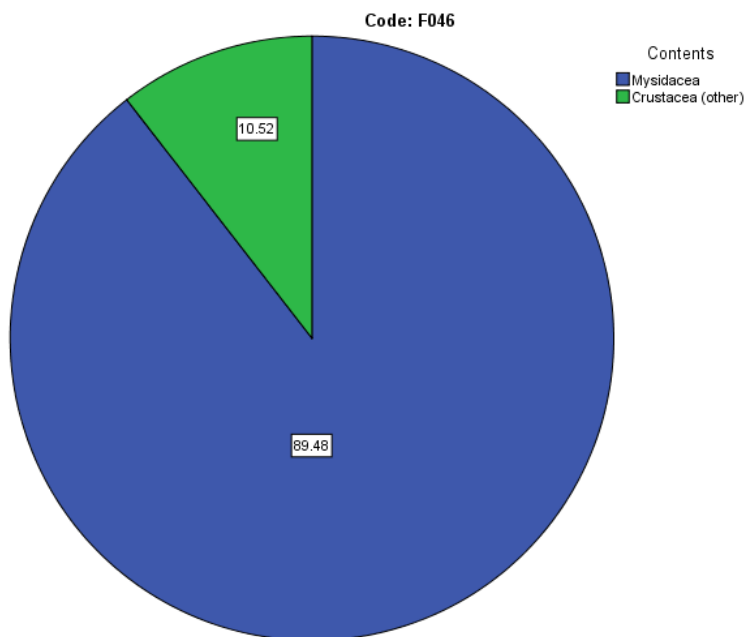
Average abundance = 0.239/ha Rank abundance = 44

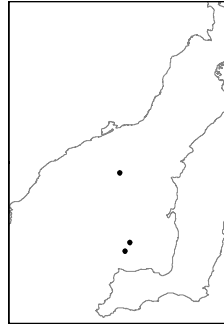
Dietary Summary

Number of guts examined = 4

Proportion of guts empty = 50%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea (other)	0.01	10.52
Crustacea	Mysidacea	0.06	89.48



F047 *Eubalichthys gunnii* (Günther, 1870) (Chordata, Monacanthidae) CAAB 37 465034

Common name = Gunn's Leatherjacket

Length = To 148 mm

Depth range = 19.2 - 37 m

Stations = BC15, CP12, CP3

Average biomass = 0.690 g/ha

Rank biomass = 104

Average abundance = 0.013/ha

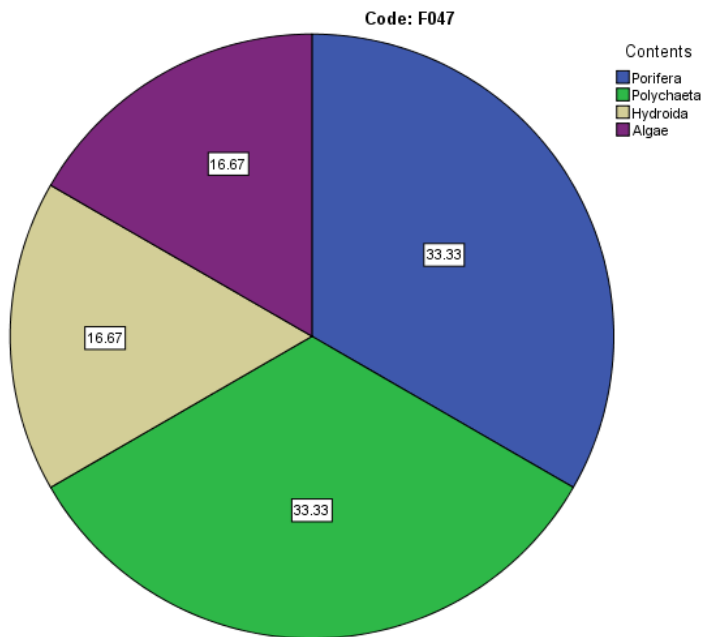
Rank abundance = 109

Dietary Summary

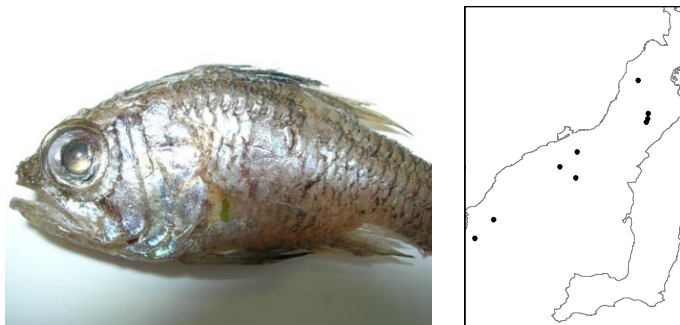
Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	0.60	16.67
Annelida	Polychaeta	1.20	33.33
Cnidaria	Hydroida	0.60	16.67
Porifera	Porifera	1.20	33.33



F048 *Vincentia conspersa* (Klunzinger, 1872) (Chordata, Apogonidae) CAAB 37 327033

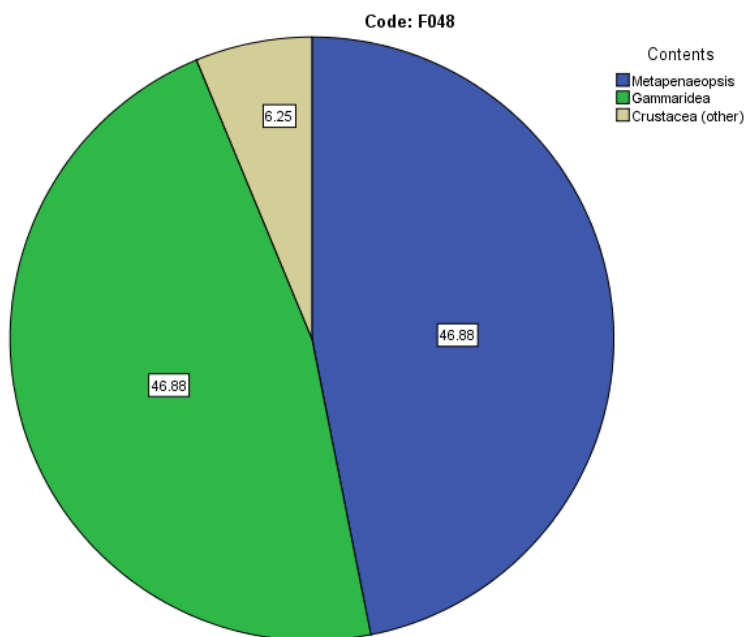


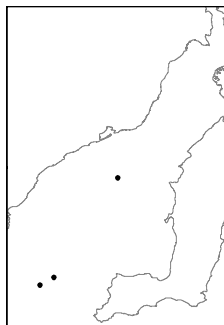
Common name = Southern Gobbleguts (Southern cardinalfish)
 Length = To 90 mm
 Depth range = 13 - 25.5 m
 Stations = 30, BC15, BC2, BC3, BC30, BC35, BC4, C14, Z3/10
 Average biomass = 1.450 g/ha Rank biomass = 94
 Average abundance = 0.176/ha Rank abundance = 51

Dietary Summary

Number of guts examined = 3
 Proportion of guts empty = 33%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea (other)	0.02	6.25
Crustacea	Gammaridea	0.15	46.88
Crustacea	Metapenaeopsis	0.15	46.88



F049 *Vincentia macrocauda* (Allen, 1987) (Chordata, Apogonidae) CAAB 37 327122

Common name = Smooth Cardinal fish

Length = To 106 mm

Depth range = 19.2 - 54.5 m

Stations = BC15, BC43, BC46

Average biomass = 1.537 g/ha

Rank biomass = 93

Average abundance = 0.150/ha

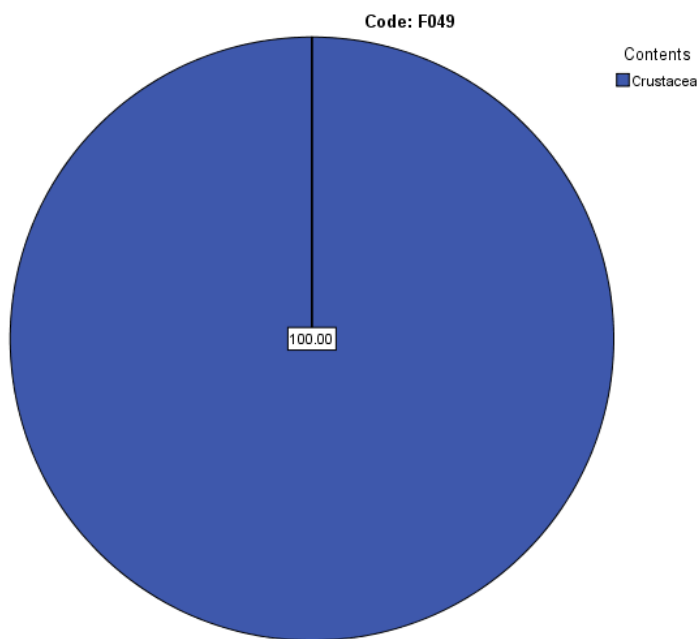
Rank abundance = 52

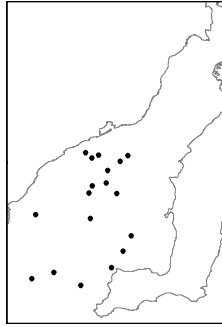
Dietary Summary

Number of guts examined = 2

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea	<0.01	100.00



F050 *Thyrsites atun* (Euphrasen, 1791) (Chordata, Gempylidae) CAAB 37 439001

Common name = Barracouta

Length = To 368 mm

Depth range = 21 - 54.5 m

Stations = 11B, 1B, 3A, 5B, 7B, BC30, BC42, BC43, BC45, BC47, CP1, CP12, SG2, WD9, WG1, Z1/5, Z2/10, Z2/11

Average biomass = 27.635 g/ha Rank biomass = 49

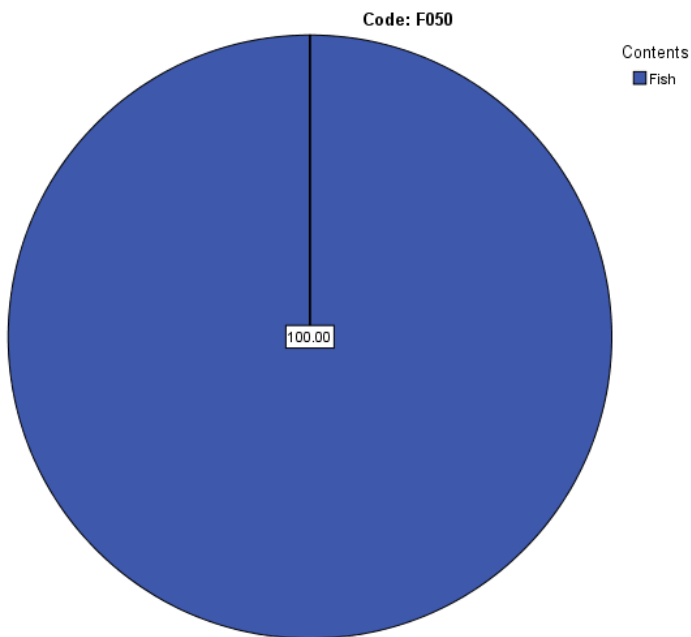
Average abundance = 0.476/ha Rank abundance = 34

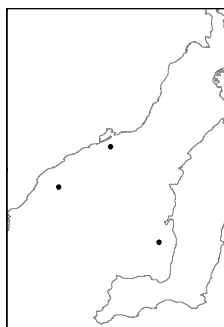
Dietary Summary

Number of guts examined = 7

Proportion of guts empty = 71%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish	3.00	100.00



F051 *Cristiceps australis* Valenciennes, 1836 (Chordata, Clinidae) CAAB 37 416007

Common name = Southern Crested Weed Fish

Length = To 129 mm

Depth range = 14.8 - 20 m

Stations = BC11, BC33, Z1/1

Average biomass = 0.100 g/ha

Rank biomass = 123

Average abundance = 0.020/ha

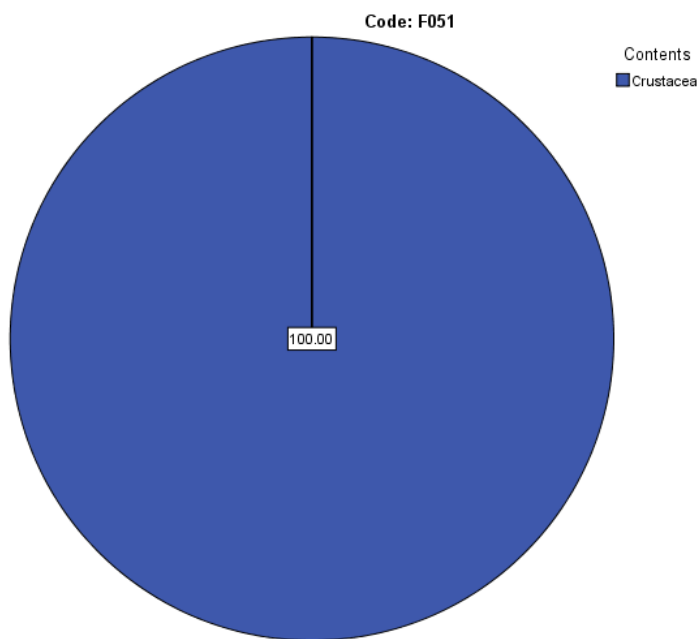
Rank abundance = 99

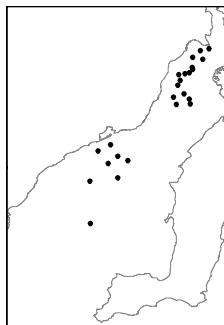
Dietary Summary

Number of guts examined = 2

Proportion of guts empty = 50%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea	0.03	100.00



F052 *Gymnapistes marmoratus* (Cuvier, 1829) (Chordata, Tetraogidae) CAAB 37 287018

Common name = Soldier Fish

Length = To 118 mm

Depth range = 13.5 - 40 m

Stations = 12, 13C, 23, 30, 32, 36, 44, 5, 58C, 74, 7B, 92, 93, 94, BC12, BC15, CB1, FC2, SG2, X3, Z1/1, Z1/3, Z3/11, Z3/2

Average biomass = 40.070 g/ha Rank biomass = 47

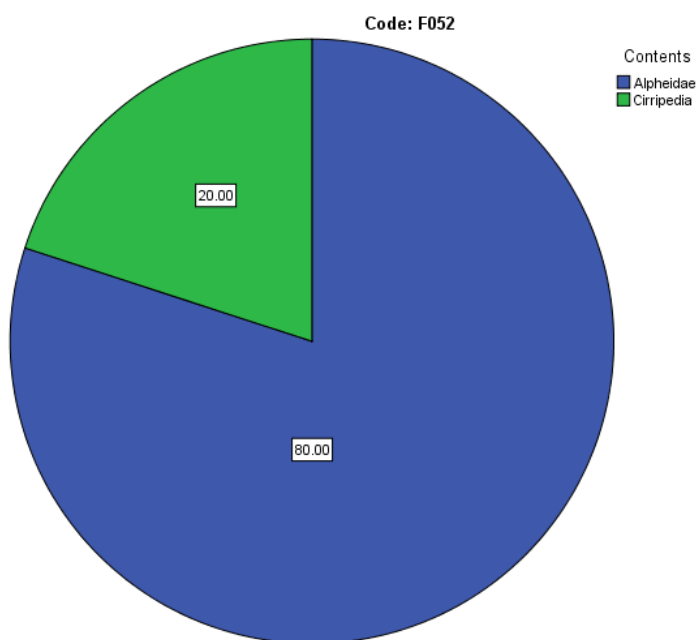
Average abundance = 3.344/ha Rank abundance = 15

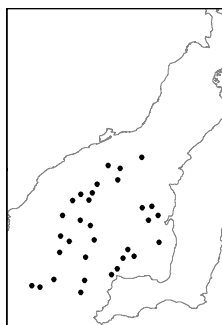
Dietary Summary

Number of guts examined = 5

Proportion of guts empty = 60%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Alpheidae	0.20	80.00
Crustacea	Cirripedia	0.05	20.00



F053 *Urolophus paucimaculatus* Dixon, 1969 (Chordata, Urolophidae) CAAB 37 038004

Common name = Sparsely-Spotted Stingaree

Length = To 485 mm

Depth range = 14.8 - 54.5 m

Stations = 11B, 5B, 9B, BC15, BC18, BC21, BC25, BC27, BC28, BC31, BC32, BC33, BC34, BC38, BC39, BC40, BC42, BC43, BC44, BC45, BC46, BC47, CP12, CP3, CP7, SG2, WD3, WD4, WD6, WG1, WG3, Z3/11

Average biomass = 107.731 g/ha Rank biomass = 28

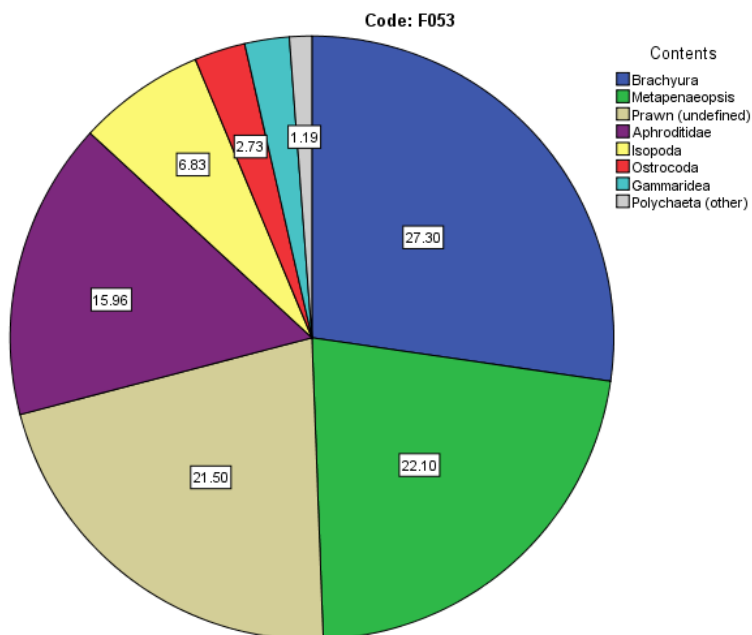
Average abundance = 0.845/ha Rank abundance = 29

Dietary Summary

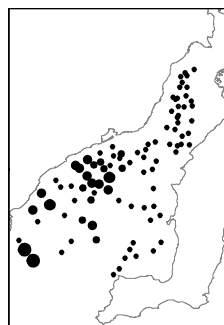
Number of guts examined = 11

Proportion of guts empty = 36%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Aphroditidae	0.47	15.96
Annelida	Polychaeta (other)	0.04	1.19
Crustacea	Brachyura	0.80	27.30
Crustacea	Gammaridea	0.07	2.39
Crustacea	Isopoda	0.20	6.83
Crustacea	Metapenaeopsis	0.65	22.10
Crustacea	Ostrocooda	0.08	2.73
Crustacea	Prawn (undefined)	0.63	21.50



F054 *Thamnaconus degeni* (Regan, 1903) (Chordata, Monacanthidae) CAAB 37 465037



Common name = Degens Leatherjacket (Bluefin)

Length = To 183 mm

Depth range = 13 - 43 m

Stations = 11B, 12, 13C, 16, 19, 1B, 2, 23, 26, 30, 32, 3A, 4, 5, 58C, 5B, 61, 63, 68, 69, 7, 72, 74, 78, 7B, 8, 80, 94, 9B, BC10, BC11, BC12, BC14, BC16, BC17, BC19, BC20, BC21, BC22, BC23, BC24, BC25, BC27, BC28, BC3, BC30, BC32, BC33, BC34, BC35, BC36, BC37, BC38, BC40, BC41, BC42, BC6, BC8, BC9, C14, C7, CP1, CP12, CP3, CP7, DK1, EWL3, N23, SG2, SHW2, SHW7, WAL32, WD3, WD4, WD6, WD9, WG1, WG3, X3, Y7, Z1/1, Z1/3, Z1/5, Z1/7, Z2/10, Z2/11, Z2/13, Z3/10, Z3/11, Z3/2, Z3/8

Average biomass = 8,265.789 g/ha

Rank biomass = 1

Average abundance = 627.412/ha

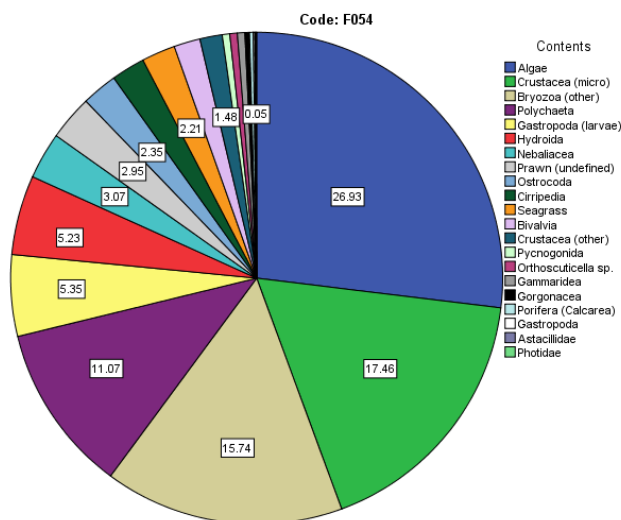
Rank abundance = 1

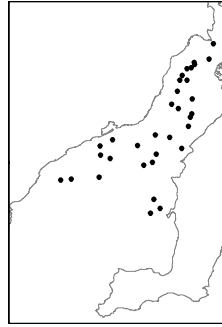
Dietary Summary

Number of guts examined = 27

Proportion of guts empty = 11%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	1.09	26.93
Annelida	Polychaeta	0.45	11.07
Bryozoa	Bryozoa (other)	0.64	15.74
Bryozoa	<i>Orthoscuticella</i> sp.	0.02	0.49
Cnidaria	Gorgonacea	0.01	0.30
Cnidaria	Hydroida	0.21	5.23
Crustacea	Astacillidae	0.00	0.07
Crustacea	Cirripedia	0.09	2.21
Crustacea	Crustacea (other)	0.06	1.48
Crustacea	Crustacea (micro)	0.71	17.46
Crustacea	Gammaridea	0.02	0.49
Crustacea	Nebaliacea	0.13	3.07
Crustacea	Ostrocooda	0.10	2.35
Crustacea	Photidae	0.00	0.05
Crustacea	Prawn (undefined)	0.12	2.95
Magnoliophyta	Seagrass	0.09	2.21
Mollusca	Bivalvia	0.07	1.72
Mollusca	Gastropoda	0.00	0.10
Mollusca	Gastropoda (larvae)	0.22	5.35
Porifera	Porifera (Calcarea)	0.01	0.25
Pycnogonida	Pycnogonida	0.02	0.49



