NOAA Technical Memorandum NMFS-NE-216

The Trophic Dynamics of 50 Finfish and 2 Squid Species on the Northeast US Continental Shelf

US DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts
May 2010

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May 2010

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ABSTRACT

This document describes the feeding habits of 50 fish and 2 squid species inhabiting the Northeast US (NEUS) continental shelf ecosystem and provides a current context for the Northeast Fisheries Science Center's Food Web Dynamics Program (FWDP). These descriptions are based on the examination of over 510,000 stomachs from over 150 predators since 1973. Trophic dynamics were examined with respect to decadal, spatial, seasonal, and ontogenetic variations in feeding habits. Most species are opportunistic, generalist feeders exhibiting broad diets, but feeding patterns were identified over broad temporal and spatial scales and in relation to ontogenetic stages. Dietary overlap among numerous fish species within this ecosystem was moderate, although for the entire shelf community, diet overlap was generally low among all species, suggesting relatively minimal competition. Given the wide range of feeding habits of most species in this ecosystem, changes in prey or predator abundance are less likely to impact populations and the community compared to ecosystems with a high number of specialists. The recognition of patterns and processes in the NEUS continental shelf fish community over large temporal and spatial scales has remained a key objective for the FWDP given ongoing efforts with food habits sampling, particularly during periods of intense fishing pressure.

INTRODUCTION

The examination of fish feeding habits across the Northeast US (NEUS) continental shelf has remained an interest to fisheries science for over a century. Since the decline of fish populations was formally acknowledged in the late 1800s, ecological interactions (e.g., fish trophic dynamics) were considered a potential cause for those declines (Baird 1873). This interest and those considerations have remained in many of the present issues facing the National Marine Fisheries Service (NMFS; Fogarty and Murawski 1998; Link et al. 2002b) such that trophic ecology has continued to be an important consideration.

Prior to the 1960s, fish stomach sampling in conjunction with surveys (to monitor trends in NEUS shelf fish populations) by the US Fish and Wildlife Service Woods Hole Laboratory (currently NMFS, Northeast Fisheries Science Center) explored the mechanisms behind individual species decline and their relationships to prey availability (e.g., gadids and benthic macrofauna). Ad hoc diet studies were initiated as part of a standardized bottom trawl survey to track trends in fish populations beginning in 1963, with a general emphasis on sampling commercially important groundfish. However, it was not until the late 1960s and early 1970s when multispecies considerations for fish stomach sampling were first applied with a systematic sampling of food habits initiated in 1973. The inception of the Feeding Ecology Project (FEP), followed by the formation of the Food Chain Dynamics Investigation (FCDI; predecessor to the Food Web Dynamics Program [FWDP]) occurred at that time.

A programmatic history of the FWDP, including descriptions of the many precursory programs leading up to its current development, was provided in Link and Almeida (2000). Here we aim to extend the documentation of fish trophic ecology for the NEUS in general and the FWDP in particular.

The major objectives of this work were to describe the diets of 50 major fish and 2 squid species occurring on the NEUS continental shelf and to examine feeding trends over broad temporal (i.e., decadal and seasonal) and spatial sampling scales and ontogeny (i.e., size class). Diet overlaps among the 52 major predator species for the entire NEUS shelf were also evaluated with the Bray-Curtis similarity index. A current description of FWDP stomach sampling requests, priorities, and methodology from 2000-2008 have also been provided to update previous documentation.

Uses of the Data

There have been numerous summaries of the diets of these species which use these and associated data such as for haddock *Melanogrammus aeglefinus* (Wigley 1956), yellowtail flounder *Limanda ferruginea* (Langton 1983), and silver hake *Merluccius bilinearis* (Bowman 1984). More comprehensive diet summaries for various fishes and squids of this region have also been provided as single documents (e.g., Bowman 1981; Langton 1982; Bowman and Michaels 1984; Bowman et al. 2000; Link and Almeida 2000). Here we build upon these previous works and focus on a presentation of the basic diet descriptions by using the sampling factors: decade, geographic area, season, and size class. For more detailed diet analyses of many of these species, the reader is directed to the following literature: the common hake species (Order Gadiformes; Garrison and Link 2000b), flatfishes (Order Pleuronectiformes; Link et al. 2002a), Atlantic cod (*Gadus morhua*; Link and Garrison 2002b; Smith et al. 2007), and the "lesser-appreciated" fishes (e.g., goosefish *Lophius americanus*; Link 2007). Additionally, the consumptive demands for many species of this shelf region have been reported, for example, six major piscivores of Georges Bank (Link and Garrison 2002a), pollock (*Pollachius virens*; Tyrrell

et al. 2007), and skates (Family Rajidae; Link and Sosebee 2008). Furthermore, fish trophic guild analysis (Garrison and Link 2000a), major feeding-reproductive patterns (Link and Burnett 2001), and the use of these fishes as "samplers" of invertebrates which are otherwise difficult to sample (Link 2006; Link and Ford 2006) have been examined.

More recently the FWDP has emphasized evaluation of and explored the feasibility of incorporating ecological interactions (namely predation) directly into models to support fisheries science and management. The integration of ecological considerations into standard stock assessments and associated multispecies models is one approach to implementing ecosystem-based fisheries management (EBFM). Additions such as the predatory removal of commercially valuable forage species via a large predator complex (i.e., combined skate biomass for the NEUS continental shelf; 10-15% of total finfish biomass surveyed [Link 2007]) have shown the combined consumptive demands of seven skate species (Link and Sosebee 2008) and separately, various demersals (Overholtz and Link 2007) to be comparable or higher than the magnitude of commercial fisheries. Accordingly, predation mortality has been shown to exceed fishing mortality rates for various commercial fishes and invertebrates within this continental shelf region (e.g., age-1 and age-2 Atlantic mackerel (*Scomber scombrus*; Moustahfid et al. 2009), Atlantic herring (*Clupea harengus*; Overholtz et al. 2008), and northern shrimp (*Pandalus borealis;* NEFSC 2007)). Furthermore, these studies highlight the critical need to incorporate fish food habits data into fisheries models such that the miscalculation of magnitude and model uncertainty for various biological reference points and indices has been shown in a fisheries-only model (Hollowed et al. 2000; Tjelmeland and Lindstrøm 2005; Overholtz et al. 2008; Moustahfid et al. 2009).

The FWDP data have also been used to initialize, parameterize, and calibrate a wide range of multispecies and ecosystem models. The expansion of traditional multispecies virtual population analysis (MSVPA; Garrison and Link 2004) has been applied to forage species population dynamics within the NEUS continental shelf community, revealing the importance of predation mortality rates which exceed 0.2 for juvenile Atlantic herring, and Atlantic mackerel (Tyrrell et al. 2008). In general, the inclusion of predation into fisheries science, albeit well-accepted conceptually for over a century, has not become operationally routine in fisheries management despite focused efforts and evidence of its appropriateness (e.g., Christensen 1996; NMFS 1999; NRC 1999; Hollowed et al. 2000; Link 2002; Tjelmeland and Lindstrøm 2005; Overholtz and Link 2007; Overholtz et al. 2008; Moustahfid et al. 2009).

Further examples demonstrating the use of FWDP data in a modeling context include the development of multispecies production models (e.g., MS-PROD; Gamble and Link 2009) as extensions of the Graham-Schaefer production model (Quinn and Deriso 1999) which simulate the relative importance of predation, competition within and between functional feeding groups (see also Garrison and Link 2000a), and fisheries removals. The Energy Modeling and Analysis eXercise (EMAX) created an ecological network model (i.e., energy budget) for the entire NEUS food web (Link et al. 2006, 2008). Other ecosystem models have involved specific regions of the NEUS shelf (e.g., Gulf of Maine; Ecosystem Gulf of Maine Aggregate (ECOGOMAGG; Overholtz and Link 2009) and have included numerous ecological processes spanning multiple trophic levels (i.e., primary production to seabirds and marine mammals). In addition, models have also incorporated suites of ecological and bio-physical processes for the entire NEUS shelf though this approach can be quite exhausting given the complexity and parameterization requirements of these factors (e.g., Atlantis; Gamble et al. in prep.). These examples represent a wide range of uses of the food habits data that will continue to be implemented as we move

towards EBFM and the specific application of integrated ecosystem assessments (IEAs; Levin et al. 2009).

Ultimately, the underlying goals of the FWDP are to examine trophic interactions within the NEUS continental shelf ecosystem with an emphasis on demersal and pelagic finfish including various elasmobranchs and commercially important invertebrates. The FWDP research objectives are to quantify predation mortality relative to fishing mortality for commercially important species; model species interactions that influence the status of these stocks; relate diet variability to changes in population level processes; and advance our understanding of the NEUS continental shelf ecosystem.

METHODS

Databases

The food habits data maintained by the FWDP are generated from multiple sources that provide stomach content information in the form of: total and individual prey weights (0.01 g) or volumes (0.1 cm^3), diet composition, prey abundance, and prey length (1.0 mm). A major source of this information is the Northeast Fisheries Science Center (NEFSC) standardized bottom trawl survey, and these food habits data are what we will focus upon in this document. These seasonal surveys were implemented to monitor the distribution and abundance of the fishes and invertebrates inhabiting the NEUS continental shelf ecosystem as well as to investigate biological and ecological interests (e.g., fish maturity, competition). Stomach sampling is currently a standard protocol for more than 60 species during these surveys (Appendix).

Additional data sources include process-oriented cruises and cooperative projects with industry partners that address specific questions pertaining to the feeding ecology of the fishes on the continental shelf. Recent projects have focused on such topics as spatial variations in benthivorous fish diet as a function of benthic disturbance (i.e., bottom fishing and invasive benthos; Link et al. 2005; Smith 2009), predation on larval fishes (Garrison et al. 2000, 2002; Almeida et al. 1999), and localized (~800 km^2) fish feeding effects for selected predators (e.g., Atlantic cod; Smith et al. 2007). The data from these studies, while an important research element in terms of fish trophic dynamics, were not included in this document.

Data Collection

Food habits data have been collected from the NEFSC Bottom Trawl Survey from Nova Scotia to Cape Hatteras, NC (~293,000 km^2 or 85,300 nm^2; Figure 1). Seasonal surveys have been conducted regularly in the fall since 1963, in the spring since 1968, and less frequently in the winter and summer. Sampling has occurred south of Cape Hatteras, NC, (i.e., South Atlantic Bight) although minimally in those southern locales with regard to fish feeding ecology.

Sampling locations were selected by using a stratified random design with strata defined by depth and latitude. Approximately 350-400 stations per fall and spring season were sampled in depths ranging between 8-400 m across the NEUS continental shelf. One station per approximately 690 km^2 or 200 nm^2 was employed such that the number of stations randomly assigned was proportional to the stratum area. A minimum of two stations were sampled per stratum to permit statistical inference. The catch was sorted by species and weighed (0.001 kg); individuals were measured (1.0 cm) and classified by sex and maturity stage, and a subset of species were sampled for food habits and age data. A detailed description of the survey design and protocols are available in Azarovitz (1981), NEFC (1988), and Reid et al. (1999).

Quantitative food habits sampling by the NEFSC has been conducted since 1973 to the present, and the data for the current study were restricted to this time series. From 1973-1981, stomachs were preserved and brought back to the laboratory for prey identification. Total stomach content and individual prey mass were measured to the nearest 0.01g. After 1981, food habits data were primarily collected at sea. The total volume (0.1 cm^3) of stomach contents (i.e., an entire bolus) was measured and the proportion of each prey item estimated. A complete description of the history of NEFSC stomach content sampling through 2000 has been provided by Link and Almeida (2000), including conversion methods for stomach content volume (X, cm^3) to mass (Y, g) using the formula: $Y = a + bX$ with $a = 0$ and $b = 1.1$ ($N = 10{,}806$, $r^2 > 0.90$, $p = 0.0001$). Although the species sampling requests for food habits have fluctuated over the 35+ year time series (Table 1), the general at-sea procedures for examining stomach content since 1981 have remained effectively the same for all sampled species. Spiny dogfish (*Squalus acanthias*) and silver hake were consistently the most highly sampled species for each decade (Figures 2-5). Since 1999 the emphasis has been placed not only on historically prioritized species but also has expanded to ecologically important species that appeared to be undersampled. In more recent years, the FWDP has also directed efforts to collect fewer stomachs per species to allow for an increased number of species sampled within the NEUS continental shelf ecosystem. Tables describing species, length ranges, and species priorities for collecting food habits data throughout the time series have been provided in the Appendix. Since 2004 through the present, at approximately every 25^{th} station, stomach contents that regularly would be processed at sea were preserved and then processed in the laboratory. This was done as an additional form of data quality control.

Prey Taxonomic Resolution

The taxonomic resolution of invertebrate prey species prior to 1981 was greater than that of more recent decades. To correct for possible differences in prey taxonomic resolution between laboratory and at-sea processed stomach samples, four major prey categories were established. These categories span the lowest taxonomic levels feasible (i.e., occasionally genus and species) to a more broad phylum- or class-level category (Table 2). For the diet summaries discussed in this report, the lowest appropriate taxonomic grouping category (i.e., collection category) was used to describe the diets. It was not thought that the differences in sampling protocols over time would interfere, given a broad range of taxonomic resolution.

Data Analyses: Diet Summaries and Overlap

The 52 predator species selected for diet description across decadal, spatial, and seasonal scales and ontogeny were based on a minimum of 200 stomachs (Table 3). The predator species and their respective diet summaries were grouped by taxonomic order according to Nelson et al. (2004); Order Teuthida (i.e., two squid species) was placed at the end. To minimize redundancy, predators with similar feeding habits per taxonomic order were grouped when appropriate. To begin, the general feeding habits across all factors have been provided for each predator. The factors used to describe diet variability included decade: 1970s, 1980s, 1990s, and 2000s; geographic area: Mid-Atlantic Bight, Southern New England, Georges Bank, Gulf of Maine, and Scotian Shelf; season: fall, spring, winter, and summer; and size class: extra-small, small, medium, large, and extra-large. Size class definitions by species are listed in Table 3. For each factor considered per species, only those treatments (e.g. 1970s and 1980s) with a minimum of 200 stomachs were reported to facilitate comparisons. The prey categories shown for each

species-group represented approximately 85% or more of the diet by mass. The trophic guild classifications (e.g., planktivorous or benthivorous) when specified were adopted from Garrison and Link (2000a) which examined an earlier version of the Food Habits Database (FHDBS). Specific trophic guilds reported by the current study (e.g., echinoderm specialist) followed the criteria of having more than 30 – 50% of the diet by mass composed of the indicated taxon across all sampling factors.

To assess dietary overlap, the Bray-Curtis index of similarity was used as a diet similarity measure whereby values ranged from 0-100% (i.e., no similarity to identical diets). Prey taxonomic resolution was limited to the analytical category (Table 2; e.g., invertebrates grouped by taxonomic order and fishes grouped by taxonomic family) with the understanding that dissimilarities among these broader taxonomic groupings were sufficient.

RESULTS

Food Habits Database Metadata

Currently there are over 510,000 stomach records in the FHDBS. Predator sizes range from 1 cm to over 2.4 m (Table 4). More than 150 species have been sampled, with 39 species having more than 1,000 stomachs sampled, and 52 species having more than 200 stomachs sampled. Approximately 30-40% of the stomachs examined by species were empty.

The elasmobranchs were generally the largest fishes sampled and were highly piscivorous; thus, they had the largest mean total stomach contents. Some of the skates and rays were notable exceptions, feeding primarily on benthic macroinvertebrates. Other large mean total stomach contents were observed with goosefish, white hake (*Urophycis tenuis*), Atlantic cod, striped bass (*Morone saxatilis*), and Atlantic halibut (*Hippoglossus hippoglossus*) which were also highly piscivorous and had large mean lengths. Planktivorous species (e.g., herrings, mackerels, and northern sand lance [*Ammodytes dubious*]) and to a lesser degree small benthivores (e.g., fawn cusk-eel [*Lepophidium profundorum*]) had the smallest total mean stomach masses, reflecting a smaller mean fish size, and small crustacean (e.g., various zooplankton and gammarids respectively) diet.

Prey

There are over 630,000 individual prey records in FHDBS for the 510,000 stomachs previously described. Prey sizes range from 0.1 mm to 1 m. There are 1,376 unique prey items composing 10 major taxa: arthropods, fishes, molluscs, polychaetes, ctenophores, echinoderms, cnidarians, urochordates, chaetognaths, and bryozoans. The top 10 prey items by percent frequency of occurrence for all predators include: unidentified and miscellaneous fishes, gammarids and other amphipods, various crustacean shrimps (i.e., euphausiids, *Crangon*, and pandalids), *Cancer* crabs and other decapod crabs, polychaetes, ctenophores, bivalves, and copepods. Other major prey items include sand lance (*Ammodytes* sp.), cephalopods (primarily squids), mysids, and ophiuroids (Figure 6). There are a large number of empty stomachs (N = 169,774) in the database, and unidentified fishes and well-digested prey (i.e., unidentifiable animal remains) were observed most frequently, suggesting most individual prey items are difficult to identify macroscopically when highly digested.

Diets of Major Species Grouped by Taxonomic Classification

Order Squaliformes

The diet of the squalid shark spiny dogfish had a large proportion of fishes (clupeids (e.g., Atlantic herring), scombrids (e.g., Atlantic mackerel), and various other fishes including unidentified fish; Figure 7). Ctenophores, *Loligo* squid, and bivalves were additional prey items to note by mass.

The prey composition of spiny dogfish has varied over the past 40 years and in general parallels the population dynamics of commercially important forage species (e.g., herring, Overholtz 2002; Overholtz and Friedland 2002) (Figures 8A-D). In the 1970s, squids and unidentified cephalopods (i.e., *Loligo* sp. and *Illex* sp.) composed a substantial percentage of the diet (combined by mass; ~20%) although decreased to less than 10% throughout the remaining three decades. In contrast, clupeids, including Atlantic herring, increased in the diet composition of spiny dogfish from the 1970s and 1980s (~4%) to the 1990s and 2000s (~18%). Accordingly, the unidentified fish component has remained remarkably consistent over the entire time span (~20-25%).

Unidentified fishes were a large dietary component for spiny dogfish across geographic area (Figures 9A-E). Spiny dogfish diet on Georges Bank was dominated by ctenophores as well as unidentified fish with Atlantic herring and various clupeids occupying the largest percentages of identified fish. Within the Gulf of Maine, ctenophores and unidentified fish were also major prey items, but larger percentages of clupeids in comparison to Georges Bank were observed. The Southern New England and Mid-Atlantic Bight regions revealed lesser ctenophore and clupeid diet components respectively, although greater percentages of squid and unidentified cephalopods (i.e., *Loligo* sp. or *Illex* sp.), scombrids (i.e., Atlantic mackerel), and bivalves were present.

Seasonal differences in diet for spiny dogfish were minor (Figures 10A-D); however, slight ontogenetic shifts in diet were suggested over the three size classes (Figures 11A-C). In general, medium and to a lesser extent small spiny dogfish ate larger proportions of ctenophores (~10-18%) in comparison with the large size class (~5%). This prey item may also contribute to increased amounts of well-digested prey for appropriate size classes given the relatively immediate gastric evacuation of ctenophores (Arai et al. 2003). Large spiny dogfish were predominantly piscivorous (e.g., clupeids, scombrids, and unidentified fishes).

Order Carcharhiniformes

The two ground sharks (smooth dogfish [*Mustelus canis*] and Atlantic sharpnose shark [*Rhizoprionodon terraenovae*]) exhibited distinct diets across broad temporal and spatial scales and ontogeny. Smooth dogfish fed predominantly on benthic macroinvertebrates, with *Cancer* crabs (*Cancer borealis* and *Cancer irroratus*) and other decapod crabs dominating the diet throughout the four decades of sampling (Figures 12 and 13A-D). Similar diet preferences were observed over spatial area, season, and size category (large and medium categories only; Figures 14A-C, 15A-D, and 16A-B). Conversely, the Atlantic sharpnose shark was a bentho-pelagic feeder, consuming various fishes distributed throughout the bentho-pelagic environment (e.g., pleuronectids, sciaenids, and engraulids), *Loligo* squid, and decapod crabs (Figure 17).

Order Rajiformes

The skates within the NEUS shelf system are primarily benthic invertebrate feeders, yet barndoor (*Dipturus laevis*) and winter skate (*Leucoraja ocellata*) were also piscivorous.

Barndoor skates consume various decapods, including *Cancer* crabs, pandalid and *Crangon* shrimps, and fishes such as Atlantic herring, silver hake, and other unidentified fish species (Figure 18). Barndoor diet also remained relatively constant across spatial and seasonal scales (Figures 19A-B and 20A-B). Additionally, winter skate fed on *Ammodytes* sp., their presence dominating the diets of the 1970s and 1980s (Figures 21 and 22A-B). Notable increases in diet composition of polychaetes, gammarids, and bivalves were observed in the 1990s and 2000s, but the presence of *Ammodytes* sp. remained, albeit in lesser amounts (Figures 22C-D). The diet variability of winter skate across the four geographic regions and seasons was generally minor (Figures 23A-D, 24A-D). Nonetheless, increases in percent diet composition of gammarids for Southern New England and bivalves in the Mid-Atlantic Bight were apparent. In general, no major ontogenetic shifts in diet for winter skate were observed with most size classes consuming gammarids, polychaetes, other benthos, and small fishes (i.e., *Ammodytes* sp.) (Figures 25A-D).

Clearnose (*Raja eglanteria*) and thorny skate (*Amblyraja radiate*) generally followed a bentho-piscivorous diet, consuming approximately equal proportions of benthic invertebrates and fish. Clearnose fed on decapod and *Cancer* crabs, *Loligo* squid, and unidentified fish (Figure 26). Although few diet differences were detected across seasons (Figure 27A-C), a slight diet shift from predominantly benthic macroinvertebrates to approximately equal proportions of invertebrate benthos, various benthic fishes, and *Loligo* squid occurred between medium and large size classes (Figures 28A-B). Thorny skate diet primarily consisted of polychaetes and unidentified fish including Atlantic herring (Figure 29). These major components persisted throughout the four decades of sampling with the exception of the 1970s when a substantial proportion of squid (*Loligo* sp., *Illex* sp., and unidentified cephalopods) was present (Figures 30A-D). Spatial, seasonal, and ontogenetic diet variations of thorny skate were generally minor with piscivory and invertebrate benthivory continuous throughout all factors (Figures 31A-C, 32A-C, and 33A-C).

The remaining three skates—rosette (*Leucoraja garmani*), little (*Leucoraja erinacea*), and smooth (*Malacoraja senta*)-- are principally benthivorous. Their feeding habits consist of decapods, including *Cancer* crabs, *Crangon* and pandalid shrimps, along with polychaetes and gammarids (Figures 34, 35, and 40). Smooth skate will also feed on pelagic organisms with a diet that includes euphausiids and a small proportion of various fishes. Because of the benthivory throughout the life histories of little and smooth skates, decadal, spatial, seasonal and ontogenetic diet trends were essentially absent (Figures 36A-D, 37A-E, 38A-D, 39A-B, 41A-B, 42A-B, 43A-B).

Order Clupeiformes

The clupeids (i.e., Atlantic herring, alewife [*Alosa pseudoharengus*], blueback herring [*Alosa aestivalis*], and American shad [*Alosa sapidissima*]) were planktivorous, feeding mostly on pelagic organisms such as copepods, euphausiids, amphipods (i.e., hyperiids and gammarids), and various shrimp-like organisms (e.g., mysids) (Figures 44, 49, 50, and 53). The common occurrence of well-digested prey (i.e., unidentifiable animal material) was also seen with these species because of difficulties in identifying small prey at sea and the rapid digestion of small individuals. The general diet of Atlantic herring remained consistent over the decadal time series, although a large proportion of amphipods and lesser amounts of mysids, various other crustaceans, *Ammodytes* sp., and well-digested prey were observed in the 1980s (Figure 45A). In the later decades, copepods, euphausiids, and well-digested prey were the predominant food items (Figures 45B-C). Euphausiids composed approximately 6% of the diet by mass for

Atlantic herring collected in the Mid-Atlantic Bight and Southern New England (Figures 46A-B). In contrast, individuals sampled from Georges Bank to the Scotian Shelf had approximately 18-60% euphausiids in their diet (Figures 46C-E). Furthermore, within these two southern regions, copepods were proportionally large diet components, although the presence of well-digested prey was noteworthy as well. A seasonal trend in Atlantic herring diet was observed across the NEUS continental shelf with a large proportion of euphausiids consumed in the fall, whereas the spring revealed greater amounts of copepods and well-digested prey (Figures 47A-B). Similar feeding patterns by Atlantic herring on copepods and euphausiids were seen in the winter and summer seasons respectively (Figures 47C-D). These results parallel the diets of the northern and southern regions previously described, and were believed to be an artifact of Atlantic herring's seasonal migration patterns as demonstrated by Overholtz (2002) and Overholtz and Friedland (2002). In general, no major ontogenetic shifts were observed for Atlantic herring diet (Figures 48A-C).

The differences in blueback herring and American shad diets across the geographic areas and size categories sampled were minor (Figures 51A-C, 52A-C, 54A-B, 55A-C). For both species, well-digested prey and copepods composed large proportions of the diet categories and additionally, various crustacean shrimps (e.g., euphausiids, mysids, and pandalids) in the feeding habits of American shad.

Order Ophidiiformes

The benthic macroinvertebrate feeder, fawn cusk-eel, ate gammarids, polychaetes, and other small benthos, including a substantial amount of well-digested prey (Figure 56). The stomach sampling of fawn cusk-eel did not begin until after 2000; thus the ability to detect change was limited, and only minor variations in diet were observed for the geographic areas, seasons, and size categories adequately sampled (Figures 57A-B, 58A-C, and 59A-B).

Order Gadiformes

The larger gadoid species-- Atlantic cod, haddock, and pollock-- have broad, extensive diets comprising benthic and pelagic prey. In general, these predators occupy three relatively distinct feeding niches with haddock's principal prey being benthic invertebrates (i.e., ophiuroids, gammarids, and polychaetes), cod with its generalist feeding habits in between, and pollock having a more pelagic diet consisting of various fish and crustacean shrimps (i.e., silver hake, *Ammodytes* sp., clupeids, and euphausiids) (Figures 60, 65, and 70). The diet of haddock showed no major variations across decadal and seasonal scales, or ontogeny (Figures 61A-D, 63A-D, and 64A-C). However, diet shifts were apparent across geographic area in which haddock primarily ate ophiuroids or fish eggs in the Gulf of Maine and Scotian Shelf, a more general benthic invertebrate diet of gammarids, polychaetes, and ophiuroids on Georges Bank, and similarly amphipods and polychaetes in Southern New England (Figures 62A-D). In comparison, cod are more of a mixture of bentho-pelagic feeders, with the diet including large proportions of fish (i.e., clupeids, *Ammodytes* sp., silver hake, and unidentified individuals), and benthic macroinvertebrates (i.e., *Cancer* crabs, various crustacean shrimps, bivalves, gastropods, ophiuroids, and other benthos) in their diet (Figure 65). A general increase in clupeids (primarily Atlantic herring) was observed over the decadal time series with the percent diet composition equal to approximately 12%, 6%, 24%, and 20% from the 1970s through the 2000s (Figures 66A-D). The broad diet of cod remained relatively constant across the geographic and seasonal scales sampled although an ontogenetic shift in diet from benthivory (i.e., macroinvertebrates)

towards piscivory was identified throughout the size classes (Figures 67A-D, 68A-D, and 69A-D). Smaller cod appear to prefer small benthic macroinvertebrates (i.e., gammarids, shrimps, ophiuroids, and polychaetes) whereas an increase in fish particularly clupeids and silver hake made up greater proportions of medium to extra-large cod diet; a confirmed occurrence across multiple sampling scales in the northwest Atlantic Ocean (Link and Garrison 2002b; Smith et al. 2007). Similarly, the diet of pollock remained fairly constant and mainly focused on pelagic prey over the decadal, spatial, and seasonal sampling scales (Figures 71A-D, 72A-C, and 73A-C). Furthermore, a dietary shift from euphausiids and other shrimp-like crustaceans to silver hake, *Ammodytes* sp., and other fishes occurred throughout the general life history of pollock (i.e., medium through extra-large size classes; Figures 74A-D).

The hakes within this ecosystem (offshore hake [*Merluccius albidus*], silver hake, white hake, red hake [*Urophycis chuss*], and spotted hake [*Urophycis regia*]) are generally piscivorous (i.e., feeding on silver hake, Atlantic herring, and unidentified fish) but also feed on pelagic invertebrates such as euphausiids and various other crustacean shrimps and squid (Figures 75, 77, 82, 87, and 92). The general diet composition of these predators experienced only minor variations over decadal, spatial, and seasonal sampling scales (Figures 76A-B, 79A-E, 80A-D, 83A-D, 84A-D, 85A-D, 88A-D, 89A-E, 90A-D, 93A-D, 94A-C, and 95A-C). Noteworthy exceptions to this include the increase in Atlantic herring and unidentified clupeids in the diet of silver hake over the decades sampled (Figures 78A-D) as well as increased piscivory across size class for those hakes with adequate sample sizes (i.e., silver hake, white hake, red hake, and spotted hake; Figures 81A-C, 86A-C, 91A-C, and 96A-B).

Order Lophiiformes

Goosefish was a piscivorous specialist with various demersal fishes (e.g., pleuronectids, skates, and gadiformes), clupeids (e.g., Atlantic herring), scombrids (e.g., Atlantic mackerel), and a large proportion of unidentified individuals in the diet (Figure 97). The percent diet composition of clupeids increased over the time series (i.e., ~4% clupeid taxa combined for each decade: 1970s and 1980s; ~10-15% for each decade 1990s and 2000s; Figures 98A-D). For the other factors examined, no major shifts in feeding habits were observed as the prey categories previously described remained relatively constant (Figures 99A-D, 100A-D, and 101A-C).

Order Scorpaeniformes

The two scorpaenids-- Acadian redfish (*Sebastes fasciatus*) and blackbelly rosefish (*Helicolenus dactylopterus*)-- can be classified as shrimp-fish feeders with euphausiids, pandalids, silver hake, and various other fishes composing their diets (Figures 102 and 107). The proportions of these major prey items were variable across the broad sampling scales and ontogeny although the general diet remained consistent (Figures 103A-D, 104A-B, 108A-B, 109A-B, and 110A-B). In contrast to the fall diet of Acadian redfish dominated by various shrimps and few fishes (~80% combined shrimp taxa; ~8% combined fish taxa), larger proportions of fishes (e.g., silver hake and unidentified fish) were observed in the spring diet (~30% combined fish taxa) (Figures 105A-B). Likewise for Acadian redfish diet, a slight increase in the amount of fish was apparent from small to medium size classes (Figures 106A-B).

Longhorn sculpin (*Myoxocephalus octodecemspinosus*) and sea raven (*Hemitripterus americanus*) were predominantly benthic predators. Longhorn sculpin feed on decapods, including *Cancer* crabs, shrimps (i.e., *Crangon* and pandalids), gammarids, as well as some fishes (Figure 111). In comparison, sea raven was a benthic piscivore, eating ocean pout

(*Zoarces americanus*), pleuronectiformes, silver hake, longhorn sculpin, and other gadiformes, along with some *Cancer* crabs (Figure 116). The general feeding patterns of these species did not vary drastically over time, space, or life history (Figures 112A-D, 113A-D, 114A-D, 115A-B, 117A-C, 118A-D, 120A-C). Nonetheless, a seasonal variation in benthic invertebrates was observed for sea raven (i.e., a greater proportion of *Cancer* crabs in the fall diet, and the spring, summer, and winter diets with greater proportions of various fishes as previously described; Figures 119A-D).

The two *Prionotus* searobins (i.e., northern [*Prionotus carolinus*] and striped [*Prionotus evolans*]) were primarily benthivorous, eating decapod crabs (e.g., *Cancer* crabs), C*rangon* shrimp, polychaetes, and gammarids (Figures 121 and 125). The food habits sampling of these species was sporadic in the 1970s through the 1990s and did not become routine until the early 2000s; thus, limited feeding inferences are reported (i.e., minor feeding variations for northern searobin over geographic area, season, and size class; Figures 122A-B, 123A-C, and 124A-B). Nonetheless, the general diet of striped searobin can be distinguished from the principally macroinvertebrate diet of northern searobin by the presence of various fish species in its diet (e.g., engraulids, scup [*Stenotomus chrysops*], and unidentified individuals; Figure 125).

Order Perciformes

Planktivorous feeding habits were predominant for Atlantic mackerel, butterfish (*Peprilus triacanthus*), and northern sand lance. The diet comprised copepods, euphausiids, various crustacean shrimps, and ctenophores as primary prey items for these fishes (Figures 126, 131, and 136). Similar to the diets of the clupeids sampled, well-digested prey accounted for a substantial proportion of the diet of butterfish and Atlantic mackerel because of the sampling limitations previously described and was probably one of several zooplankton or crustacean shrimp species. The diets of these predators did not vary markedly across decadal, spatial, and seasonal scales, or ontogeny (Figures 127A-C, 129A-C, 130A-C, 132A-D, 133A-C, 134A-D, 135A-B, 137A-B, 138A-C, 139A-C). In the case of Atlantic mackerel, a larger proportion of euphausiids were seen in Gulf of Maine diets in contrast to the southern regions (e.g., Mid-Atlantic Bight) which had greater amounts of copepods (Figures 128A-D).

Bluefish (*Pomatomus saltatrix*), weakfish (*Cynoscion regalis*), and to a lesser degree striped bass were piscivorous specialists with their diets composed of Atlantic herring, other clupeids, engraulids, silver hake, various other fishes, and squids (Figures 140, 145, and 150). Variations in these predators' diets reflected prey availability and distribution across temporal and geographic scales, including fluctuations in the diet composition of Atlantic herring over the time series, spatial regions, and seasons similar to the diets of other piscivores previously described (Figures 141A-D, 142A-C, 143A-B, 146A-D, 147A-B, 148A-B, 151A-B, 152A-B, and 153A-B). In general, no major shifts in diet were observed with ontogeny for these three species except for the medium size class of striped bass which consumed benthic macroinvertebrates (i.e., bivalves, *Crangon* shrimp, gammarids, isopods, and polychaetes) in addition to the piscivorous diet already discussed (Figures 144A-B, 149A-C, and 154A-B). Weakfish, along with being highly piscivorous, had a relatively unique diet targeting engraulids (all engraulids combined were greater than 35% of diet by mass; Figure 145).

The two sciaenids regularly sampled (i.e., Atlantic croaker [*Micropogonias undulates*] and spot [*Leiostomus xanthurus*]) were mainly benthivorous with polychaetes, bivalves, gammarids, other small benthic crustaceans, well-digested prey, and small proportions of fishes occupying their diets (Figures 155 and 158). Although recent efforts to characterize Atlantic

croaker and spot diet within the past decade have been attempted, generally no major trends were observed across decade and size class for Atlantic croaker (Figures 156A-B and 157A-B). Similarly, only minor dietary variations were seen for spot across decade and season (Figures 159A-B and 160A-B).

The broad benthic diets of scup and black sea bass (*Centropristis striata*) included gammarids, polychaetes, *Cancer* and unidentified decapod crabs, and small fishes; the later three taxa (particularly *Cancer* and decapod crabs) were primarily eaten by black sea bass (Figures 161 and 166). Diet variations across decadal, spatial, and seasonal scales, and ontogeny were relatively minor given the consistently benthivorous feeding habits of these predators (Figures 162A-C, 165A-B, 167A-C, 168A-B, 169A-C, and 170A-B). However, scup diet in the fall showed approximately equal proportions of polychaetes and gammarids (~18% and ~20% respectively), whereas in the spring a minimal amount of gammarids (<2%) was found in the diet, possibly because of subtle differences in regional growth of the benthos (Figures 163A-B and 164A-C; Theroux and Wigley 1998).

Ocean pout can be considered an echinoderm specialist much the same as American plaice (*Hippoglossoides platessoides*; discussed below) and to a lesser degree haddock with echinoids (e.g., sand dollars and sea urchins), ophiuroids, and asteroids being major diet components (Figure 171). Other prey taxa included *Cancer* crabs, gammarids, and polychaetes. The marked presence of these prey items in the diet of ocean pout remained relatively constant over the time series (Figures 172A-C). However, the amounts of these prey did vary spatially with a larger proportion of ophiuroids and lesser proportion of echinoids in ocean pout stomachs collected in the Gulf of Maine (Figures 173A-D). Few diet differences were observed across seasons; nonetheless, the percent compositions by mass of ophiuroids and echinoids were variable as fall diets had ~20% ophiuroids and ~5% echinoids, and the spring and winter diets each had less than 5% ophiuroids and greater than 40% echinoids (Figures 174A-C). Diet variability with size class was present as smaller individuals tended to consume greater amounts of smaller benthos (i.e., gammarids and other amphipods) while larger ocean pout fed primarily on echinoids and asteroids (Figures 175A-C).

Order Pleuronectiformes

Flatfish diet can be categorized into one of four general feeding groups: piscivores (i.e., Atlantic halibut, summer flounder [*Paralichthys dentatus*], and fourspot flounder [*Hippoglossina oblonga*] that eat mainly fish and squids; Figures 176, 178, and 183), polychaete-gammarid predators (i.e., yellowtail flounder [*Limanda ferruginea*], winter flounder [*Pseudopleuronectes americanus*], witch flounder [*Glyptocephalus cynoglossus*], and Gulf Stream flounder [*Citharichthys arctifrons*]; Figures 188, 193, 198, and 203), shrimp-fish predator (i.e., windowpane flounder [*Scophthalmus aquosus*]; Figure 206), or echinoderm specialist (i.e., ophiuroids and echinoids; American plaice; Figure 211). In general, no major diet variations were exhibited across decade, spatial area, season, and size class as most flatfish diets per sampling factor did not deviate from the feeding classifications previously described (Figures 177A-B, 179A-D, 181A-C, 182A-C, 184A-D, 186A-D, 189A-D, 190A-C, 191A-D, 192A-C, 194A-D, 195A-E, 196A-D, 197A-C, 199A-C, 200A-E, 201A-D, 202A-C, 204A-B, 205A-C, 207A-D, 208A-D, 209A-D, 210A-B, 212A-D, 214A-C, and 215A-C). Noteworthy exceptions included increased percent diet compositions of cephalopods and *Loligo* squid within the Southern New England and Mid-Atlantic Bight regions for summer and fourspot flounders (Figures 180A-C and 185A-D respectively); a similar shift was seen between small and medium

fourspot flounder size classes (Figures 187A-B). A slight increase in the percent diet composition of ophiuroids (by mass) for American plaice in the Gulf of Maine was evident as shown for the other echinoderm specialists (i.e., haddock and ocean pout) (Figures 213A-C).

Order Teuthida

The two squids (northern shortfin [*Illex illecebrosus*] and longfin inshore squid [*Loligo pealeii*]) had large amounts of well-digested prey in their diets which can be attributed to the high degree of prey mastication associated with these predators (Figures 216 and 221). Cannibalism, as seen by unidentified cephalopods (i.e., well-digested squid material) in the diet, along with unidentified fish were the largest dietary components. Only minor variations in feeding were observed across the broad sampling scales of decade, region, and season, and ontogenetic stages (Figures 217A-B, 218A-E, 219A-C, 220A-B, 222A-B, 223A-C, 224A-C, and 225A-B).

Dietary Overlap

The average diet similarity for the 52 predators examined was generally low (Bray-Curtis Index (BCI) average = 31.5%), suggesting relatively minimal potential for competition within this NEUS shelf community (Figure 226). However, greater dietary overlap (BCI greater than 40%, occasionally BCI greater than 60%) was observed among the seven skate species (barndoor, winter, clearnose, rosette, little, smooth, and thorny skate), and additionally between skates and separate pairings with searobins, longhorn sculpin, Acadian redfish, blackbelly rosefish, scup, black sea bass, some gadiformes, and flatfish (primarily fourspot and windowpane flounders). High overlap was also seen for some but not all of the planktivorous feeders (i.e., Atlantic herring, blueback herring, and Atlantic mackerel), among the gadiformes, and between various gadiformes and longhorn sculpin, sea raven, blackbelly rosefish, and the searobins. Nonetheless, a moderate similarity in the feeding habits of benthivorous flatfish (i.e., yellowtail, winter, witch, and Gulf Stream flounders; BCI = 40-60%), and to a higher degree, the pairing of longhorn sculpin and northern searobin (BCI greater than 60%) was observed.

DISCUSSION

Food Habits Summary

The summary of food habits for 52 species provided here expands and updates previous diet descriptions for the major fish and squid species of the NEUS continental shelf (e.g., Sherman et al. 1978; Bowman 1981, 1984; Langton 1982, 1983; Durbin et al. 1983; Bowman and Michaels 1984; Bowman et al. 1984; Bowman et al. 2000; Link and Almeida 2000). Diet variability over decade, geographic area, season, and ontogeny for greater than 60% of the species reported here was, generally speaking, relatively minor. Major patterns in feeding habits were observed for approximately 20 predator species. For instance, the increase in diet proportion of principal pelagic species (e.g., Atlantic herring, mackerel, etc.) over the decadal time series was observed in the diets of spiny dogfish, Atlantic cod, many of the hakes (e.g., silver, white, and red hake), and other major piscivores (i.e., bluefish and goosefish). This observation most likely reflected the availability of major pelagic prey in response to variations in fishing intensity over the time series (Fogarty and Murawski 1998; Overholtz 2002; Overholtz and Friedland 2002). Spatial variations in prey availability across the broad geographic sampling scale were apparent for some fishes feeding on benthic macroinvertebrates (e.g., ophiuroids for

haddock, American plaice, and ocean pout) as well as pelagic crustaceans (e.g., euphausiids and copepods for Atlantic herring and Atlantic mackerel). An increased proportion of ophiuroids was observed in the diets of haddock, ocean pout, and to a lesser extent American plaice in the Gulf of Maine than in the more southern regions of the Mid-Atlantic Bight, Southern New England, and Georges Bank; a similar result was shown by Link (2006). Atlantic herring diet revealed an equivalent latitudinal shift in major prey taxa such that euphausiid percent diet composition was markedly greater for the northern regions: Scotian Shelf, Gulf of Maine, and Georges Bank, whereas copepods and well-digested prey (primarily digested zooplankton) were the dominant prey taxa in the southern regions (i.e., Mid-Atlantic Bight and Southern New England). Similar dietary trends for these prey, albeit less dramatic, were seen with Atlantic mackerel. In general, few seasonal diet variations were identified particularly for those predators consuming pelagic taxa (namely euphausiids and various fishes) such as with Atlantic herring and Acadian redfish. Additionally, seasonal differences in feeding were suggested for ocean pout with variable proportions of echinoderm taxa (i.e., echinoids and ophiuroids), further highlighting the interplay among the broad-scale factors examined by this work.

Increased piscivory with increased size was the most common ontogenetic diet shift observed. This was evident for both demersal and pelagic fishes: spiny dogfish, Atlantic cod, pollock, most hakes (i.e., silver, white, red, and spotted hake), striped bass, and Acadian redfish. Whether these fishes ate benthic macroinvertebrates or pelagic crustaceans during small or medium size classes, there was a shift to piscivory with larger size classes.

The fish community of the NEUS shelf is primarily composed of generalist feeders. Given the wide range of feeding habits and generally low dietary overlap for the entire shelf community, changes in prey or predator abundance are less likely to impact populations and the community compared to ecosystems with a high number of specialists. In some limited instances there was evidence of dietary specialization (e.g., echinoderm feeders: haddock, American plaice, and ocean pout; or decapod crab feeders: smooth dogfish and black sea bass). Garrison and Link (2000a) noted the generalized feeding preferences for many major fish and squid predators of the NEUS continental shelf, grouping species into trophic guilds that accounted for ontogenetic diet shifts (i.e., crab eaters, planktivores, amphipod/shrimp eaters, shrimp/small fish eaters, benthivores, and piscivores). The diet summaries presented here support the feeding guilds proposed by Garrison and Link (2000a).

Some species still remain relatively undersampled, particularly over the broad temporal, spatial, and seasonal scales examined. Sampling requests and species priorities are regularly modified as appropriate every two or three years to address modeling needs and research interests. It is difficult to predict which species of low commercial value will gain importance, yet the multispecies food habits sampling currently used has provided reasonable coverage over such variability. Nonetheless, sampling the feeding habits of the entire NEUS continental shelf fish community remains a major challenge.

An important component of understanding fish community structure and function is knowledge of fish feeding ecology through a continuous diet monitoring program such as that described in this report. We assert that these data constitute the preliminary information necessary for implementing EBFM. Thus, the requisite monitoring and modeling of such ecological interactions for the NEUS continental shelf ecosystem will continue to remain a priority for the FWDP and the NEFSC in the near future.

ACKNOWLEDGEMENTS

We acknowledge the many individuals who have collected the food habits data used in this report over the 35+ years of sampling on NEFSC Bottom Trawl Surveys. We thank the previous staff of the FWDP for their efforts on the development and management of the FHDBS. We thank H. Blossom for her assistance with the production of numerous graphics throughout this document. We also thank two anonymous reviewers for their comments.

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TABLES

Table 1a. Stomach sampling requests used by the NEFSC Bottom Trawl Survey during 1973-86 (Sp = spring; Fa = fall; 1 = priority species; 2 = secondary species collected as time allowed).

		1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986	
Common Name	Scientific Name	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa
Alewife	*Alosa pseudoharengus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Argentines	Argentinidae	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Bass, Black sea	*Centropristis striata*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Bass, Striped	*Morone saxatilis*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Bluefish	*Pomatomus saltatrix*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Butterfish	*Peprilus triacanthus*	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Cod, Atlantic	*Gadus morhua*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Croaker, Atlantic	*Micropogonias undulatus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Cunner	*Tautogolabrus adspersus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Cusk	*Brosme brosme*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Cusk-eel, Fawn	*Lepophidium profundorum*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Dogfish, Smooth	*Mustelus canis*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	2	2	2	2
Dogfish, Spiny	*Squalus acanthias*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dory, Buckler	*Zenopsis conchifera*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Eel, American	*Anguilla rostrata*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Eel, Conger	*Conger oceanicus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Flounder, American plaice	*Hippoglossoides platessoides*	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Flounder, Fourspot	*Hippoglossina oblonga*	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Flounder, Gulf Stream	*Citharichthys arctifrons*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Flounder, Summer	*Paralichthys dentatus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Flounder, Windowpane	*Scophthalmus aquosus*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	2	2	2	2
Flounder, Winter	*Pseudopleuronectes americanus*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-
Flounder, Witch	*Glyptocephalus cynoglossus*	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Flounder, Yellowtail	*Limanda ferruginea*	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-
Fourbeard Rockling	*Enchelyopus cimbrius*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goosefish	*Lophius americanus*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Grenadier	Macrouridae	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Haddock	*Melanogrammus aeglefinus*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-
Hake, Longfin	*Phycis chesteri*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Hake, Offshore	*Merluccius albidus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Hake, Red	*Urophycis chuss*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hake, Silver	*Merluccius bilinearis*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hake, Spotted	*Urophycis regia*	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Hake, White	*Urophycis tenuis*	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Halibut, Atlantic	*Hippoglossus hippoglossus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Herring, Atlantic	*Clupea harengus*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Herring, Blueback	*Alosa aestivalis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Herring, Round	*Etrumeus teres*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Kingfish, Northern	*Menticirrhus saxatilis*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Kingfish, Southern	*Menticirrhus americanus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Lanternfish	Myctophidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mackerel, Atlantic	*Scomber scombrus*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mackerel, Snake	*Gempylus serpens*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Menhaden	*Brevoortia tyrannus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Needlefish, Atlantic	*Strongylura marina*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Ocean Pout	*Zoarces americanus*	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pollock	*Pollachius virens*	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1
Rays	*Myliobatiformes*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-

Table 1a. (Cont.)

		1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986	
Common Name	Scientific Name	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa
Redfish, Acadian	*Sebastes fasciatus*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	2	2	2	2
Rosefish, Blackbelly	*Helicolenus dactylopterus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salmon, Atlantic	*Salmo salar*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Lance, Northern	*Ammodytes dubius*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Sculpin, Longhorn	*Myoxocephalus octodecemspinosus*	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Scup	*Stenotomus chrysops*	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Sea Raven	*Hemitripterus americanus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Searobin, Armored	*Peristedion miniatum*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Searobin, Northern	*Prionotus carolinus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Searobin, Striped	*Prionotus evolans*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Shad, American	*Alosa sapidissima*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Shad, Hickory	*Alosa mediocris*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sharks	Elasmobranchii	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Barndoor	*Dipturus laevis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Clearnose	*Raja eglanteria*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Little	*Leucoraja erinacea*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Skate, Rosette	*Leucoraja garmani*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Smooth	*Malacoraja senta*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Thorny	*Amblyraja radiata*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Skate, Winter	*Leucoraja ocellata*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	2	2	2	2
Spot	*Leiostomus xanthurus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Squid, Northern Shortfin	*Illex illecebrosus*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Squid, Longfin Inshore	*Loligo pealeii*	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Tautog	*Tautoga onitis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tilefish	*Lopholatilus chamaeleonticeps*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Weakfish	*Cynoscion regalis*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	2	2	2	2
Wolffish, Atlantic	*Anarhichas lupus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Wrymouth	*Cryptacanthodes maculatus*	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-

Table 1b. Stomach sampling requests used by the NEFSC Bottom Trawl Survey during 1987-2000 (Sp = spring; Fa = fall; 1 = priority species; 2 = secondary species collected as time allowed).

		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000	
Common Name	Scientific Name	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa
Alewife	*Alosa pseudoharengus*	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argentines	Argentinidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bass, Black sea	*Centropristis striata*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Bass, Striped	*Morone saxatilis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bluefish	*Pomatomus saltatrix*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Butterfish	*Peprilus triacanthus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Cod, Atlantic	*Gadus morhua*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Croaker, Atlantic	*Micropogonias undulatus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cunner	*Tautogolabrus adspersus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Cusk	*Brosme brosme*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Cusk-eel, Fawn	*Lepophidium profundorum*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Dogfish, Smooth	*Mustelus canis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Dogfish, Spiny	*Squalus acanthias*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Dory, Buckler	*Zenopsis conchifera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eel, American	*Anguilla rostrata*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eel, Conger	*Conger oceanicus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flounder, American plaice	*Hippoglossoides platessoides*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Flounder, Fourspot	*Hippoglossina oblonga*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2
Flounder, Gulf Stream	*Citharichthys arctifrons*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flounder, Summer	*Paralichthys dentatus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2
Flounder, Windowpane	*Scophthalmus aquosus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flounder, Winter	*Pseudopleuronectes americanus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	1
Flounder, Witch	*Glyptocephalus cynoglossus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Flounder, Yellowtail	*Limanda ferruginea*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
Fourbeard Rockling	*Enchelyopus cimbrius*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goosefish	*Lophius americanus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Grenadier	Macrouridae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haddock	*Melanogrammus aeglefinus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
Hake, Longfin	*Phycis chesteri*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hake, Offshore	*Merluccius albidus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Hake, Red	*Urophycis chuss*	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Hake, Silver	*Merluccius bilinearis*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
Hake, Spotted	*Urophycis regia*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Hake, White	*Urophycis tenuis*	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Halibut, Atlantic	*Hippoglossus hippoglossus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Herring, Atlantic	*Clupea harengus*	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	2	1	2	1	2	1	1	1	1	1
Herring, Blueback	*Alosa aestivalis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Herring, Round	*Etrumeus teres*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kingfish, Northern	*Menticirrhus saxatilis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kingfish, Southern	*Menticirrhus americanus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lanternfish	*Myctophidae*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mackerel, Atlantic	*Scomber scombrus*	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1
Mackerels, Snake	*Gempylus serpens*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Menhaden	*Brevoortia tyrannus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Needlefish, Atlantic	*Strongylura marina*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ocean Pout	*Zoarces americanus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
Pollock	*Pollachius virens*	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Rays	*Myliobatiformes*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1b. (Cont.)

		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000	
Common Name	Scientific Name	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa
Redfish, Acadian	*Sebastes fasciatus*	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Rosefish, Blackbelly	*Helicolenus dactylopterus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Salmon, Atlantic	*Salmo salar*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Sand Lance, Northern	*Ammodytes dubius*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sculpin, Longhorn	*Myoxocephalus octodecemspinosus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	1	2	1	1	1	1
Scup	*Stenotomus chrysops*	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Sea Raven	*Hemitripterus americanus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	1	2	2	2	2	2
Searobin, Armored	*Peristedion miniatum*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Searobin, Northern	*Prionotus carolinus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Searobin, Striped	*Prionotus evolans*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shad, American	*Alosa sapidissima*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Shad, Hickory	*Alosa mediocris*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Sharks	Elasmobranchii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Barndoor	*Dipturus laevis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Clearnose	*Raja eglanteria*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Little	*Leucoraja erinacea*	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	1	2	1	2	1	2	2	2	2	2
Skate, Rosette	*Leucoraja garmani*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Skate, Smooth	*Malacoraja senta*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Skate, Thorny	*Amblyraja radiata*	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Skate, Winter	*Leucoraja ocellata*	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	1	2	1	2	1	2	2	2	2	2
Spot	*Leiostomus xanthurus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Squid, Northern Shortfin	*Illex illecebrosus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Squid, Longfin Inshore	*Loligo pealeii*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tautog	*Tautoga onitis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Tilefish	*Lopholatilus chamaeleonticeps*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Weakfish	*Cynoscion regalis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Wolffish, Atlantic	*Anarhichas lupus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
Wrymouth	*Cryptacanthodes maculatus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1c. Stomach sampling requests used by the NEFSC Bottom Trawl Survey during 2001-08 (Sp = spring; Fa = fall; 1 = priority species; 2 = secondary species collected as time allowed)

		2001		2002		2003		2004		2005		2006		2007		2008	
Common Name	Scientific Name	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa
Alewife	*Alosa pseudoharengus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Argentines	Argentinidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bass, Black sea	*Centropristis striata*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bass, Striped	*Morone saxatilis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bluefish	*Pomatomus saltatrix*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Butterfish	*Peprilus triacanthus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cod, Atlantic	*Gadus morhua*	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Croaker, Atlantic	*Micropogonias undulatus*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Cunner	*Tautogolabrus adspersus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cusk	*Brosme brosme*	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
Cusk-eel, Fawn	*Lepophidium profundorum*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Dogfish, Smooth	*Mustelus canis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Dogfish, Spiny	*Squalus acanthias*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Dory, Buckler	*Zenopsis conchifera*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Eel, American	*Anguilla rostrata*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eel, Conger	*Conger oceanicus*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Flounder, American plaice	*Hippoglossoides platessoides*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flounder, Fourspot	*Hippoglossina oblonga*	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Flounder, Gulf Stream	*Citharichthys arctifrons*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Flounder, Summer	*Paralichthys dentatus*	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Flounder, Windowpane	*Scophthalmus aquosus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flounder, Winter	*Pseudopleuronectes americanus*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Flounder, Witch	*Glyptocephalus cynoglossus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flounder, Yellowtail	*Limanda ferruginea*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fourbeard Rockling	*Enchelyopus cimbrius*	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2
Goosefish	*Lophius americanus*	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2
Grenadier	Macrouridae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haddock	*Melanogrammus aeglefinus*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hake, Longfin	*Phycis chesteri*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hake, Offshore	*Merluccius albidus*	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Hake, Red	*Urophycis chuss*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Hake, Silver	*Merluccius bilinearis*	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Hake, Spotted	*Urophycis regia*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Hake, White	*Urophycis tenuis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Halibut, Atlantic	*Hippoglossus hippoglossus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Herring, Atlantic	*Clupea harengus*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Herring, Blueback	*Alosa aestivalis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Herring, Round	*Etrumeus teres*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kingfish, Northern	*Menticirrhus saxatilis*	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2
Kingfish, Southern	*Menticirrhus americanus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lanternfish	*Myctophidae*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Mackerel, Atlantic	*Scomber scombrus*	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mackerels, Snake	*Gempylus serpens*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Menhaden	*Brevoortia tyrannus*	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2
Needlefish, Atlantic	*Strongylura marina*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ocean Pout	*Zoarces americanus*	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Pollock	*Pollachius virens*	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1

Table 1c. (Cont.)

		2001		2002		2003		2004		2005		2006		2007		2008	
Common Name	Scientific Name	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa	Sp	Fa
Rays	*Myliobatiformes*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redfish, Acadian	*Sebastes fasciatus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Rosefish, Blackbelly	*Helicolenus dactylopterus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Salmon, Atlantic	*Salmo salar*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Sand Lance, Northern	*Ammodytes dubius*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sculpin, Longhorn	*Myoxocephalus octodecemspinosus*	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
Scup	*Stenotomus chrysops*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Sea Raven	*Hemitripterus americanus*	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2
Searobin, Armored	*Peristedion miniatum*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Searobin, Northern	*Prionotus carolinus*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Searobin, Striped	*Prionotus evolans*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Shad, American	*Alosa sapidissima*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Shad, Hickory	*Alosa mediocris*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Sharks	Elasmobranchii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skate, Barndoor	*Dipturus laevis*	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
Skate, Clearnose	*Raja eglanteria*	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2
Skate, Little	*Leucoraja erinacea*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Skate, Rosette	*Leucoraja garmani*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Skate, Smooth	*Malacoraja senta*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Skate, Thorny	*Amblyraja radiata*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Skate, Winter	*Leucoraja ocellata*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Spot	*Leiostomus xanthurus*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Squid, Northern Shortfin	*Illex illecebrosus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Squid, Longfin Inshore	*Loligo pealeii*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tautog	*Tautoga onitis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Tilefish	*Lopholatilus chamaeleonticeps*	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2
Weakfish	*Cynoscion regalis*	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Wolffish, Atlantic	*Anarhichas lupus*	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Wrymouth	*Cryptacanthodes maculatus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2. Levels of taxonomic resolution for selected prey items used in FWDP analyses and summaries. ("Collection Category" is the lowest level of taxonomic resolution, with most fish and some invertebrates retaining species-level identification where applicable. This category and the actual prey name are used in analyses for specific prey taxa or a single or small group of predators. "Analytical Category" is a broader taxonomic level that groups fishes to family and invertebrates to a higher level. This category is used for multispecies analyses and less detailed diet summaries. "General Category" groups prey at the phylum or class level, and is used for more cursory diet summaries. "Modeling category" uses a species-level classification for major fishes and invertebrates of interest and ecological groupings for invertebrate taxa of lesser concern such as benthic or pelagic invertebrates.).

Common Name	Scientific Name	Category			
		Collection	Analytical	General	Modeling
Atlantic cod	*Gadus morhua*	GADMOR	Gadid fam.	Fish	GADMOR
Winter flounder	*Pseudopleuronectes americanus*	PLEAME	Pleuronectid fam.	Fish	PLEAME
Atlantic herring	*Clupea harengus*	CLUHAR	Clupeid fam.	Fish	CLUHAR
Atlantic herring eggs	*Clupea harengus* eggs	CLUHAR	Clupeid fam.	Fish	FISEGG
Atlantic herring larvae	*Clupea harengus* larvae	Fish Larvae	Fish larvae	Fish	FISLAR
Longfin squid	*Loligo pealeii*	LOLPEA	Cephalapod	Mollusc	LOLIGO
Northern shortfin squid	*Illex illecebrosus*	ILLILL	Cephalapod	Mollusc	ILLEX
Sea scallop	*Placopecten magellanicus*	Pectinid fam.	Bivavle	Mollusc	BENINV
Naked sea butterfly	*Clione limacina*	Pteropod	Gastropod	Mollusc	BENINV
Brittle stars & basket stars	Ophiuroidea	OPHIU1	OPHIU1	Echinoderm	BENINV
Comb jellies or sea walnuts	Ctenophora	CTENOP	CTENOP	CTENOP	PELINV
Atlantic rock crab	*Cancer irroratus*	Cancer fam.	Decapod	Arthropod	BENINV
Northern shrimp	*Pandalus borealis*	Pandalid fam.	Decapod	Arthropod	PELINV
Mysids	Mysidacea	Mysida	Mysida	Arthropod	PELINV
Krill	Euphausiidae	Euphausiid fam.	Euphausiid fam.	Arthropod	PELINV
Calanoid copepods	Calanoida	Copepod	Copepod	Arthropod	PELINV
Gammarid	Gammaridea	Gammar	Amphipod	Arthropod	BENINV

Table 3. Common and scientific names, and size category definitions for 52 predators within the Food Habits Database with ≥ 200 stomachs. Groupings are by taxonomic order.

Order/Common Name	Species Name	Size Categories (cm) Extra-Small	Small	Medium	Large	Extra-Large
Squaliformes						
Spiny dogfish	*Squalus acanthias*	-	<36	36-80	>80	-
Carcharhiniformes						
Smooth dogfish	*Mustelus canis*	-	<36	36-80	>80	-
Atlantic sharpnose shark	*Rhizoprionodon terraenovae*	-	≤20	21-50	>50	-
Rajiformes						
Barndoor skate	*Dipturus laevis*	-	≤30	31-60	61-80	>80
Winter skate	*Leucoraja ocellata*	-	≤30	31-60	61-80	>80
Clearnose skate	*Raja eglanteria*	-	≤30	31-60	61-80	>80
Thorny skate	*Amblyraja radiata*	-	≤30	31-60	61-80	>80
Rosette skate	*Leucoraja garmani*	-	≤30	31-60	61-80	>80
Little skate	*Leucoraja erinacea*	-	≤30	31-60	61-80	>80
Smooth skate	*Malacoraja senta*	-	≤30	31-60	61-80	>80
Clupeiformes						
Atlantic herring	*Clupea harengus*	≤10	11-20	21-30	>30	-
Alewife	*Alosa pseudoharengus*	≤10	11-20	21-30	>30	-
Blueback herring	*Alosa aestivalis*	≤10	11-20	21-30	>30	-
American shad	*Alosa sapidissima*	≤10	11-20	21-30	>30	-
Ophidiiformes						
Fawn cusk-eel	*Lepophidium profundorum*	-	≤20	21-50	-	-
Gadiformes						
Haddock	*Melanogrammus aeglefinus*	-	≤20	21-50	51-80	>80
Atlantic cod	*Gadus morhua*	-	≤20	21-50	51-80	>80
Pollock	*Pollachius virens*	-	≤20	21-50	51-80	>80
Offshore hake	*Merluccius albidus*	-	≤20	21-40	>40	-
Silver hake	*Merluccius bilinearis*	-	≤20	21-40	>40	-
White hake	*Urophycis tenuis*	-	≤20	21-40	>40	-
Red hake	*Urophycis chuss*	-	≤20	21-40	>40	-
Spotted hake	*Urophycis regia*	-	≤20	21-40	>40	-
Lophiiformes						
Goosefish	*Lophius americanus*	-	≤30	31-60	61-90	>90
Scorpaeniformes						
Acadian redfish	*Sebastes fasciatus*	-	≤25	26-50	>50	-
Blackbelly rosefish	*Helicolenus dactylopterus*	-	≤20	21-50	>50	-
Longhorn sculpin	*Myoxocephalus octodecemspinosus*	-	≤25	26-50	>50	-
Sea raven	*Hemitripterus americanus*	-	≤25	26-50	>50	-
Northern searobin	*Prionotus carolinus*	-	≤20	21-30	>30	-
Striped searobin	*Prionotus evolans*	-	≤20	21-30	>30	-

Table 3. (Cont.)

Order/Common Name	Species Name	Size Categories (cm) Extra-Small	Small	Medium	Large	Extra-Large
Perciformes						
Atlantic mackerel	*Scomber scombrus*	≤10	11-20	21-35	>35	-
Butterfish	*Peprilus triacanthus*	≤10	11-20	21-30	>30	-
Northern sand lance	*Ammodytes dubius*	-	≤10	11-25	>25	-
Bluefish	*Pomatomus saltatrix*	-	≤30	31-70	>70	-
Weakfish	*Cynoscion regalis*	-	≤25	26-50	>50	-
Striped bass	*Morone saxatilis*	-	≤30	31-70	>70	-
Atlantic croaker	*Micropogonias undulatus*	-	≤25	26-50	>50	-
Spot	*Leiostomus xanthurus*	-	≤20	21-50	>50	-
Scup	*Stenotomus chrysops*	-	≤20	21-50	>50	-
Black sea bass	*Centropristis striata*	-	≤25	26-50	>50	-
Ocean pout	*Zoarces americanus*	-	≤30	31-60	>60	-
Pleuronectiformes						
Atlantic halibut	*Hippoglossus hippoglossus*	-	≤30	31-60	61-90	>90
Summer flounder	*Paralichthys dentatus*	-	≤20	21-40	41-70	>70
Fourspot flounder	*Hippoglossina oblonga*	-	≤20	21-40	41-70	>70
Yellowtail flounder	*Limanda ferruginea*	-	≤20	21-40	41-70	>70
Winter flounder	*Pseudopleuronectes americanus*	-	≤20	21-40	41-70	>70
Witch flounder	*Glyptocephalus cynoglossus*	-	≤20	21-40	41-70	>70
Gulf Stream flounder	*Citharichthys arctifrons*	-	≤20	21-40	41-70	>70
Windowpane flounder	*Scophthalmus aquosus*	-	≤20	21-40	41-70	>70
American plaice	*Hippoglossoides platessoides*	-	≤20	21-40	41-70	>70
Teuthida						
Northern shortfin squid	*Illex illecebrosus*	-	≤15	16-30	>30	-
Longfin inshore squid	*Loligo pealeii*	-	≤15	16-30	>30	-

Table 4. Descriptive statistics for predators examined by the FWDP during 1973-2008 (units of weight = g; units of length = cm; SE = standard error of the mean of stomach weight). Groupings are by taxonomic order.

Order/Common Name	Scientific Name	Stomach Weights			Predator Length			Predator Weights	
		Number	Mean	SE	Mean	Min.	Max.	Number	Mean
Myxiniformes									
Atlantic Hagfish	*Myxine glutinosa*	4	<0.01	0.005	42.75	33	55	0	-
Squaliformes									
Spiny Dogfish	*Squalus acanthias*	65,825	15.03	0.176	69.20	3	114	38,024	1,516
Squatiniformes									
Atlantic Angel Shark	*Squatina dumeril*	158	30.83	4.534	77.89	26	128	0	-
Lamniformes									
Sand Tiger	*Carcharias taurus*	7	224.29	149.086	196.29	105	246	0	-
Shortfin Mako	*Isurus oxyrinchus*	1	141.10	-	146.00	146	146	0	-
Thresher Shark	*Alopias vulpinus*	1	33.00	-	169.00	169	169	0	-
Carcharhiniformes									
Smooth Dogfish	*Mustelus canis*	7,603	41.62	0.658	84.36	14	150	4,928	2,299
Atlantic Sharpnose Shark	*Rhizoprionodon terraenovae*	217	18.11	2.193	81.62	34	154	25	2,706
Dusky Shark	*Carcharhinus obscurus*	71	41.51	9.281	98.65	49	212	0	-
Sandbar Shark	*Carcharhinus plumbeus*	68	95.99	34.037	112.28	60	240	2	2,209
Chain Dogfish	*Scyliorhinus retifer*	40	2.03	0.693	29.35	15	45	4	324
Scalloped Hammerhead Shark	*Sphyrna lewini*	5	60.25	41.207	75.60	41	112	0	-
Blacknose Shark	*Carcharhinus acronotus*	1	8.80	-	104.00	104	104	0	-
Smooth Hammerhead Shark	*Sphyrna zygaena*	1	2.09	-	92.00	92	92	0	-
Blacktip Shark	*Carcharhinus limbatus*	1	-	-	138.00	138	138	0	-
Torpediniformes									
Atlantic Torpedo	*Torpedo nobiliana*	15	17.96	13.012	70.60	25	125	1	17,500

Table 4. (Cont.)

Order/Common Name	Scientific Name	Stomach Weights			Predator Length			Predator Weights	
		Number	Mean	SE	Mean	Min.	Max.	Number	Mean
Rajiformes									
Little Skate	*Leucoraja erinacea*	27,507	4.06	0.034	39.44	6	63	20,006	432
Winter Skate	*Leucoraja ocellata*	17,143	11.08	0.192	60.45	12	111	11,341	1,834
Thorny Skate	*Amblyraja radiata*	3,435	11.73	0.512	48.97	10	107	1,888	1,656
Smooth Skate	*Malacoraja senta*	1,056	4.27	0.172	43.15	9	73	848	441
Clearnose Skate	*Raja eglanteria*	960	9.44	0.748	58.22	22	93	779	1,200
Rosette Skate	*Leucoraja garmani*	700	1.44	0.074	35.76	9	47	674	226
Barndoor Skate	*Dipturus laevis*	655	20.46	1.542	66.37	19	163	647	2,501
Myliobatiformes									
Bullnose Ray	*Myliobatis freminvillii*	88	19.69	4.452	58.05	26	123	7	1,108
Bluntnose Stingray	*Dasyatis say*	83	29.48	5.415	57.25	21	128	3	1,928
Spiny Butterfly Ray	*Gymnura altavela*	55	2.43	1.119	92.39	52	199	0	-
Roughtail Stingray	*Dasyatis centroura*	13	84.01	31.269	98.62	74	129	0	-
Cownose Ray	*Rhinoptera bonasus*	13	1.24	1.005	48.38	40	53	0	-
Southern Stingray	*Dasyatis americana*	1	17.22	-	84.00	84	84	0	-
Atlantic Stingray	*Dasyatis sabina*	1	-	-	77.00	77	77	0	-
Acipenseriformes									
Atlantic Sturgeon	*Acipenser oxyrinchus*	3	119.17	9.167	97.00	84	120	0	-
Anguilliformes									
Conger Eel	*Conger oceanicus*	15	10.28	4.429	64.27	39	109	2	1,725
Margined Snake Eel	*Ophichthus cruentifer*	3	0.12	0.055	39.00	36	42	0	-
Snubnose Eel	*Simenchelys parasitica*	1	-	-	11.00	11	11	0	-
Clupeiformes									
Atlantic Herring	*Clupea harengus*	17,910	0.59	0.014	23.33	4	46	16,486	121
Blueback Herring	*Alosa aestivalis*	1,347	0.39	0.021	17.17	7	29	1,261	63
American Shad	*Alosa sapidissima*	874	2.10	0.236	25.38	8	58	832	305
Alewife	*Alosa pseudoharengus*	404	0.89	0.070	23.23	7	41	32	126
Round Herring	*Etrumeus teres*	104	0.28	0.061	12.05	10	18	0	-
Atlantic Menhaden	*Brevoortia tyrannus*	76	0.15	0.042	21.03	6	32	41	209
Striped Anchovy	*Anchoa hepsetus*	15	0.07	0.036	11.87	10	13	0	-
Spanish Sardine	*Sardinella aurita*	8	<0.01	0.000	5.25	5	6	0	-
Hickory Shad	*Alosa mediocris*	6	2.64	1.752	32.00	24	46	6	467

Table 4. (Cont.)

Order/Common Name	Scientific Name	Stomach Weights			Predator Length			Predator Weights	
		Number	Mean	SE	Mean	Min.	Max.	Number	Mean
Argentiniformes									
Atlantic Argentine	*Argentina silus*	191	0.17	0.054	31.05	9	44	0	-
Striated Argentine	*Argentina striata*	1	-	-	8.00	8	8	0	-
Salmoniformes									
Atlantic Salmon	*Salmo salar*	1	2.61	-	34.00	34	34	0	-
Aulopiformes									
Inshore Lizardfish	*Synodus foetens*	42	2.13	0.571	24.10	16	35	1	87
Snakefish	*Trachinocephalus myops*	25	1.66	0.757	17.84	13	23	0	-
Offshore Lizardfish	*Synodus poeyi*	9	0.98	0.560	14.22	7	23	3	79
Shortnose Greeneye	*Chlorophthalmus agassizi*	6	0.04	0.020	12.50	11	14	0	-
Myctophiformes									
Lanternfish Unclassified	Myctophidae	20	0.04	0.015	7.05	4	10	10	2
Hygophum taaningi	*Hygophum taaningi*	9	0.02	0.007	6.67	6	7	0	-
Polymixiiformes									
Beardfish	*Polymixia lowei*	1	-	-	16.00	16	16	0	-
Ophidiiformes									
Fawn Cusk-eel	*Lepophidium profundorum*	1,023	0.07	0.005	21.28	7	30	873	23
Striped Cusk-eel	*Ophidion marginatum*	11	0.03	0.017	20.91	16	30	0	-
Gadiformes									
Silver Hake	*Merluccius bilinearis*	47,837	2.71	0.053	25.30	3	76	26,496	127
Atlantic Cod	*Gadus morhua*	19,645	30.06	0.603	53.53	1	150	9,106	2,109
Red Hake	*Urophycis chuss*	17,840	3.27	0.087	30.06	4	73	9,793	202
White Hake	*Urophycis tenuis*	14,348	17.54	0.461	43.54	3	136	7,316	855
Spotted Hake	*Urophycis regia*	13,278	2.18	0.055	23.49	4	46	10,497	131
Haddock	*Melanogrammus aeglefinus*	9,488	4.36	0.109	42.00	8	88	5,951	901
Pollock	*Pollachius virens*	5,820	17.59	0.711	49.94	10	120	3,112	1,503

Table 4. (Cont.)

Order/Common Name	Scientific Name	Stomach Weights			Predator Length			Predator Weights	
		Number	Mean	SE	Mean	Min.	Max.	Number	Mean
Gadiformes (Cont.)									
Offshore Hake	*Merluccius albidus*	800	2.19	0.462	29.98	6	56	714	226
Cusk	*Brosme brosme*	222	2.41	0.815	60.19	14	104	96	1,757
Fourbeard Rockling	*Enchelyopus cimbrius*	131	0.19	0.025	21.01	12	33	121	43
Longfin Hake	*Phycis chesteri*	25	0.62	0.259	21.26	16	35	0	-
Longnose Grenadier	*Caelorinchus caelorhincus*	18	0.20	0.056	15.78	10	23	0	-
Marlin-Spike	*Nezumia bairdii*	10	0.26	0.052	20.10	15	26	0	-
Ling Unclassified	*Urophycis sp.*	5	0.18	0.096	13.00	13	13	1	12
Grenadier Unclassified	Macrouridae	3	0.14	0.031	26.00	26	26	0	-
Carolina Hake	*Urophycis earllii*	1	11.00	-	28.00	28	28	0	-
Batrachoidiformes									
Atlantic Midshipman	*Porichthys plectrodon*	10	0.11	0.050	14.00	14	14	0	-
Lophiiformes									
Goosefish	*Lophius americanus*	10,188	35.49	1.471	43.35	6	124	7,563	1,622
Beloniformes									
Atlantic Saury	*Scomberesox saurus*	1	-	-	32.00	32	32	0	-
Zeiformes									
Buckler Dory	*Zenopsis conchifera*	197	9.24	1.786	25.87	8	66	86	601
Deepbody Boarfish	*Antigonia capros*	15	1.08	0.194	15.40	12	19	0	-
Gasterosteiformes									
Northern Pipefish	*Syngnathus fuscus*	38	<0.01	0.001	18.87	14	24	0	-
Red Cornetfish	*Fistularia petimba*	8	10.30	6.233	78.75	43	115	0	-
Cornetfish Unclassified	Fistulariidae	1	0.02	-	32.00	32	32	0	-
Longspine Snipefish	*Macroramphosus scolopax*	2	-	-	12.50	12	13	0	-
Scorpaeniformes									
Longhorn Sculpin	*Myoxocephalus octodecemspinosus*	12,188	2.80	0.061	24.97	3	45	9,205	182

Table 4. (Cont.)

Order/Common Name	Scientific Name	Stomach Weights			Predator Length			Predator Weights	
		Number	Mean	SE	Mean	Min.	Max.	Number	Mean
Scorpaeniformes (Cont.)									
Sea Raven	*Hemitripterus americanus*	7,472	15.37	0.582	31.73	4	68	5,505	838
Acadian Redfish	*Sebastes fasciatus*	3,904	1.28	0.073	27.28	5	47	2,640	336
Blackbelly Rosefish	*Helicolenus dactylopterus*	957	0.39	0.039	17.14	3	51	855	136
Northern Searobin	*Prionotus carolinus*	727	0.54	0.044	19.99	4	49	632	93
Striped Searobin	*Prionotus evolans*	362	2.82	0.425	24.89	3	44	339	264
Armored Searobin	*Peristedion miniatum*	41	0.12	0.046	25.54	7	32	8	111
Moustache Sculpin	*Triglops murrayi*	28	0.07	0.021	10.57	7	15	0	-
Hookear Sculpin Unclassified	*Artediellus sp.*	23	0.01	0.007	6.43	4	8	1	4
Searobin Unclassified	Triglidae	8	<0.01	0.001	8.63	5	11	0	-
Spiny Searobin	*Prionotus alatus*	3	0.19	0.093	12.33	10	14	2	20
Scorpionfish and Rockfish Unclassified	Scorpaenidae	2	0.24	0.234	12.00	4	20	1	1
Lumpfish	*Cyclopterus lumpus*	2	27.87	7.386	35.50	31	40	0	-
Shorthorn Sculpin	*Myoxocephalus scorpius*	2	0.29	0.257	39.50	33	46	1	1,360
Alligatorfish	*Aspidophoroides monopterygius*	1	0.01	-	9.00	9	9	0	-
Horned Searobin	*Bellator militaris*	1	-	-	5.00	5	5	0	-
Bluespotted Searobin	*Prionotus roseus*	1	-	-	16.00	16	16	0	-
Bighead Searobin	*Prionotus tribulus*	1	-	-	20.00	20	20	0	-
Perciformes									
Atlantic Mackerel	*Scomber scombrus*	6,874	1.37	0.039	27.49	12	47	6,039	216
Butterfish	*Peprilus triacanthus*	6,098	0.27	0.011	12.92	2	32	4,058	50
Weakfish	*Cynoscion regalis*	5,117	3.44	0.170	26.27	7	85	3,746	260
Bluefish	*Pomatomus saltatrix*	4,826	20.35	0.948	35.73	3	118	2,409	1,047
Scup	*Stenotomus chrysops*	3,890	0.44	0.023	15.39	4	38	2,374	109
Ocean Pout	*Zoarces americanus*	3,478	8.28	0.303	47.26	5	98	2,816	633
Black Sea Bass	*Centropristis striata*	2,400	2.20	0.141	25.40	5	62	1,559	366
Northern Sand Lance	*Ammodytes dubius*	1,357	0.07	0.005	14.34	2	27	0	-
Spot	*Leiostomus xanthurus*	1,156	0.16	0.011	17.38	10	74	676	96
Striped Bass	*Morone saxatilis*	1,089	72.91	4.837	64.56	23	118	1,070	3,954
Atlantic Croaker	*Micropogonias undulatus*	924	1.57	0.142	25.21	9	82	553	257
Cunner	*Tautogolabrus adspersus*	169	1.32	0.243	26.55	5	47	108	416
Atlantic Wolffish	*Anarhichas lupus*	156	15.41	3.357	52.83	3	137	78	3,185
Northern Kingfish	*Menticirrhus saxatilis*	139	0.71	0.118	23.77	9	37	63	181
Southern Kingfish	*Menticirrhus americanus*	119	1.43	0.316	23.84	15	32	12	163
Tautog	*Tautoga onitis*	52	7.75	1.686	34.87	9	64	47	1,053
Spanish Mackerel	*Scomberomorus maculatus*	44	3.48	1.301	34.68	16	62	4	866
Chub Mackerel	*Scomber japonicus*	35	0.44	0.123	19.31	14	23	0	-
Cobia	*Rachycentron canadum*	26	152.97	33.860	94.36	58	125	16	12,542
Whitebone Porgy	*Calamus leucosteus*	24	1.03	0.656	27.79	20	34	0	-
Tomtate	*Haemulon aurolineatum*	23	0.07	0.050	15.83	11	19	0	-
Tilefish	*Lopholatilus chamaeleonticeps*	19	0.80	0.327	41.53	19	64	9	1,330

Table 4. (Cont.)

Order/Common Name	Scientific Name	Stomach Weights			Predator Length			Predator Weights	
		Number	Mean	SE	Mean	Min.	Max.	Number	Mean
Perciformes (Cont.)									
King Mackerel	*Scomberomorus cavalla*	17	17.20	5.667	81.94	56	117	2	8,710
Round Scad	*Decapterus punctatus*	15	<0.01	0.001	16.33	14	18	0	-
Vermilion Snapper	*Rhomboplites aurorubens*	15	0.69	0.436	19.07	12	24	0	-
Sheepshead	*Archosargus probatocephalus*	15	13.64	3.435	46.87	31	55	0	-
White Grunt	*Haemulon plumierii*	14	1.54	0.437	30.36	24	45	0	-
Banded Rudderfish	*Seriola zonata*	13	1.44	0.478	23.23	18	27	0	-
Saucereye Porgy	*Calamus calamus*	12	0.92	0.354	21.50	12	30	0	-
Rough Scad	*Trachurus lathami*	11	0.03	0.003	13.64	12	15	0	-
Atlantic Bonito	*Sarda sarda*	11	29.31	24.674	50.36	23	57	3	2,018
Banded Drum	*Larimus fasciatus*	11	0.02	0.006	15.09	14	20	0	-
Atlantic Cutlassfish	*Trichiurus lepturus*	11	0.08	0.033	48.36	44	53	0	-
Bigeye Scad	*Selar crumenophthalmus*	10	0.02	0.004	13.70	13	15	0	-
Pigfish	*Orthopristis chrysoptera*	10	0.40	0.193	18.40	16	24	0	-
Greater Amberjack	*Seriola dumerili*	9	105.65	83.863	59.00	21	114	0	-
Sea Bass Unclassified	Serranidae	9	4.22	2.315	63.00	58	71	9	4,540
Spottail Pinfish	*Diplodus holbrookii*	9	0.25	0.124	20.44	12	29	0	-
Pinfish	*Lagodon rhomboides*	9	0.17	0.076	16.44	15	18	0	-
Red Porgy	*Pagrus pagrus*	9	1.47	0.750	29.89	21	40	0	-
Bigeye	*Priacanthus arenatus*	9	1.64	0.604	27.67	15	39	0	-
Snowy Grouper	*Epinephelus niveatus*	8	23.24	13.444	69.38	46	90	0	-
Yellowfin Bass	*Anthias nicholsi*	7	0.27	0.150	23.57	20	27	0	-
Scamp	*Mycteroperca phenax*	6	7.10	6.745	68.17	51	99	0	-
Silver Perch	*Bairdiella chrysoura*	5	<0.01	0.001	19.00	18	20	0	-
Atlantic Spadefish	*Chaetodipterus faber*	4	2.75	0.710	41.50	38	45	0	-
Sand Perch	*Diplectrum formosum*	3	0.41	0.399	20.33	18	24	0	-
Daubed Shanny	*Leptoclinus maculatus*	3	0.01	0.002	11.67	11	13	0	-
Radiated Shanny	*Ulvaria subbifurcata*	3	0.04	0.019	13.00	12	14	0	-
Wrymouth	*Cryptacanthodes maculatus*	3	0.40	0.202	34.67	23	41	0	-
Atlantic Soft Pout	*Melanostigma atlanticum*	3	<0.01	0.001	11.00	11	11	0	-
Blue Runner	*Caranx crysos*	2	0.06	0.055	15.00	15	15	0	-
Striped Bonito	*Sarda orientalis*	2	35.75	8.250	56.00	55	57	2	3,130
Warsaw Grouper	*Epinephelus nigritus*	2	203.50	126.500	104.50	84	125	0	-
Hogfish	*Lachnolaimus maximus*	2	4.49	1.186	57.00	55	59	0	-
Black Drum	*Pogonias cromis*	2	82.50	82.500	111.50	108	115	1	23,440
Blueline Tilefish	*Caulolatilus microps*	2	6.60	6.600	58.00	58	58	1	2,750
Northern Stargazer	*Astroscopus guttatus*	2	10.45	1.650	21.00	19	23	0	-
Sharksucker	*Echeneis naucrates*	1	6.60	-	43.00	43	43	0	-
Almaco Jack	*Seriola rivoliana*	1	209.00	-	94.00	94	94	0	-
Red Drum	*Sciaenops ocellatus*	1	110.00	-	100.00	100	100	1	12,100
Conejo	*Promethichthys prometheus*	1	-	-	25.00	25	25	0	-
Wolf Eelpout	*Lycenchelys verrillii*	1	-	-	12.00	12	12	0	-
Southern Stargazer	*Astroscopus y-graecum*	1	2.12	-	22.00	22	22	0	-
Yellowmouth Grouper	*Mycteroperca interstitialis*	1	-	-	76.00	76	76	0	-
Gag	*Mycteroperca microlepis*	1	-	-	108.00	108	108	0	-

Table 4. (Cont.)