F055 *Brachaluteres jacksonianus* (Quoy & Gaimard, 1824) (Chordata, Monacanthidae) CAAB 37 465025

Common name = Pohn. Pygmy Leatherjacket

Length = To 81 mm

Depth range = 12 - 30 m

Stations = 1, 2, 23, 30, 32, 47B, 57, 58C, 69, 72, 8, 92, 93, 94, BC10, BC11, BC14, BC28, BC3, BC4, BC8, BC9, N23, SHW2, WAL32, WD4, WD6, WG3, Y7, Z1/1, Z1/3, Z2/11, Z3/11

Average biomass = 2.496 g/ha Rank biomass = 81

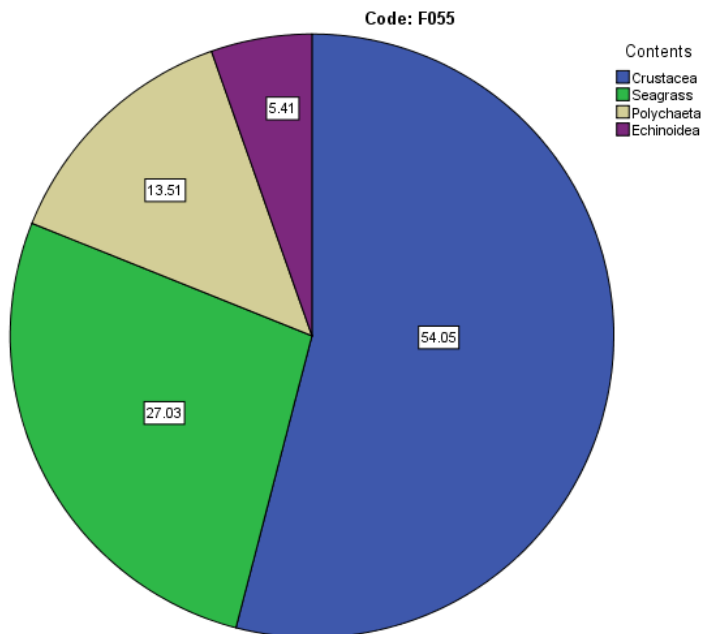
Average abundance = 0.465/ha Rank abundance = 35

Dietary Summary

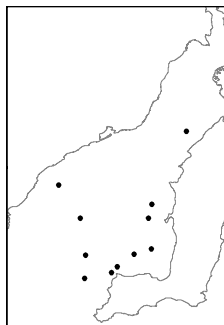
Number of guts examined = 3

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.00	13.51
Crustacea	Crustacea	0.02	54.05
Echinodermata	Echinoidea	0.00	5.41
Magnoliophyta	Seagrass	0.01	27.03



F056 *Contusus brevicaudus* Hardy, 1981 (Chordata, Tetraodontidae) CAAB 37 467044

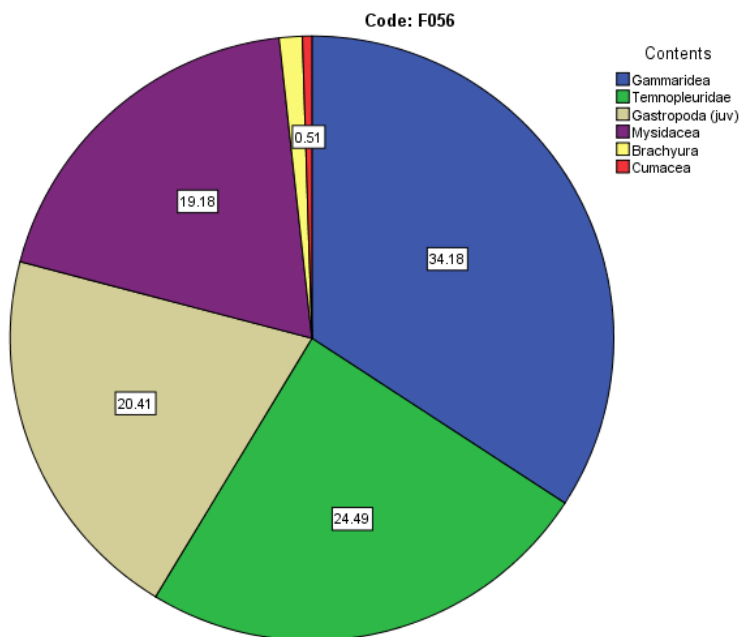


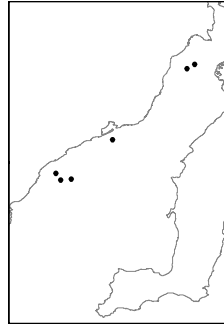
Common name = Prickly Toadfish
 Length = To 120 mm
 Depth range = 15.5 - 41.5 m
 Stations = BC11, BC27, BC28, BC36, BC39, BC40, BC42, BC44, CP7, WD4, Y7
 Average biomass = 3.426 g/ha Rank biomass = 80
 Average abundance = 0.105/ha Rank abundance = 62

Dietary Summary

Number of guts examined = 7
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Brachyura	0.06	1.22
Crustacea	Cumacea	0.03	0.51
Crustacea	Gammaridea	1.68	34.18
Crustacea	Mysidacea	0.94	19.18
Echinodermata	Temnopleuridae	1.20	24.49
Mollusca	Gastropoda (juv)	1.00	20.41



F057 *Hypnos monoptyerygium* (Shaw & Nodder, 1795) (Chordata, Hypnidae) CAAB 37 028001

Common name = Australian Numbfish (Coffin Ray)

Length = To 425 mm

Depth range = 14 - 23 m

Stations = 92, 94, BC11, BC14, BC20, Z1/1

Average biomass = 56.556 g/ha Rank biomass = 40

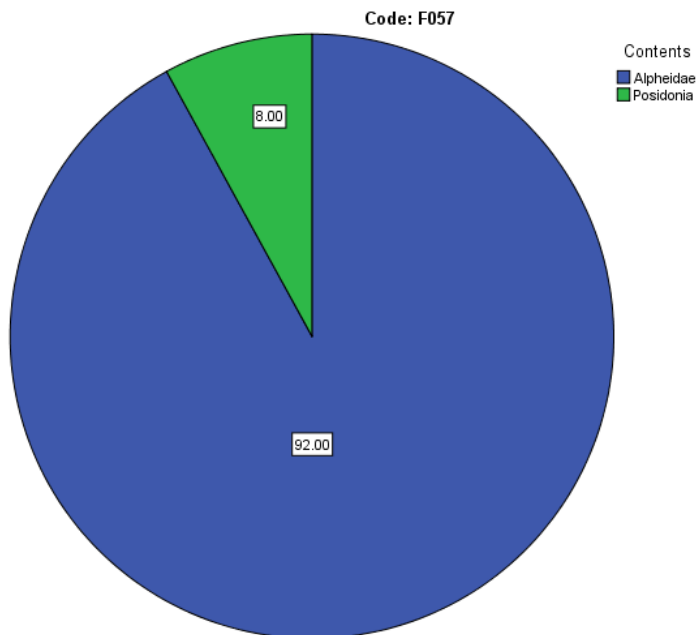
Average abundance = 0.054/ha Rank abundance = 81

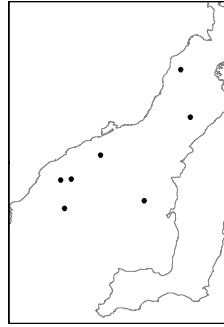
Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Alpheidae	0.92	92.00
Magnoliophyta	Posidonia	0.08	8.00



F058 *Chelmonops curiosus* Kuitert, 1986 (Chordata, Chaetodontidae) CAAB 37 365066

Common name = Squareback Butterflyfish

Length = To 191 mm

Depth range = 13.5 - 28 m

Stations = 74, BC11, BC14, BC25, BC4, WD3, Z2/11

Average biomass = 1.735 g/ha Rank biomass = 89

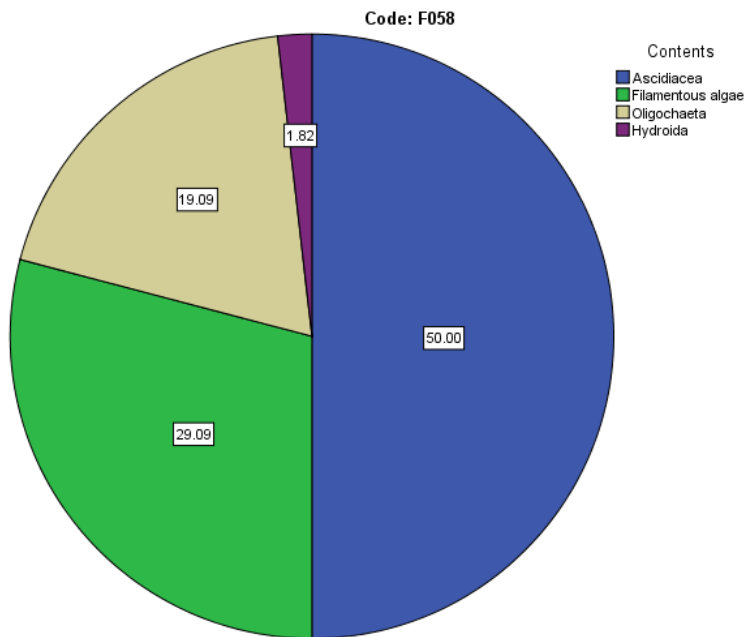
Average abundance = 0.056/ha Rank abundance = 77

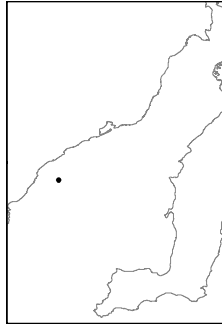
Dietary Summary

Number of guts examined = 4

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Filamentous algae	0.32	29.09
Annelida	Oligochaeta	0.21	19.09
Cnidaria	Hydroida	0.02	1.82
Urochordata	Ascidiacea	0.55	50.00



F059 *Neodax balteatus* (Valenciennes, 1840) (Chordata, Odacidae) CAAB 37 385005

Common name = Little Rock Whiting

Length = To 105 mm

Depth range = 20 - 20 m

Stations = BC11

Average biomass = 0.019 g/ha

Rank biomass = 128

Average abundance = 0.002/ha

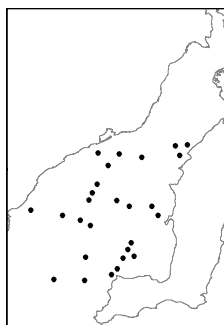
Rank abundance = 126

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F060 *Cynoglossus broadhursti* Waite, 1905 (Chordata, Cynoglossidae) CAAB 37 463015

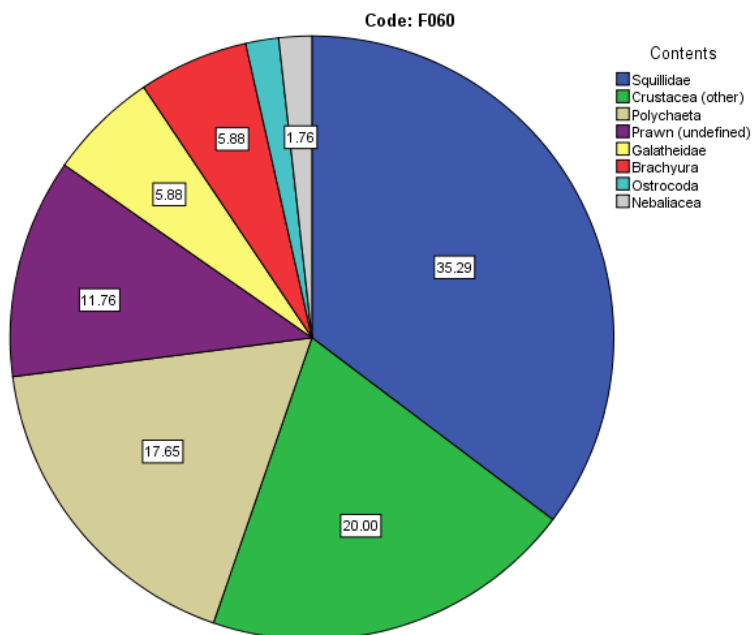


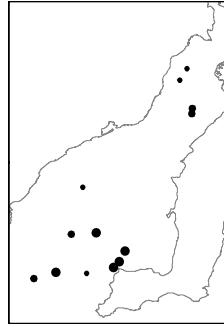
Common name = Southern Tongue Sole
 Length = To 252 mm
 Depth range = 12 - 54.5 m
 Stations = 1, 11B, 19, 7, 9B, BC23, BC24, BC25, BC27, BC39, BC40, BC42, BC43, BC44, C14, CP1, CP12, CP3, CP7, SG2, WD4, WD6, WD9, WG1, WG3, Z1/3, Z3/11
 Average biomass = 14.405 g/ha Rank biomass = 64
 Average abundance = 0.309/ha Rank abundance = 37

Dietary Summary

Number of guts examined = 7
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.08	17.65
Crustacea	Brachyura	0.03	5.88
Crustacea	Crustacea (other)	0.08	20.00
Crustacea	Galatheiidae	0.03	5.88
Crustacea	Nebaliacea	0.01	1.76
Crustacea	Ostrocodia	0.01	1.76
Crustacea	Prawn (undefined)	0.05	11.76
Crustacea	Squillidae	0.15	35.29



F061 *Myliobatis australis* Macleay, 1881 (Chordata, Myliobatidae) CAAB 37 039001

Common name = Eagle Ray

Length = To 1100 mm

Depth range = 13 - 54.5 m

Stations = 32, 94, BC18, BC2, BC3, BC32, BC34, BC42, BC43, BC44, BC45, CP12, CP7

Average biomass = 1,225.967 g/ha Rank biomass = 3

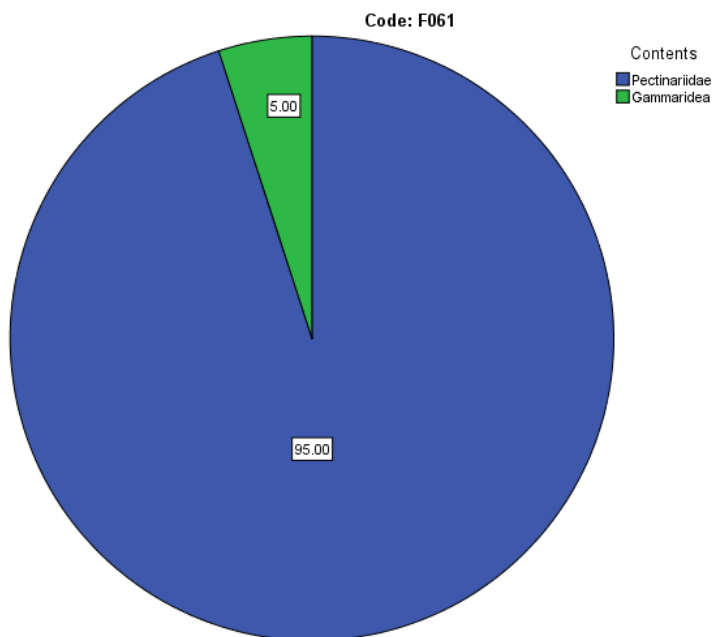
Average abundance = 0.146/ha Rank abundance = 54

Dietary Summary

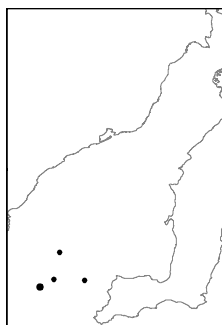
Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Pectinariidae	0.76	95.00
Crustacea	Gammaridea	0.04	5.00



F062 *Centroberyx affinis* (Günther, 1859) (Chordata, Berycidae) CAAB 37 258003

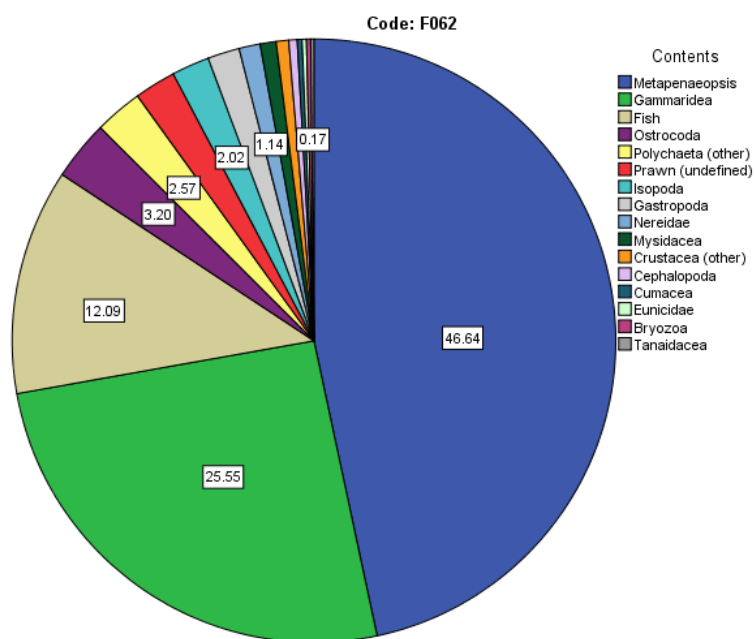


Common name = Nannygai (Red fish)
 Length = To 260 mm
 Depth range = 41.5 - 54.5 m
 Stations = BC38, BC43, BC44, BC46
 Average biomass = 70.660 g/ha Rank biomass = 33
 Average abundance = 0.448/ha Rank abundance = 36

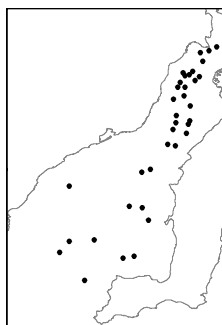
Dietary Summary

Number of guts examined = 13
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Eunicidae	0.04	0.23
Annelida	Nereidae	0.20	1.14
Annelida	Polychaeta (other)	0.45	2.57
Bryozoa	Bryozoa	0.04	0.23
Chordata	Fish	2.13	12.09
Crustacea	Crustacea (other)	0.12	0.67
Crustacea	Cumacea	0.05	0.26
Crustacea	Gammaridea	4.49	25.55
Crustacea	Isopoda	0.35	2.02
Crustacea	Metapenaeopsis	8.20	46.64
Crustacea	Mysidacea	0.15	0.85
Crustacea	Ostrocooda	0.56	3.20
Crustacea	Prawn (undefined)	0.39	2.22
Crustacea	Tanaidacea	0.03	0.17
Mollusca	Cephalopoda	0.08	0.46
Mollusca	Gastropoda	0.30	1.71



F063 *Chrysophrys auratus* (Bloch & Schneider, 1801) (Chordata, Sparidae) CAAB 37 353001



Common name = Snapper

Length = To 580 mm

Depth range = 13 - 43 m

Stations = 12, 19, 2, 21B, 22B, 26, 30, 32, 36, 44, 50B, 58C, 63, 68, 72, 92, 93, 94, BC10, BC14, BC24, BC28, BC3, BC32, BC34, BC38, BC4, BC40, BC44, BC9, CP12, FC2, N23, WD3, X3, Y7

Average biomass = 92.185 g/ha

Rank biomass = 31

Average abundance = 0.622/ha

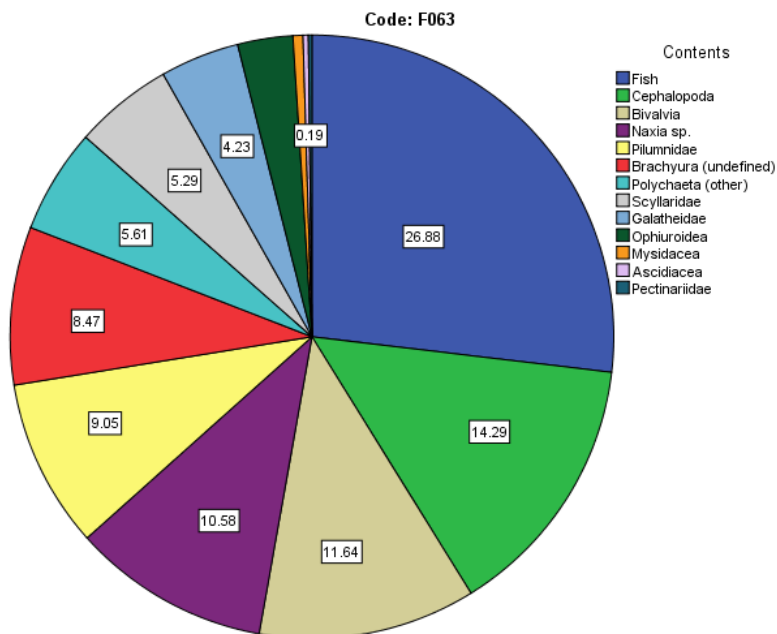
Rank abundance = 32

Dietary Summary

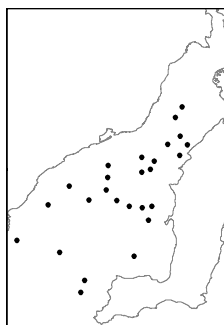
Number of guts examined = 12

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Pectinariidae	0.02	0.19
Annelida	Polychaeta (other)	0.53	5.61
Chordata	Fish	2.54	26.88
Crustacea	Brachyura (undefined)	0.80	8.47
Crustacea	Galatheidae	0.40	4.23
Crustacea	Mysidacea	0.05	0.53
Crustacea	<i>Naxia</i> sp.	1.00	10.58
Crustacea	Pilumnidae	0.86	9.05
Crustacea	Scyllaridae	0.50	5.29
Echinodermata	Ophiuroidea	0.28	2.96
Mollusca	Bivalvia	1.10	11.64
Mollusca	Cephalopoda	1.35	14.29
Urochordata	Ascidiacea	0.03	0.29



F064 *Gonorynchus greyi* (Richardson, 1845) (Chordata, Gonorynchidae) CAAB 37 141001