Order/Common Name	Scientific Name	Stomach Weights			Predator Length			Predator Weights	
		Number	Mean	SE	Mean	Min.	Max.	Number	Mean
Perciformes (Cont.)									
Atlantic Bumper	*Chloroscombrus chrysurus*	1	-	-	16.00	16	16	0	-
Spotted Seatrout	*Cynoscion nebulosus*	1	-	-	56.00	56	56	0	-
Pleuronectiformes									
Summer Flounder	*Paralichthys dentatus*	17,386	3.20	0.102	39.53	13	82	14,440	818
Fourspot Flounder	*Hippoglossina oblonga*	16,689	1.25	0.035	27.43	2	49	13,415	175
Windowpane Flounder	*Scophthalmus aquosus*	14,599	1.53	0.038	25.82	3	69	11,029	216
Winter Flounder	*Pseudopleuronectes americanus*	9,278	2.34	0.056	31.55	8	76	6,559	486
American Plaice	*Hippoglossoides platessoides*	7,201	0.81	0.035	29.94	4	70	5,372	285
Yellowtail Flounder	*Limanda ferruginea*	7,052	1.06	0.027	32.42	3	58	5,081	357
Witch Flounder	*Glyptocephalus cynoglossus*	5,031	0.68	0.021	35.48	5	65	4,078	268
Gulf Stream Flounder	*Citharichthys arctifrons*	996	0.09	0.005	10.92	2	19	771	14
Atlantic Halibut	*Hippoglossus hippoglossus*	445	23.04	4.564	54.71	13	134	239	2,252
Southern Flounder	*Paralichthys lethostigma*	5	3.30	3.300	26.00	21	33	0	-
Hogchoker	*Trinectes maculatus*	5	2.24	2.189	23.40	17	28	0	-
Dusky Flounder	*Syacium papillosum*	4	0.32	0.263	22.25	17	27	3	118
Greenland Halibut	*Reinhardtius hippoglossoides*	3	4.51	2.446	26.33	15	36	3	191
Tetraodontiformes									
Planehead Filefish	*Stephanolepis hispidus*	7	<0.01	0.001	6.43	5	8	0	-
Gray Triggerfish	*Balistes capriscus*	2	-	-	33.50	10	57	0	-
Striped Burrfish	*Chilomycterus schoepfii*	1	-	-	14.00	14	14	0	-
Teuthida									
Longfin Inshore Squid	*Loligo pealeii*	3,078	0.54	0.027	13.29	1	39	0	-
Northern Shortfin Squid	*Illex illecebrosus*	3,056	1.58	0.160	20.04	3	32	1	99

FIGURES

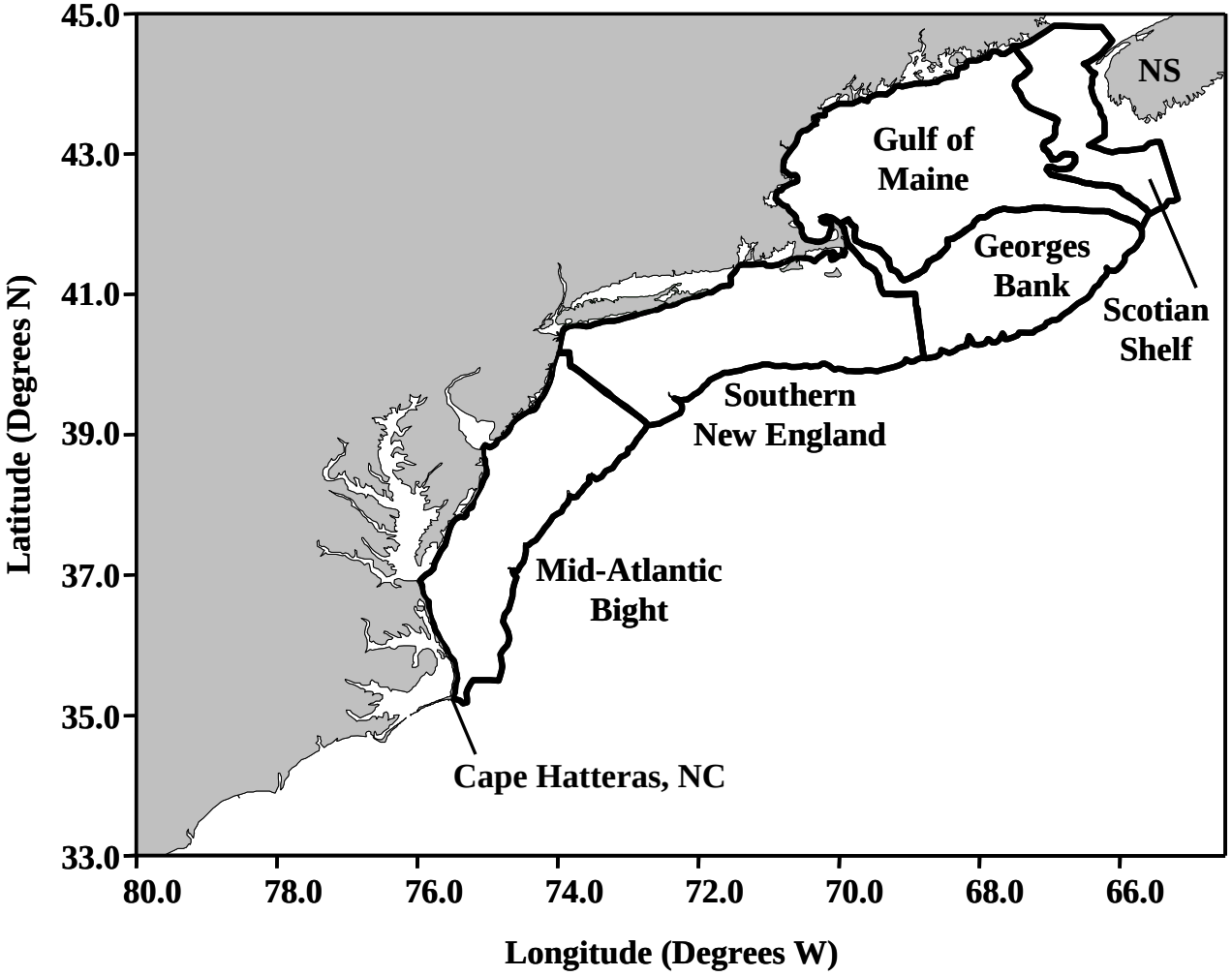

Figure 1. Map of the Northeast U.S. continental shelf illustrating the primary sampling regions covered by the NEFSC Bottom Trawl Survey. NS = Nova Scotia

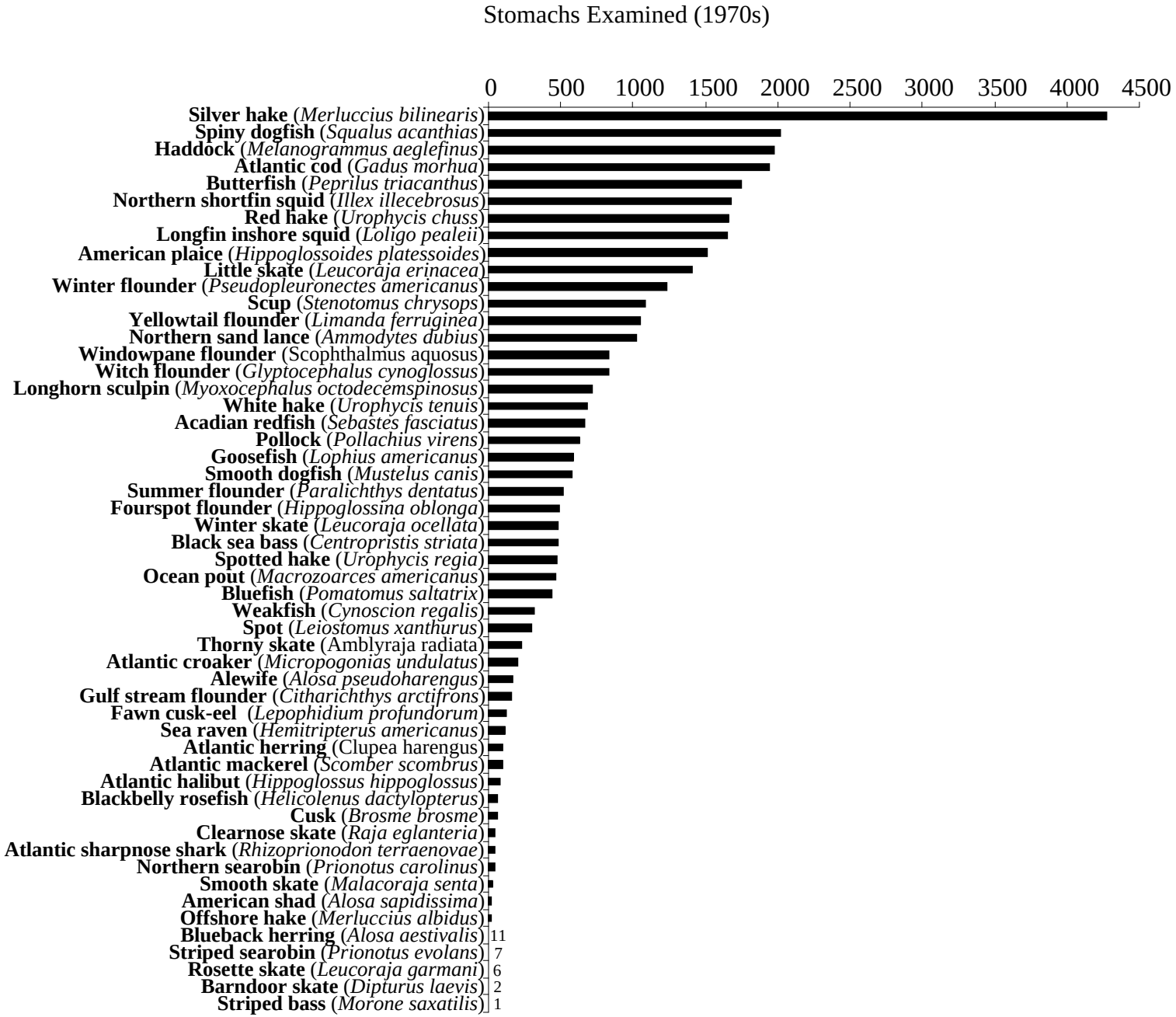

Figure 2. The number of stomachs examined by species in the 1970s.

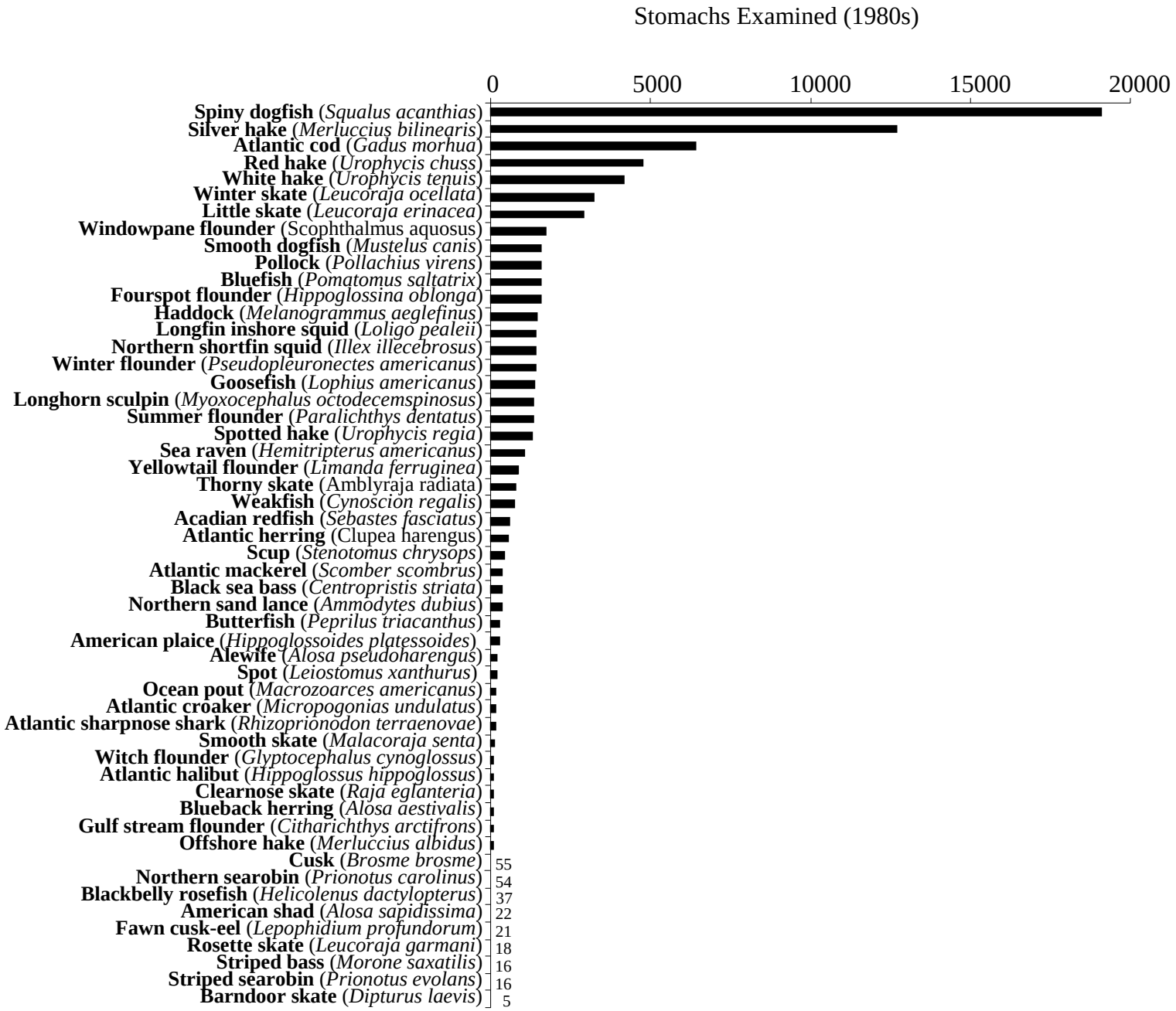

Figure 3. The number of stomachs examined by species in the 1980s.

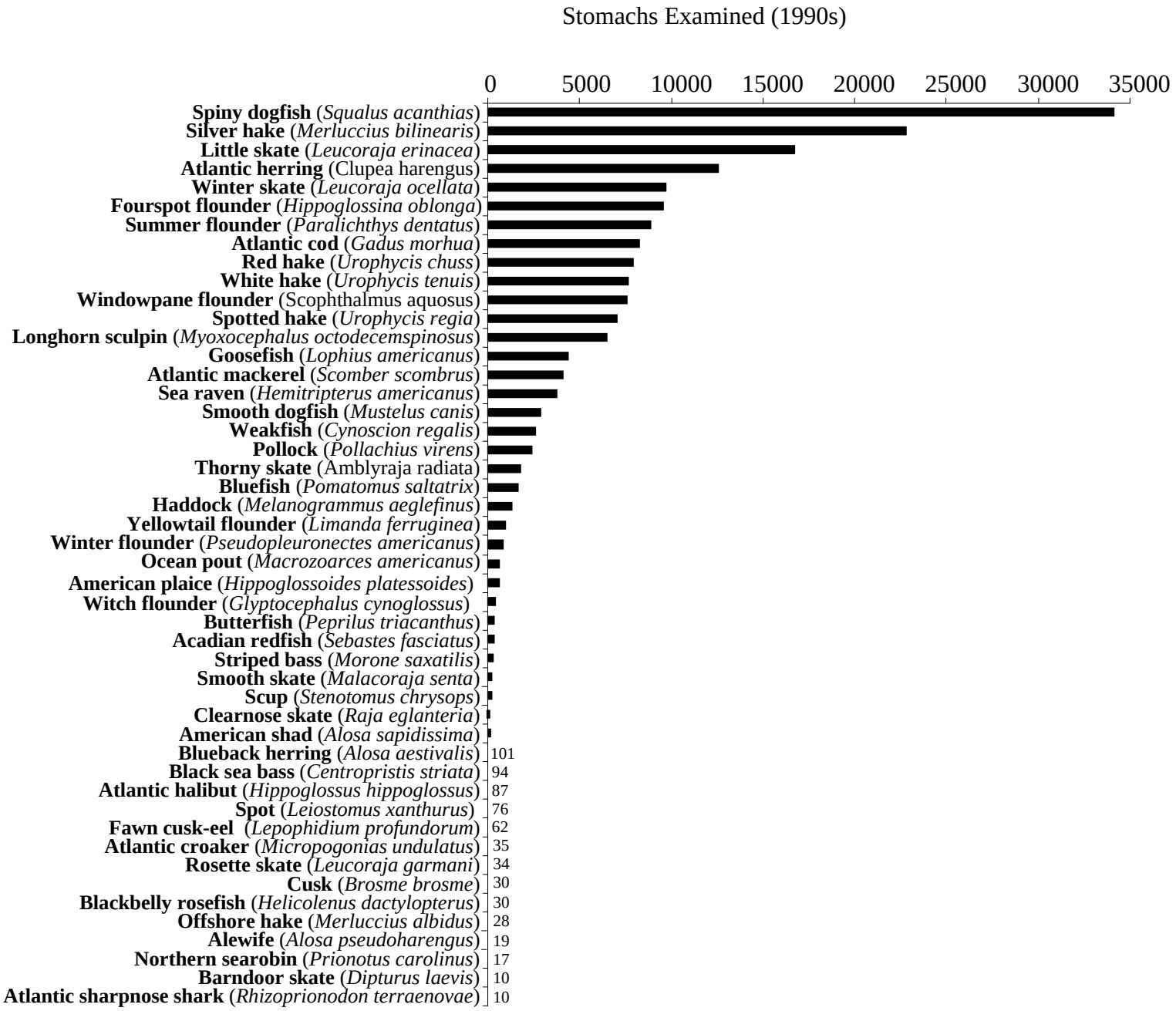

Figure 4. The number of stomachs examined by species in the 1990s.

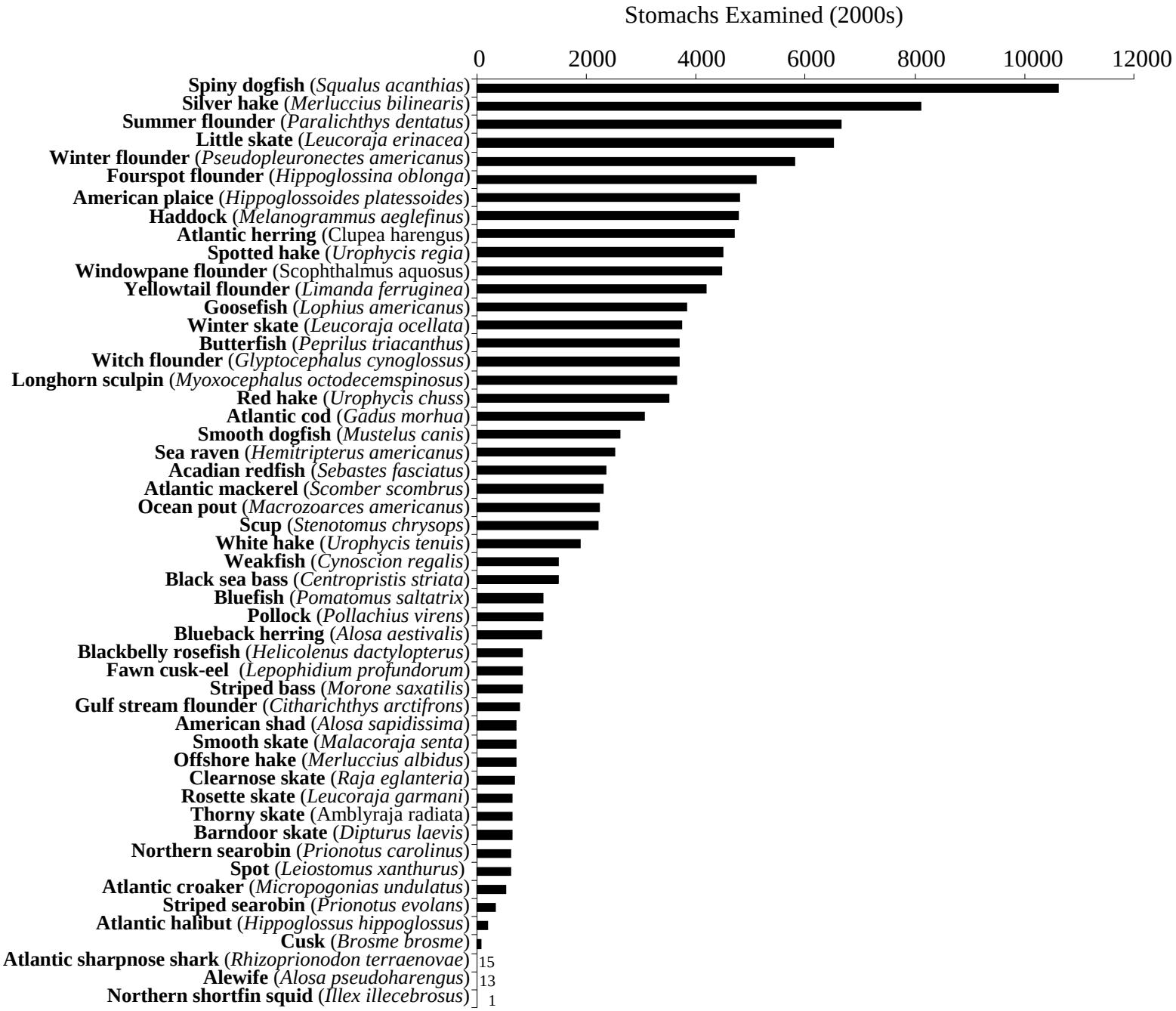

Figure 5. The number of stomachs examined by species in the 2000s.

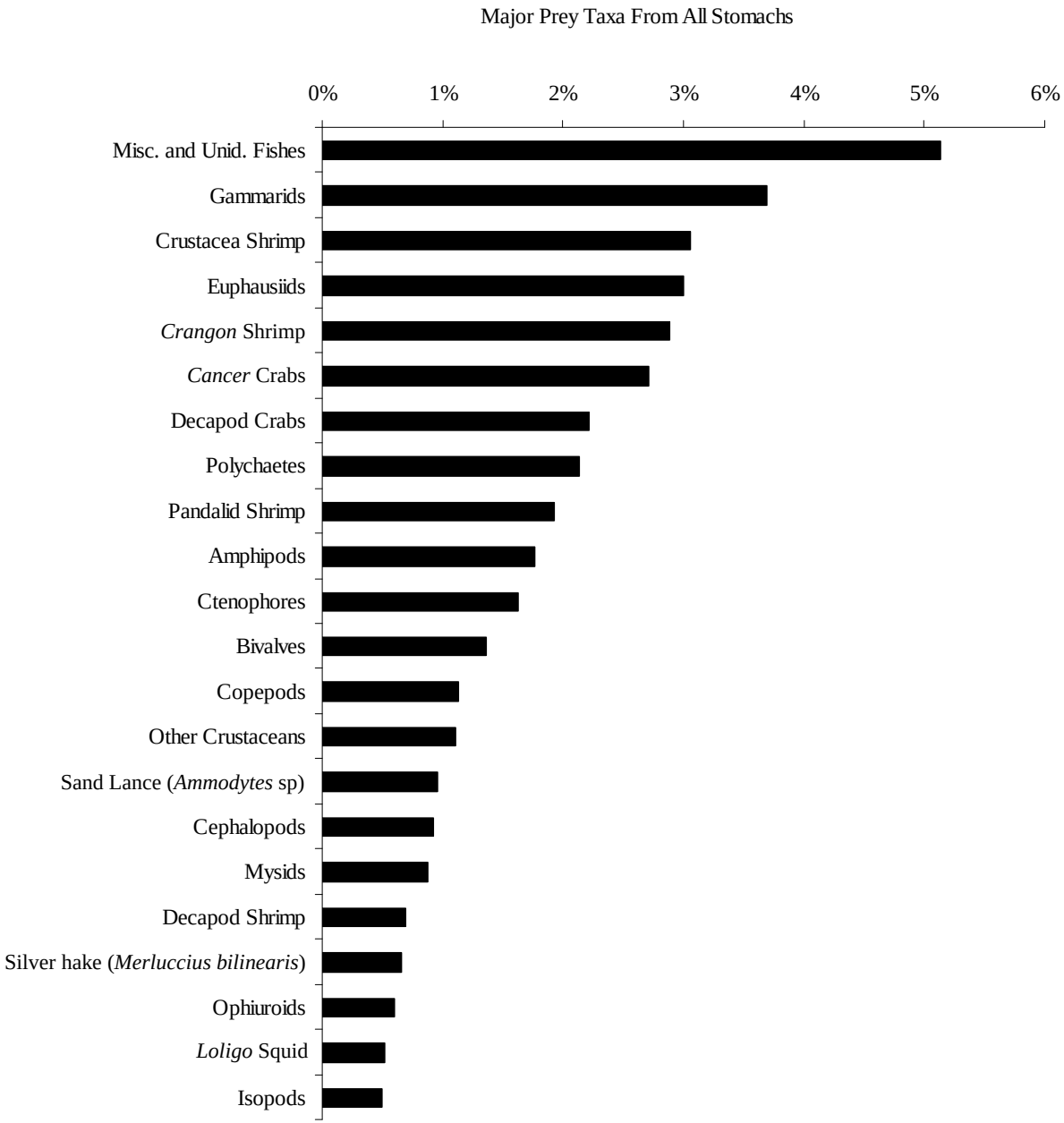

Figure 6. Percent frequency of occurrence of major prey taxa, excluding well-digested prey and empty stomachs for all predators in the database. Misc. and Unid. Fishes = Miscellaneous and Unidentified Fishes.

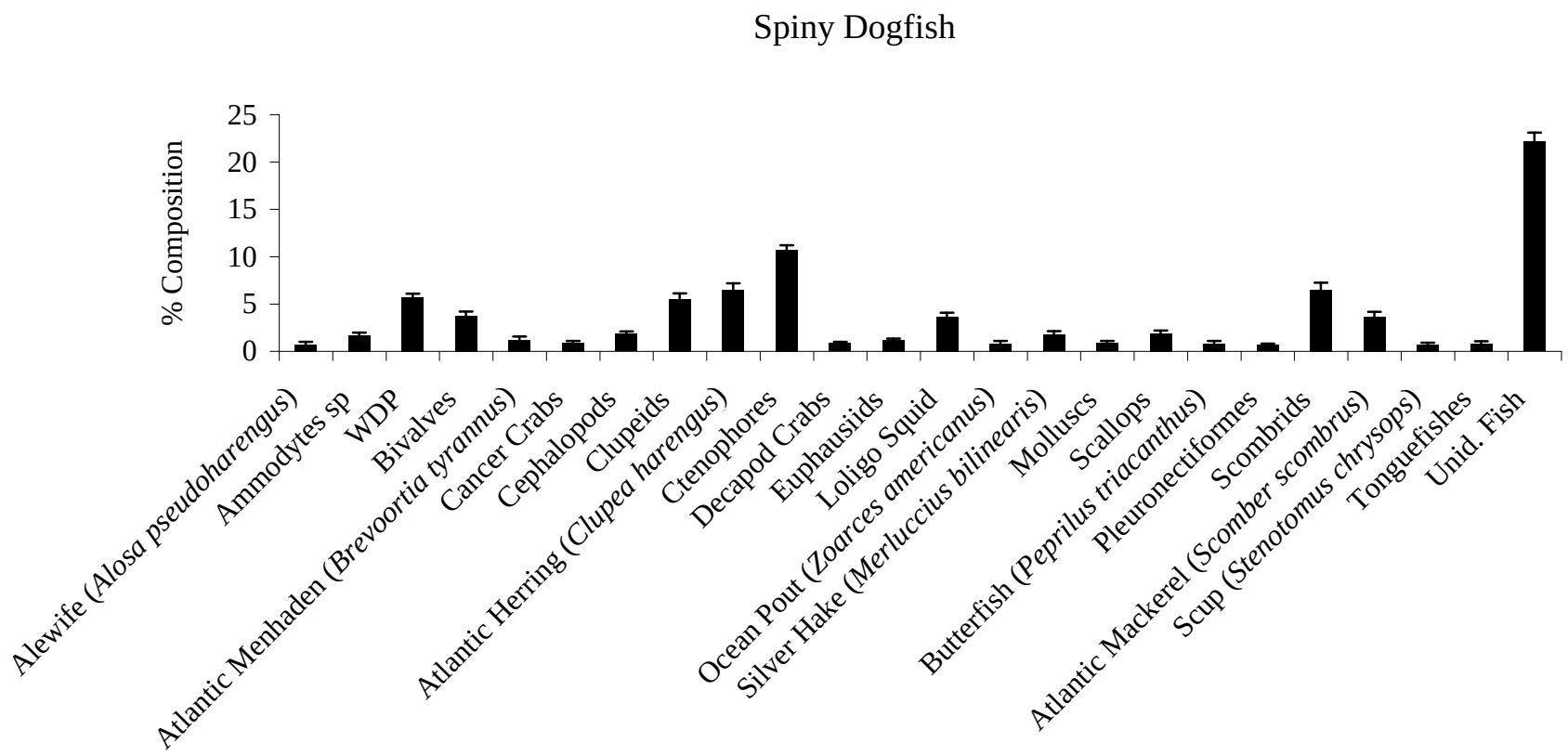

Figure 7. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*; n = 65,825). WDP = well-digested prey; Unid. Fish = unidentified fish.

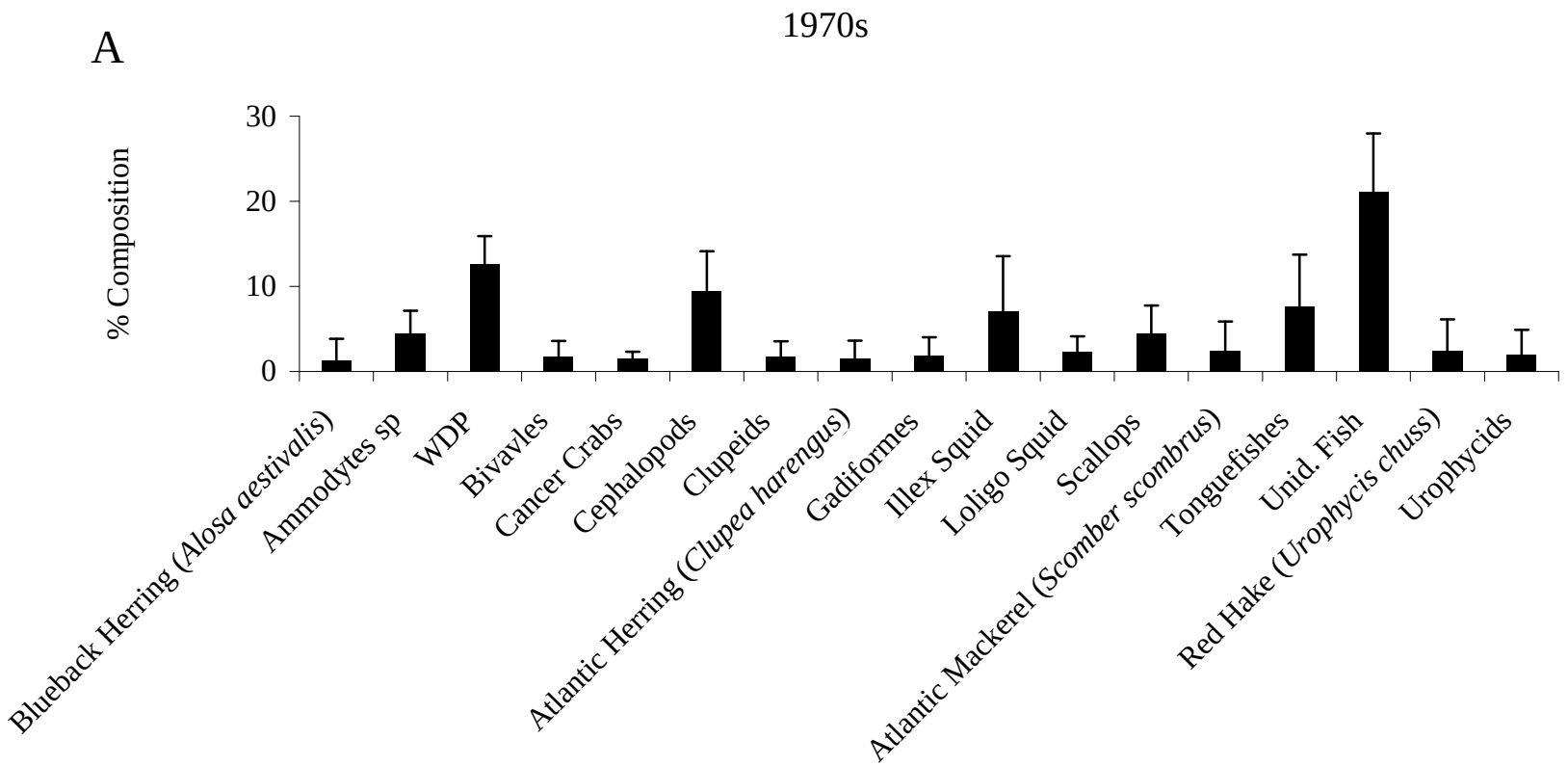

Figure 8A. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the 1970s (n = 2,020). WDP = well-digested prey; Unid. Fish = unidentified fish.

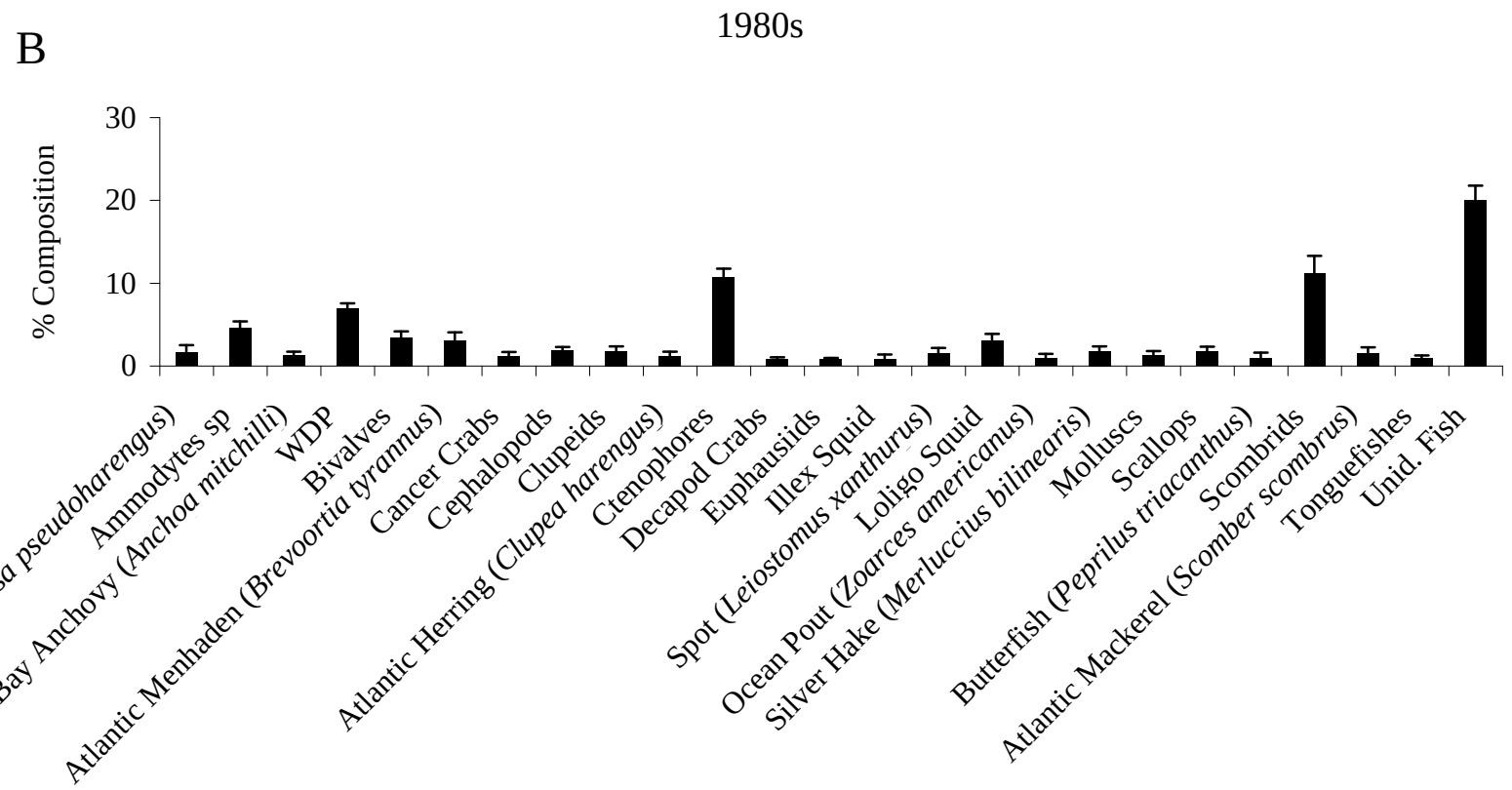

Figure 8B. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the 1980s (n = 19,104). WDP = well-digested prey; Unid. Fish = unidentified fishes.

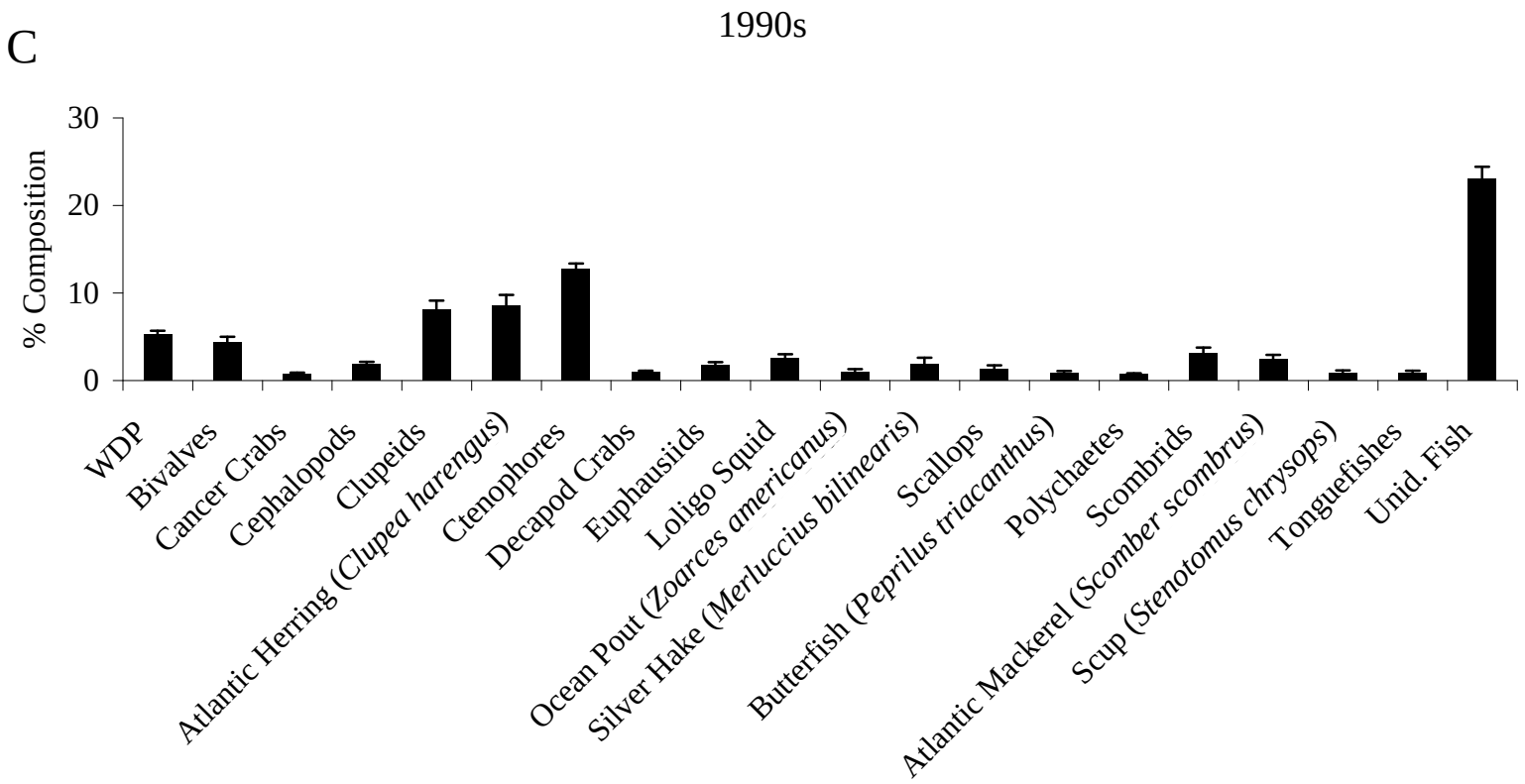

Figure 8C. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the 1990s (n = 34,082). WDP = well-digested prey; Unid. Fish = unidentified fish.

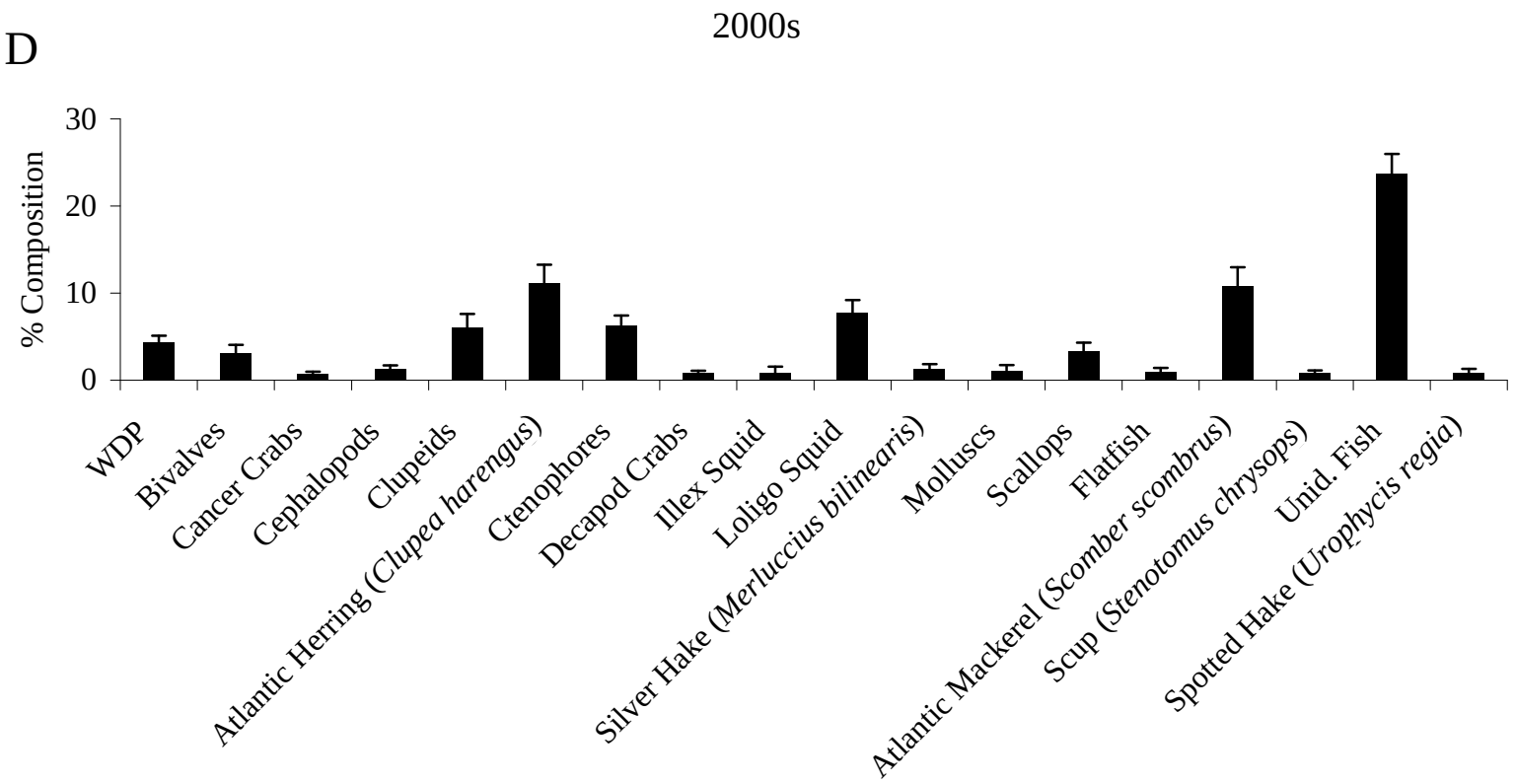

Figure 8D. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the 2000s (n = 10,619). WDP = well-digested prey; Unid. Fish = unidentified fish.

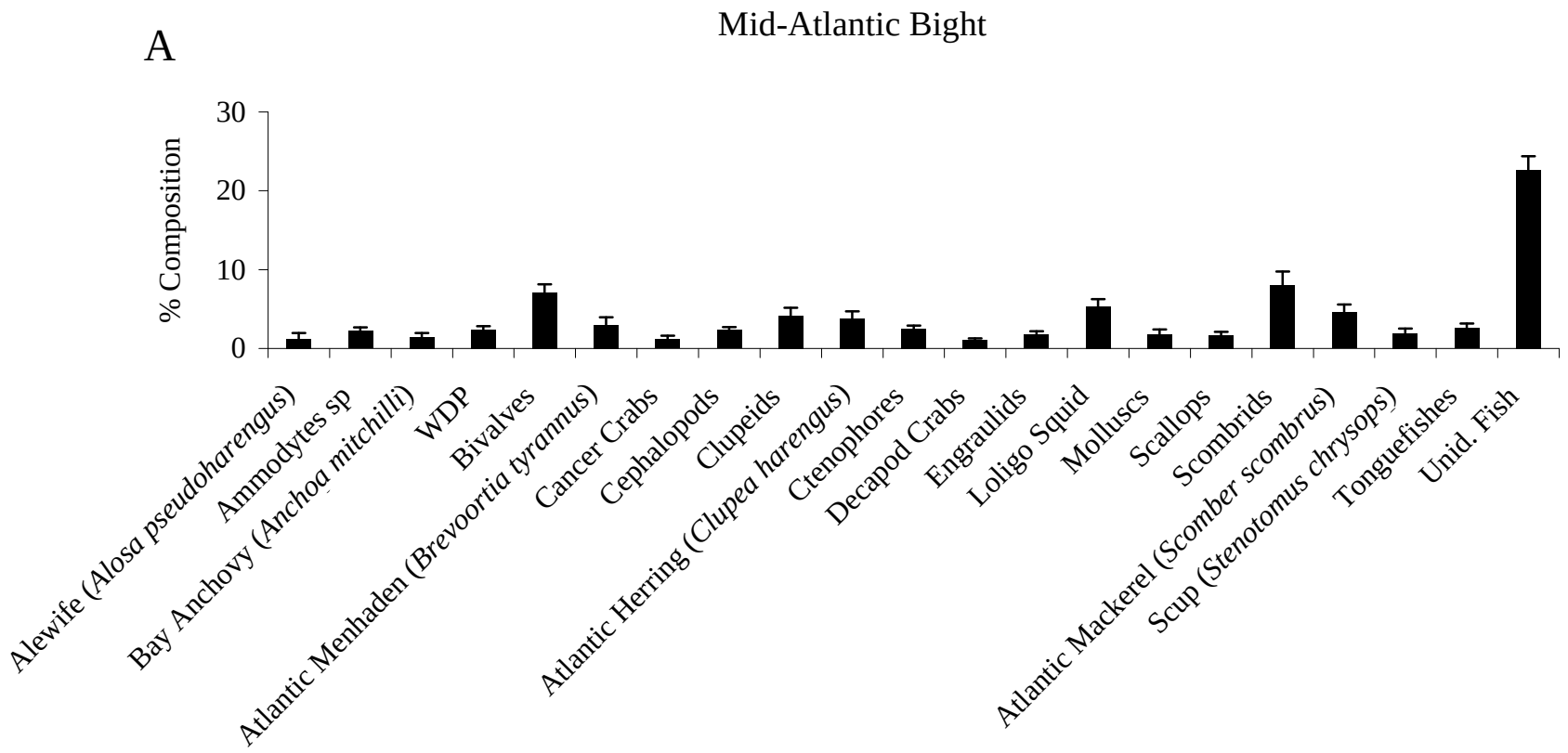

Figure 9A. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the Mid-Atlantic Bight (n = 19,395). WDP = well-digested prey; Unid. Fish = unidentified fish.

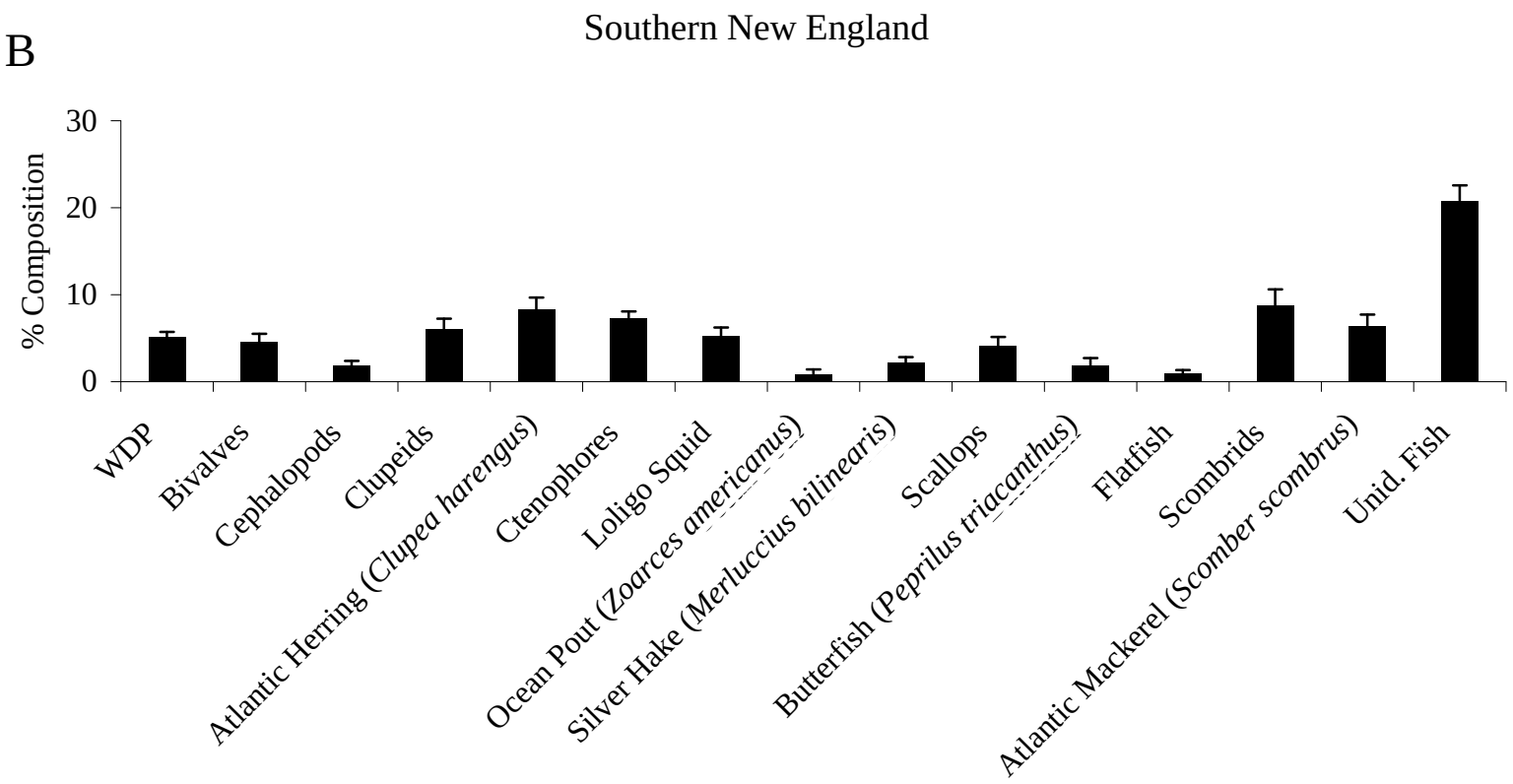

Figure 9B. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in Southern New England (n = 14,353). WDP = well-digested prey; Unid. Fish = unidentified fish.

C

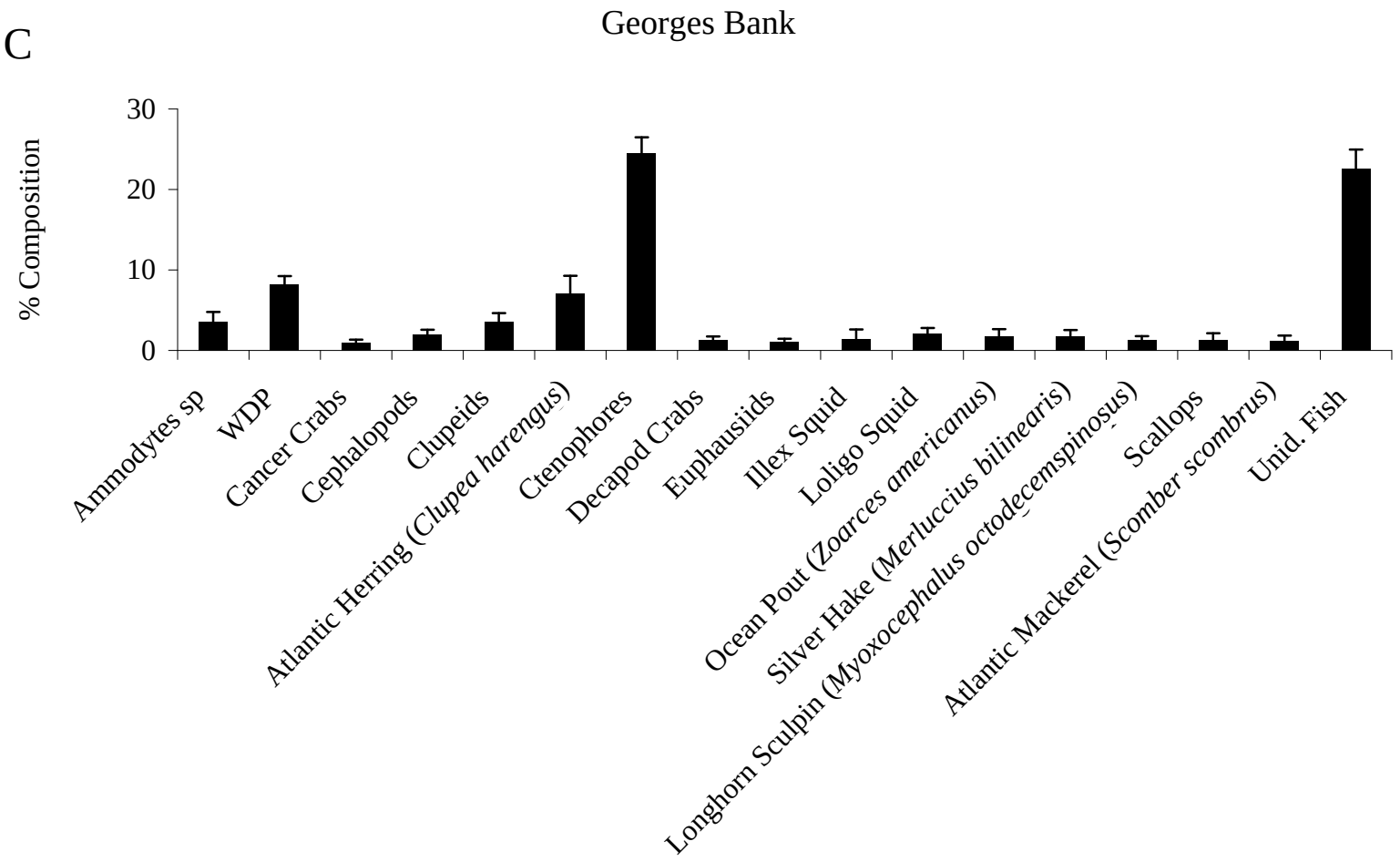

Figure 9C. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected on Georges Bank (n = 13,932). WDP = well-digested prey; Unid. Fish = unidentified fish.

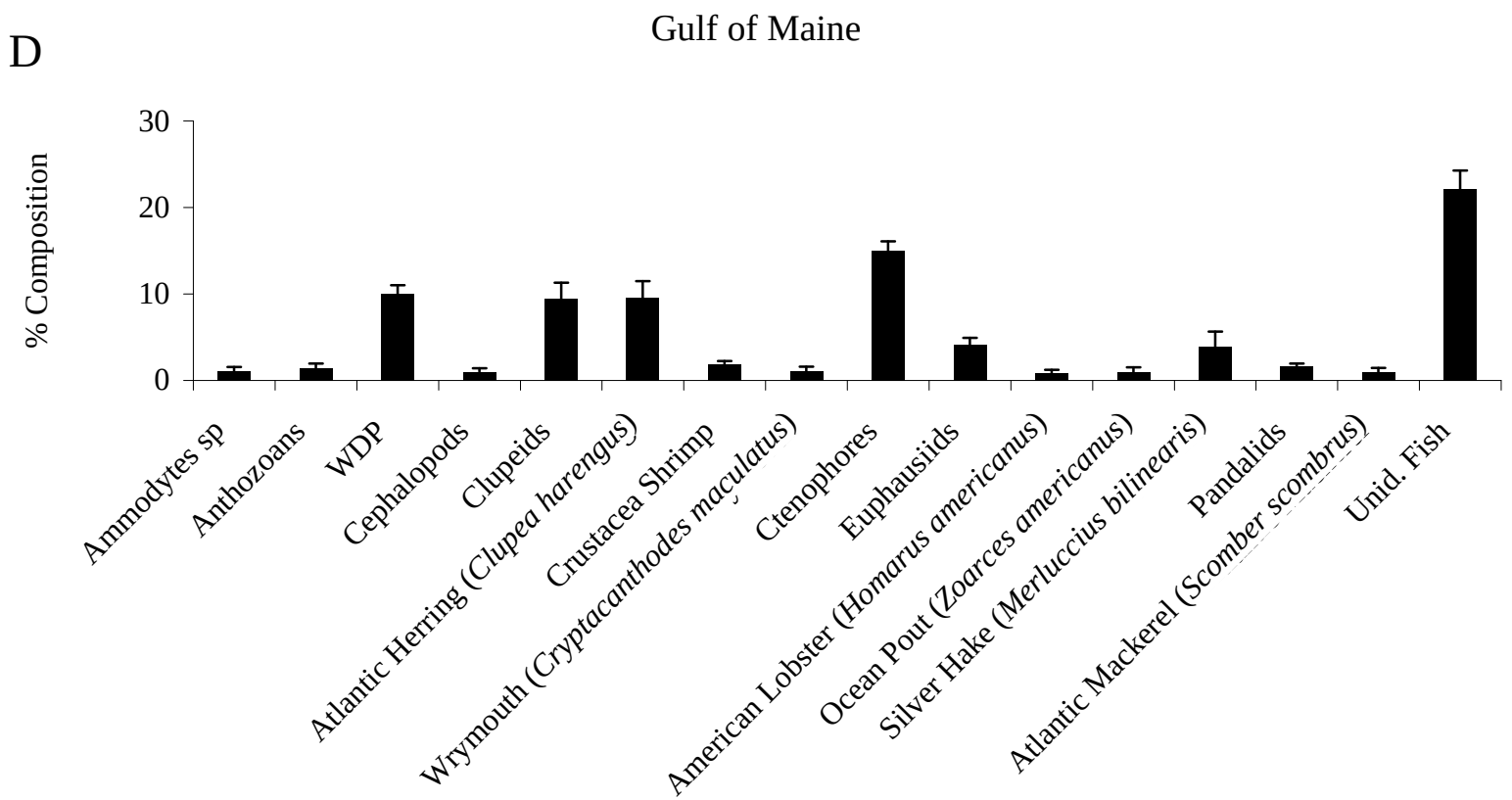

Figure 9D. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the Gulf of Maine (n = 14,474). WDP = well-digested prey; Unid. Fish = unidentified fish.

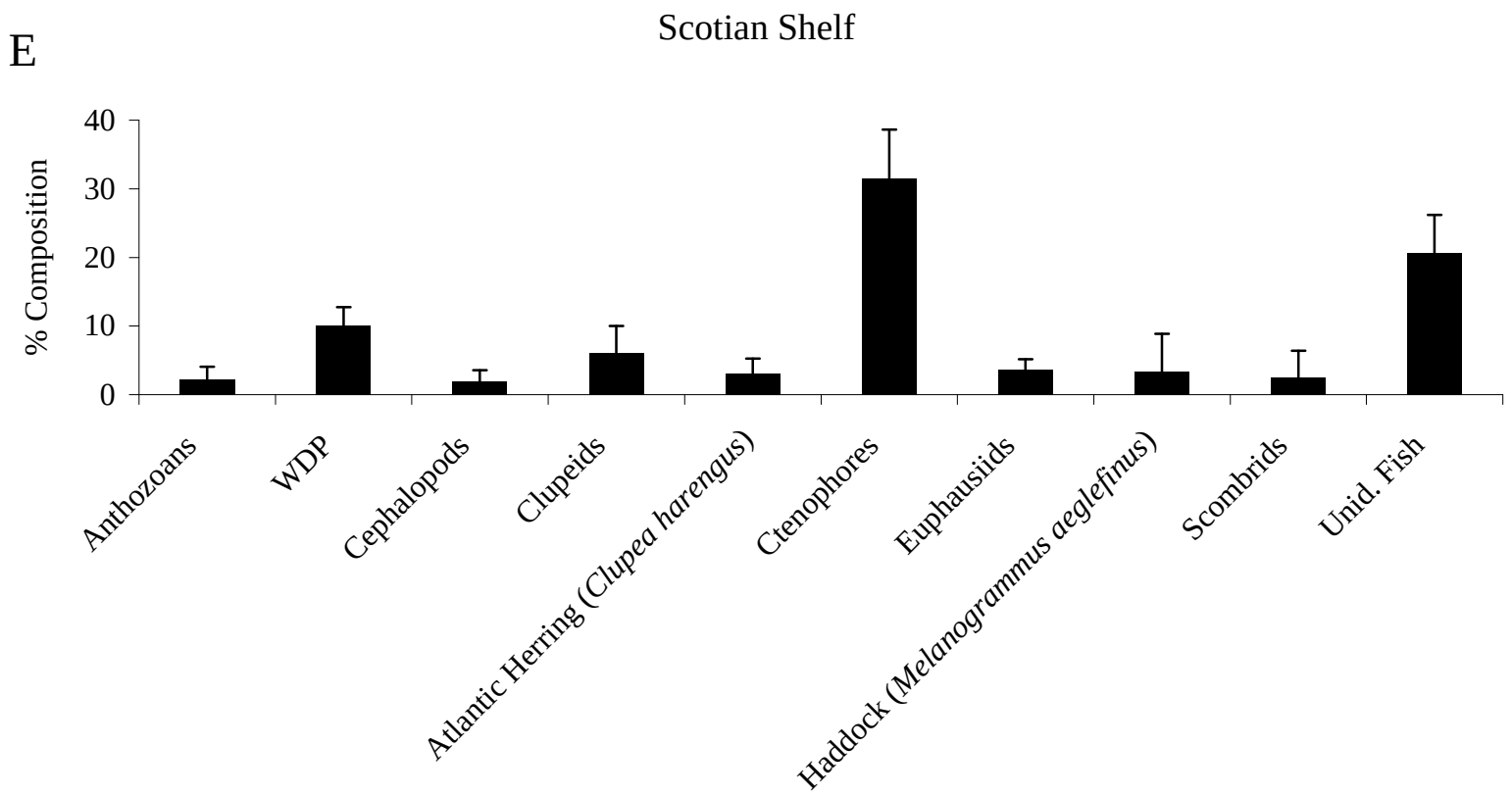

Figure 9E. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected on the Scotian Shelf (n = 3,036). WDP = well-digested prey; Unid. Fish = unidentified fish.

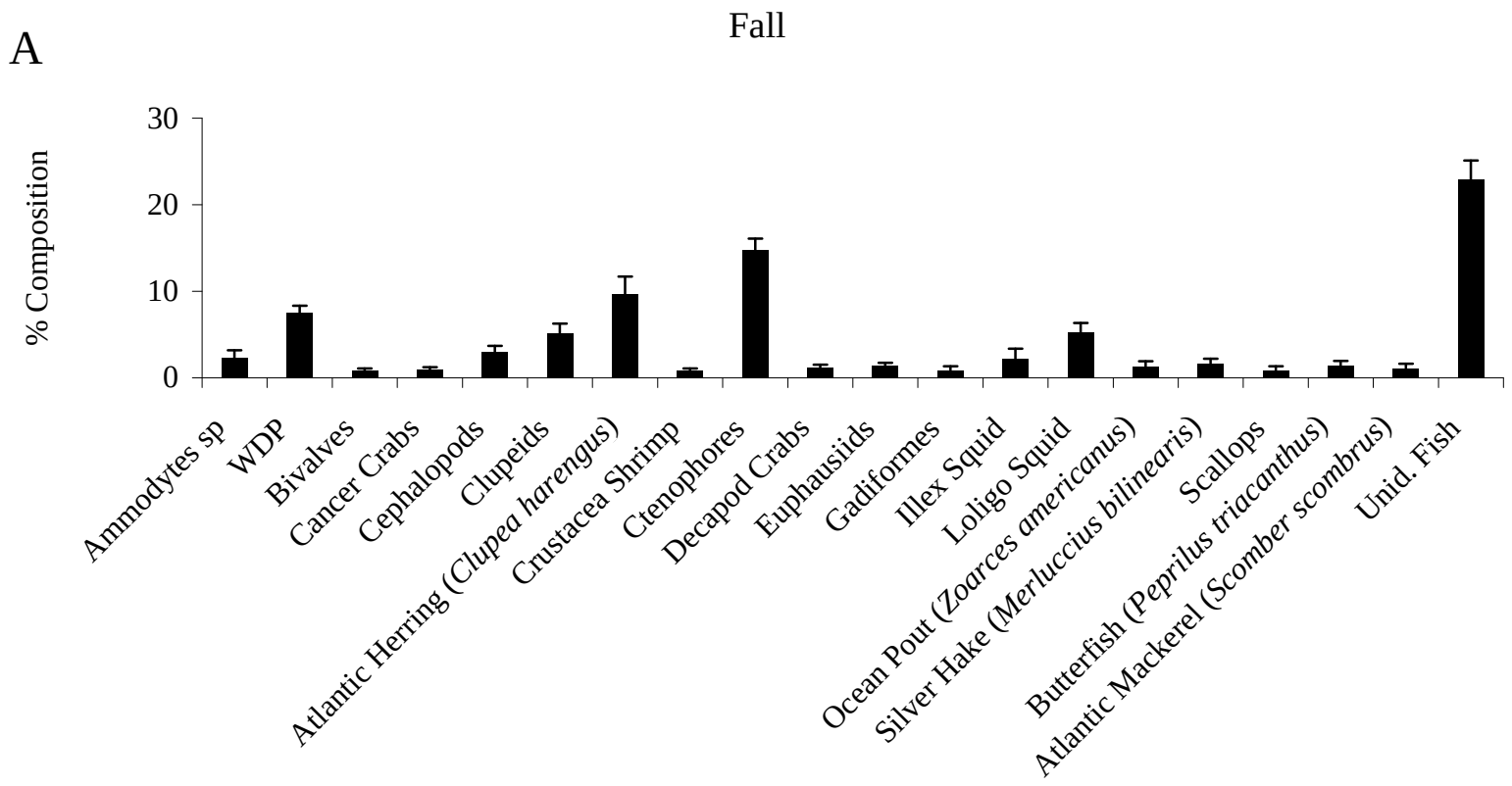

Figure 10A. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the fall (n = 17,488). WDP = well-digested prey; Unid. Fish = unidentified fish.

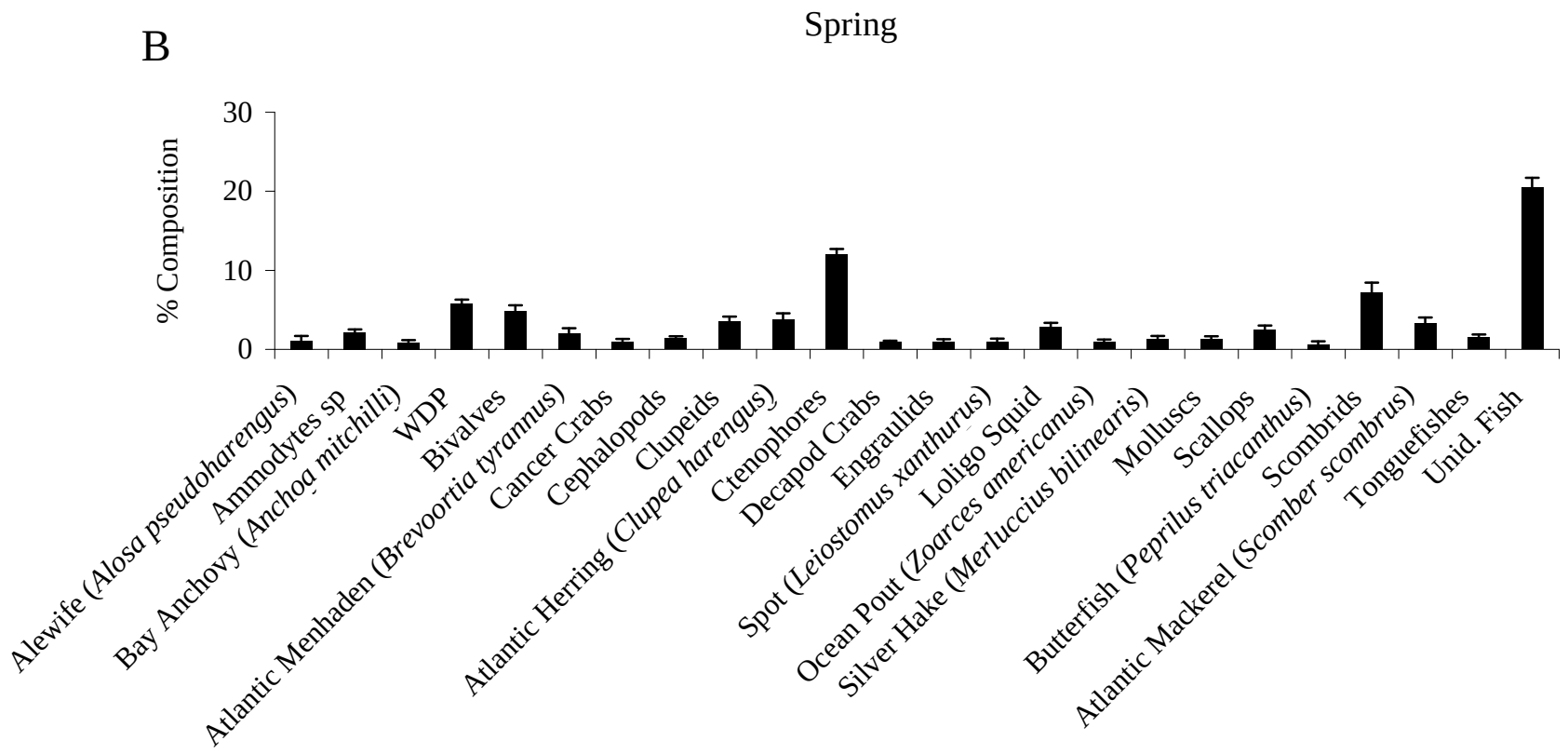

Figure 10B. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the spring (n = 32,929). WDP = well-digested prey; Unid. Fish = unidentified fish.

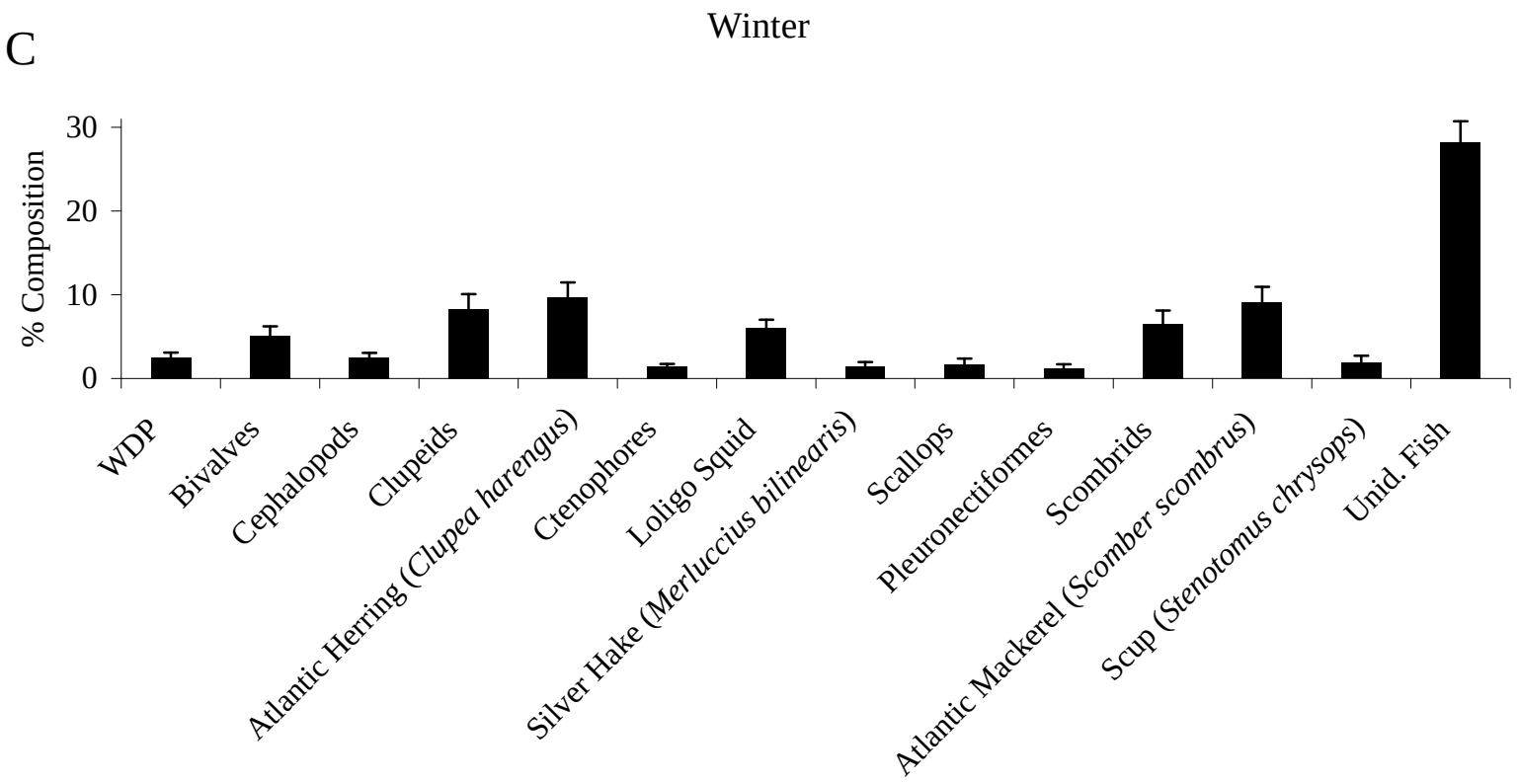

Figure 10C. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the winter (n = 11,266). WDP = well-digested prey; Unid. Fish = unidentified fish.

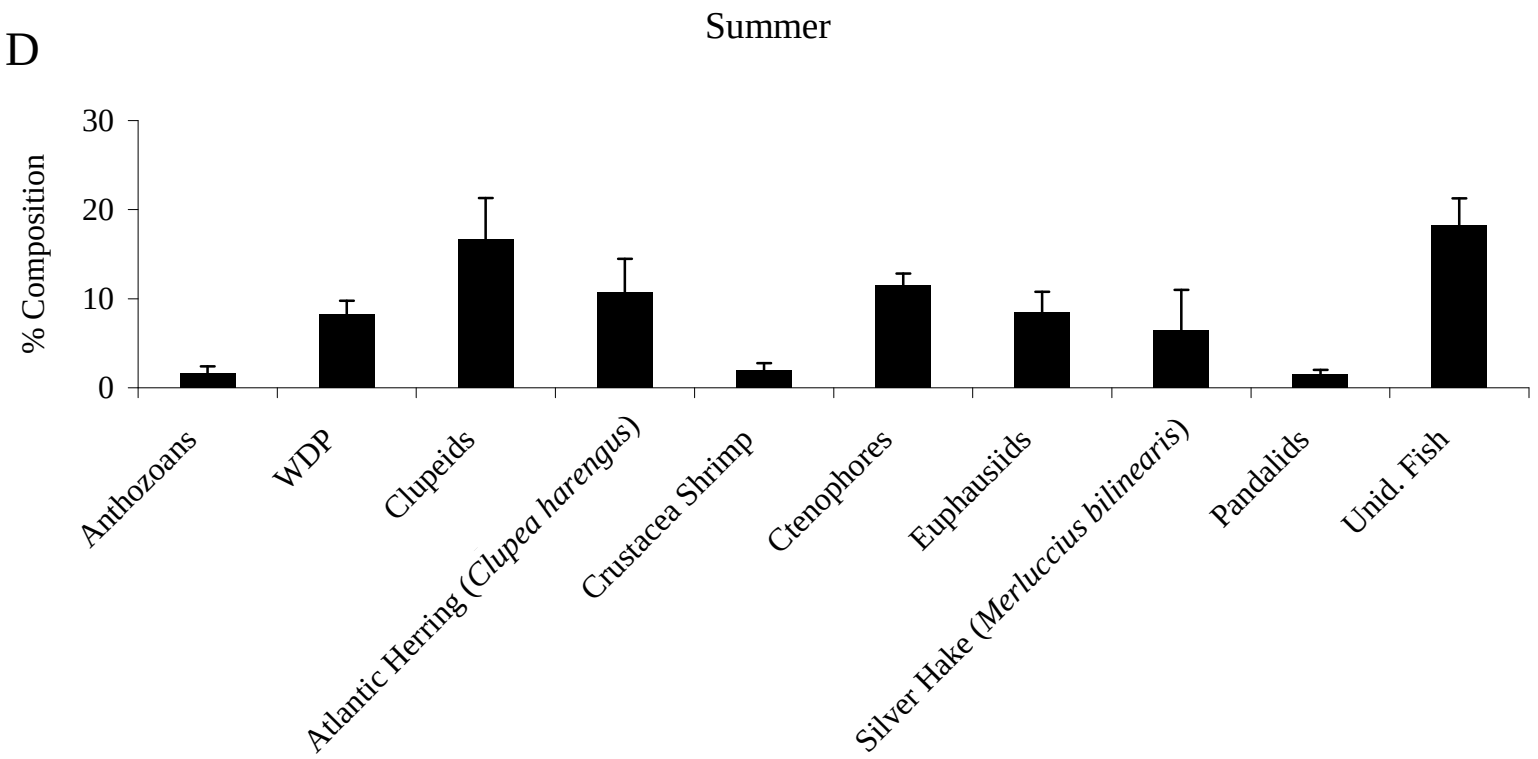

Figure 10D. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) collected in the summer (n = 4,142). WDP = well-digested prey; Unid. Fish = unidentified fish.

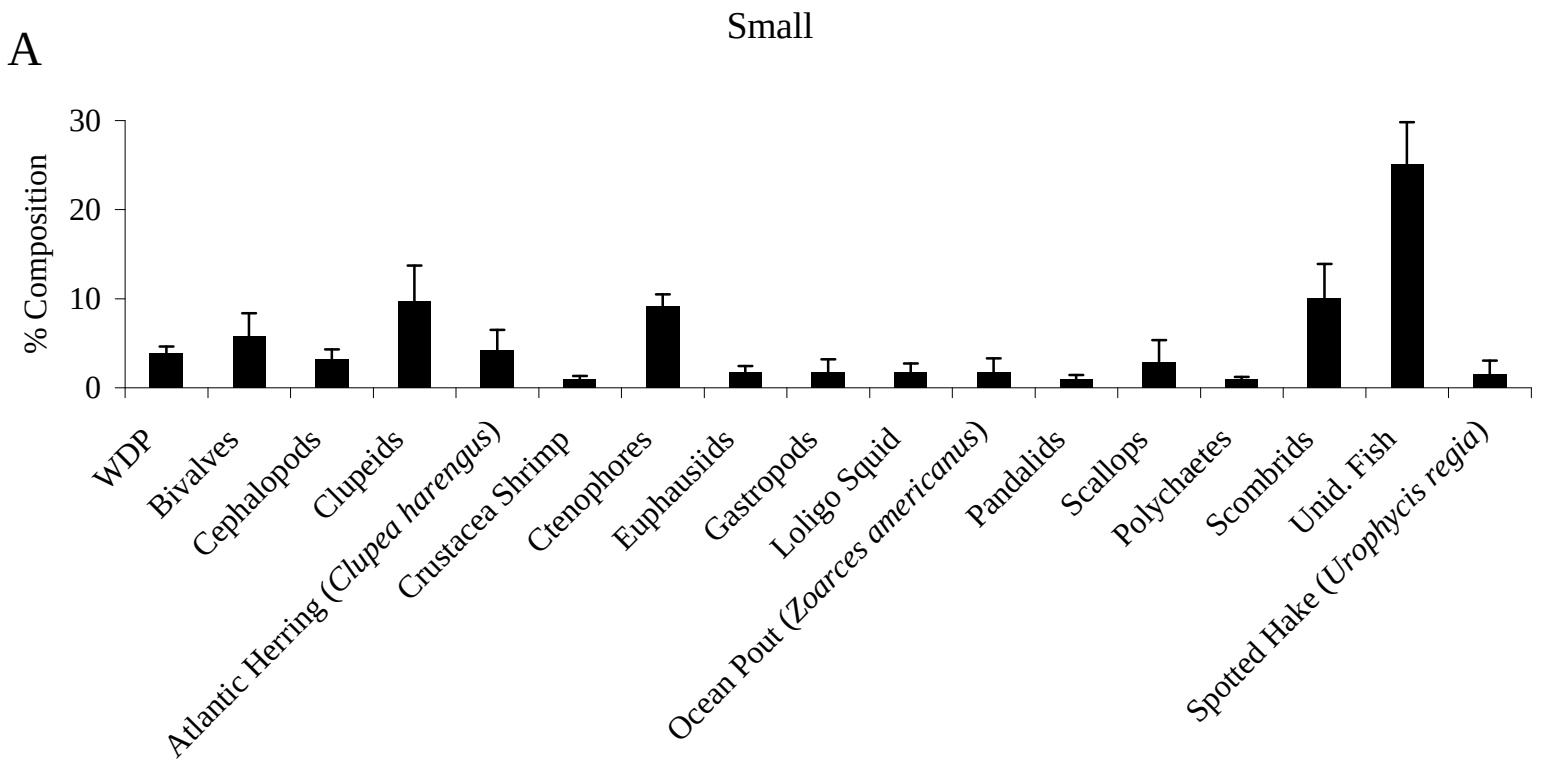

Figure 11A. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) in the small size class (n = 6,489). WDP = well-digested prey; Unid. Fish = unidentified fish.

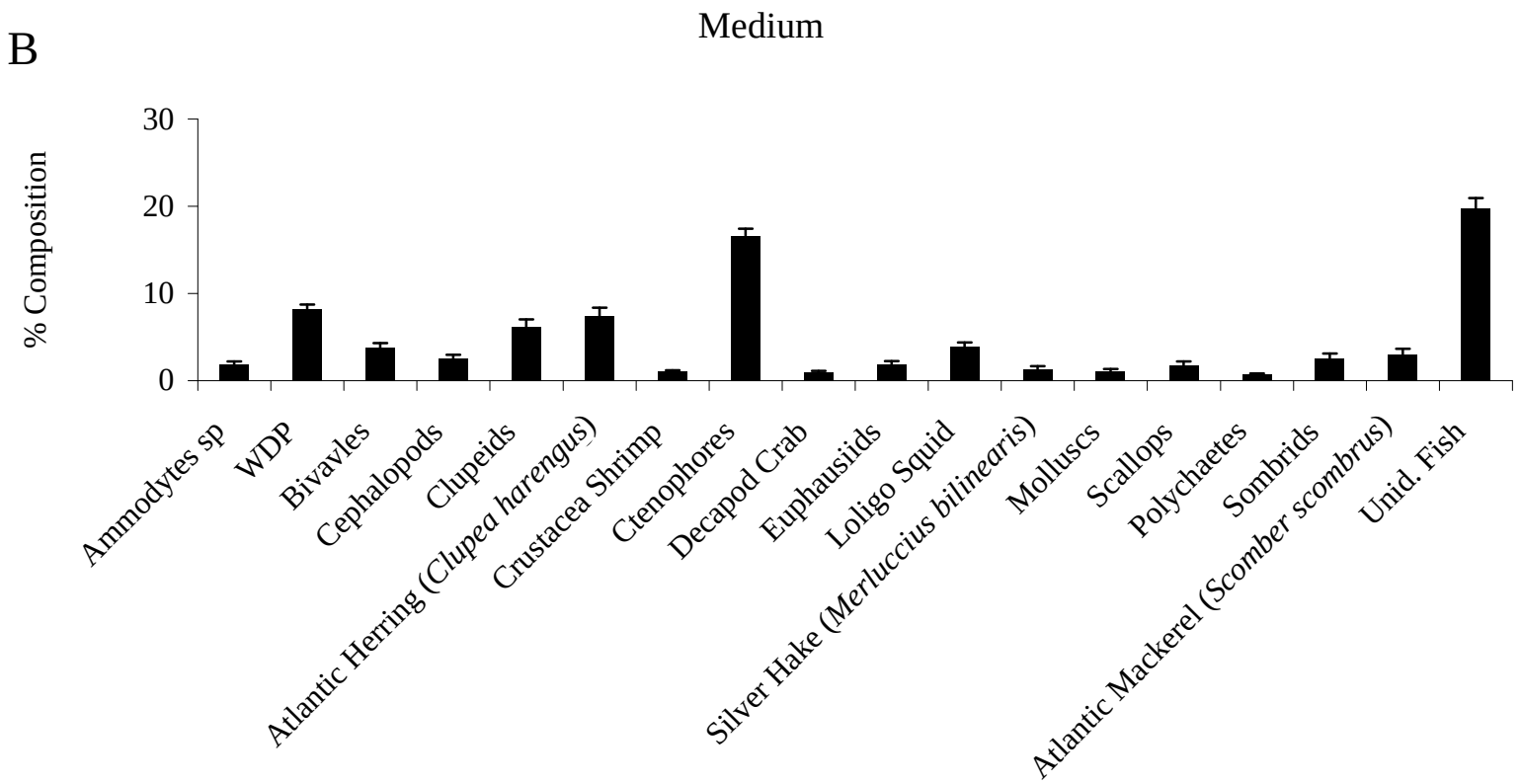

Figure 11B. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) in the medium size class (n = 42,364). WDP = well-digested prey; Unid. Fish = unidentified fish.