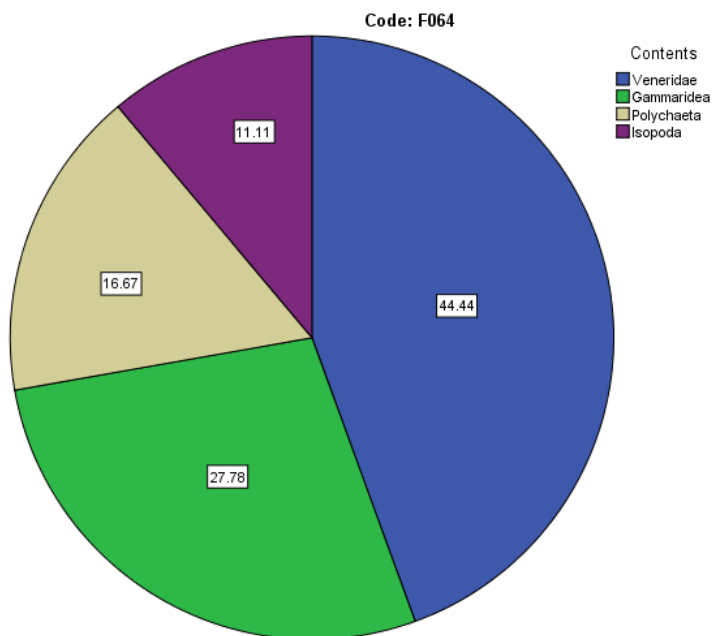


Common name = Beaked Salmon
 Length = To 301 mm
 Depth range = 12 - 44.5 m
 Stations = 1, 11B, 1B, 3A, 61, 7, 80, 9B, BC10, BC14, BC22, BC24, BC28, BC35, BC38, BC40, BC44, BC47, BC9, EWL3, N23, WAL32, WD3, WD4, WD9, Z3/11
 Average biomass = 16.583 g/ha Rank biomass = 61
 Average abundance = 0.256/ha Rank abundance = 41

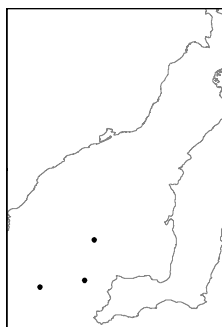
Dietary Summary

Number of guts examined = 2
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.12	16.67
Crustacea	Gammaridea	0.20	27.78
Crustacea	Isopoda	0.08	11.11
Mollusca	Veneridae	0.32	44.44



F065 *Trachichthys australis* Shaw, 1799 (Chordata, Trachichthyidae) CAAB 37 255015

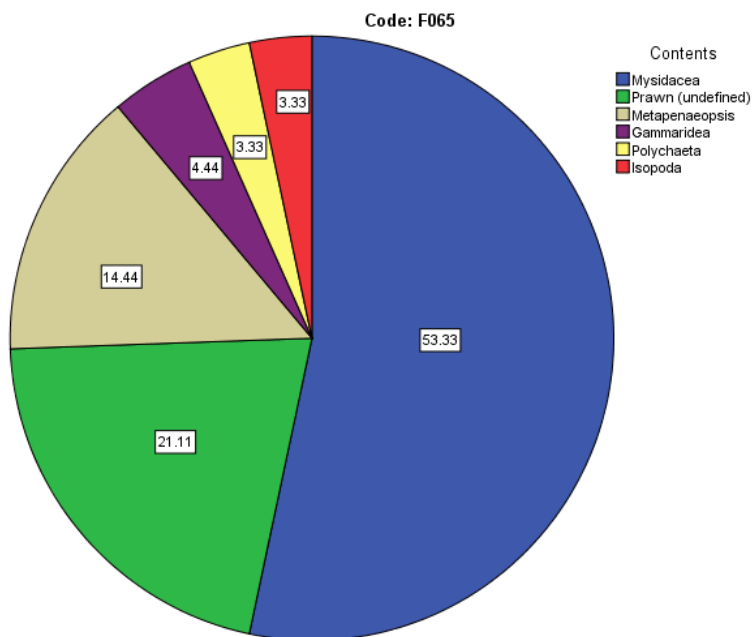


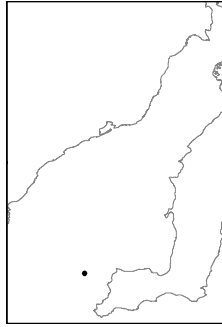
Common name = Roughy (Southern Roughy)
 Length = To 140 mm
 Depth range = 34 - 44 m
 Stations = BC32, BC44, BC46
 Average biomass = 8.739 g/ha Rank biomass = 75
 Average abundance = 0.125/ha Rank abundance = 58

Dietary Summary

Number of guts examined = 3
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.06	3.33
Crustacea	Gammaridea	0.08	4.44
Crustacea	Isopoda	0.06	3.33
Crustacea	Metapenaeopsis	0.26	14.44
Crustacea	Mysidacea	0.96	53.33
Crustacea	Prawn (undefined)	0.38	21.11



F066 *Caesioperca lepidoptera* (Bloch & Schneider, 1801) (Chordata, Serranidae) CAAB 37 311002

Common name = Butterfly Perch

Length = To 207 mm

Depth range = 41.5 - 41.5 m

Stations = BC44

Average biomass = 1.658 g/ha

Average abundance = 0.010/ha

Rank biomass = 91

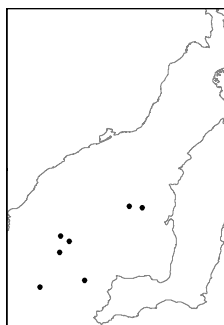
Rank abundance = 111

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F067 *Paratrachichthys macleayi* (Johnston, 1881) (Chordata, Trachichthyidae) CAAB 37 255003

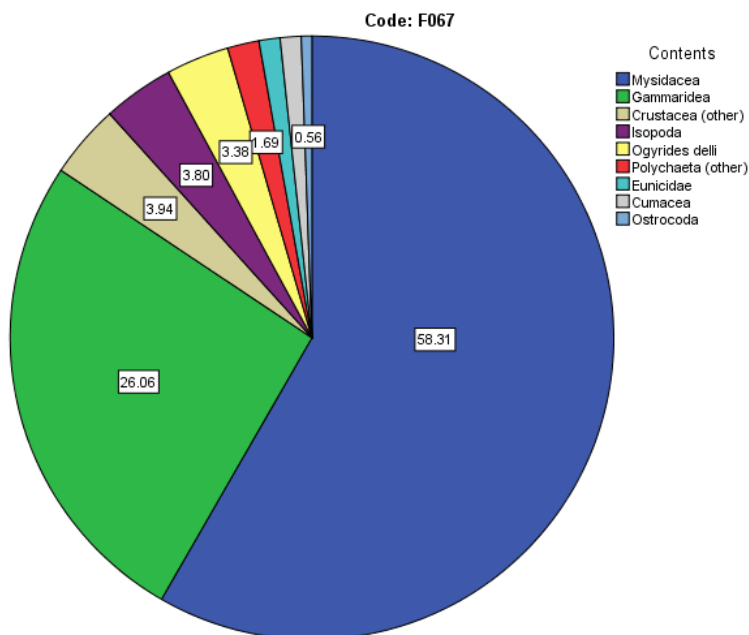


Common name = Sandpaper Fish
 Length = To 117 mm
 Depth range = 23.5 - 44 m
 Stations = BC24, BC31, BC34, BC38, BC44, BC46, WD3
 Average biomass = 2.209 g/ha Rank biomass = 85
 Average abundance = 0.114/ha Rank abundance = 60

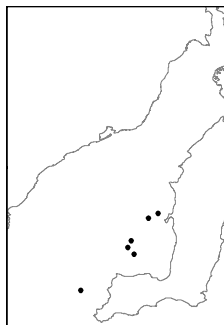
Dietary Summary

Number of guts examined = 7
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Eunicidae	0.04	1.13
Annelida	Polychaeta (other)	0.06	1.69
Crustacea	Crustacea (other)	0.14	3.94
Crustacea	Cumacea	0.04	1.13
Crustacea	Gammaridea	0.93	26.06
Crustacea	Isopoda	0.13	3.80
Crustacea	Mysidacea	2.07	58.31
Crustacea	<i>Ogyrides delli</i>	0.12	3.38
Crustacea	Ostrocooda	0.02	0.56



F068 *Ammotretis lituratus* (Richardson, 1844) (Chordata, Pleuronectidae) CAAB 37 461004

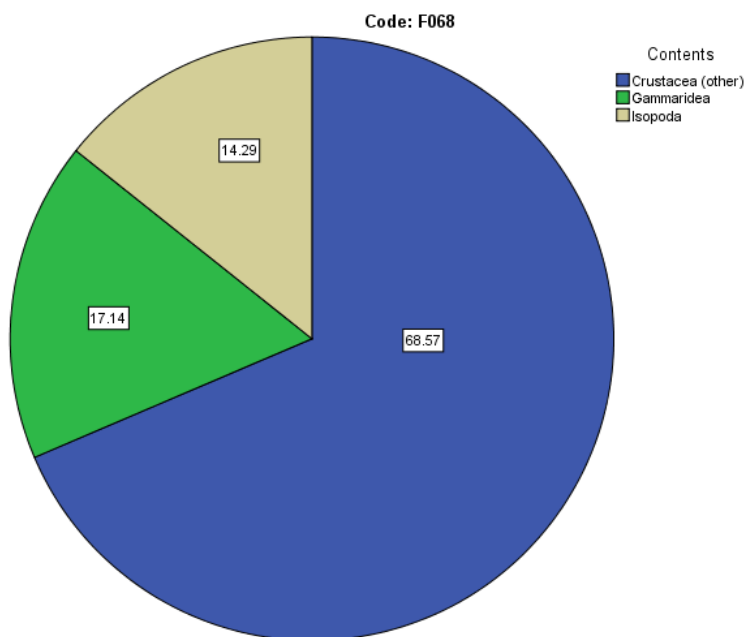


Common name = Spotted Flounder
 Length = To 265 mm
 Depth range = 18.7 - 44.5 m
 Stations = BC28, BC40, BC47, CP1, CP3, WD6
 Average biomass = 1.959 g/ha Rank biomass = 86
 Average abundance = 0.021/ha Rank abundance = 97

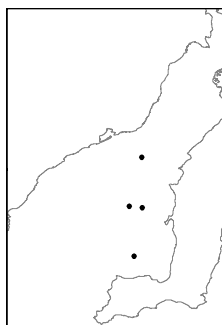
Dietary Summary

Number of guts examined = 2
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea (other)	0.24	68.57
Crustacea	Gammaridea	0.06	17.14
Crustacea	Isopoda	0.05	14.29



F069 *Zebrias scalaris* Gommon 1987 (Chordata, Soleidae) CAAB 37 462010

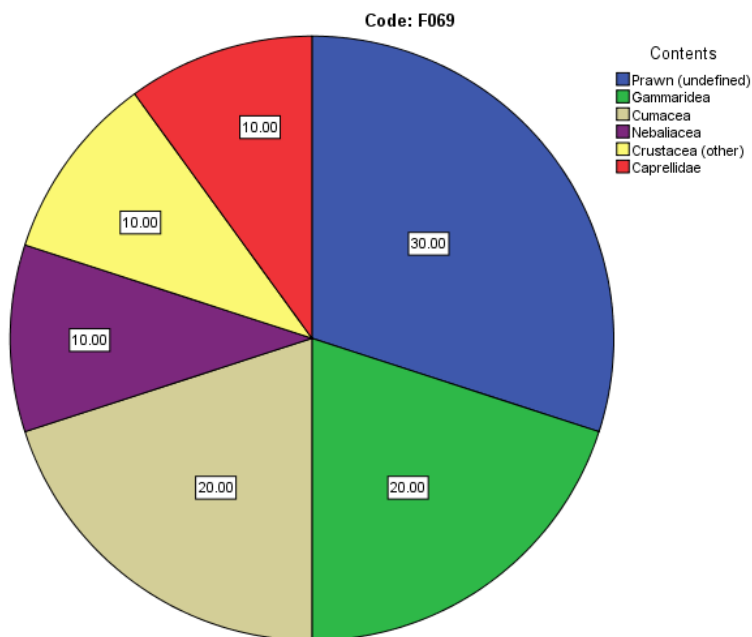


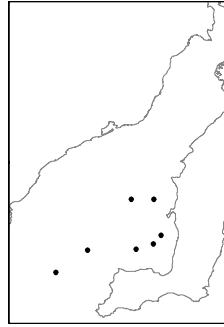
Common name = Many Banded Sole
 Length = To 154 mm
 Depth range = 23.5 - 28 m
 Stations = 9B, BC24, BC40, WD3
 Average biomass = 0.305 g/ha Rank biomass = 111
 Average abundance = 0.011/ha Rank abundance = 110

Dietary Summary

Number of guts examined = 1
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Caprellidae	0.03	10.00
Crustacea	Crustacea (other)	0.03	10.00
Crustacea	Cumacea	0.06	20.00
Crustacea	Gammaridea	0.06	20.00
Crustacea	Nebaliacea	0.03	10.00
Crustacea	Prawn (undefined)	0.09	30.00



F070 *Ichthyscopus barbatus* Mees, 1960 (Chordata, Uranoscopidae) CAAB 37 400002

Common name = Fringed Stargazer

Length = To 247 mm

Depth range = 14.8 - 54.5 m

Stations = BC24, BC33, BC36, BC39, BC40, BC43, WD4

Average biomass = 3.784 g/ha Rank biomass = 79

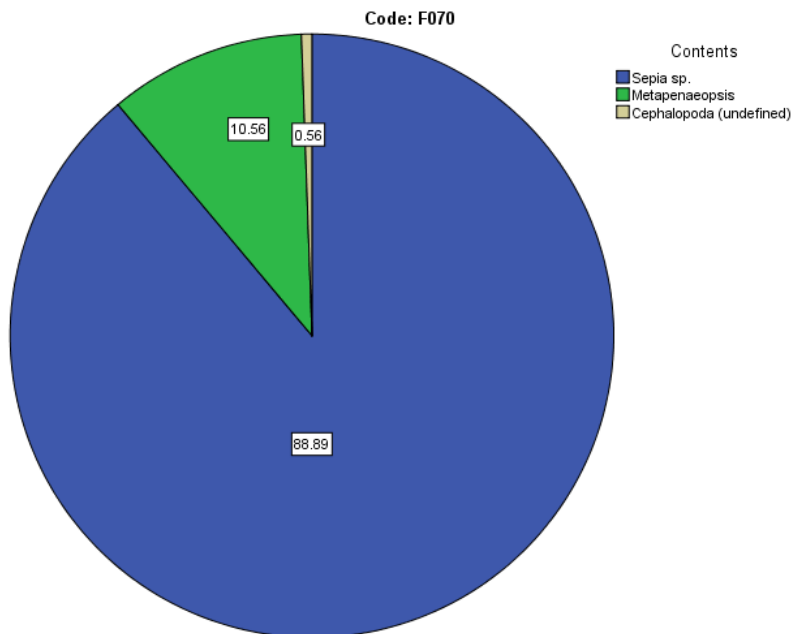
Average abundance = 0.028/ha Rank abundance = 94

Dietary Summary

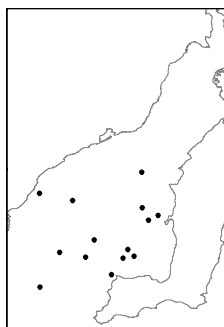
Number of guts examined = 2

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Metapenaeopsis	0.28	10.56
Mollusca	Cephalopoda (undefined)	0.01	0.56
Mollusca	<i>Sepia</i> sp.	2.40	88.89



F071 *Neosebastes pandus* (Richardson, 1842) (Chordata, Neosebastidae) CAAB 37 287003

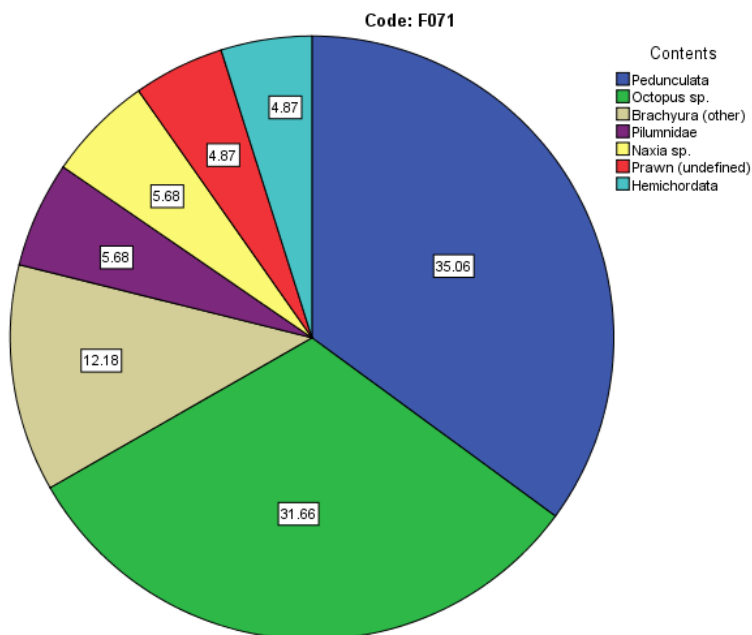


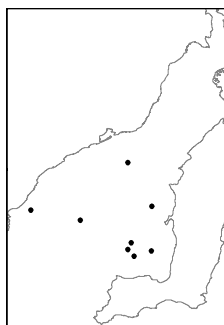
Common name = Gurnard Perch
 Length = To 354 mm
 Depth range = 18.7 - 44 m
 Stations = BC10, BC19, BC21, BC28, BC32, BC38, BC39, BC40, BC42, BC46, CP12, CP3, WD3, WD6
 Average biomass = 62.103 g/ha Rank biomass = 36
 Average abundance = 0.196/ha Rank abundance = 48

Dietary Summary

Number of guts examined = 4
 Proportion of guts empty = 25%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Brachyura (other)	0.75	12.18
Crustacea	<i>Naxia</i> sp.	0.35	5.68
Crustacea	Pedunculata	2.16	35.06
Crustacea	Pilumnidae	0.35	5.68
Crustacea	Prawn (undefined)	0.30	4.87
Hemichordata	Hemichordata	0.30	4.87
Mollusca	<i>Octopus</i> sp.	1.95	31.66



F072 *Pegasus lancifer* Kaup, 1861 (Chordata, Pegasidae) CAAB 37 309003

Common name = Sculptured Seamoth

Length = To 86 mm

Depth range = 17 - 36 m

Stations = 7B, BC23, BC27, BC36, BC40, CP1, CP3, WD4

Average biomass = 0.187 g/ha Rank biomass = 116

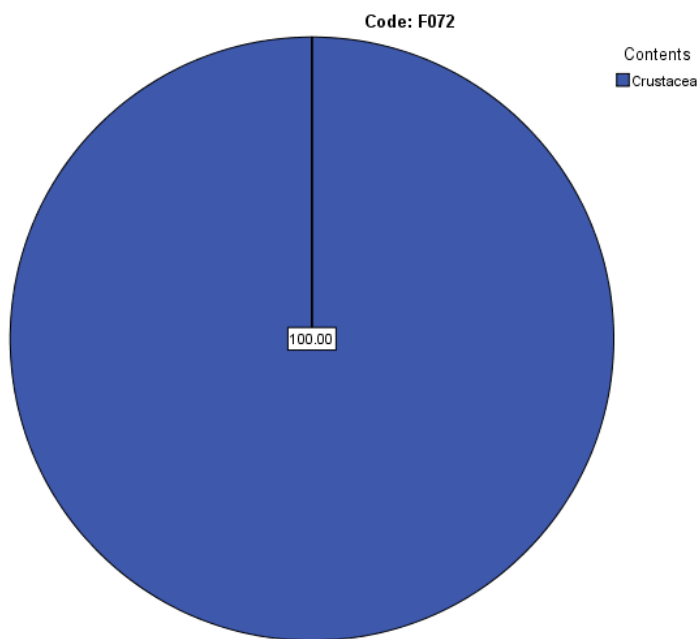
Average abundance = 0.067/ha Rank abundance = 72

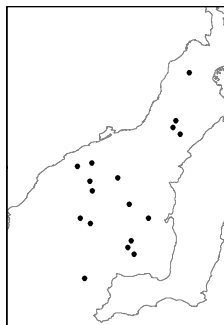
Dietary Summary

Number of guts examined = 7

Proportion of guts empty = 29%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea	0.06	100.00



F073 *Trygonorrhina fasciata* Müller & Henle, 1841 (Chordata, Rhinobatidae) CAAB 37 027002

Common name = Southern Fiddler Ray

Length = To 1050 mm

Depth range = 15 - 41.5 m

Stations = 63, 68, 93, BC12, BC15, BC24, BC27, BC28, BC40, BC44, C7, CP1, CP3, EWL3, SG2, WG1, Z2/10

Average biomass = 131.244 g/ha Rank biomass = 23

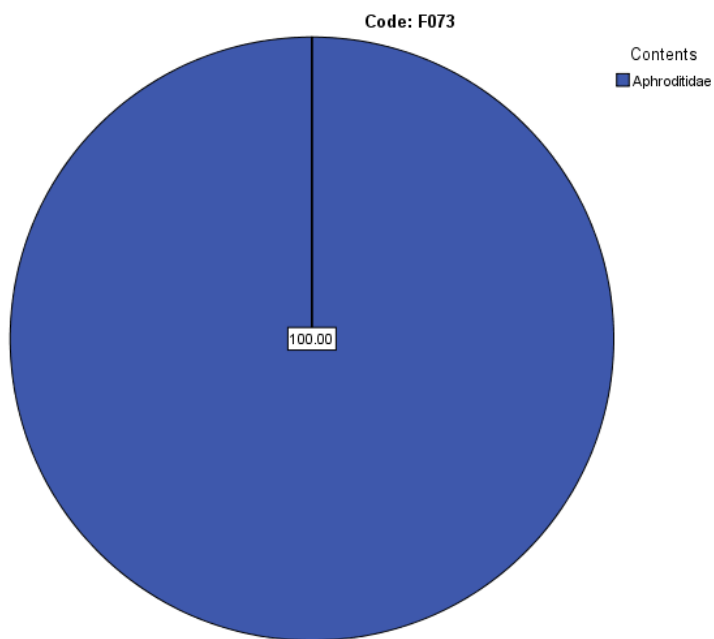
Average abundance = 0.090/ha Rank abundance = 66

Dietary Summary

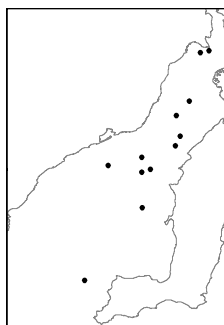
Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Aphroditidae	0.20	100.00



F074 *Sardinops neopilchardus* (Steindachner, 1879) (Chordata, Clupeidae) CAAB 37 085002

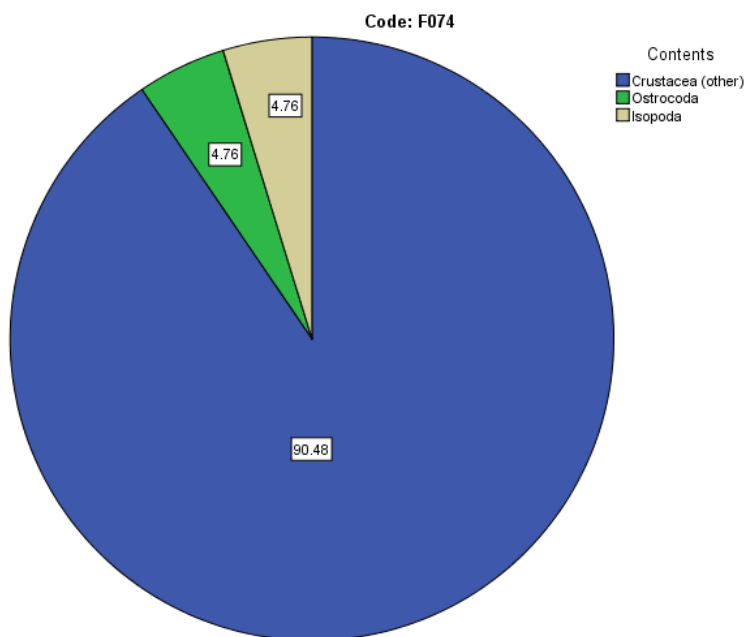


Common name = Pilchard
 Length = To 152 mm
 Depth range = 13.5 - 41.5 m
 Stations = 13C, 19, 2, 44, 9B, BC10, BC44, BC9, EWL3, FC2, WD3, Z3/11
 Average biomass = 1.039 g/ha Rank biomass = 96
 Average abundance = 0.141/ha Rank abundance = 55

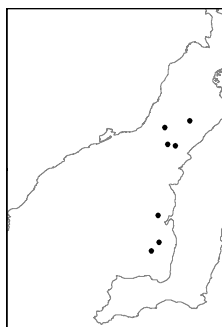
Dietary Summary

Number of guts examined = 2
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea (other)	0.38	90.48
Crustacea	Isopoda	0.02	4.76
Crustacea	Ostrocooda	0.02	4.76



F075 *Hyporhamphus melanochir* (Valenciennes, 1847) (Chordata, Hemiramphidae) CAAB 37 234001

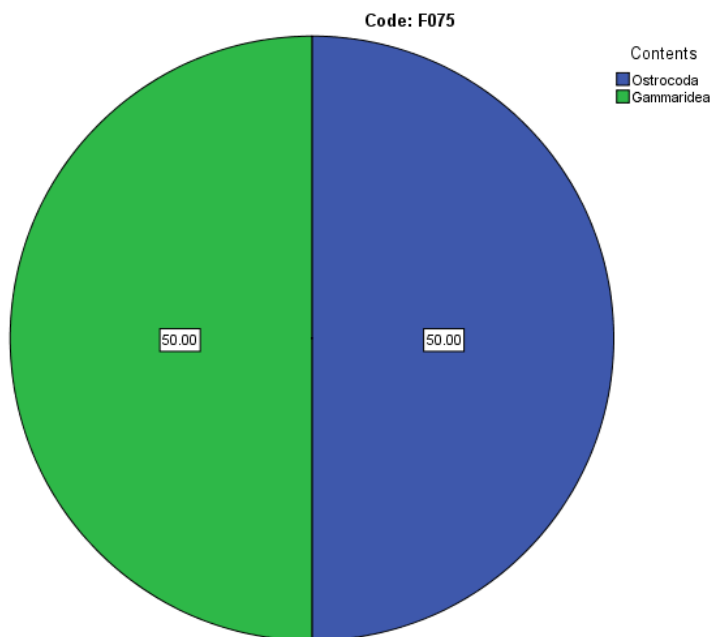


Common name = Southern Garfish
 Length = To 262 mm
 Depth range = 13 - 21.5 m
 Stations = 19, 78, BC3, BC33, BC36, N23, WD6
 Average biomass = 0.502 g/ha Rank biomass = 106
 Average abundance = 0.053/ha Rank abundance = 82

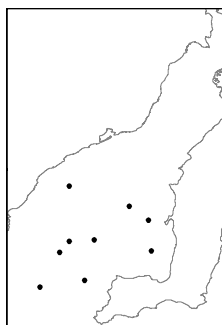
Dietary Summary

Number of guts examined = 1
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Gammaridea	0.03	50.00
Crustacea	Ostrocooda	0.03	50.00



F076 *Enoplosus armatus* (White, 1790) (Chordata, Enoplosidae) CAAB 37 366001

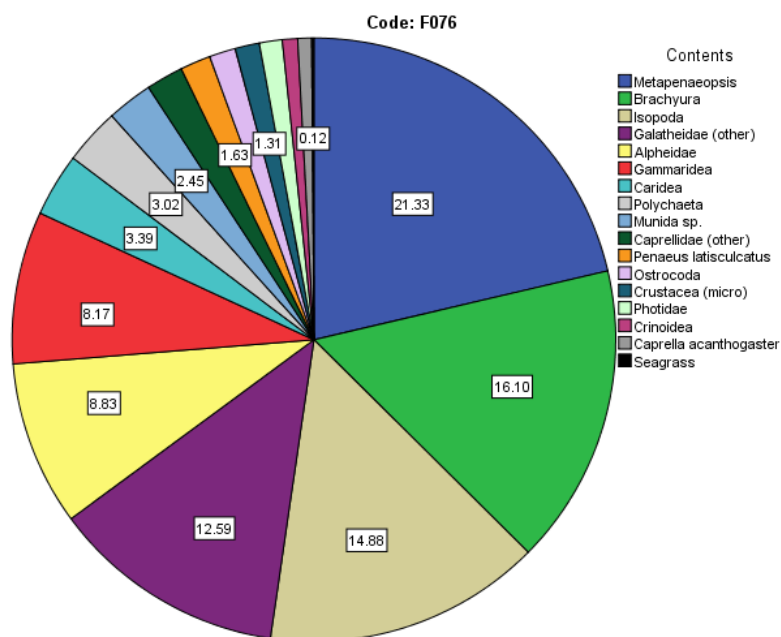


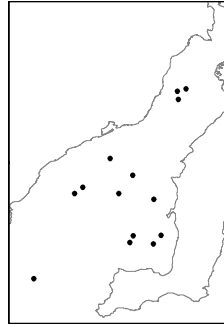
Common name = Old Wife
 Length = To 217 mm
 Depth range = 17.5 - 44 m
 Stations = BC14, BC24, BC28, BC32, BC34, BC36, BC38, BC44, BC46
 Average biomass = 24.548 g/ha Rank biomass = 55
 Average abundance = 0.178/ha Rank abundance = 50

Dietary Summary

Number of guts examined = 11
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.37	3.02
Crustacea	Alpheidae	1.08	8.83
Crustacea	Brachyura	1.97	16.10
Crustacea	<i>Caprella acanthogaster</i>	0.09	0.74
Crustacea	Caprellidae (other)	0.24	1.99
Crustacea	Caridea	0.41	3.39
Crustacea	Crustacea (micro)	0.16	1.31
Crustacea	Galatheidae (other)	1.54	12.59
Crustacea	Gammaridea	1.00	8.17
Crustacea	Isopoda	1.82	14.88
Crustacea	Metapenaeopsis	2.61	21.33
Crustacea	<i>Munida</i> sp.	0.30	2.45
Crustacea	Ostrocooda	0.17	1.41
Crustacea	<i>Penaeus latisculcatus</i>	0.20	1.63
Crustacea	Photidae	0.15	1.23
Echinodermata	Crinoidea	0.10	0.82
Magnoliophyta	Seagrass	0.01	0.12



F077 *Squatina australis* Regan, 1906 (Chordata, Squatinidae) CAAB 37 024001

Common name = Angel Shark

Length = To 1040 mm

Depth range = 14.8 - 46.5 m

Stations = 12, 5, 8, BC13, BC18, BC21, BC33, BC36, BC45, CP1, CP3, WD4, WD9, Z3/11

Average biomass = 94.870 g/ha Rank biomass = 30

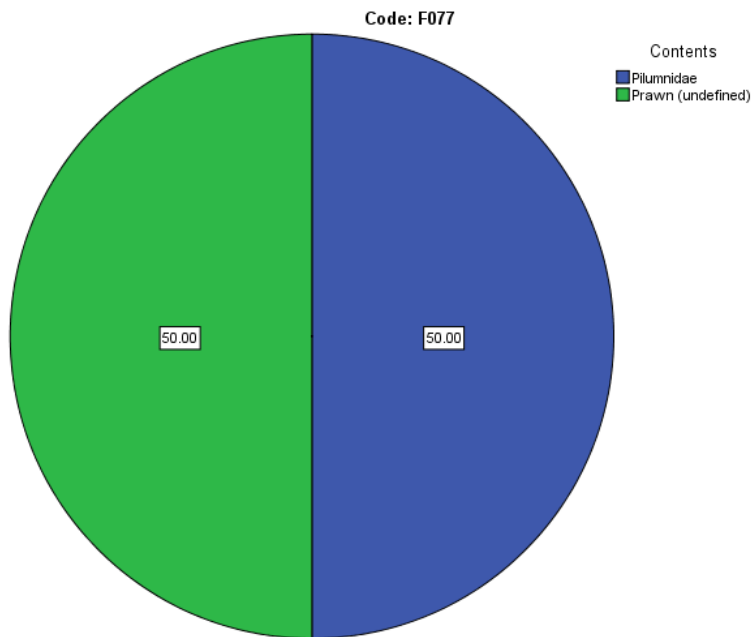
Average abundance = 0.064/ha Rank abundance = 73

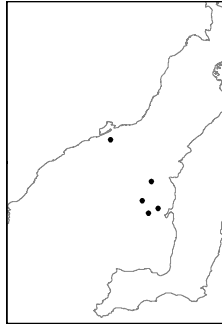
Dietary Summary

Number of guts examined = 2

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Pilumnidae	0.12	50.00
Crustacea	Prawn (undefined)	0.12	50.00



F078 *Stigmatopora argus* (Richardson, 1840) (Chordata, Syngnathidae) CAAB 37 282017

Common name = Spotted Pipefish

Length = To 278 mm

Depth range = 15 - 23.5 m

Stations = BC17, BC28, WD3, WD6, Z1/1

Average biomass = 0.050 g/ha Rank biomass = 126

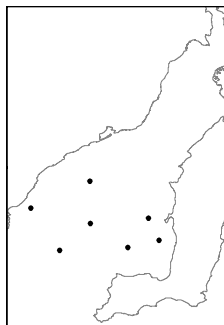
Average abundance = 0.023/ha Rank abundance = 96

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F079 *Callorhinchus milii* (Bory de Saint-Vincent, 1823) (Chordata, Callorhinchidae) CAAB 37 043001

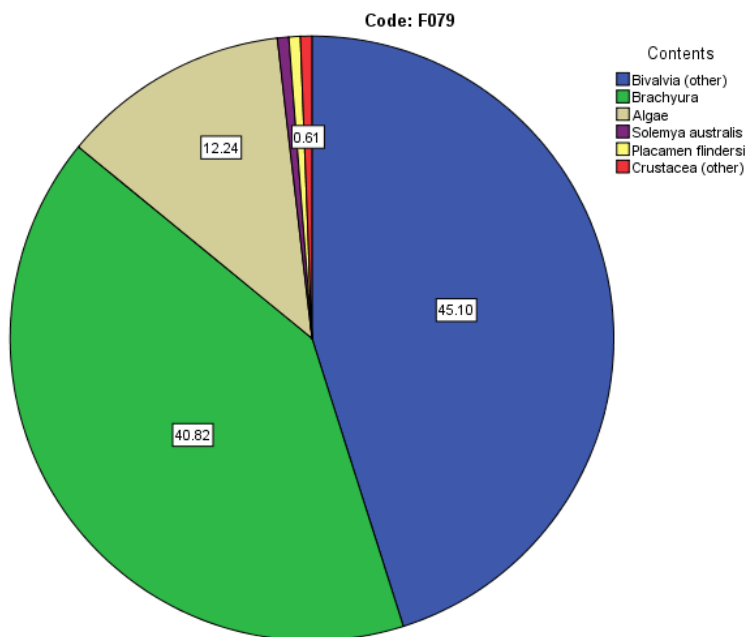


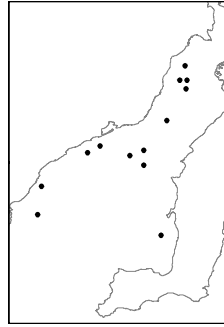
Common name = Elephant Fish
 Length = To 738 mm
 Depth range = 14.8 - 43 m
 Stations = BC12, BC23, BC28, BC33, BC38, CP3, SG2
 Average biomass = 53.862 g/ha Rank biomass = 43
 Average abundance = 0.073/ha Rank abundance = 70

Dietary Summary

Number of guts examined = 5
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	0.06	12.24
Crustacea	Brachyura	0.20	40.82
Crustacea	Crustacea (other)	<0.01	0.61
Mollusca	Bivalvia (other)	0.22	45.10
Mollusca	<i>Placamen flindersi</i>	<0.01	0.61
Mollusca	<i>Solemya australis</i>	<0.01	0.61



F080 *Hyperlophus vittatus* (Castelnau, 1875) (Chordata, Clupeidae) CAAB 37 085005

Common name = Sandy Spratt

Length = To 89 mm

Depth range = 14.8 - 27 m

Stations = 12, 26, 32, 72, 78, 7B, 9B, BC10, BC19, BC30, BC33, Z1/3, Z1/5

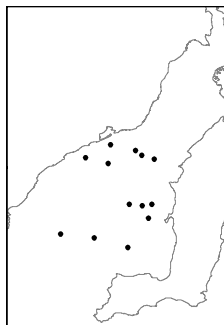
Average biomass = 0.846 g/ha Rank biomass = 99

Average abundance = 0.266/ha Rank abundance = 40

Dietary Summary

Number of guts examined = 4

Proportion of guts empty = none (100% consisting of unidentifiable digested material)

F081 *Genypterus tigerinus* Klunzinger, 1872 (Chordata, Ophidiidae) CAAB 37 228008

Common name = Rock Ling

Length = To 670 mm

Depth range = 15 - 36 m

Stations = 9B, BC24, BC28, BC31, BC32, BC8, CP3, WAL32, WD3, WD4, Z1/1, Z1/5, Z3/11

Average biomass = 56.497 g/ha Rank biomass = 41

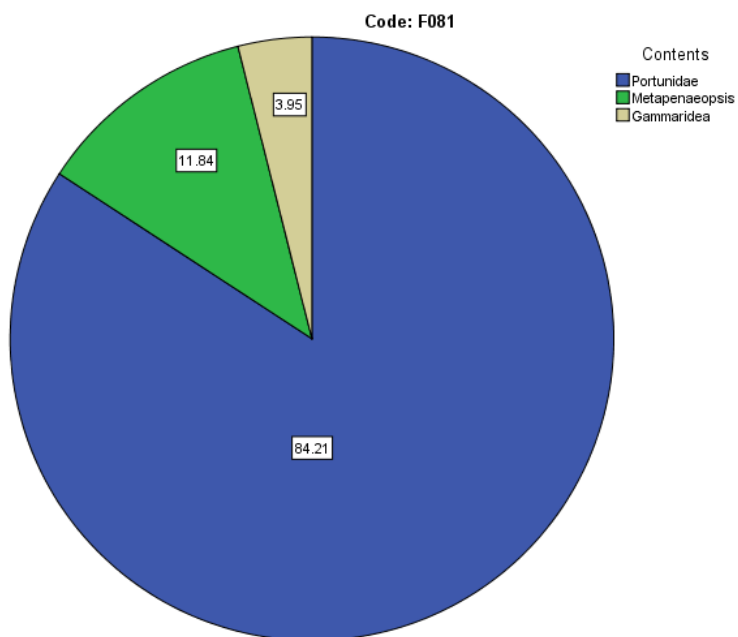
Average abundance = 0.100/ha Rank abundance = 63

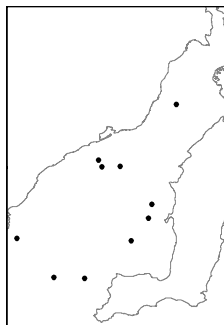
Dietary Summary

Number of guts examined = 3

Proportion of guts empty = 33%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Gammaridea	0.15	3.95
Crustacea	Metapenaeopsis	0.45	11.84
Crustacea	Portunidae	3.20	84.21



F082 *Dipturus whitleyi* (Iredale, 1938) (Chordata, Rajidae) CAAB 37 031006

Common name = Melbourne Skate

Length = To 1070 mm

Depth range = 17 - 54.5 m

Stations = 5, 5B, BC28, BC35, BC43, BC44, CP1, WD4, Z2/11, Z3/10

Average biomass = 59.725 g/ha Rank biomass = 37

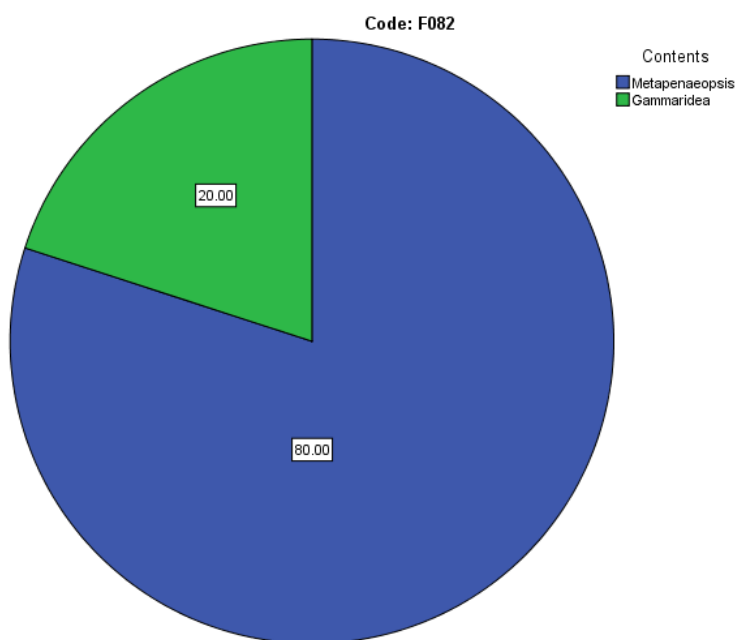
Average abundance = 0.052/ha Rank abundance = 84

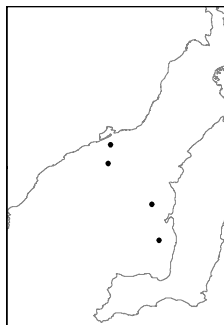
Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Gammaridea	0.08	20.00
Crustacea	Metapenaeopsis	0.32	80.00



F083 *Leviprora inops* (Jenyns, 1840) (Chordata, Platycephalidae) CAAB 37 296005

Common name = Longhead Flathead

Length = To 370 mm

Depth range = 14.8 - 21.5 m

Stations = BC33, WD4, Z1/1, Z3/11

Average biomass = 10.622 g/ha Rank biomass = 72

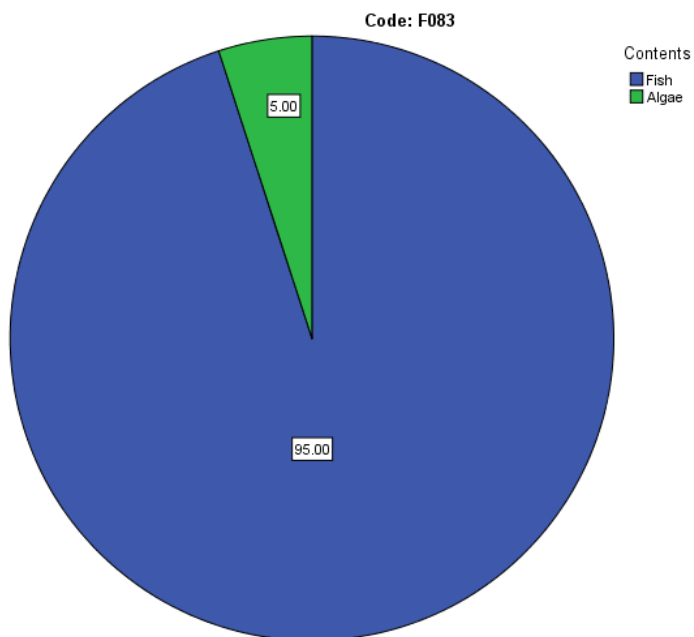
Average abundance = 0.039/ha Rank abundance = 89

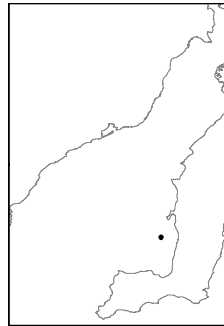
Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	0.09	5.00
Chordata	Fish	1.71	95.00



F084 *Neopataecus waterhousii* (Castelnau, 1872) (Chordata, Pataecidae) CAAB 37 292005

Common name = Whiskered Prowfish

Length = To 71 mm

Depth range = 14.8 - 14.8 m

Stations = BC33

Average biomass = 0.005 g/ha

Rank biomass = 132

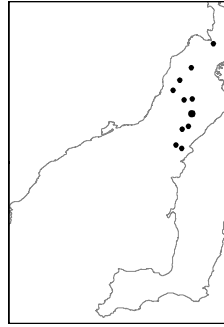
Average abundance = 0.003/ha

Rank abundance = 122

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F085 *Sutorectus tentaculatus* (Peters, 1865) (Chordata, Orectolobidae) CAAB 37 013012