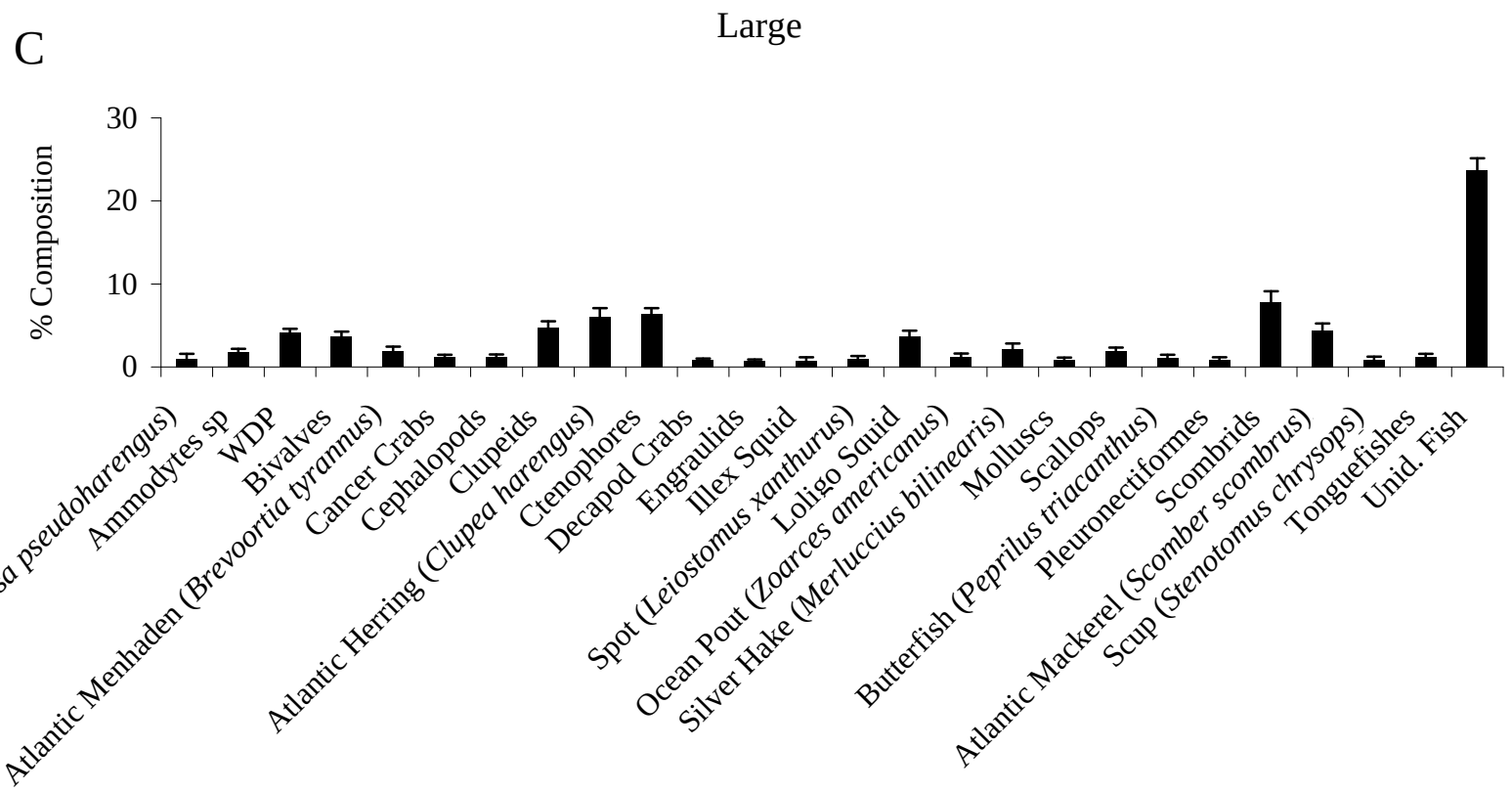

Figure 11C. Percent diet composition by weight of major prey taxa for spiny dogfish (*Squalus acanthias*) in the large size class (n = 16,972). WDP = well-digested prey; Unid. Fish = unidentified fish.

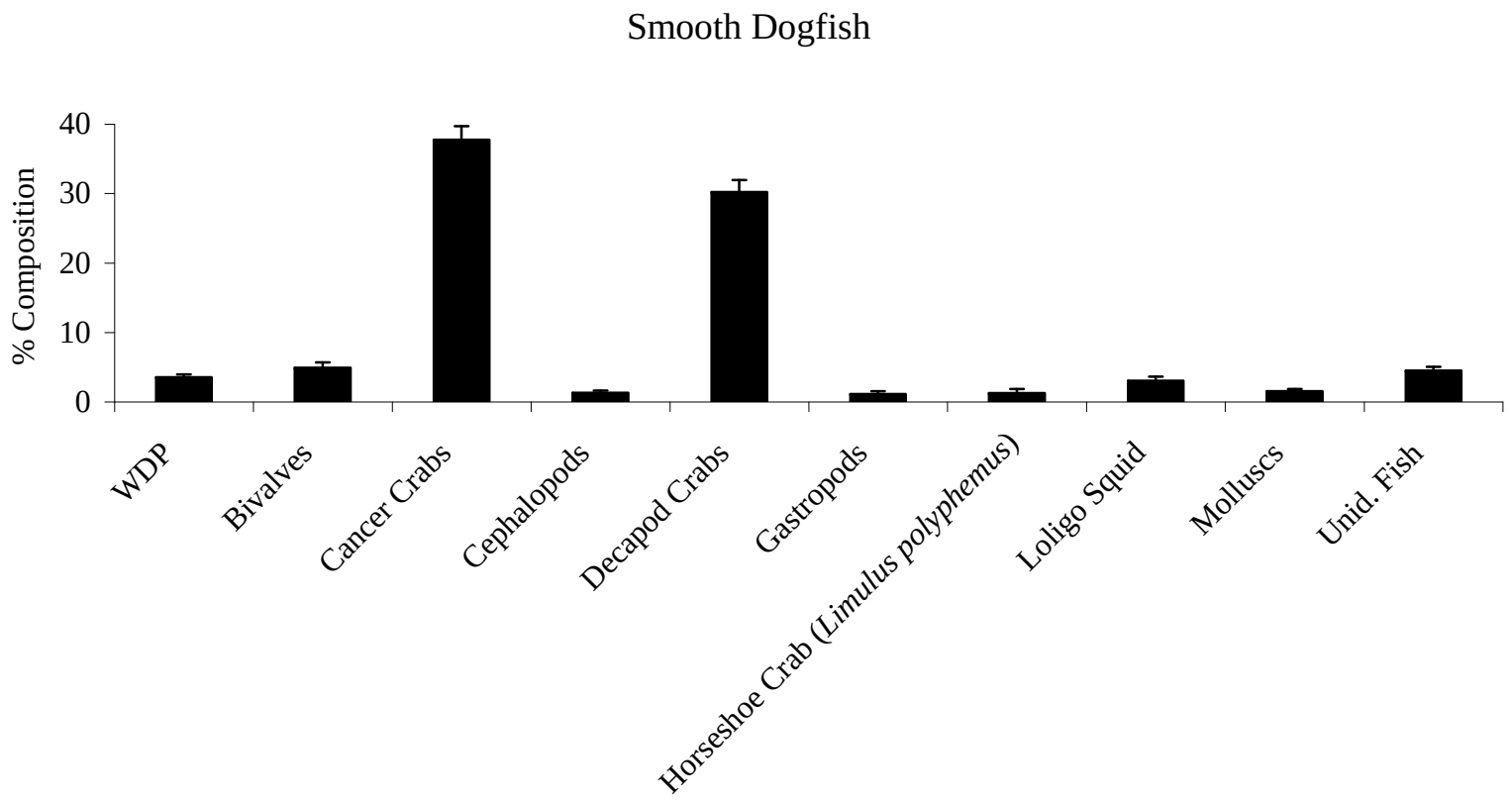

Figure 12. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus canis*; n = 7,697). WDP = well-digested prey; Unid. Fish = unidentified fish.

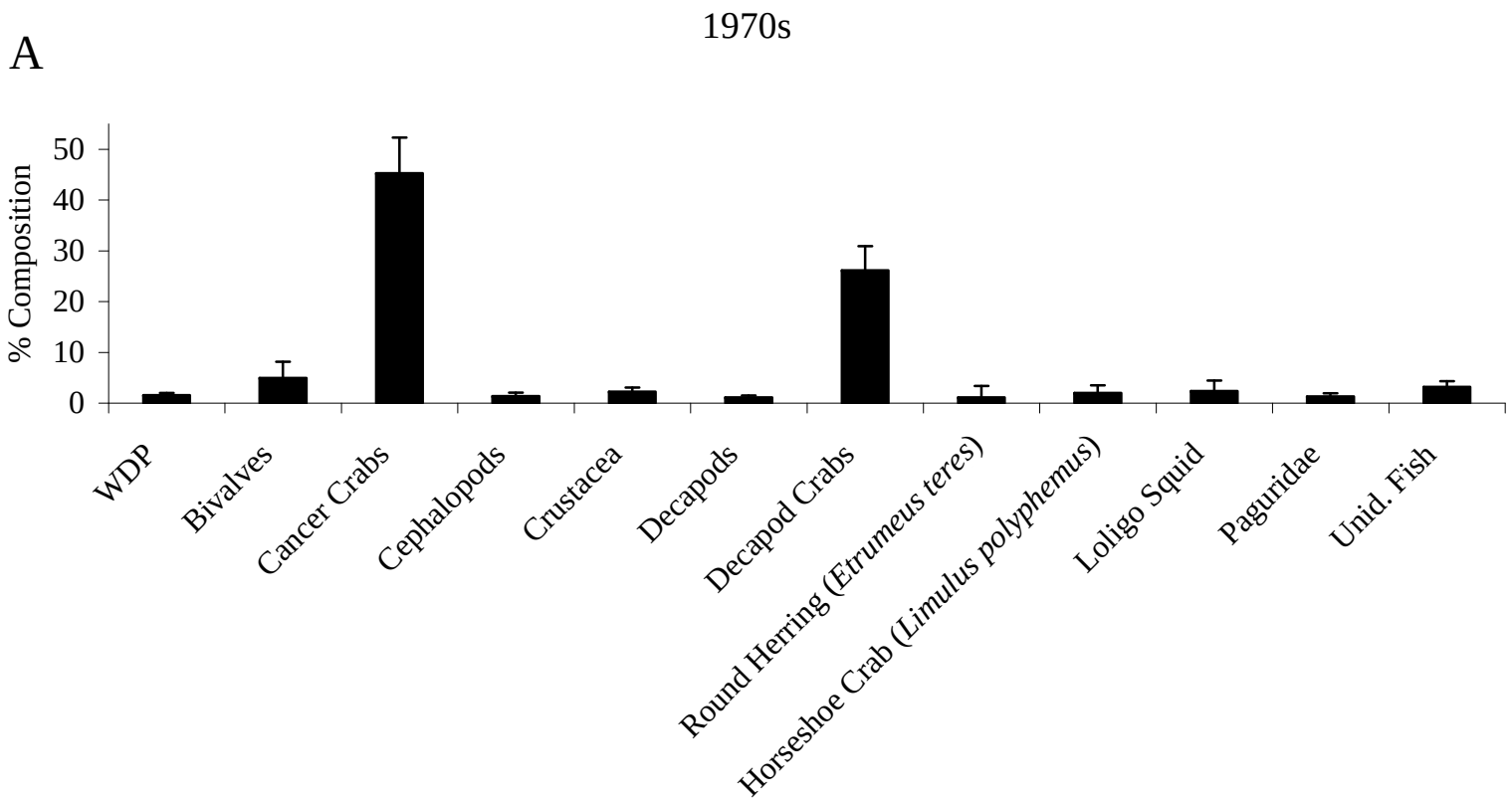

Figure 13A. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus canis*) collected in the 1970s (n = 573). WDP = well-digested prey; Unid. Fish = unidentified fish.

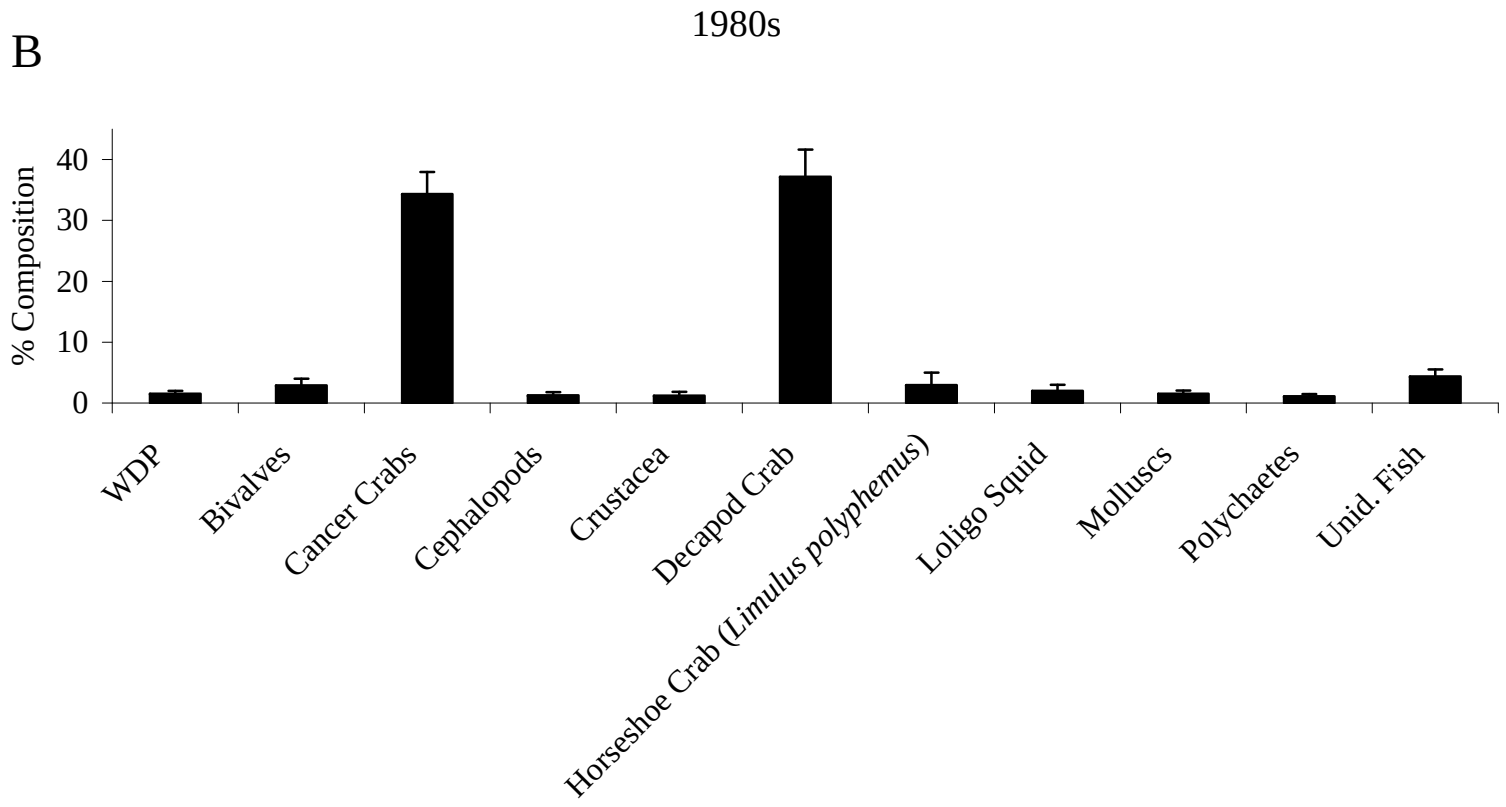

Figure 13B. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus canis*) collected in the 1980s (n = 1,579). WDP = well-digested prey; Unid. Fish = unidentified fish.

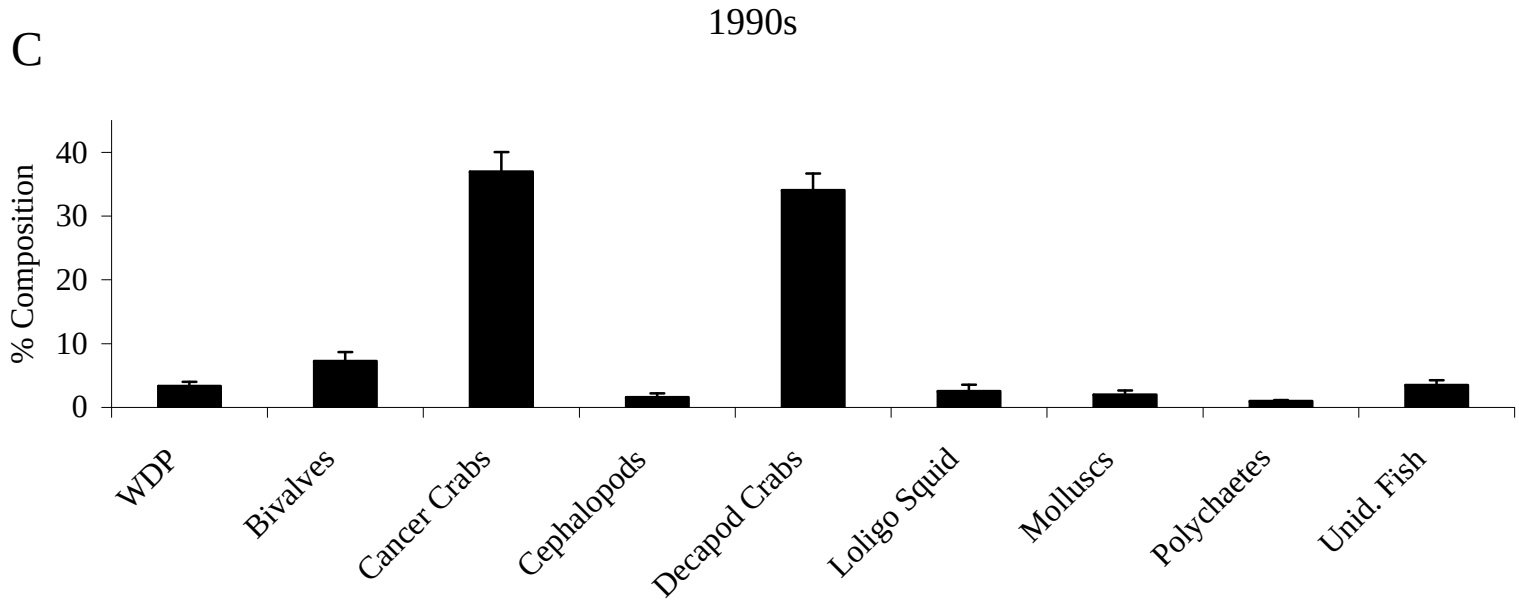

Figure 13C. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus canis*) collected in the 1990s (n = 2,157). WDP = well-digested prey; Unid. Fish = unidentified fish.

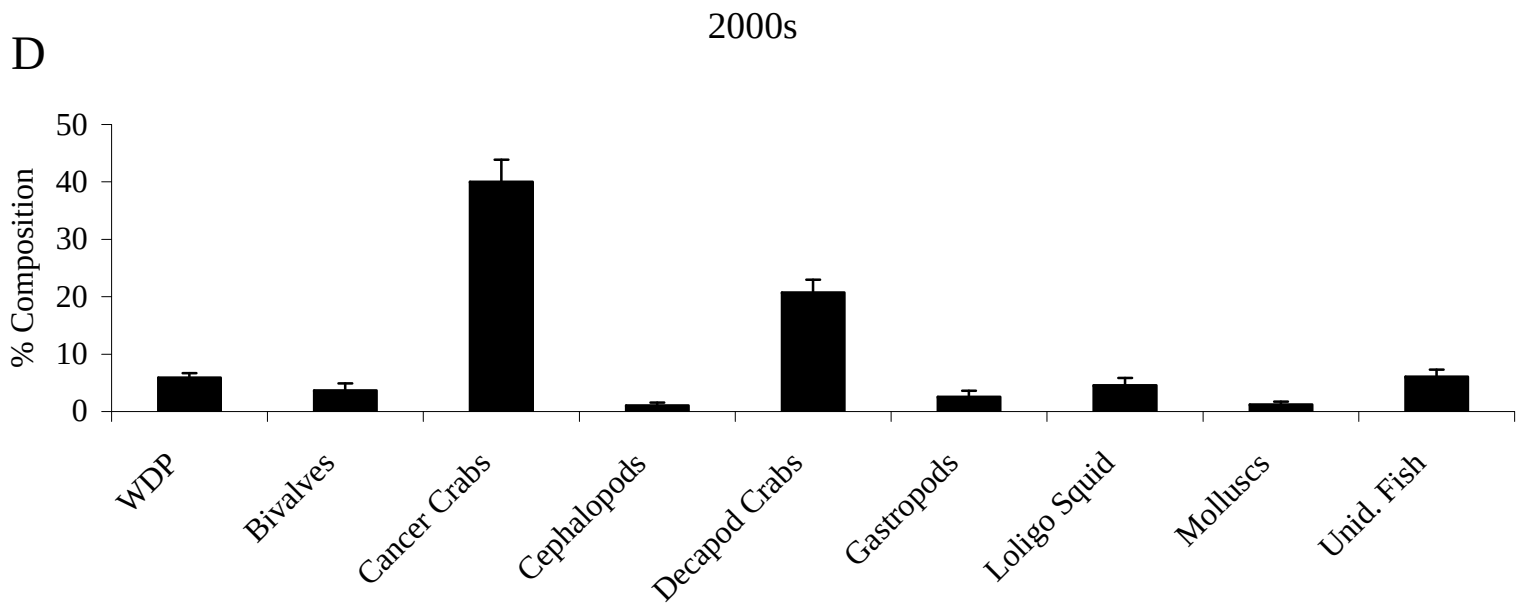

Figure 13D. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus canis*) collected in the 2000s (n = 2,491). WDP = well-digested prey; Unid. Fish = unidentified fish.

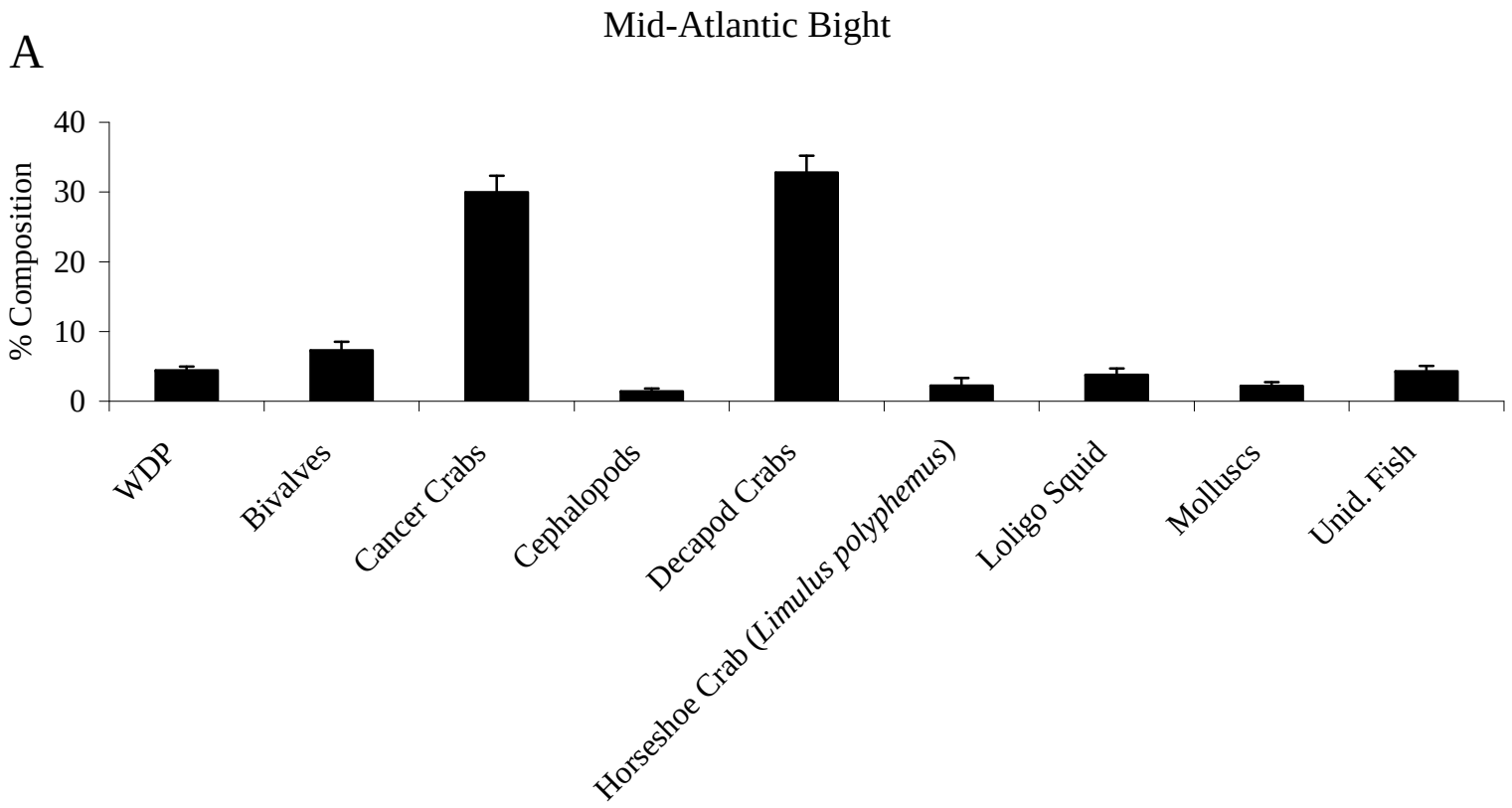

Figure 14A. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus canis*) collected in the Mid-Atlantic Bight (n = 4,416). WDP = well-digested prey; Unid. Fish = unidentified fish.

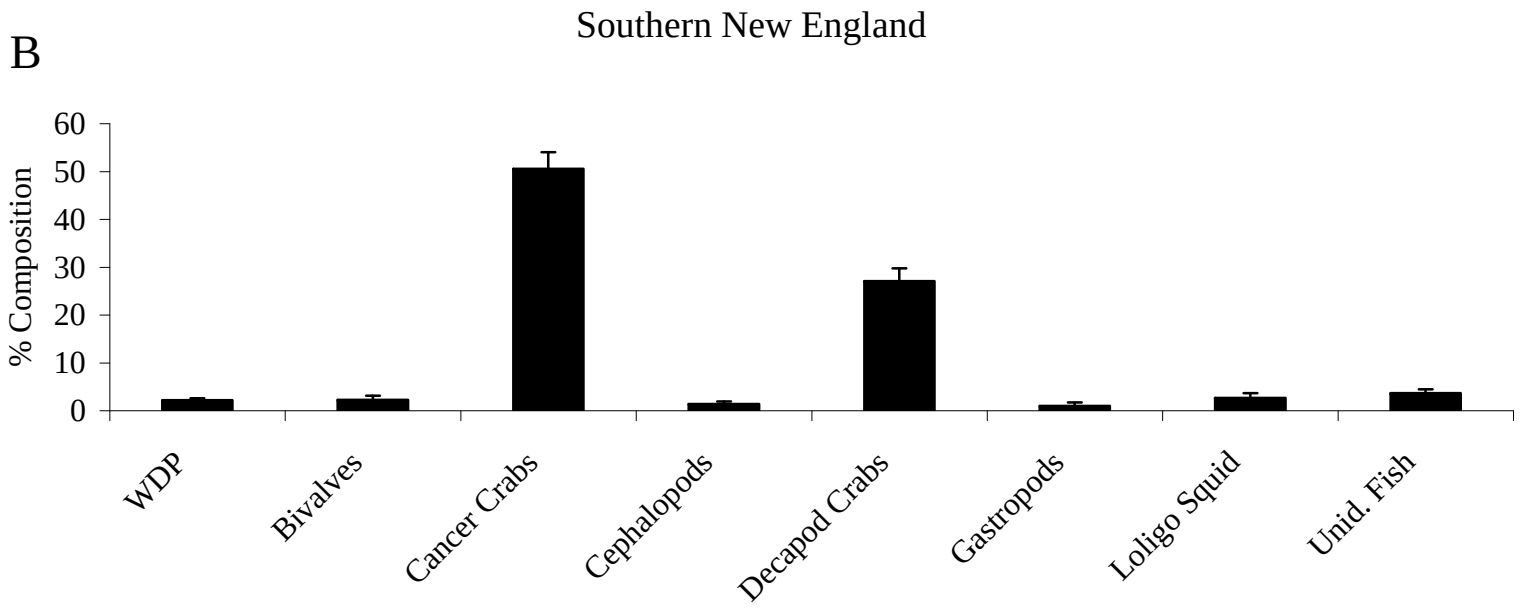

Figure 14B. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus canis*) collected in Southern New England (n = 1,648). WDP = well-digested prey; Unid. Fish = unidentified fish.

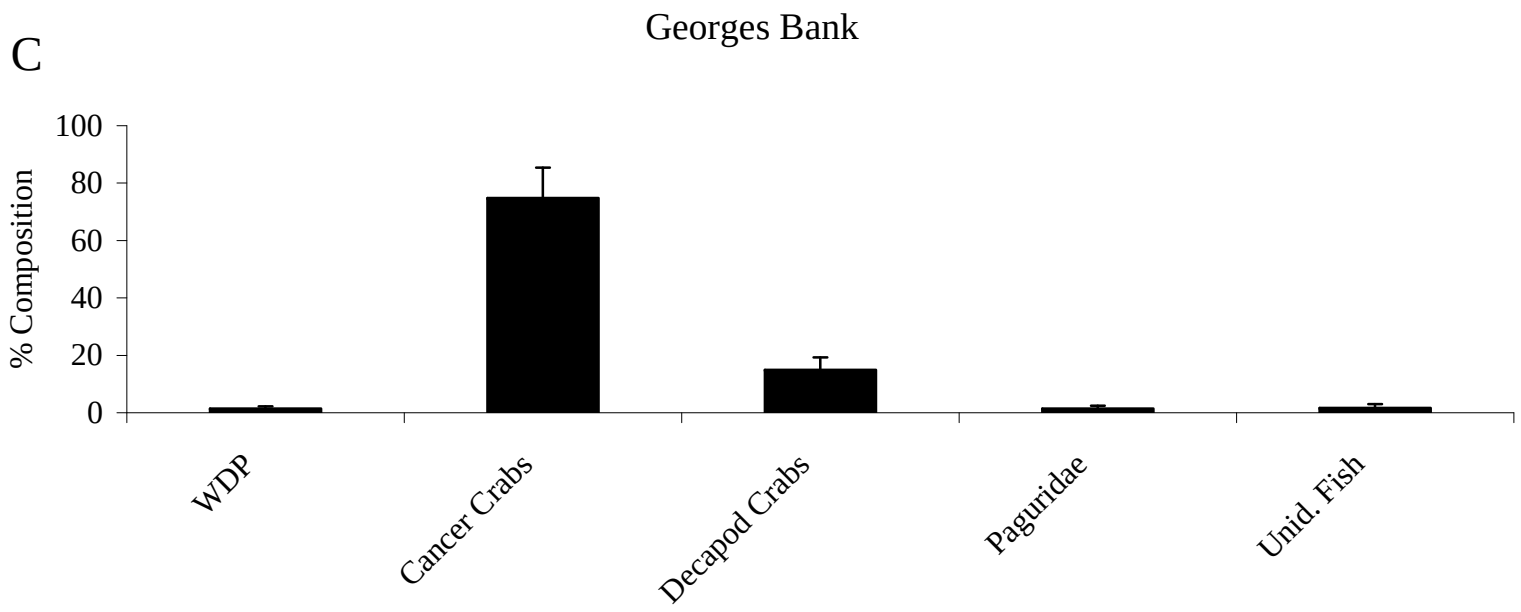

Figure 14C. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus* canis) collected on Georges Bank (n = 220). WDP = well-digested prey; Unid. Fish = unidentified fish.

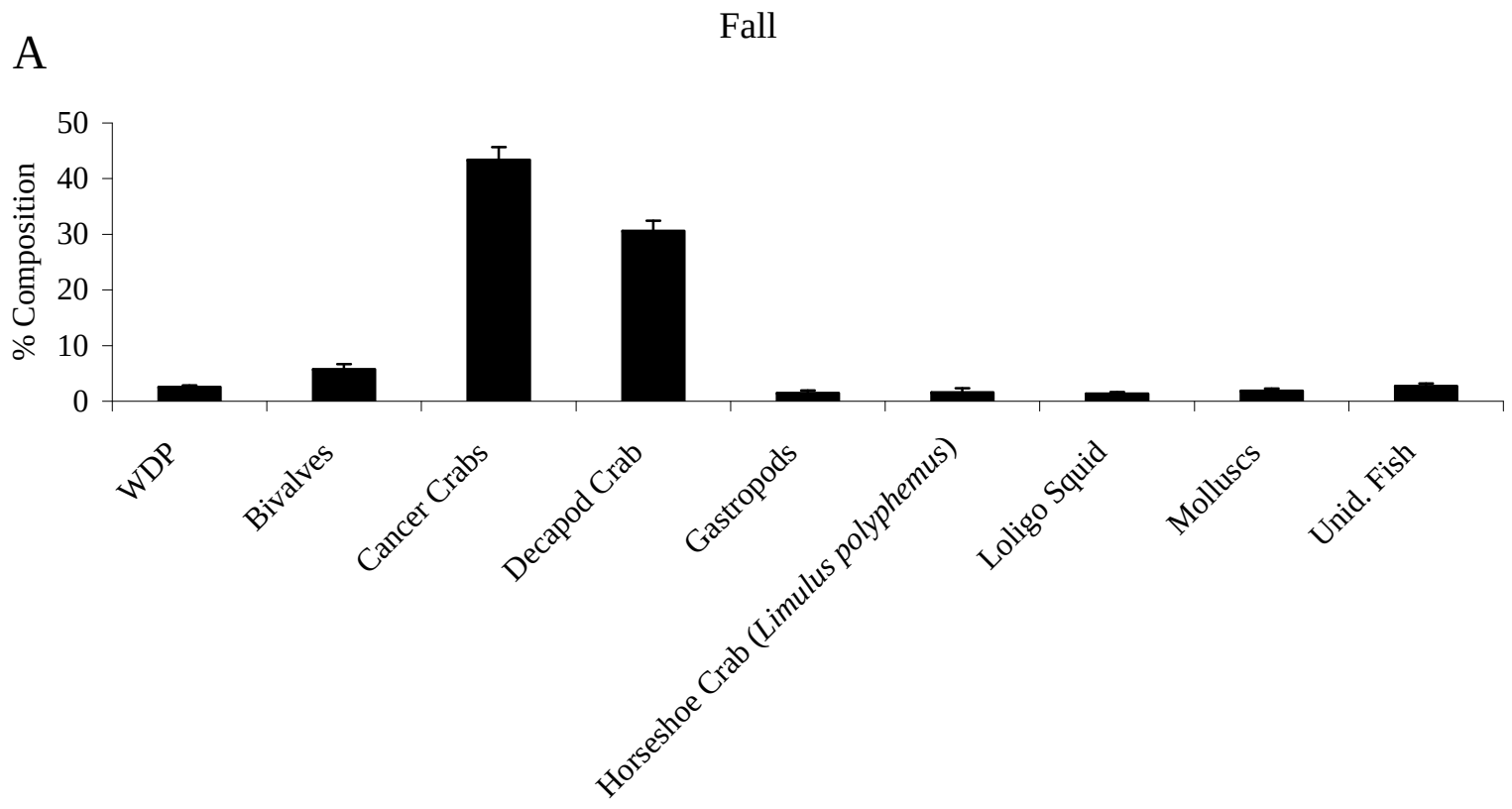

Figure 15A. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus* canis) collected in the fall (n = 4,316). WDP = well-digested prey; Unid. Fish = unidentified fish.

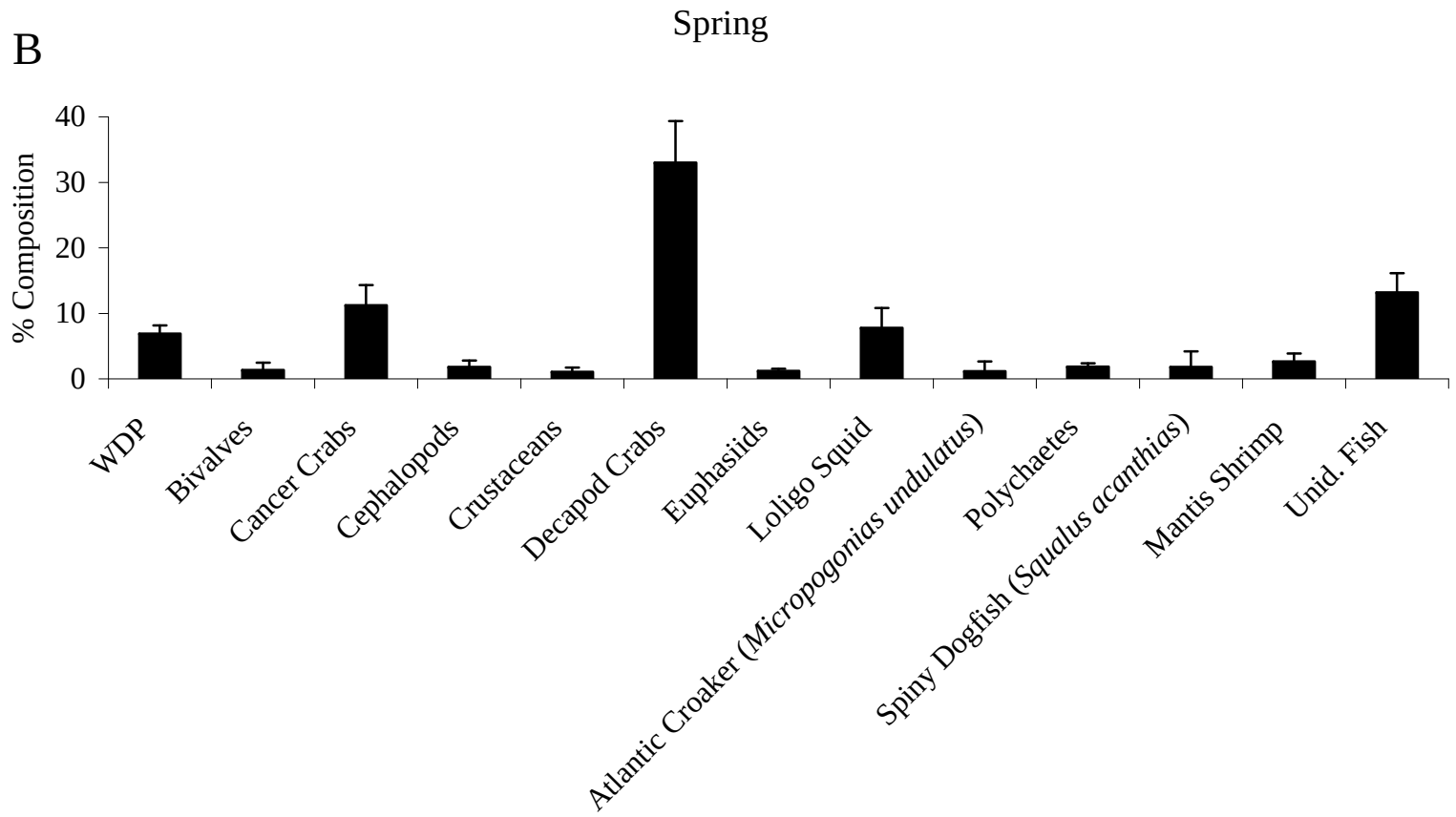

Figure 15B. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus* canis) collected in the spring (n = 1,419). WDP = well-digested prey; Unid. Fish = unidentified fish.

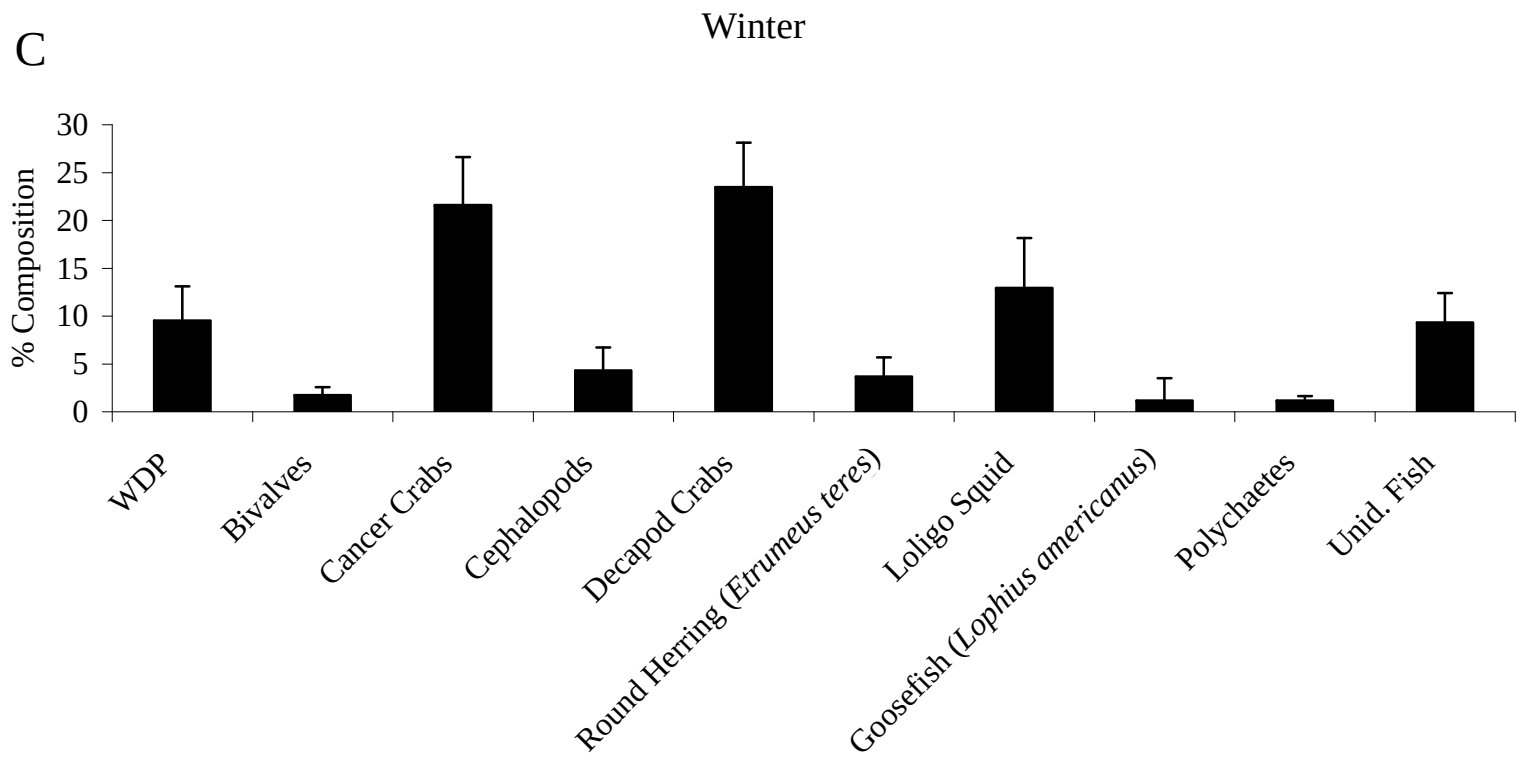

Figure 15C. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus* canis) collected collected in the winter (n = 812). WDP = well-digested prey; Unid. Fish = unidentified fish.

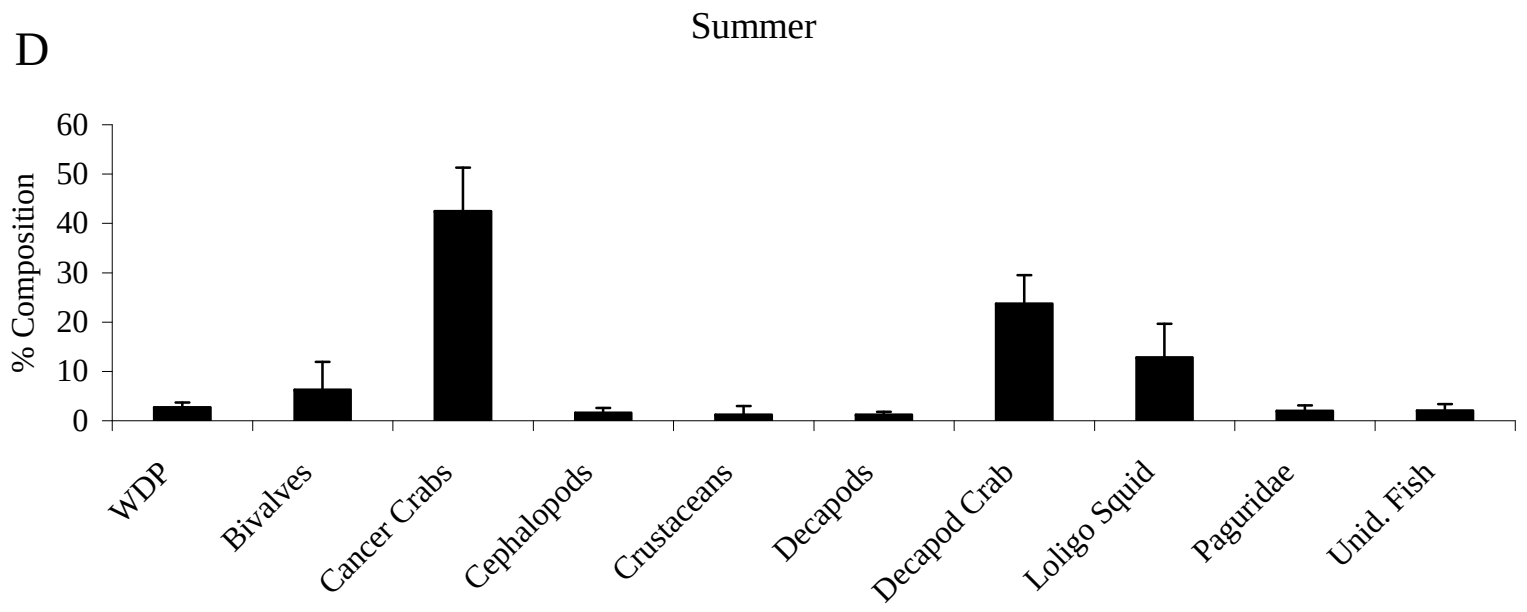

Figure 15D. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus* canis) collected in the summer (n = 253). WDP = well-digested prey; Unid. Fish = unidentified fish.

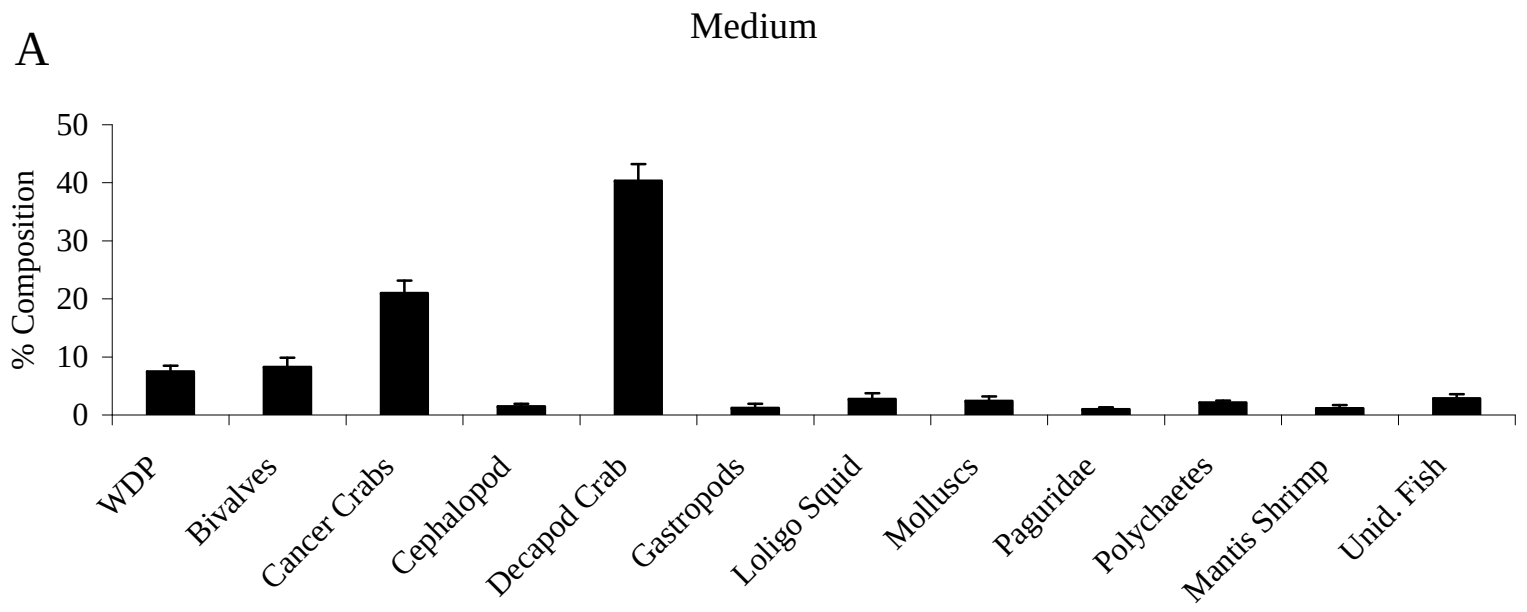

Figure 16A. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus* canis) in the medium size class (n = 2,581). WDP = well-digested prey; Unid. Fish = unidentified fish.

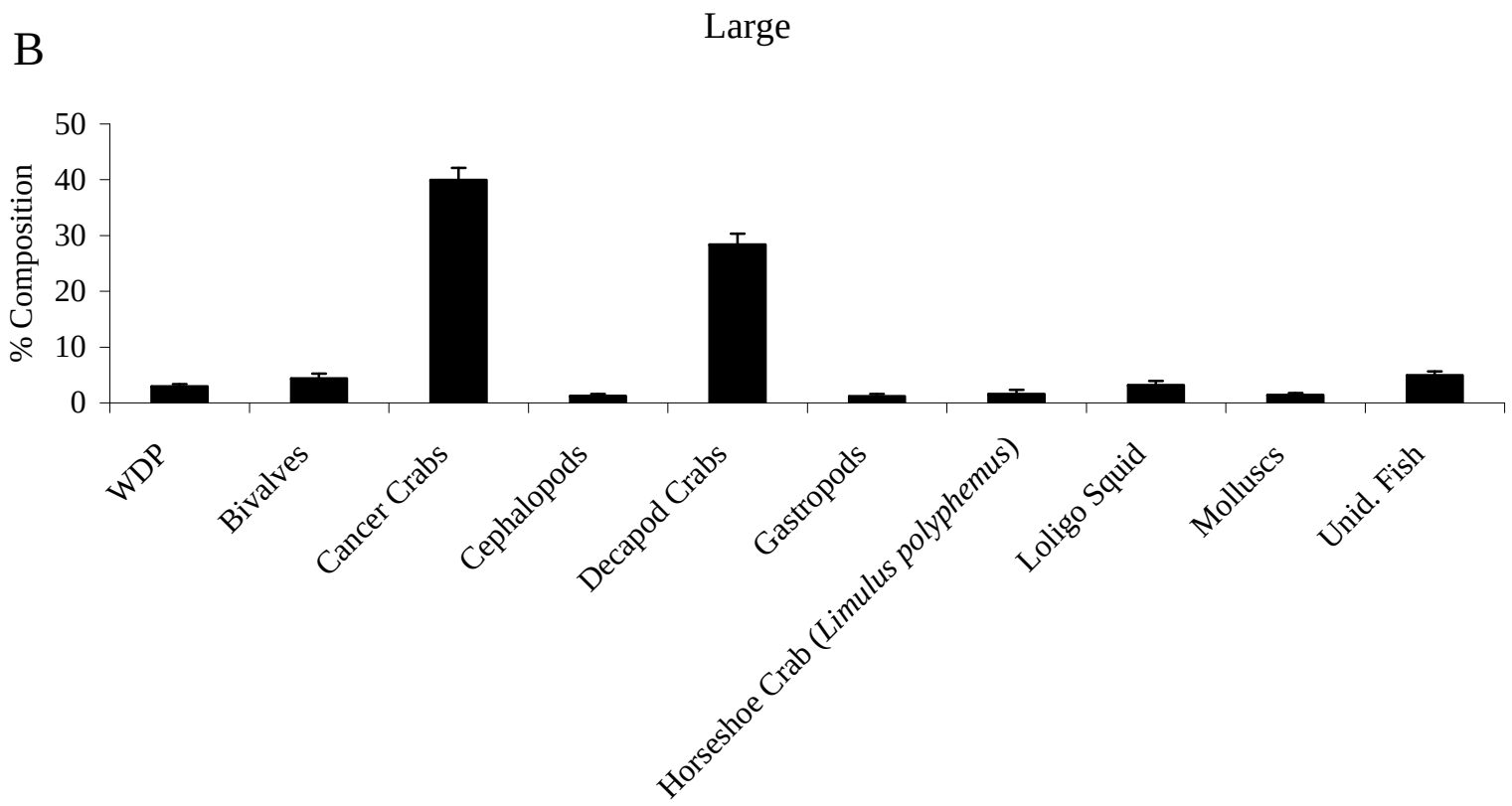

Figure 16B. Percent diet composition by weight of major prey taxa for smooth dogfish (*Mustelus* canis) in the large size class (n = 4,251). WDP = well-digested prey; Unid. Fish = unidentified fish.

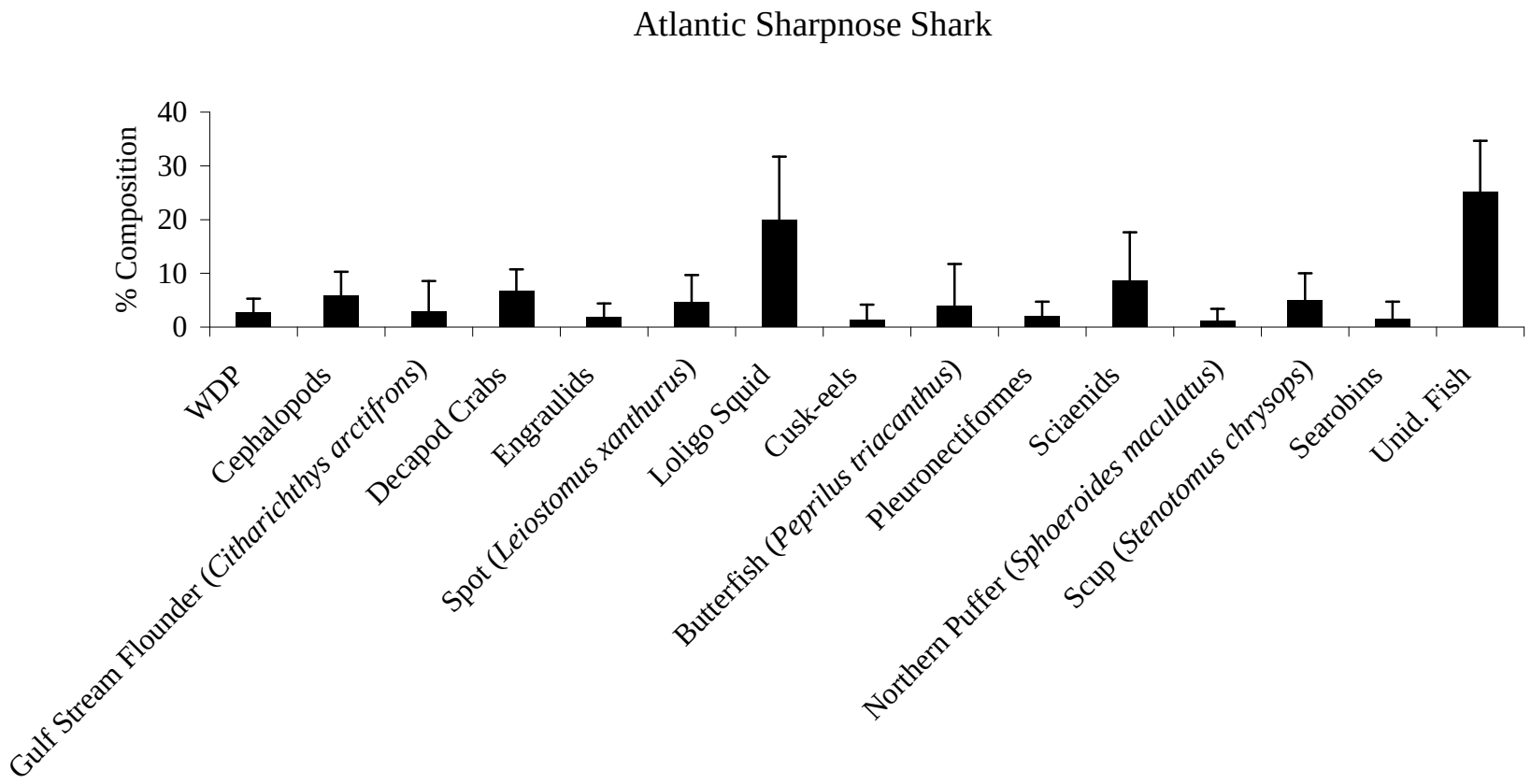

Figure 17. Percent diet composition by weight of major prey taxa for Atlantic sharpnose shark (*Rhizoprionodon terraenovae*; n = 217). WDP = well-digested prey; Unid. Fish = unidentified fish.

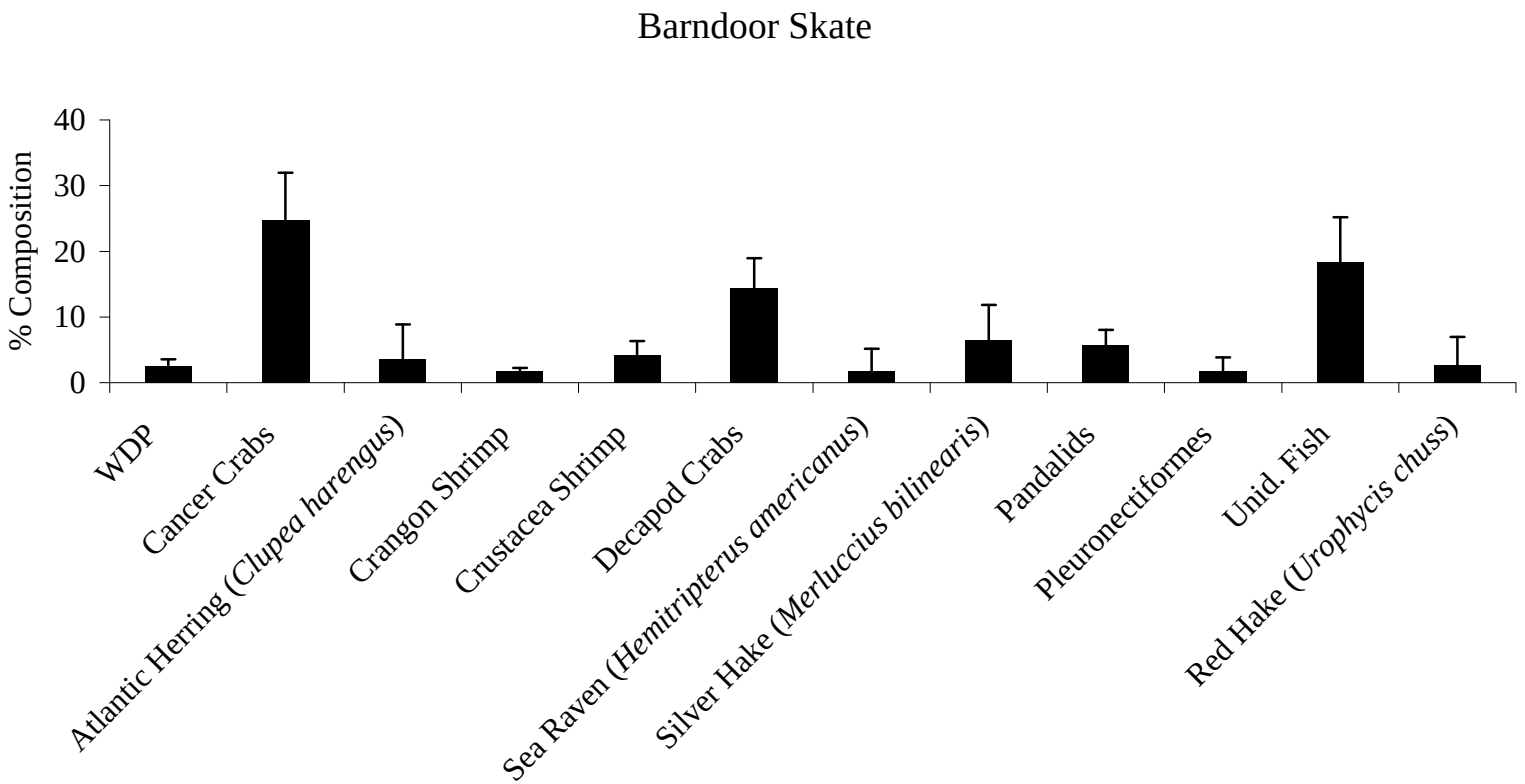

Figure 18. Percent diet composition by weight of major prey taxa for barndoor skate (*Dipturus laevis*; n = 655). WDP = well-digested prey; Unid. Fish = unidentified fish.

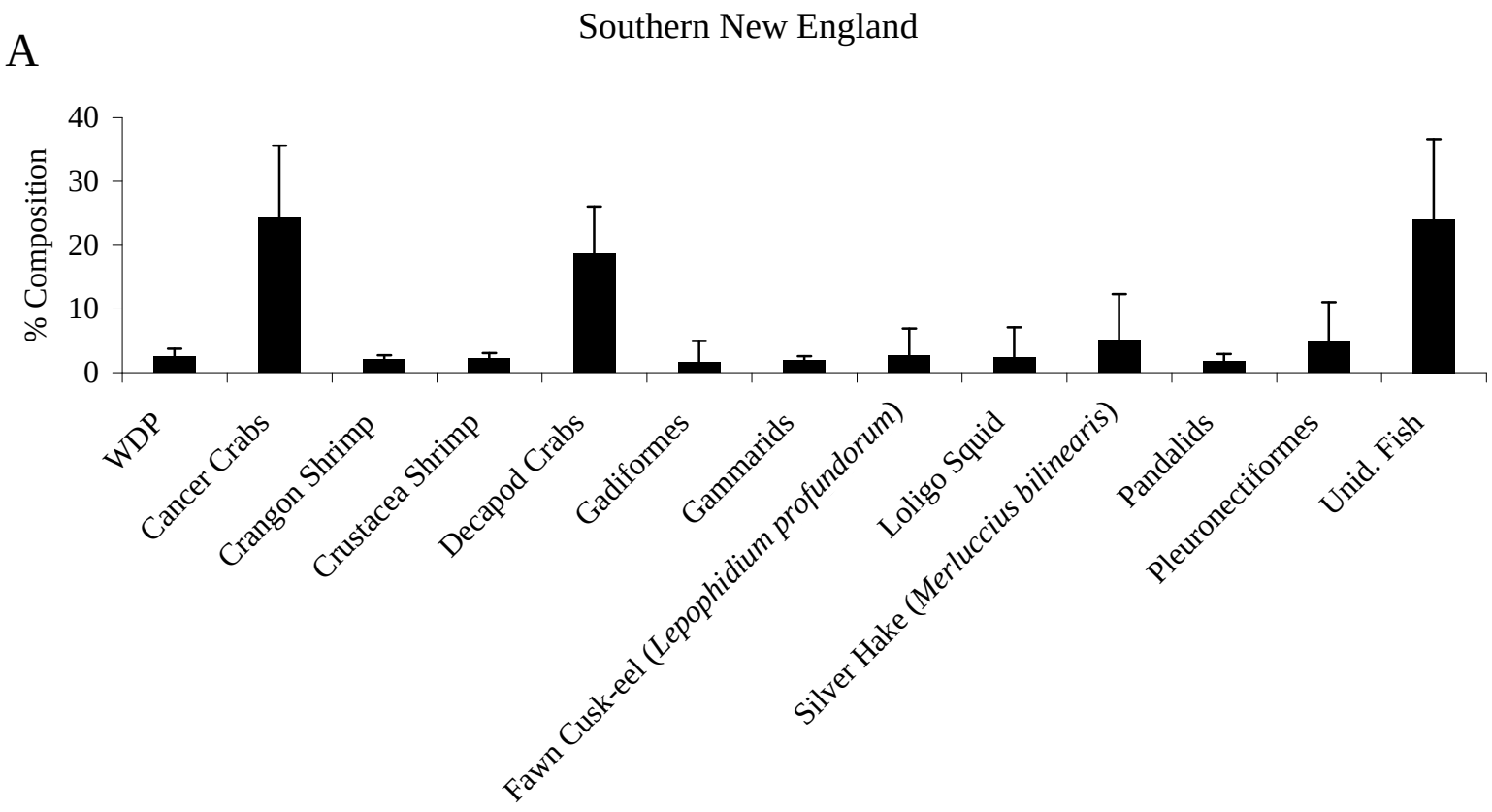

Figure 19A. Percent diet composition by weight of major prey taxa for barndoor skate (*Dipturus laevis*) collected in Southern New England (n = 326). WDP = well-digested prey; Unid. Fish = unidentified fish.

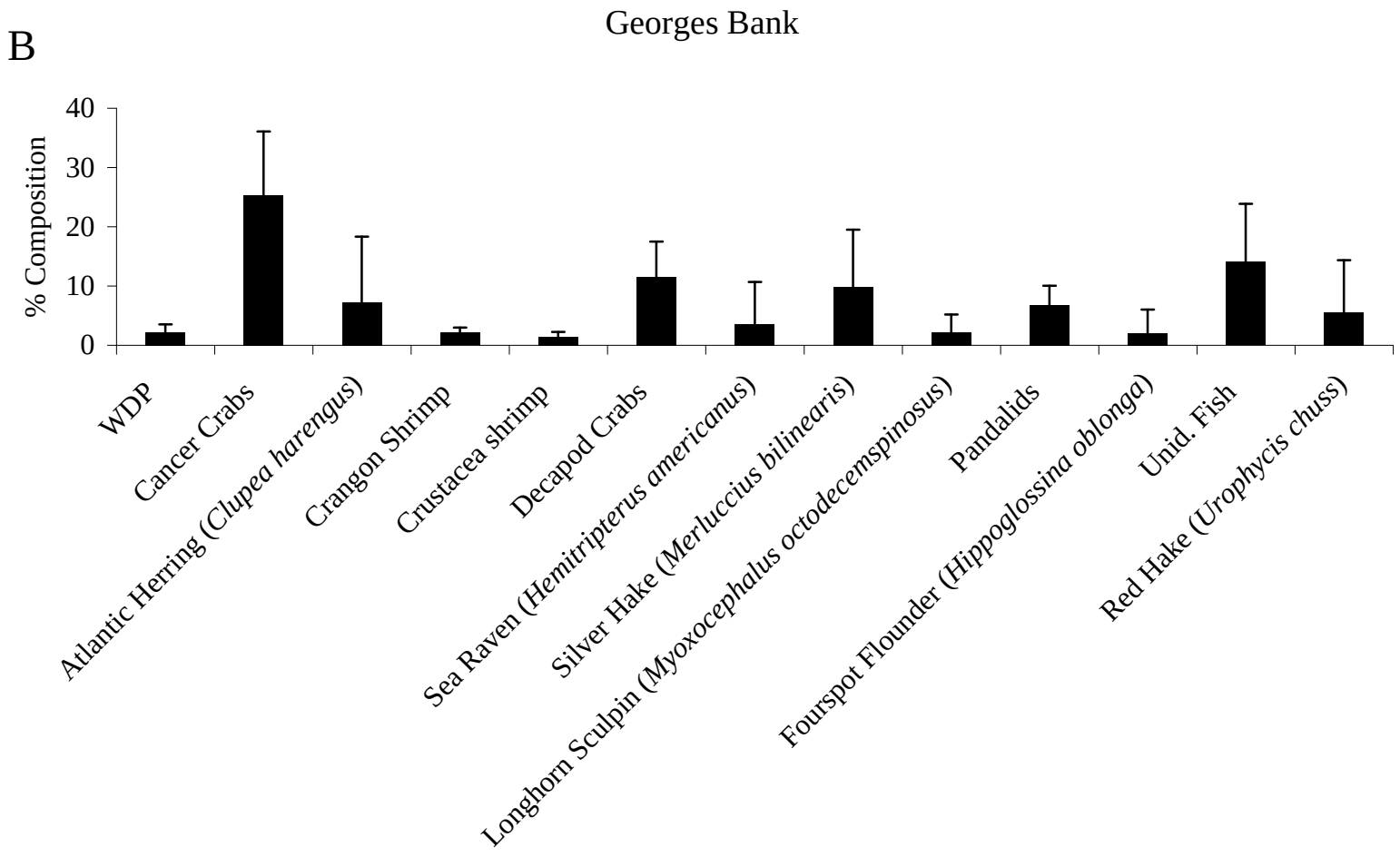

Figure 19B. Percent diet composition by weight of major prey taxa for barndoor skate (*Dipturus laevis*) collected collected on Georges Bank (n = 277). WDP = well-digested prey; Unid. Fish = unidentified fish.

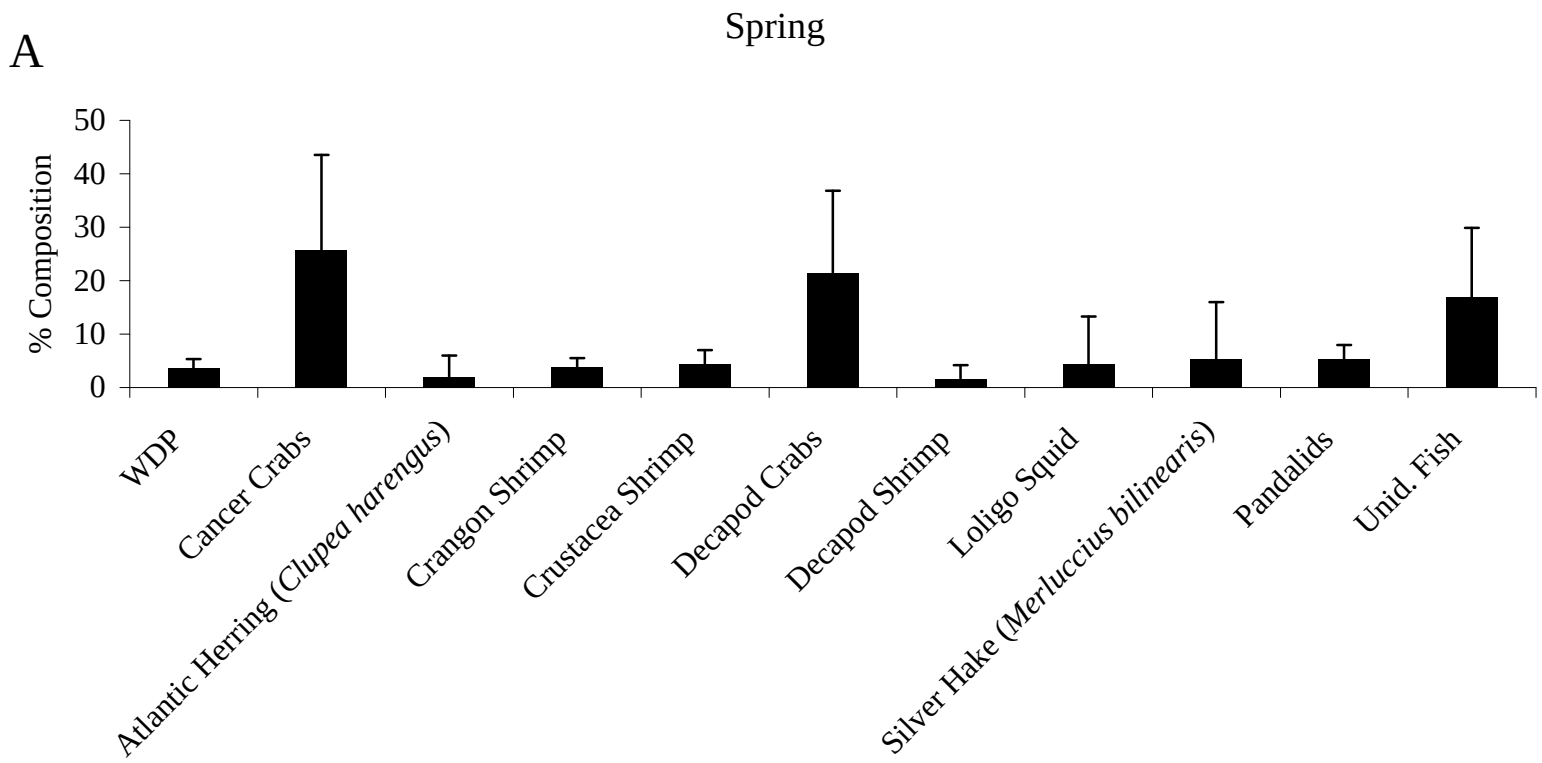

Figure 20A. Percent diet composition by weight of major prey taxa for barndoor skate (*Dipturus laevis*) collected in the spring (n = 200). WDP = well-digested prey; Unid. Fish = unidentified fish.

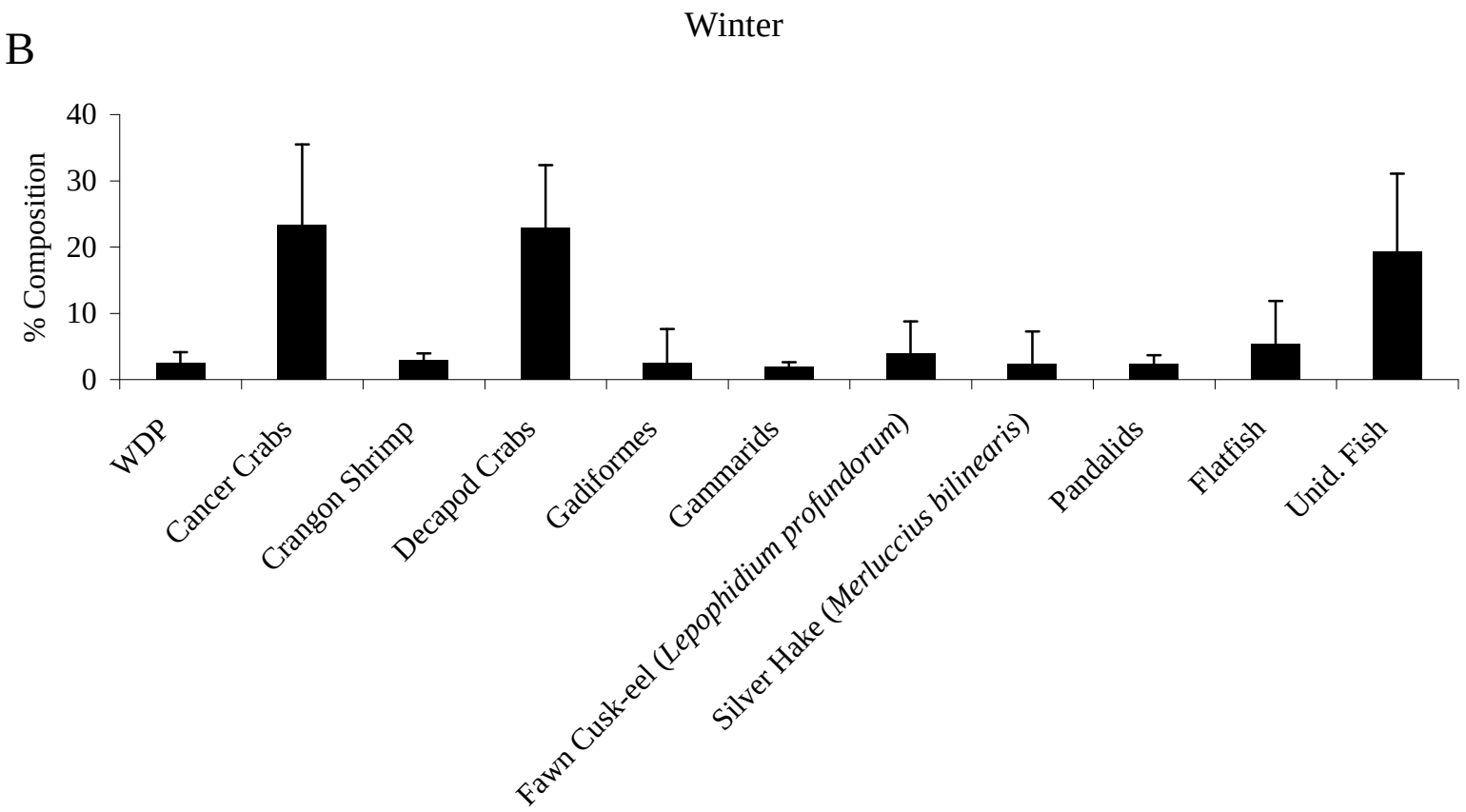

Figure 20B. Percent diet composition by weight of major prey taxa for barndoor skate (*Dipturus laevis*) collected collected in the winter (n = 291). WDP = well-digested prey; Unid. Fish = unidentified fish.

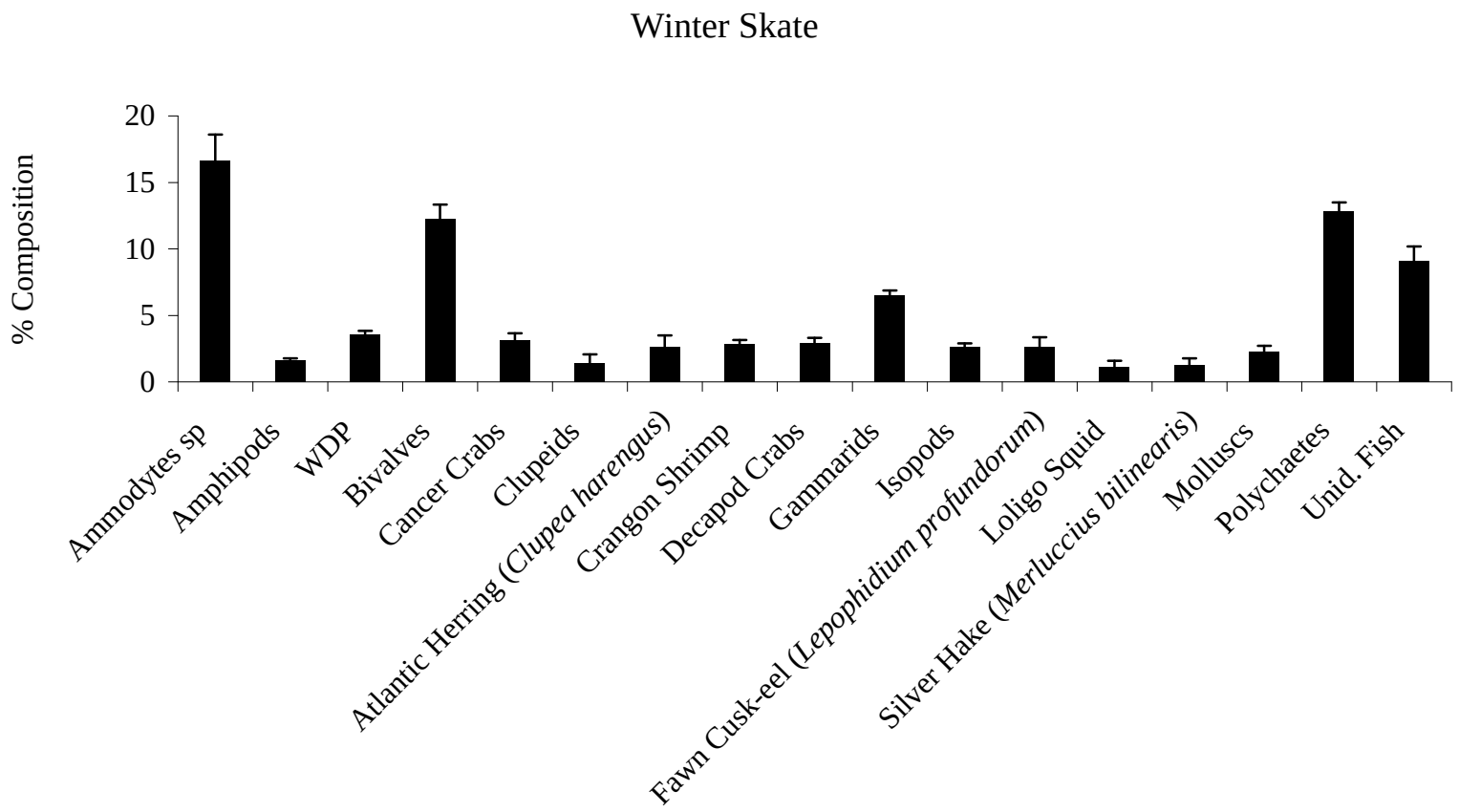

Figure 21. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*; n = 17,143). WDP = well-digested prey; Unid. Fish = unidentified fish.

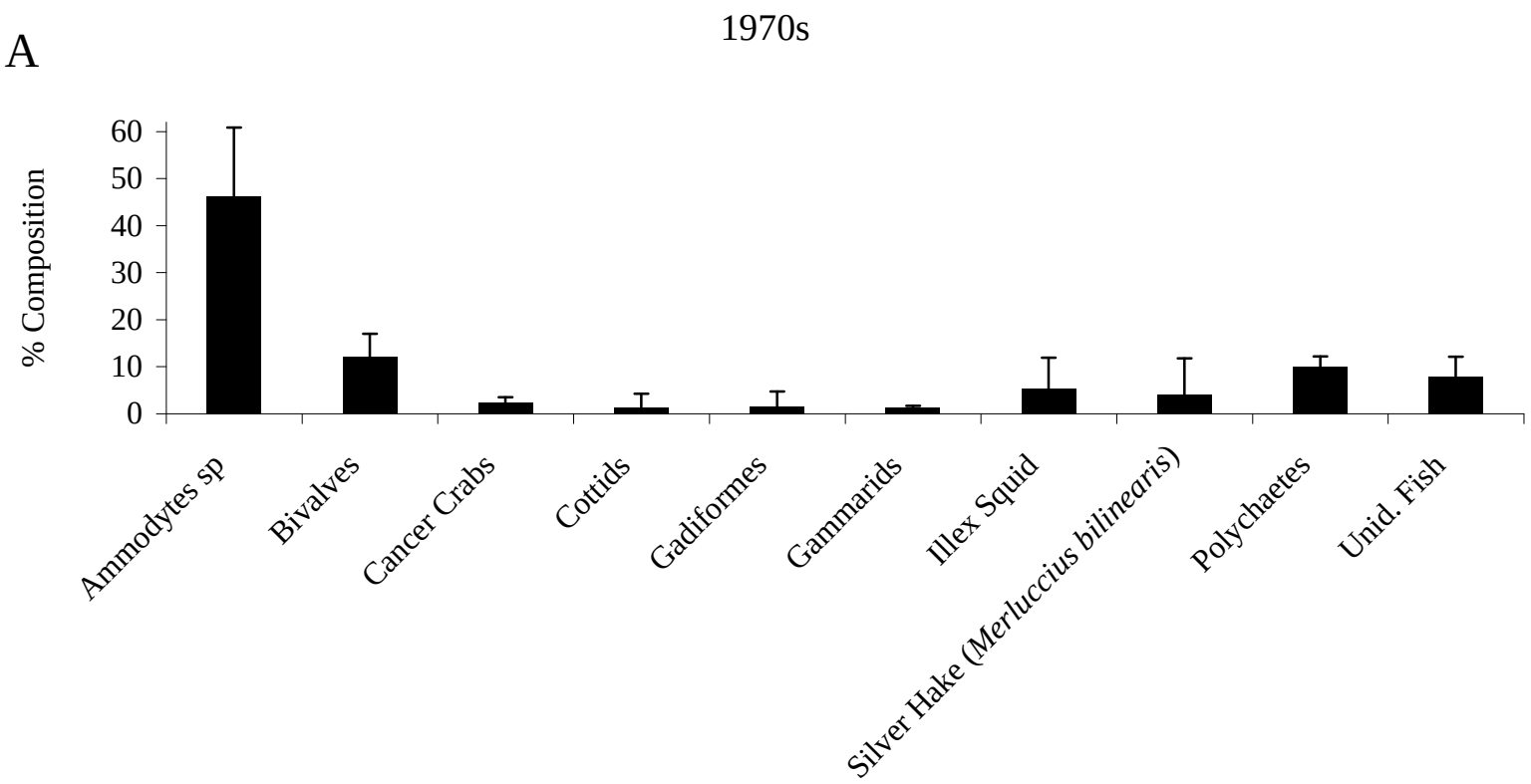

Figure 22A. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the 1970s (n = 479). Unid. Fish = unidentified fish.