Common name = Cobbler Carpet Shark

Length = To 697 mm

Depth range = 12 - 22.5 m

Stations = 1, 16, 32, 57, 58C, 80, 93, BC3, DK1, EWL3, Y7

Average biomass = 183.684 g/ha Rank biomass = 19

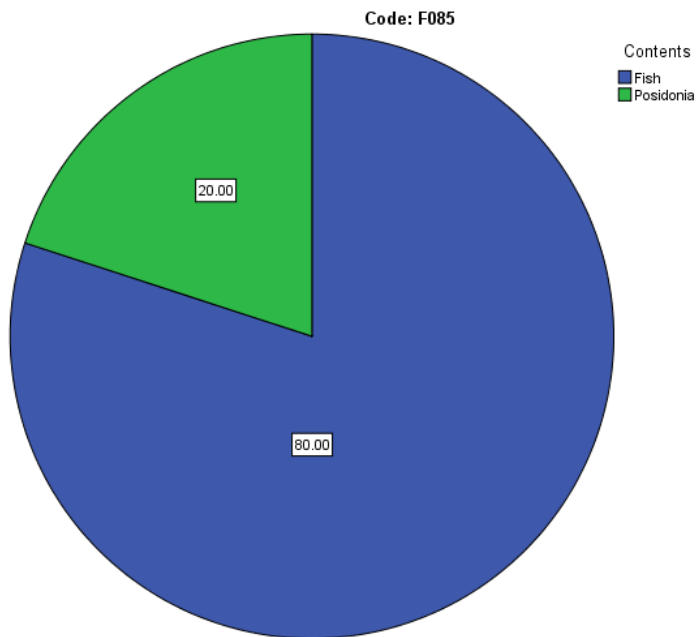
Average abundance = 0.109/ha Rank abundance = 61

Dietary Summary

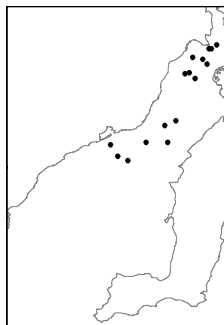
Number of guts examined = 2

Proportion of guts empty = 50%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish	1.36	80.00
Magnoliophyta	Posidonia	0.34	20.00



F086 *Tetractenos glaber* (Fréminville, 1813) (Chordata, Tetraodontidae) CAAB 37 467003

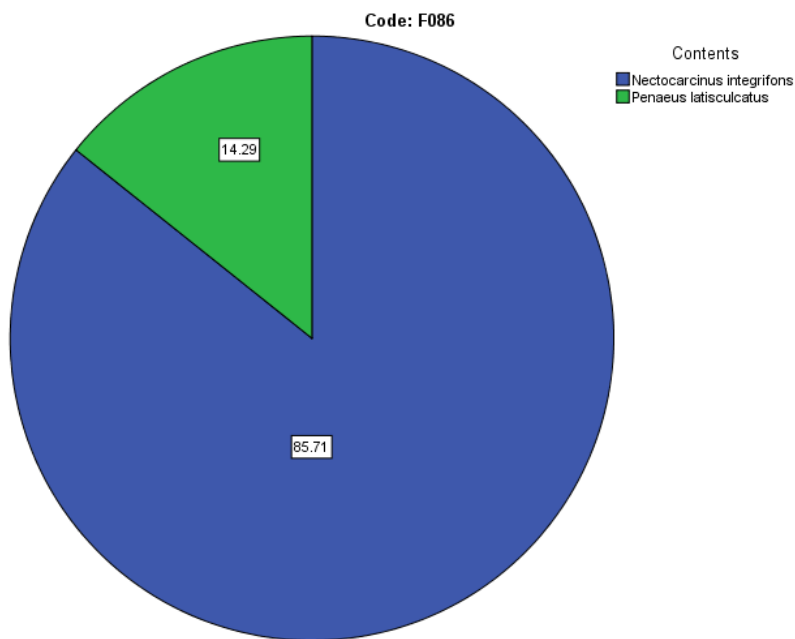


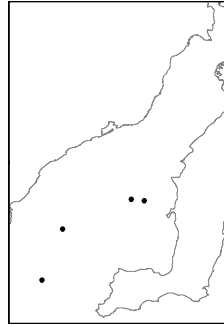
Common name = Smooth Toadfish
 Length = To 235 mm
 Depth range = 13.5 - 27 m
 Stations = 21B, 36, 44, 47B, 50B, 57, 63, 78, 7B, 93, 94, BC6, CB1, N23, Z1/1, Z3/2
 Average biomass = 34.365 g/ha Rank biomass = 48
 Average abundance = 0.228/ha Rank abundance = 45

Dietary Summary

Number of guts examined = 4
 Proportion of guts empty = 25%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	<i>Nectocarcinus integrifrons</i>	9.00	85.71
Crustacea	<i>Penaeus latisulcatus</i>	1.50	14.29



F087 *Parascyllium ferrugineum* McCulloch, 1911 (Chordata, Parascylliidae) CAAB 37 013005

Common name = Rusty Catshark

Length = To 581 mm

Depth range = 23.5 - 44 m

Stations = BC24, BC31, BC46, WD3

Average biomass = 15.805 g/ha

Rank biomass = 62

Average abundance = 0.055/ha

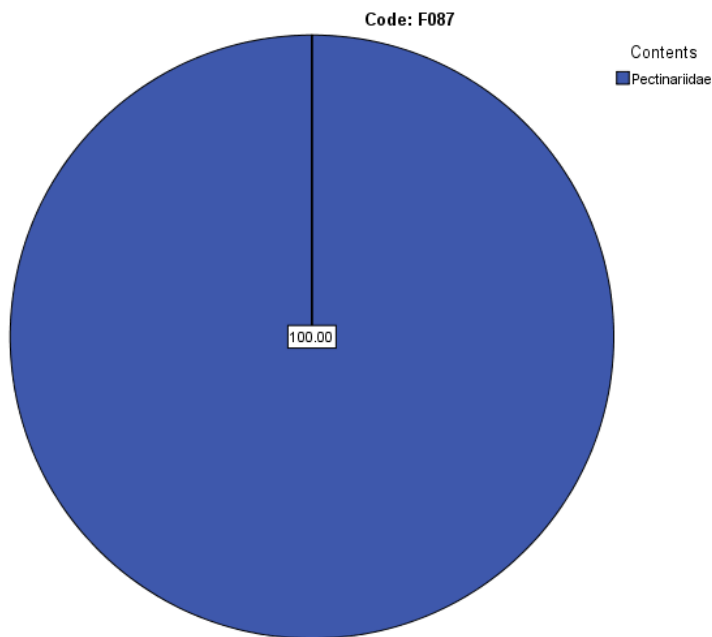
Rank abundance = 78

Dietary Summary

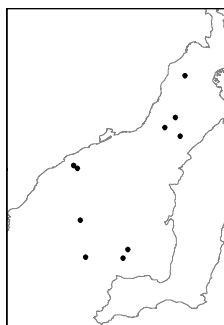
Number of guts examined = 3

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Pectinariidae	0.15	100.00



F088 *Aptychotrema vincentiana* (Haacke, 1885) (Chordata, Rhinobatidae) CAAB 37 027001

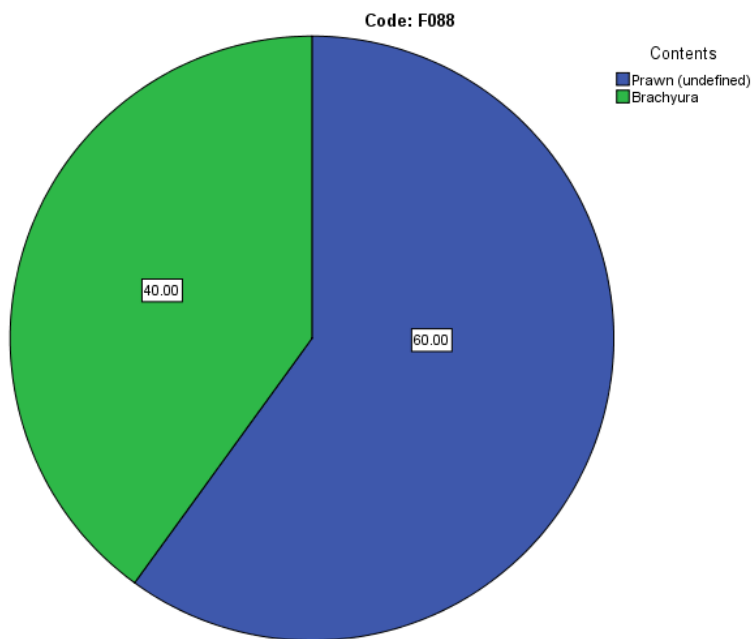


Common name = Southern Shovelnose Ray
 Length = To 729 mm
 Depth range = 17 - 40 m
 Stations = 61, 78, 94, BC27, BC39, C7, CP12, CP3, EWL3, Z1/7
 Average biomass = 20.748 g/ha Rank biomass = 57
 Average abundance = 0.085/ha Rank abundance = 69

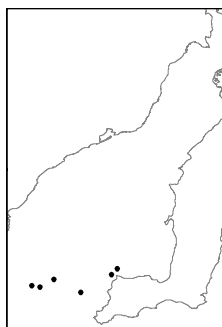
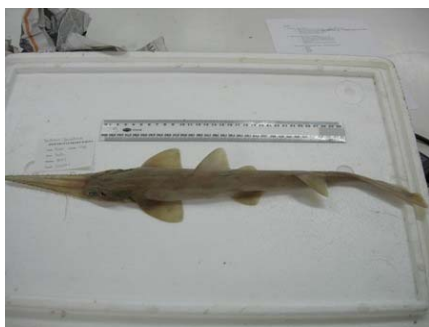
Dietary Summary

Number of guts examined = 1
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Brachyura	0.12	40.00
Crustacea	Prawn (undefined)	0.18	60.00



F089 *Pristiophorus nudipinnis* Günther, 1870 (Chordata, Pristiophoridae) CAAB 37 023001

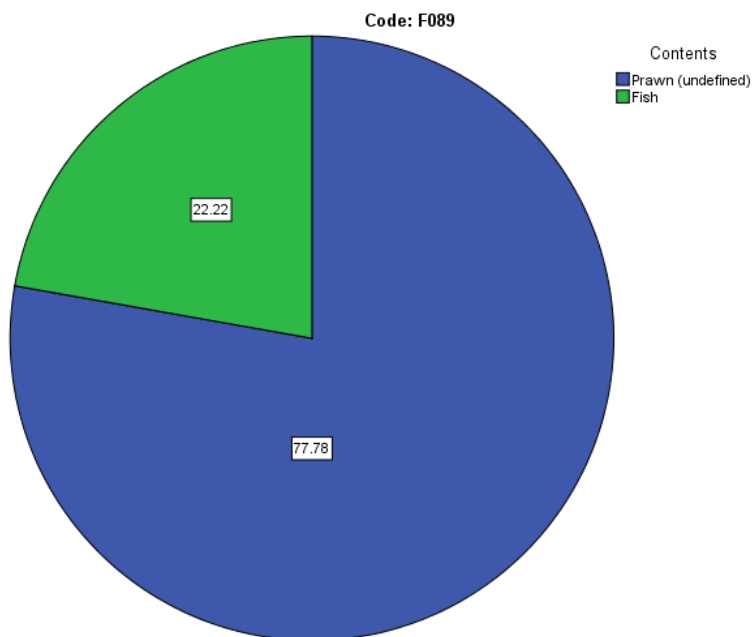


Common name = Saw Shark
 Length = To 966 mm
 Depth range = 37 - 54.5 m
 Stations = BC42, BC43, BC45, BC46, BC47, CP7
 Average biomass = 54.096 g/ha Rank biomass = 42
 Average abundance = 0.574/ha Rank abundance = 33

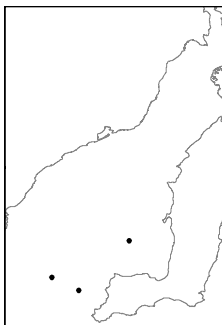
Dietary Summary

Number of guts examined = 5
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish	0.20	22.22
Crustacea	Prawn (undefined)	0.70	77.78



F090 *Pterygotrigla polyommata* (Richardson, 1839) (Chordata, Triglidae) CAAB 37 288006

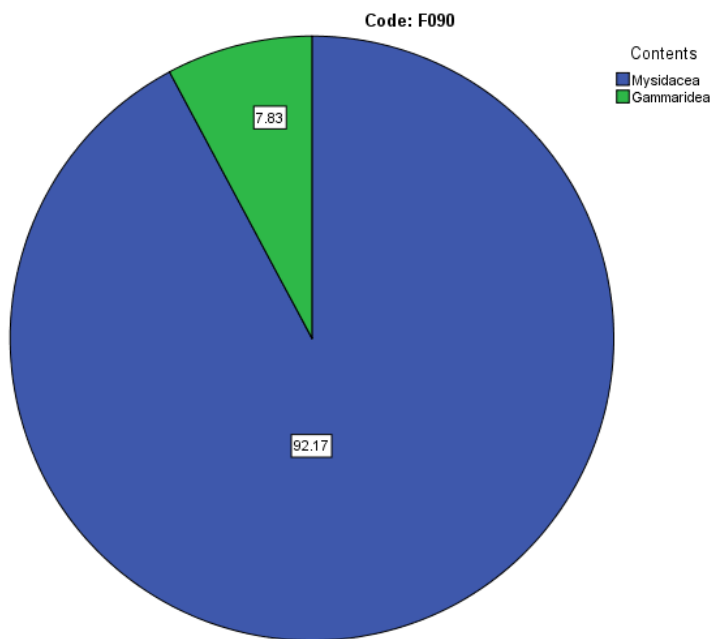


Common name = Latchet
 Length = To 122 mm
 Depth range = 33 - 54.5 m
 Stations = BC43, BC47, CP1
 Average biomass = 0.952 g/ha Rank biomass = 97
 Average abundance = 0.069/ha Rank abundance = 71

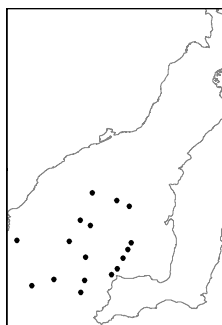
Dietary Summary

Number of guts examined = 5
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Gammaridea	0.09	7.83
Crustacea	Mysidacea	1.06	92.17



F091 *Lepidotrigla spinosa* Gomon, 1987 (Chordata, Triglidae) CAAB 37 288028



Common name = Southern Shortfin Gurnard

Length = To 200 mm

Depth range = 22 - 54.5 m

Stations = BC24, BC27, BC34, BC35, BC39, BC42, BC43, BC44, BC45, BC47, CP1, CP12, CP3, CP7, SG2, WD9, WG1

Average biomass = 42.152 g/ha Rank biomass = 45

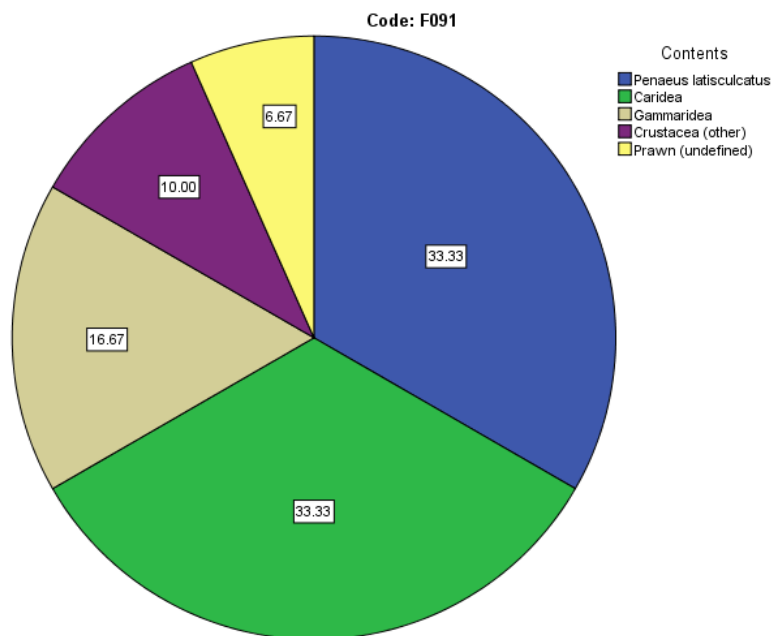
Average abundance = 1.313/ha Rank abundance = 22

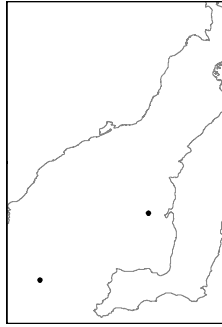
Dietary Summary

Number of guts examined = 8

Proportion of guts empty = 13%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Caridea	0.20	33.33
Crustacea	Crustacea (other)	0.06	10.00
Crustacea	Gammaridea	0.10	16.67
Crustacea	<i>Penaeus latisculcatus</i>	0.20	33.33
Crustacea	Prawn (undefined)	0.04	6.67



F092 *Sphyraena obtusata* Cuvier, 1829 (Chordata, Sphyraenidae) CAAB 37 382001

Common name = Striped Seapike

Length = To 396 mm

Depth range = 20.8 - 44 m

Stations = BC28, BC46

Average biomass = 22.823 g/ha

Rank biomass = 56

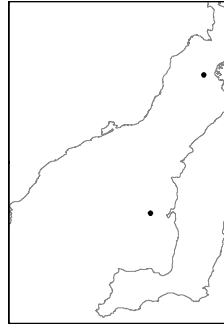
Average abundance = 0.047/ha

Rank abundance = 85

Dietary Summary

Number of guts examined = 1

Proportion of guts empty = 100%

F093 *Siphonognathus attenuatus* (Ogilby, 1897) (Chordata, Odacidae) CAAB 37 385004

Common name = Slender Weed Whiting

Length = To 92 mm

Depth range = 12 - 20.8 m

Stations = BC1, BC28

Average biomass = 0.016 g/ha Rank biomass = 130

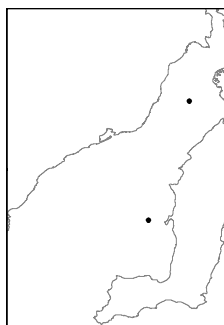
Average abundance = 0.014/ha Rank abundance = 108

Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none (100% consisting of unidentifiable digested material)

F094 *Cnidoglanis macrocephalus* (Valenciennes, 1840) (Chordata, Plotosidae) CAAB 37 192001

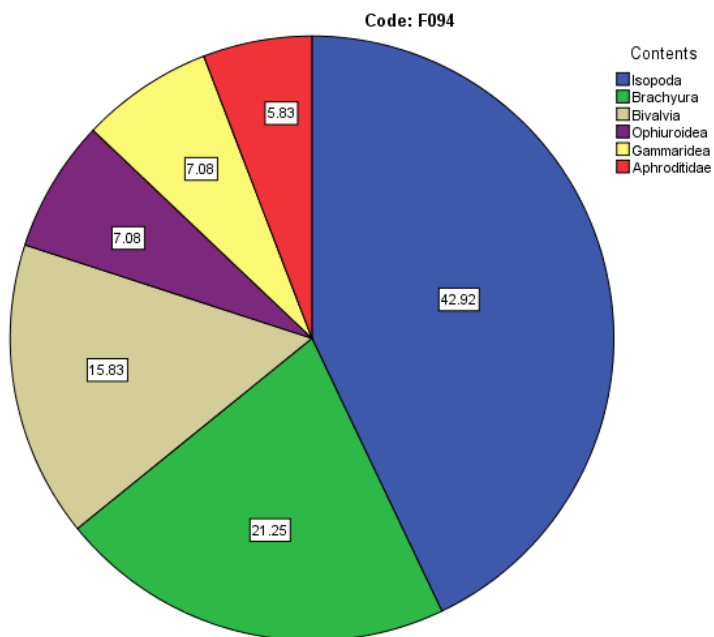


Common name = Estuary Catfish
 Length = To 461 mm
 Depth range = 17 - 20.8 m
 Stations = 13C, BC28
 Average biomass = 2.403 g/ha Rank biomass = 83
 Average abundance = 0.016/ha Rank abundance = 105

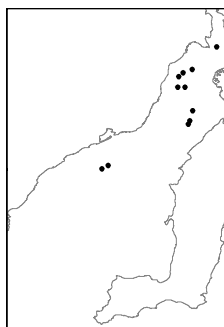
Dietary Summary

Number of guts examined = 3
 Proportion of guts empty = 33%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Aphroditidae	0.70	5.83
Crustacea	Brachyura	2.55	21.25
Crustacea	Gammaridea	0.85	7.08
Crustacea	Isopoda	5.15	42.92
Echinodermata	Ophiuroidea	0.85	7.08
Mollusca	Bivalvia	1.90	15.83



F095 *Hippocampus abdominalis* Lesson, 1827 (Chordata, Syngnathidae) CAAB 37 282120

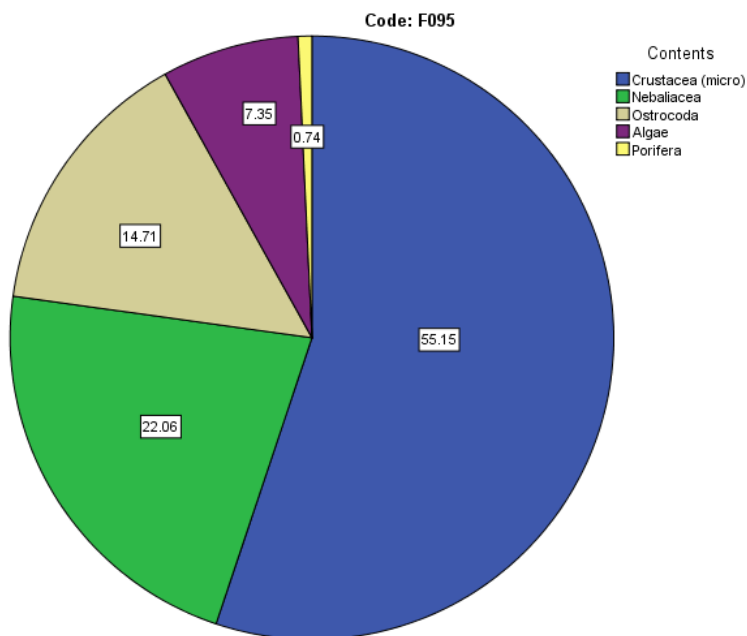


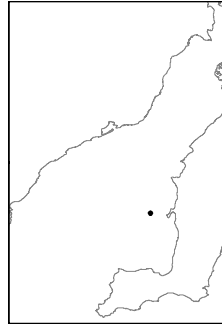
Common name = Bigbelly Seahorse
 Length = To 212 mm
 Depth range = 13 - 25.5 m
 Stations = 23, 26, 32, 50B, 59B, 72, 74, BC3, BC4, Z3/10, Z3/11
 Average biomass = 1.693 g/ha Rank biomass = 90
 Average abundance = 0.192/ha Rank abundance = 49