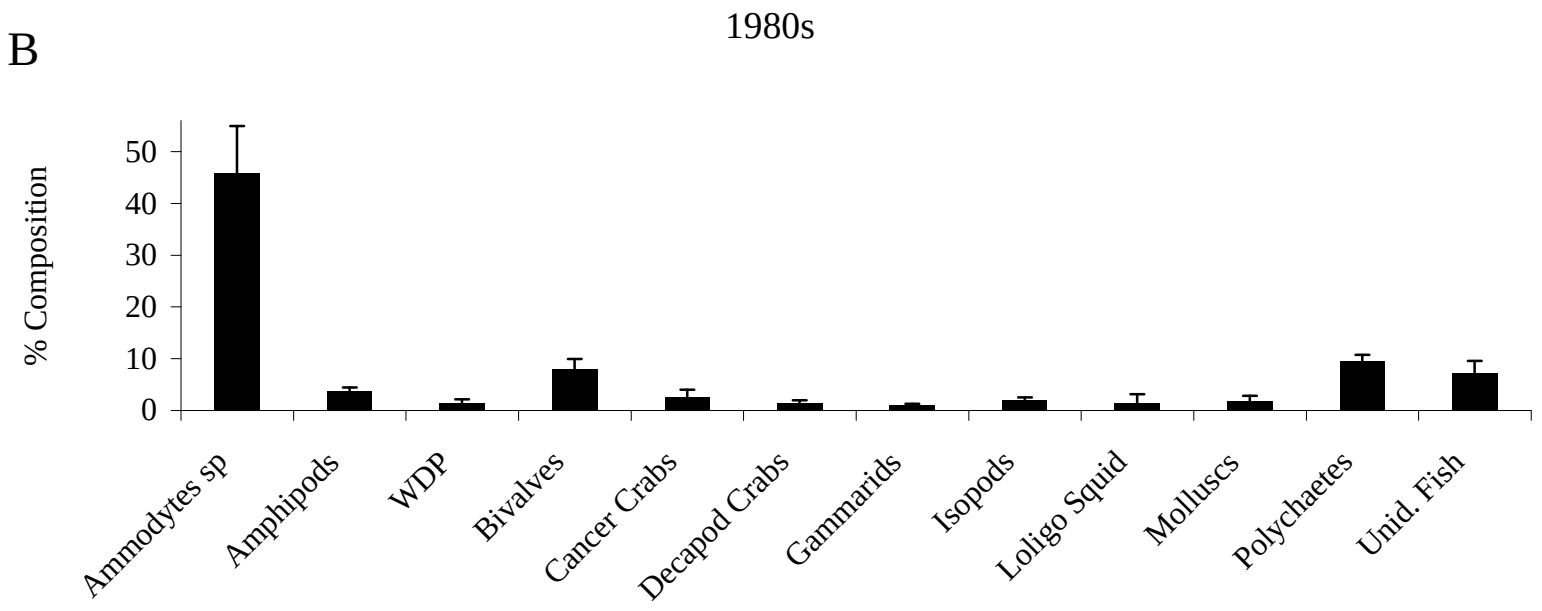

Figure 22B. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the 1980s (n = 3,225). WDP = well-digested prey; Unid. Fish = unidentified fish.

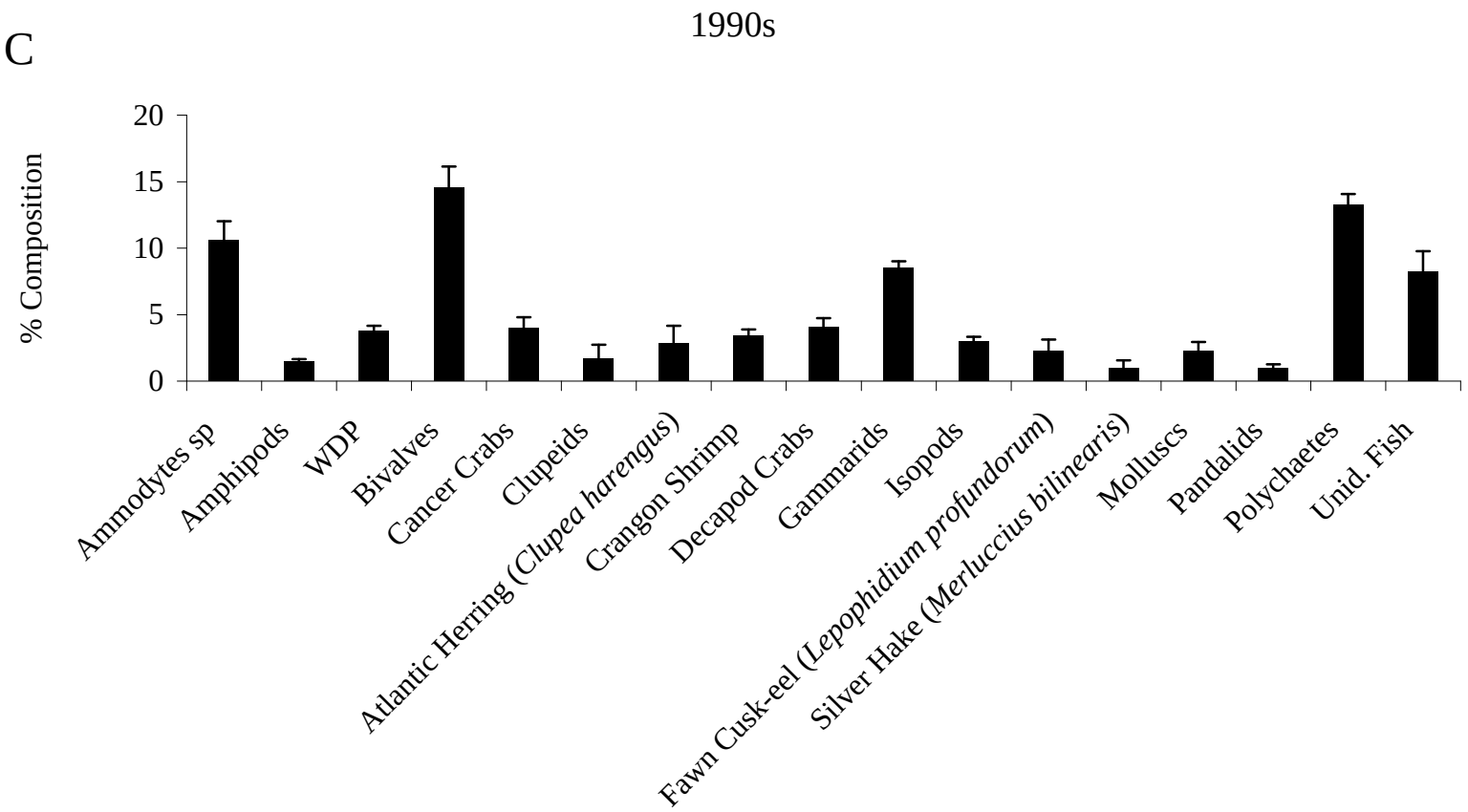

Figure 22C. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the 1990s (n = 9,708). WDP = well-digested prey; Unid. Fish = unidentified fish.

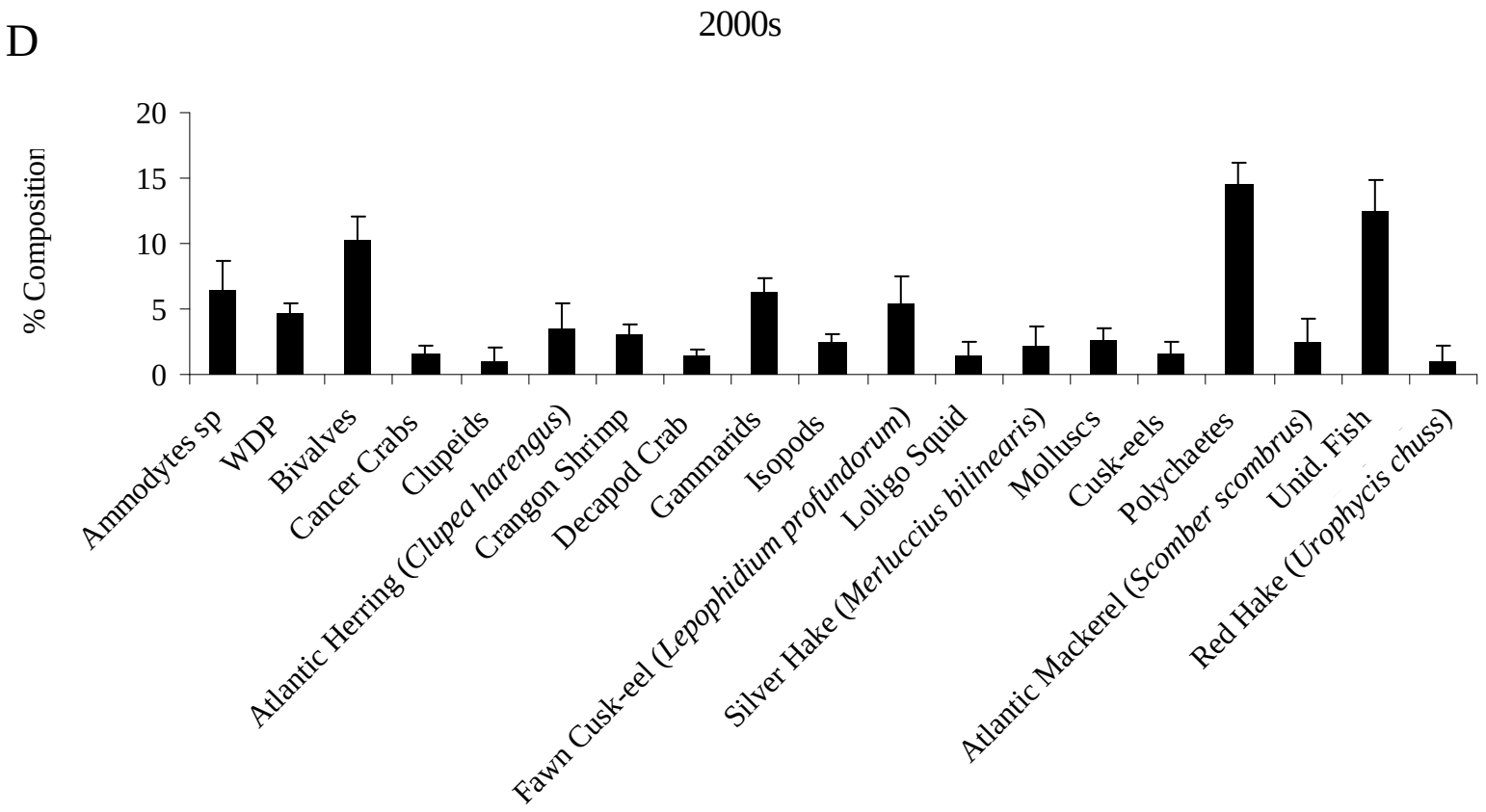

Figure 22D. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the 2000s (n = 3,731). WDP = well-digested prey; Unid. Fish = unidentified fish.

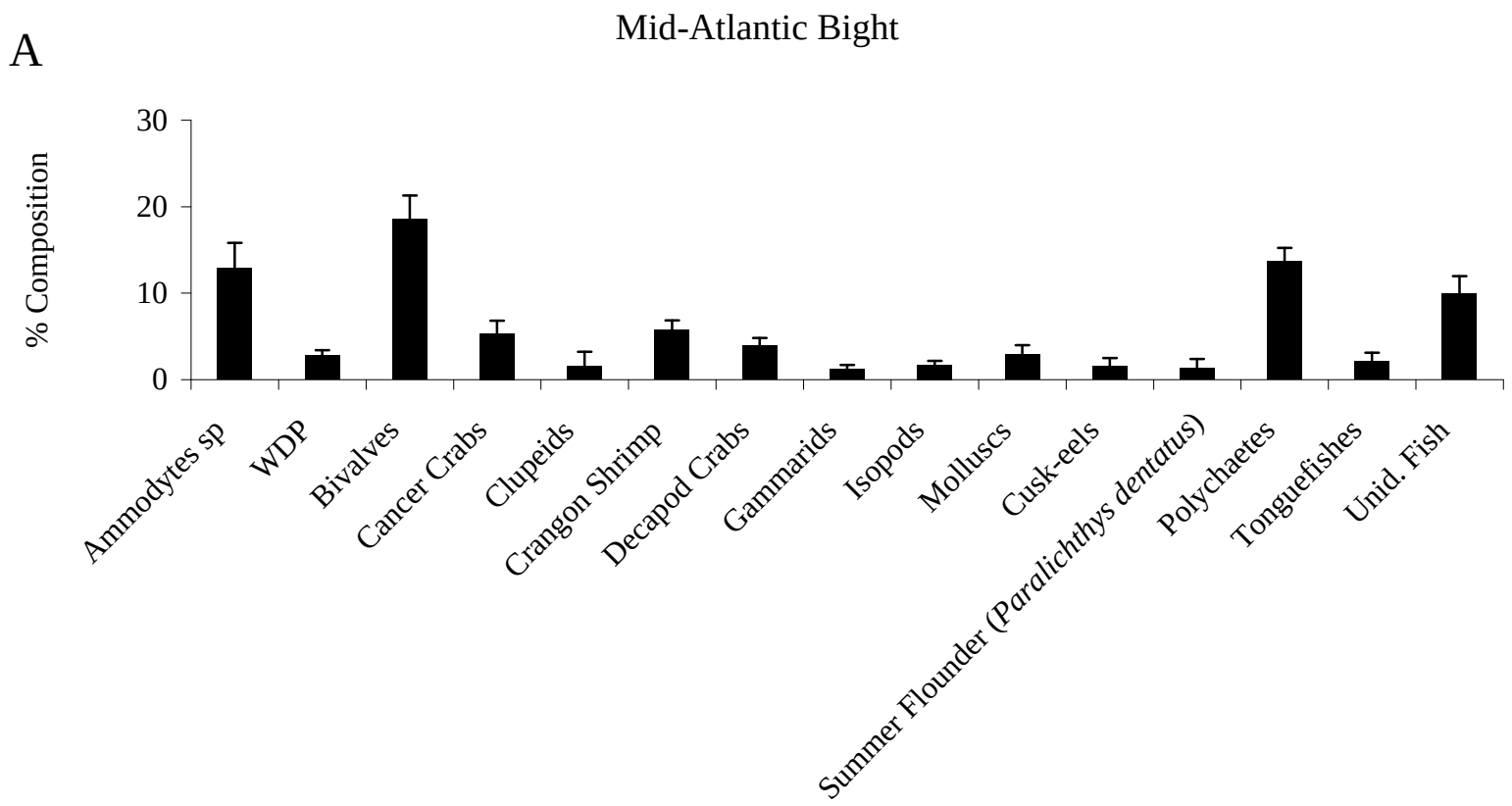

Figure 23A. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected collected in the Mid-Atlantic Bight (n = 1,970). WDP = well-digested prey; Unid. Fish = unidentified fish.

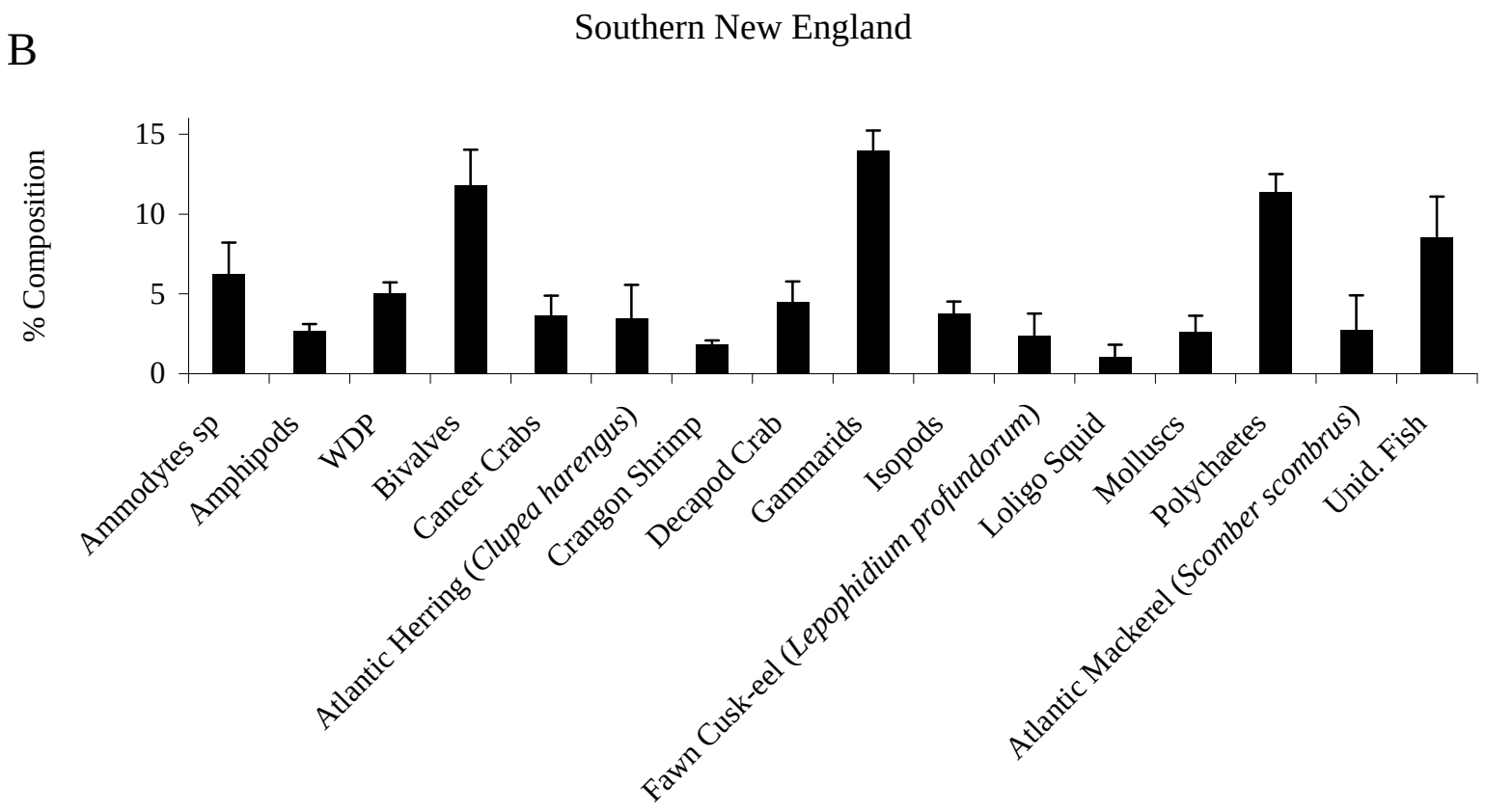

Figure 23B. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected collected in Southern New England (n = 4,574). WDP = well-digested prey; Unid. Fish = unidentified fish.

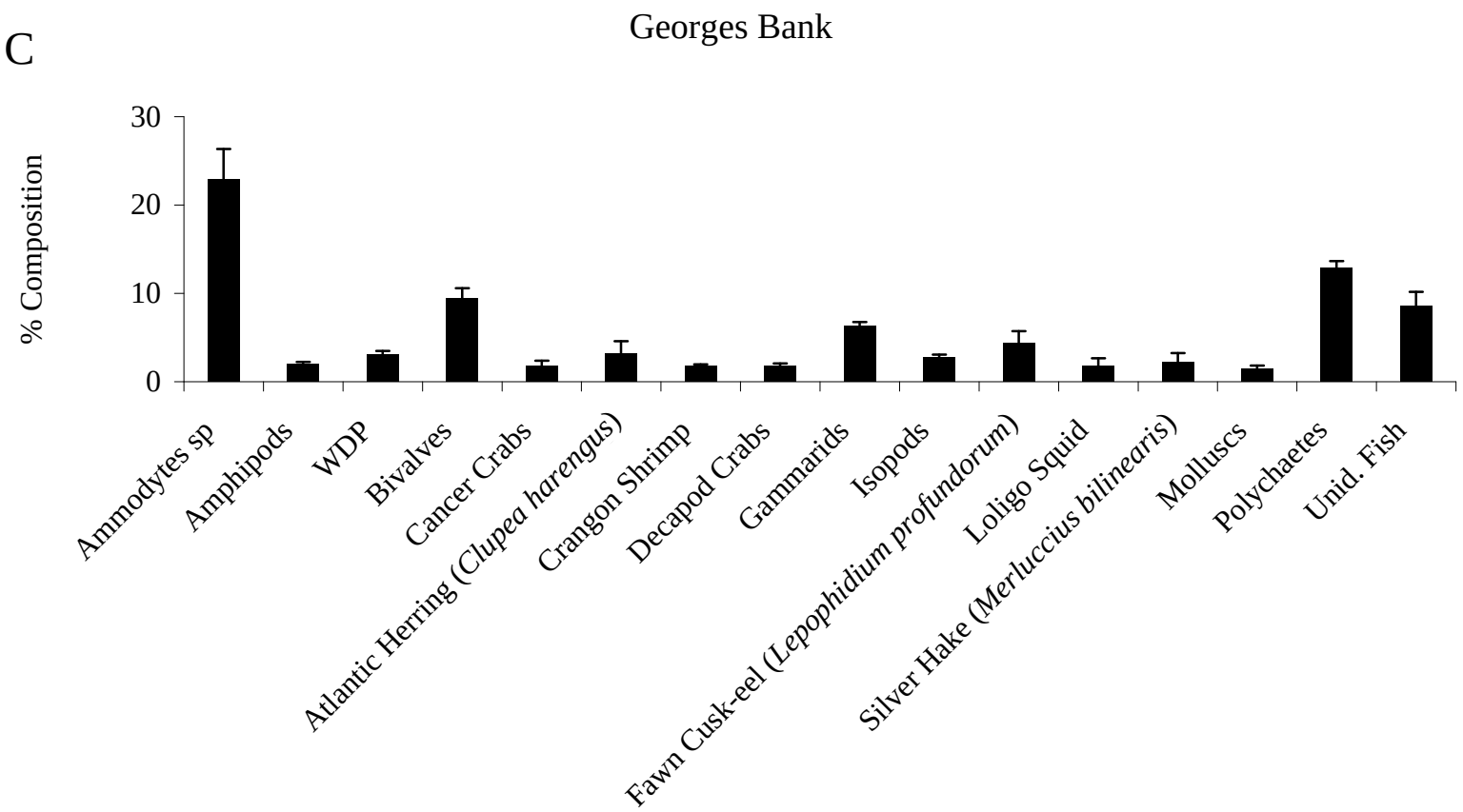

Figure 23C. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected on Georges Bank (n = 10,011). WDP = well-digested prey; Unid. Fish = unidentified fish.

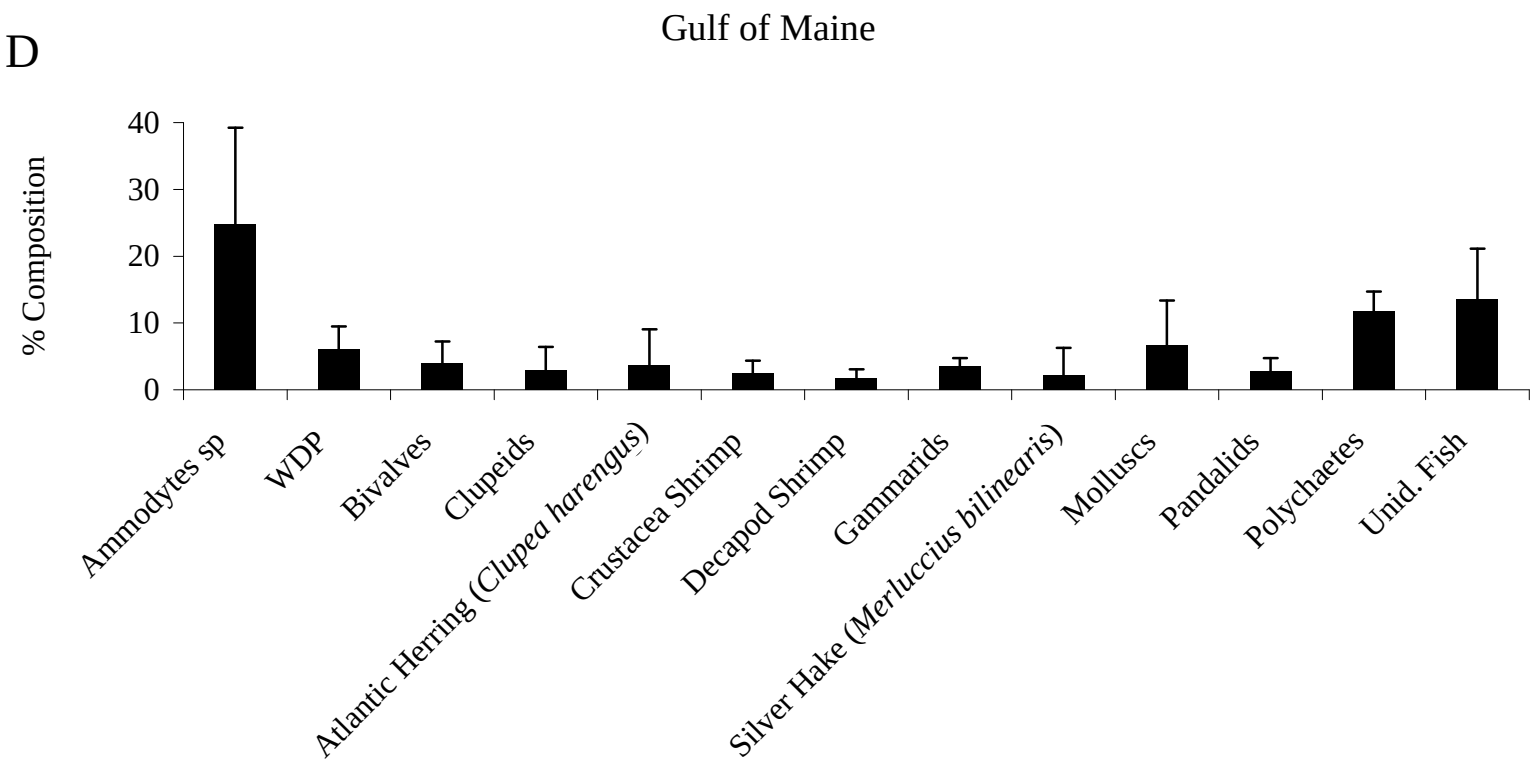

Figure 23D. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the Gulf of Maine (n = 522). WDP = well-digested prey; Unid. Fish = unidentified fish.

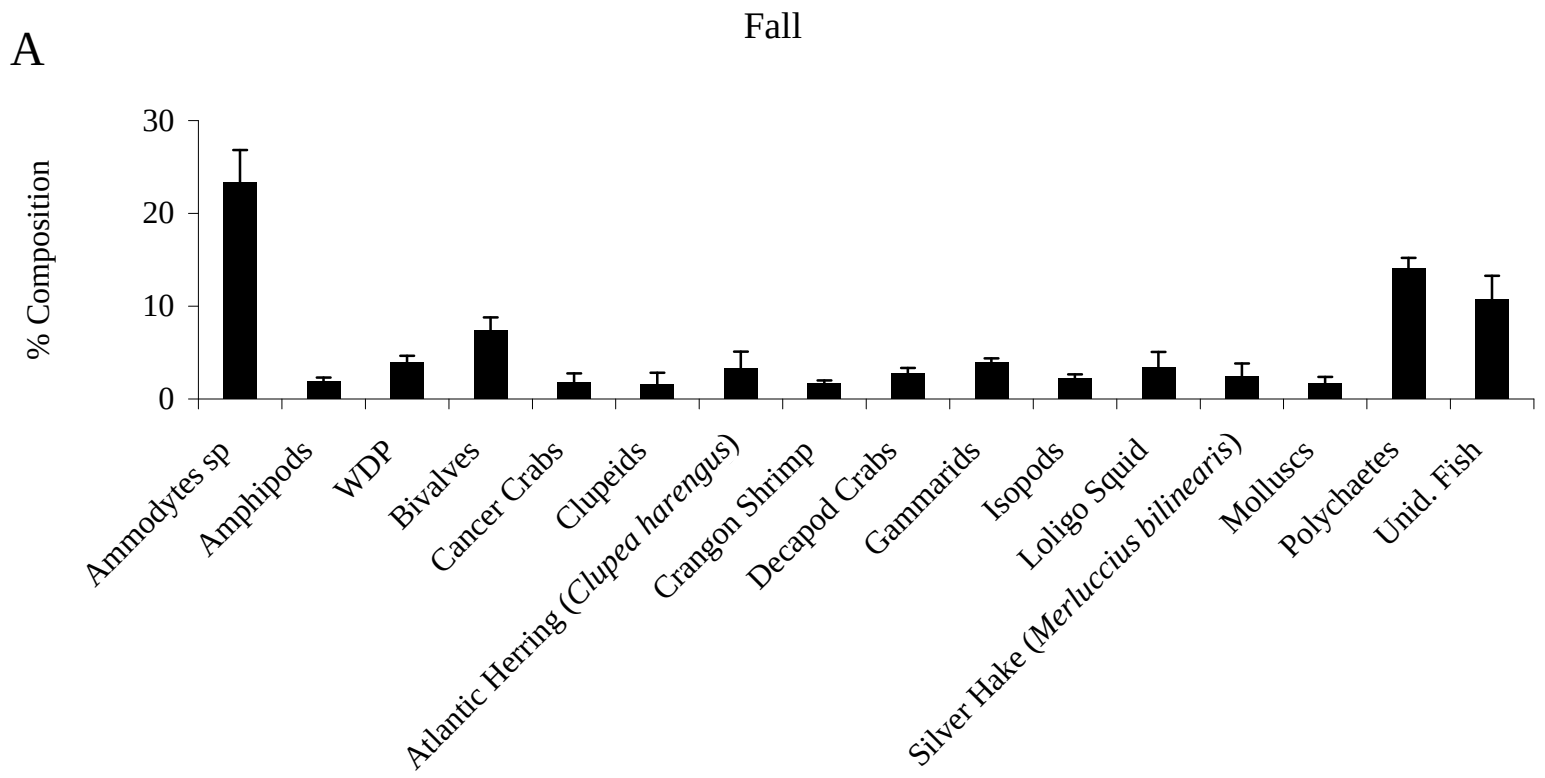

Figure 24A. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the fall (n = 5,786). WDP = well-digested prey; Unid. Fish = unidentified fish.

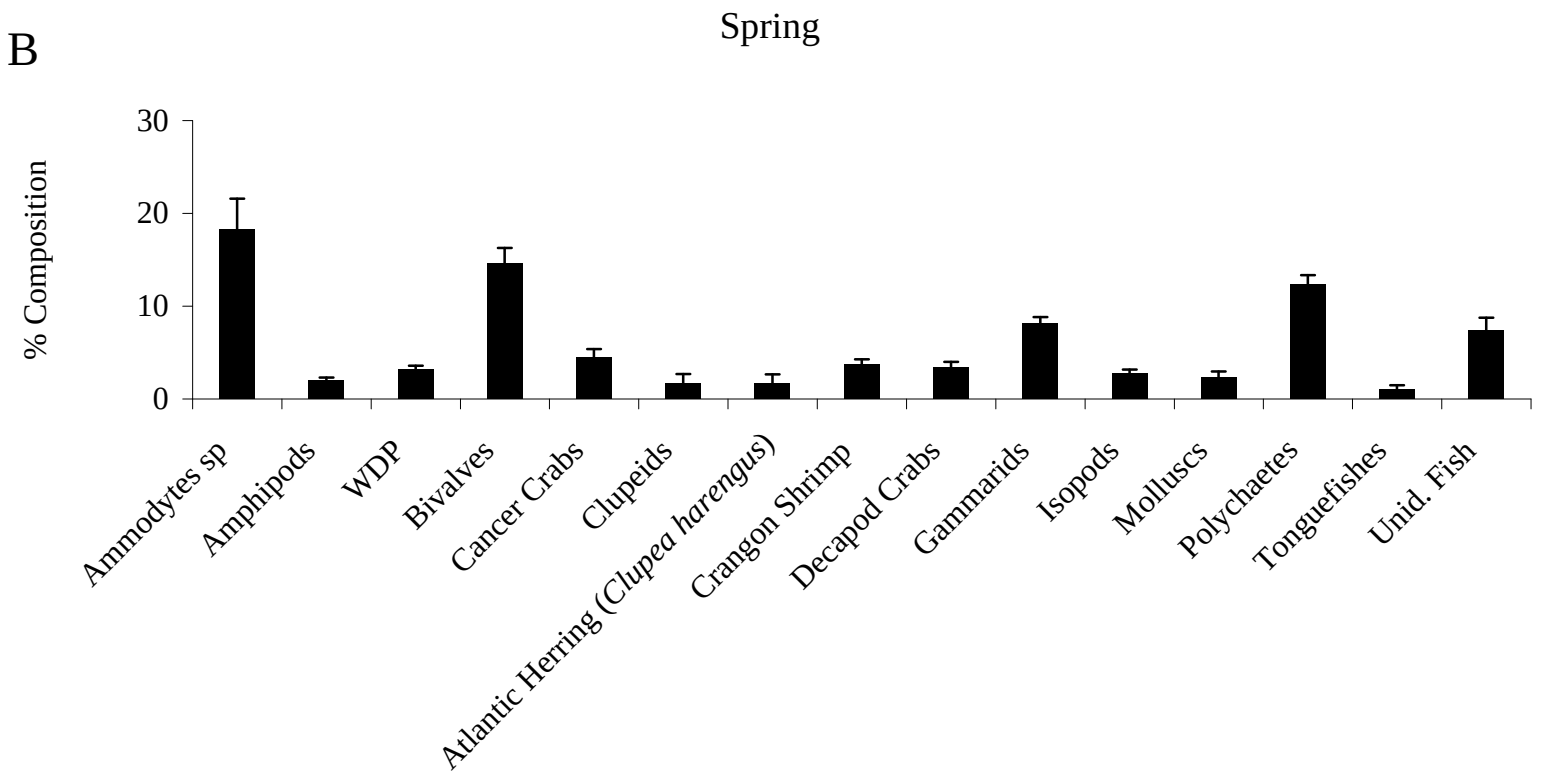

Figure 24B. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the spring (n = 7,741). WDP = well-digested prey; Unid. Fish = unidentified fish.

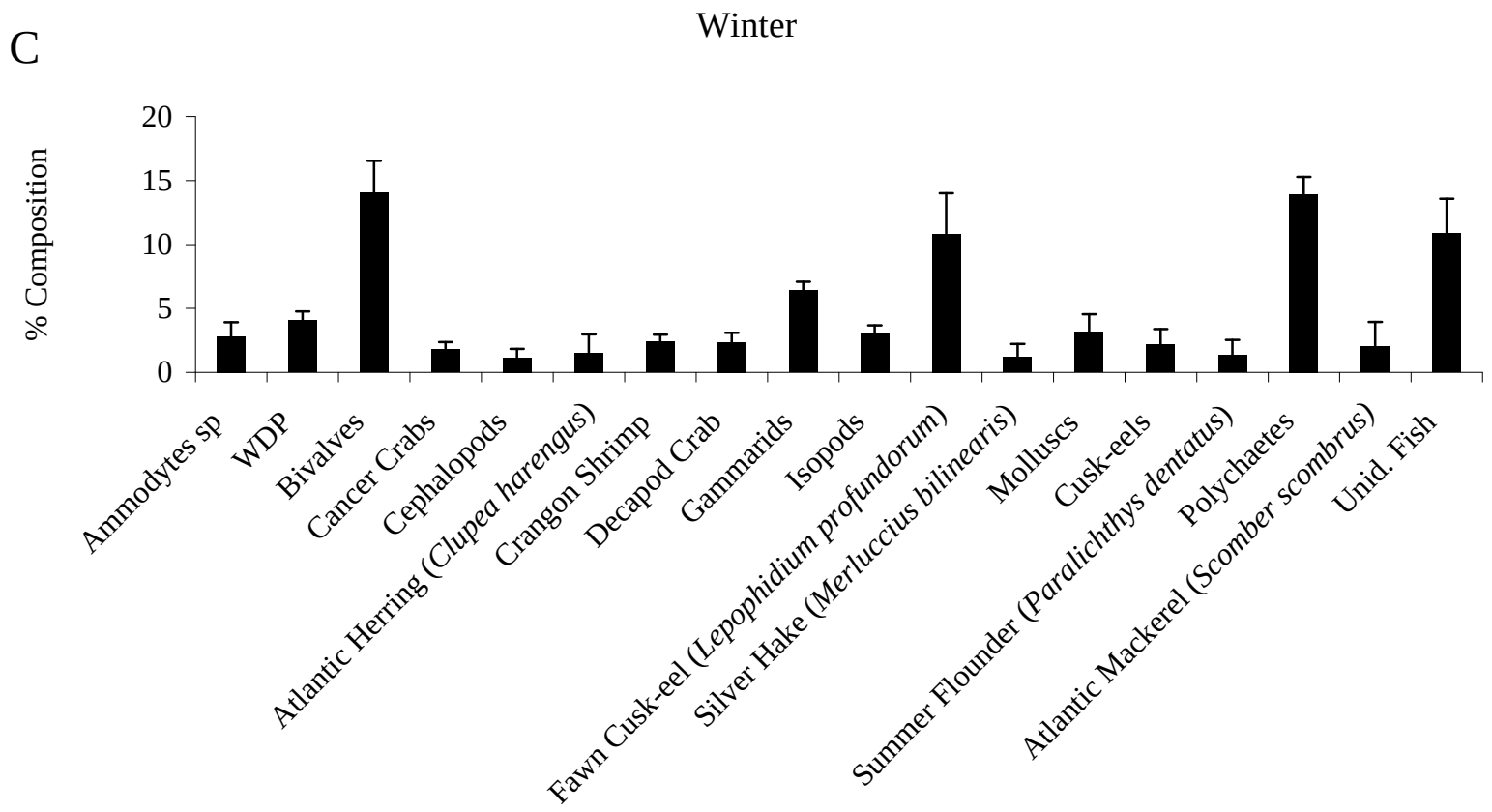

Figure 24C. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the winter (n = 3,074). WDP = well-digested prey; Unid. Fish = unidentified fish.

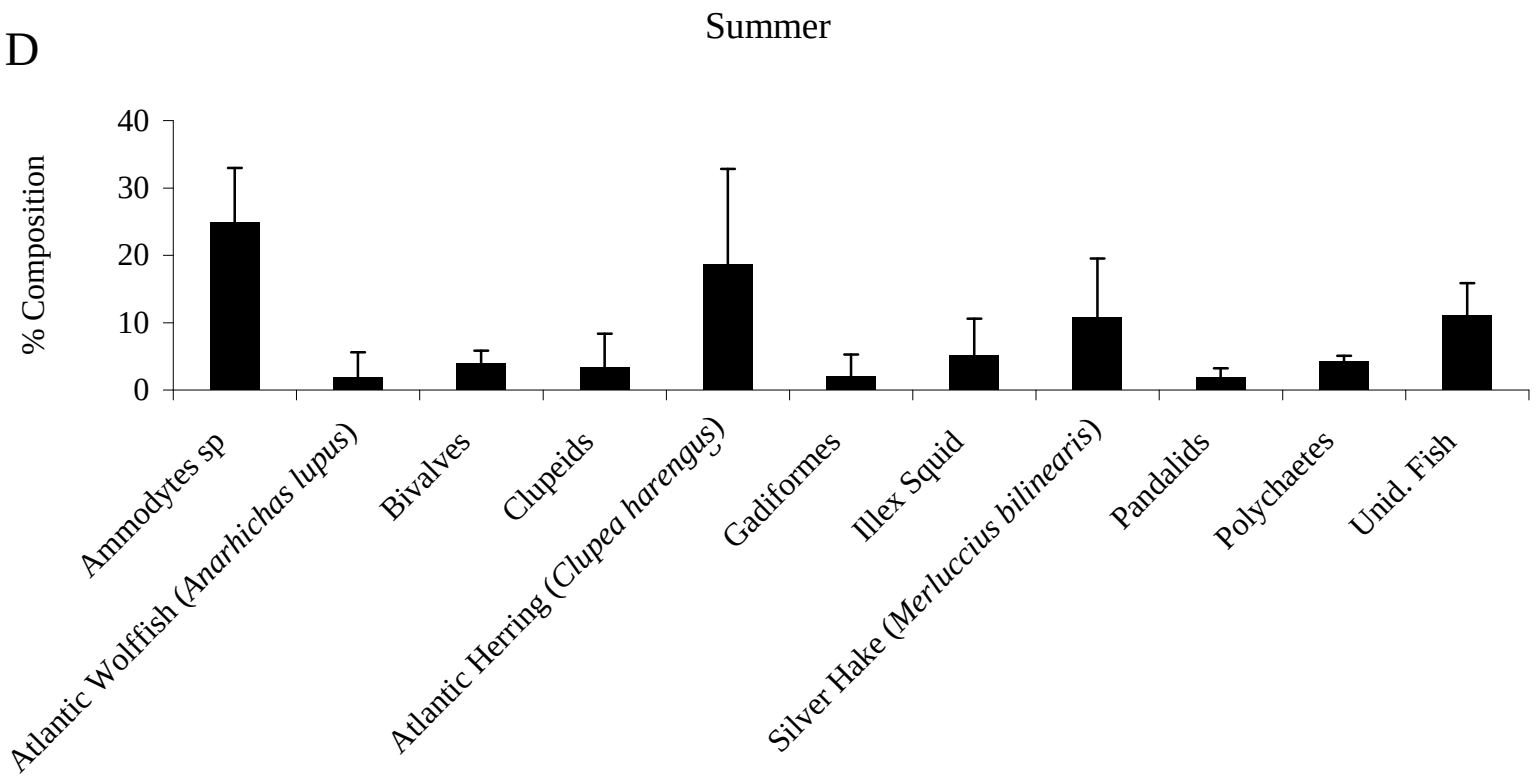

Figure 24D. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) collected in the summer (n = 542). Unid. Fish = unidentified fish.

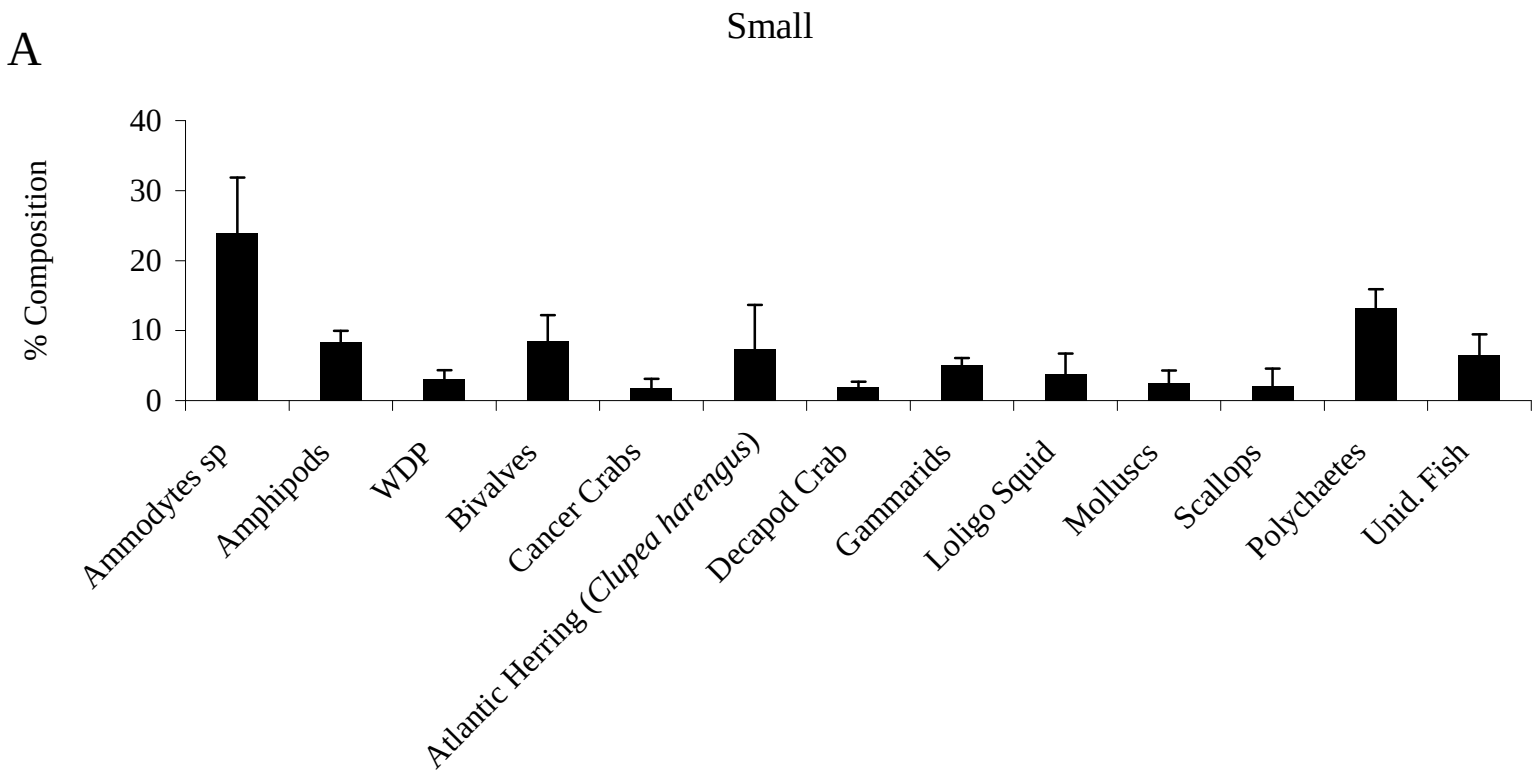

Figure 25A. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) in the small size class (n = 1,207). WDP = well-digested prey; Unid. Fish = unidentified fish.

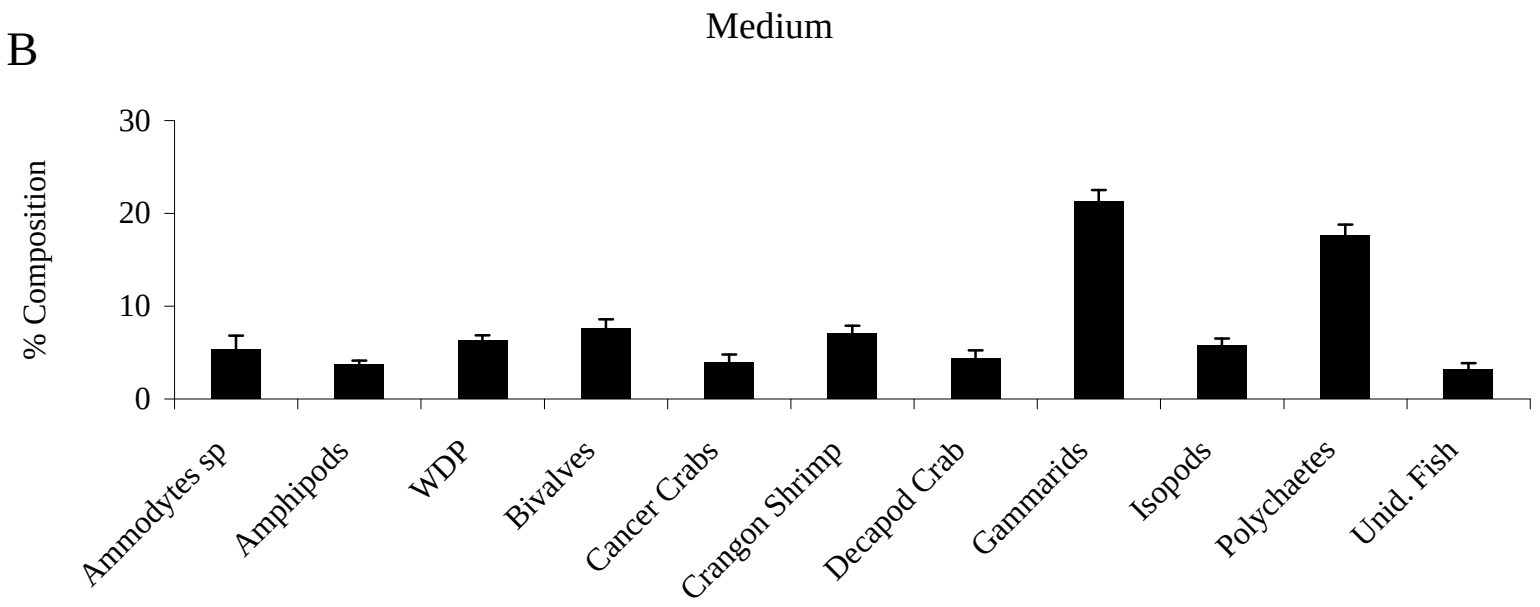

Figure 25B. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) in the medium size class (n = 8,538). WDP = well-digested prey; Unid. Fish = unidentified fish.

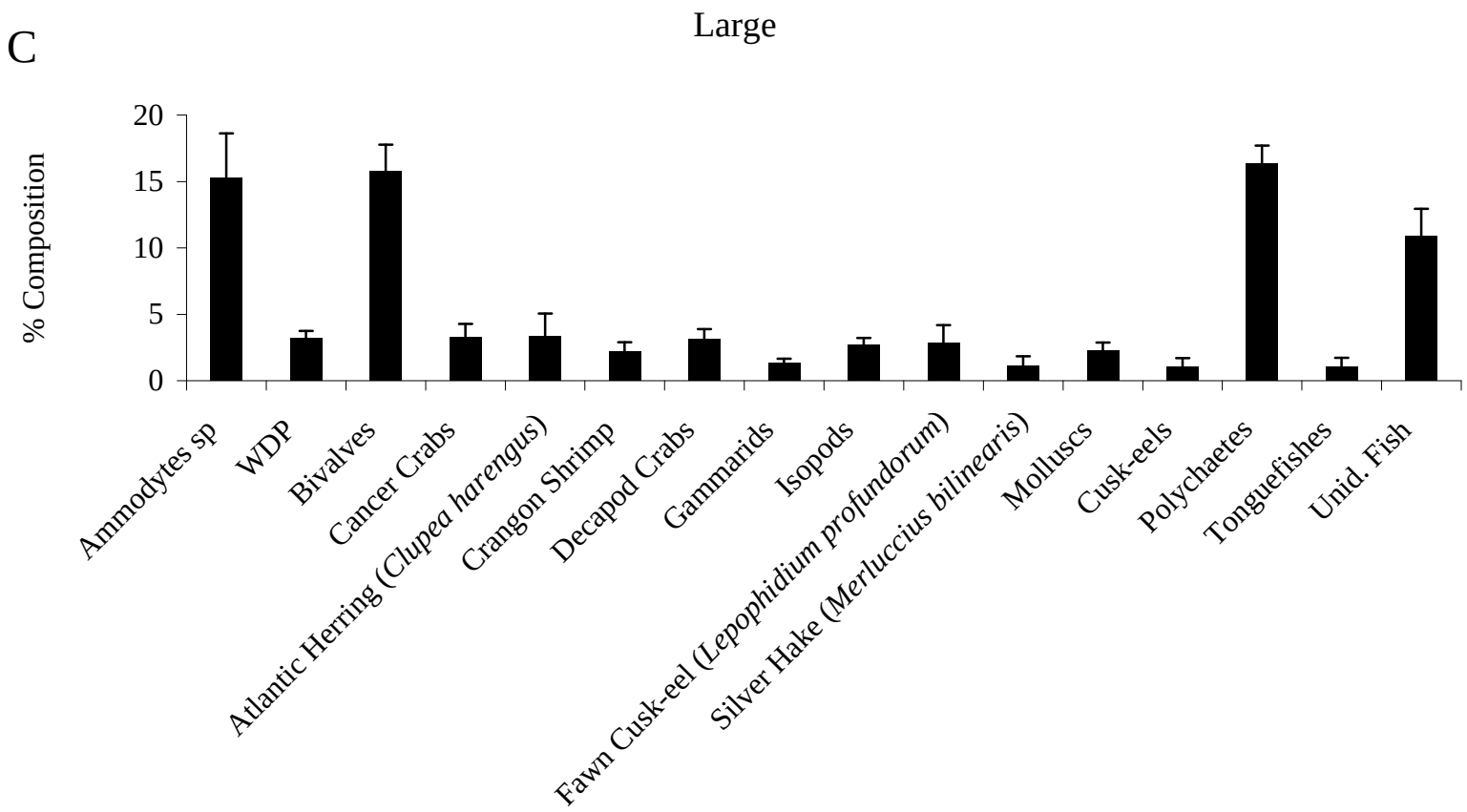

Figure 25C. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) in the large size class (n = 4,333). WDP = well-digested prey; Unid. Fish = unidentified fish.

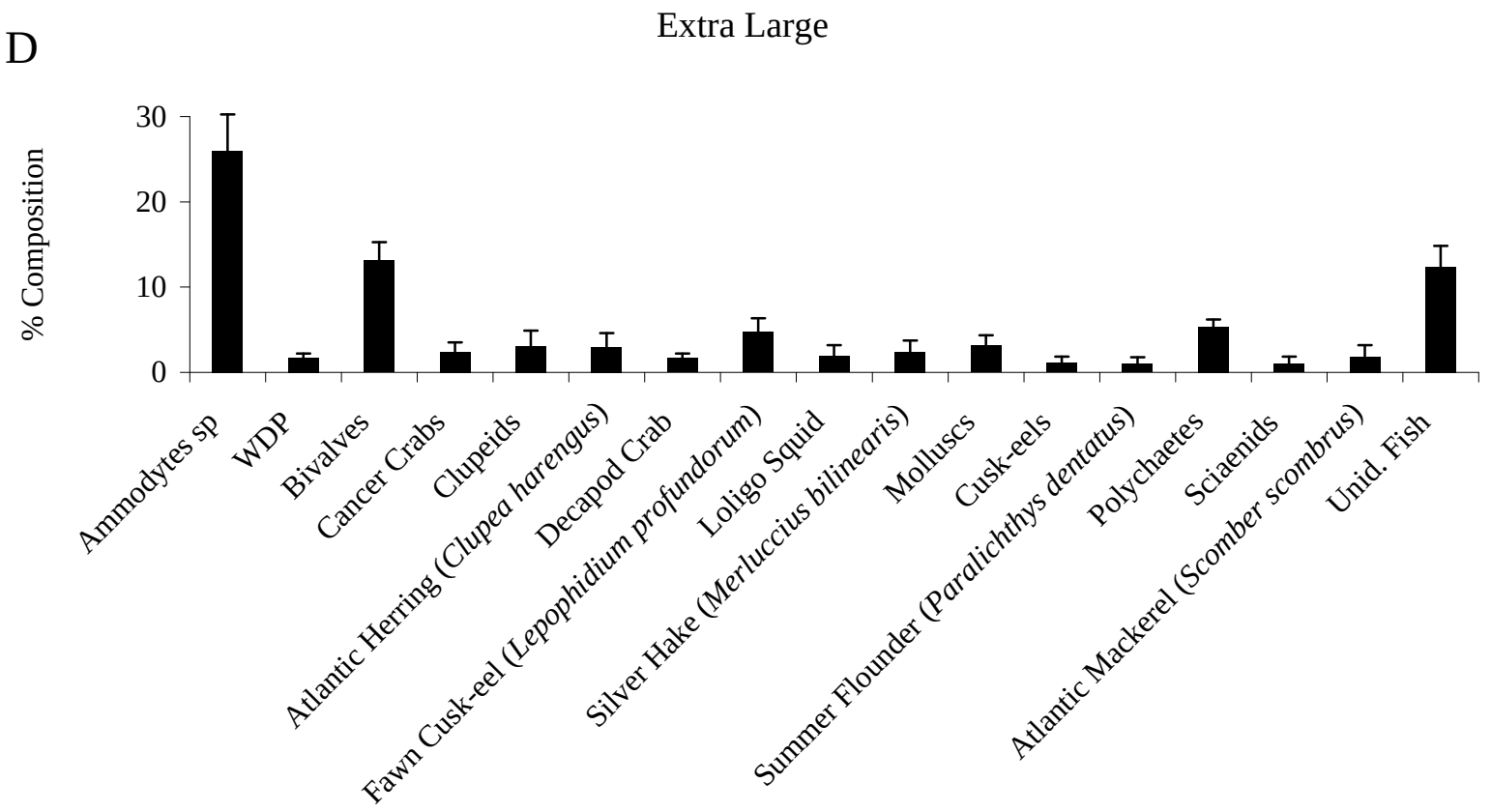

Figure 25D. Percent diet composition by weight of major prey taxa for winter skate (*Leucoraja ocellata*) in the extra-large size class (n = 3,065). WDP = well-digested prey; Unid. Fish = unidentified fish.

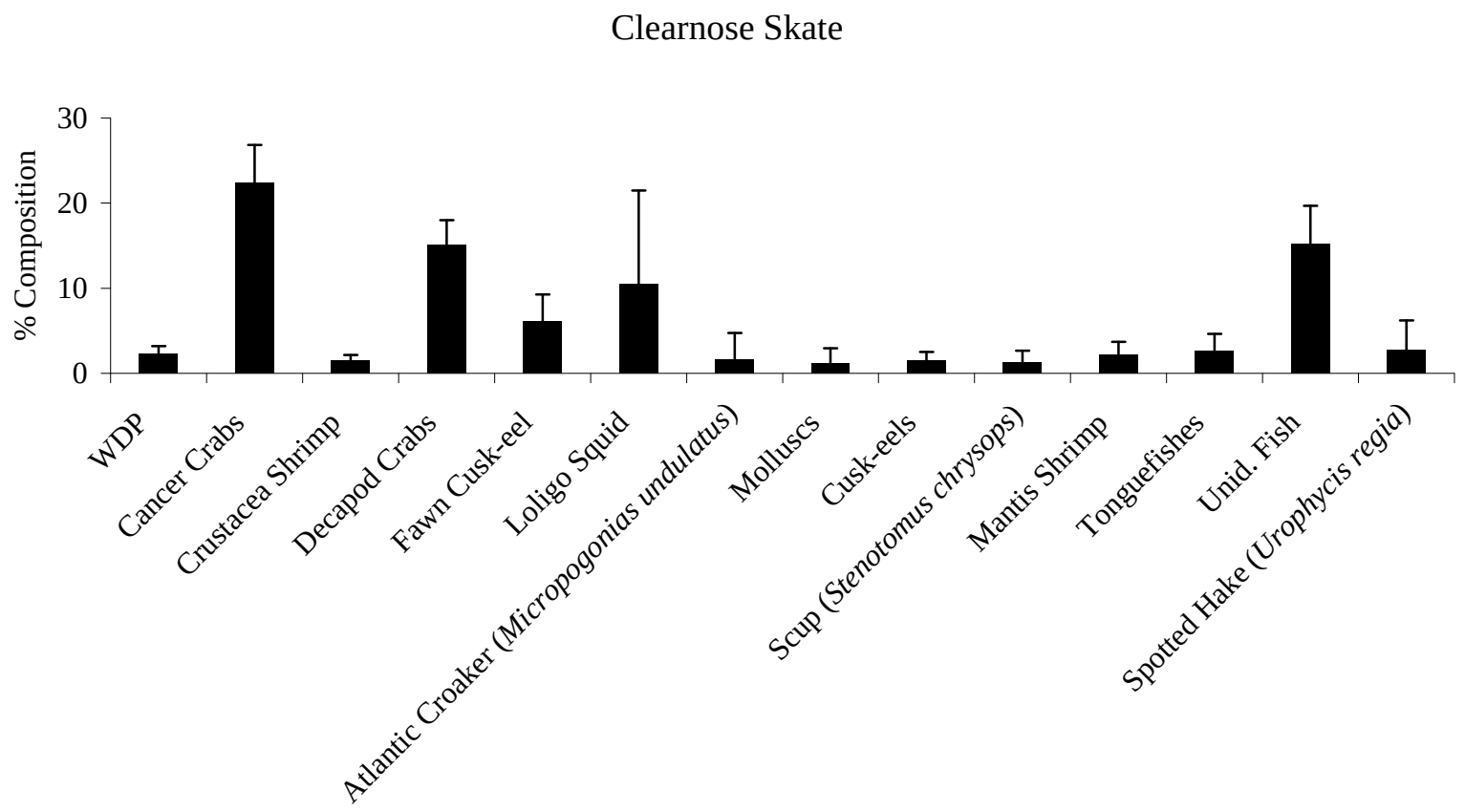

Figure 26. Percent diet composition by weight of major prey taxa for clearnose skate (*Raja eglanteria*; n = 960). WDP = well-digested prey; Unid. Fish = unidentified fish.

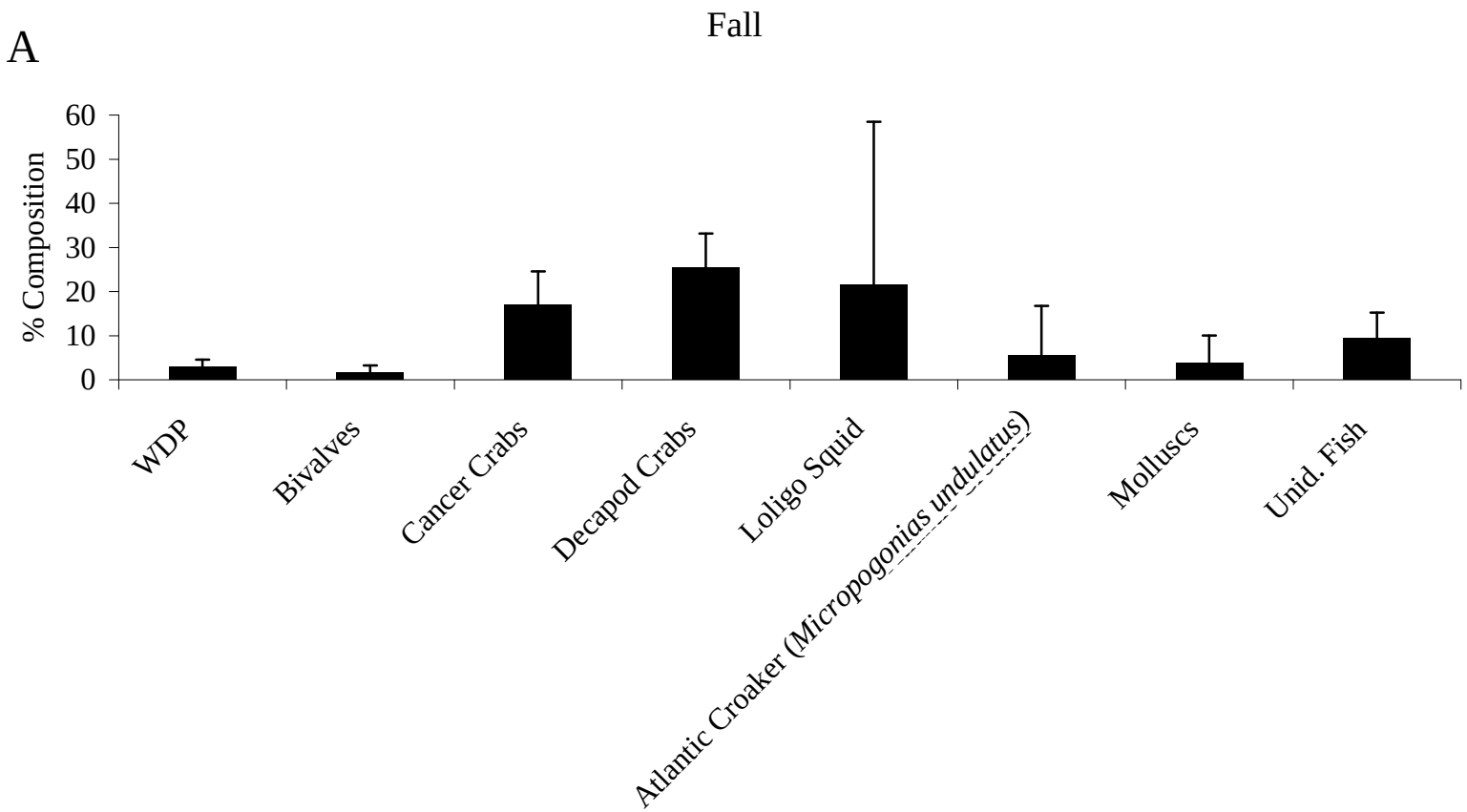

Figure 27A. Percent diet composition by weight of major prey taxa for clearnose skate (*Raja eglanteria*; n = 960). collected in the fall (n = 215). WDP = well-digested prey; Unid. Fish = unidentified fish.

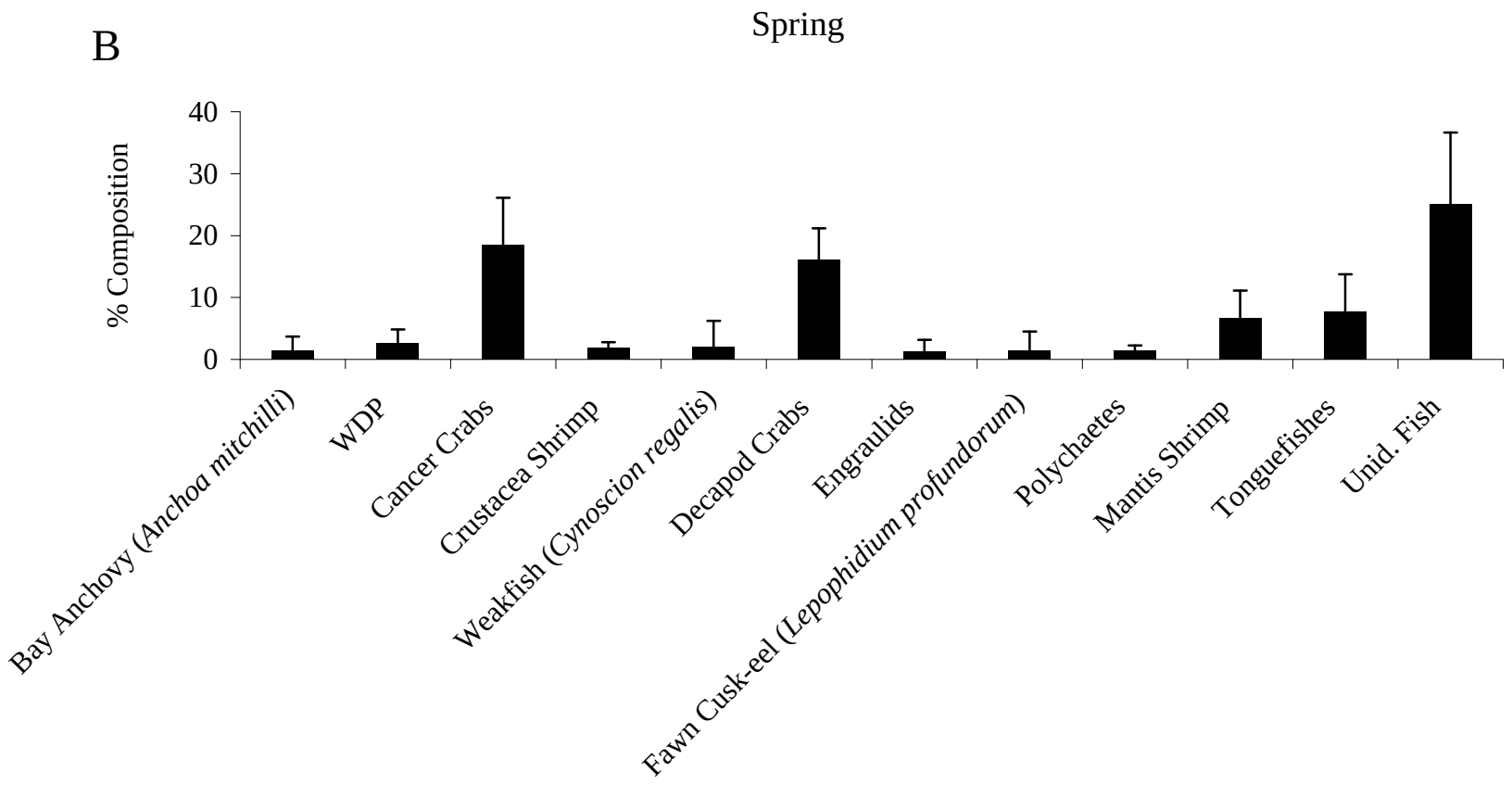

Figure 27B. Percent diet composition by weight of major prey taxa for clearnose skate (*Raja eglanteria*) collected in the spring (n = 277). WDP = well-digested prey; Unid. Fish = unidentified fish.

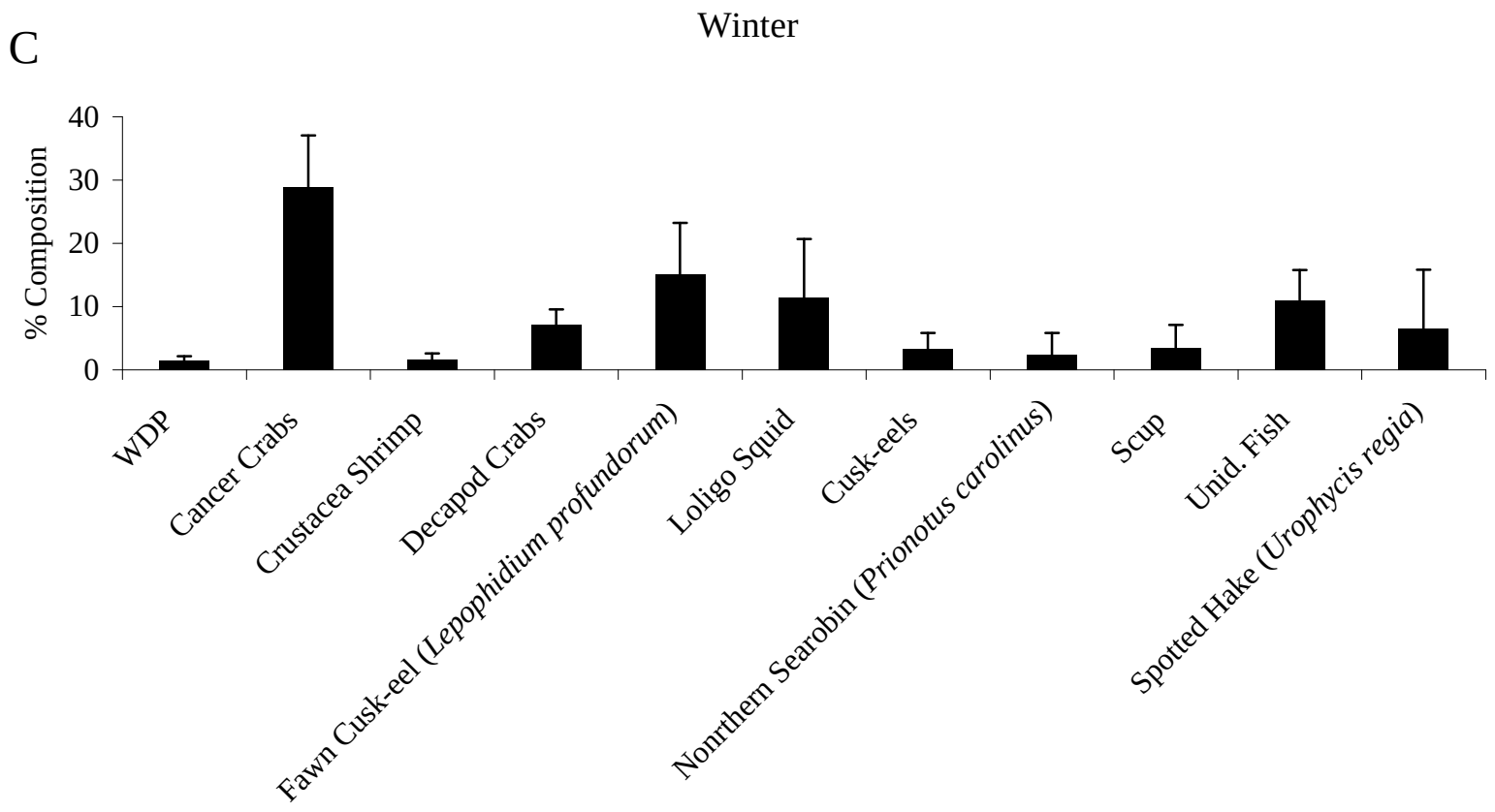

Figure 27C. Percent diet composition by weight of major prey taxa for clearnose skate (*Raja eglanteria*) collected in the winter (n = 434). WDP = well-digested prey; Unid. Fish = unidentified fish.

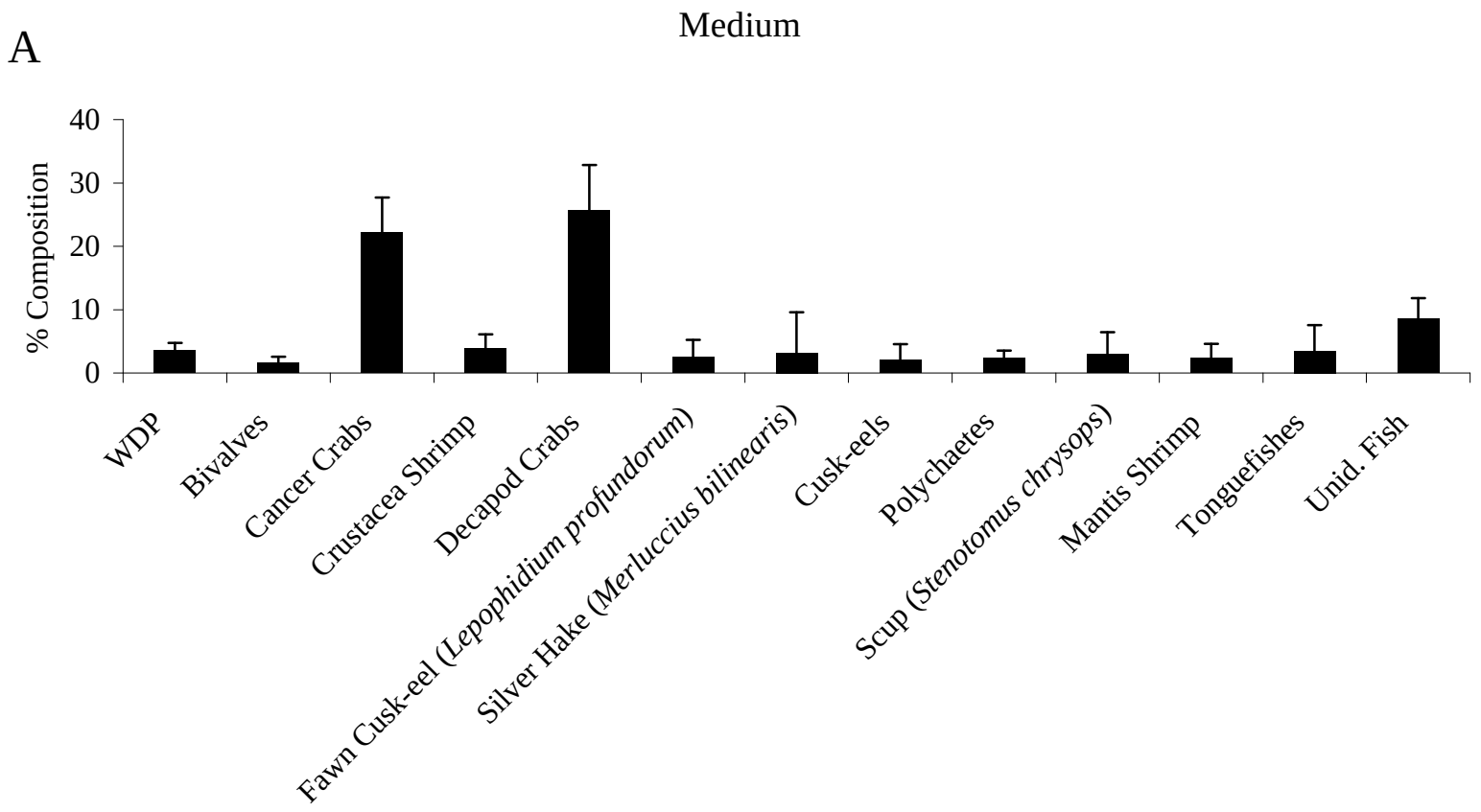

Figure 28A. Percent diet composition by weight of major prey taxa for clearnose skate (*Raja eglanteria*) in the medium size class (n = 445). WDP = well-digested prey; Unid. Fish = unidentified fish.

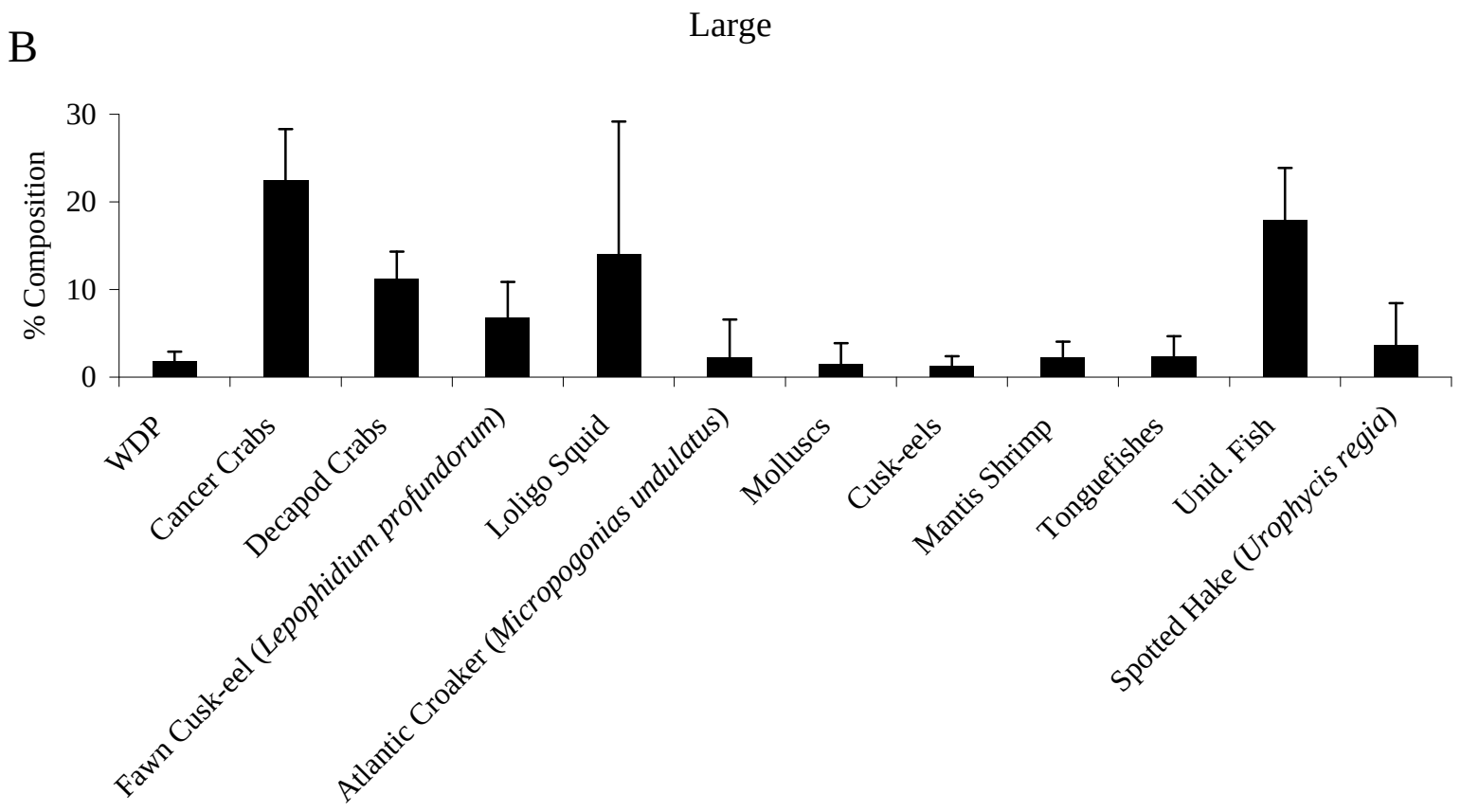

Figure 28B. Percent diet composition by weight of major prey taxa for clearnose skate (*Raja eglanteria*) in the large size class (n = 489). WDP = well-digested prey; Unid. Fish = unidentified fish.

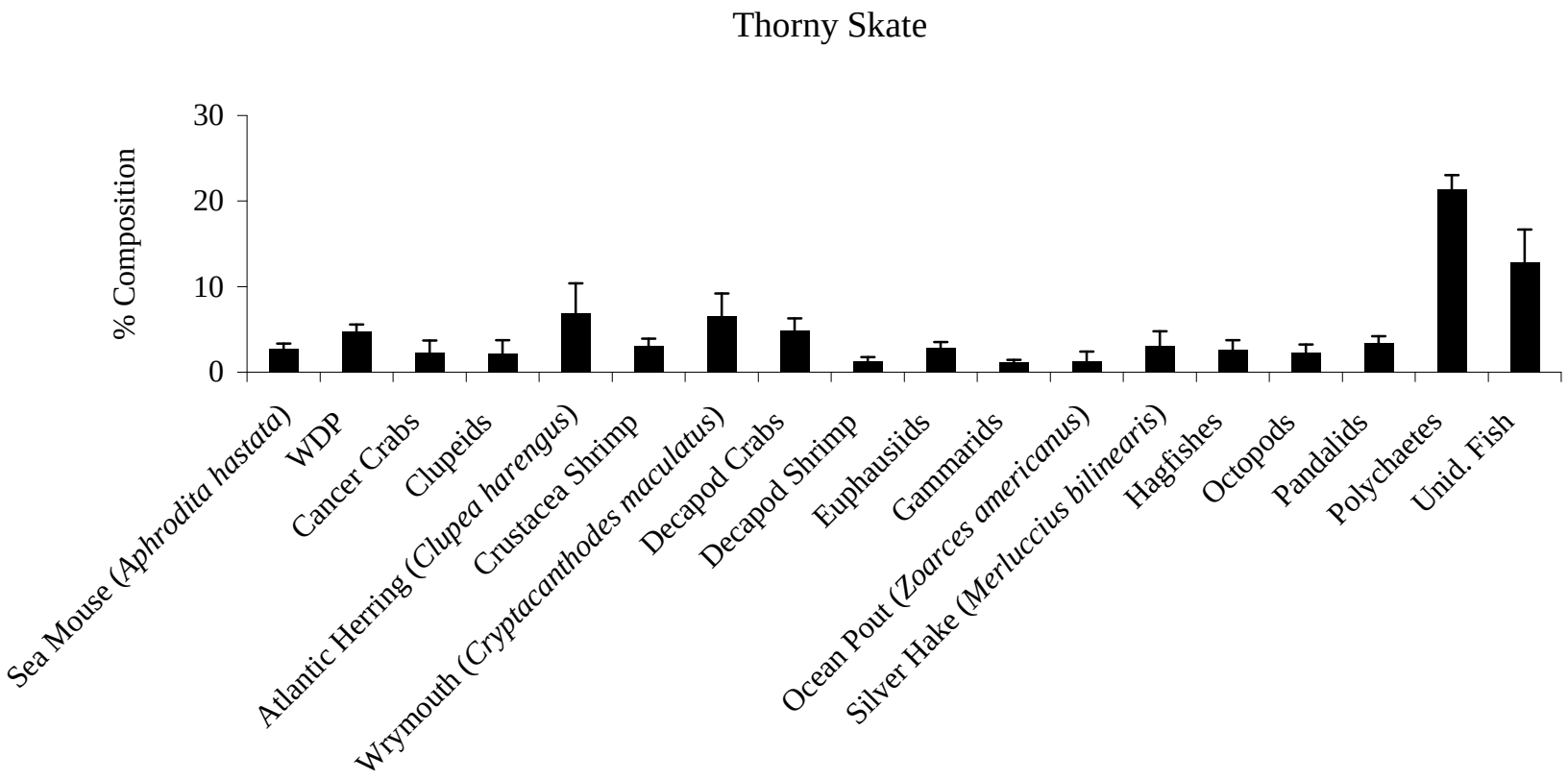

Figure 29. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*; n = 3,435). WDP = well-digested prey; Unid. Fish = unidentified fish.

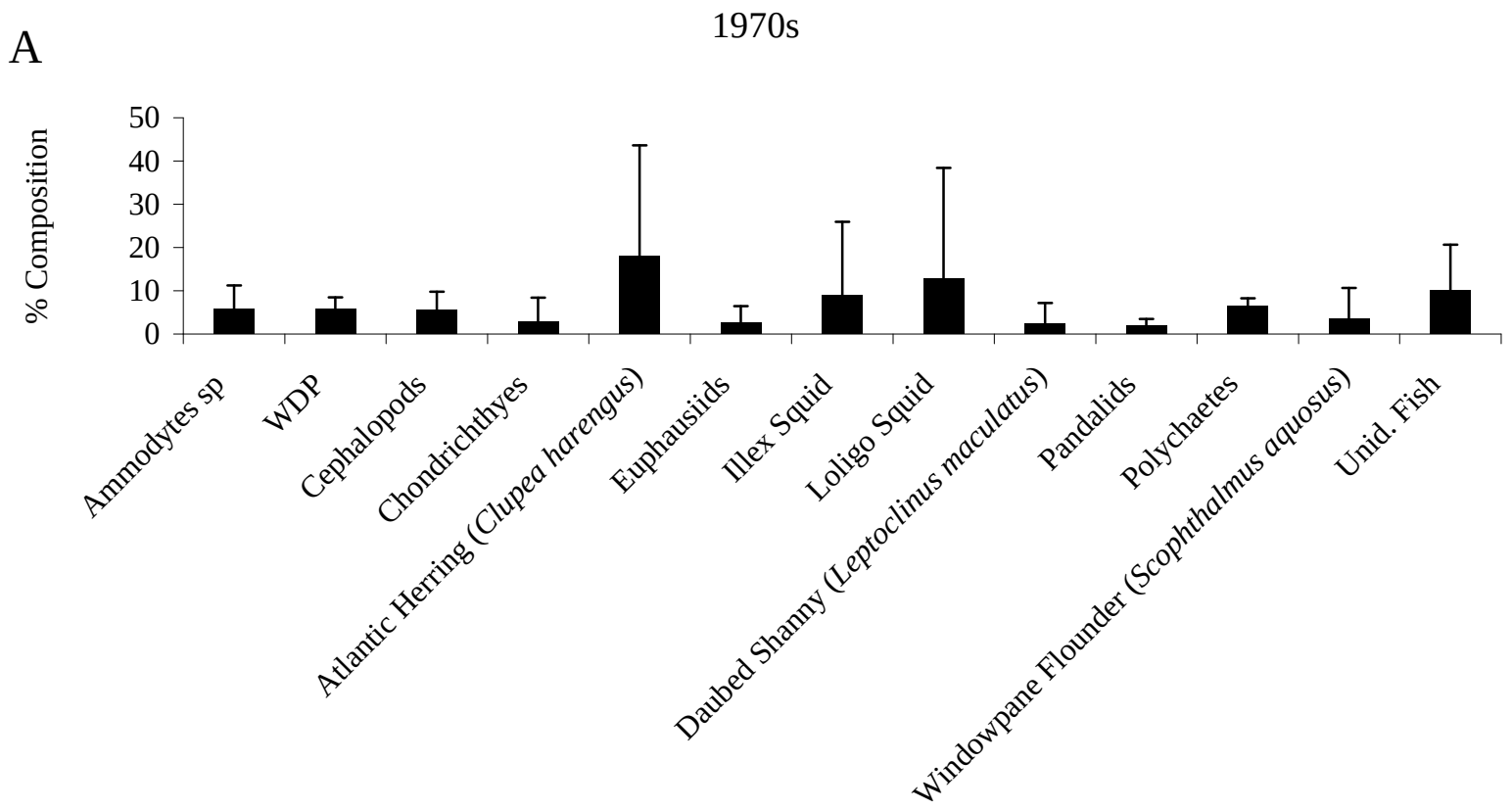

Figure 30A. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected in the 1970s (n = 231). WDP = well-digested prey; Unid. Fish = unidentified fish.

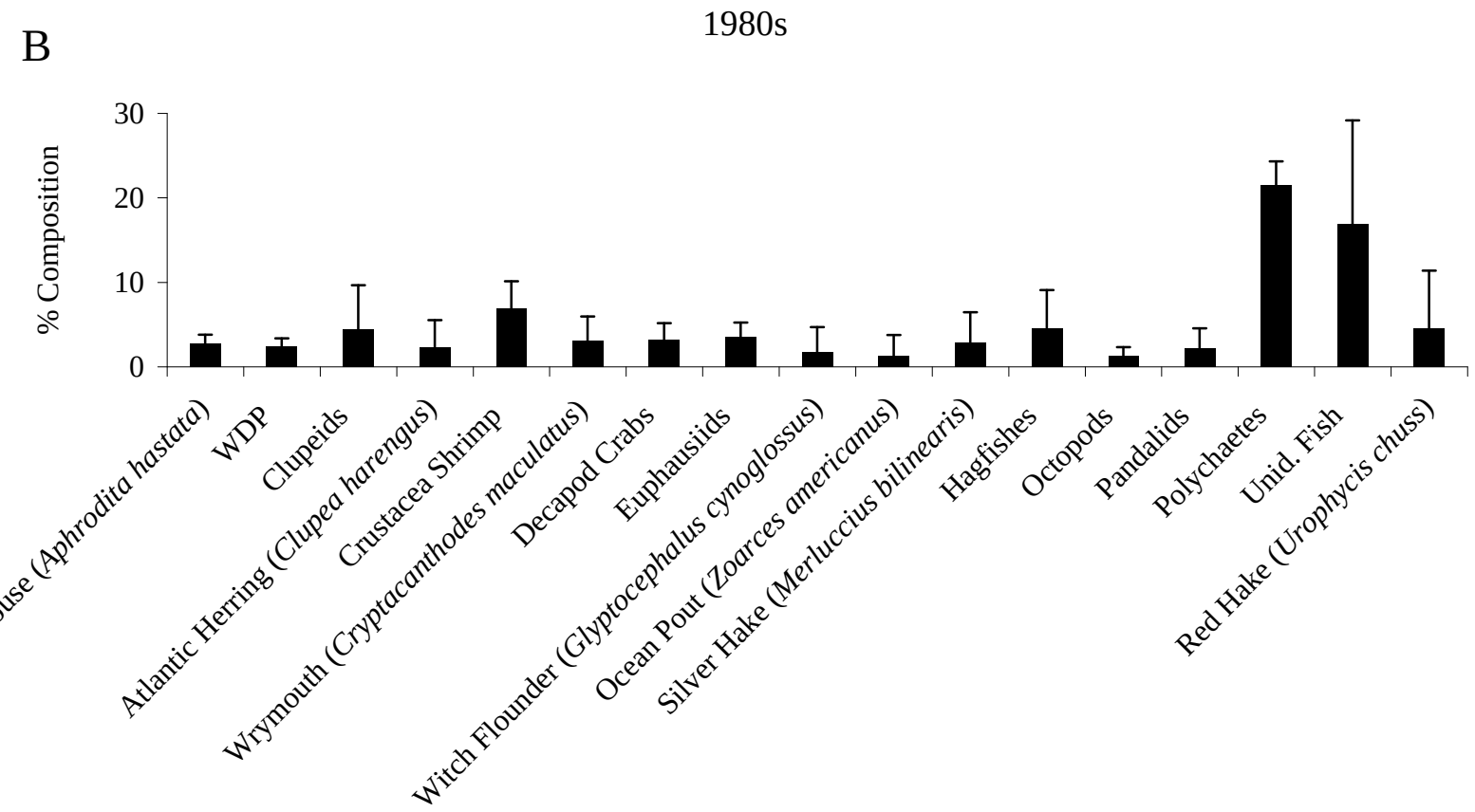

Figure 30B. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected in the 1980s (n = 796). WDP = well-digested prey; Unid. Fish = unidentified fish.

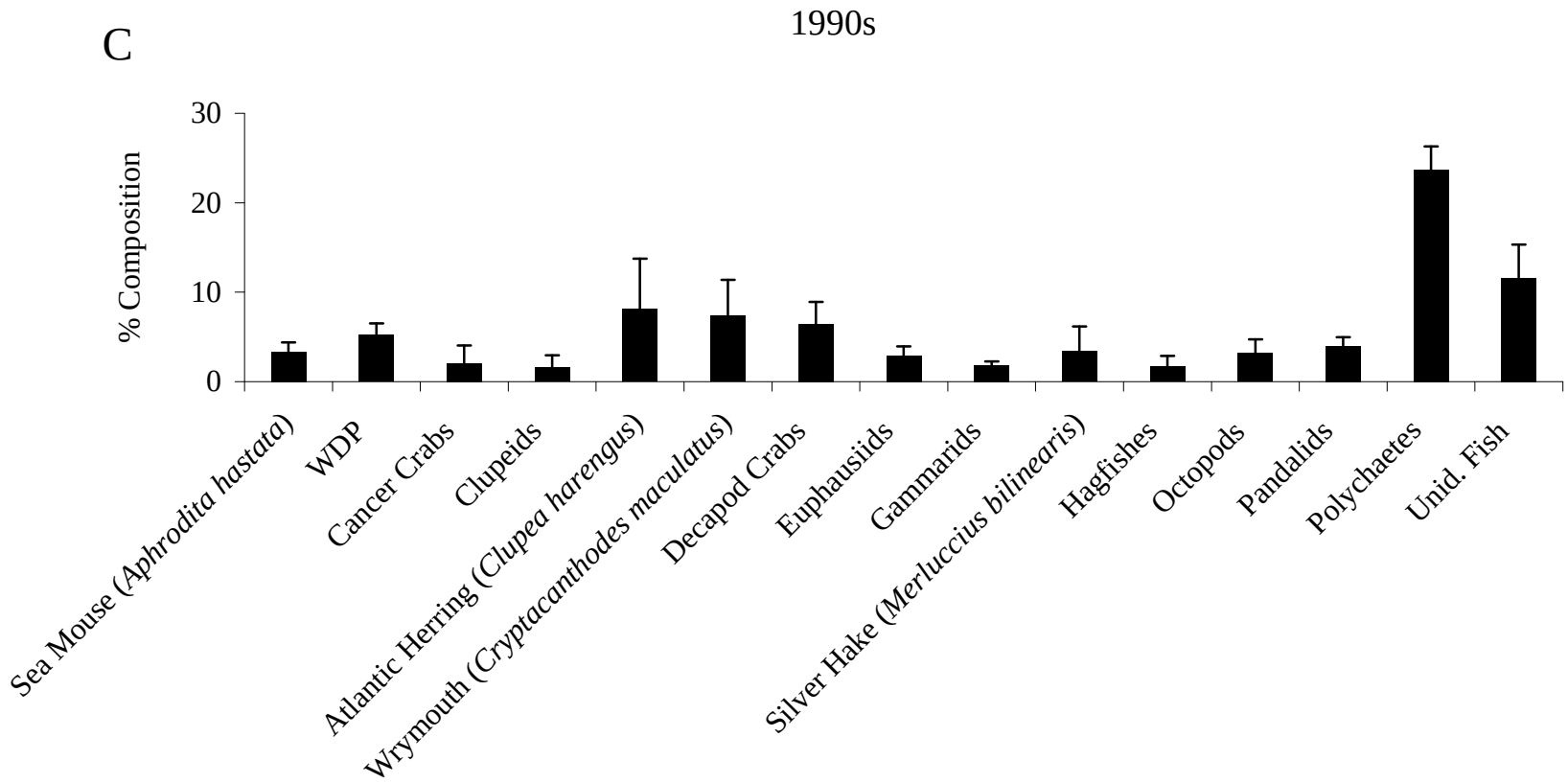

Figure 30C. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected in the 1990s (n = 1,768). WDP = well-digested prey; Unid. Fish = unidentified fish.

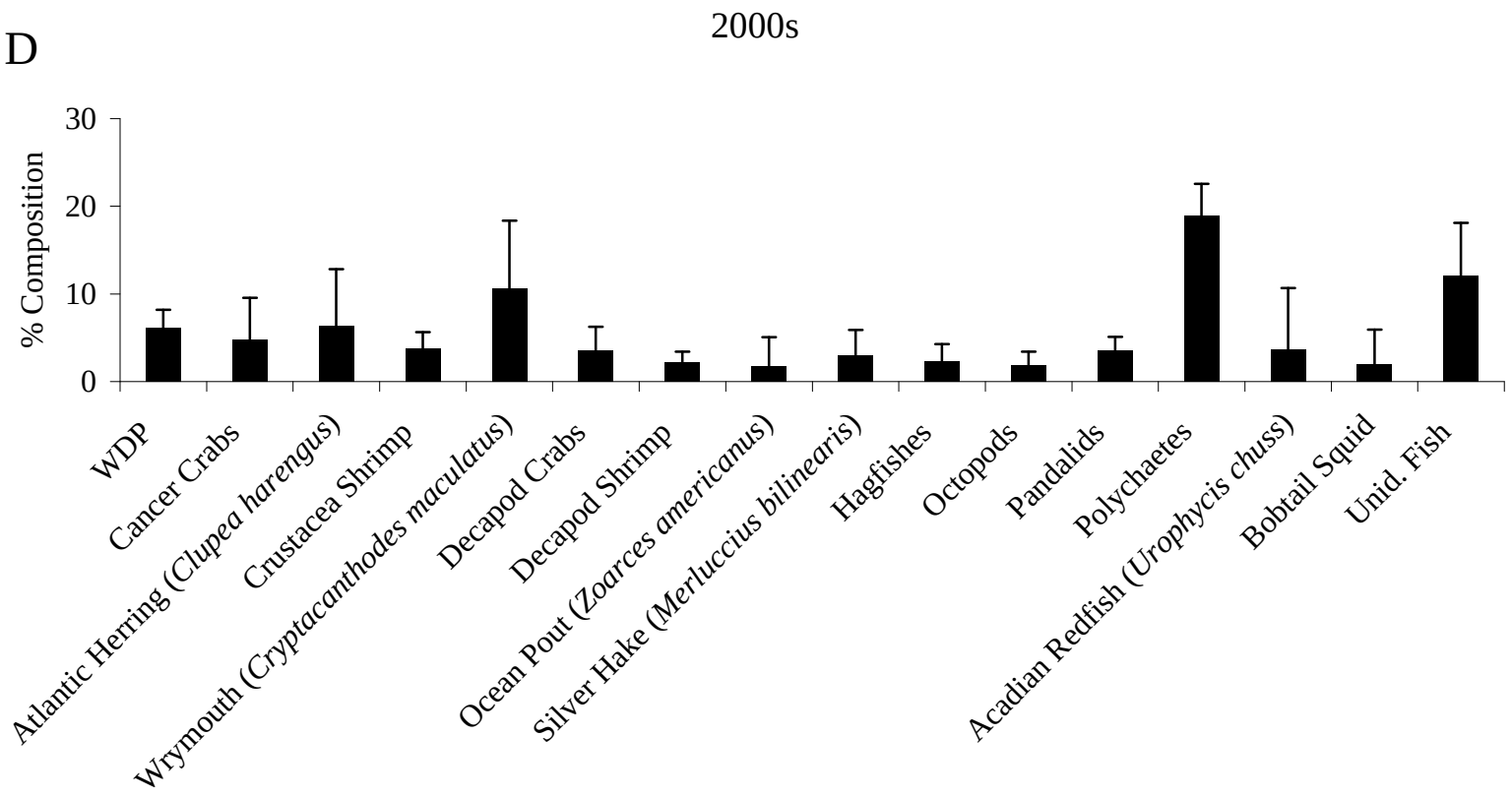

Figure 30D. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected in the 2000s (n = 640). WDP = well-digested prey; Unid. Fish = unidentified fish.

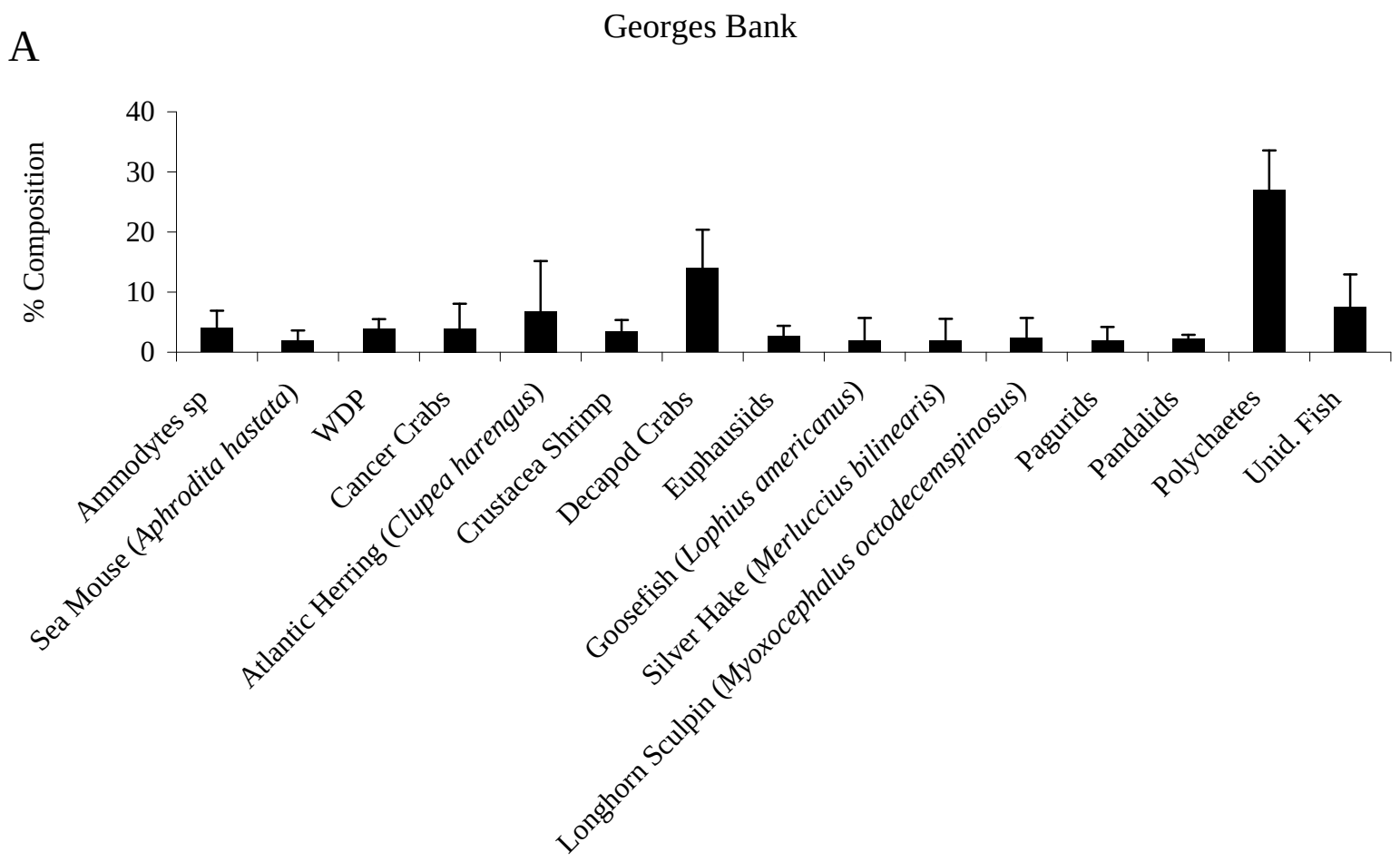

Figure 31A. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected on Georges Bank (n = 610). WDP = well-digested prey; Unid. Fish = unidentified fish.

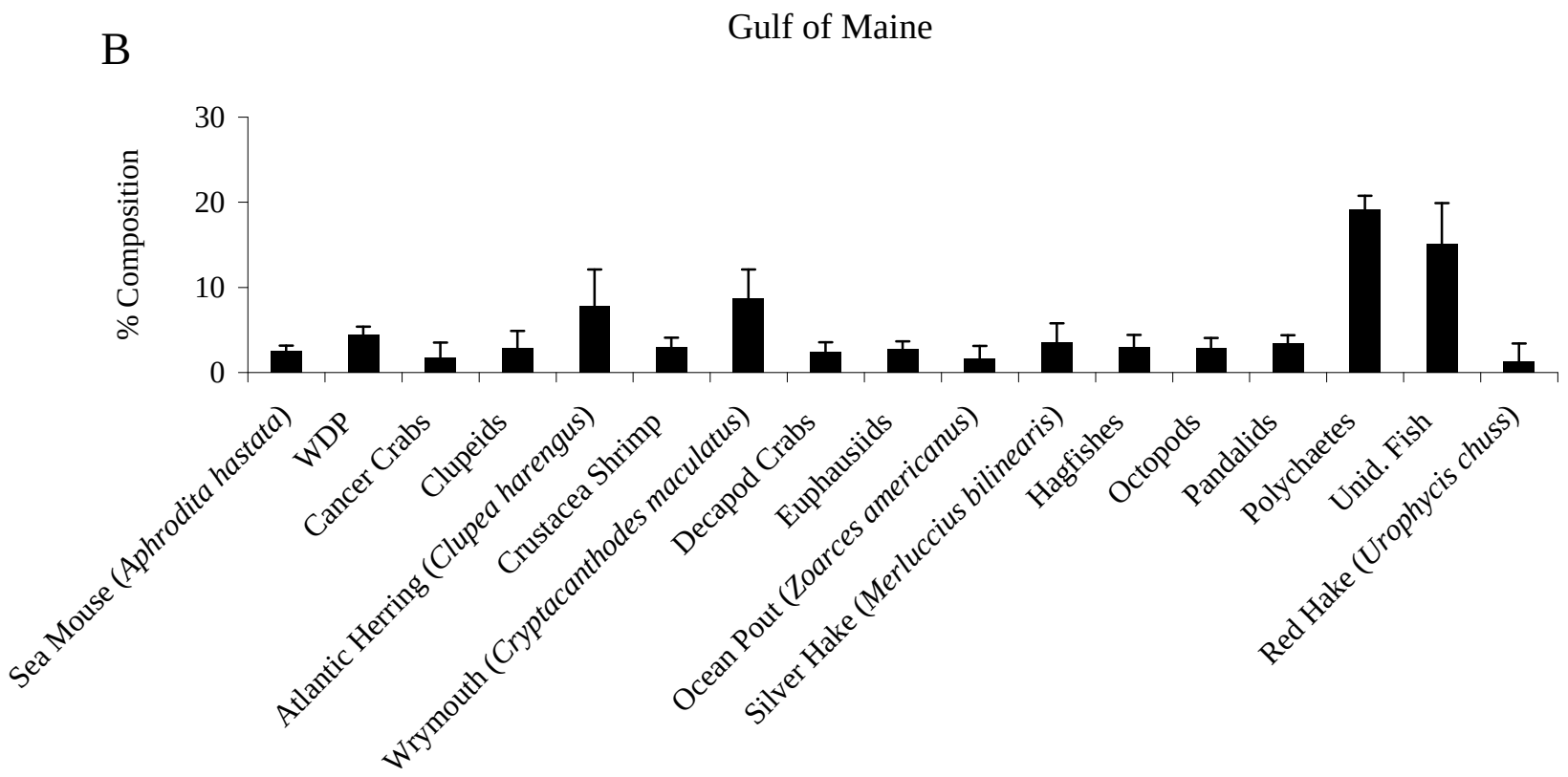

Figure 31B. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected in the Gulf of Maine (n = 2,383). WDP = well-digested prey; Unid. Fish = unidentified fish.

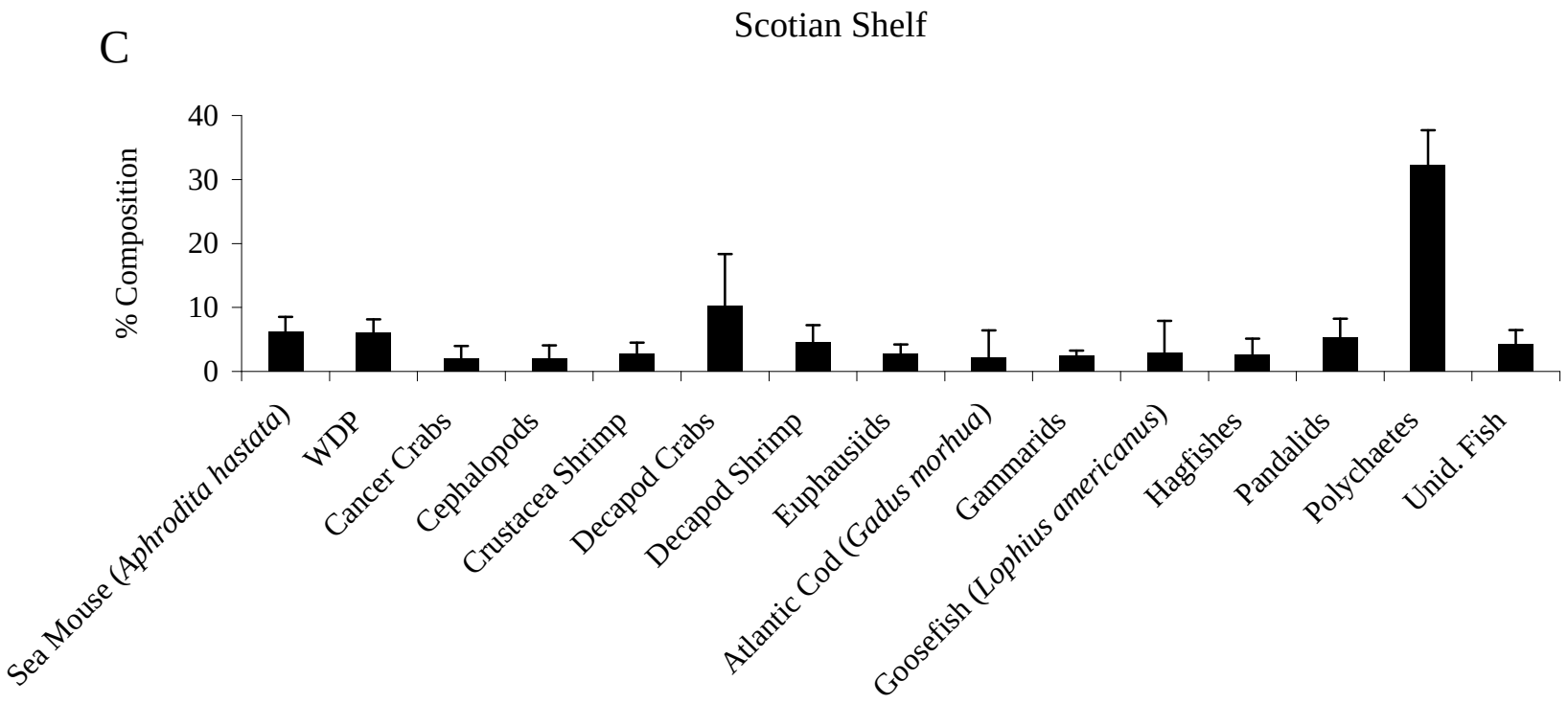

Figure 31C. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected on the Scotian Shelf (n = 417). WDP = well-digested prey; Unid. Fish = unidentified fish.

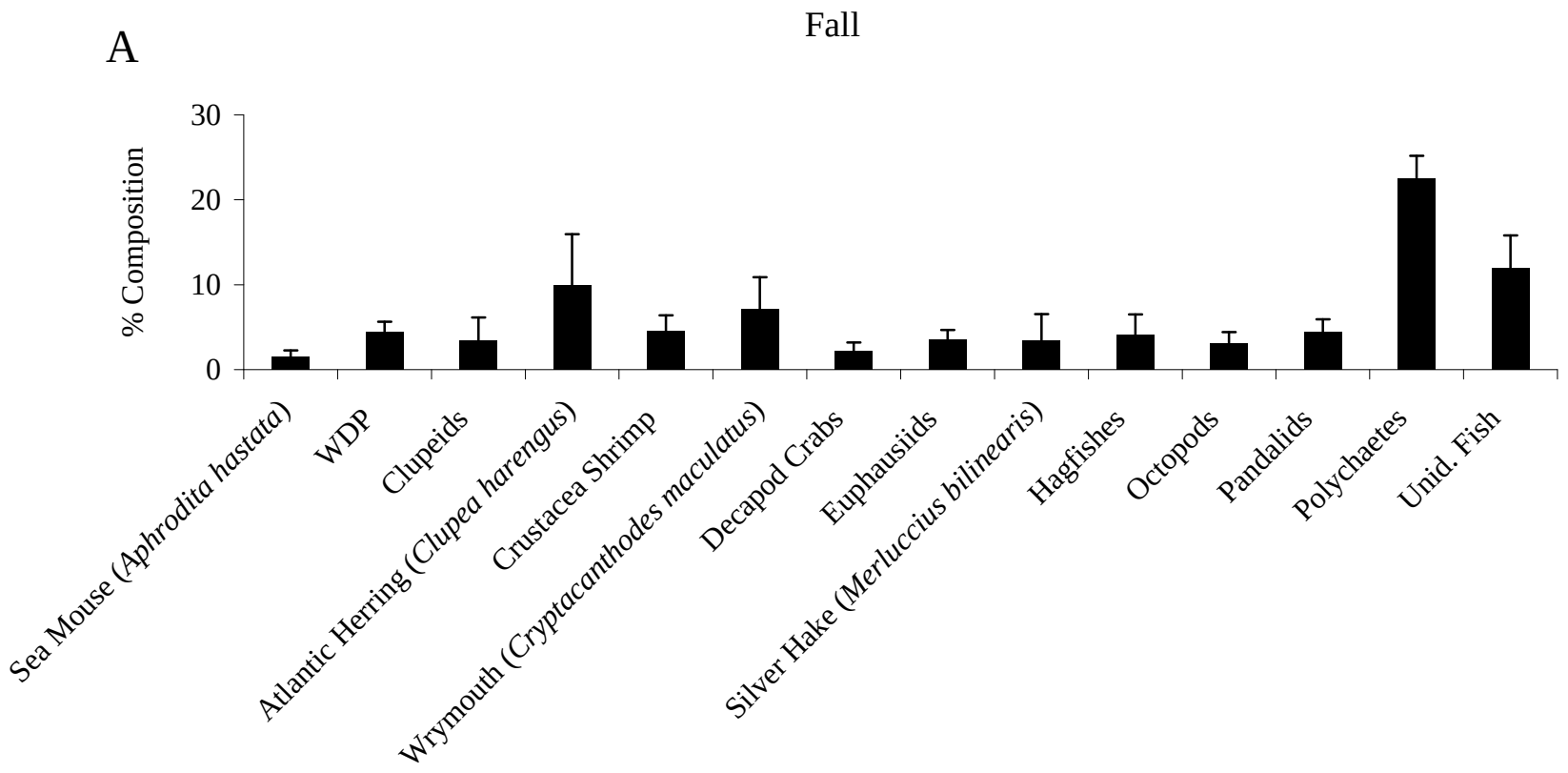

Figure 32A. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected in the fall (n = 1,500). WDP = well-digested prey; Unid. Fish = unidentified fish.

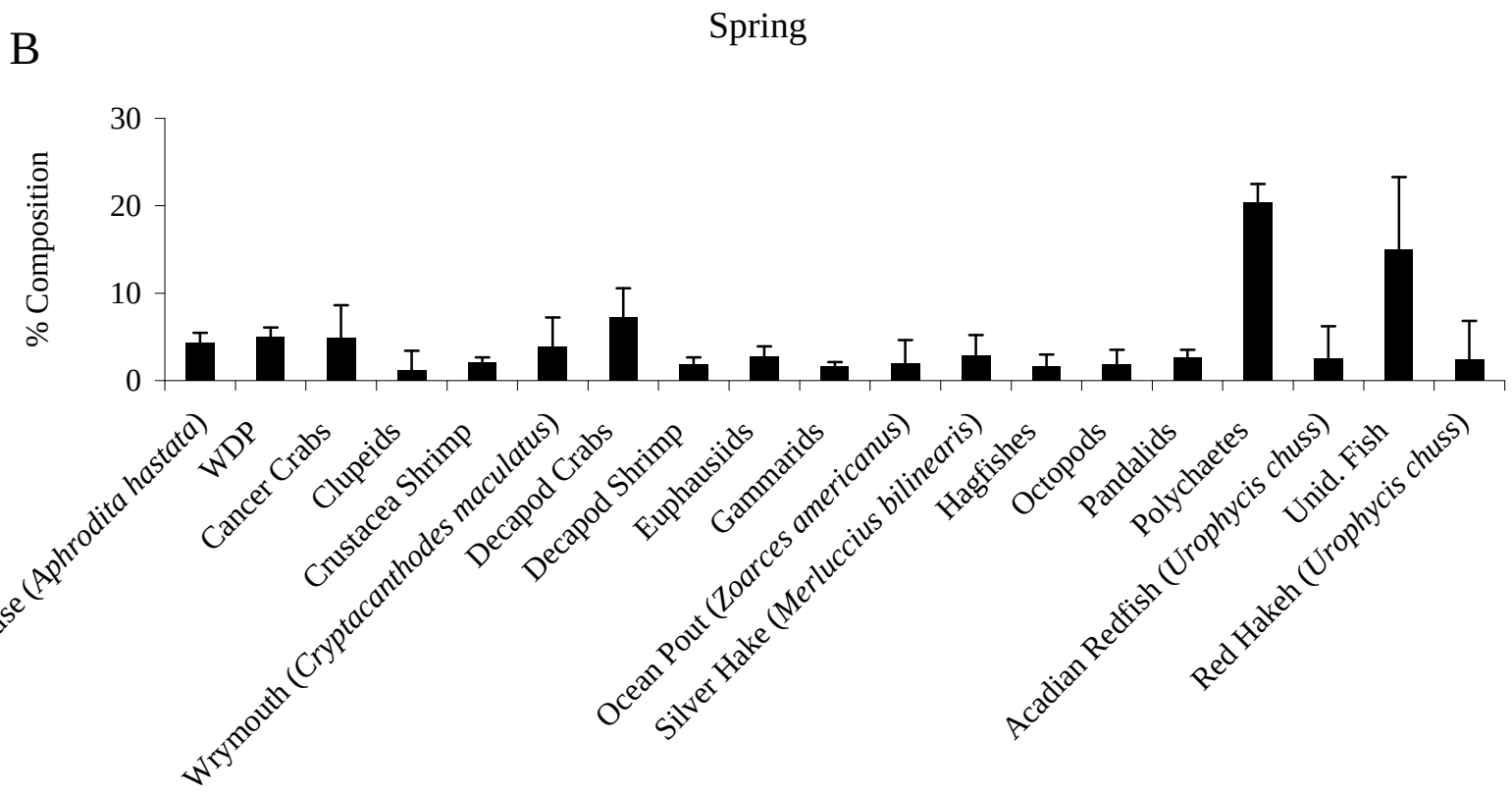

Figure 32B. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected in the spring (n = 1,508). WDP = well-digested prey; Unid. Fish = unidentified fish.

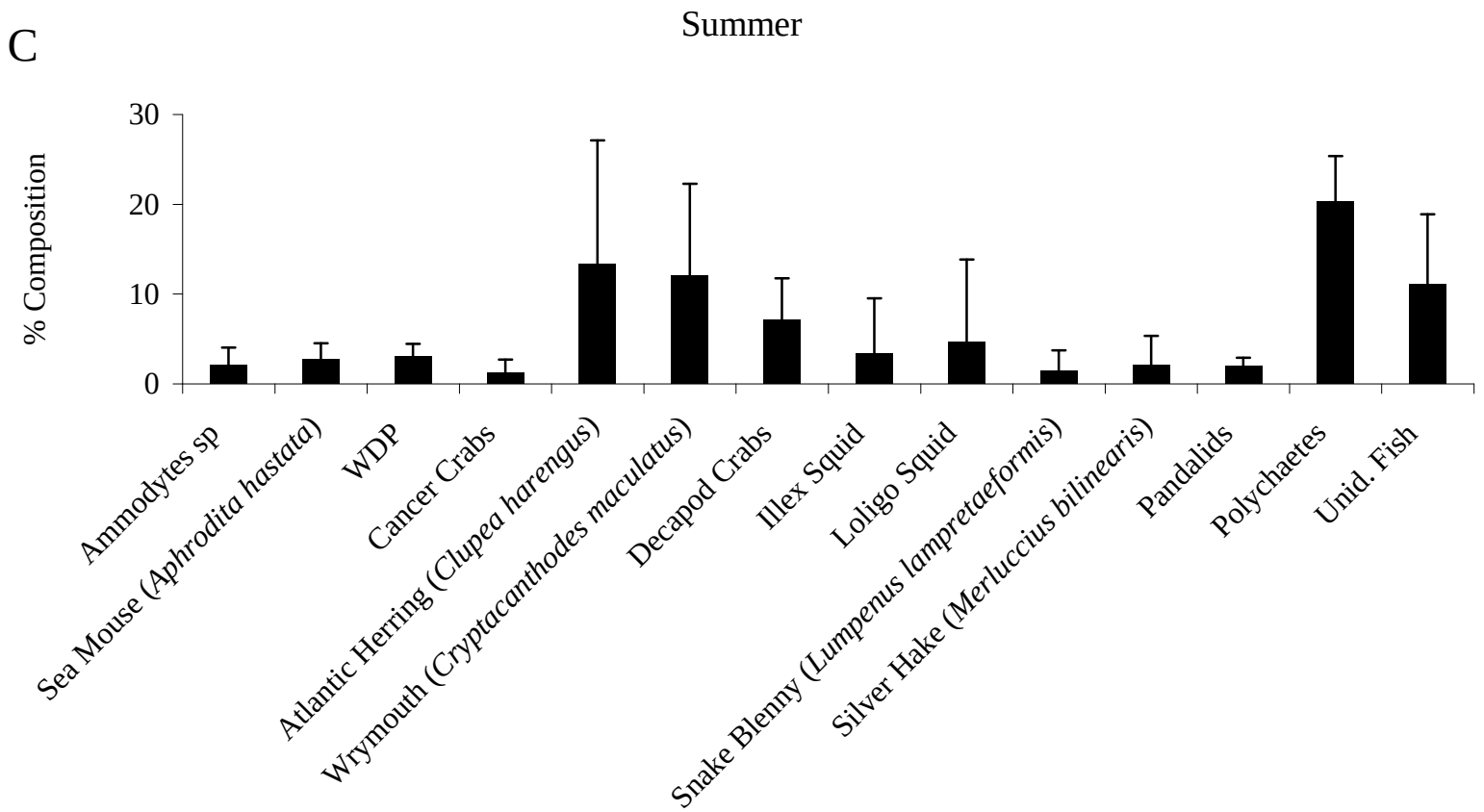

Figure 32C. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) collected in the summer (n = 393). WDP = well-digested prey; Unid. Fish = unidentified fish.

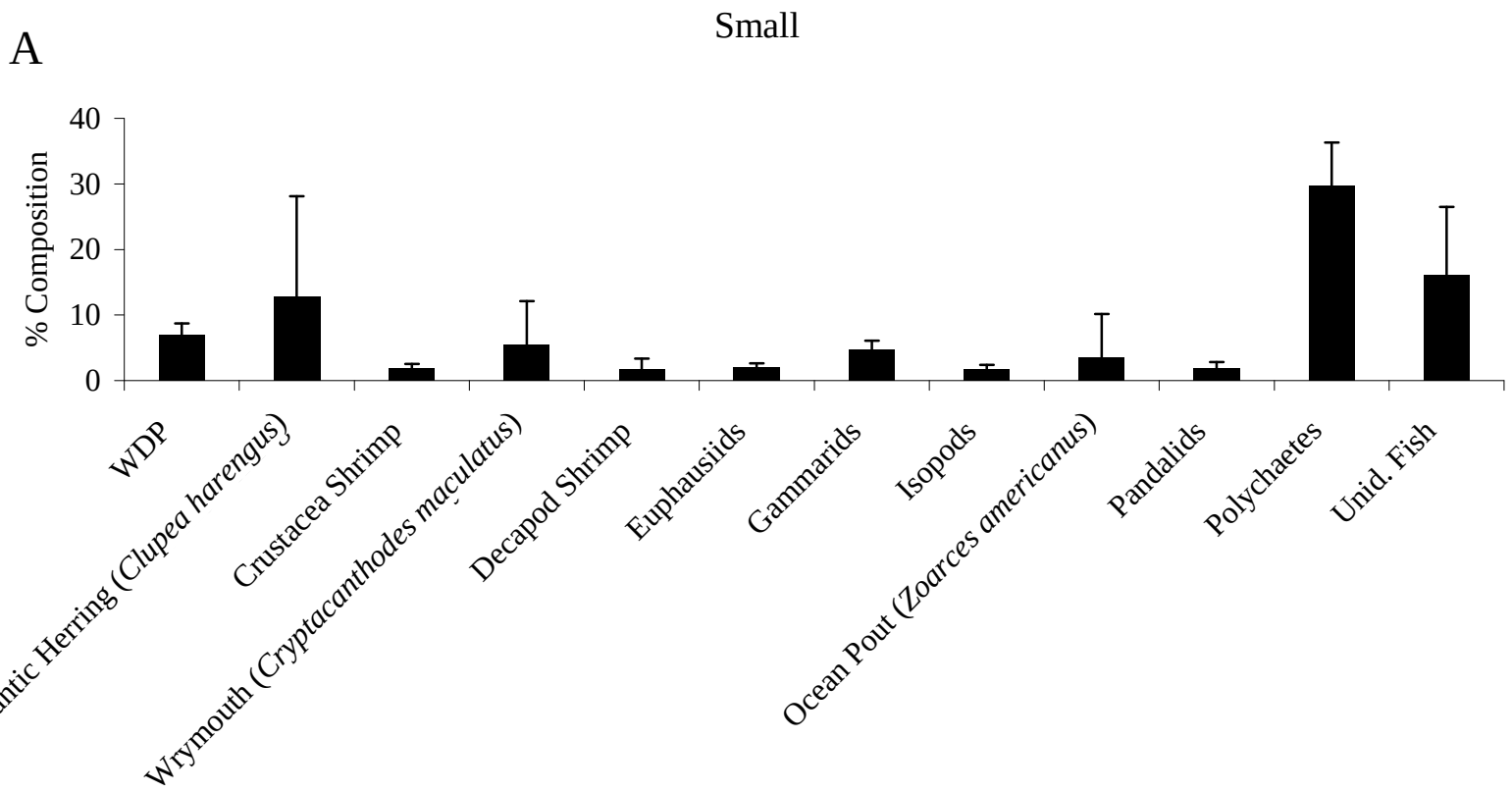

Figure 33A. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) in the small size class (n = 1,006). WDP = well-digested prey; Unid. Fish = unidentified fish.

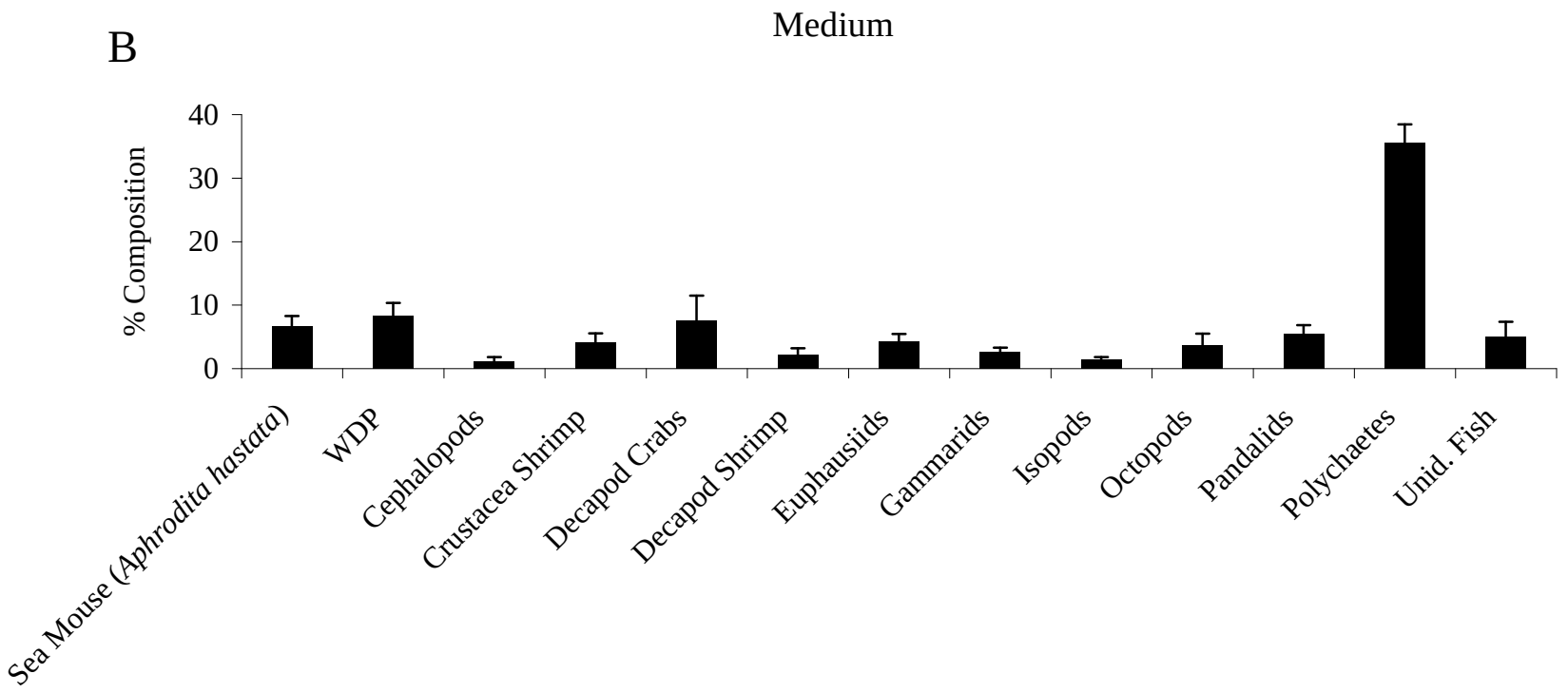

Figure 33B. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) in the medium size class (n = 1,509). WDP = well-digested prey; Unid. Fish = unidentified fish.

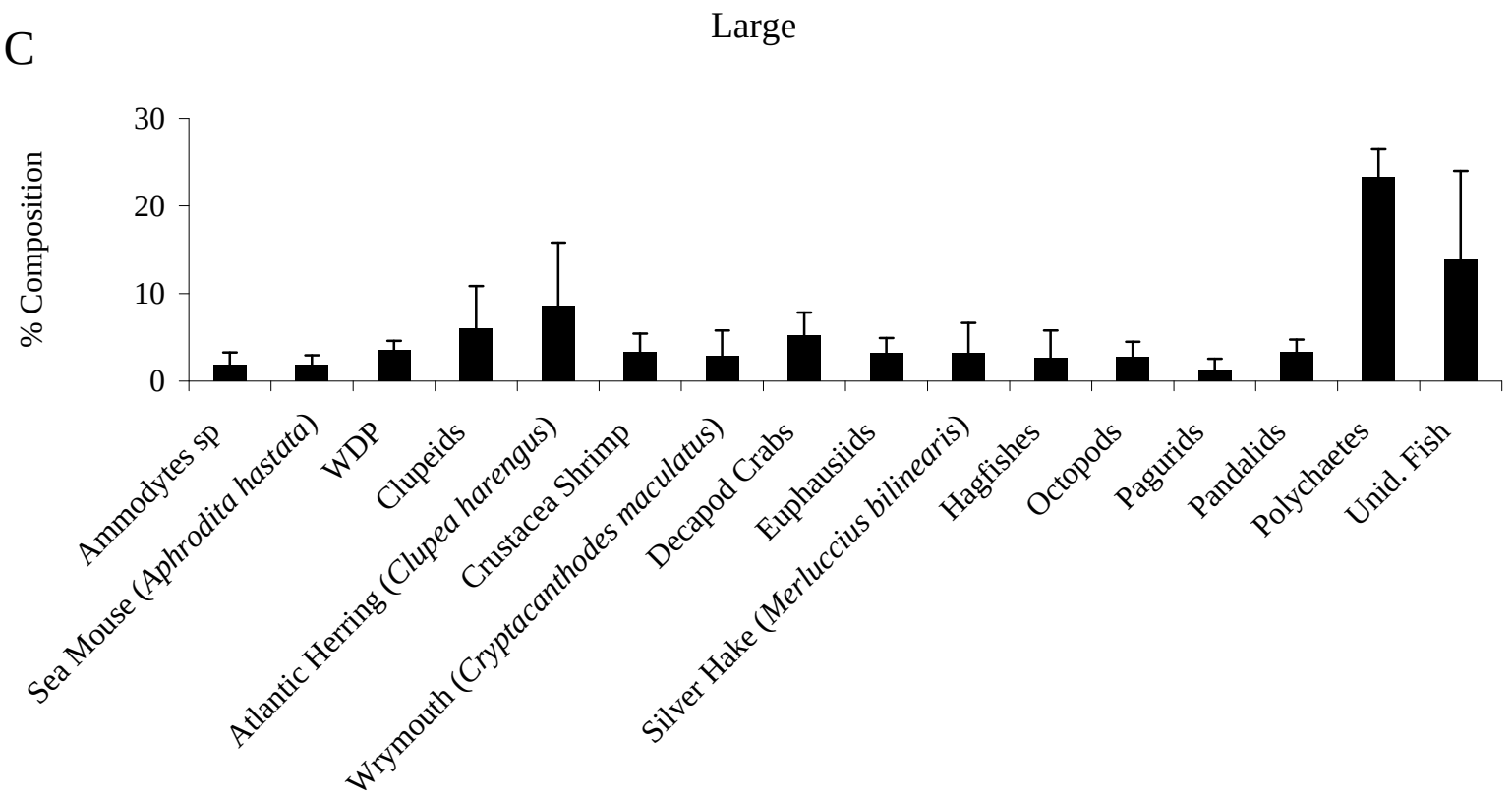

Figure 33C. Percent diet composition by weight of major prey taxa for thorny skate (*Amblyraja radiata*) in the large size class (n = 587). WDP = well-digested prey; Unid. Fish = unidentified fish.

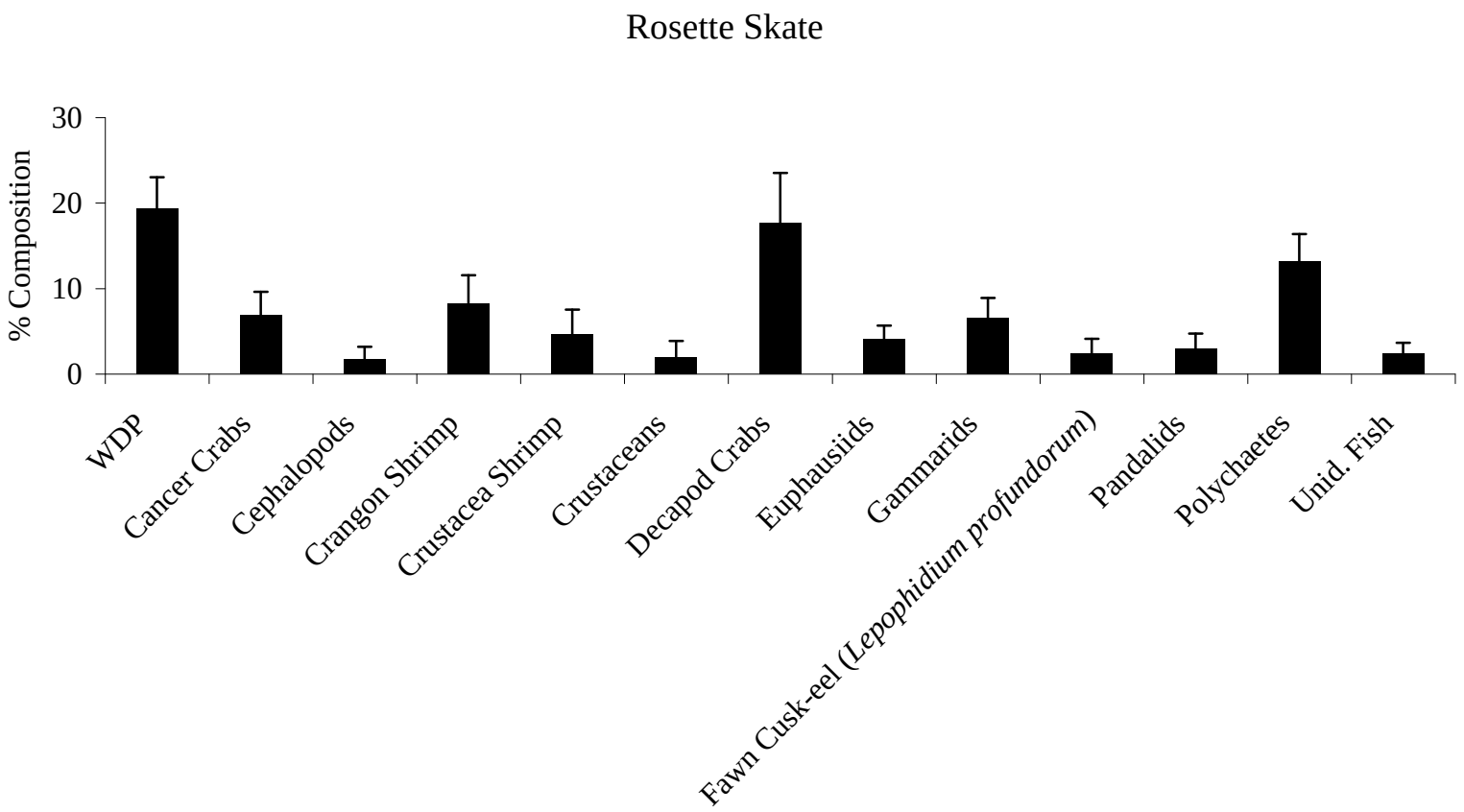

Figure 34. Percent diet composition by weight of major prey taxa for rosette skate (*Leucoraja garmani*; n = 700). WDP = well-digested prey; Unid. Fish = unidentified fish.

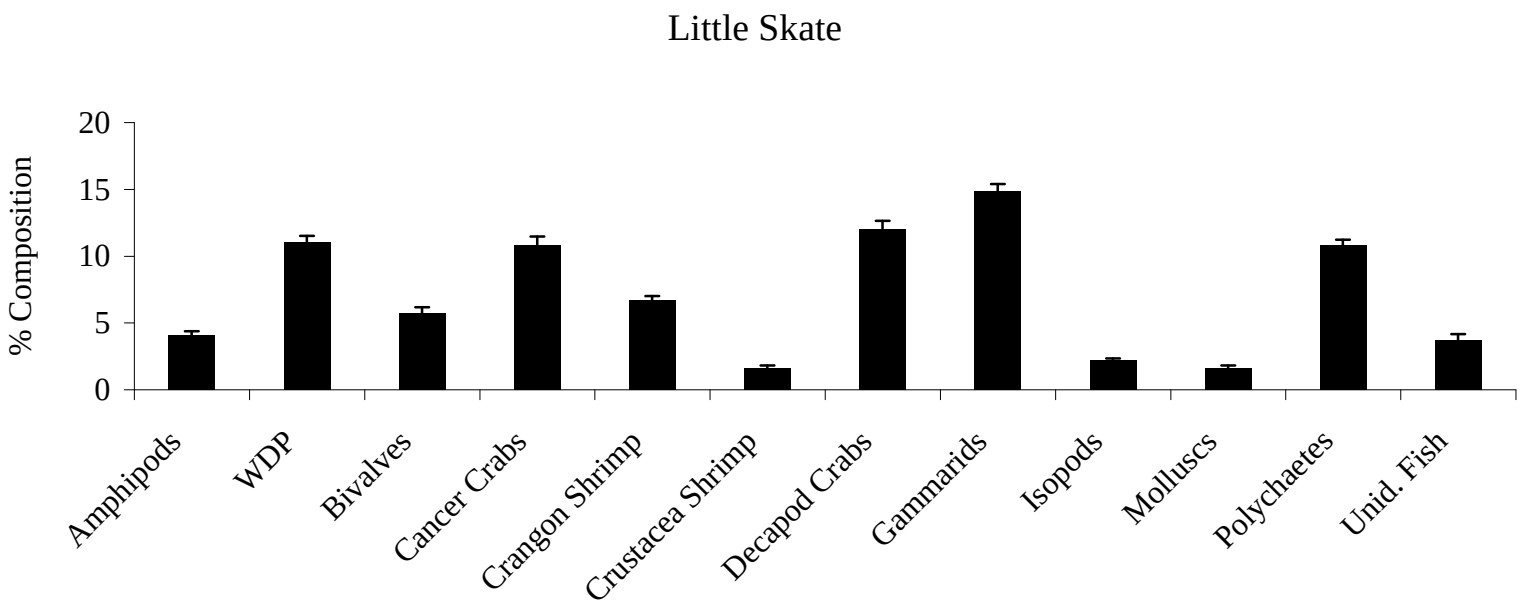

Figure 35. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*; n = 27,507). WDP = well-digested prey; Unid. Fish = unidentified fish.

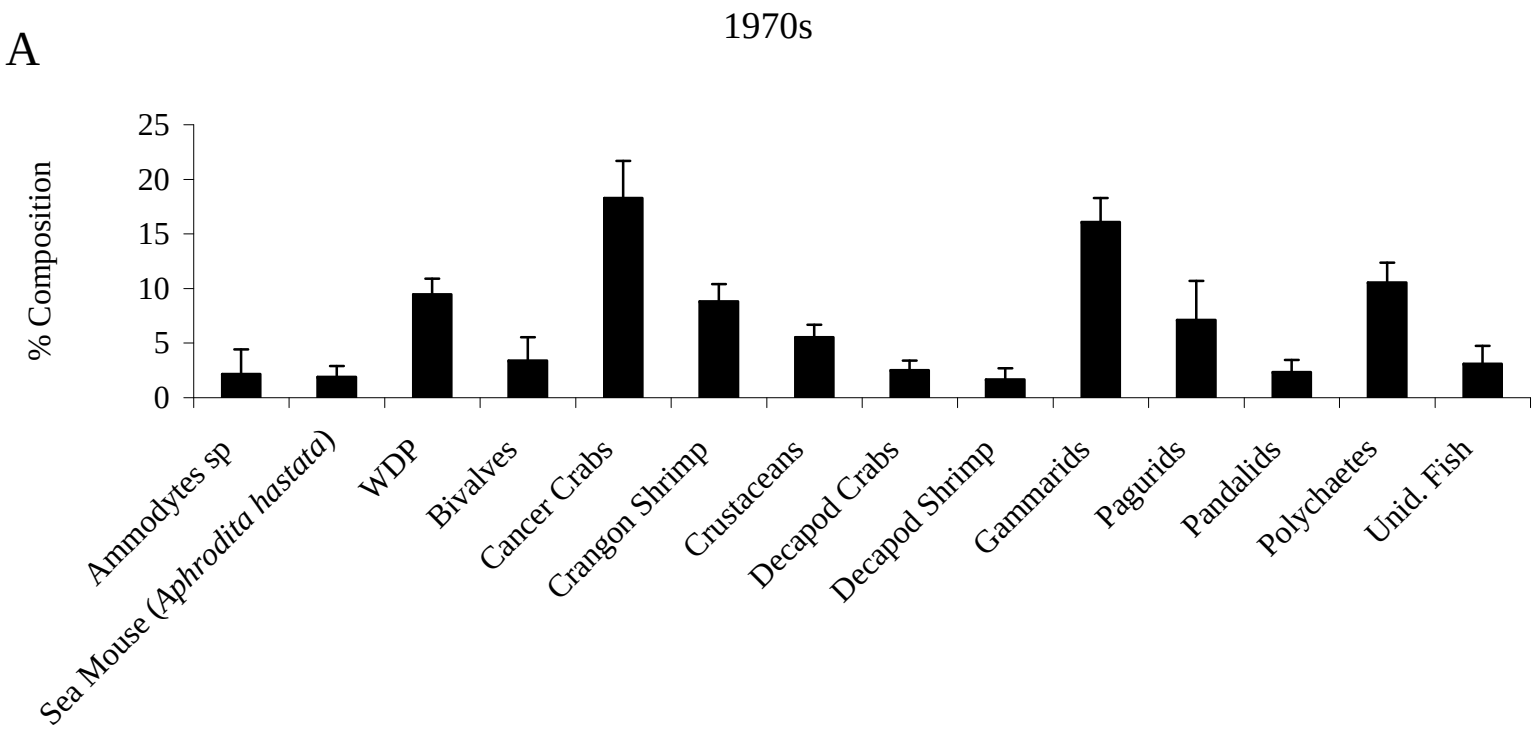

Figure 36A. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the 1970s (n = 1,406). WDP = well-digested prey; Unid. Fish = unidentified fish.

B

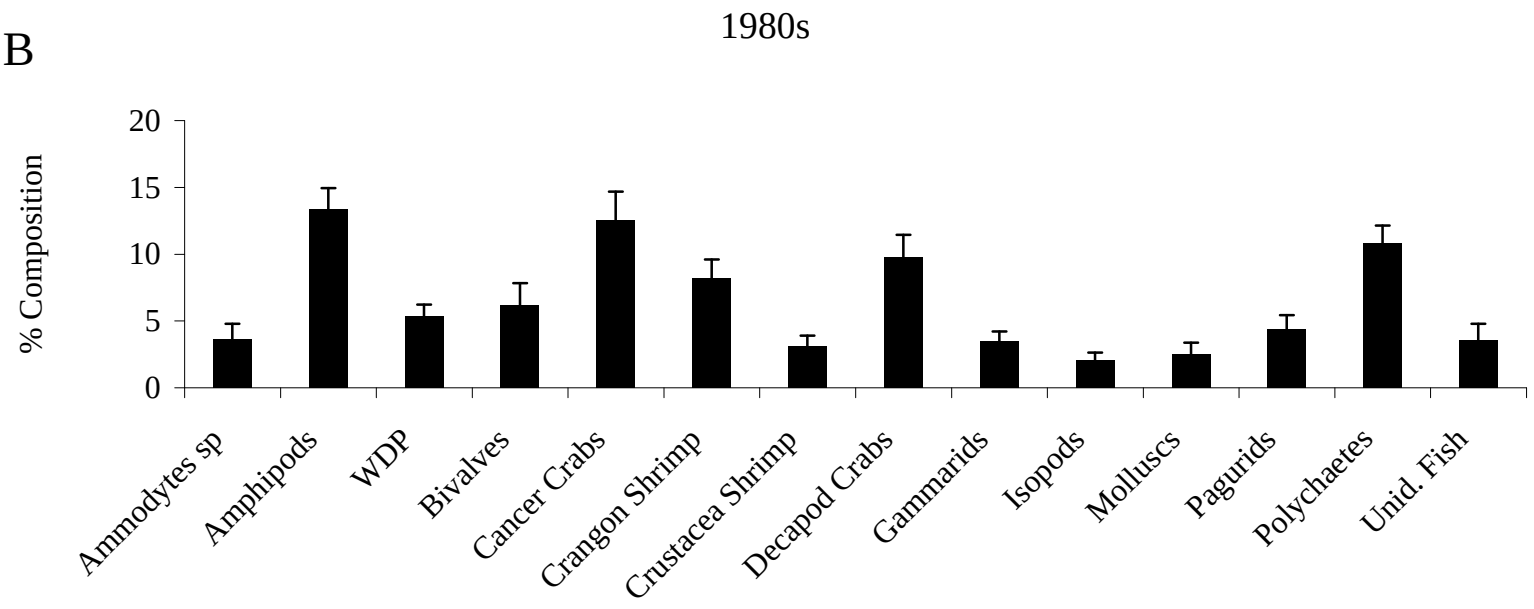

Figure 36B. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the 1980s (n = 2,893). WDP = well-digested prey; Unid. Fish = unidentified fish.

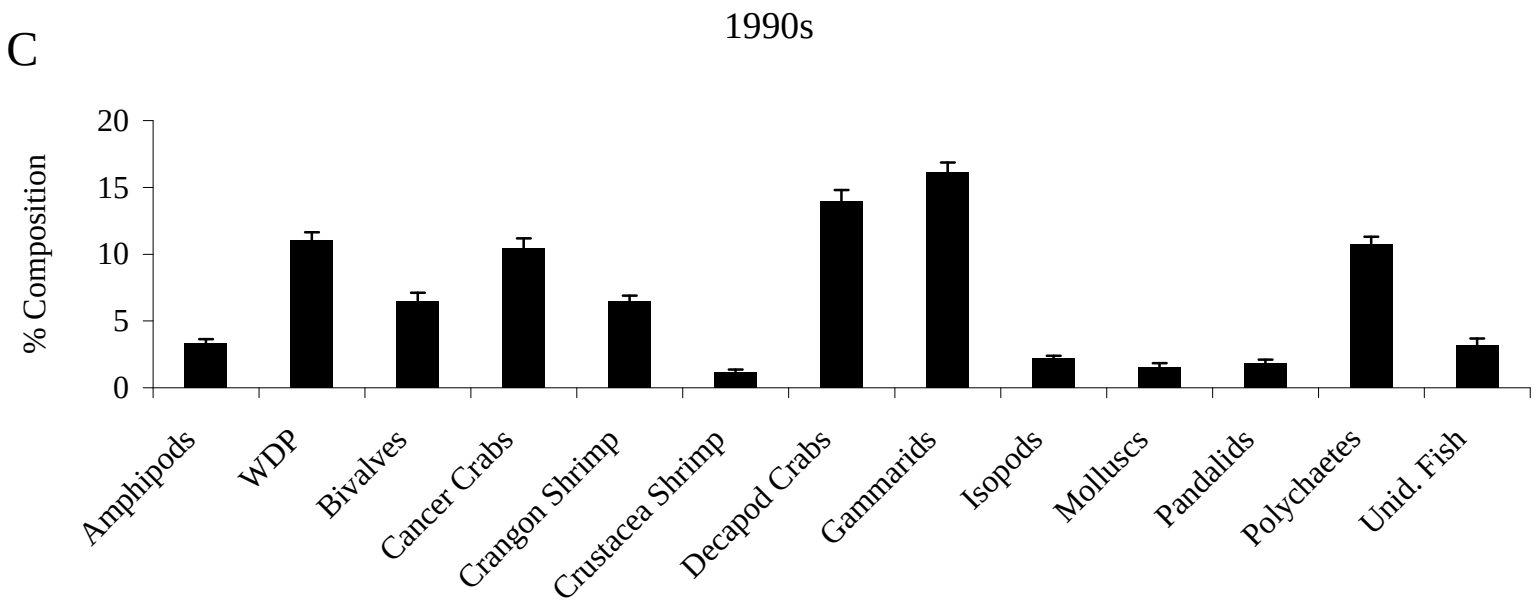

Figure 36C. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the 1990s (n = 16,697). WDP = well-digested prey; Unid. Fish = unidentified fish.

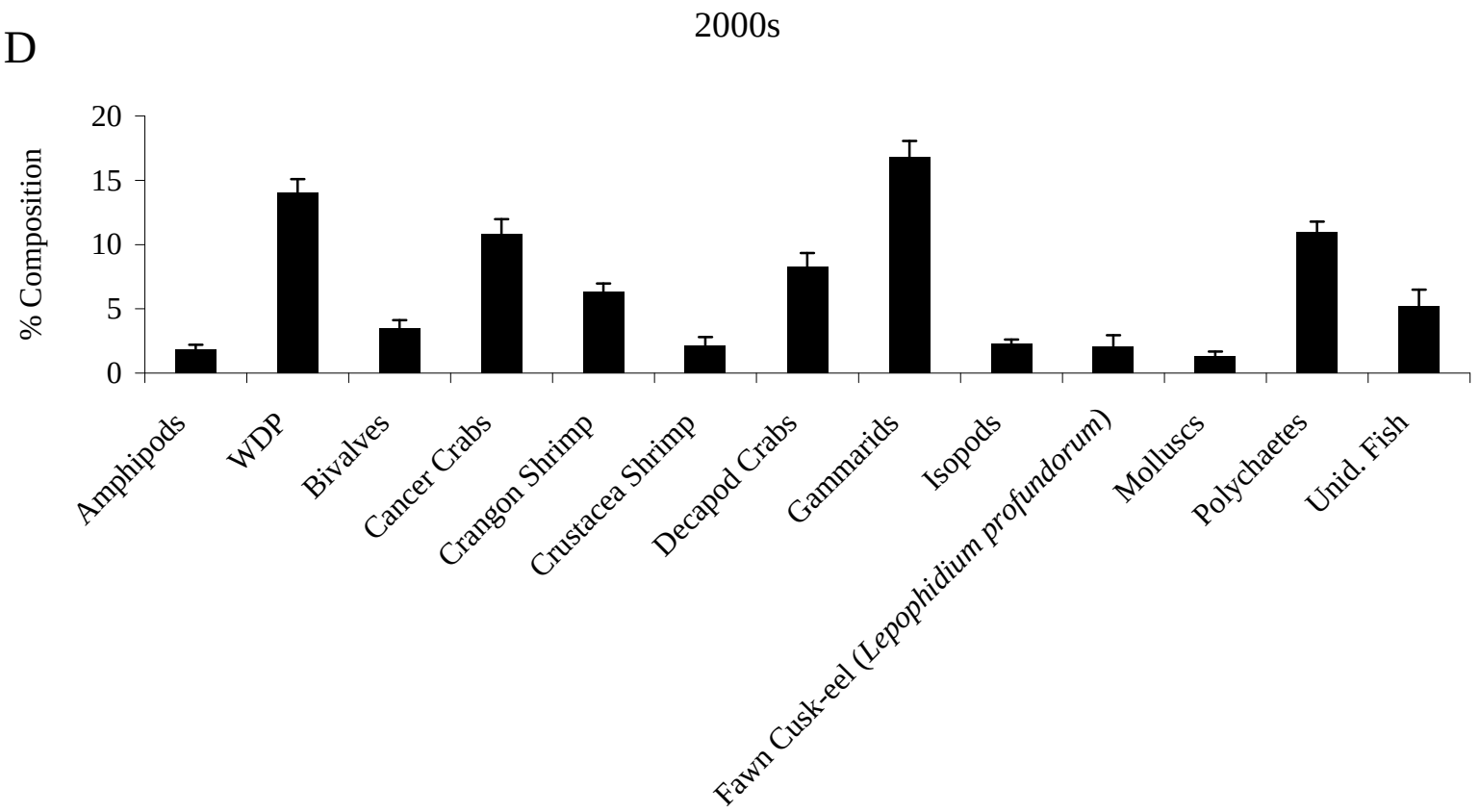

Figure 36D. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the 2000s (n = 6,511). WDP = well-digested prey; Unid. Fish = unidentified fish.

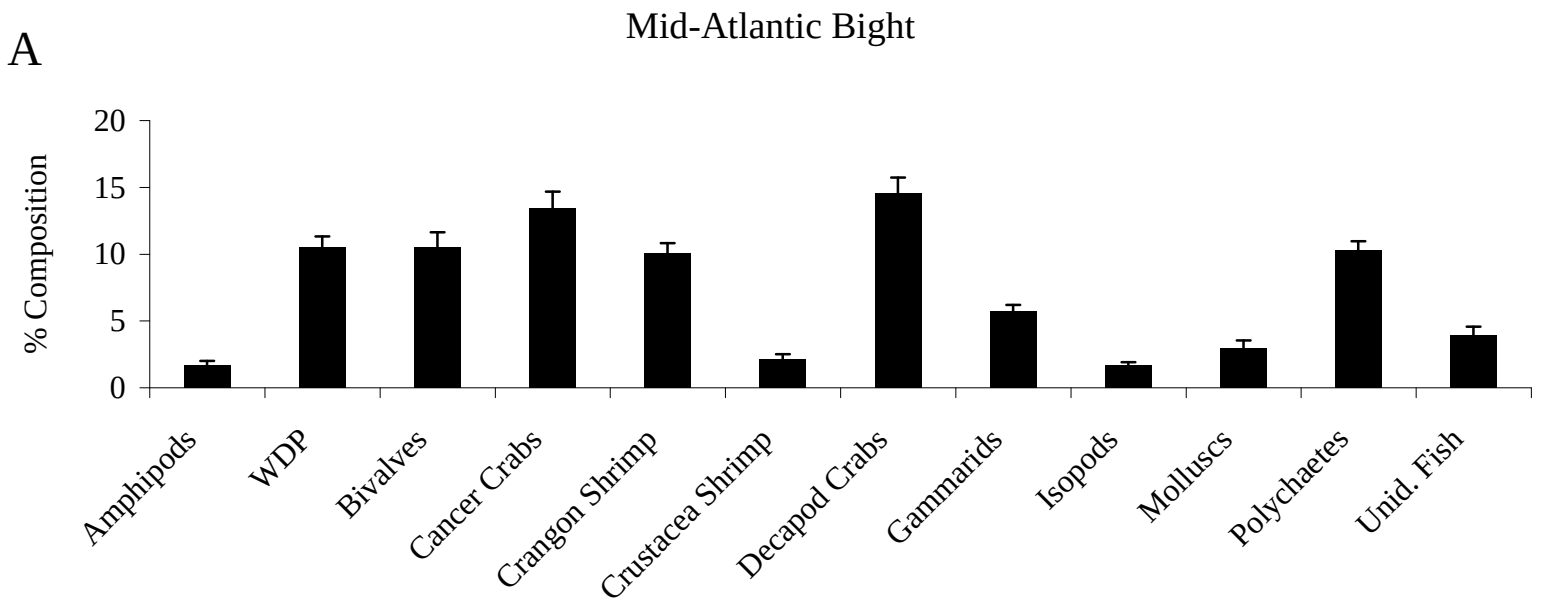

Figure 37A. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the Mid-Atlantic Bight (n = 7,621). WDP = well-digested prey; Unid. Fish = unidentified fish.

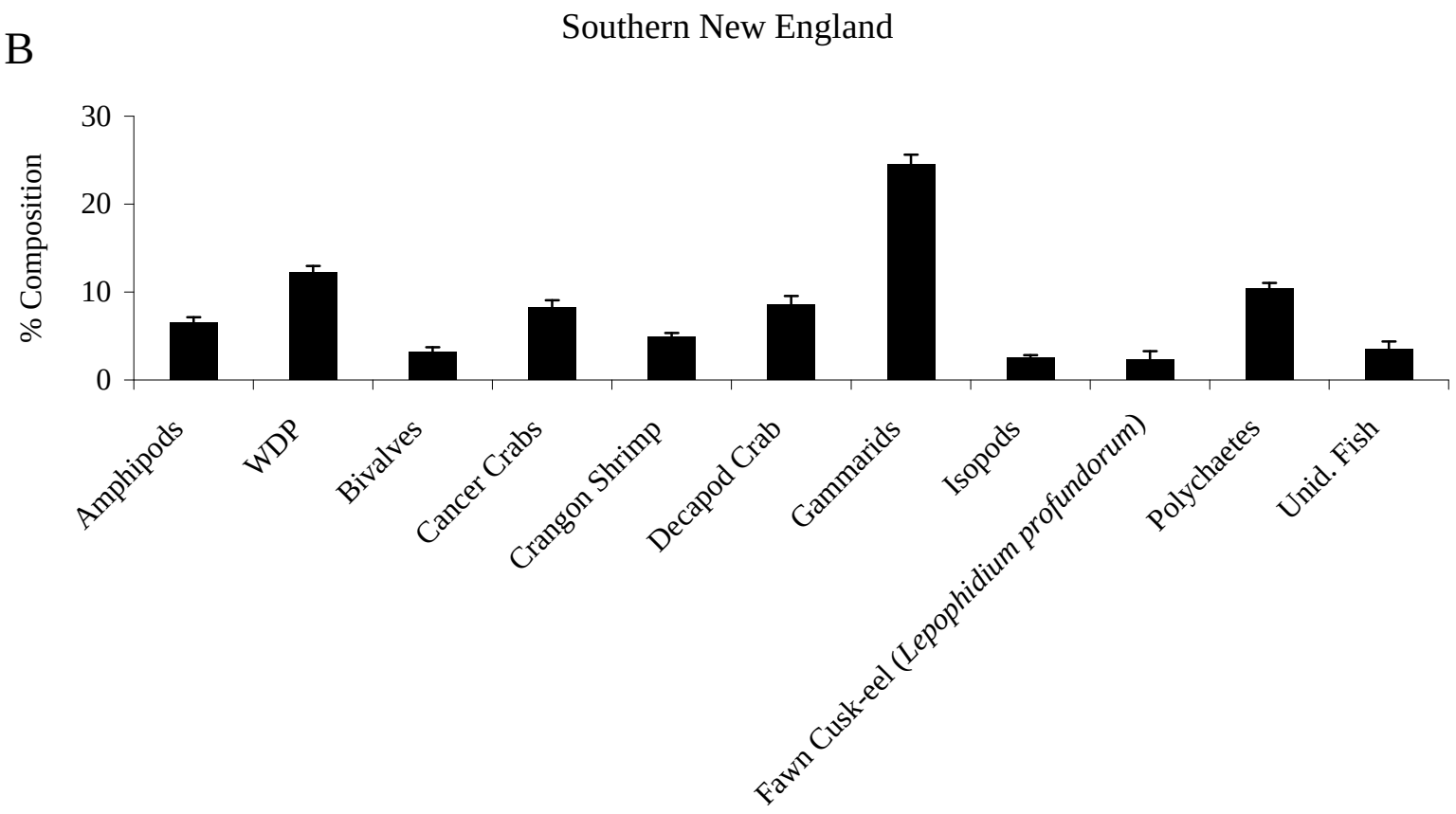

Figure 37B. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in Southern New England (n = 10,499). WDP = well-digested prey; Unid. Fish = unidentified fish.

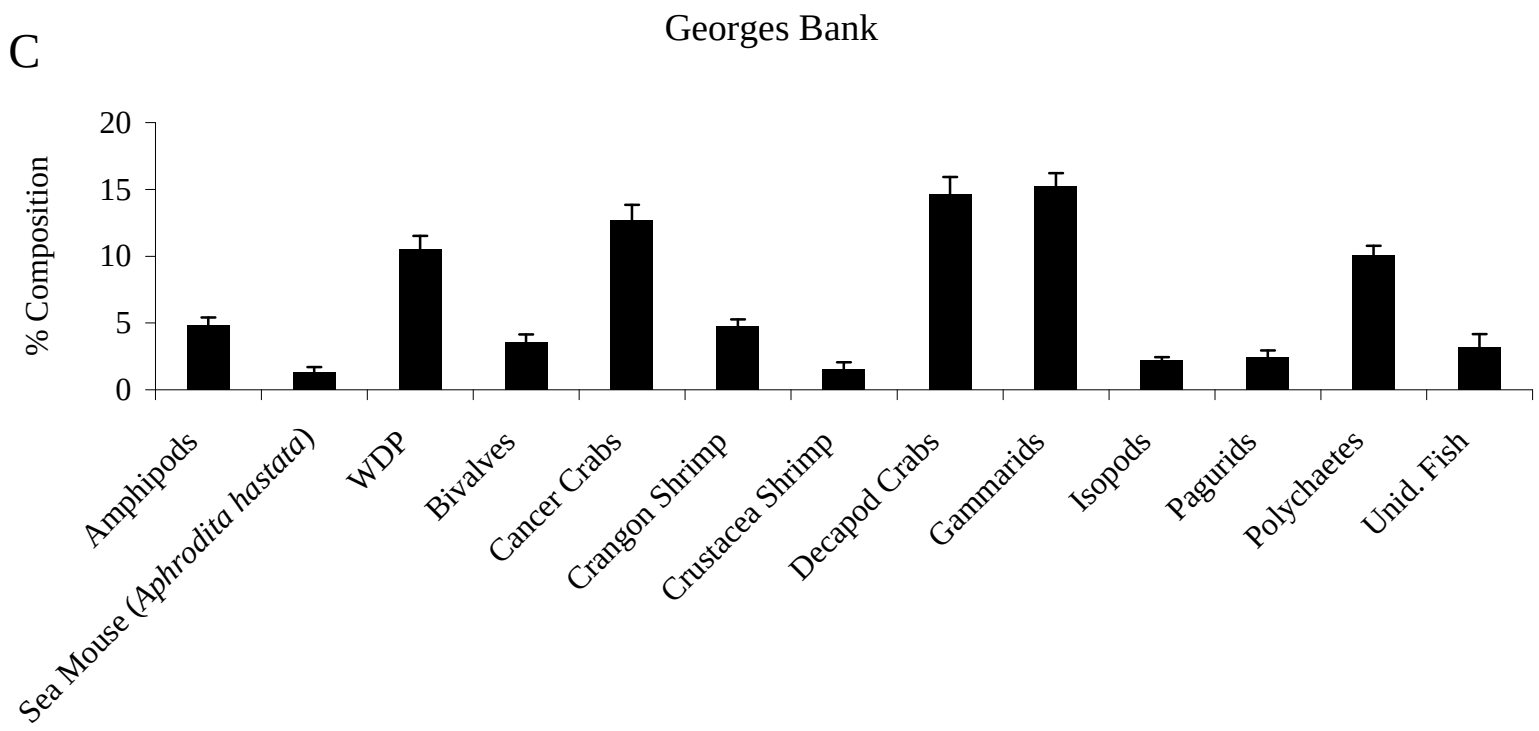

Figure 37C. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected on Georges Bank (n = 7,831). WDP = well-digested prey; Unid. Fish = unidentified fish.

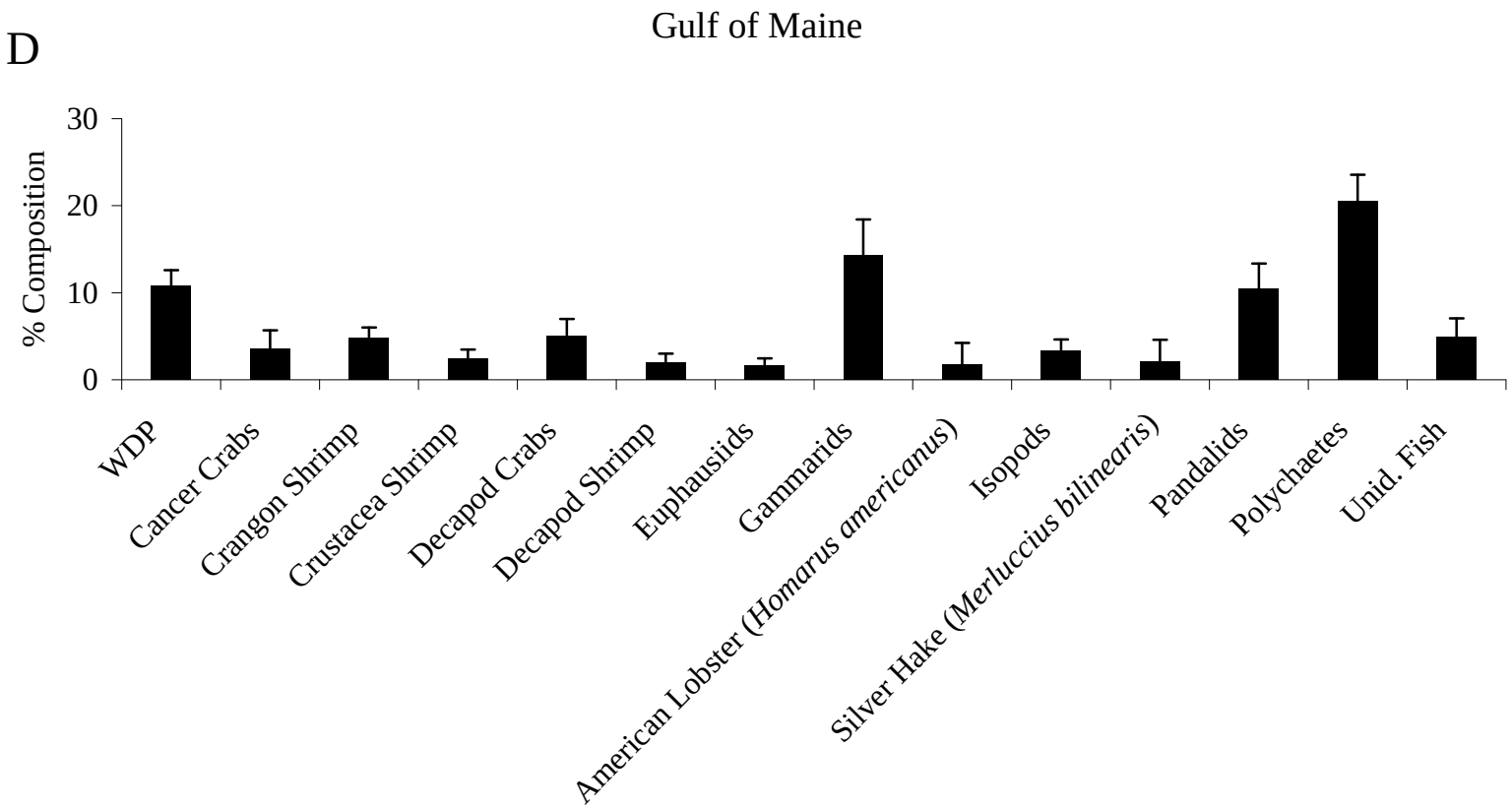

Figure 37D. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected collected in the Gulf of Maine (n = 1,334). WDP = well-digested prey; Unid. Fish = unidentified fish.