Dietary Summary

Number of guts examined = 3
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Algae	Algae	0.01	7.35
Crustacea	Crustacea (micro)	0.08	55.15
Crustacea	Nebaliacea	0.03	22.06
Crustacea	Ostrocooda	0.02	14.71
Porifera	Porifera	<0.01	0.74



F096 *Urolophus gigas* Scott, 1954 (Chordata, Urolophidae) CAAB 37 038003

Common name = Spotted Stingaree

Length = To 400 mm

Depth range = 20.8 - 20.8 m

Stations = BC28

Average biomass = 1.811 g/ha

Average abundance = 0.002/ha

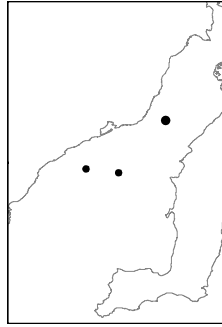
Rank biomass = 88

Rank abundance = 125

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F097 *Dasyatis thetidis* Ogilby, 1899 (Chordata, Dasyatidae) CAAB 37 035002

Common name = Black Stingray

Length = To 1200 mm

Depth range = 17 - 21 m

Stations = 78, BC15, Z3/8

Average biomass = 302.562 g/ha

Rank biomass = 11

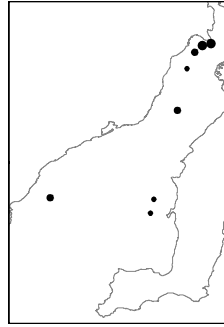
Average abundance = 0.015/ha

Rank abundance = 107

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F098 *Dasyatis brevicaudata* (Hutton, 1875) (Chordata, Dasyatidae) CAAB 37 035001

Common name = Smooth Stingray

Length = To 1110 mm

Depth range = 13.5 - 26 m

Stations = 44, 61, 94, BC22, BC28, CB1, FC2, WD4

Average biomass = 610.034 g/ha Rank biomass = 7

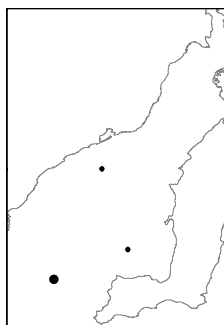
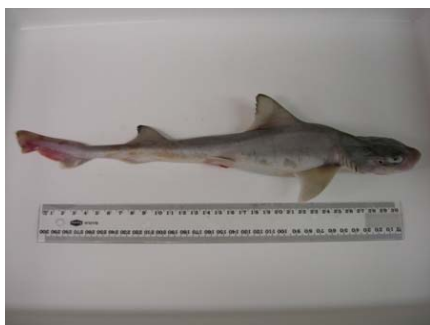
Average abundance = 0.038/ha Rank abundance = 90

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F099 *Mustelus antarcticus* Günther, 1870 (Chordata, Triakidae) CAAB 37 017001

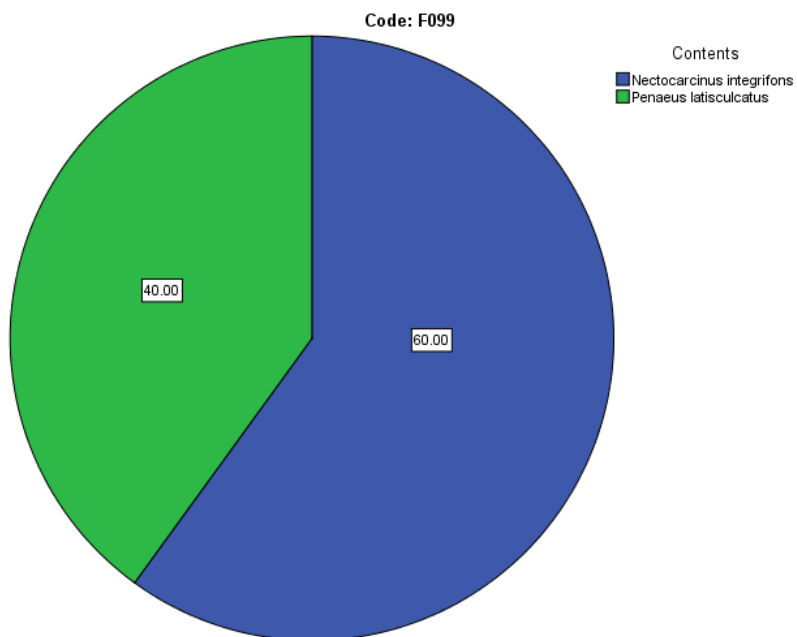


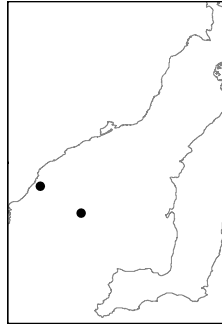
Common name = Gummy Shark
 Length = To 1500 mm
 Depth range = 25.5 - 54.5 m
 Stations = BC43, CP3, Z3/10
 Average biomass = 111.200 g/ha Rank biomass = 25
 Average abundance = 0.016/ha Rank abundance = 106

Dietary Summary

Number of guts examined = 1
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	<i>Nectocarcinus integrifrons</i>	19.80	60.00
Crustacea	<i>Penaeus latisulcatus</i>	13.20	40.00



F100 *Orectolobus maculatus* (Bonnaterre, 1788) (Chordata, Orectolobidae) CAAB 37 013003

Common name = Orate Wobbegong

Length = To 2200 mm

Depth range = 23 - 33 m

Stations = BC19, BC27

Average biomass = 327.668 g/ha Rank biomass = 10

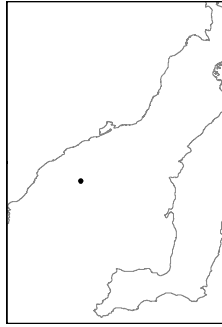
Average abundance = 0.005/ha Rank abundance = 119

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F101 *Pristiophorus cirratus* (Latham, 1794) (Chordata, Pristiophoridae) CAAB 37 023002



Common name = Common Sawshark

Length = To 475 mm

Depth range = 22 - 22 m

Stations = BC16

Average biomass = 0.446 g/ha

Rank biomass = 107

Average abundance = 0.003/ha

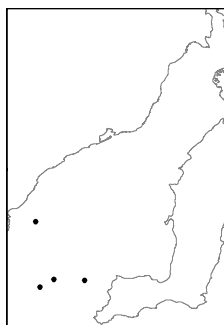
Rank abundance = 123

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F104 *Chelidonichthys kumu* (Lesson, 1826) (Chordata, Triglidae) CAAB 37 288001

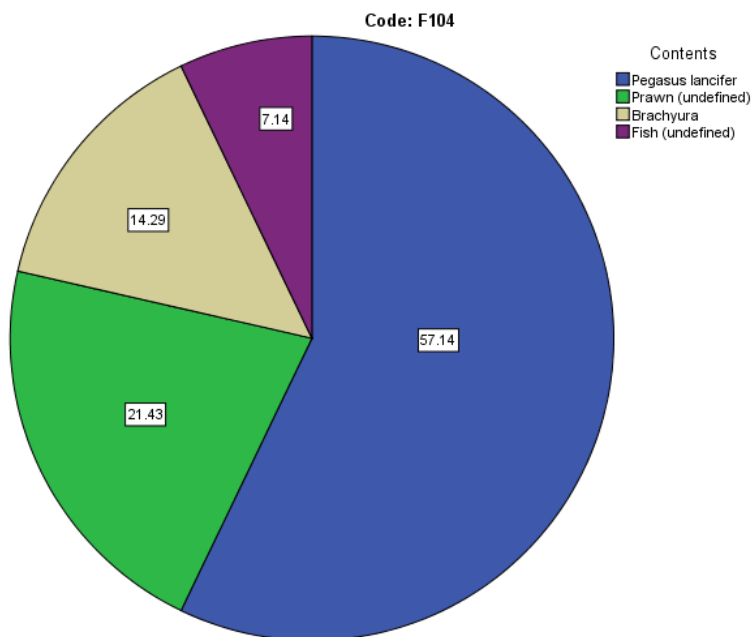


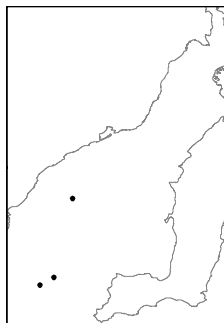
Common name = Red Gurnard
 Length = To 521 mm
 Depth range = 22 - 54.5 m
 Stations = BC30, BC43, BC44, BC46
 Average biomass = 18.376 g/ha Rank biomass = 60
 Average abundance = 0.060/ha Rank abundance = 75

Dietary Summary

Number of guts examined = 2
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish (undefined)	0.25	7.14
Chordata	<i>Pegasus lancifer</i>	2.00	57.14
Crustacea	Brachyura	0.50	14.29
Crustacea	Prawn (undefined)	0.75	21.43



F105 *Nemadactylus douglasii* (Hector, 1875) (Chordata, Cheilodactylidae) CAAB 37 377002

Common name = Blue Morwong

Length = To 600 mm

Depth range = 25 - 54.5 m

Stations = BC21, BC43, BC46

Average biomass = 27.293 g/ha

Average abundance = 0.018/ha

Rank biomass = 50

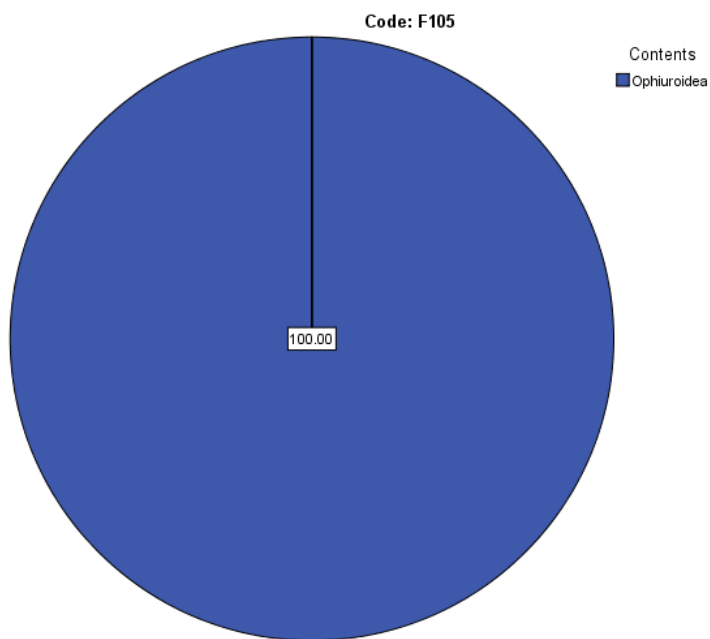
Rank abundance = 102

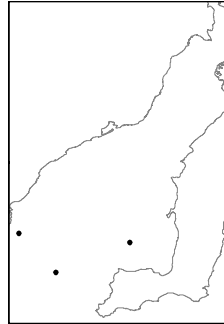
Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Echinodermata	Ophiuroidea	0.30	100.00



F106 *Pseudophycis bachus* (Forster, 1801) (Chordata, Moridae) CAAB 37 224006

Common name = Red Cod

Length = To 315 mm

Depth range = 22 - 54.5 m

Stations = BC35, BC43, CP3

Average biomass = 1.849 g/ha

Rank biomass = 87

Average abundance = 0.010/ha

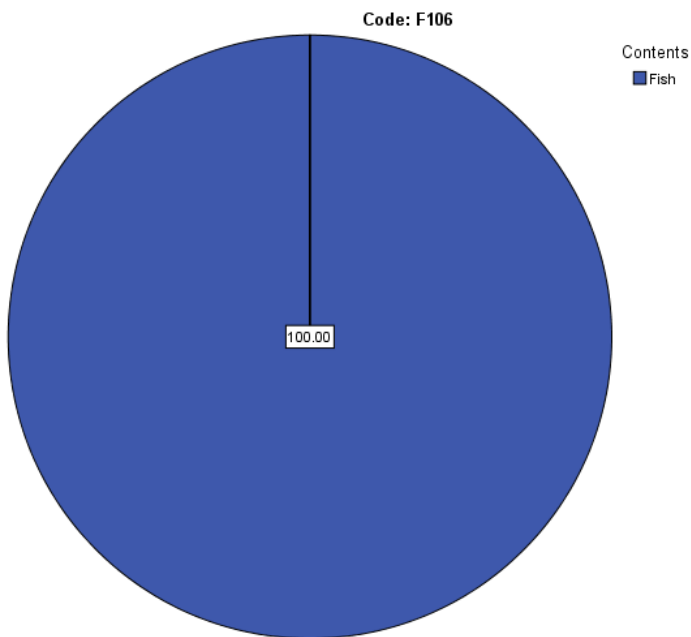
Rank abundance = 112

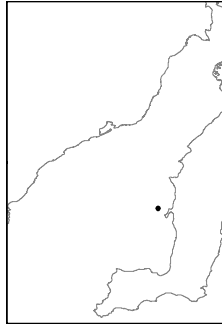
Dietary Summary

Number of guts examined = 2

Proportion of guts empty = 50%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish	9.00	100.00



F107 *Histiogamphelus cristatus* (Macleay, 1881) (Chordata, Syngnathidae) CAAB 37 282081

Common name = Macleays Crested Pipefish

Length = To 235 mm

Depth range = 18.7 - 18.7 m

Stations = WD6

Average biomass = 0.012 g/ha

Rank biomass = 131

Average abundance = 0.003/ha

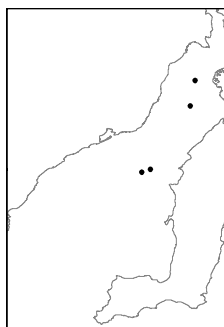
Rank abundance = 121

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F108 *Kanekonia queenslandica* Whitley, 1952 (Chordata, Aploactinidae) CAAB 37 290007

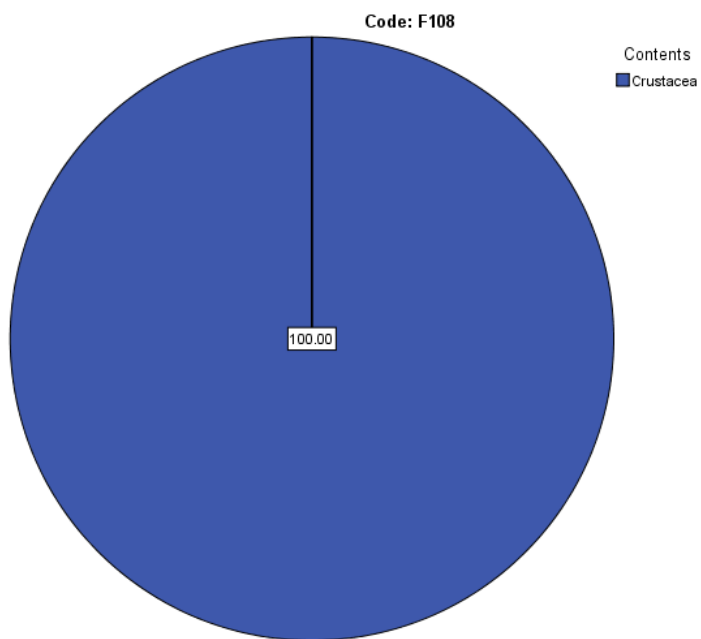


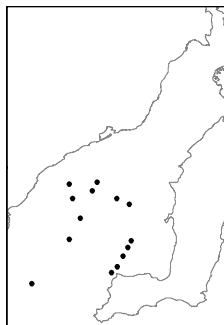
Common name = Deep Velvet fish
 Length = To 54 mm
 Depth range = 14 - 19.3 m
 Stations = 21B, 58C, BC10, BC9
 Average biomass = 0.104 g/ha Rank biomass = 122
 Average abundance = 0.033/ha Rank abundance = 93

Dietary Summary

Number of guts examined = 1
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea	0.05	100.00



F109 *Neoplatycephalus aurimaculatus* (Knapp, 1987) (Chordata, Platycephalidae) CAAB 37 296035

Common name = Toothy Flathead

Length = To 483 mm

Depth range = 23 - 46.5 m

Stations = BC14, BC21, BC24, BC27, BC34, BC42, BC45, CP1, CP12, CP3, CP7, WD9, WG1, WG3

Average biomass = 26.471 g/ha Rank biomass = 52

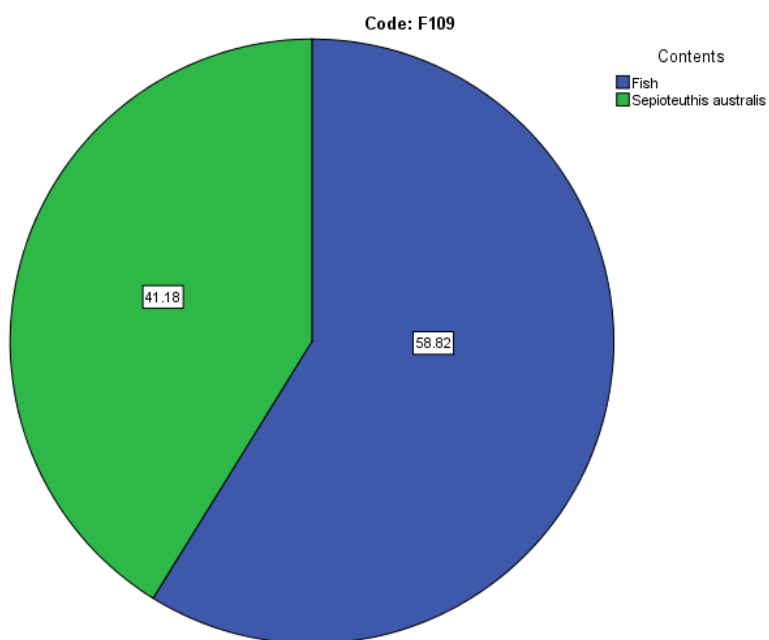
Average abundance = 0.149/ha Rank abundance = 53

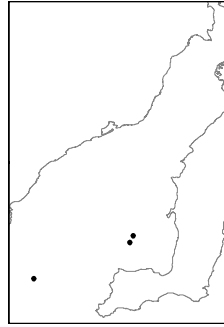
Dietary Summary

Number of guts examined = 9

Proportion of guts empty = 67%

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish	4.00	58.82
Mollusca	<i>Sepioteuthis australis</i>	2.80	41.18



F110 *Squalus megalops* (Macleay, 1881) (Chordata, Squalidae) CAAB 37 020006

Common name = Piked Dogfish

Length = To 430 mm

Depth range = 33 - 46.5 m

Stations = BC45, CP1, CP3

Average biomass = 12.446 g/ha

Rank biomass = 67

Average abundance = 0.045/ha

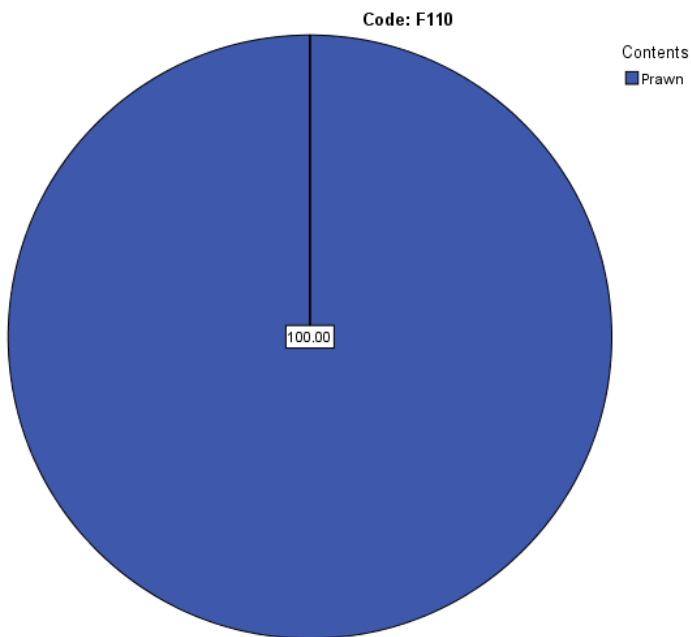
Rank abundance = 86

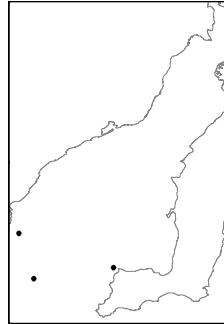
Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Prawn	1.00	100.00



F111 *Nelusetta ayraudi* (Quoy & Gaimard, 1824) (Chordata, Monacanthidae) CAAB 37 465006

Common name = Chinaman Leather Jacket

Length = To 188 mm

Depth range = 22 - 46.5 m

Stations = BC35, BC42, BC45

Average biomass = 1.147 g/ha

Rank biomass = 95

Average abundance = 0.017/ha

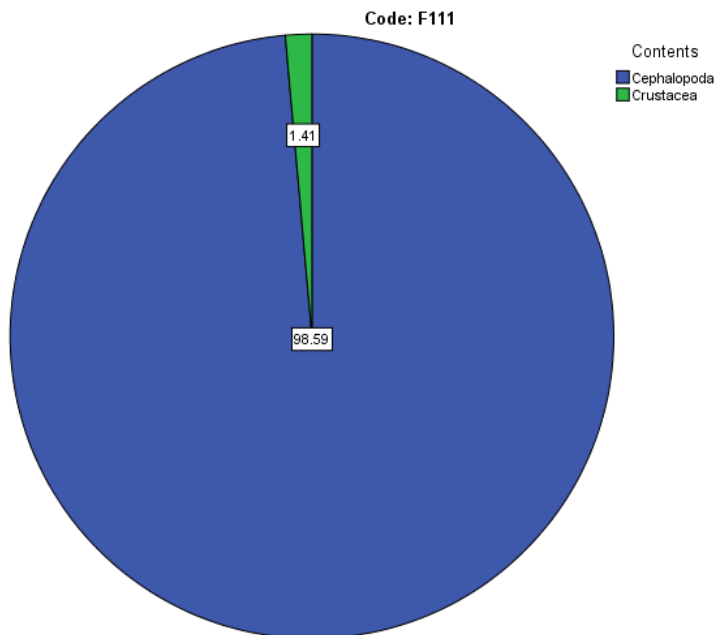
Rank abundance = 104

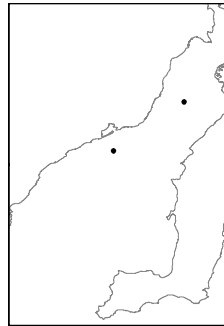
Dietary Summary

Number of guts examined = 3

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea	0.10	1.41
Mollusca	Cephalopoda	7.00	98.59