E

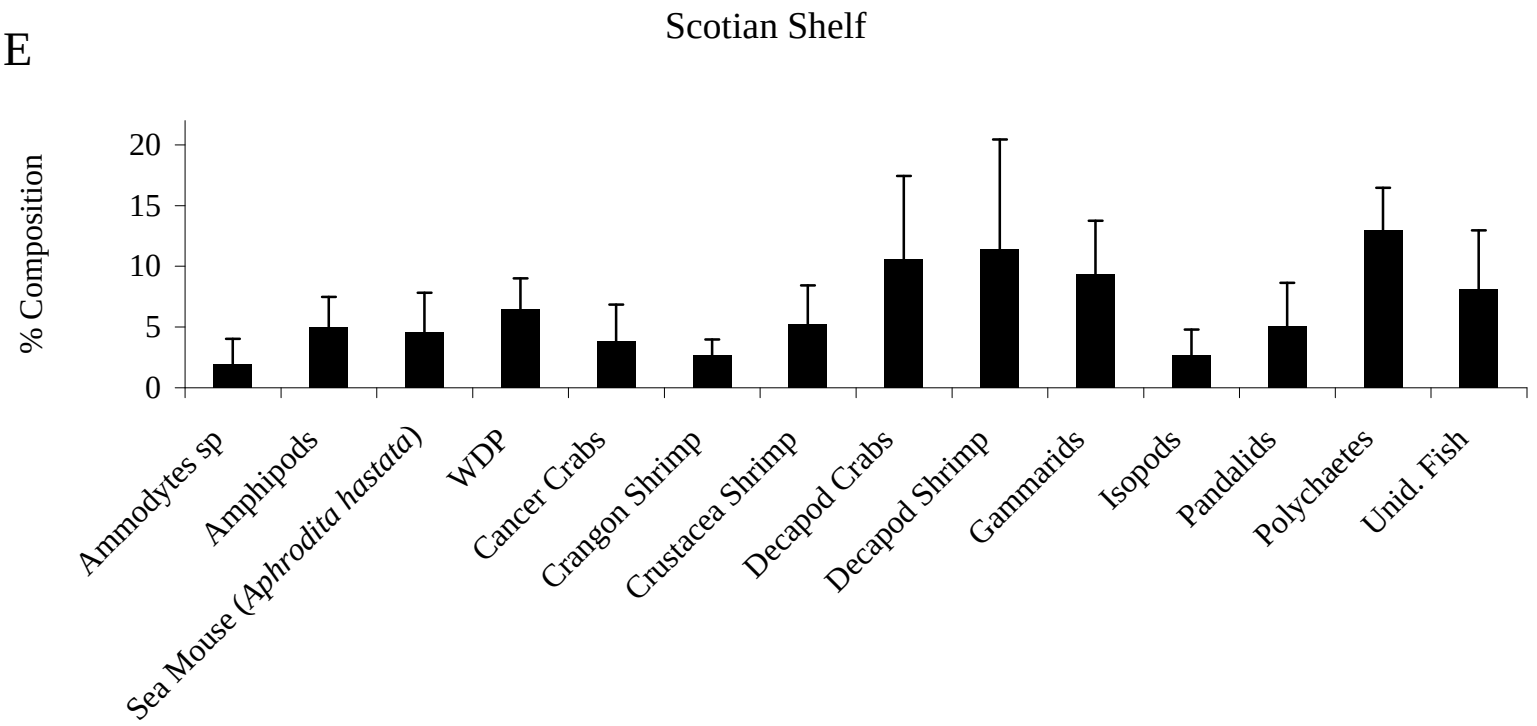

Figure 37E. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected on the Scotian Shelf (n = 220). WDP = well-digested prey; Unid. Fish = unidentified fish.

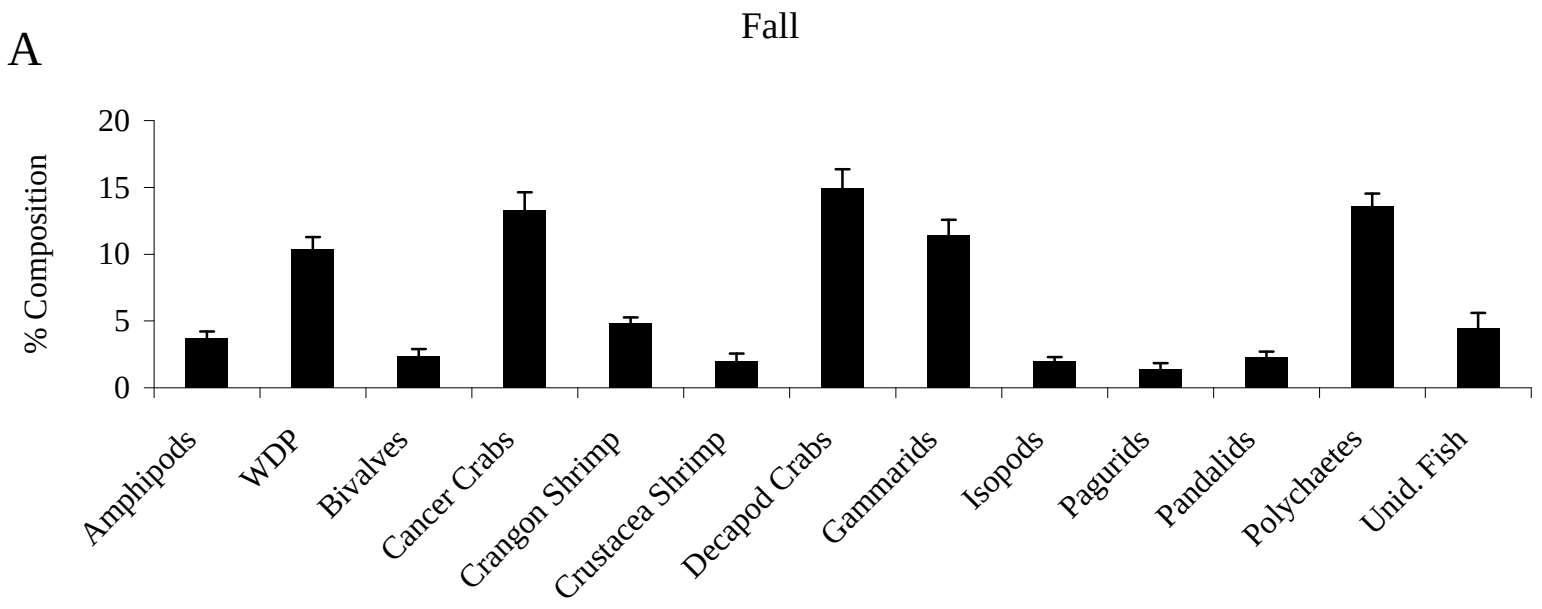

Figure 38A. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the fall (n = 7,403). WDP = well-digested prey; Unid. Fish = unidentified fish.

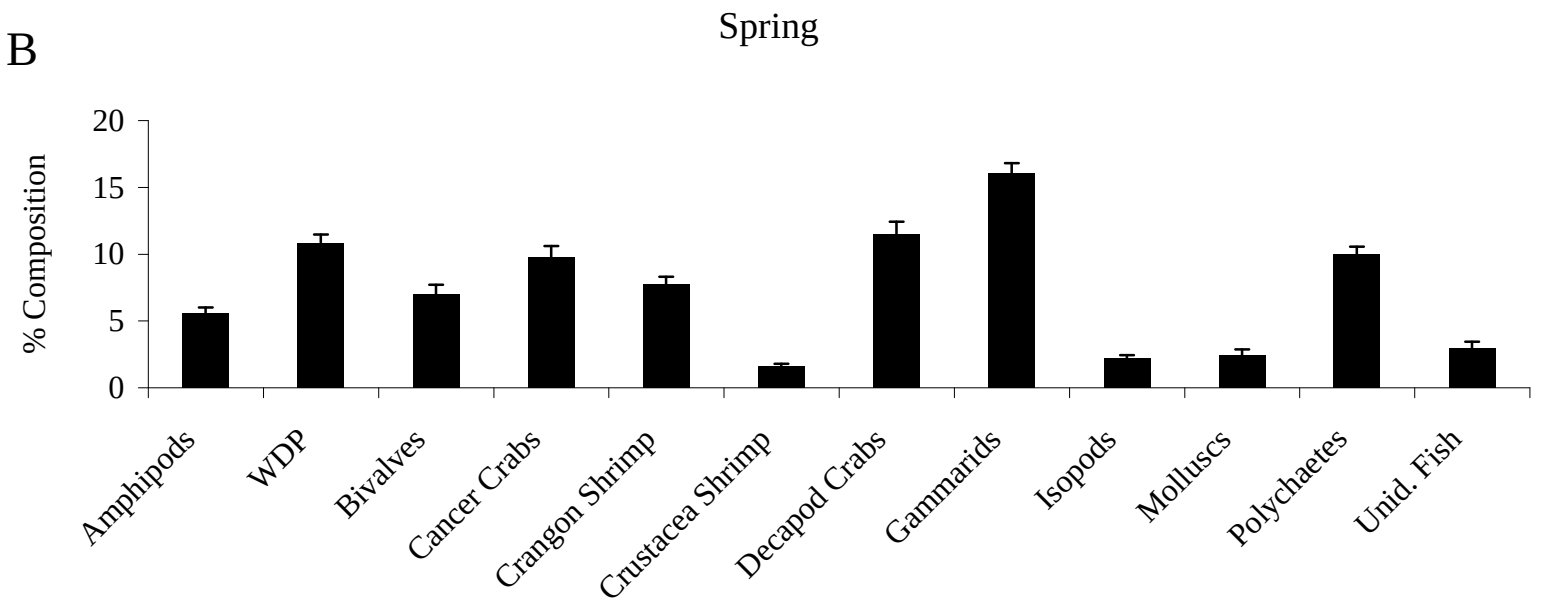

Figure 38B. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the spring (n = 13,394). WDP = well-digested prey; Unid. Fish = unidentified fish.

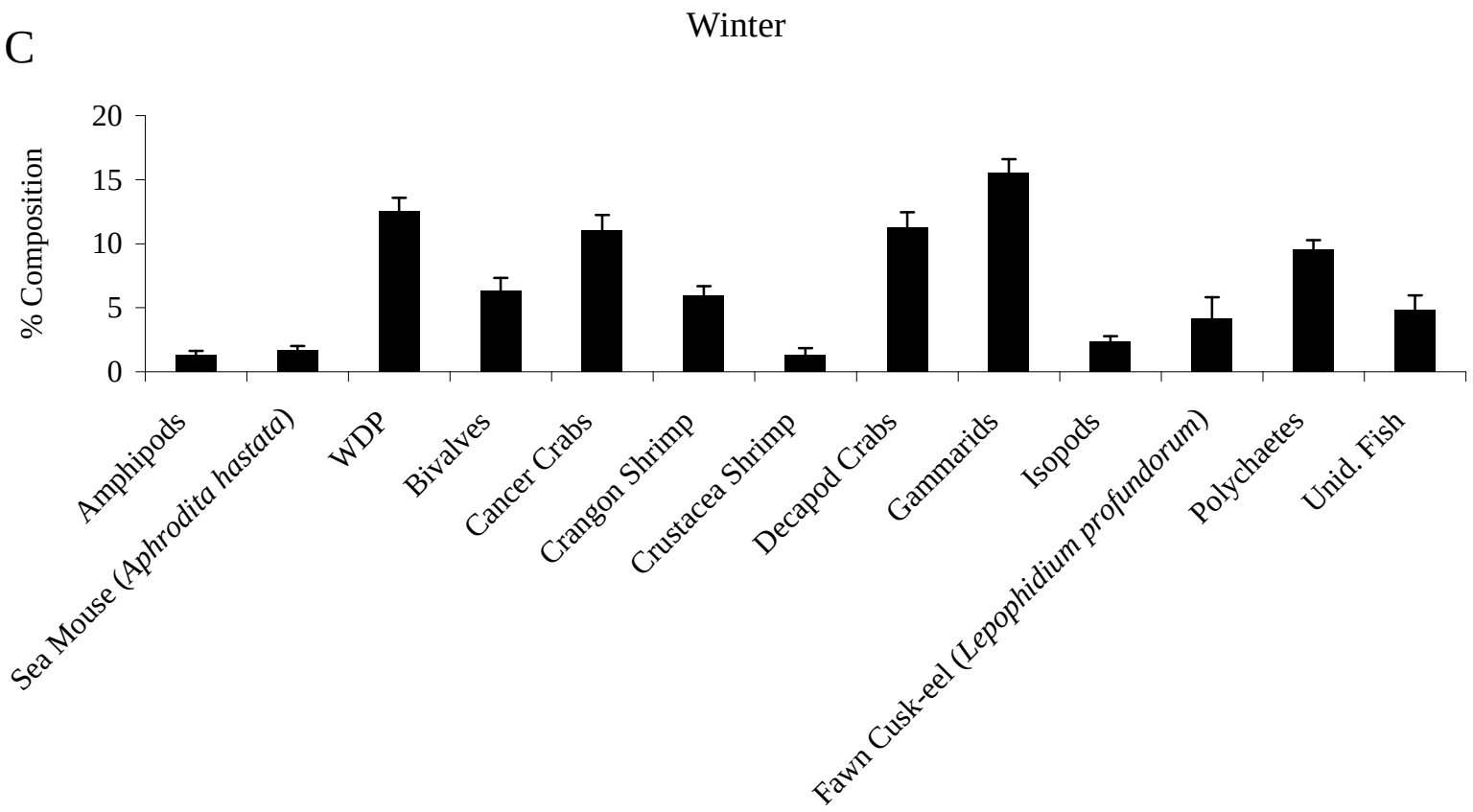

Figure 38C. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the winter (n = 6,120). WDP = well-digested prey; Unid. Fish = unidentified fish.

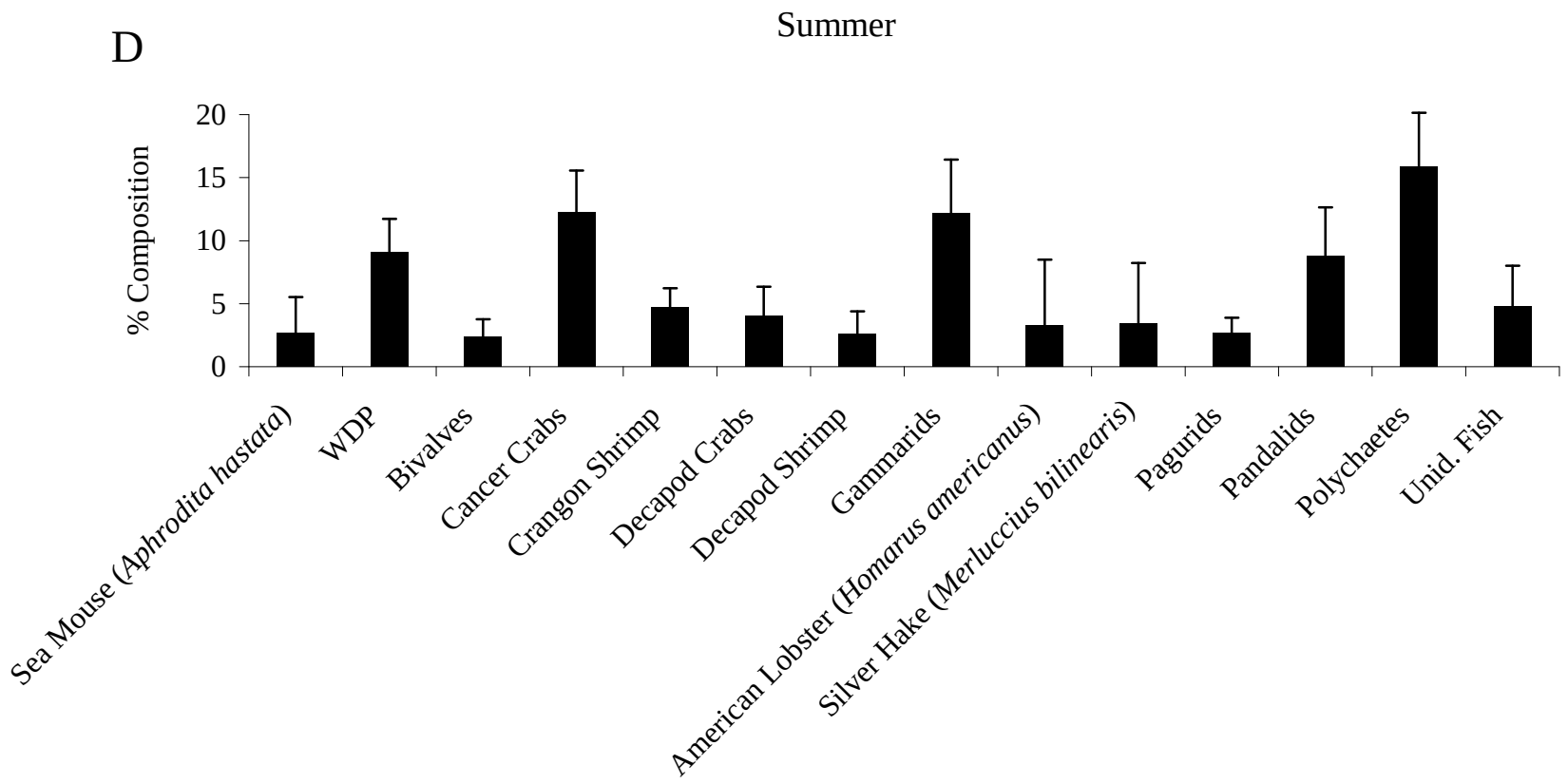

Figure 38D. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) collected in the summer (n = 590). WDP = well-digested prey; Unid. Fish = unidentified fish.

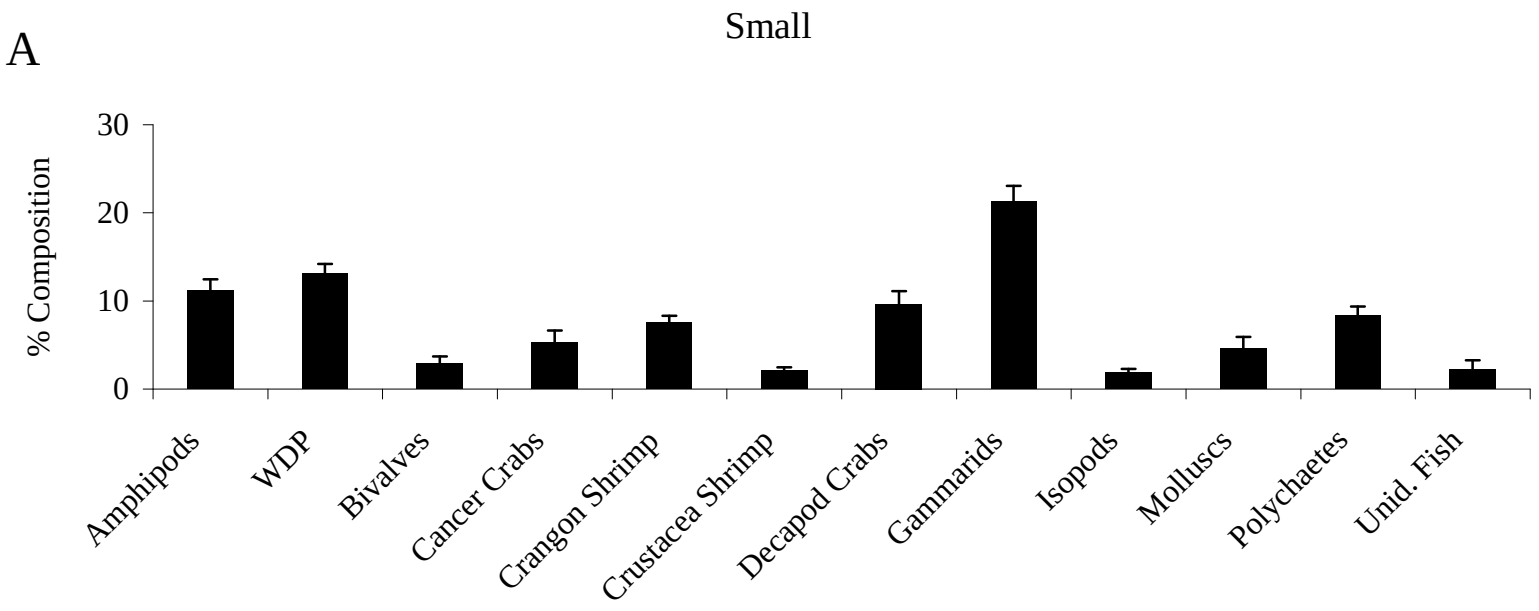

Figure 39A. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) in the small size class (n = 6,194). WDP = well-digested prey; Unid. Fish = unidentified fish.

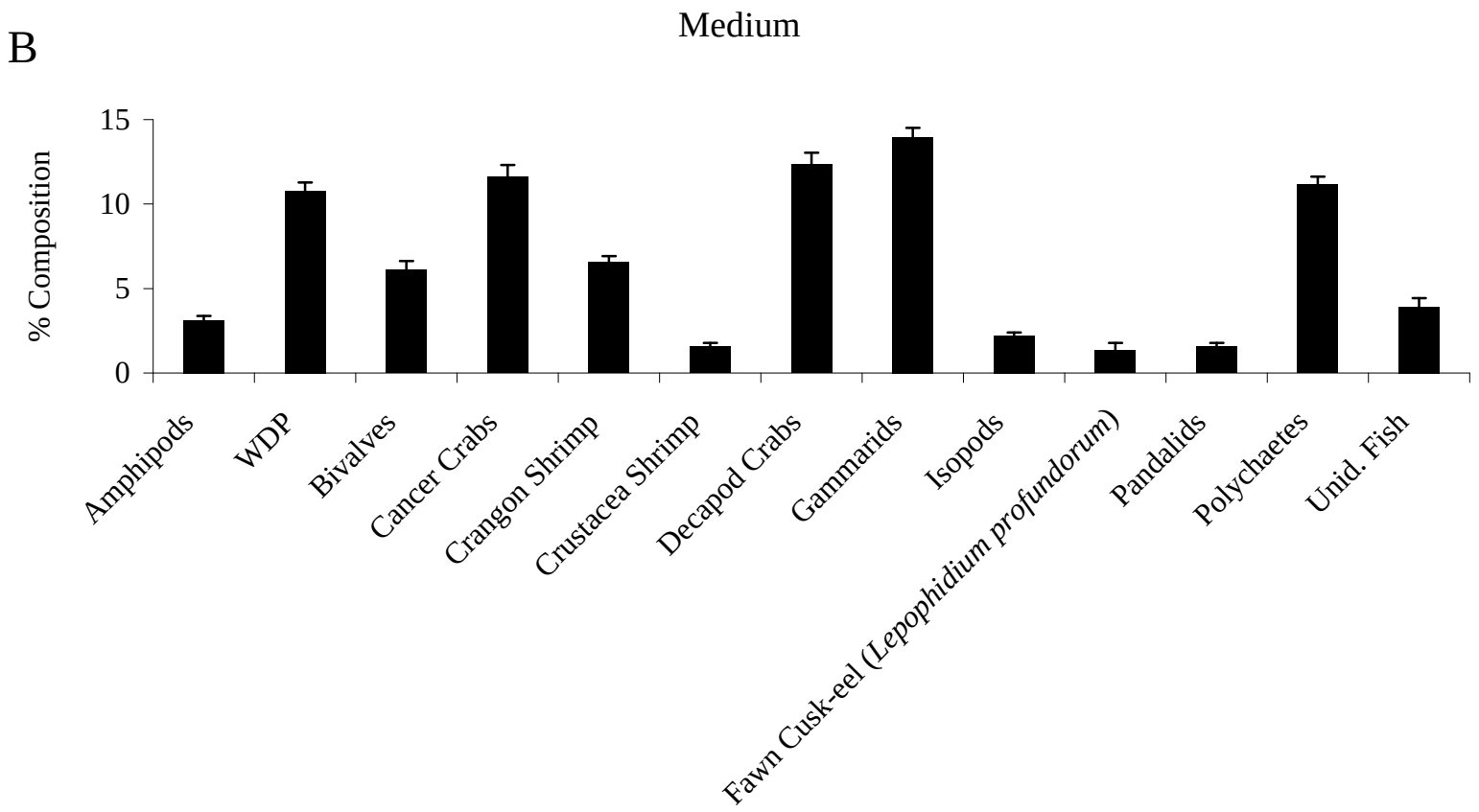

Figure 39B. Percent diet composition by weight of major prey taxa for little skate (*Leucoraja erinacea*) in the medium size class (n = 21,311). WDP = well-digested prey; Unid. Fish = unidentified fish.

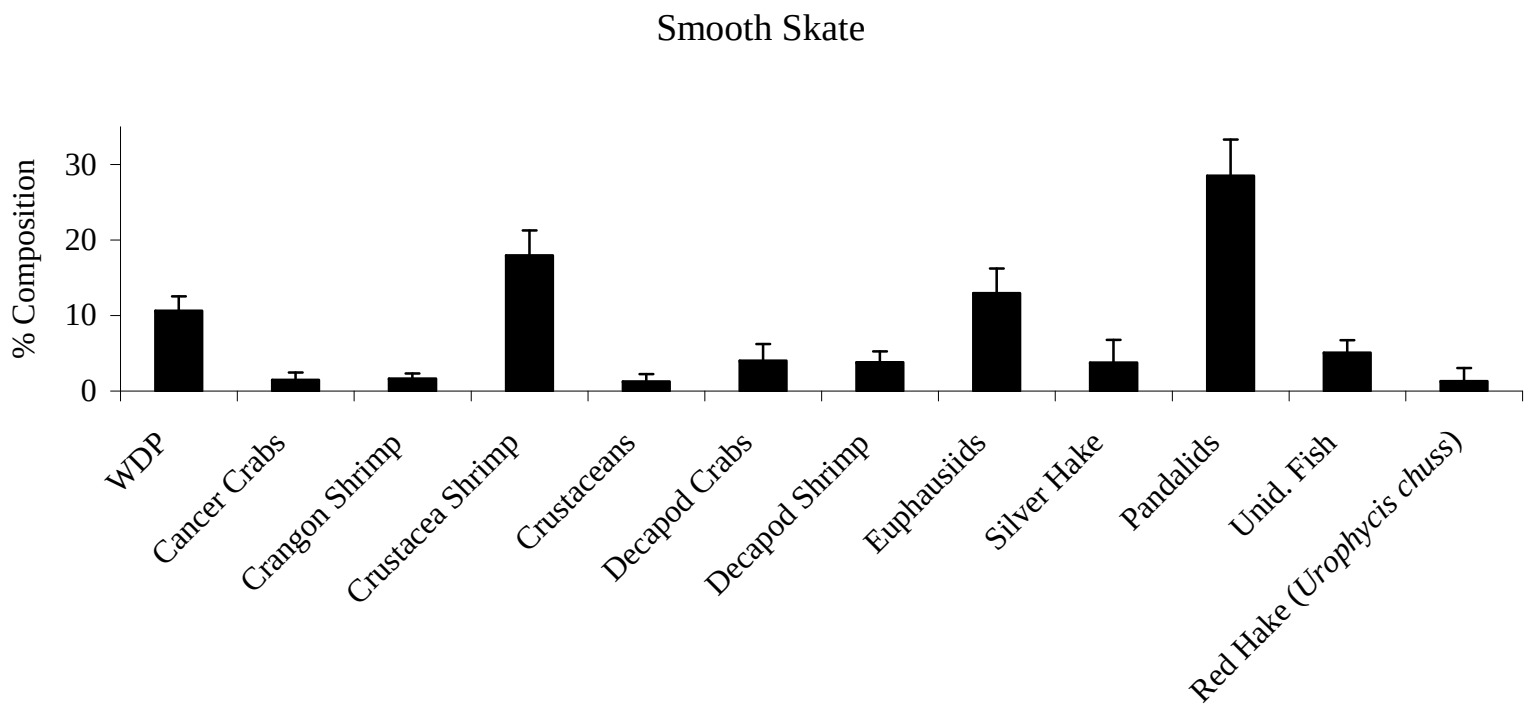

Figure 40. Percent diet composition by weight of major prey taxa for smooth skate (*Malacoraja senta*; n = 1,056). WDP = well-digested prey; Unid. Fish = unidentified fish.

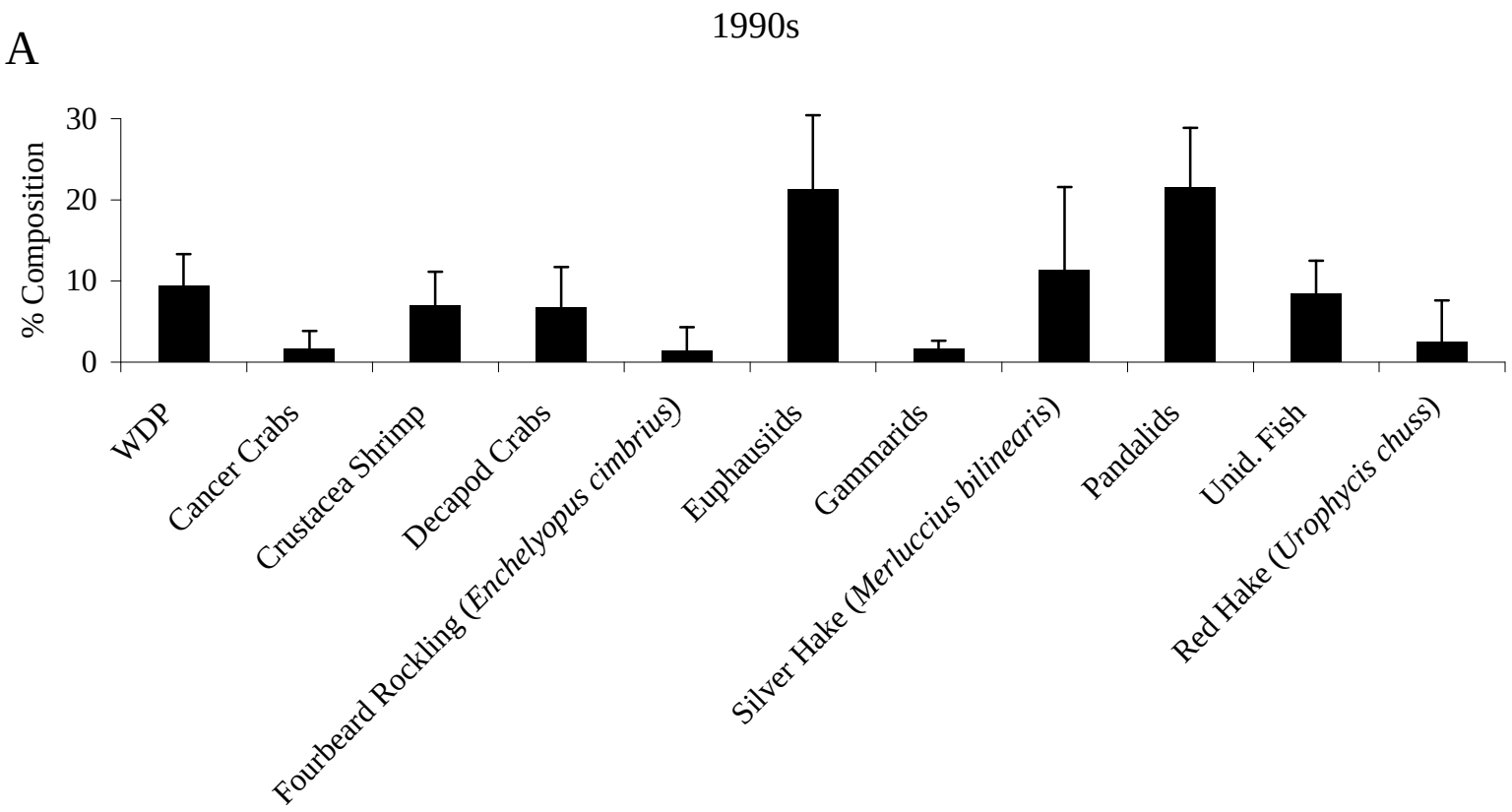

Figure 41A. Percent diet composition by weight of major prey taxa for smooth skate (*Malacoraja senta*) collected in the 1990s (n = 221). WDP = well-digested prey; Unid. Fish = unidentified fish.

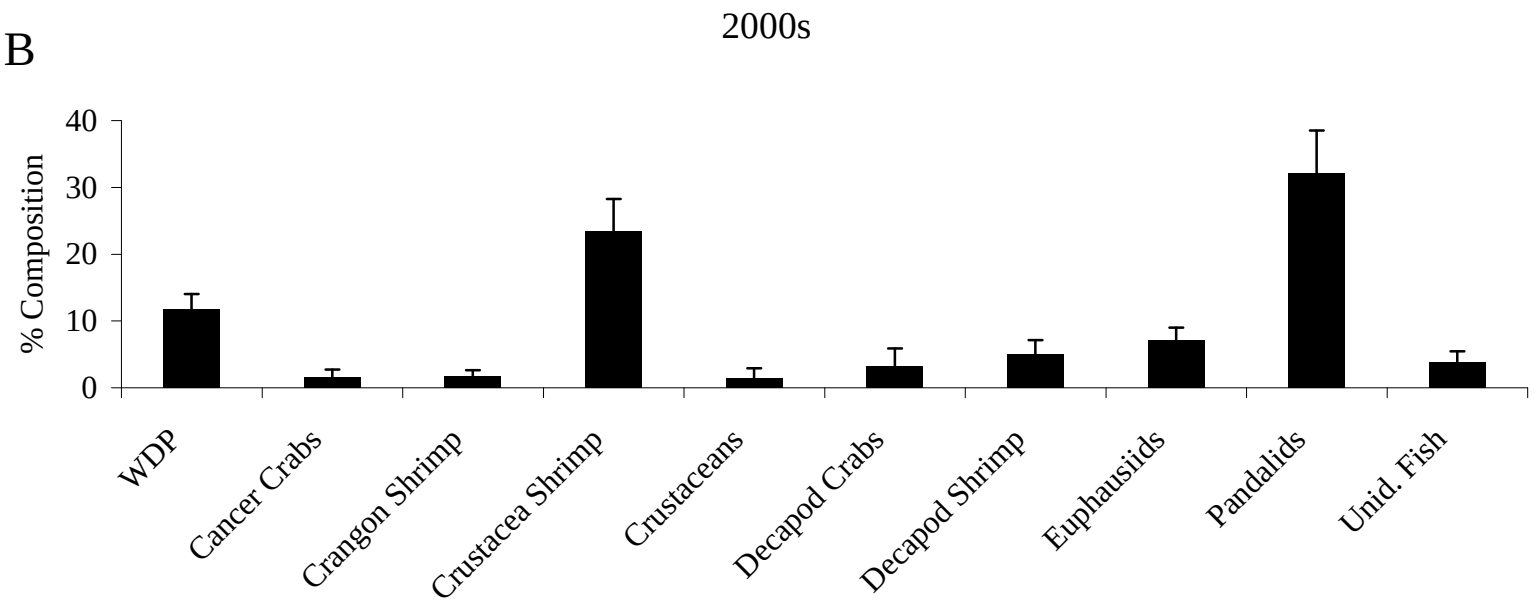

Figure 41B. Percent diet composition by weight of major prey taxa for smooth skate (*Malacoraja senta*) collected in the 2000s (n = 709). WDP = well-digested prey; Unid. Fish = unidentified fish.

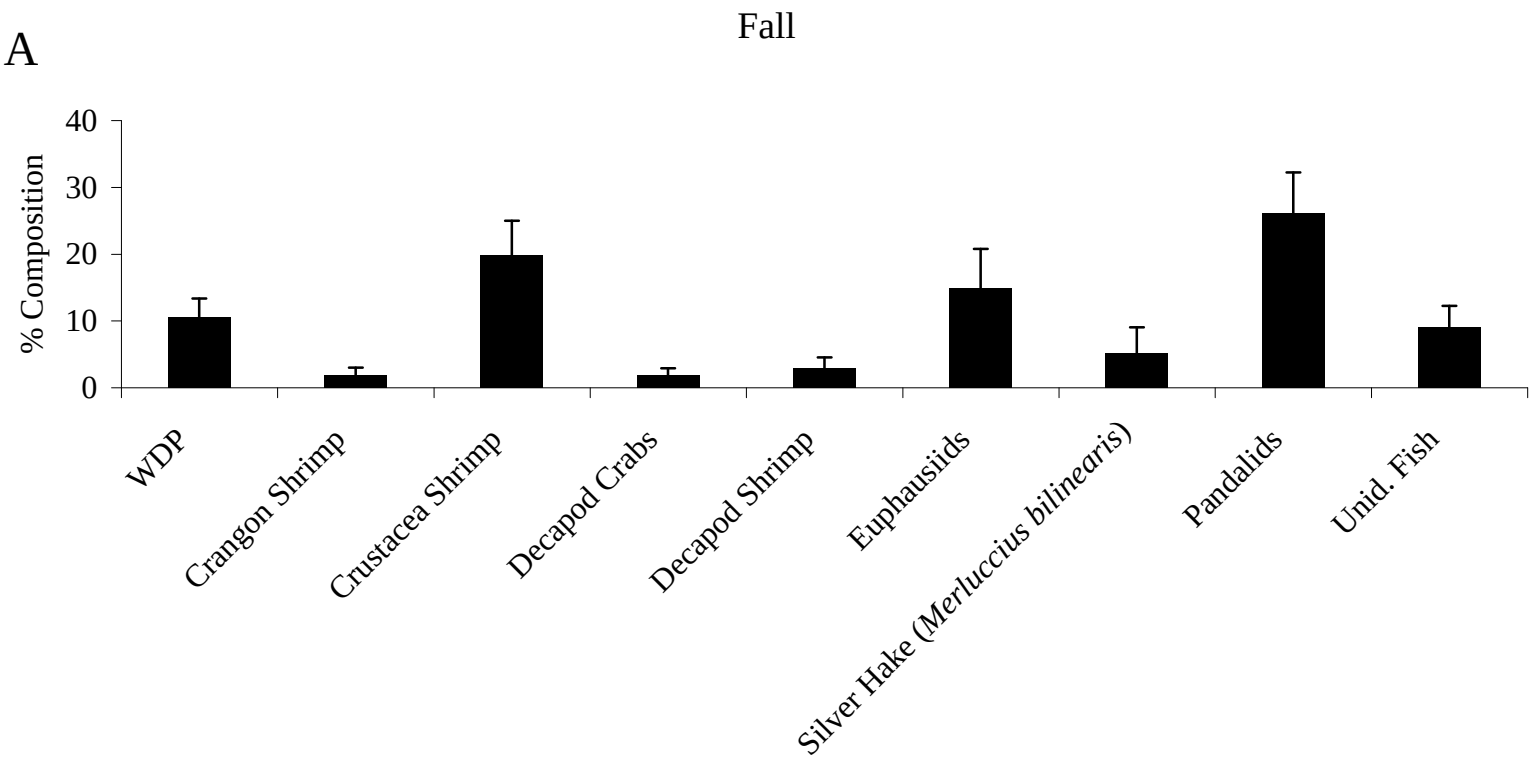

Figure 42A. Percent diet composition by weight of major prey taxa for smooth skate (*Malacoraja senta*) collected in the fall (n = 446). WDP = well-digested prey; Unid. Fish = unidentified fish.

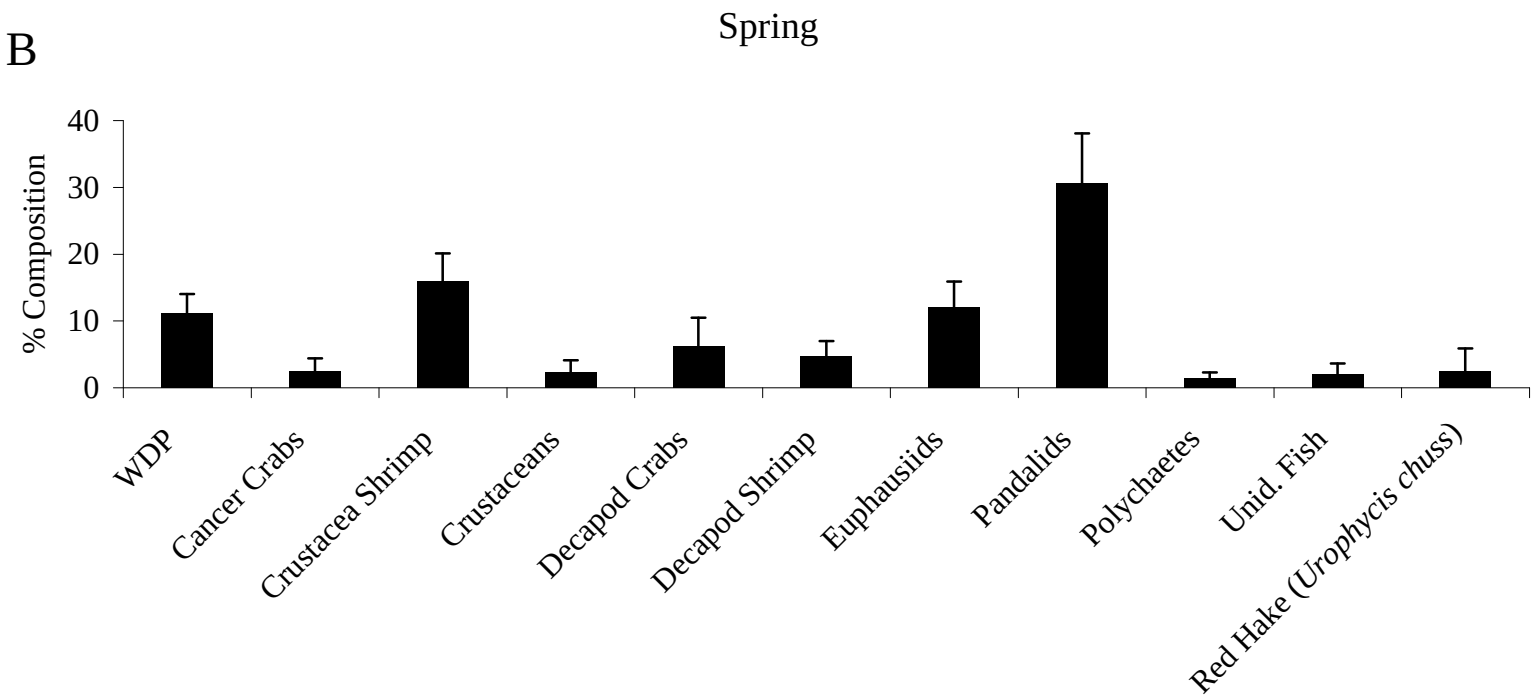

Figure 42B. Percent diet composition by weight of major prey taxa for smooth skate (*Malacoraja senta*) collected in the spring (n = 558). WDP = well-digested prey; Unid. Fish = unidentified fish.

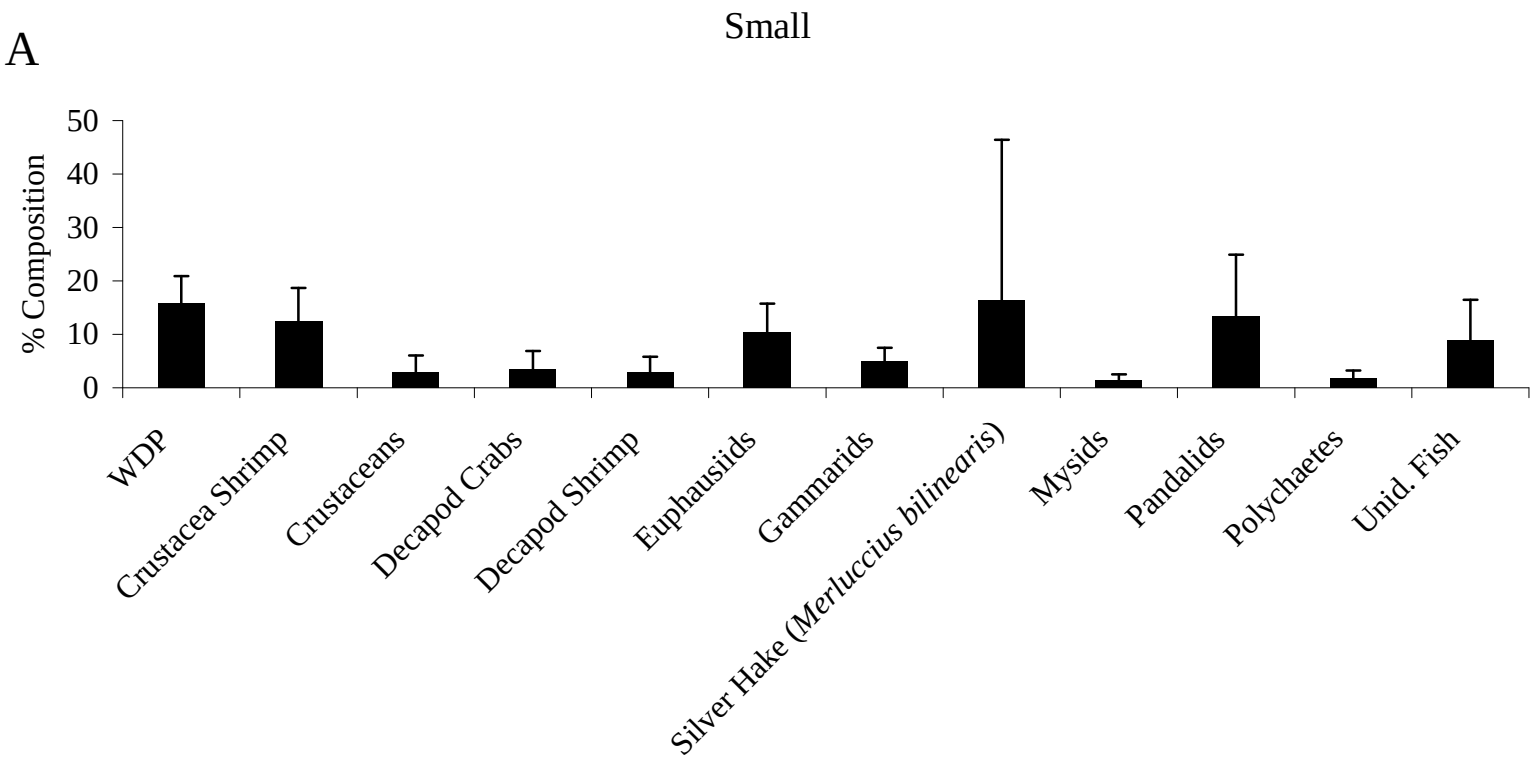

Figure 43A. Percent diet composition by weight of major prey taxa for smooth skate (*Malacoraja senta*) in the small size class (n = 236). WDP = well-digested prey; Unid. Fish = unidentified fish.

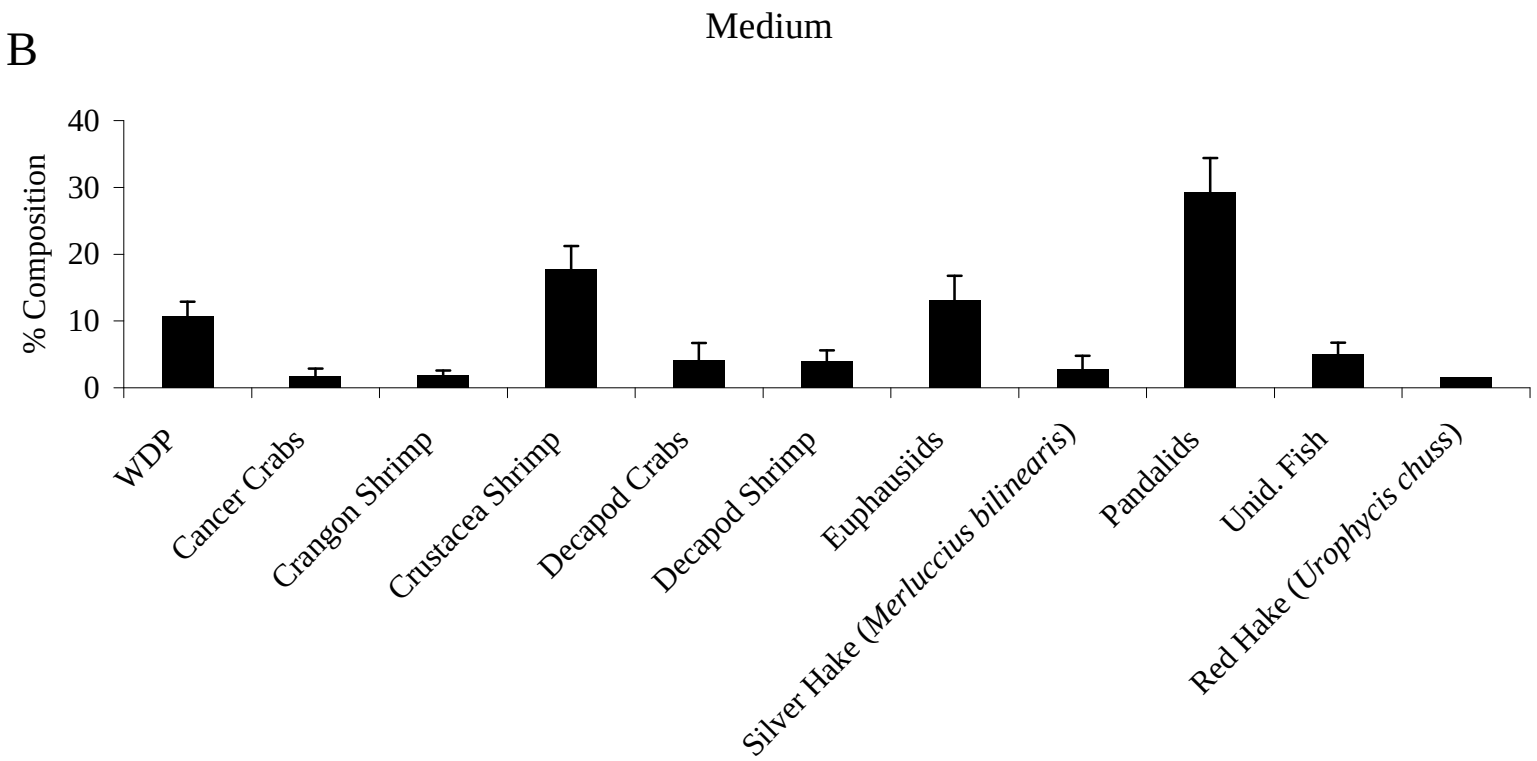

Figure 43B. Percent diet composition by weight of major prey taxa for smooth skate (*Malacoraja senta*) in the medium size class (n = 790). WDP = well-digested prey; Unid. Fish = unidentified fish.

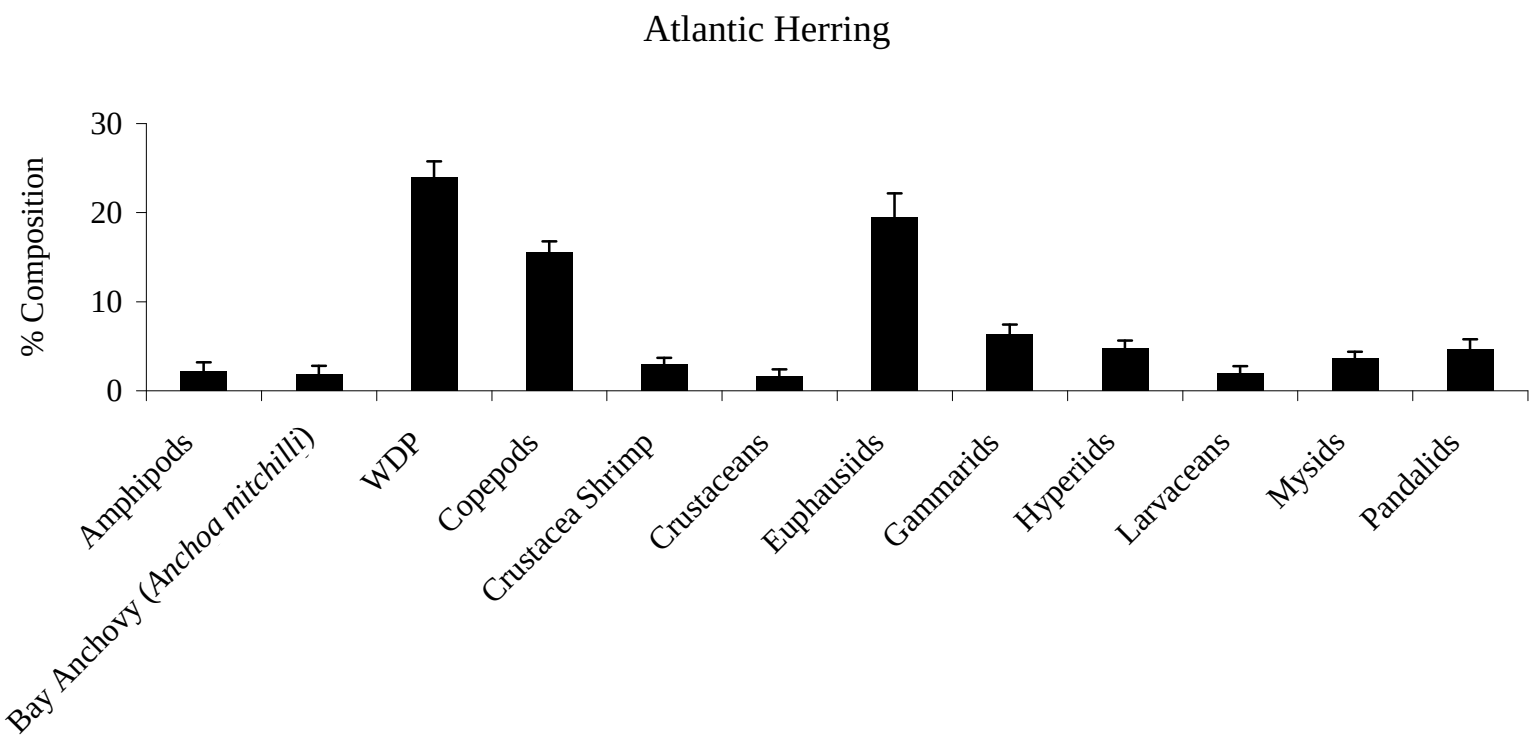

Figure 44. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*; n = 17,910). WDP = well-digested prey.

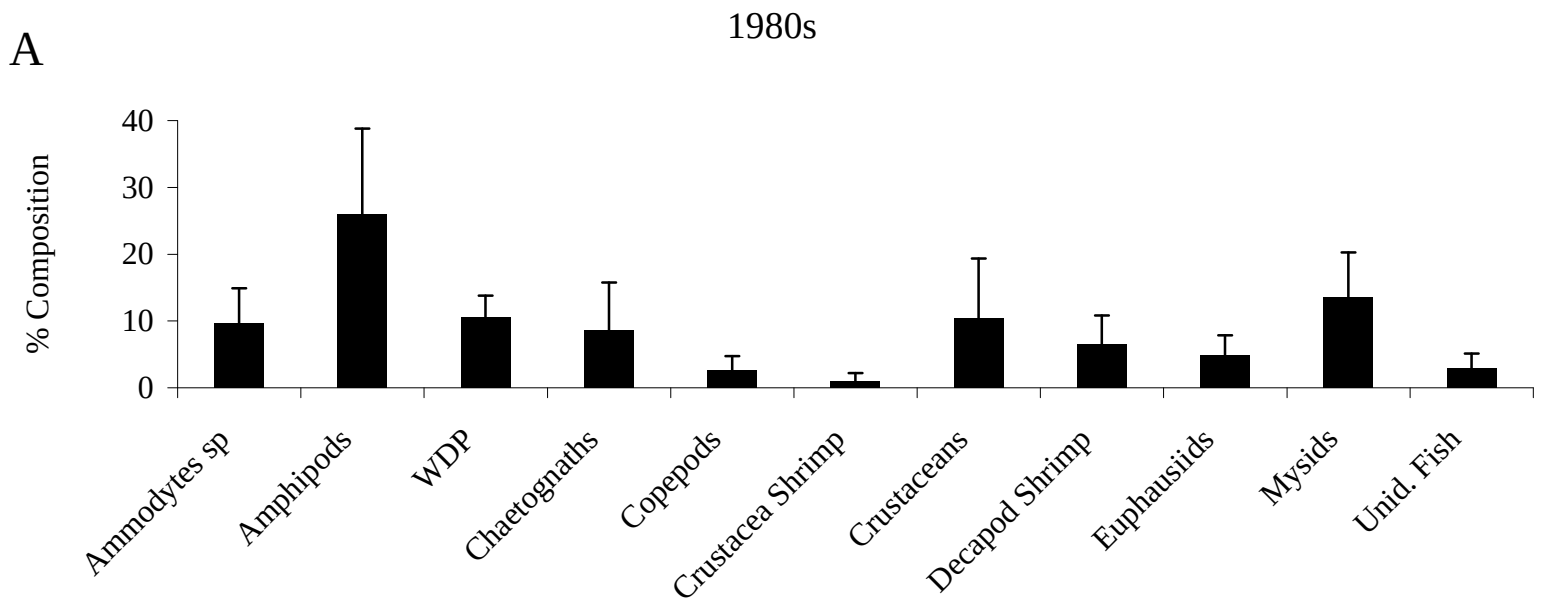

Figure 45A. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the 1980s (n = 564). WDP = well-digested prey; Unid. Fish = unidentified fish.

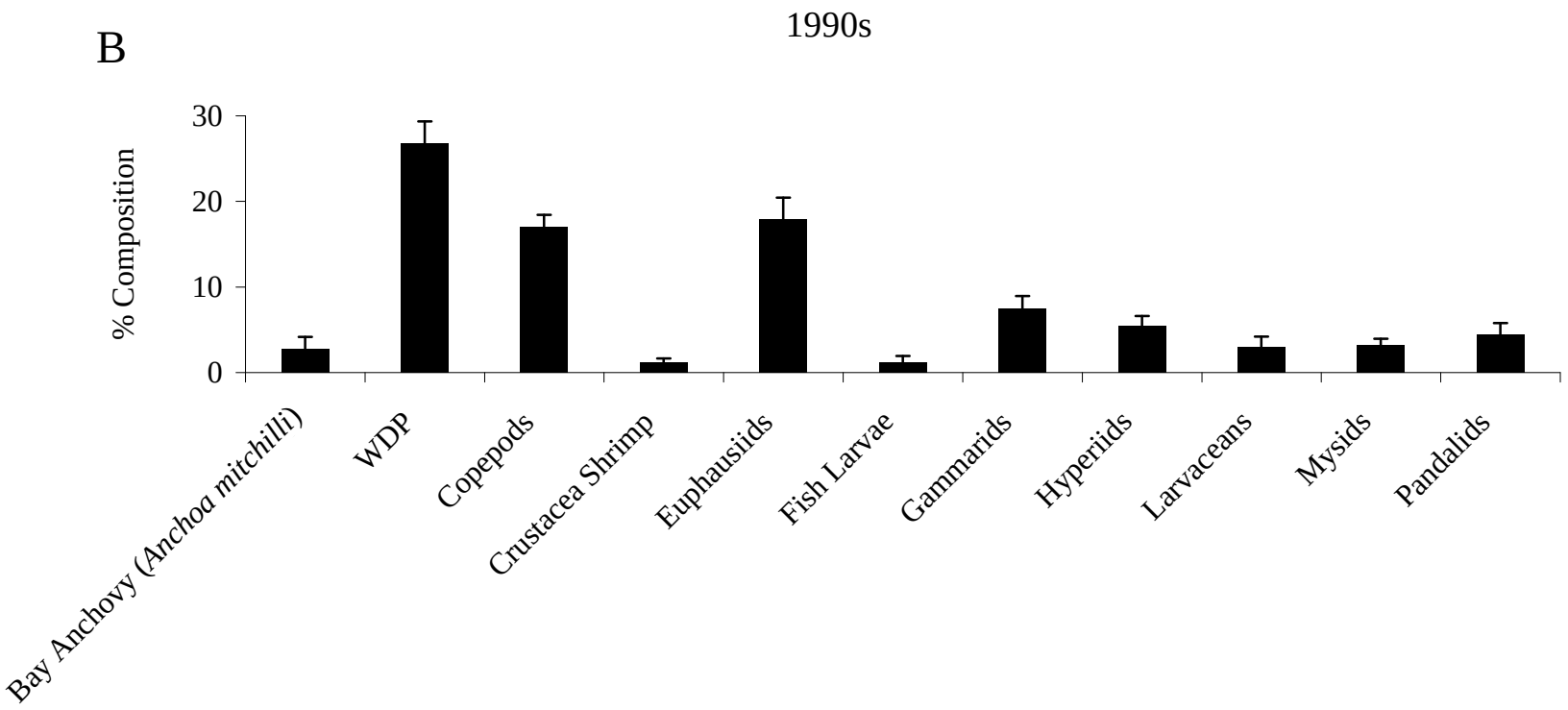

Figure 45B. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the 1990s (n = 12,553). WDP = well-digested prey.

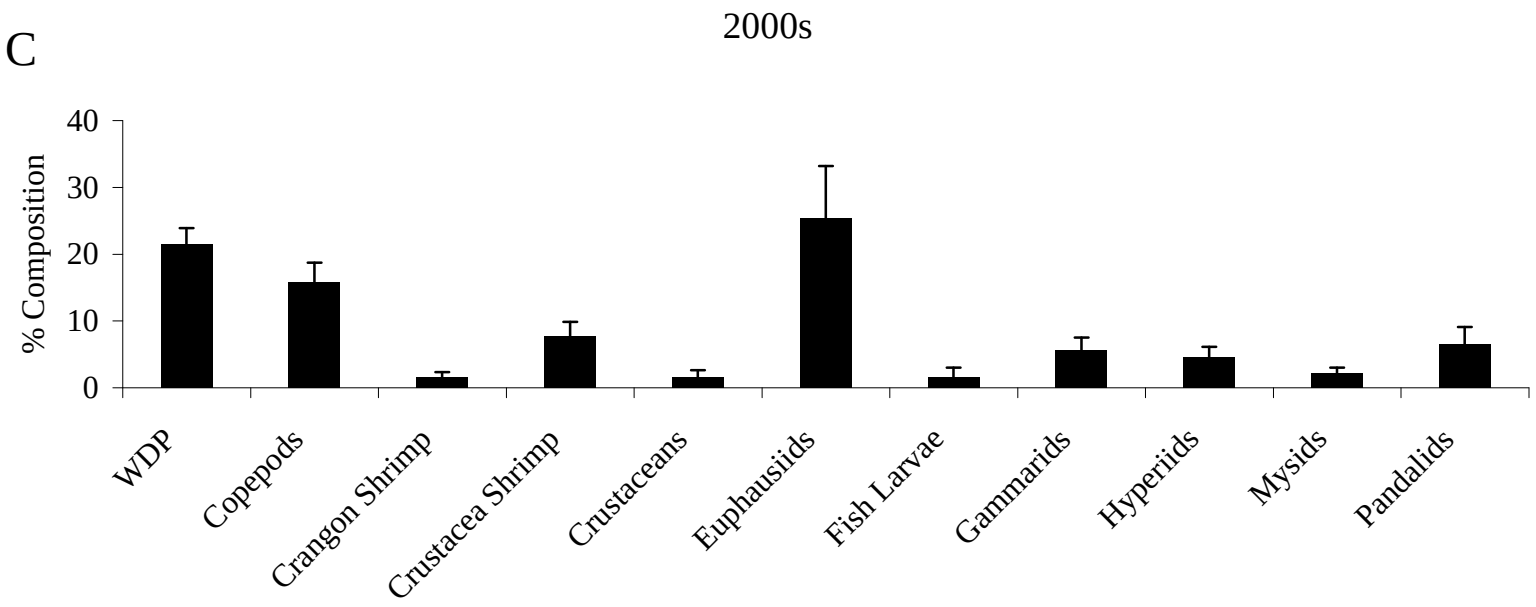

Figure 45C. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the 2000s (n = 4,697). WDP = well-digested prey.

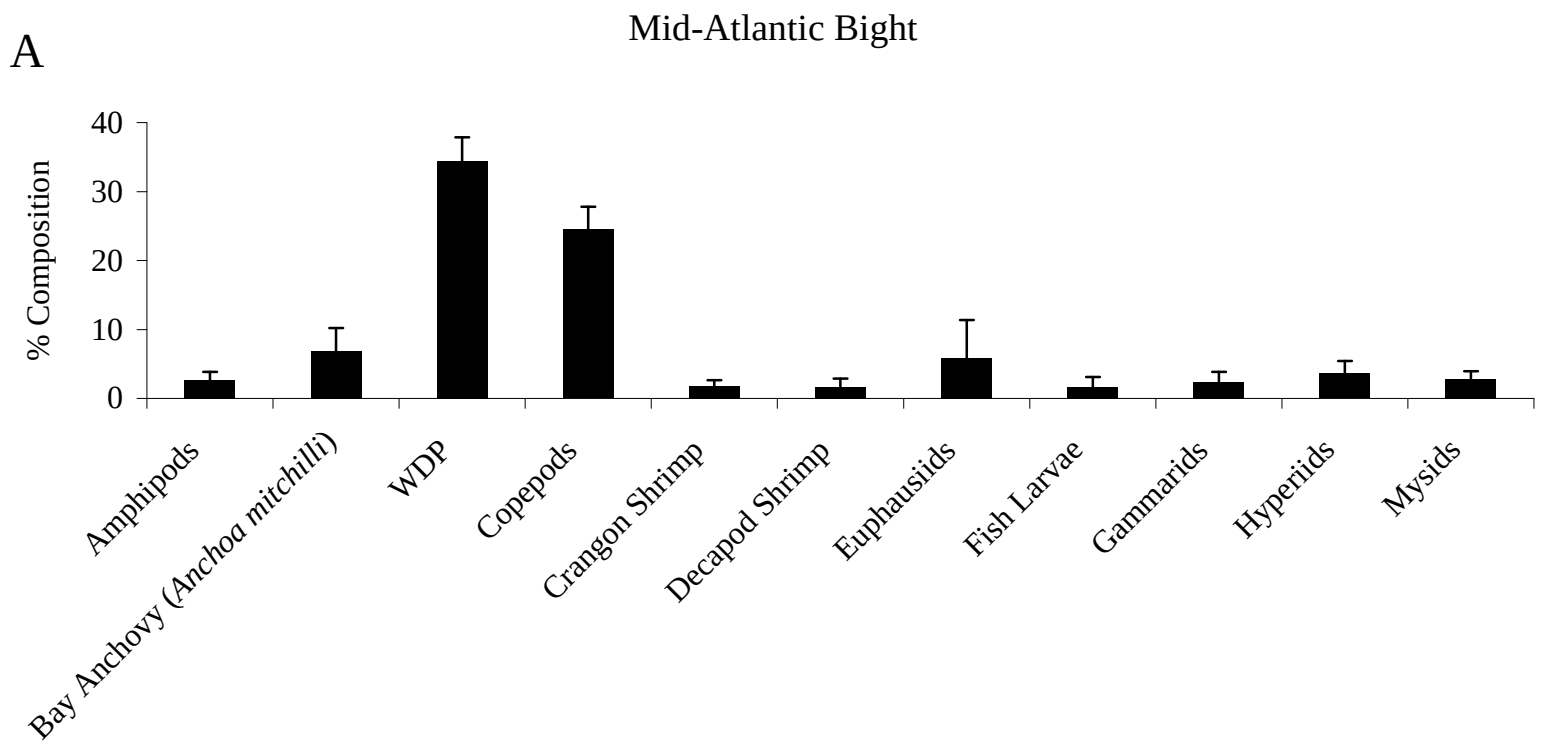

Figure 46A. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the Mid-Atlantic Bight (n = 4,003). WDP = well-digested prey.

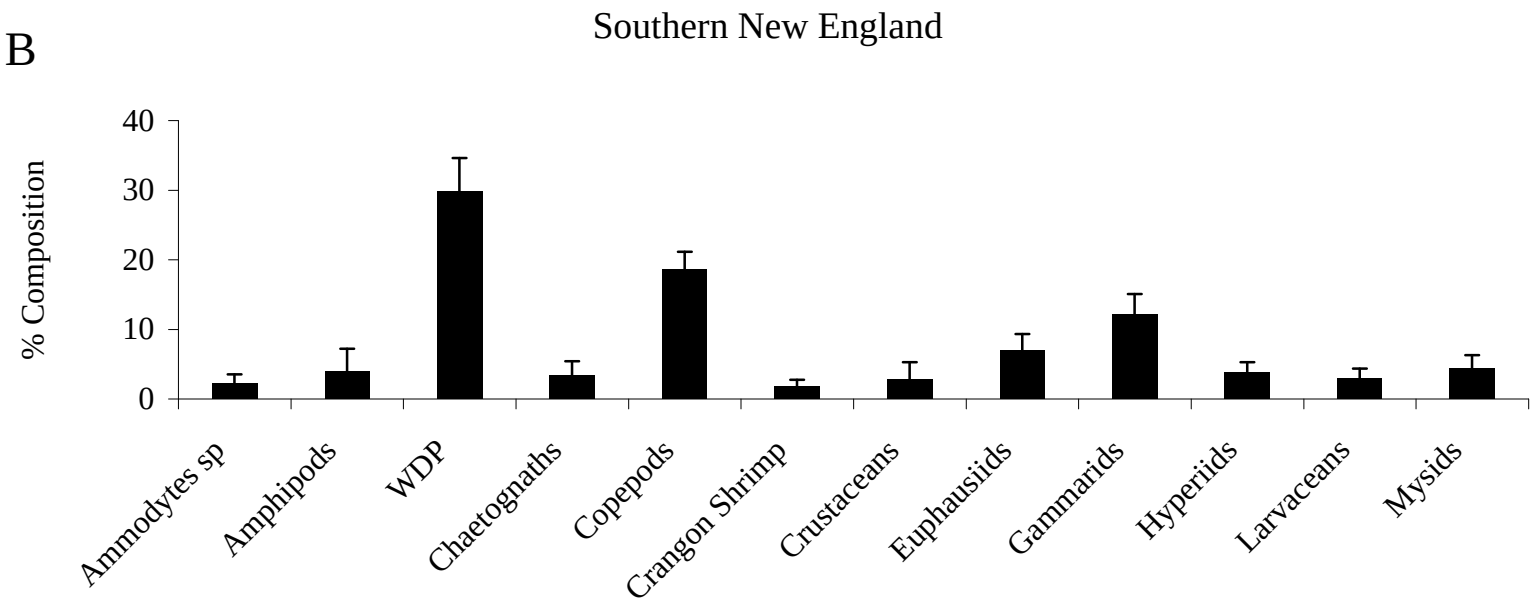

Figure 46B. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected collected in Southern New England (n = 4,653). WDP = well-digested prey.

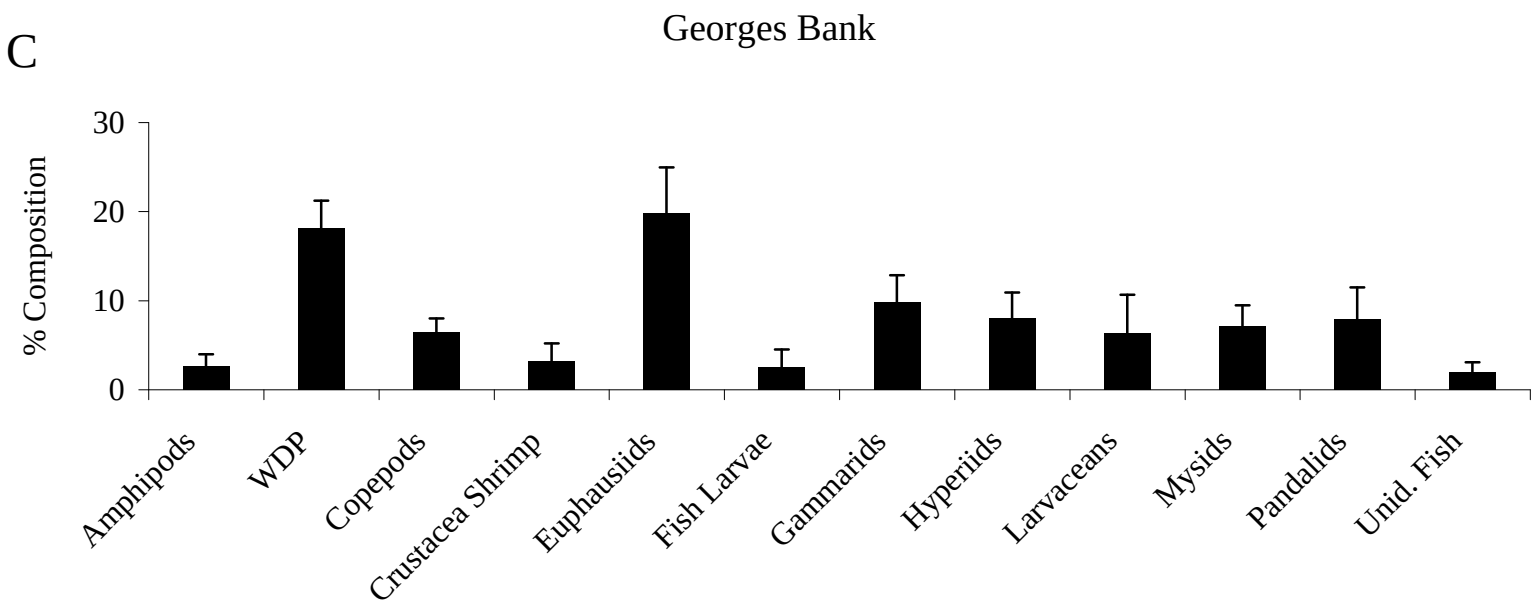

Figure 46C. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected on Georges Bank (n = 2,500). WDP = well-digested prey; Unid. Fish = unidentified fish.

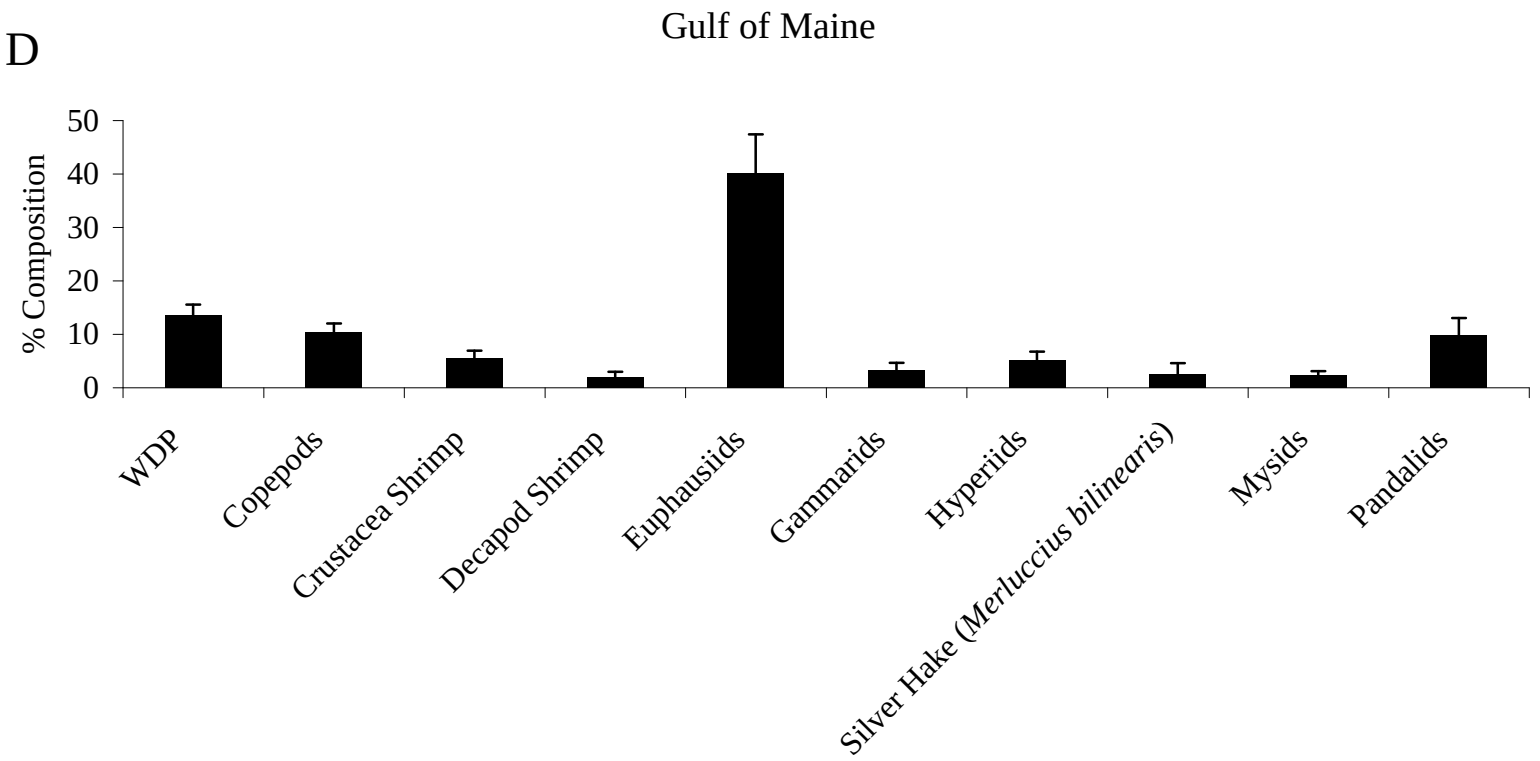

Figure 46D. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the Gulf of Maine (n = 6,224). WDP = well-digested prey.

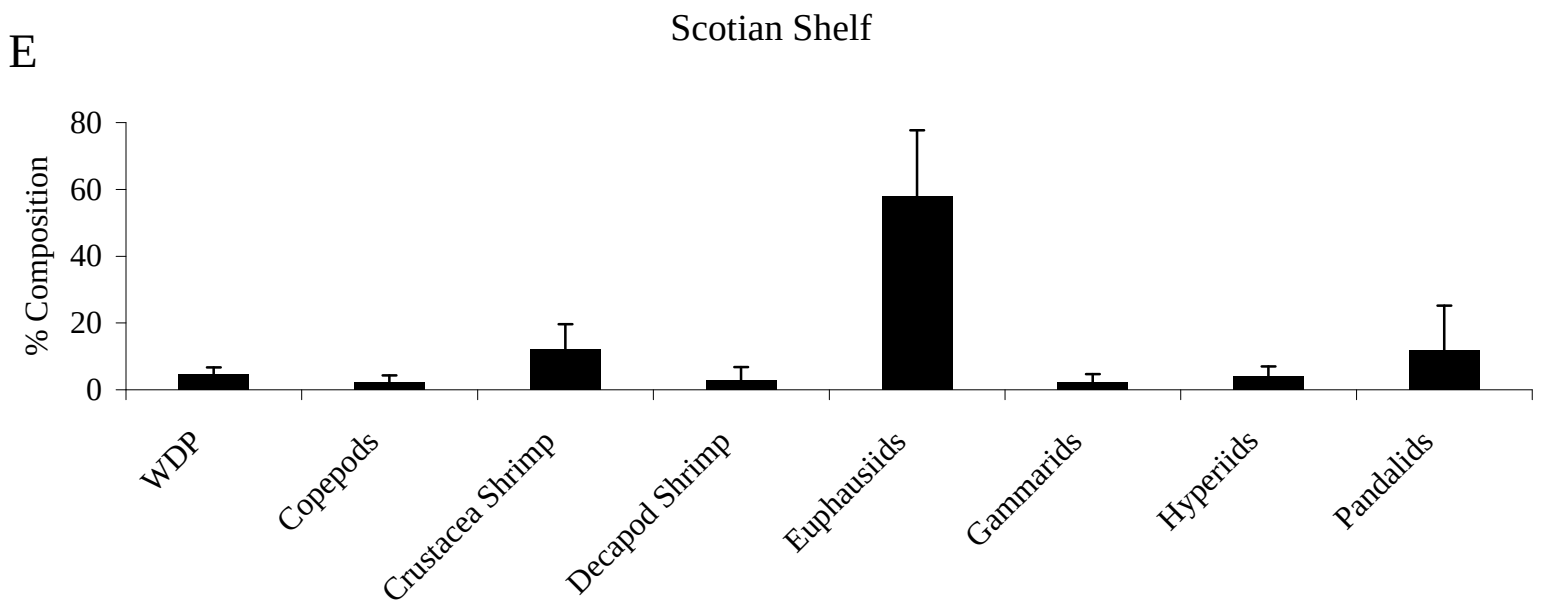

Figure 46E. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected on the Scotian Shelf (n = 515). WDP = well-digested prey.

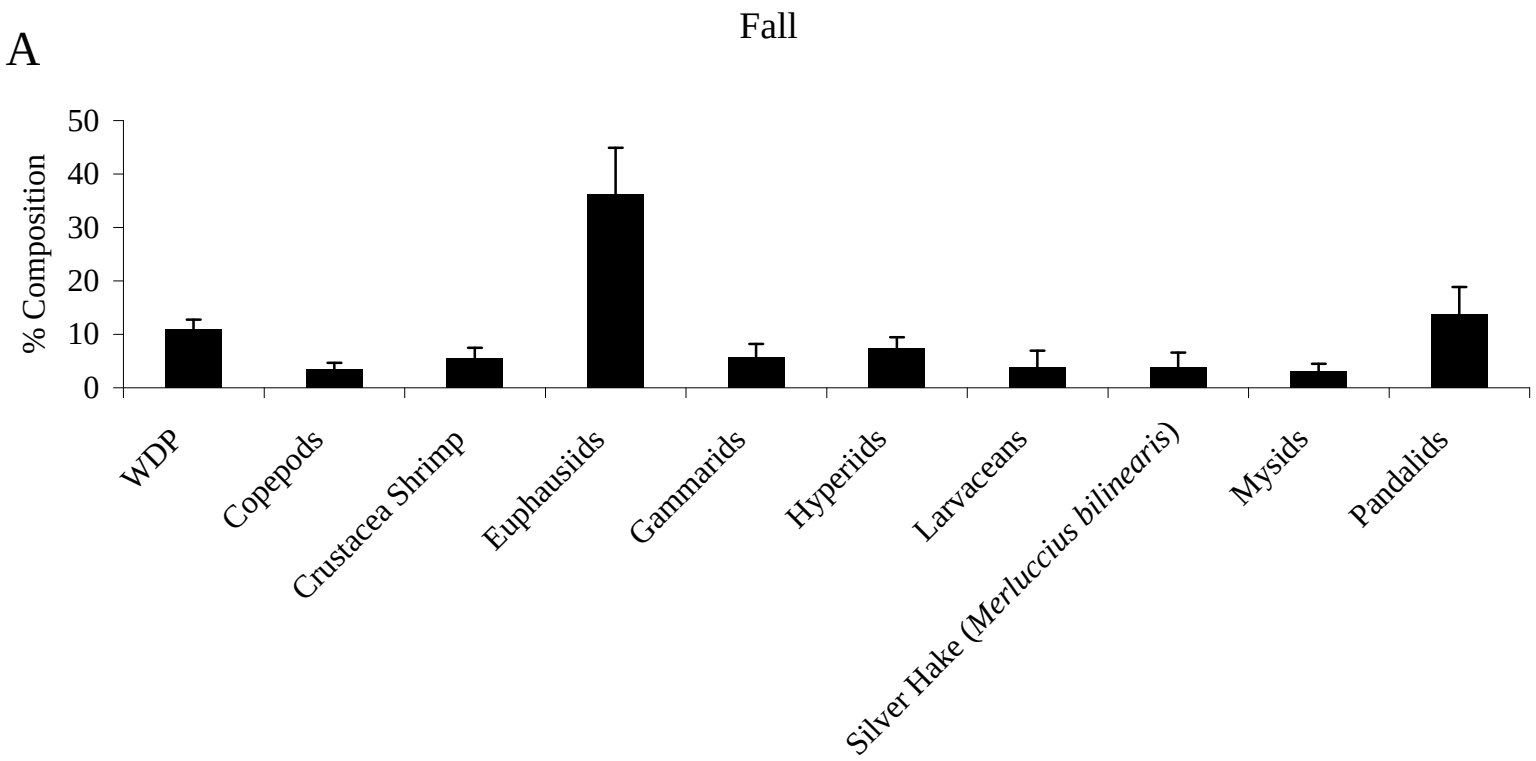

Figure 47A. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the fall (n = 4,496). WDP = well-digested prey.

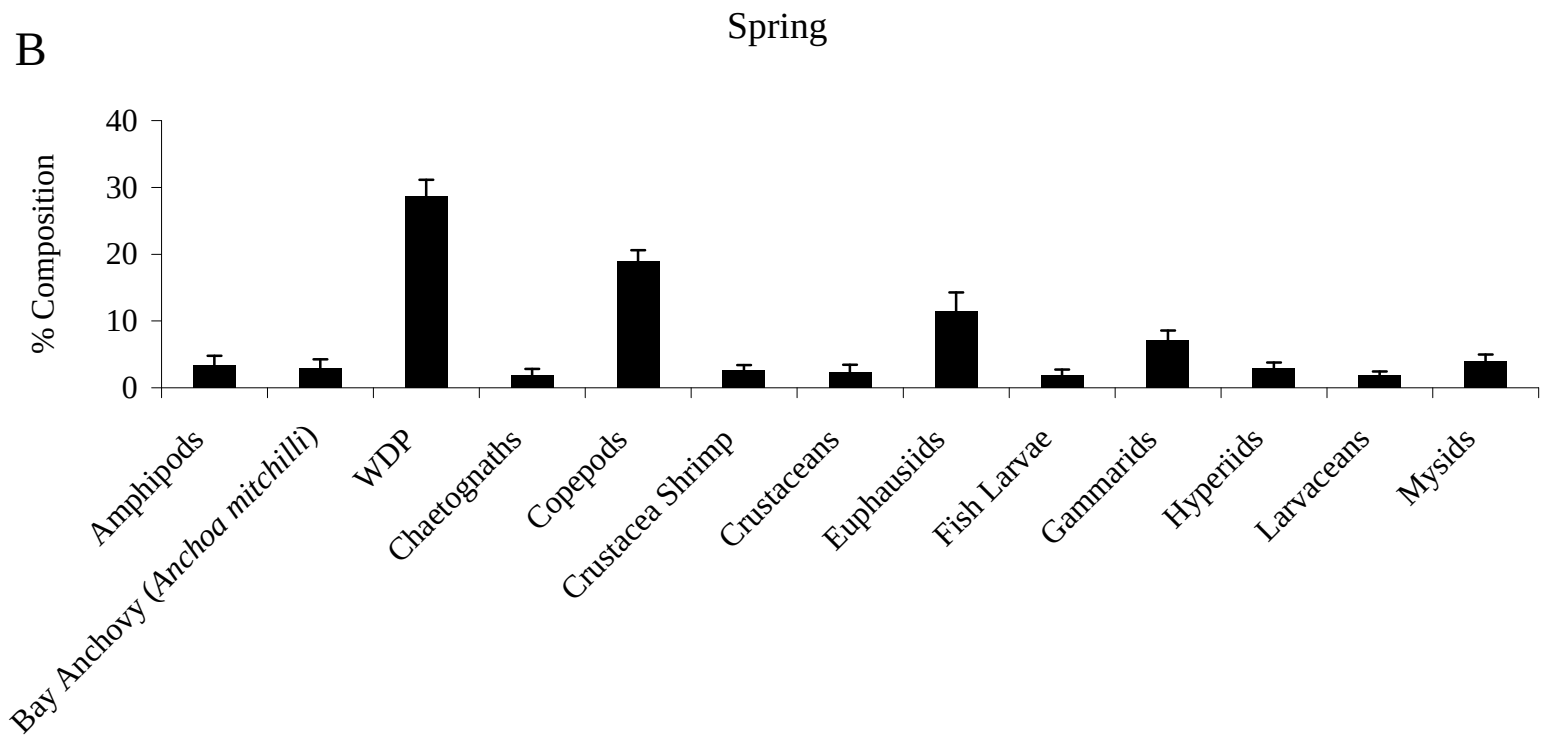

Figure 47B. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the spring (n = 9,765). WDP = well-digested prey.

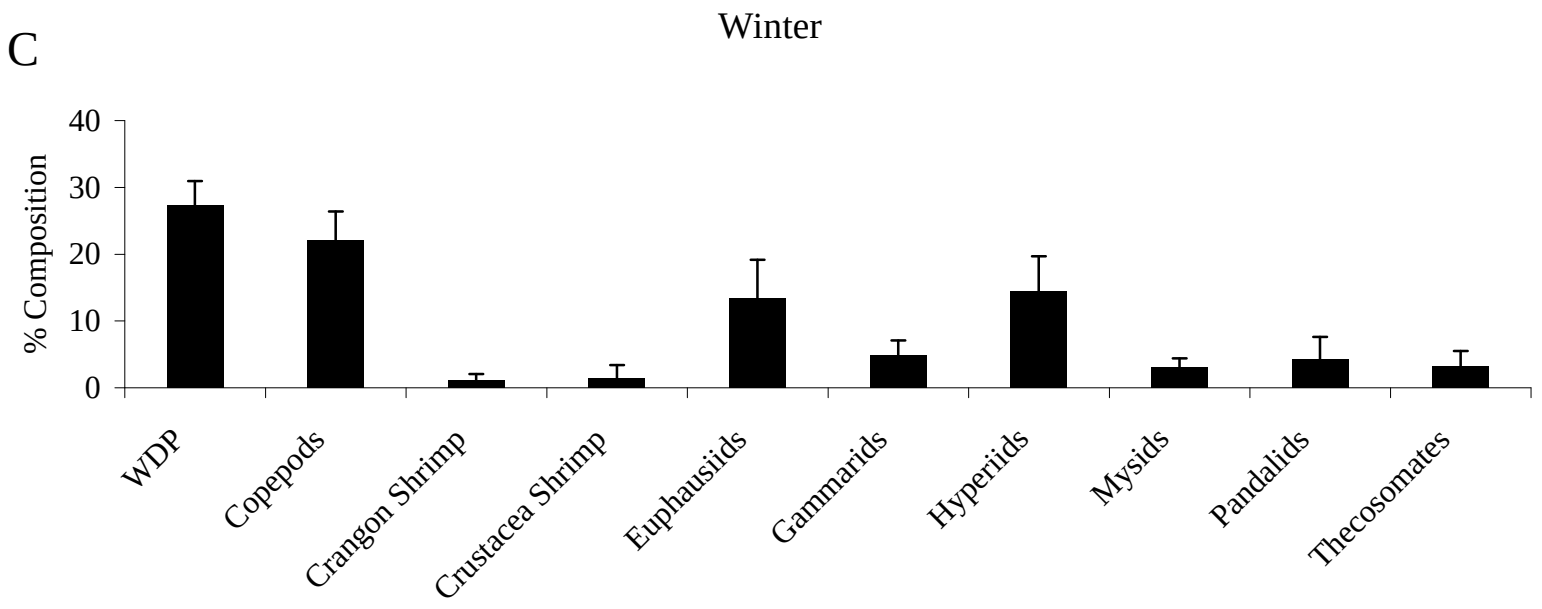

Figure 47C. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the winter (n = 2,441). WDP = well-digested prey.

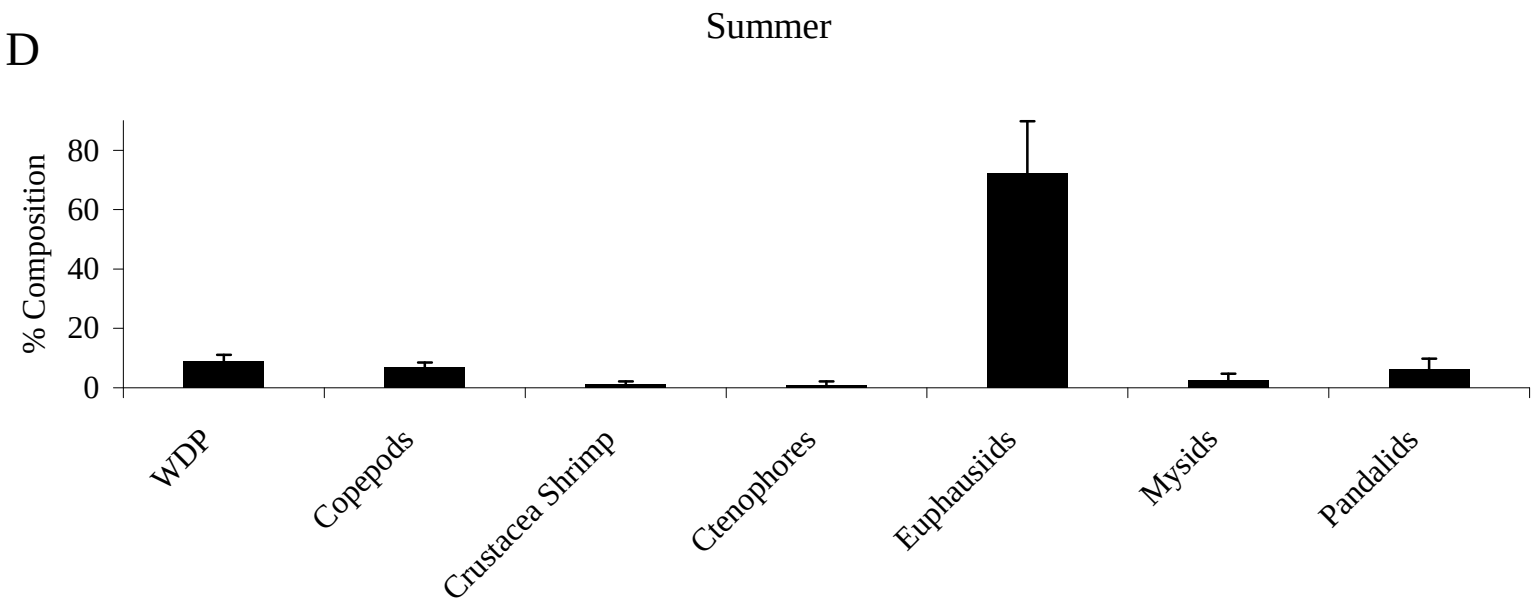

Figure 47D. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) collected in the summer (n = 1,208). WDP = well-digested prey.

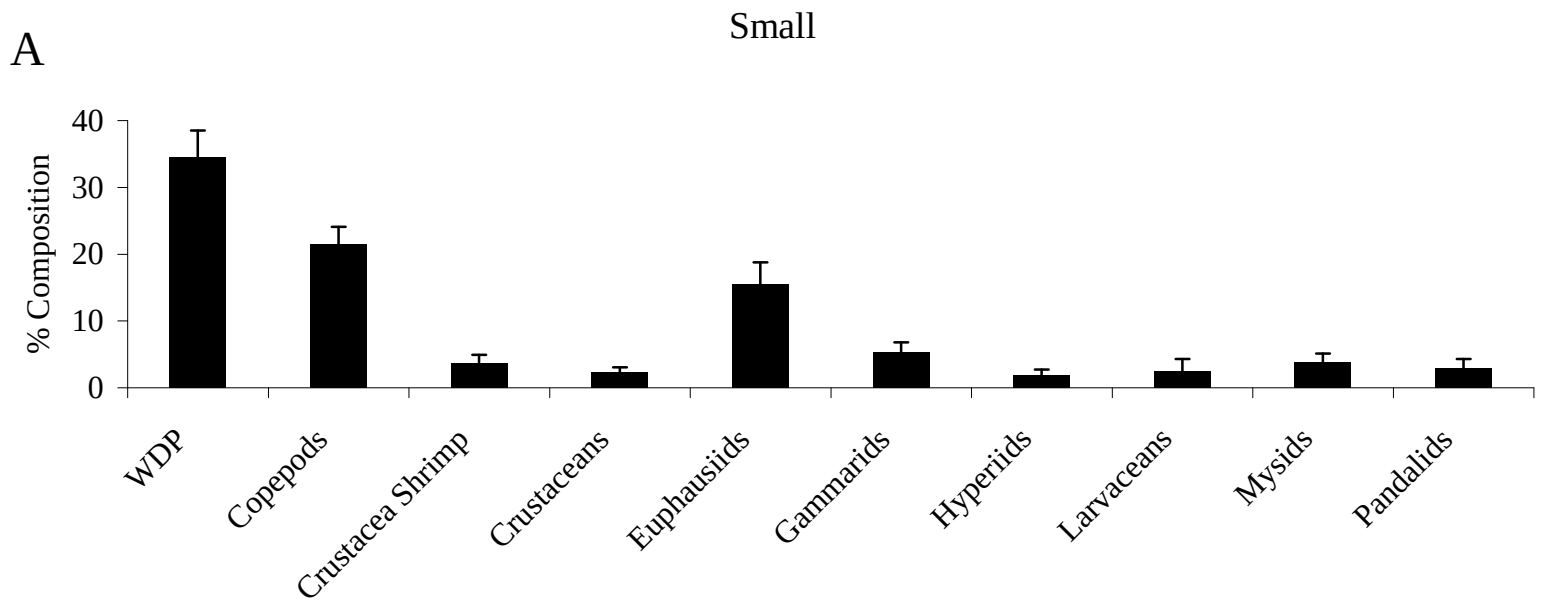

Figure 48A. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) in the small size class (n = 4,413). WDP = well-digested prey.

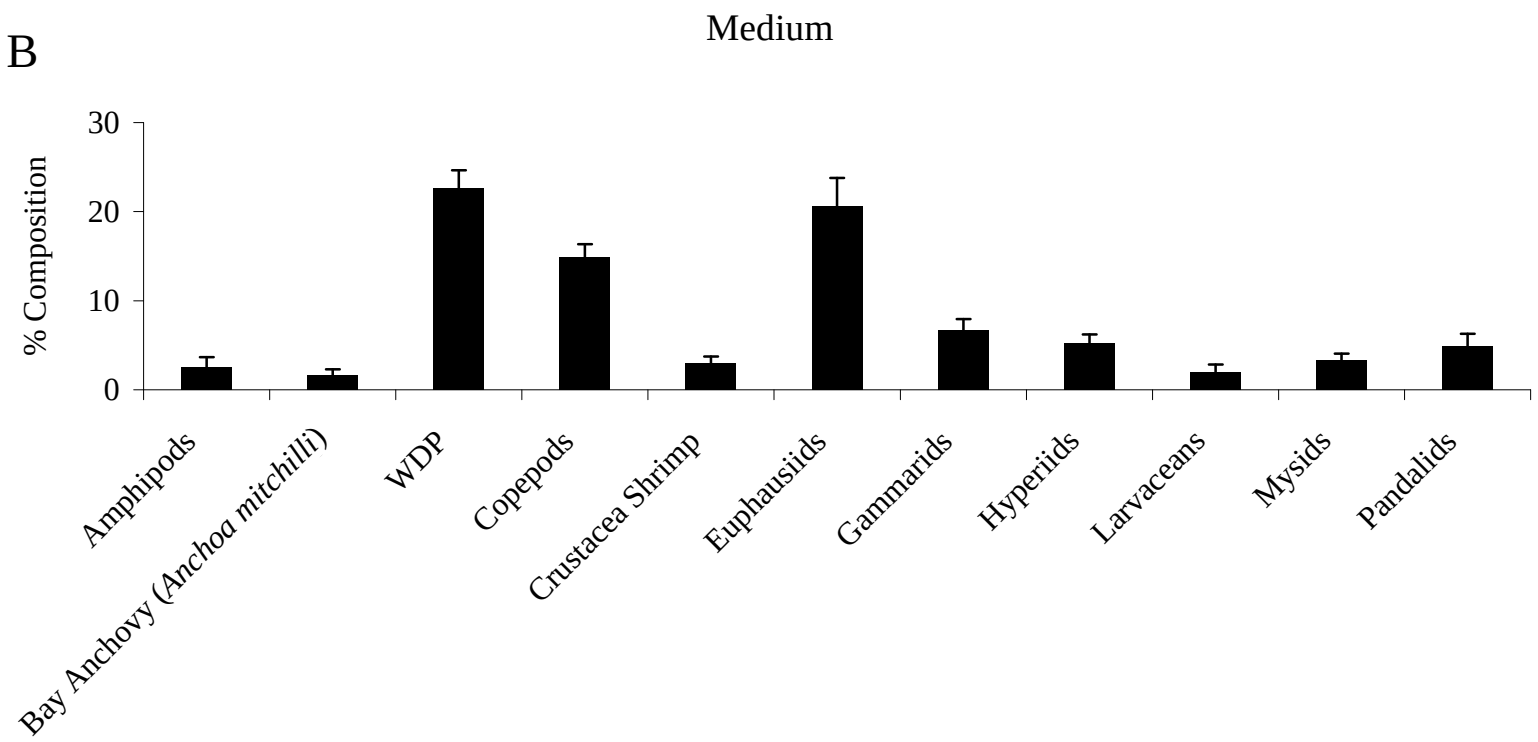

Figure 48B. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) in the medium size class (n = 13,142). WDP = well-digested prey.

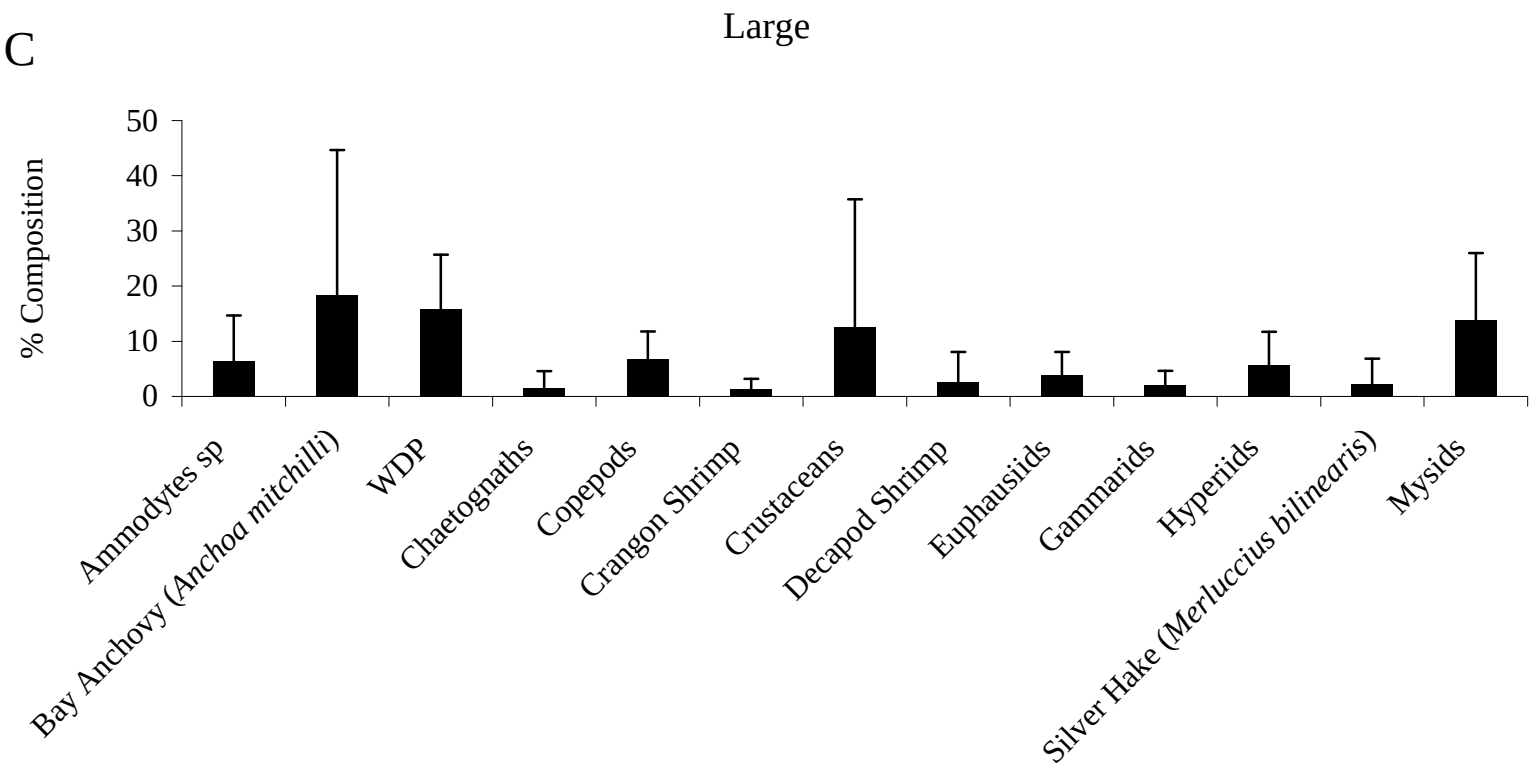

Figure 48C. Percent diet composition by weight of major prey taxa for Atlantic herring (*Clupea harengus*) in the large size class (n = 255). WDP = well-digested prey.

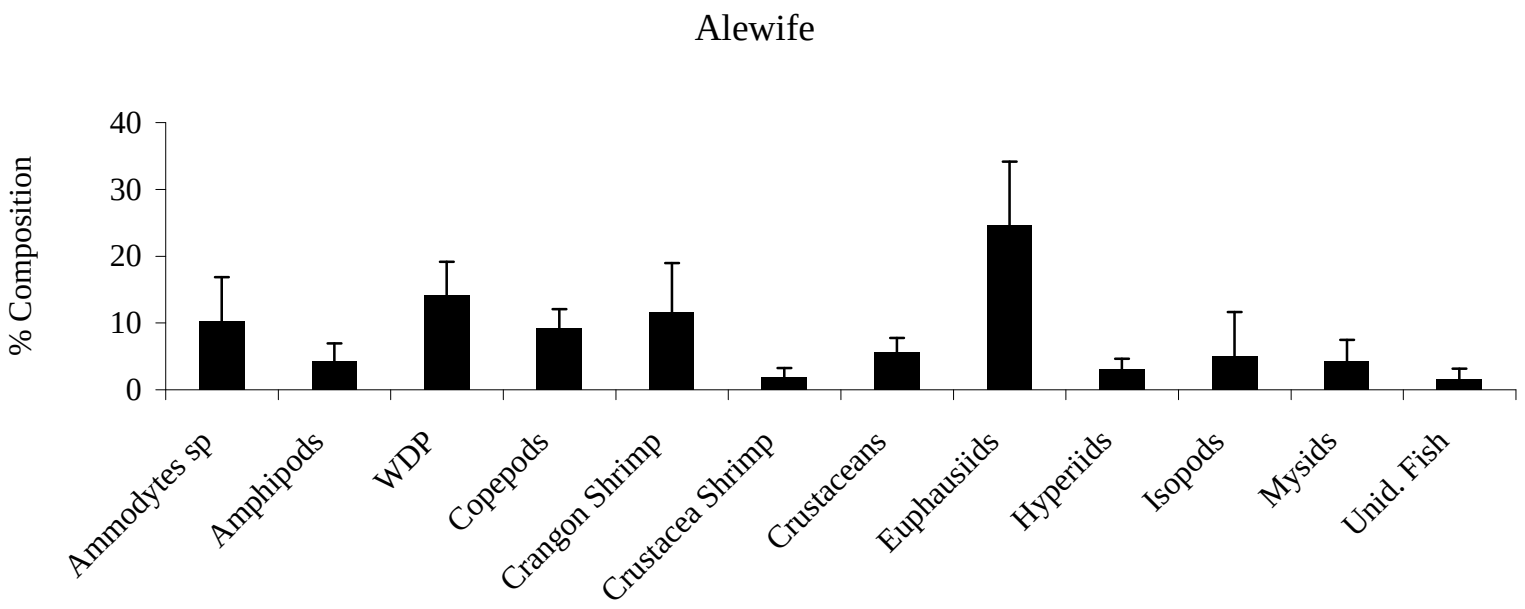

Figure 49. Percent diet composition by weight of major prey taxa for alewife (*Alosa pseudoharengus*; n = 404). WDP = well-digested prey; Unid. Fish = unidentified fish.

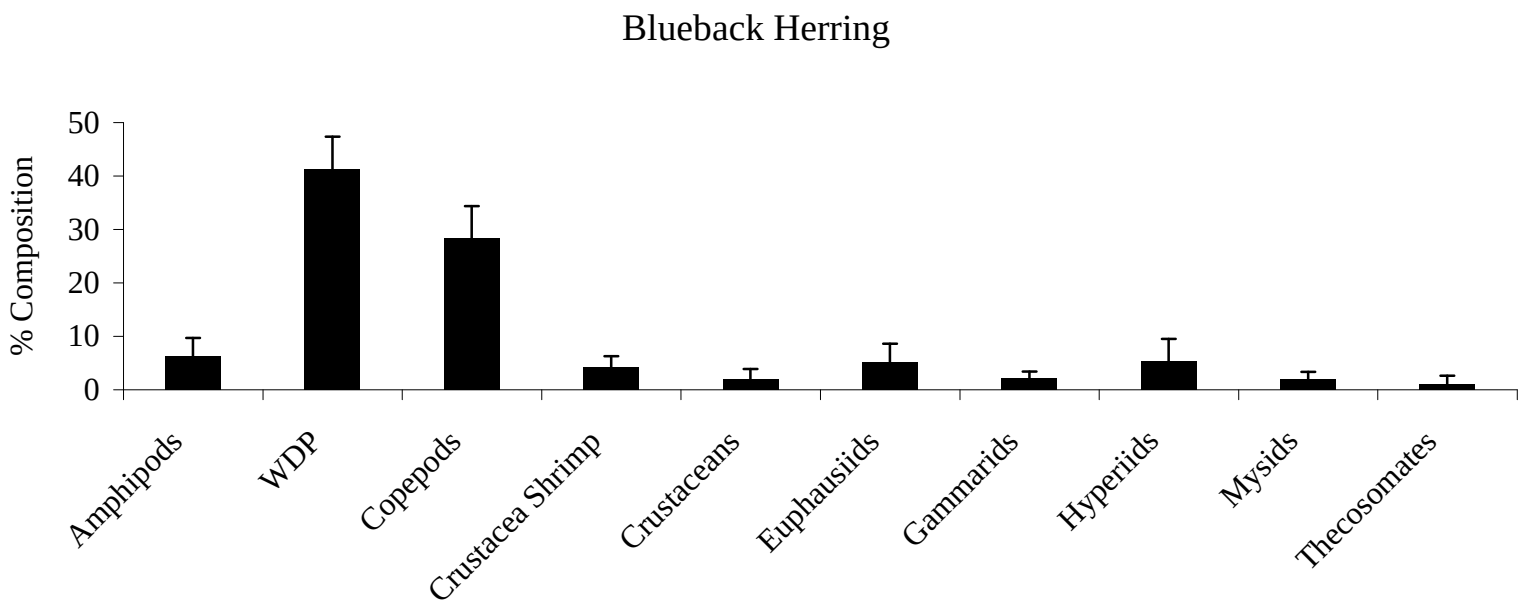

Figure 50. Percent diet composition by weight of major prey taxa for blueback herring (*Alosa aestivalis*; n = 1,347). WDP = well-digested prey.

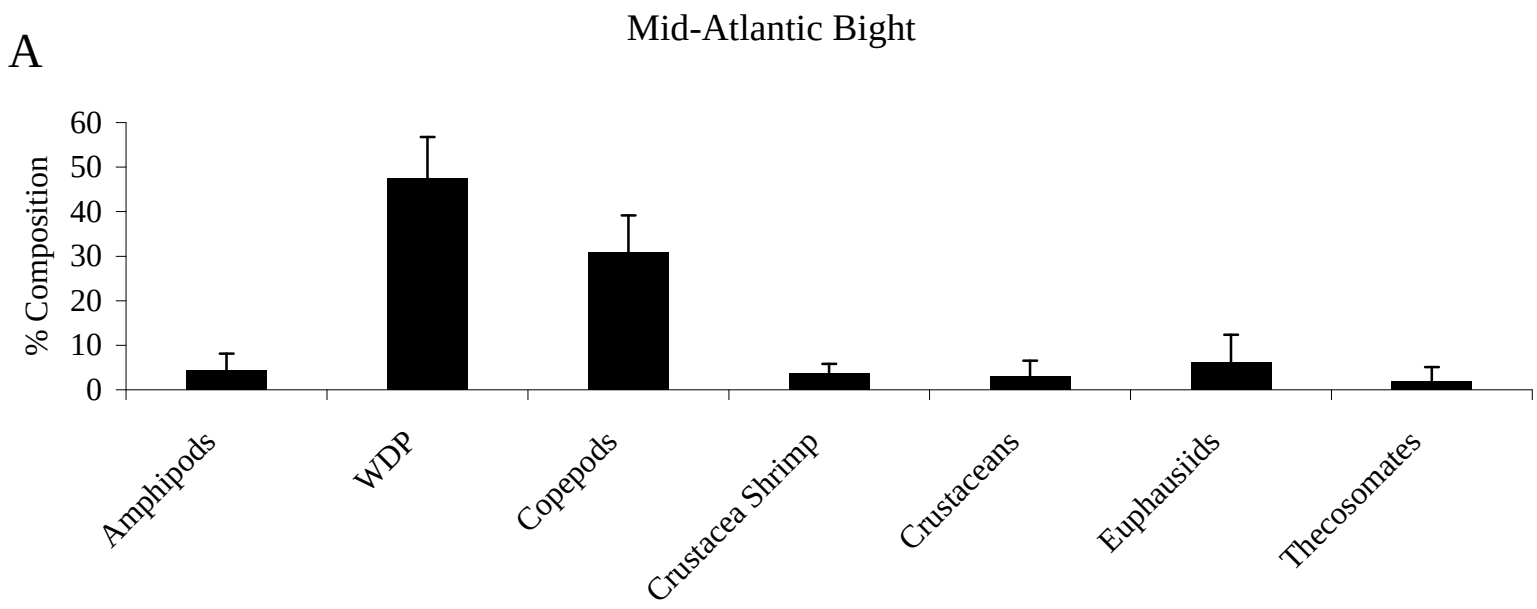

Figure 51A. Percent diet composition by weight of major prey taxa for blueback herring (*Alosa aestivalis*) collected in the Mid-Atlantic Bight (n = 552). WDP = well-digested prey.

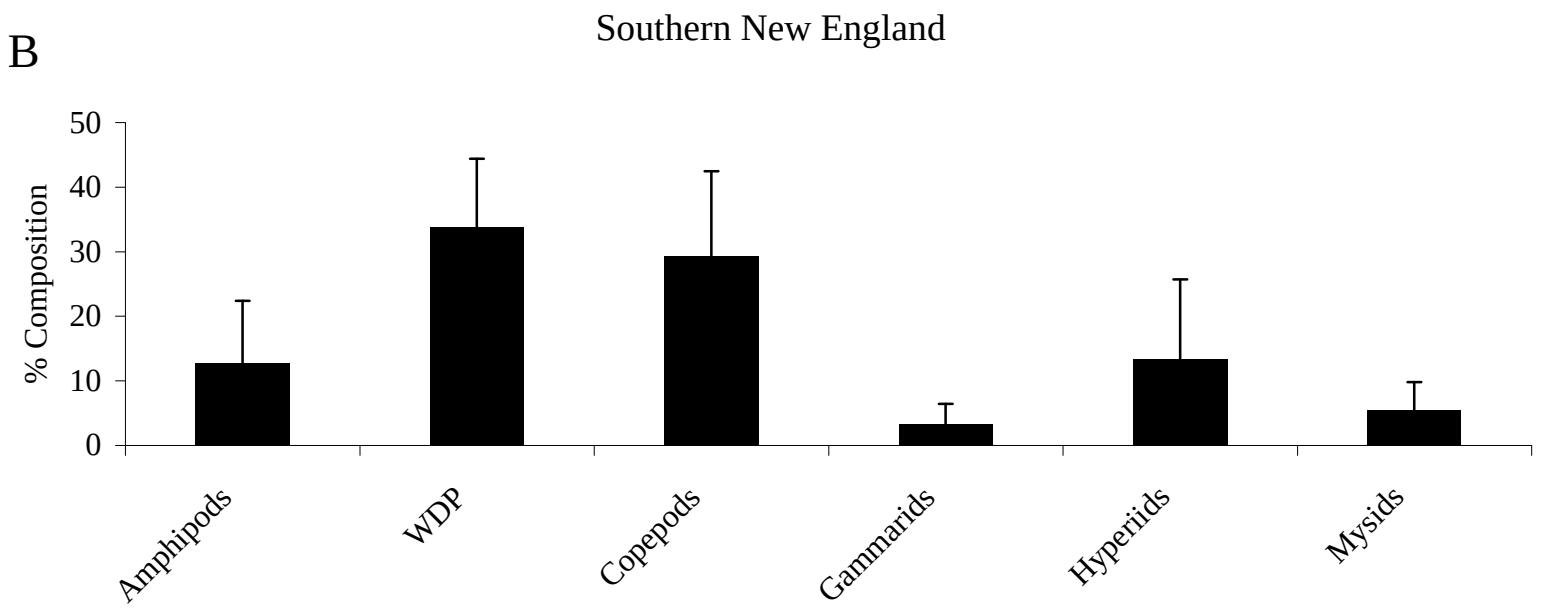

Figure 51B. Percent diet composition by weight of major prey taxa for blueback herring (*Alosa aestivalis*) collected in Southern New England (n = 362). WDP = well-digested prey.

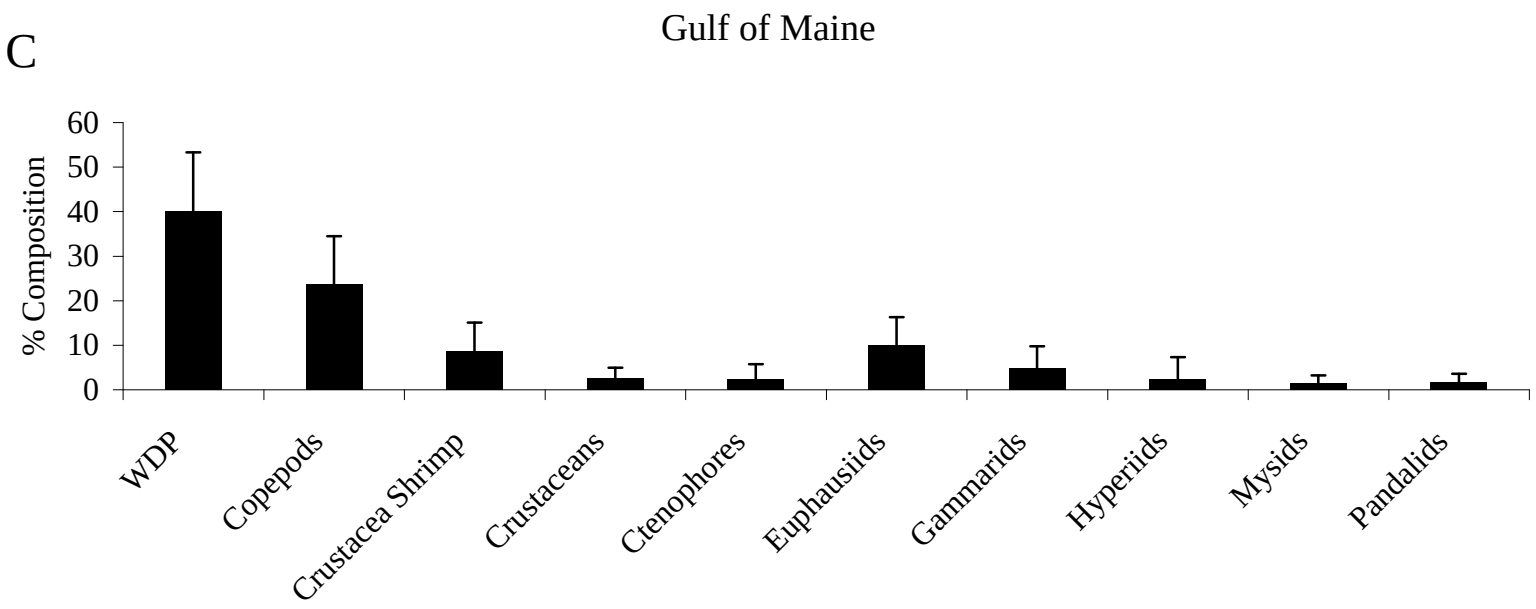

Figure 51C. Percent diet composition by weight of major prey taxa for blueback herring (*Alosa aestivalis*) collected in the Gulf of Maine (n = 372). WDP = well-digested prey.

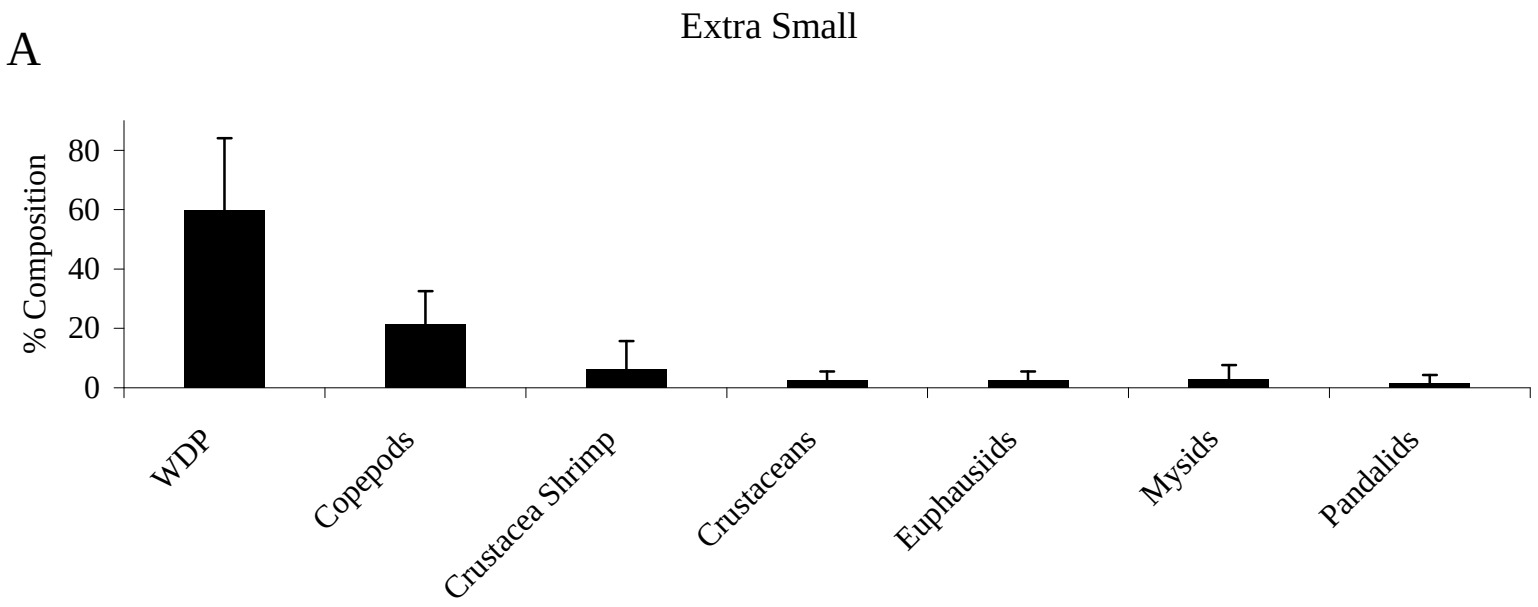

Figure 52A. Percent diet composition by weight of major prey taxa for blueback herring (*Alosa aestivalis*) in the extra-small size class (n = 206). WDP = well-digested prey.

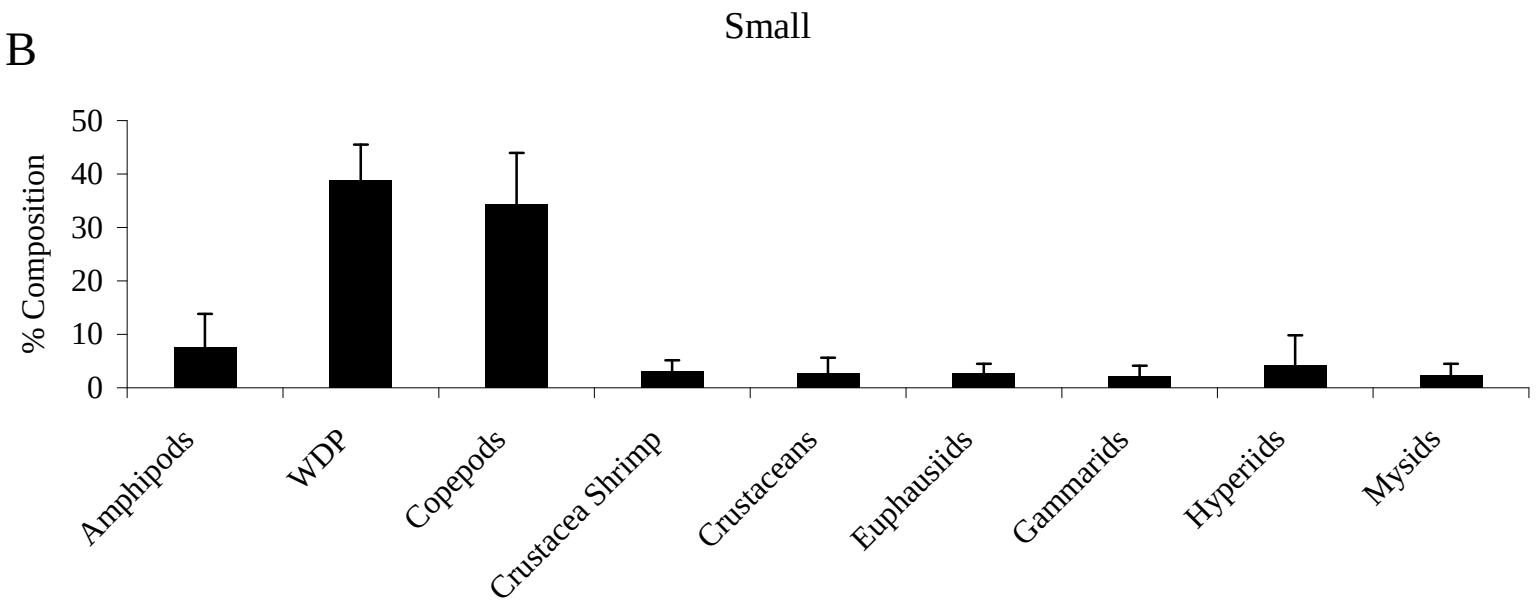

Figure 52B. Percent diet composition by weight of major prey taxa for blueback herring (*Alosa aestivalis*) in the small size class (n = 740). WDP = well-digested prey.

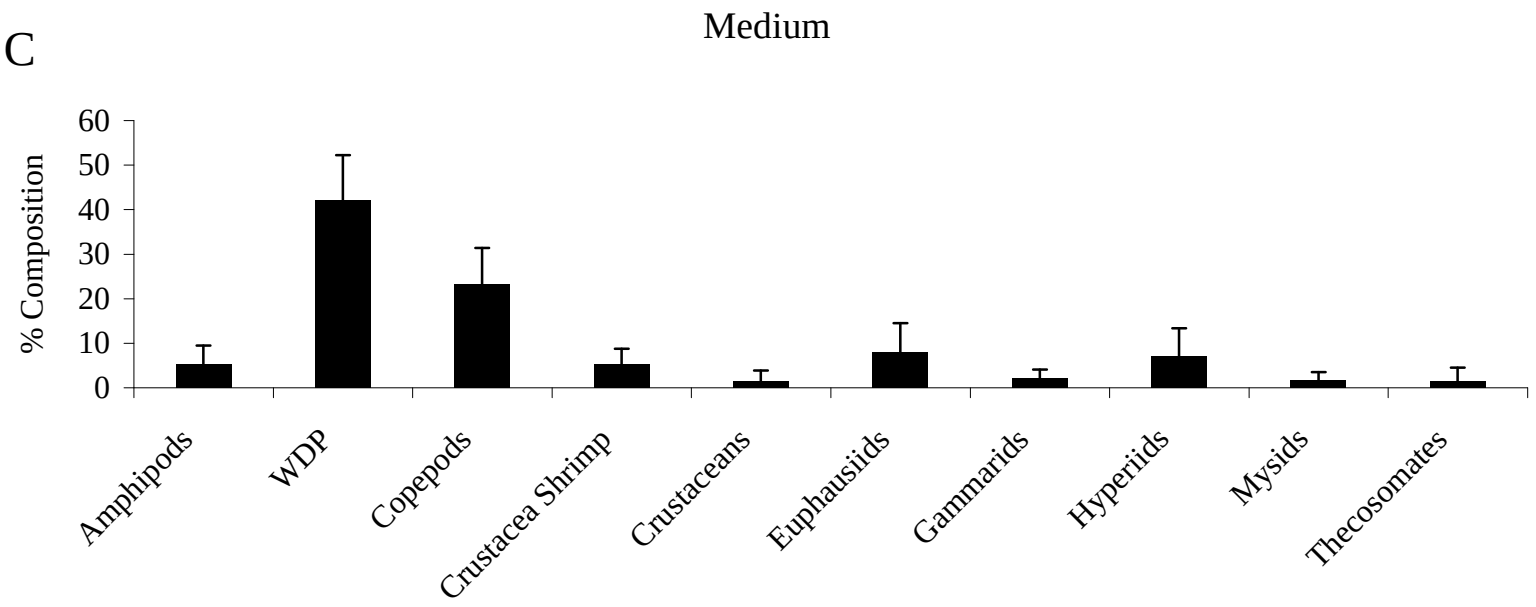

Figure 52C. Percent diet composition by weight of major prey taxa for blueback herring (*Alosa aestivalis*) in the medium size class (n = 401). WDP = well-digested prey.

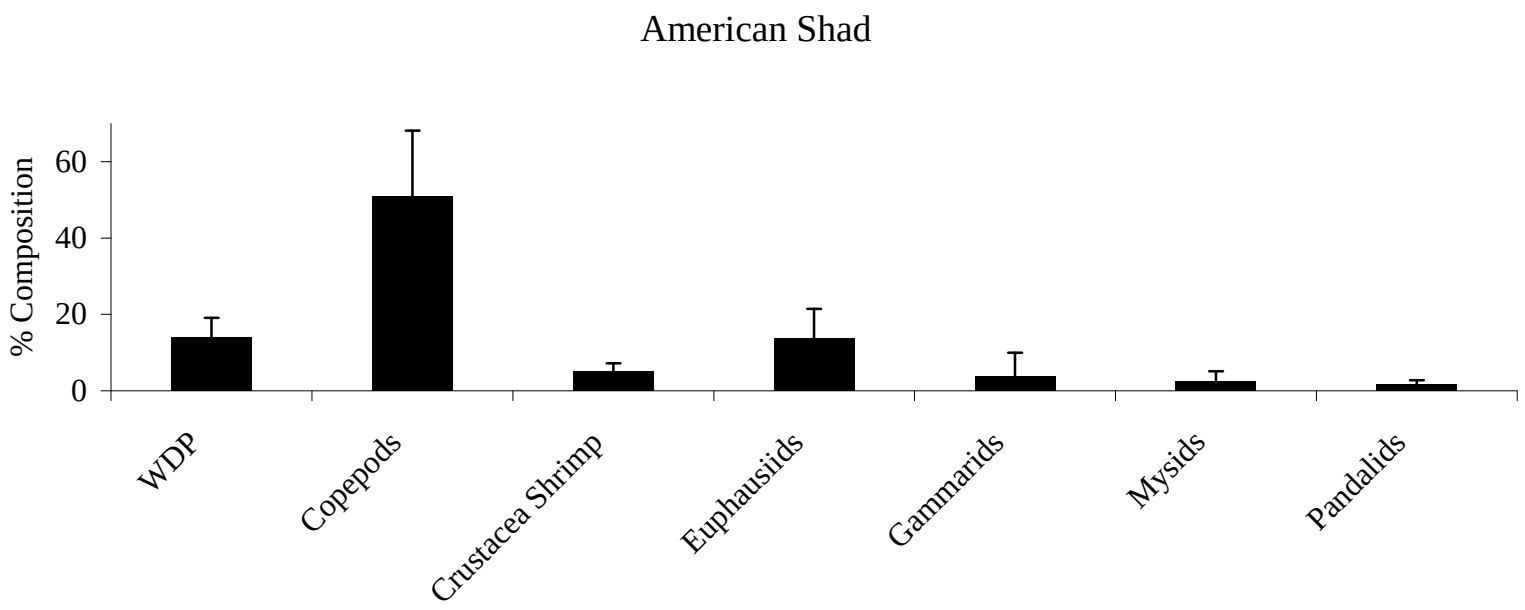

Figure 53. Percent diet composition by weight of major prey taxa for American shad (*Alosa sapidissima*; n = 874). WDP = well-digested prey.

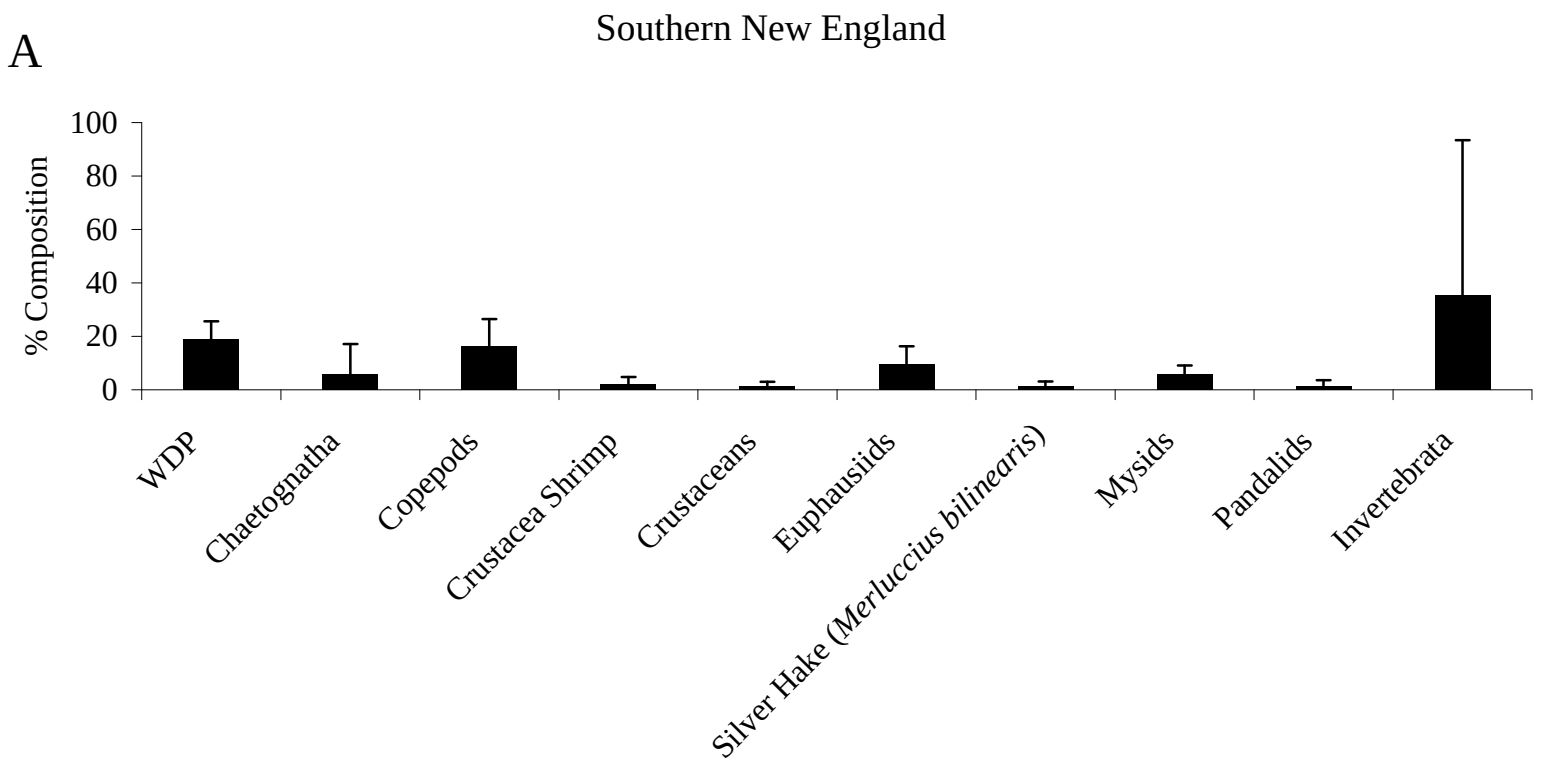

Figure 54A. Percent diet composition by weight of major prey taxa for American shad (*Alosa sapidissima*) collected in Southern New England (n = 288). WDP = well-digested prey.

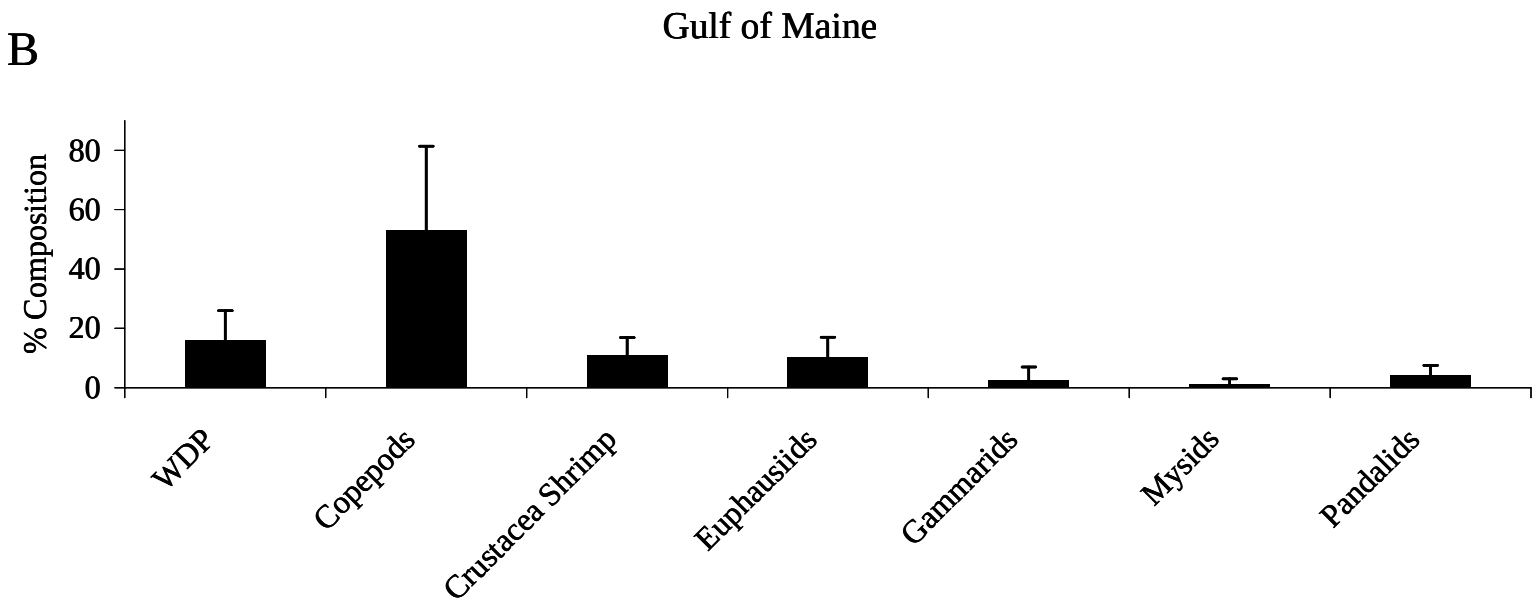

Figure 54B. Percent diet composition by weight of major prey taxa for American shad (*Alosa sapidissima*) collected in the Gulf of Maine (n = 304). WDP = well-digested prey.

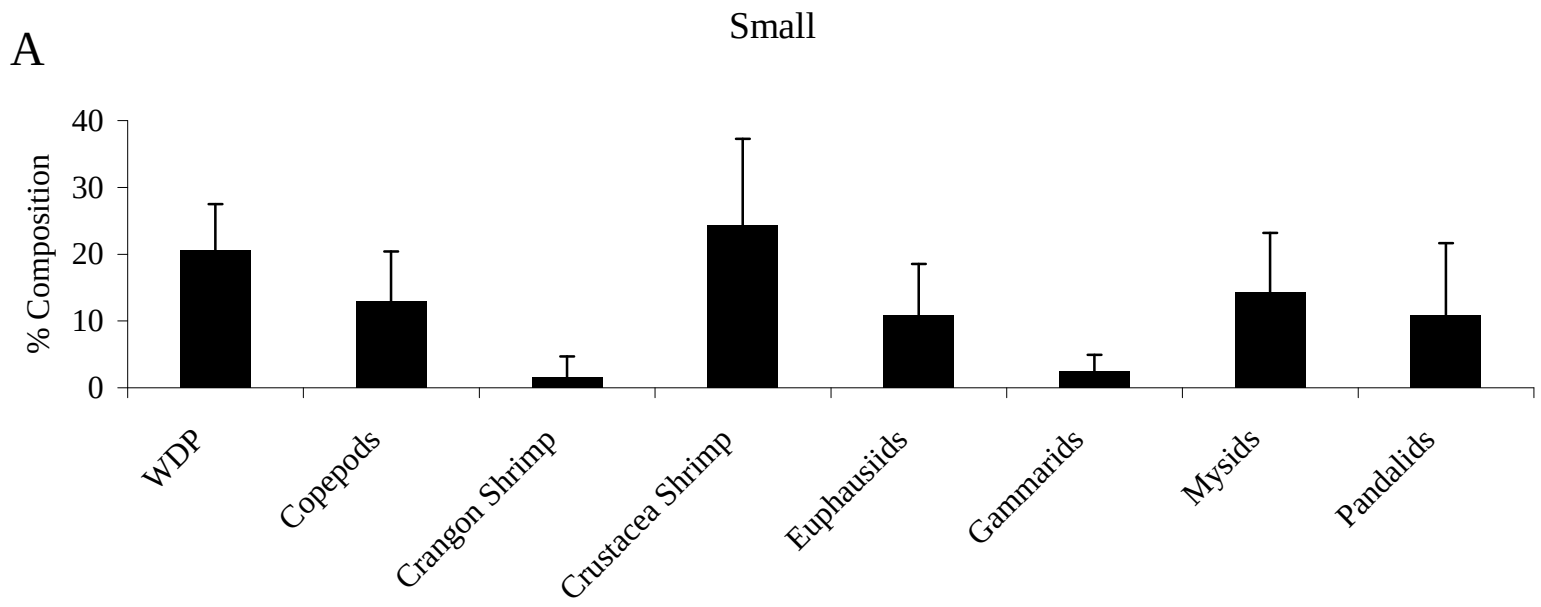

Figure 55A. Percent diet composition by weight of major prey taxa for American shad (*Alosa sapidissima*) in the small size class (n = 238). WDP = well-digested prey.

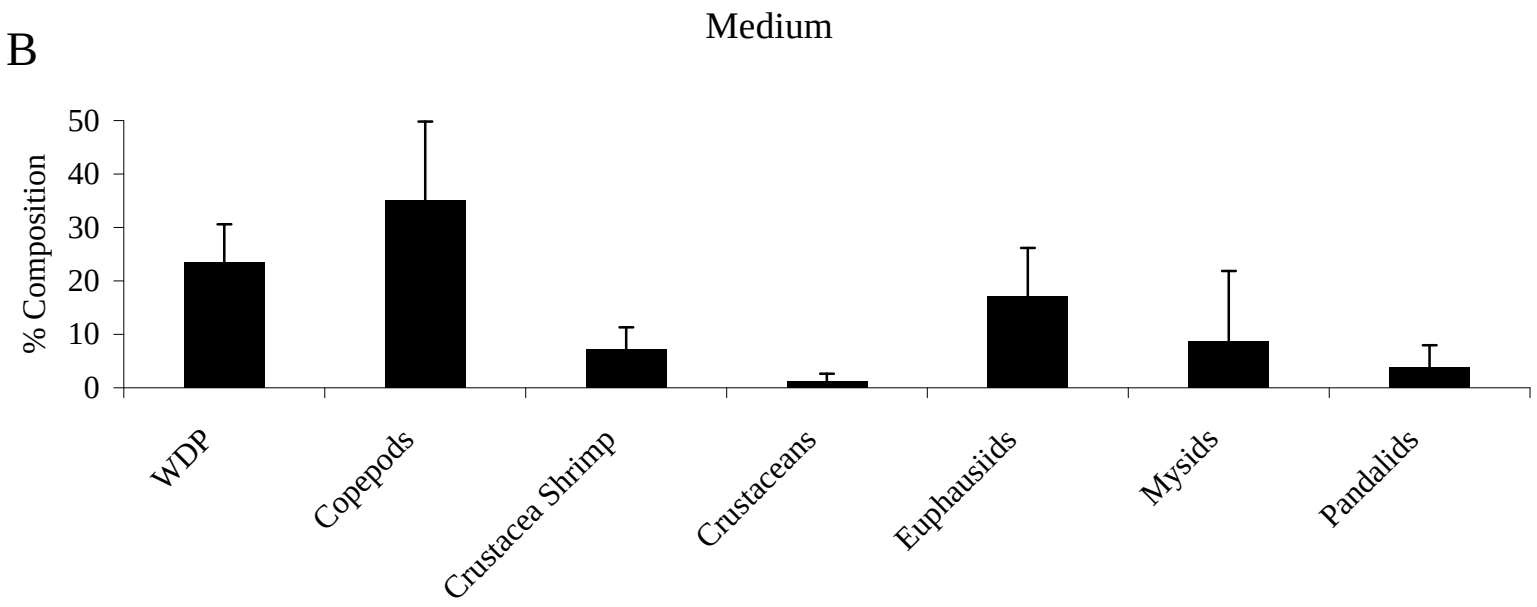

Figure 55B. Percent diet composition by weight of major prey taxa for American shad (*Alosa sapidissima*) in the medium size class (n = 404). WDP = well-digested prey.

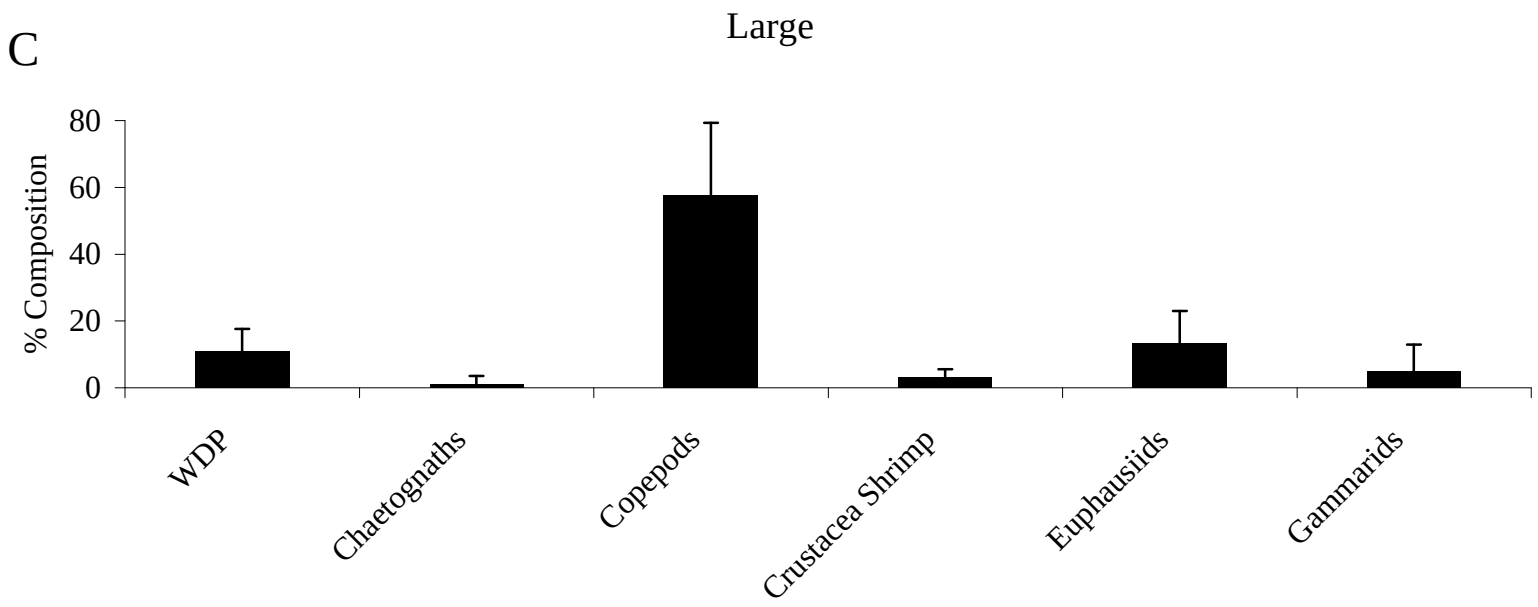

Figure 55C. Percent diet composition by weight of major prey taxa for American shad (*Alosa sapidissima*) in the large size class (n = 213). WDP = well-digested prey.

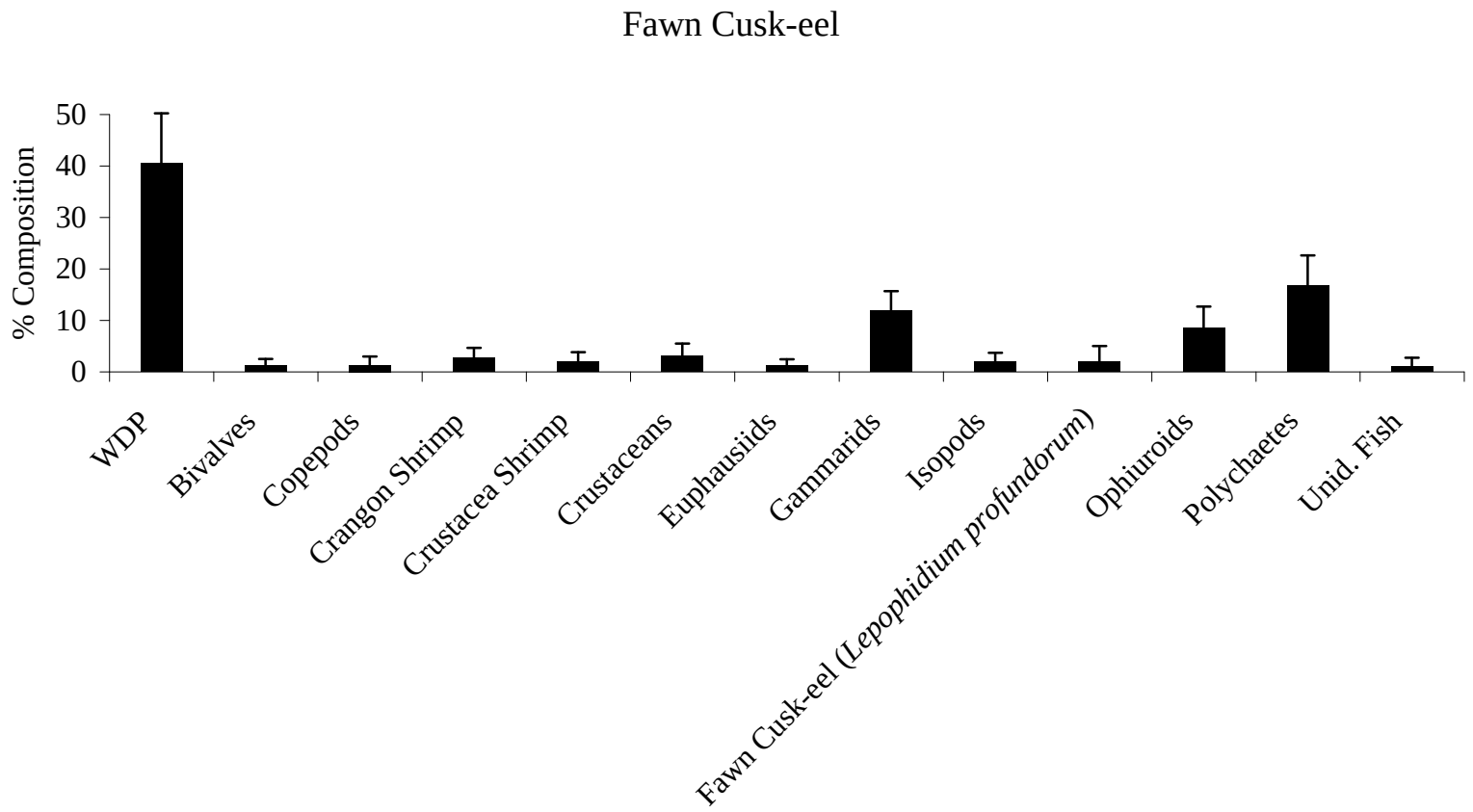

Figure 56. Percent diet composition by weight of major prey taxa for fawn cusk-eel (*Lepophidium profundorum*; n = 1,023). WDP = well-digested prey; Unid. Fish = unidentified fish.

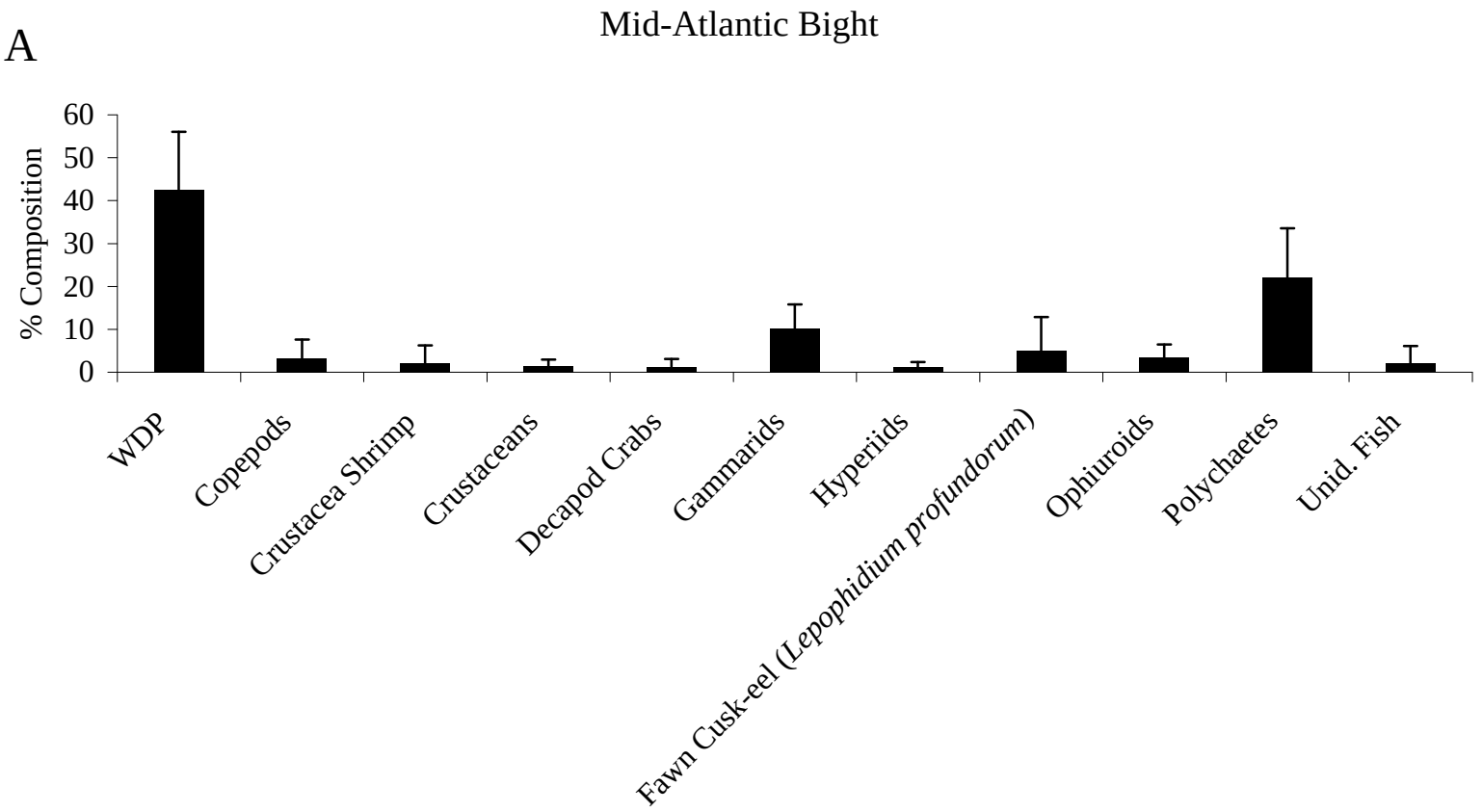

Figure 57A. Percent diet composition by weight of major prey taxa for fawn cusk-eel (*Lepophidium profundorum*) collected in the Mid-Atlantic Bight (n = 422). WDP = well-digested prey; Unid. Fish = unidentified fish.

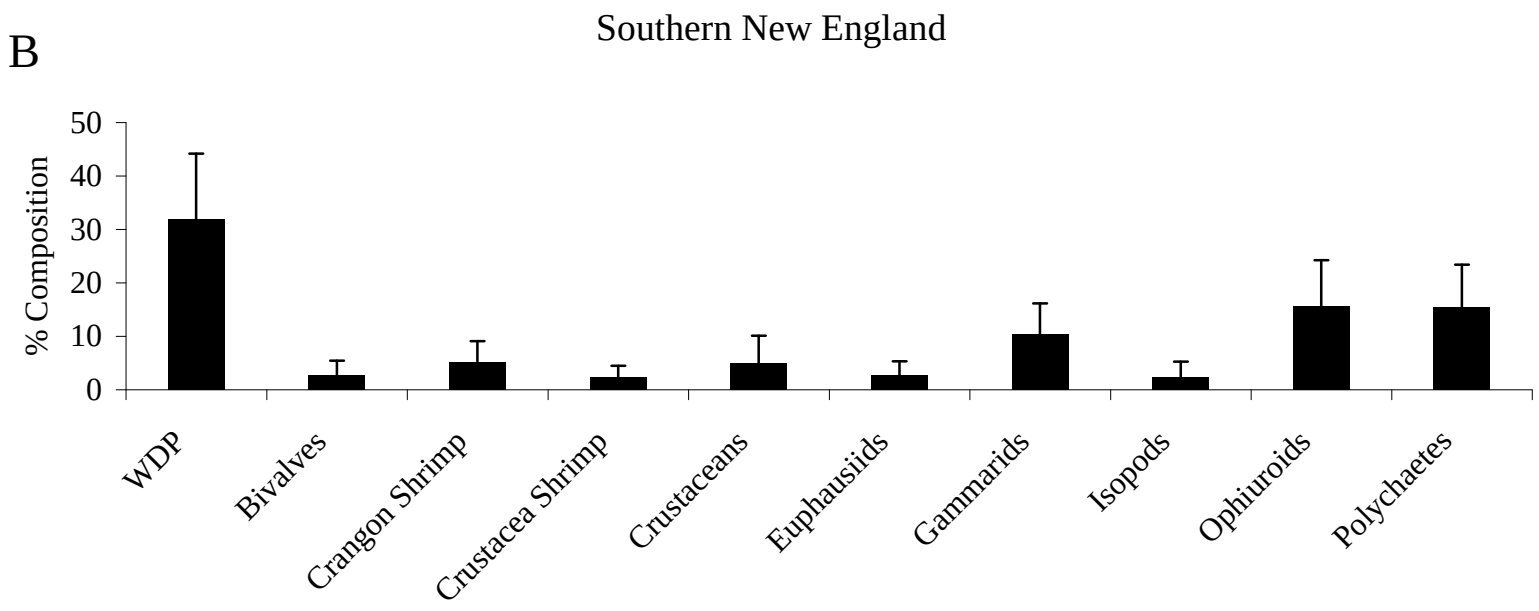

Figure 57B. Percent diet composition by weight of major prey taxa for fawn cusk-eel (*Lepophidium profundorum*) collected in Southern New England (n = 457). WDP = well-digested prey.

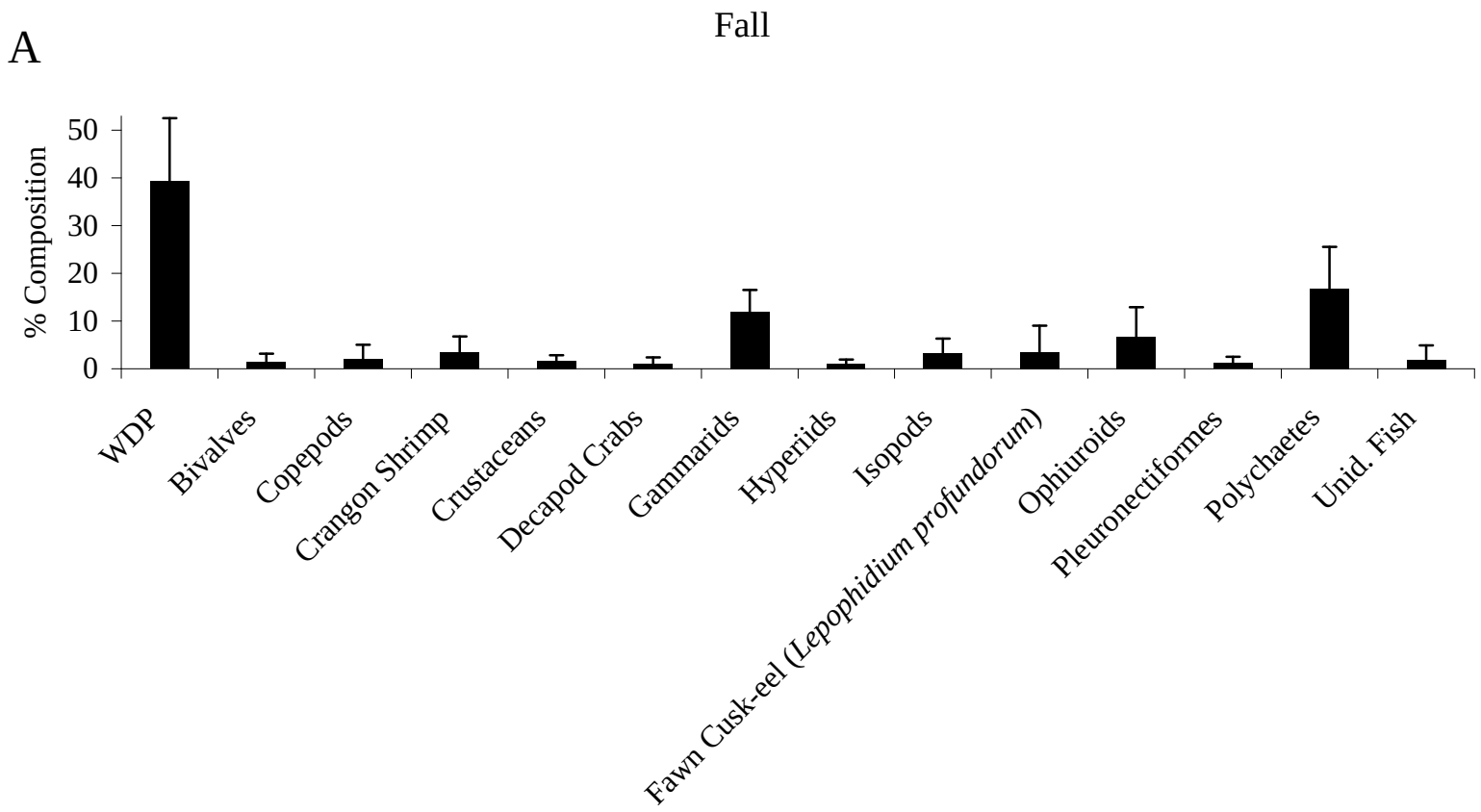

Figure 58A. Percent diet composition by weight of major prey taxa for fawn cusk-eel (*Lepophidium profundorum*) collected in the fall (n = 467). WDP = well-digested prey; Unid. Fish = unidentified fish.

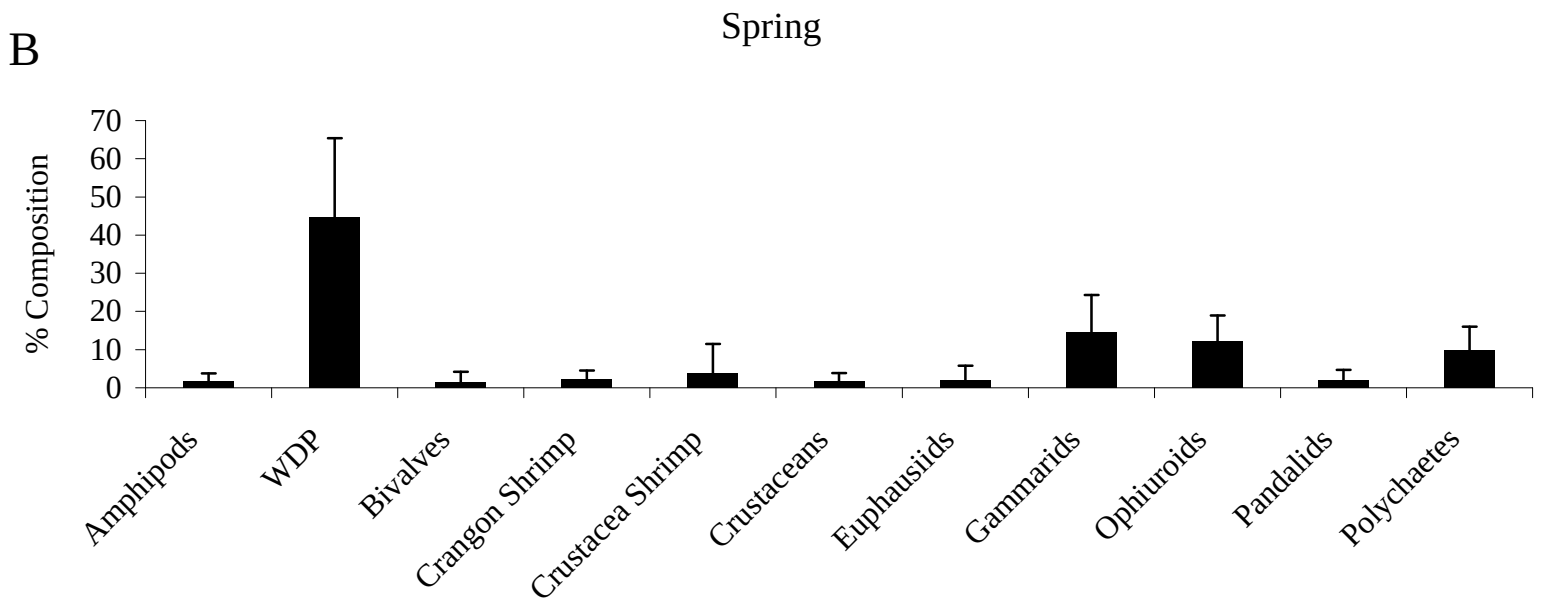

Figure 58B. Percent diet composition by weight of major prey taxa for fawn cusk-eel (*Lepophidium profundorum*) collected in the spring (n = 272). WDP = well-digested prey.

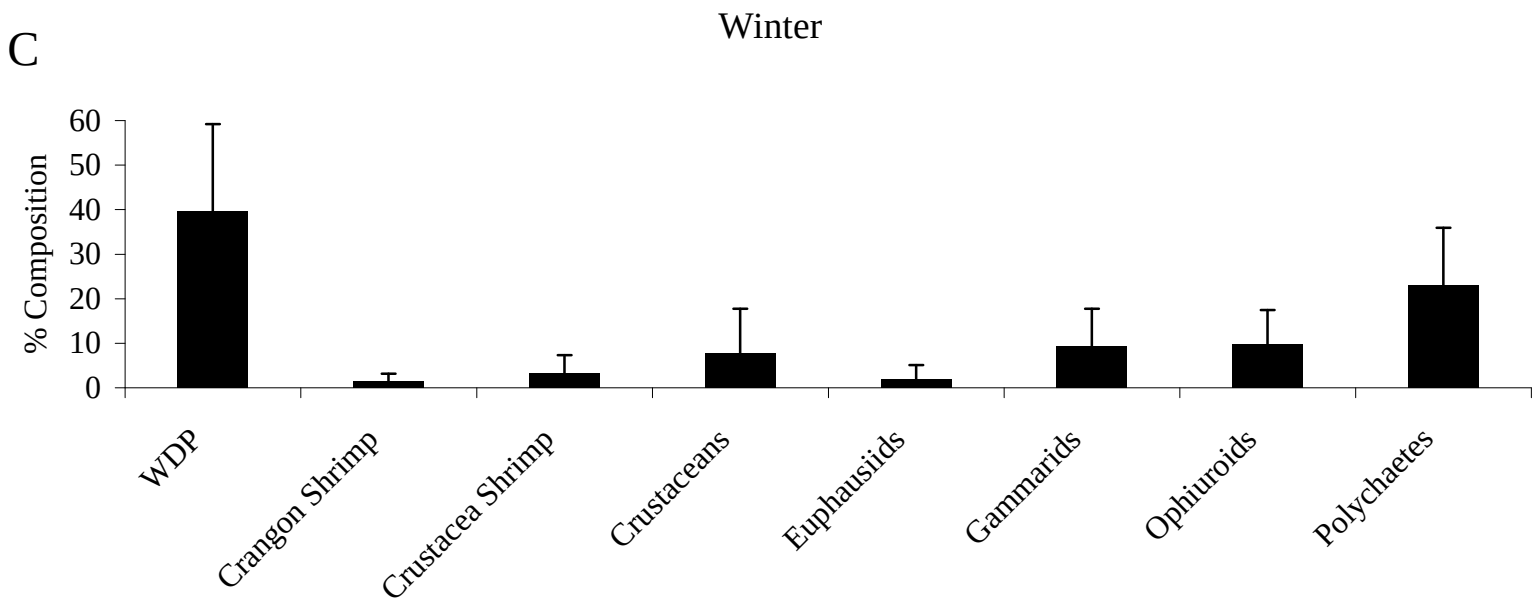

Figure 58C. Percent diet composition by weight of major prey taxa for fawn cusk-eel (*Lepophidium profundorum*) collected in the winter (n = 284). WDP = well-digested prey.