F112 *Glyptauchen panduratus* (Richardson, 1850) (Chordata, Tetraogidae) CAAB 37 287023

Common name = Goblin Fish

Length = To 97 mm

Depth range = 20 - 20.1 m

Stations = 80, Z2/13

Average biomass = 0.274 g/ha

Rank biomass = 113

Average abundance = 0.021/ha

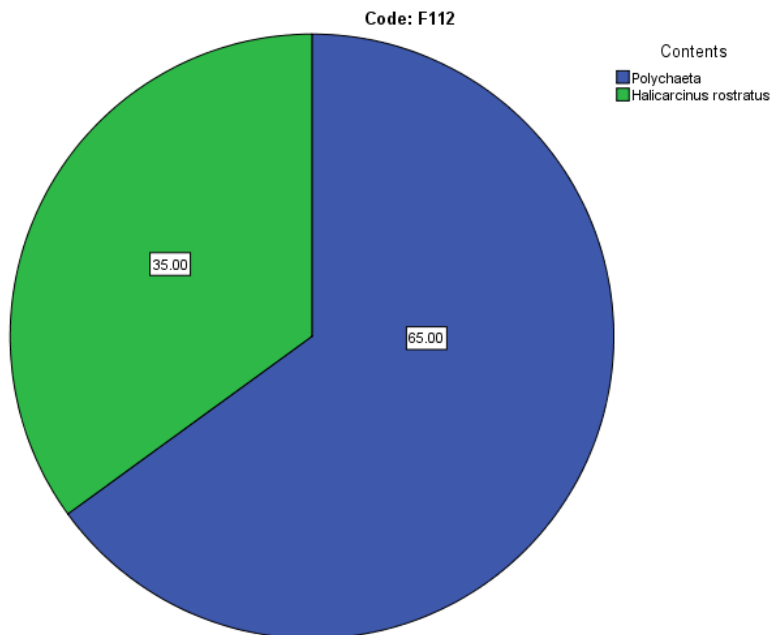
Rank abundance = 98

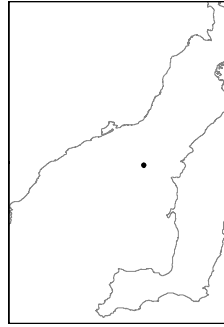
Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Polychaeta	0.19	65.00
Crustacea	<i>Halicarcinus rostratus</i>	0.10	35.00



F113 *Siphonognathus caninis* (Scott, 1976) (Chordata, Odacidae) CAAB 37 385011

Common name = Sharpnose Weed Whiting

Length = To 65 mm

Depth range = 19.3 - 19.3 m

Stations = BC10

Average biomass = 0.017 g/ha

Rank biomass = 129

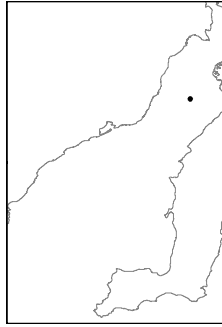
Average abundance = 0.008/ha

Rank abundance = 114

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F114 *Meuschenia freycineti* (Quoy & Gaimard, 1824) (Chordata, Monacanthidae) CAAB 37 465036

Common name = Six-spine Leather Jacket

Length = To 176 mm

Depth range = 16.1 - 16.1 m

Stations = 58C

Average biomass = 0.790 g/ha

Rank biomass = 101

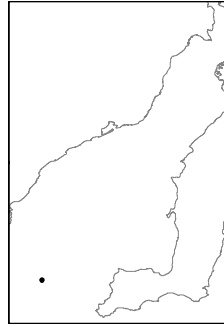
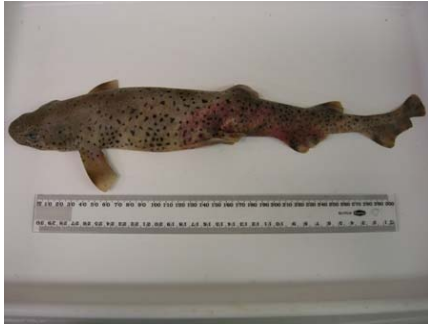
Average abundance = 0.007/ha

Rank abundance = 115

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F116 *Asymbolus* sp. 1 (Chordata, Scyliorhinidae) CAAB 37 015000

Common name = Saddled Catshark

Length = To 380 mm

Depth range = 44 - 44 m

Stations = BC46

Average biomass = 12.184 g/ha

Rank biomass = 68

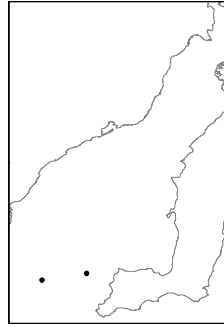
Average abundance = 0.045/ha

Rank abundance = 87

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F117 *Pictilabrus laticlavius* (Richardson, 1840) (Chordata, Labridae) CAAB 37 384020

Common name = Senator Wrasse

Length = To 314 mm

Depth range = 41.5 - 44 m

Stations = BC44, BC46

Average biomass = 15.187 g/ha

Rank biomass = 63

Average abundance = 0.055/ha

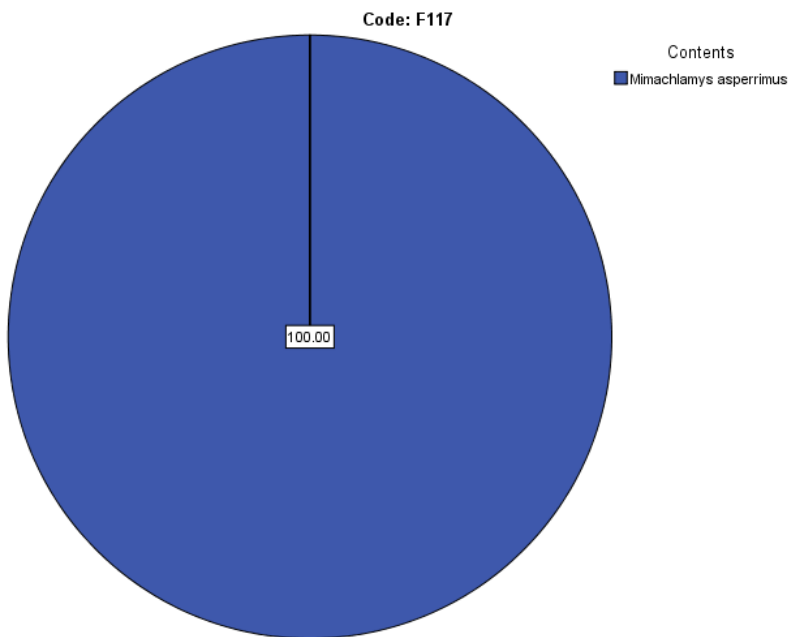
Rank abundance = 79

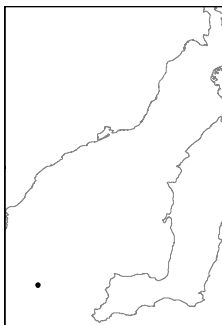
Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Mollusca	<i>Mimachlamys asperimus</i>	0.70	100.00



F118 *Caesioperca rasor* (Richardson, 1839) (Chordata, Serranidae) CAAB 37 311003

Common name = Barber Perch

Length = To 190 mm

Depth range = 44 - 44 m

Stations = BC46

Average biomass = 20.187 g/ha

Rank biomass = 58

Average abundance = 0.267/ha

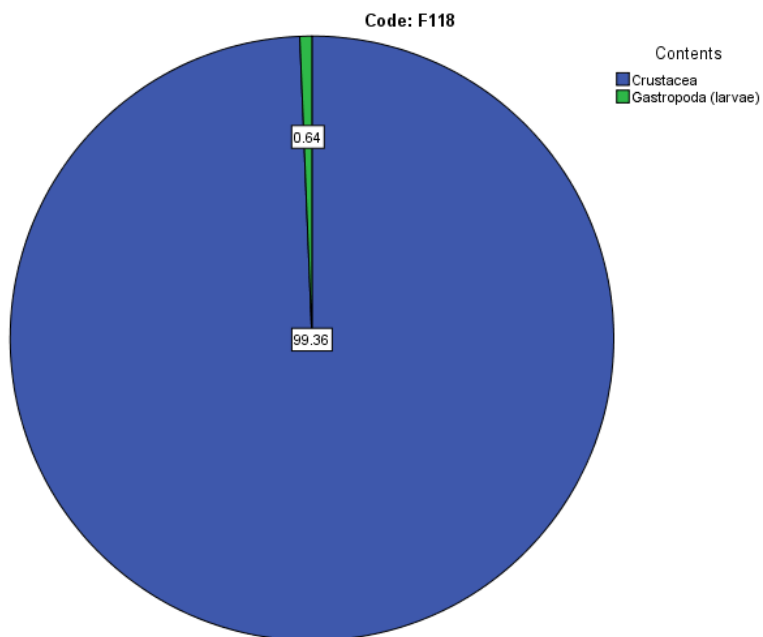
Rank abundance = 39

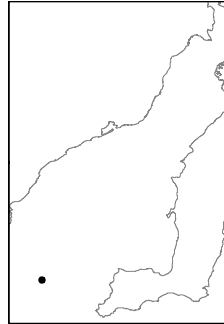
Dietary Summary

Number of guts examined = 5

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea	0.62	99.36
Mollusca	Gastropoda (larvae)	<0.01	0.64



F119 *Aulopus cf purpurissatus* (Chordata, Aulopidae) CAAB 37 117802

Common name = Sergeant Baker

Length = To 480 mm

Depth range = 44 - 44 m

Stations = BC46

Average biomass = 66.610 g/ha

Rank biomass = 35

Average abundance = 0.089/ha

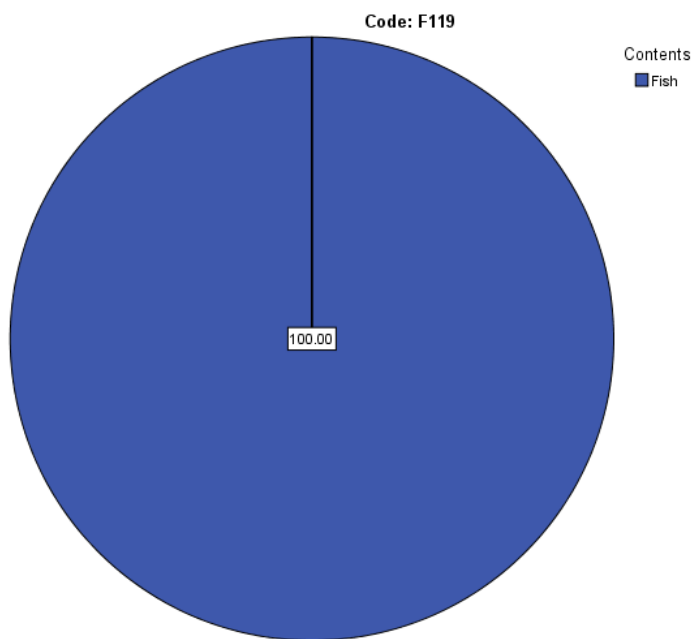
Rank abundance = 67

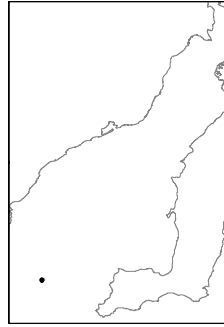
Dietary Summary

Number of guts examined = 1

Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Chordata	Fish	1.20	100.00



F120 *Cheilodactylus nigripes* Richardson, 1850 (Chordata, Cheilodactylidae) CAAB 37 377001

Common name = Magpie Perch

Length = To 321 mm

Depth range = 44 - 44 m

Stations = BC46

Average biomass = 25.879 g/ha

Average abundance = 0.045/ha

Rank biomass = 54

Rank abundance = 87

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F121 *Cantheschenia longipinnis* (Fraser-Brunner, 1941) (Chordata, Monacanthidae) CAAB 37 465053

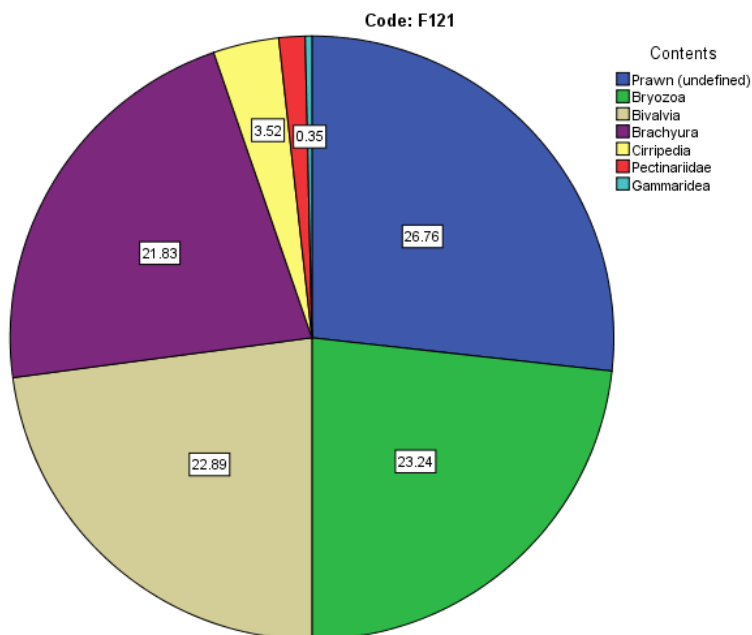


Common name = Smoothspine Leather Jacket
 Length = To 192 mm
 Depth range = 44 - 44 m
 Stations = BC46
 Average biomass = 19.565 g/ha Rank biomass = 59
 Average abundance = 0.222/ha Rank abundance = 46

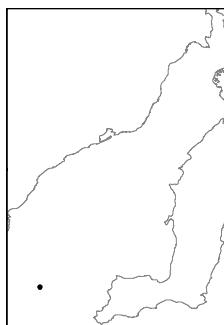
Dietary Summary

Number of guts examined = 4
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Pectinariidae	0.04	1.41
Bryozoa	Bryozoa	0.66	23.24
Crustacea	Brachyura	0.62	21.83
Crustacea	Cirripedia	0.10	3.52
Crustacea	Gammaridea	0.01	0.35
Crustacea	Prawn (undefined)	0.76	26.76
Mollusca	Bivalvia	0.65	22.89



F122 *Eubalichthys quadrispinis* Hutchins, 1977 (Chordata, Monacanthidae) CAAB 37 465032

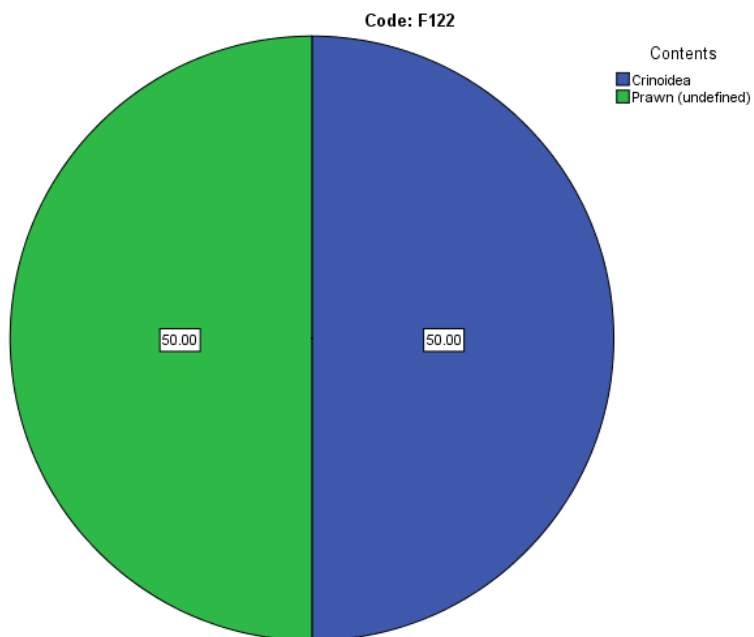


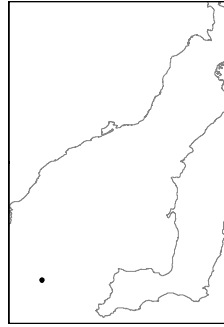
Common name = Four-spine Leather Jacket
 Length = To 206 mm
 Depth range = 44 - 44 m
 Stations = BC46
 Average biomass = 12.539 g/ha Rank biomass = 66
 Average abundance = 0.089/ha Rank abundance = 67

Dietary Summary

Number of guts examined = 1
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Prawn (undefined)	0.80	50.00
Echinodermata	Crinoidea	0.80	50.00



F123 *Optivus agrammus* Gomon, 2004 (Chordata, Trachichthyidae) CAAB 37 255016

Common name = Western Roughy

Length = To 63 mm

Depth range = 44 - 44 m

Stations = BC46

Average biomass = 0.267 g/ha

Rank biomass = 114

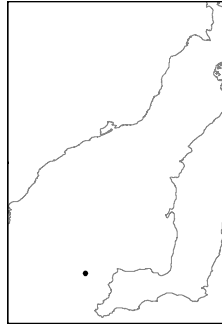
Average abundance = 0.045/ha

Rank abundance = 87

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F124 *Phyllophryne scortea* (McCulloch & Waite, 1918) (Chordata, Antennariidae) CAAB 37 210015

Common name = Smooth Anglerfish

Length = To 46 mm

Depth range = 41.5 - 41.5 m

Stations = BC44

Average biomass = 0.041 g/ha

Rank biomass = 127

Average abundance = 0.010/ha

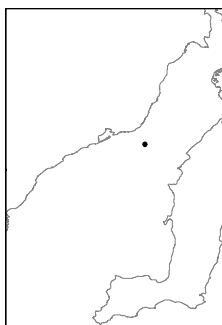
Rank abundance = 111

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F125 *Engraulis australis* (Shaw, 1790) (Chordata, Engraulidae) CAAB 37 086001

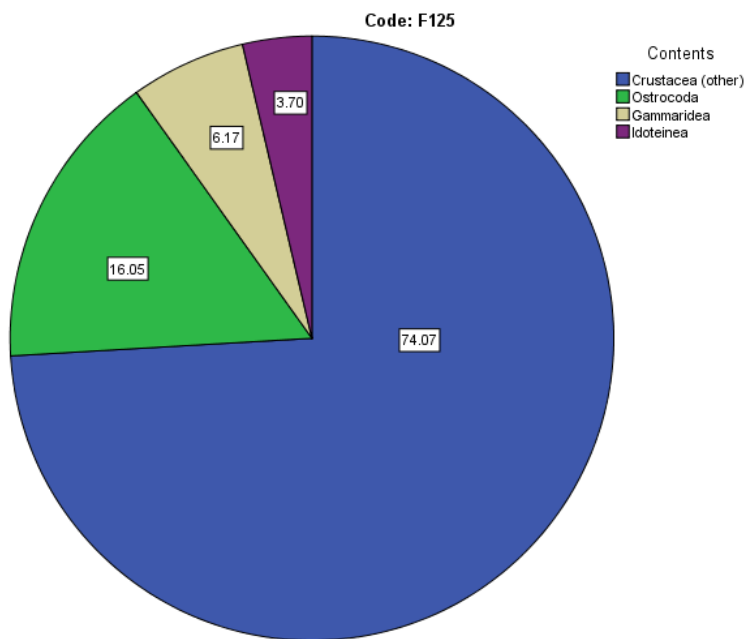


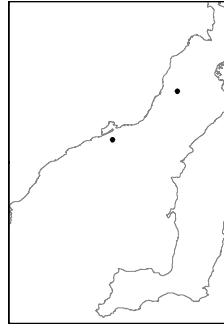
Common name = Australian Anchovy
 Length = To 122 mm
 Depth range = 14.5 - 27 m
 Stations = 23, 44, 61, 7B, 94, BC36, CB1, DK1, SHW2, WAL32
 Average biomass = 0.789 g/ha Rank biomass = 102
 Average abundance = 0.127/ha Rank abundance = 56

Dietary Summary

Number of guts examined = 4
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Crustacea	Crustacea (other)	0.15	74.07
Crustacea	Gammaridea	0.01	6.17
Crustacea	Ostrocooda	0.03	16.05
Crustacea	Idoteinea	0.01	3.70



F126 *Arripis georgianus* (Valenciennes, 1831) (Chordata, Arripidae) CAAB 37 344001

Common name = Tommy Rough (Australian Herring)

Length = To 114 mm

Depth range = 15 - 15 m

Stations = BC6

Average biomass = 0.182 g/ha

Rank biomass = 117

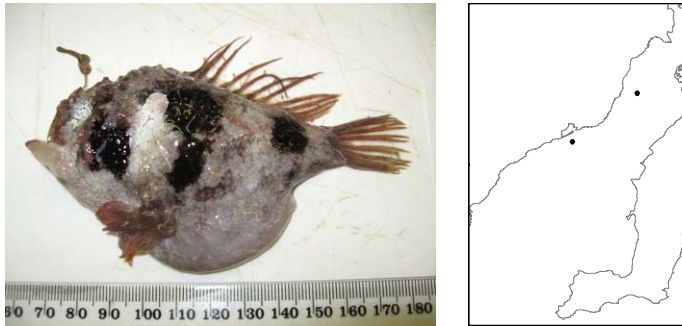
Average abundance = 0.006/ha

Rank abundance = 117

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F127 *Rhycherus filamentosus* (Castelnau, 1872) (Chordata, Antennariidae) CAAB 37 210006

Common name = Tasselled Anglerfish

Length = To 110 mm

Depth range = 15 - 25 m

Stations = 8, Z1/1

Average biomass = 0.837 g/ha

Rank biomass = 100

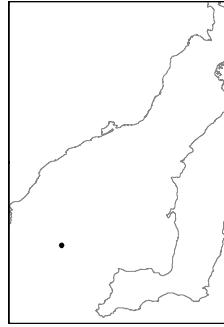
Average abundance = 0.018/ha

Rank abundance = 103

Dietary Summary

Number of guts examined = 1

Proportion of guts empty = 100%

F128 *Oplegnathus woodwardi* (Waite, 1900) (Chordata, Oplegnathidae) CAAB 37 369002

Common name = Knifefish

Length = To 110 mm

Depth range = 43 - 43 m

Stations = BC38

Average biomass = 0.095 g/ha

Average abundance = 0.002/ha

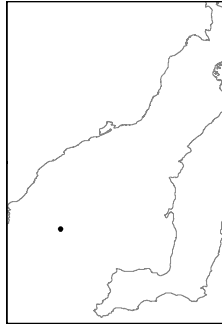
Rank biomass = 124

Rank abundance = 124

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F129 *Histiophryne cryptacanthus* (Weber, 1913) (Chordata, Antennariidae) CAAB 37 210013

Common name = Rodless Anglerfish

Length = To 102 mm

Depth range = 32 - 32 m

Stations = BC31

Average biomass = 0.322 g/ha

Rank biomass = 109

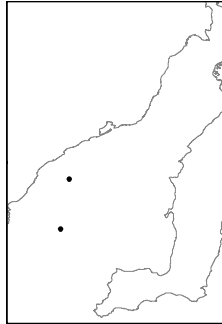
Average abundance = 0.006/ha

Rank abundance = 116

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F130 *Austrolabrus maculatus* (Macleay, 1881) (Chordata, Labridae) CAAB 37 384025

Common name = Blackspotted Wrasse

Length = To 108 mm

Depth range = 23 - 32 m

Stations = BC14, BC31

Average biomass = 0.180 g/ha

Rank biomass = 118

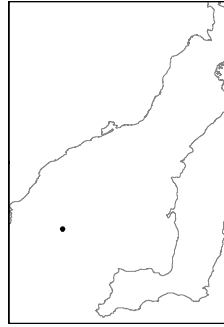
Average abundance = 0.010/ha

Rank abundance = 113

Dietary Summary

Number of guts examined = 1

Proportion of guts empty = 100%

F131 *Sorosichthys ananassa* Whitley, 1945 (Chordata, Trachichthyidae) CAAB 37 255010

Common name = Little Pineapplefish

Length = To 81 mm

Depth range = 32 - 32 m

Stations = BC31

Average biomass = 0.110 g/ha

Rank biomass = 121

Average abundance = 0.006/ha

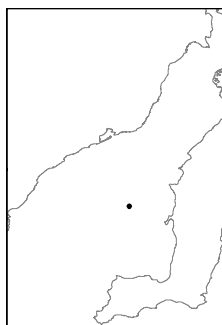
Rank abundance = 116

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F132 *Pempheris multiradiata* Klunzinger, 1880 (Chordata, Pempheridae) CAAB 37 357001

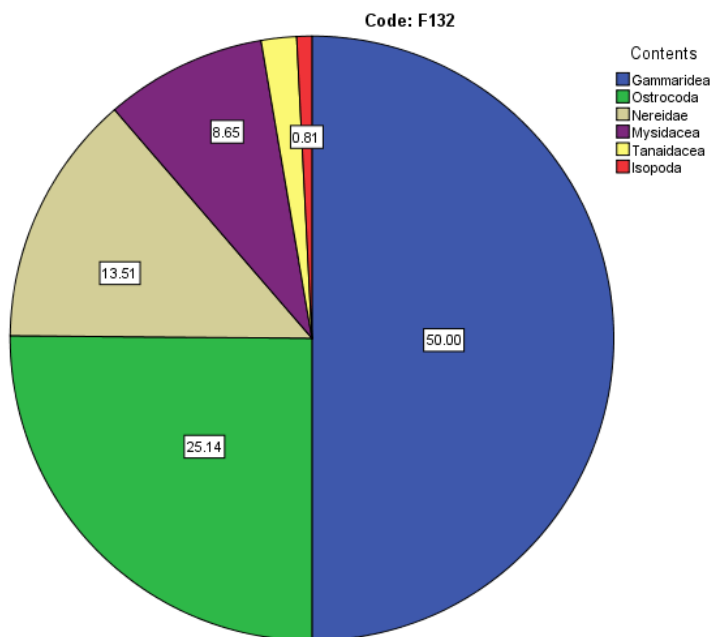


Common name = Common Bullseye (Bigscale Bullseye)
 Length = To 88 mm
 Depth range = 28 - 28 m
 Stations = BC24
 Average biomass = 0.312 g/ha Rank biomass = 110
 Average abundance = 0.036/ha Rank abundance = 92

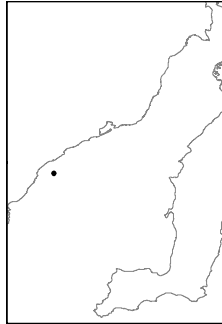
Dietary Summary

Number of guts examined = 5
 Proportion of guts empty = none

Higher Taxa	Prey Item	Weight (g)	Prey Consumed (%)
Annelida	Nereidae	0.25	13.51
Crustacea	Gammaridea	0.92	50.00
Crustacea	Isopoda	0.01	0.81
Crustacea	Mysidacea	0.16	8.65
Crustacea	Ostrocooda	0.47	25.14
Crustacea	Tanaidacea	0.04	1.89



F133 *Spratelloides robustus* Ogilby, 1897 (Chordata, Clupeidae) CAAB 37 085003



Common name = Blue Sprat

Length = To 97 mm

Depth range = 19 - 19 m

Stations = BC20

Average biomass = 0.135 g/ha

Average abundance = 0.020/ha

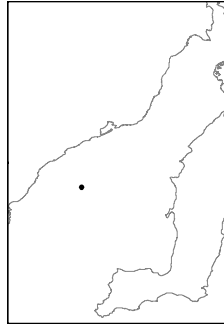
Rank biomass = 120

Rank abundance = 100

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F134 *Urolophus cruciatus* (Lacépède, 1804) (Chordata, Urolophidae) CAAB 37 038002

Common name = Banded Stingaree

Length = To 207 mm

Depth range = 22 - 22 m

Stations = BC18

Average biomass = 0.380 g/ha

Average abundance = 0.003/ha

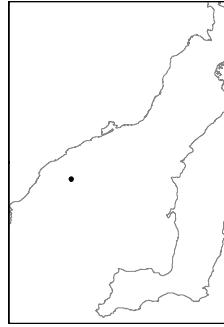
Rank biomass = 108

Rank abundance = 121

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

F135 *Asymbolus vincenti* (Zietz, 1908) (Chordata, Scyliorhinidae) CAAB 37 015003

Common name = Gulf Catshark

Length = To 363 mm

Depth range = 23 - 23 m

Stations = BC14

Average biomass = 0.561 g/ha

Average abundance = 0.003/ha

Rank biomass = 105

Rank abundance = 120

Dietary Summary

Number of guts examined = 0

Proportion of guts empty = N/A

Appendix 3. Daily food consumption estimates ($\text{g ha}^{-1} \text{day}^{-1}$) of 132 demersal fish species occurring in three regions (north, central, south) of Spencer Gulf. Measures presented are the product of daily consumption/biomass ratios (Q/B), and mean species biomass at 120 trawl stations ($n = 55$ north, $n = 50$ central, $n = 15$ south).

Species	Common Name	Q/B Ratio	North	Central	South	Gulf Mean
<i>Thamnaconus degeni</i>	Degens Leatherjacket	2.30	4.11	221.71	766.81	330.87
<i>Myliobatis australis</i>	Eagle Ray	3.40	13.08	1.38	280.93	98.46
<i>Trachurus declivis</i>	Jack Mackerel	4.64	0.21	4.13	176.67	60.33
<i>Pseudocaranx wrighti</i>	Skipjack Trevally	4.17	46.45	81.15	46.79	58.13
<i>Upeneichthys vlamingii</i>	Red Mullet	2.36	7.87	30.25	18.43	18.85
<i>Parequula melbournensis</i>	Silverbelly	4.40	1.41	38.21	11.19	16.93
<i>Sillago bassensis</i>	Silver Whiting	2.92	0.26	4.62	44.18	16.35
<i>Dasyatis brevicaudata</i>	Smooth Stingray	3.20	35.06	8.28	.	14.45
<i>Scobinichthys granulatus</i>	Rough Leatherjacket	2.21	26.73	10.05	1.79	12.86
<i>Heterodontus portusjacksoni</i>	Port Jackson Shark	1.52	16.03	12.91	0.37	9.77
<i>Neosebastes bougainvillii</i>	Gulf Gurnard Perch	2.20	0.43	1.92	24.98	9.11
<i>Dasyatis thetidis</i>	Black Stingray	3.10	10.29	11.19	.	7.16
<i>Kathetostoma laeue</i>	Common Stargazer	1.26	0.10	4.56	14.71	6.45
<i>Genypterus tigerinus</i>	Rock Ling	5.90	1.33	2.03	15.02	6.13
<i>Centroberyx affinis</i>	Nannygai	3.11	.	.	17.58	5.86
<i>Neoplatycephalus richardsoni</i>	Tiger Flathead	1.52	0.63	5.73	10.22	5.53
<i>Sillaginodes punctata</i>	King George Whiting	2.29	3.12	2.59	9.58	5.10
<i>Pempheris klunzingeri</i>	Rough bullseye	3.08	0.01	0.94	14.05	5.00
<i>Acanthaluteres vittiger</i>	Toothbrush Leatherjacket	2.49	2.30	10.46	2.00	4.92
<i>Lepidotrigla papilio</i>	Spiny Gurnard	2.98	0.58	5.29	6.55	4.14
<i>Diodon nichthemerus</i>	Spikey Globefish	1.44	3.49	3.38	2.23	3.03
<i>Pelates octolineatus</i>	Striped Perch	2.86	6.95	1.93	.	2.96
<i>Aulopus cf purpurissatus</i>	Sergeant Baker	1.58	.	.	8.42	2.81
<i>Mustelus antarcticus</i>	Gummy Shark	0.96	.	0.08	8.27	2.78
<i>Repomucenus calcaratus</i>	Spotted Stinkfish	2.24	2.11	4.49	1.55	2.72
<i>Aracana aurita</i>	Shaws Cowfish	3.03	1.21	5.84	1.08	2.71
<i>Aracana ornata</i>	Ornate Cowfish	3.08	1.16	6.81	0.13	2.70
<i>Lepidotrigla spinosa</i>	Southern Shortfin Gurnard	2.37	.	0.35	6.84	2.39
<i>Pseudorhombus jenynsii</i>	Small Tooth Flounder	1.54	6.16	0.25	0.51	2.30
<i>Urolophus paucimaculatus</i>	Sparsely-Spotted Stingaree	1.07	0.03	1.02	5.68	2.25
<i>Sphyræna obtusata</i>	Striped Seapike	3.65	.	0.02	6.61	2.21
<i>Neosebastes pandus</i>	Gurnard Perch	1.82	.	1.10	5.37	2.16
<i>Sutorectus tentaculatus</i>	Cobbler Carpet Shark	1.57	6.29	.	.	2.10
<i>Chrysophrys auratus</i>	Snapper	1.60	0.71	1.59	3.88	2.06
<i>Parapriacanthus elongatus</i>	Slender Bullseye	4.54	4.09	1.74	0.06	1.96
<i>Pristiophorus nudipinnis</i>	Saw Shark	1.34	.	.	5.80	1.93
<i>Orectolobus maculatus</i>	Ornate Wobbegong	0.73	.	5.74	.	1.91
<i>Foetorepus calauropomus</i>	Common Stink Fish	1.92	0.92	1.48	3.27	1.89
<i>Caesioperca rasor</i>	Barber Perch	3.14	.	.	5.07	1.69
<i>Enoplosus armatus</i>	Old Wife	3.05	.	0.45	4.51	1.65
<i>Thyrssites atun</i>	Barracouta	3.64	.	1.36	3.50	1.62
<i>Maxilllicosta scabriceps</i>	Little Scorpion Fish	3.54	2.17	2.55	0.13	1.62
<i>Cheilodactylus nigripes</i>	Magpie Perch	2.26	.	.	4.68	1.56
<i>Nemadactylus douglasii</i>	Blue Morwong	2.13	.	0.02	4.57	1.53
<i>Cantheschenia longipinnis</i>	Smoothspine Leather Jacket	2.73	.	.	4.27	1.42
<i>Platycephalus speculator</i>	Yank Flathead	1.56	3.19	0.67	0.19	1.35
<i>Eubalichthys mosaicus</i>	Mosaic Leatherjacket	1.51	0.01	0.35	3.66	1.34
<i>Trygonorrhina fasciata</i>	Southern Fiddler Ray	1.12	1.36	1.86	0.58	1.27
<i>Squatina australis</i>	Angel Shark	1.26	0.54	2.10	0.57	1.07
<i>Acanthaluteres spilomelanurus</i>	Bridled Leatherjacket	2.97	1.23	1.81	.	1.01
<i>Gymnapistes marmoratus</i>	Soldier Fish	3.02	2.53	0.12	.	0.88

Species	Common Name	Q/B Ratio	North	Central	South	Gulf Mean
<i>Pentacerospis recurvirostris</i>	Longsnout Boarfish	2.16	.	0.88	1.74	0.87
<i>Parascyllium ferrugineum</i>	Rusty Catshark	2.05	.	0.04	2.46	0.83
<i>Trachichthys australis</i>	Roughy	3.49	.	.	2.44	0.81
<i>Squalus megalops</i>	Piked Dogfish	2.35	.	0.03	2.26	0.76
<i>Sphyræna novaehollandiae</i>	Snook	3.51	.	2.20	.	0.73
<i>Chelidonichthys kumu</i>	Red Gurnard	1.47	.	<0.01	2.15	0.72
<i>Pictilabrus laticlavus</i>	Senator Wrasse	1.77	.	.	2.15	0.72
<i>Neoplitycephalus aurimaculatus</i>	Toothy Flathead	1.57	.	0.52	1.60	0.70
<i>Eubalichthys quadrispinis</i>	Four-spine Leather Jacket	2.08	.	.	2.09	0.70
<i>Tetractenos glaber</i>	Smooth Toadfish	2.28	1.60	0.12	.	0.57
<i>Asymbolus</i> sp. 1	Saddled Catshark	1.74	.	.	1.70	0.57
<i>Callorhynchus milii</i>	Elephant Fish	1.17	.	1.47	0.15	0.54
<i>Parazanclistius hutchinsi</i>	Short Boarfish	2.54	.	0.14	1.42	0.52
<i>Vincentia badia</i>	Scarlet Cardinal fish	4.19	0.27	0.63	0.60	0.50
<i>Hypnos monoptyerygium</i>	Australian Numbfish	1.03	0.58	0.76	.	0.45
<i>Cynoglossus broadhursti</i>	Southern Tongue Sole	2.50	0.07	0.58	0.68	0.44
<i>Gonorynchus greyi</i>	Beaked Salmon	2.54	0.16	0.70	0.47	0.44
<i>Polyspina piosae</i>	Orangebarred Puffer fish	4.22	0.54	0.51	0.01	0.35
<i>Urolophus orarius</i>	Costal Stinaree	1.26	.	0.15	0.87	0.34
<i>Aptychotrema vincentiana</i>	Southern Shovelnose Ray	1.66	0.37	0.32	0.33	0.34
<i>Dipturus whitleyi</i>	Melbourne Skate	0.60	0.33	0.44	0.16	0.31
<i>Omegophora armilla</i>	Ringed Toadfish	2.61	0.15	0.41	0.14	0.23
<i>Meuschenia scaber</i>	Velvet Leatherjacket	2.55	.	0.06	0.64	0.23
<i>Paratrachichthys macleayi</i>	Sandpaper Fish	4.27	.	0.03	0.66	0.23
<i>Contusus brevicaudus</i>	Prickly Toadfish	3.55	0.01	0.14	0.44	0.20
<i>Parapercis ramsayi</i>	Spotted Grubfish	2.61	0.01	0.15	0.37	0.18
<i>Thysanophrys cirronasa</i>	Rock Flathead	2.10	0.40	0.12	.	0.17
<i>Leviprora inops</i>	Longhead Flathead	1.76	.	0.45	.	0.15
<i>Vincentia macrocauda</i>	Smooth Cardinal fish	3.88	.	0.02	0.43	0.15
<i>Caesioperca lepidoptera</i>	Butterfly Perch	3.07	.	.	0.41	0.14
<i>Ichthyoscopus barbatus</i>	Fringed Stargazer	2.10	.	0.10	0.30	0.13
<i>Phyllopteryx taeniolatus</i>	Common Seadragon	4.70	0.01	0.26	.	0.09
<i>Brachaluteres jacksonianus</i>	Sthn. Pygmy Leatherjacket	4.86	0.11	0.18	.	0.09
<i>Lophonectes gallus</i>	Crested Flounder	1.41	<0.01	0.17	0.10	0.09
<i>Pterygotrigla polyommata</i>	Latchet	3.19	.	<0.01	0.23	0.08
<i>Sardinops neopilchardus</i>	Pilchard	5.30	0.05	0.04	0.15	0.08
<i>Cnidoglanis macrocephalus</i>	Estuary Catfish	4.00	0.06	0.17	.	0.07
<i>Parapercis haackei</i>	Wavy Grubfish	3.84	0.17	0.03	.	0.07
<i>Nelusetta ayraudi</i>	Chinaman Leather Jacket	3.08	.	0.04	0.15	0.06
<i>Hippocampus abdominalis</i>	Bigbelly Seahorse	4.70	0.15	0.03	.	0.06
<i>Chelmonops curiosus</i>	Squareback Butterflyfish	4.23	0.01	0.16	.	0.06
<i>Pseudophycis bachus</i>	Red Cod	1.89	.	0.07	0.06	0.04
<i>Optivus agrammus</i>	Western Roughy	5.72	.	.	0.12	0.04
<i>Phycodurus eques</i>	Leafy Seadragon	4.70	.	0.11	.	0.04
<i>Hyperlophus vittatus</i>	Sandy Spratt	5.67	0.02	0.09	.	0.04
<i>Engraulis australis</i>	Australian Anchovy	5.76	0.08	0.02	.	0.03
<i>Vincentia conspersa</i>	Southern Gobbleguts	2.95	0.06	0.03	.	0.03
<i>Ammotretis lituratus</i>	Spotted Flounder	1.64	.	0.07	0.04	0.03
<i>Taratretis derwentensis</i>	Derwent Flounder	2.29	0.04	0.04	.	0.03
<i>Eubalichthys gunnii</i>	Gunn's Leatherjacket	3.29	.	0.04	0.05	0.03
<i>Odax acroptilus</i>	Rainbow Cale	3.76	.	0.07	.	0.02
<i>Histiophryne cryptacanthus</i>	Rodless Anglerfish	2.53	.	.	0.07	0.02
<i>Hyporhamphus melanochir</i>	Southern Garfish	4.73	0.01	0.05	.	0.02
<i>Rhycherus filamentosus</i>	Tasselled Anglerfish	2.85	0.01	0.04	.	0.02
<i>Meuschenia freycineti</i>	Six-spine Leather Jacket	2.64	0.05	.	.	0.02
<i>Urolophus gigas</i>	Spotted Stingaree	1.15	.	0.05	.	0.02

Species	Common Name	Q/B Ratio	North	Central	South	Gulf Mean
<i>Pempheris multiradiata</i>	Common Bullseye	4.93	.	0.04	.	0.01
<i>Austrolabrus maculatus</i>	Blackspotted Wrasse	2.93	.	<0.01	0.03	0.01
<i>Asymbolus vincenti</i>	Gulf Catshark	2.00	.	0.03	.	0.01
<i>Oplegnathus woodwardi</i>	Knifejaw	4.04	.	.	0.03	0.01
<i>Sorosichthys ananassa</i>	Little Pineapplefish	3.73	.	.	0.03	0.01
<i>Filicampus tigris</i>	Tiger Pipefish	4.70	0.03	.	.	0.01
<i>Arripis georgianus</i>	Tommy Rough	6.32	0.03	.	.	0.01
<i>Urolophus cruciatus</i>	Banded Stingaree	1.74	.	0.02	.	0.01
<i>Spratelloides robustus</i>	Blue Sprat	5.84	.	0.02	.	0.01
<i>Leptoichthys fistularius</i>	Brushtail Pipefish	4.70	<0.01	0.02	.	0.01
<i>Pristiophorus cirratus</i>	Common Sawshark	1.98	.	0.02	.	0.01
<i>Glyptauchen panduratus</i>	Goblin Fish	3.29	0.01	0.01	.	0.01
<i>Zebrias scalaris</i>	Many Banded Sole	2.85	0.01	0.01	.	0.01
<i>Pegasus lancifer</i>	Sculptured Seamothe	5.15	.	0.02	.	0.01
<i>Kanekonia queenslandica</i>	Deep Velvet fish	2.62	<0.01	<0.01	.	<0.01
<i>Siphonognathus radiatus</i>	Longray Rock Whiting	3.14	.	0.01	.	<0.01
<i>Phyllophryne scortea</i>	Smooth Anglerfish	4.26	.	.	0.01	<0.01
<i>Cristiceps australis</i>	Southern Crested Weed Fish	3.08	.	0.01	.	<0.01
<i>Stigmatopora argus</i>	Spotted Pipefish	4.70	.	0.01	.	<0.01
<i>Neodax balteatus</i>	Little Rock Whiting	3.23	.	<0.01	.	<0.01
<i>Histiogamphelus cristatus</i>	Macleays Crested Pipefish	4.70	.	<0.01	.	<0.01
<i>Siphonognathus caninis</i>	Sharpnose Weed Whiting	6.33	.	<0.01	.	<0.01
<i>Siphonognathus attenuatus</i>	Slender Weed Whiting	4.16	<0.01	<0.01	.	<0.01
<i>Siphonognathus argyrophanes</i>	Tubemouth	1.99	.	<0.01	.	<0.01
<i>Neopataecus waterhousii</i>	Whiskered Prowfish	3.15	.	<0.01	.	<0.01
Grand Total			219.55	517.43	1580.99	772.66