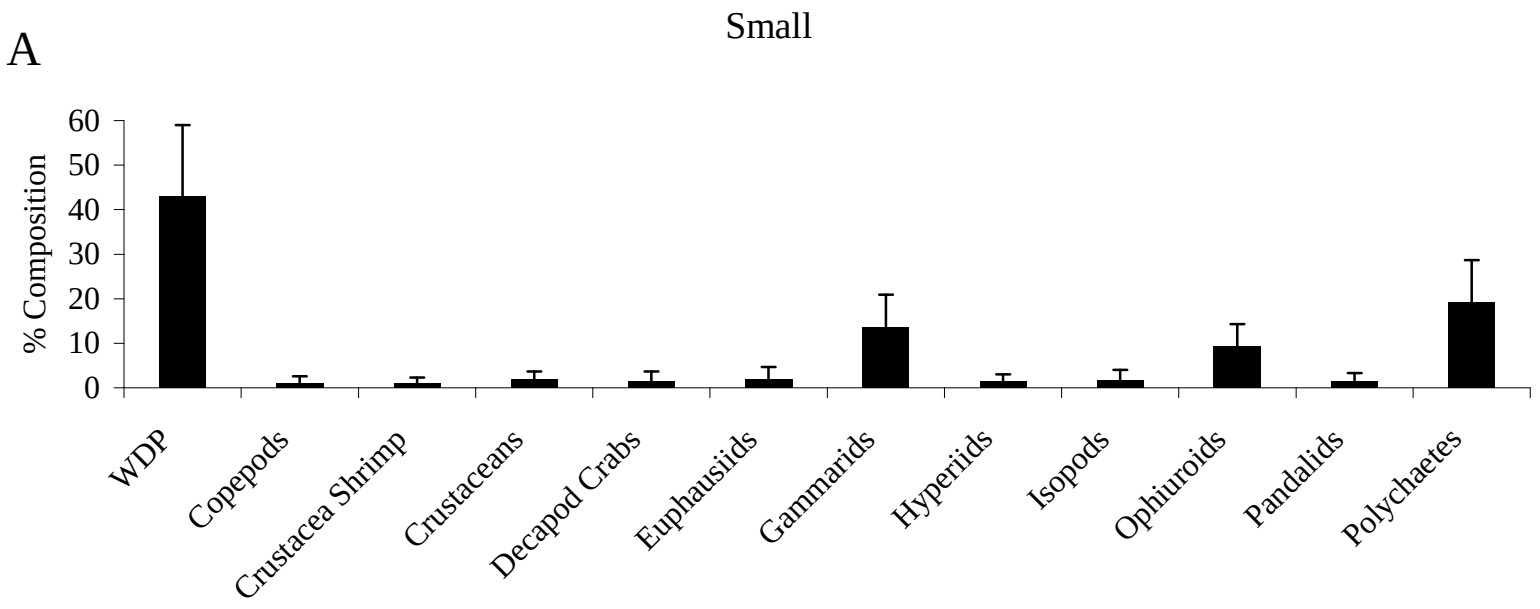

Figure 59A. Percent diet composition by weight of major prey taxa for fawn cusk-eel (*Lepophidium profundorum*) in the small size class (n = 422). WDP = well-digested prey.

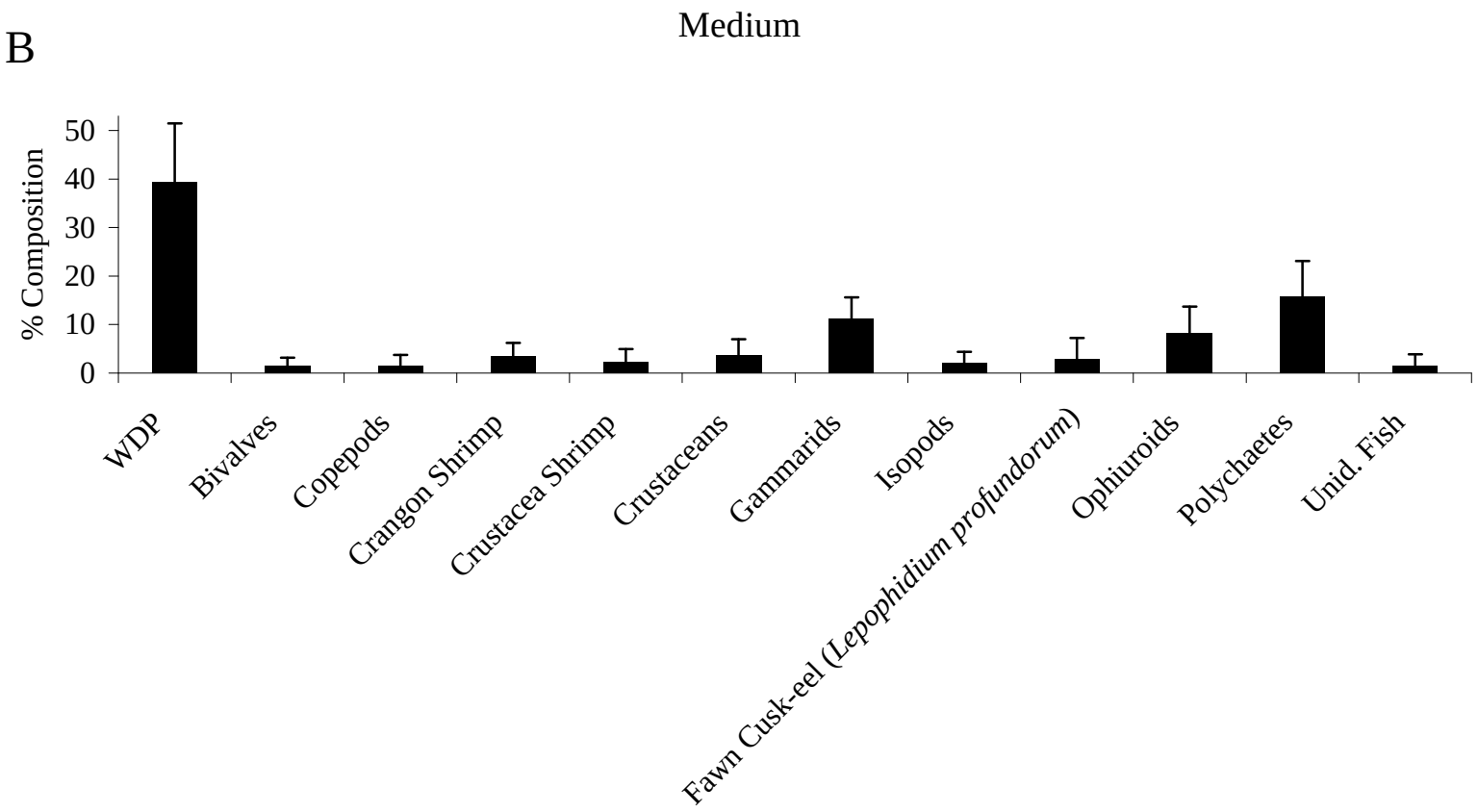

Figure 59B. Percent diet composition by weight of major prey taxa for fawn cusk-eel (*Lepophidium profundorum*) in the medium size class (n = 601). WDP = well-digested prey; Unid. Fish = unidentified fish.

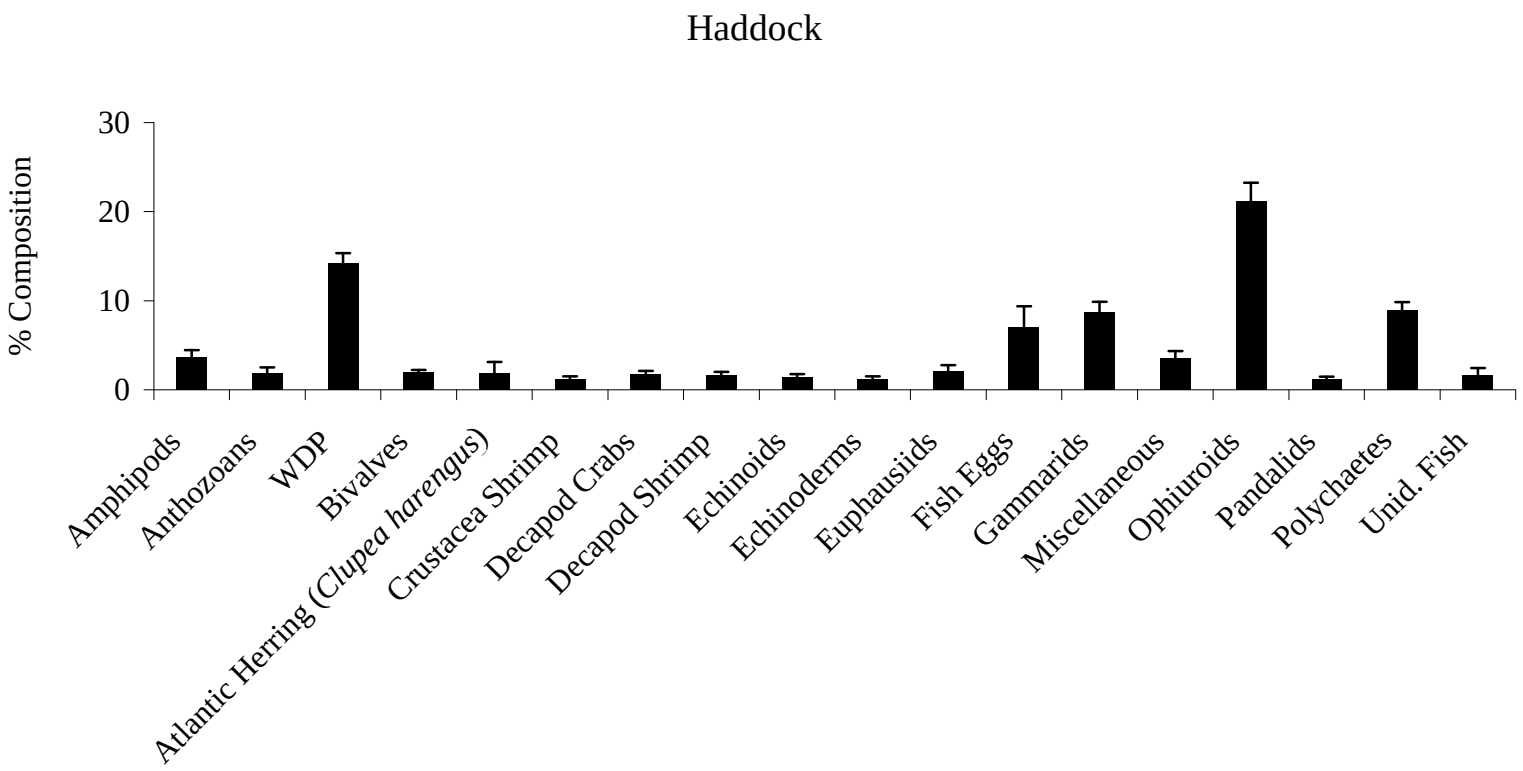

Figure 60. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*; n = 9,488). WDP = well-digested prey; Unid. Fish = unidentified fish.

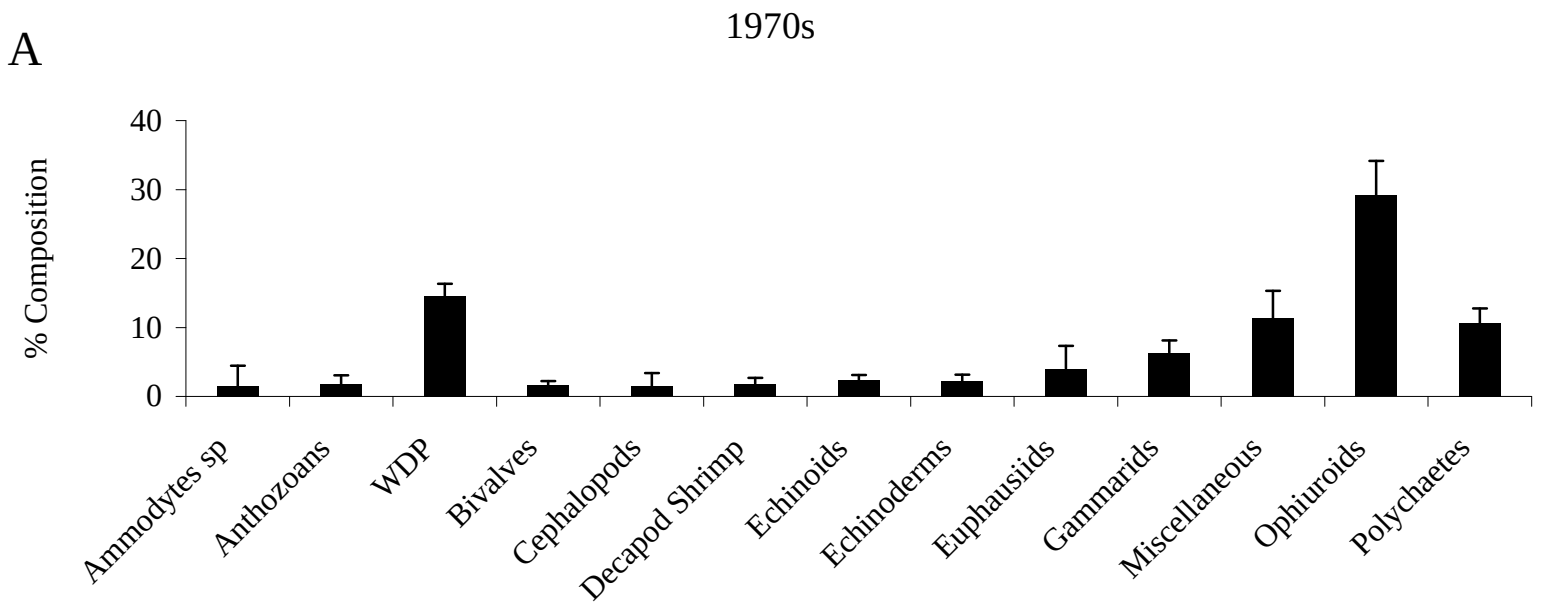

Figure 61A. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in the 1970s (n = 1,972). WDP = well-digested prey.

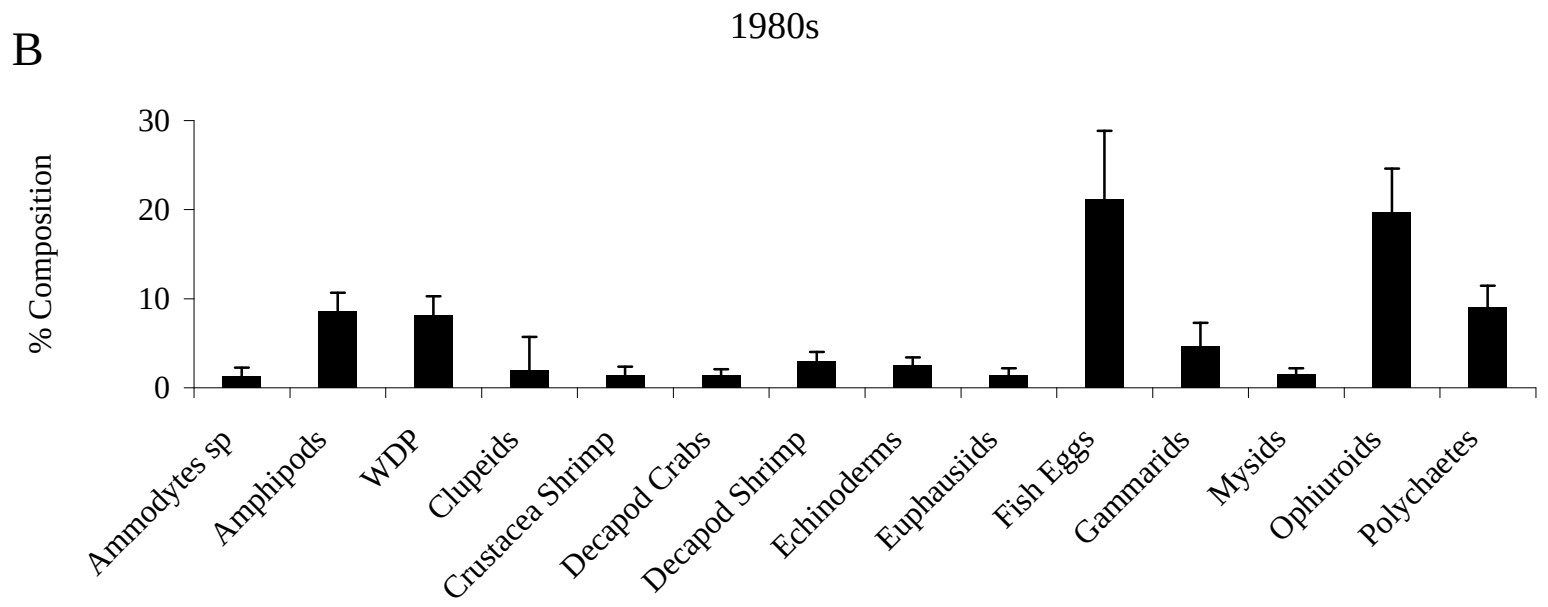

Figure 61B. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected collected in the 1980s (n = 1,461). WDP = well-digested prey.

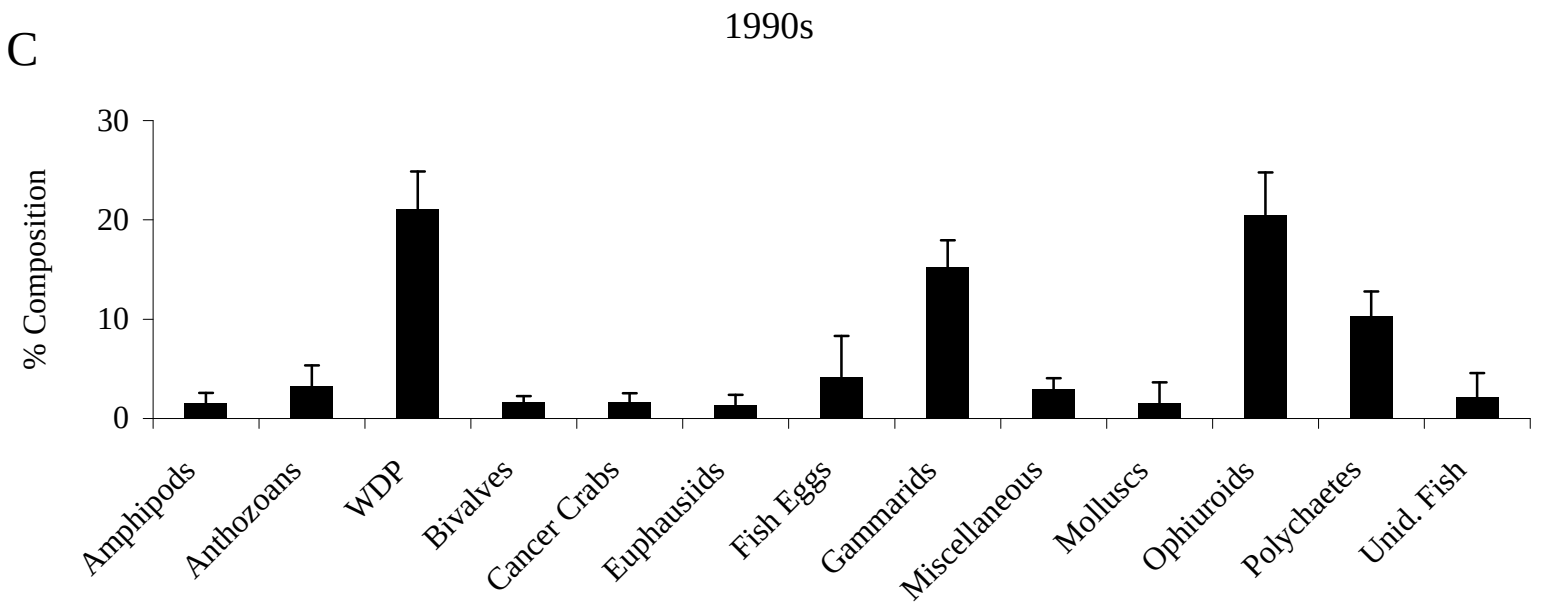

Figure 61C. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in the 1990s (n = 1,279). WDP = well-digested prey; Unid. Fish = unidentified fish.

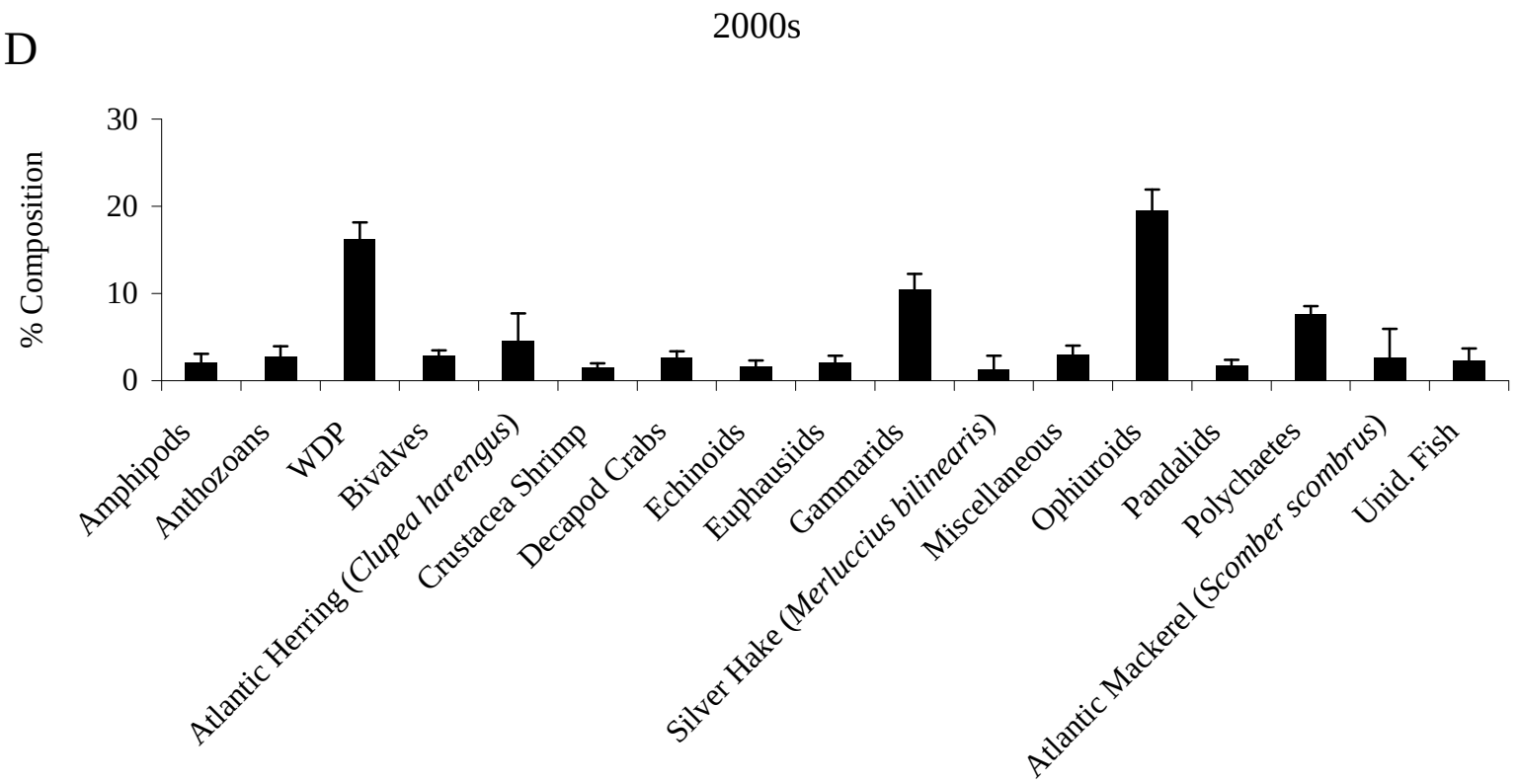

Figure 61D. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in the 2000s (n = 4,776). WDP = well-digested prey; Unid. Fish = unidentified fish.

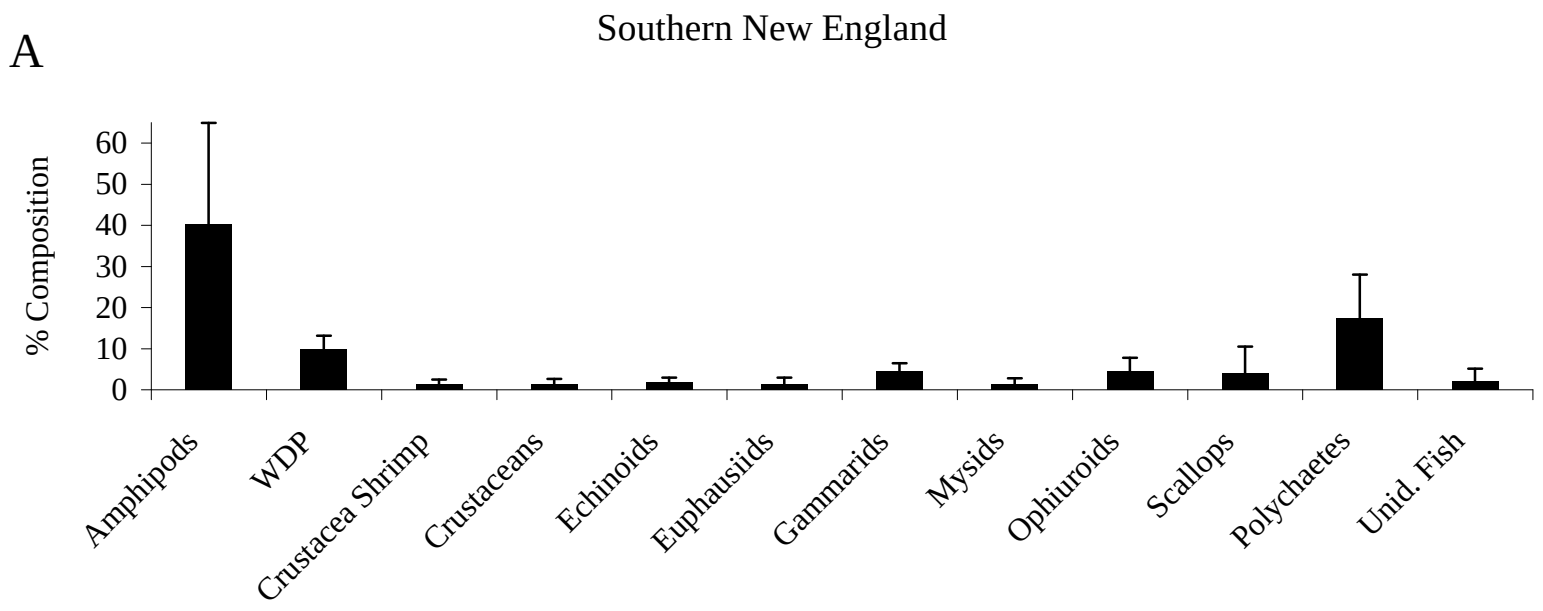

Figure 62A. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in Southern New England (n = 249). WDP = well-digested prey; Unid. Fish = unidentified fish.

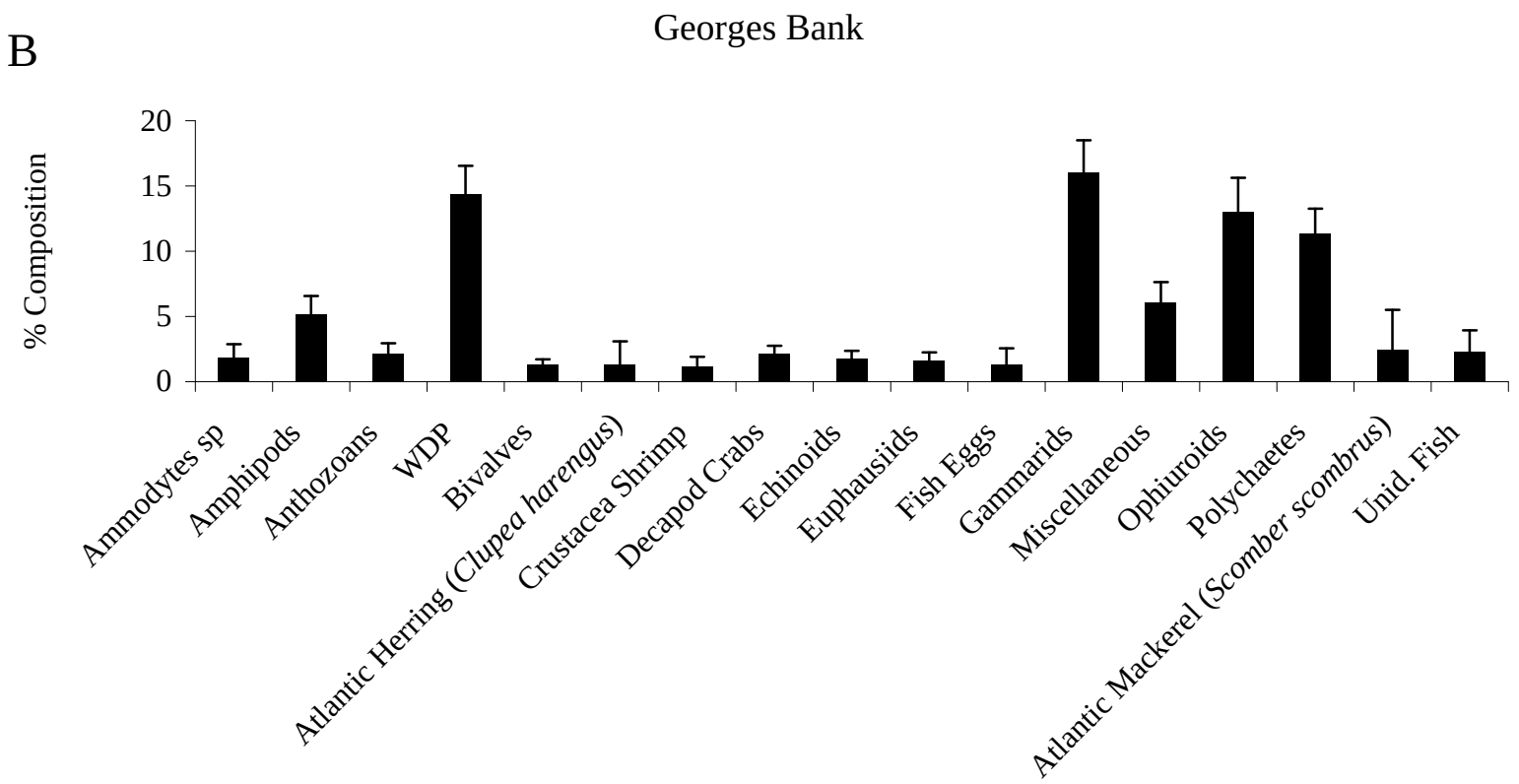

Figure 62B. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected on Georges Bank (n = 4,324). WDP = well-digested prey; Unid. Fish = unidentified fish.

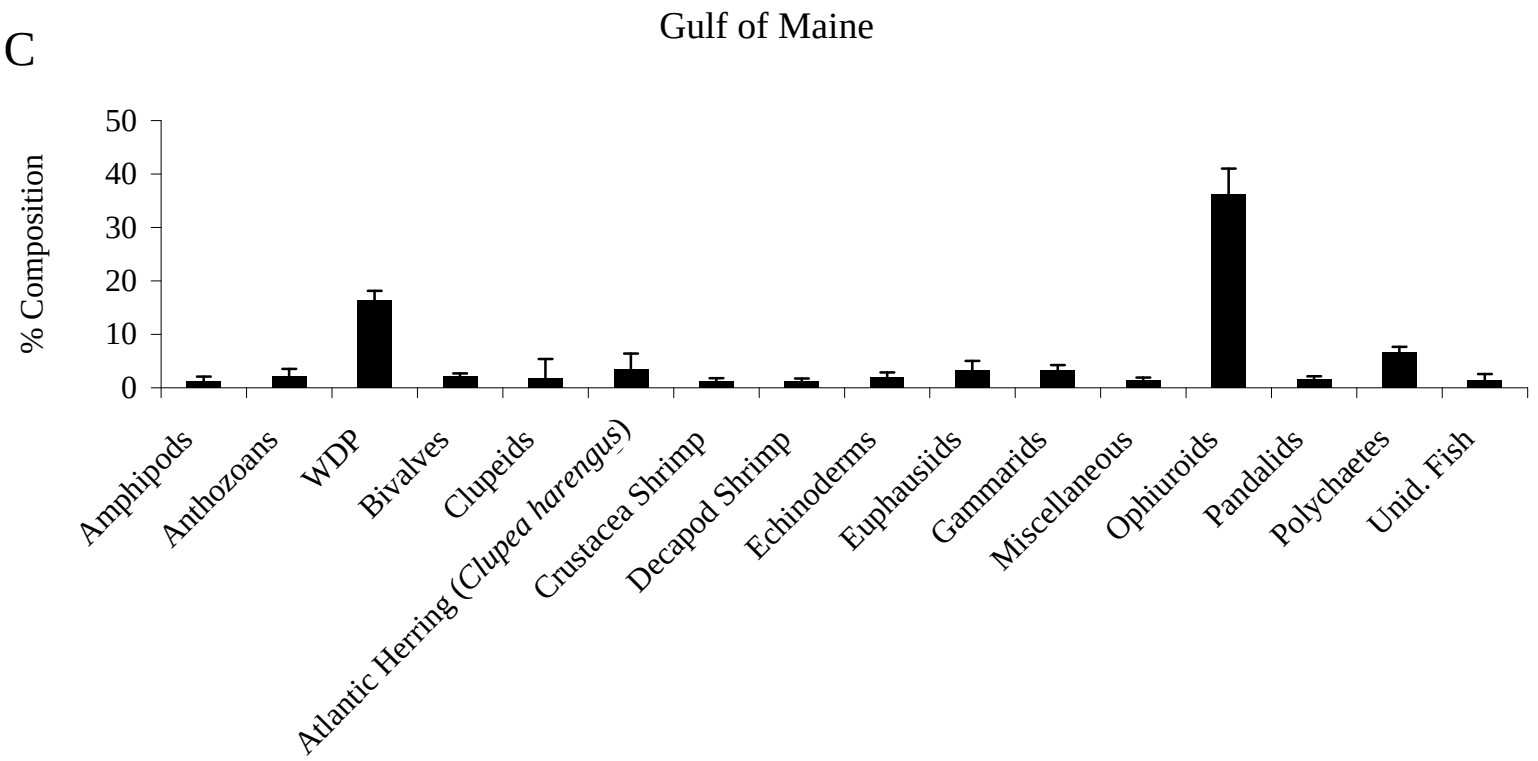

Figure 62C. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in Gulf of Maine (n = 2,833). WDP = well-digested prey; Unid. Fish = unidentified fish.

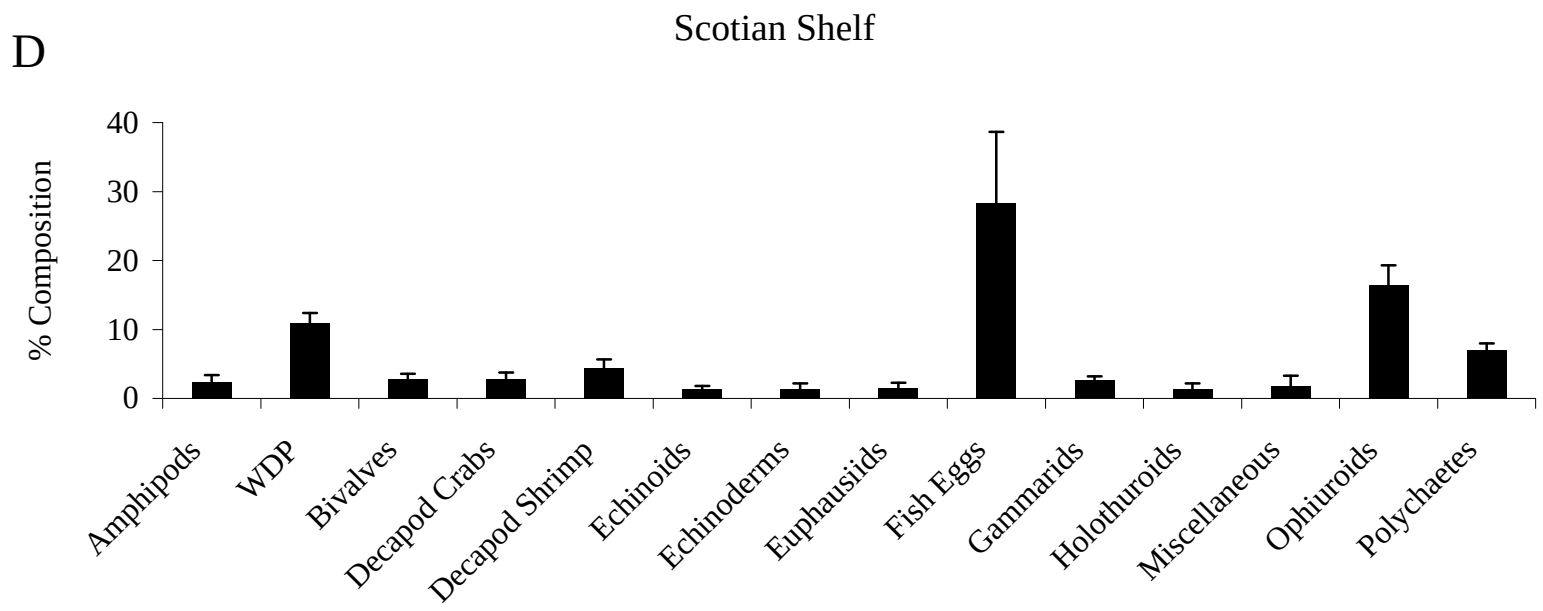

Figure 62D. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected on the Scotian Shelf (n = 1,973). WDP = well-digested prey.

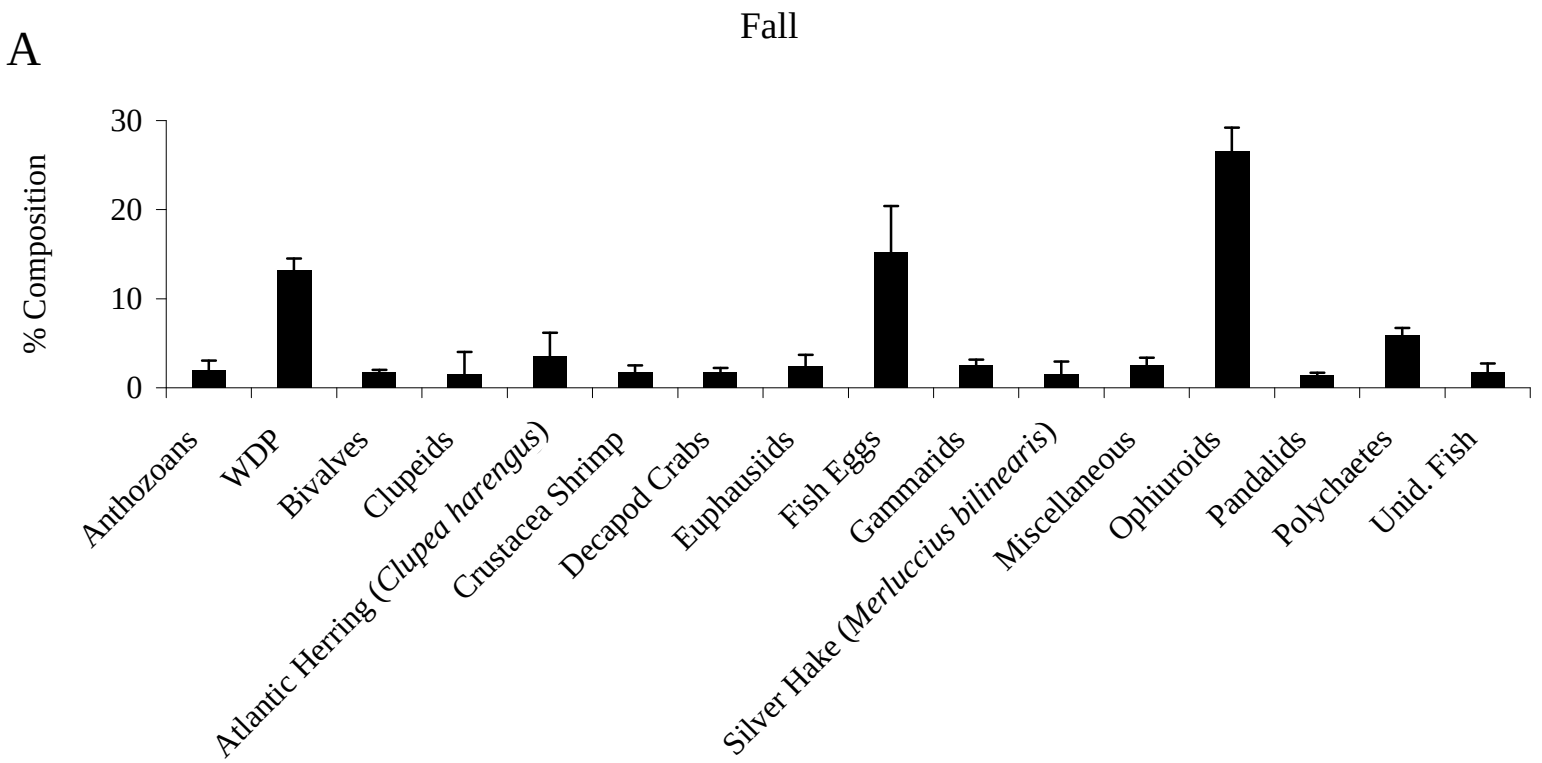

Figure 63A. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in the fall (n = 4,385). WDP = well-digested prey; Unid. Fish = unidentified fish.

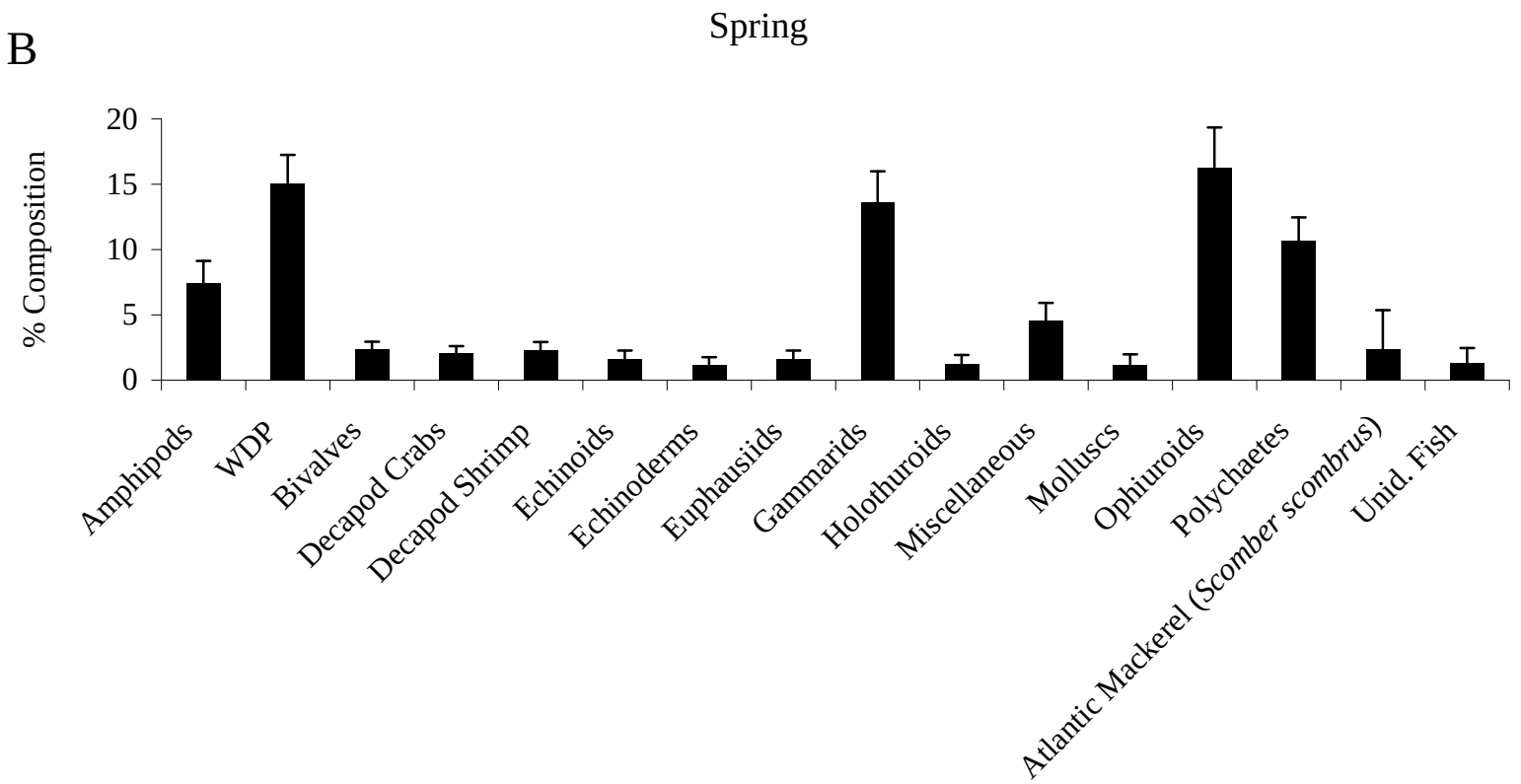

Figure 63B. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in the spring (n = 4,176). WDP = well-digested prey; Unid. Fish = unidentified fish.

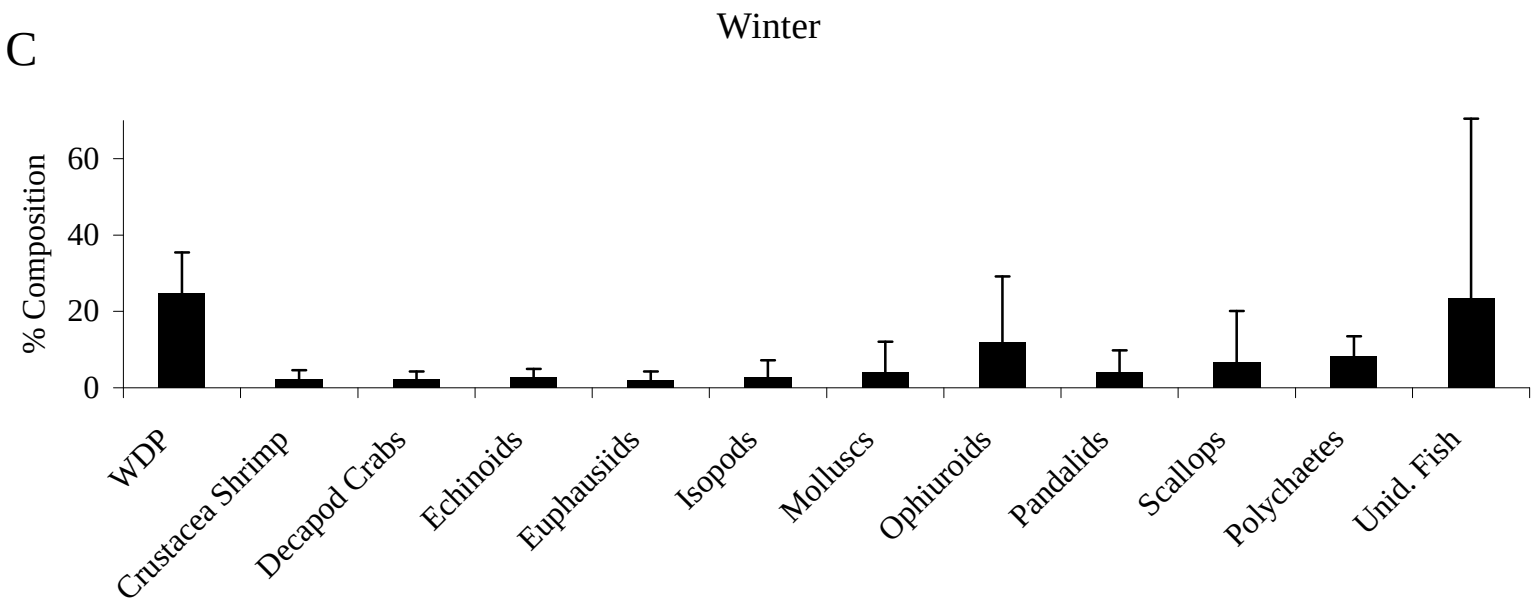

Figure 63C. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in the winter (n = 219). WDP = well-digested prey; Unid. Fish = unidentified fish.

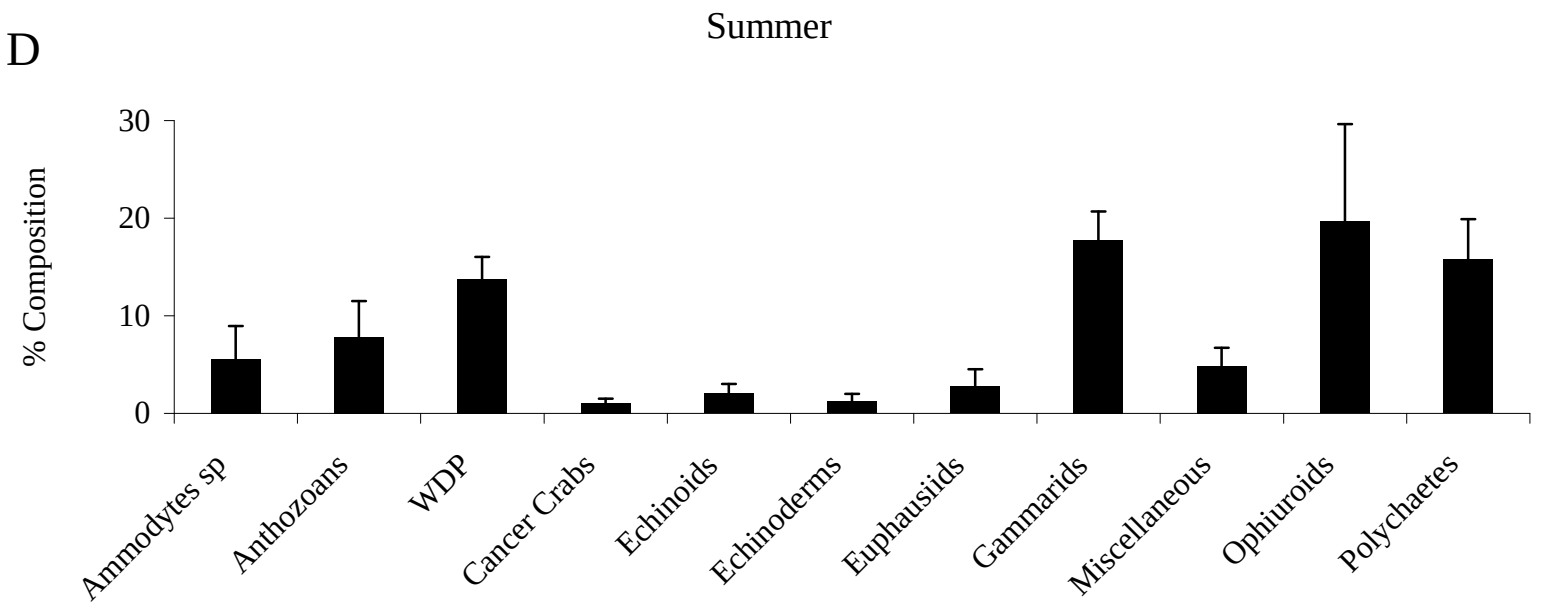

Figure 63D. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) collected in the summer (n = 708). WDP = well-digested prey.

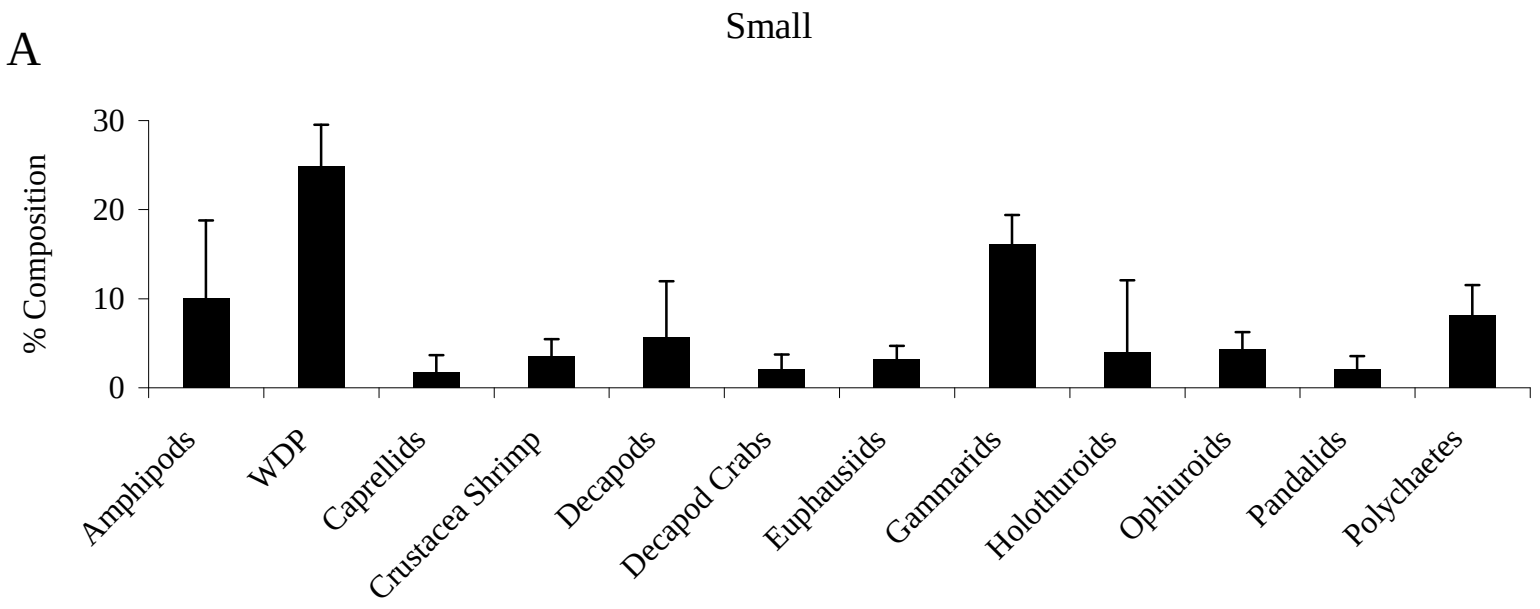

Figure 64A. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) in the small size class (n = 1,196). WDP = well-digested prey.

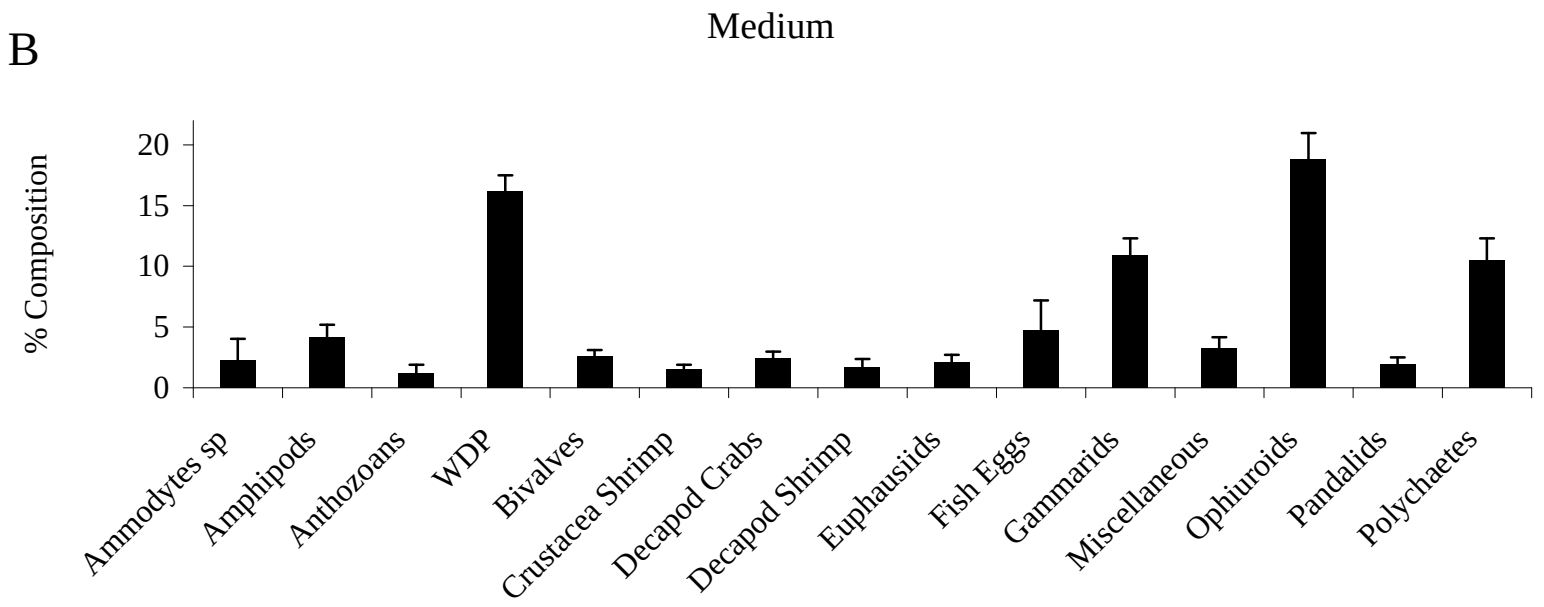

Figure 64B. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) in the medium size class (n = 5,154). WDP = well-digested prey.

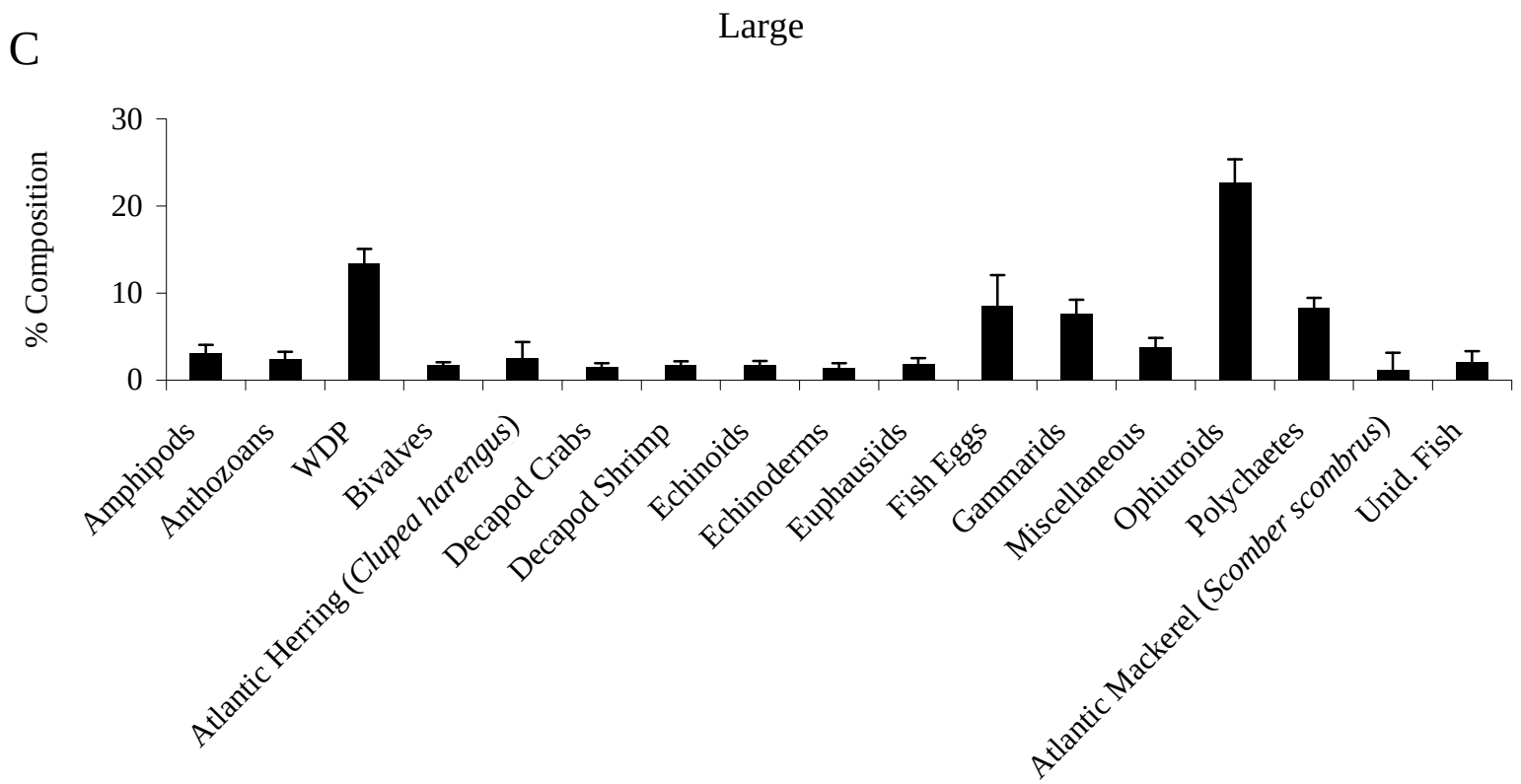

Figure 64C. Percent diet composition by weight of major prey taxa for haddock (*Melanogrammus aeglefinus*) in the large size class (n = 3,108). WDP = well-digested prey; Unid. Fish = unidentified fish.

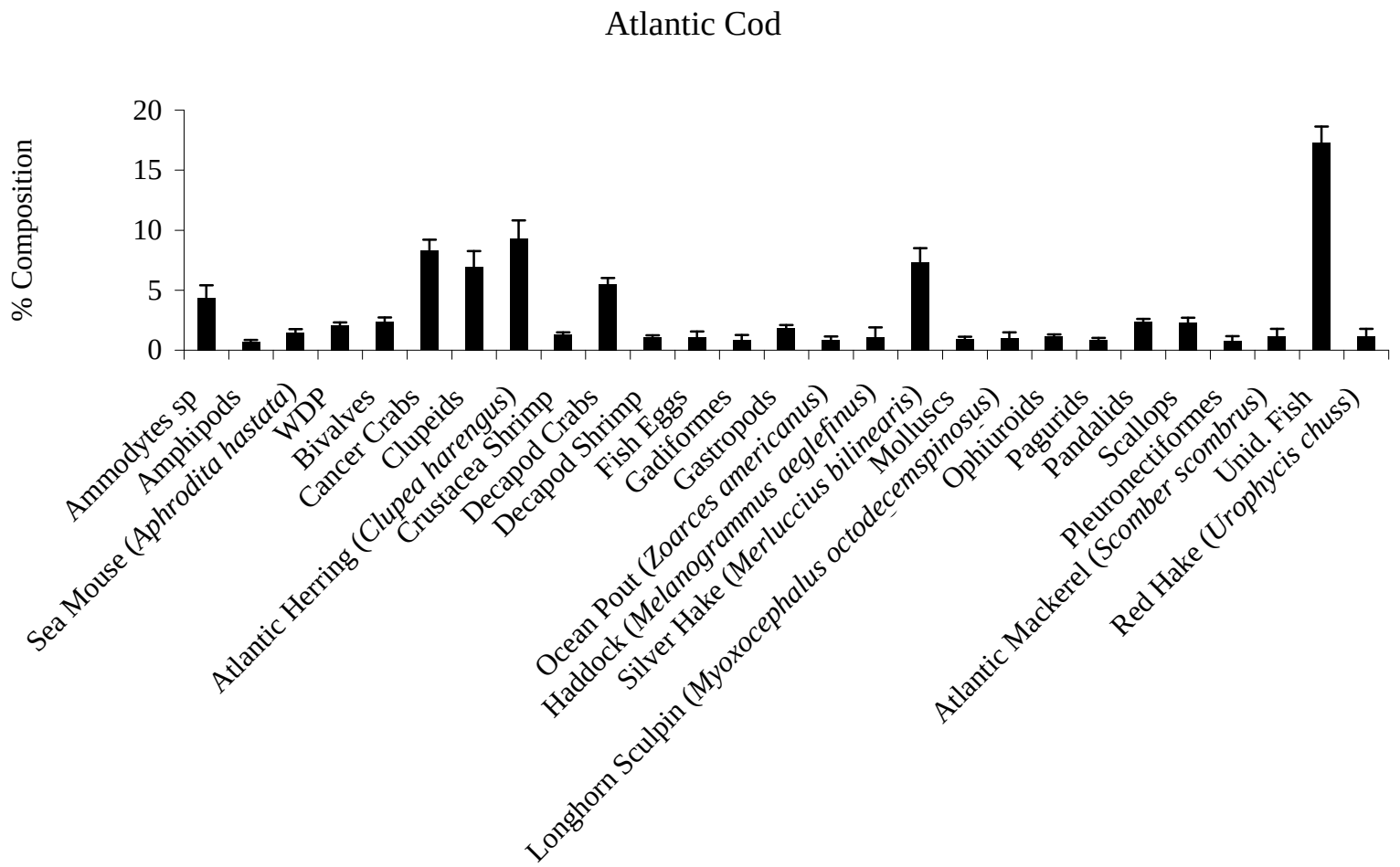

Figure 65. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*; n = 19,645). WDP = well-digested prey; Unid. Fish = unidentified fish.

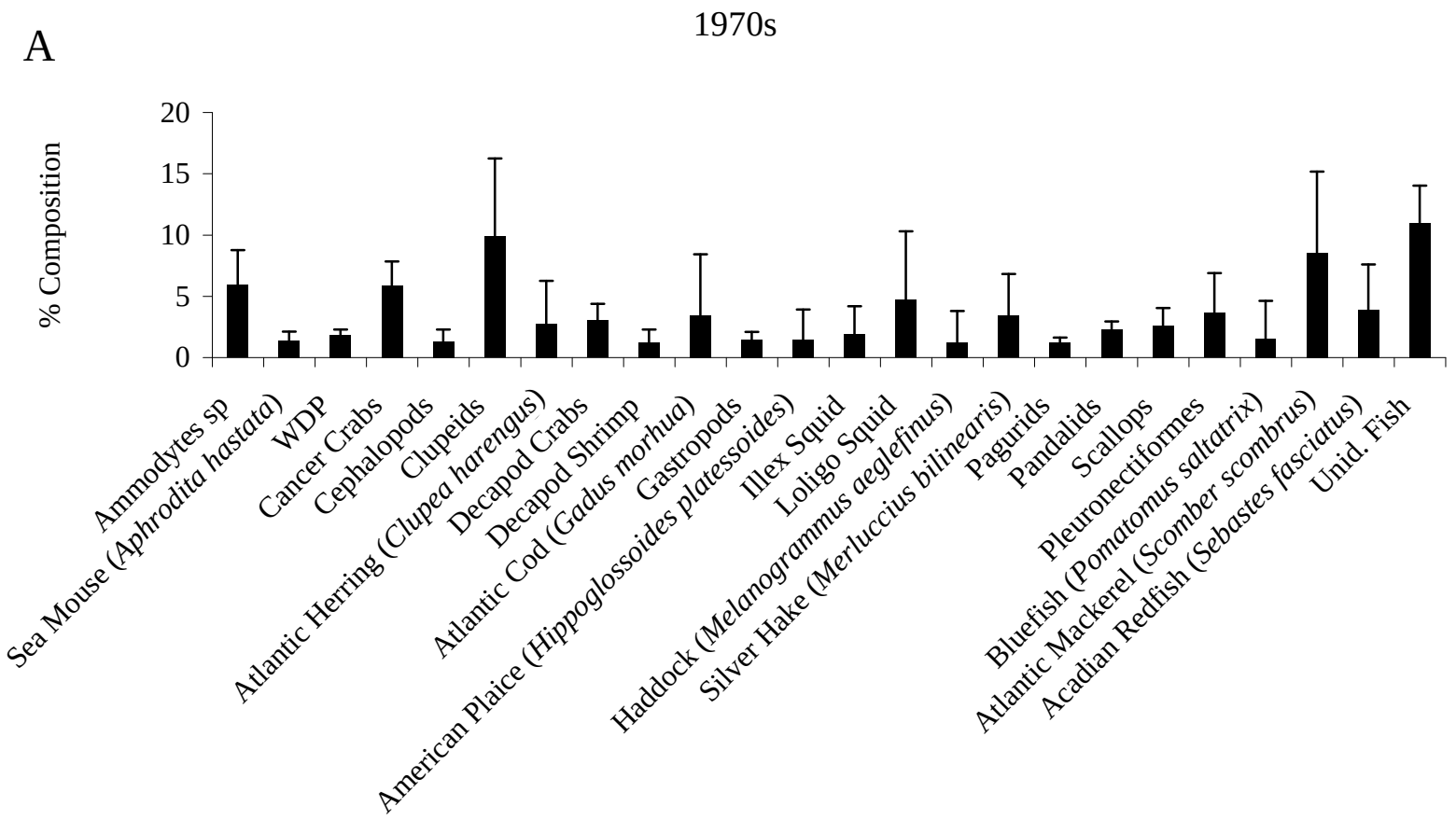

Figure 66A. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected in the 1970s (n = 1,940). WDP = well-digested prey; Unid. Fish = unidentified fish.

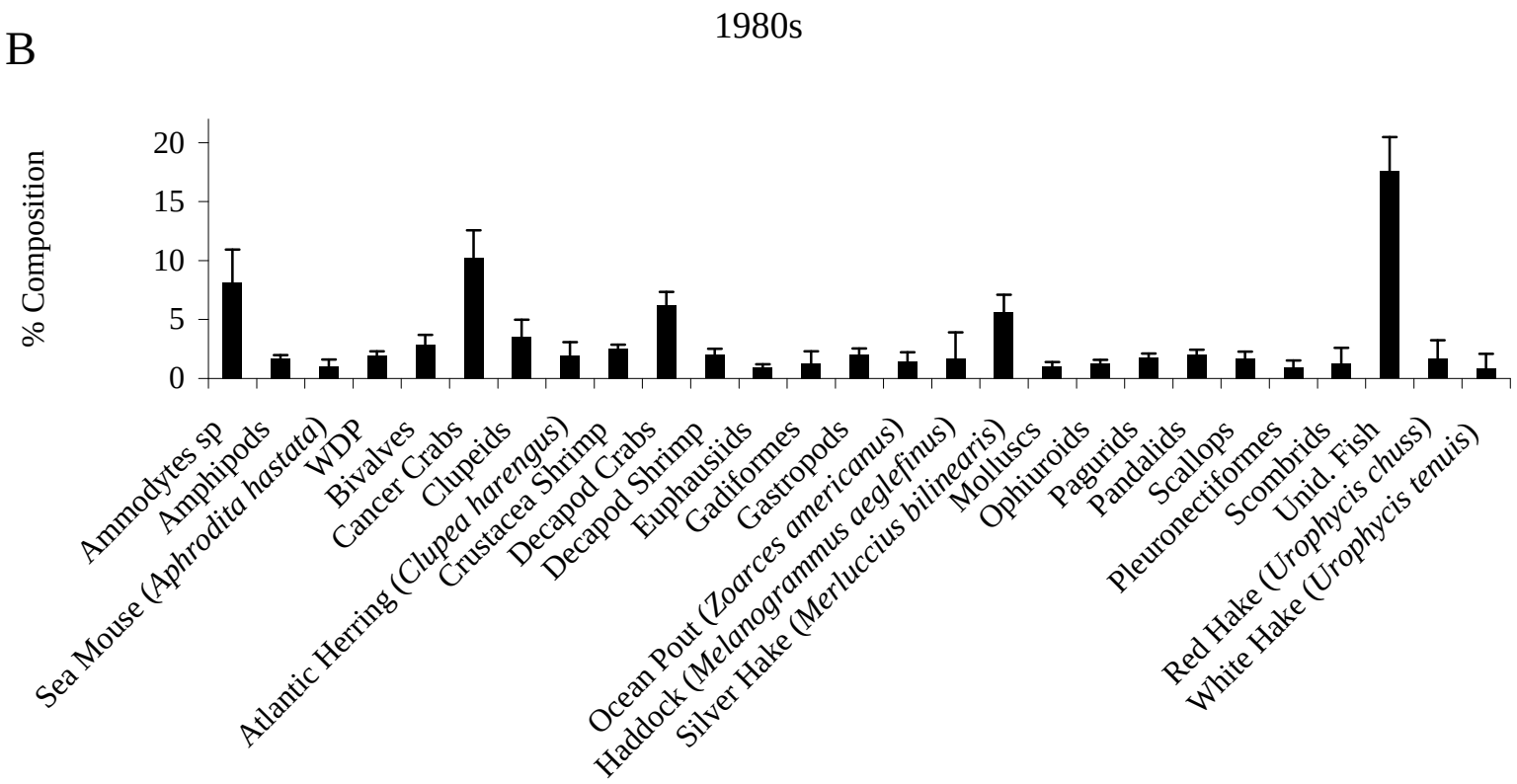

Figure 66B. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected in the 1980s (n = 6,389). WDP = well-digested prey; Unid. Fish = unidentified fish.

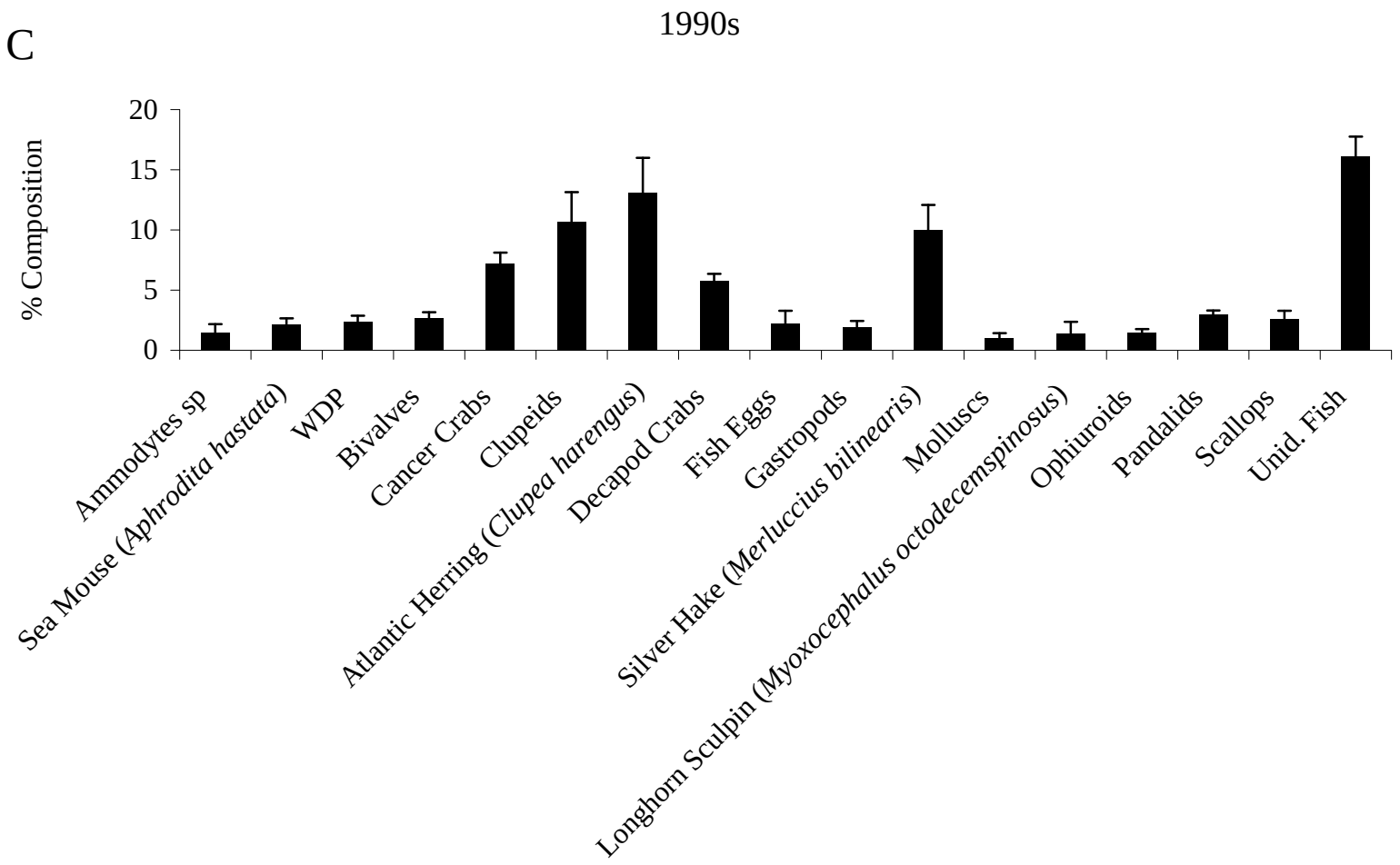

Figure 66C. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected in the 1990s (n = 8,252). WDP = well-digested prey; Unid. Fish = unidentified fish.

D

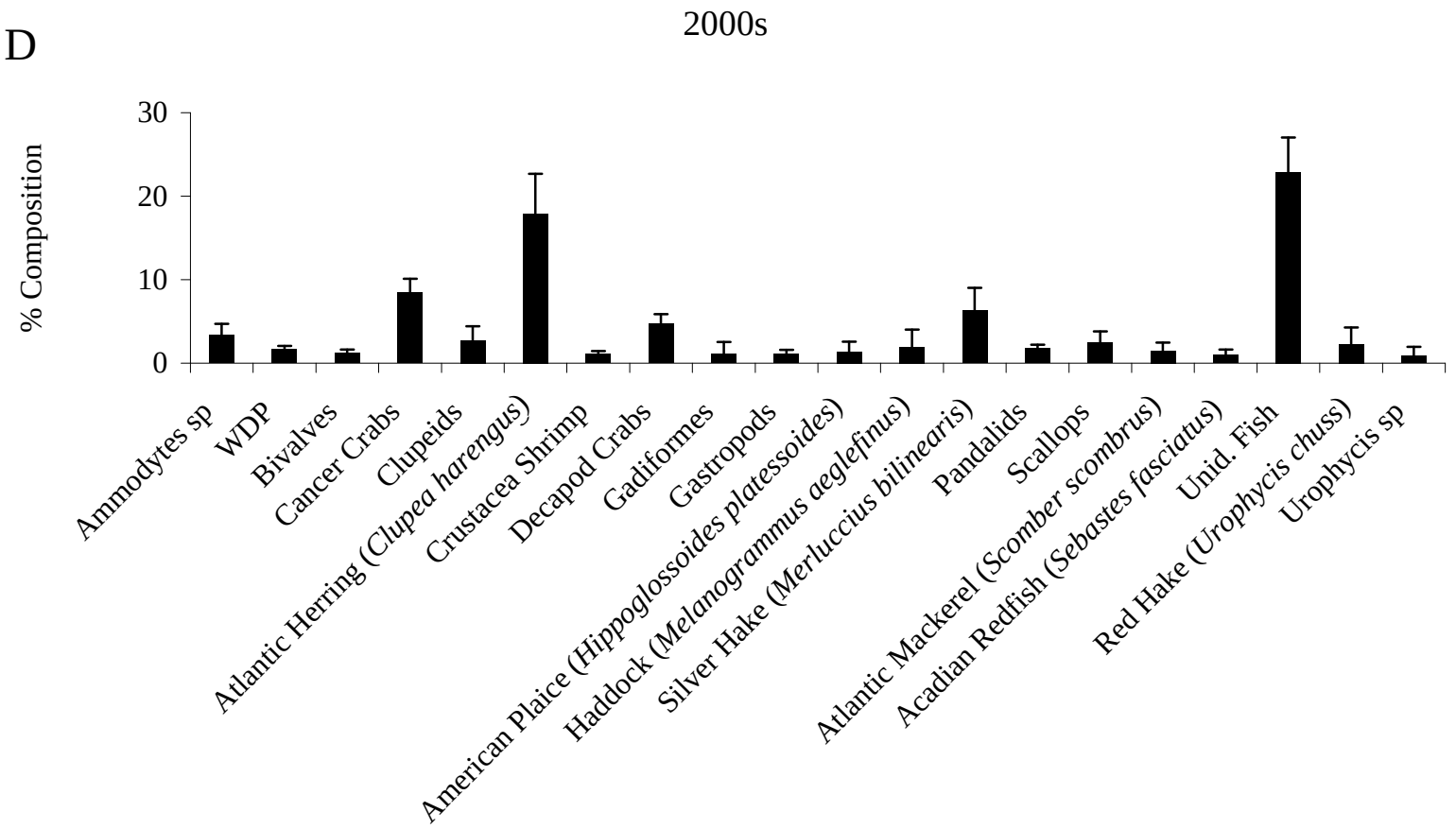

Figure 66D. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected collected in the 2000s (n = 3,064). WDP = well-digested prey; Unid. Fish = unidentified fish.

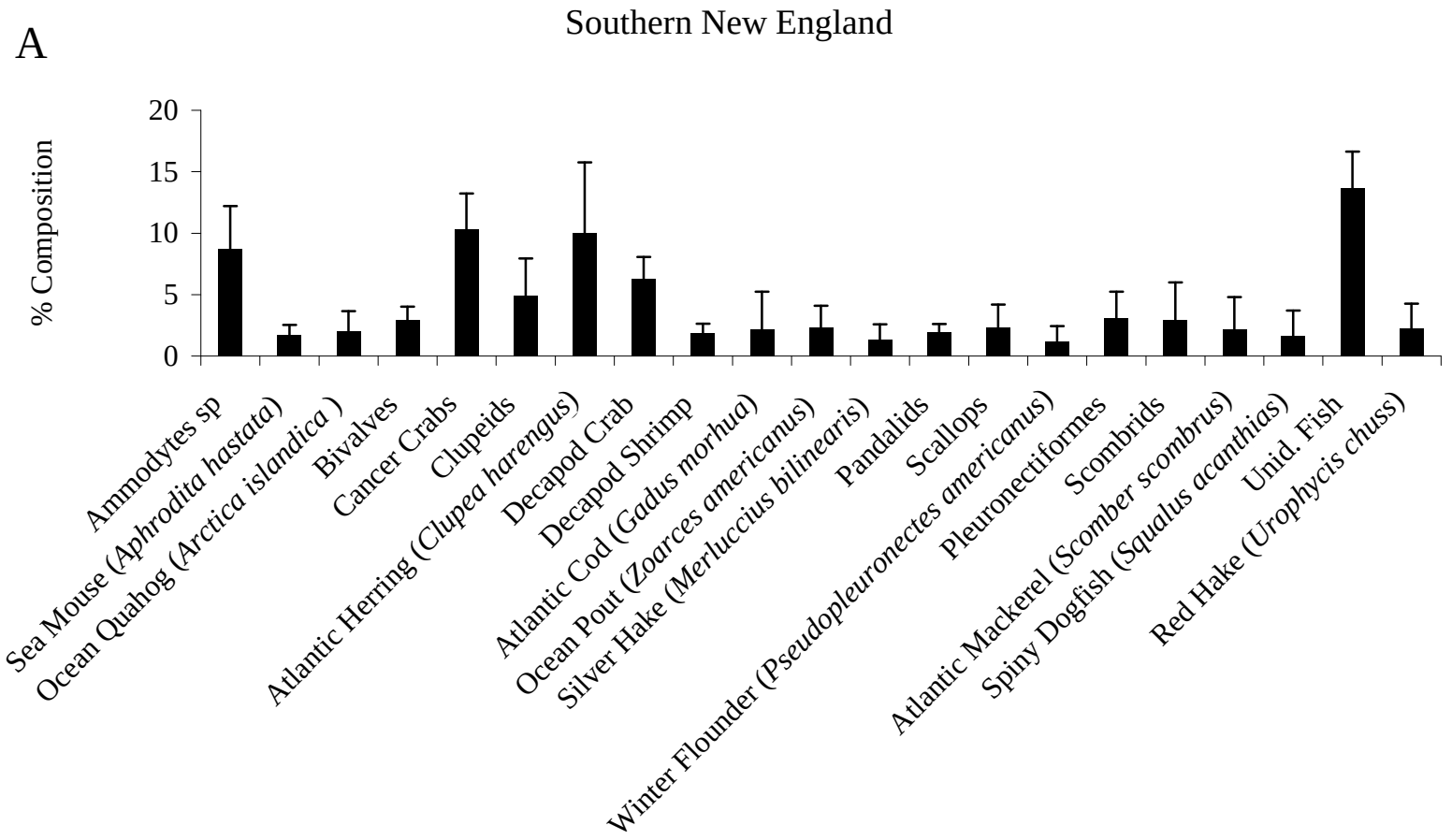

Figure 67A. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected in Southern New England (n = 1,226). Unid. Fish = unidentified fish.

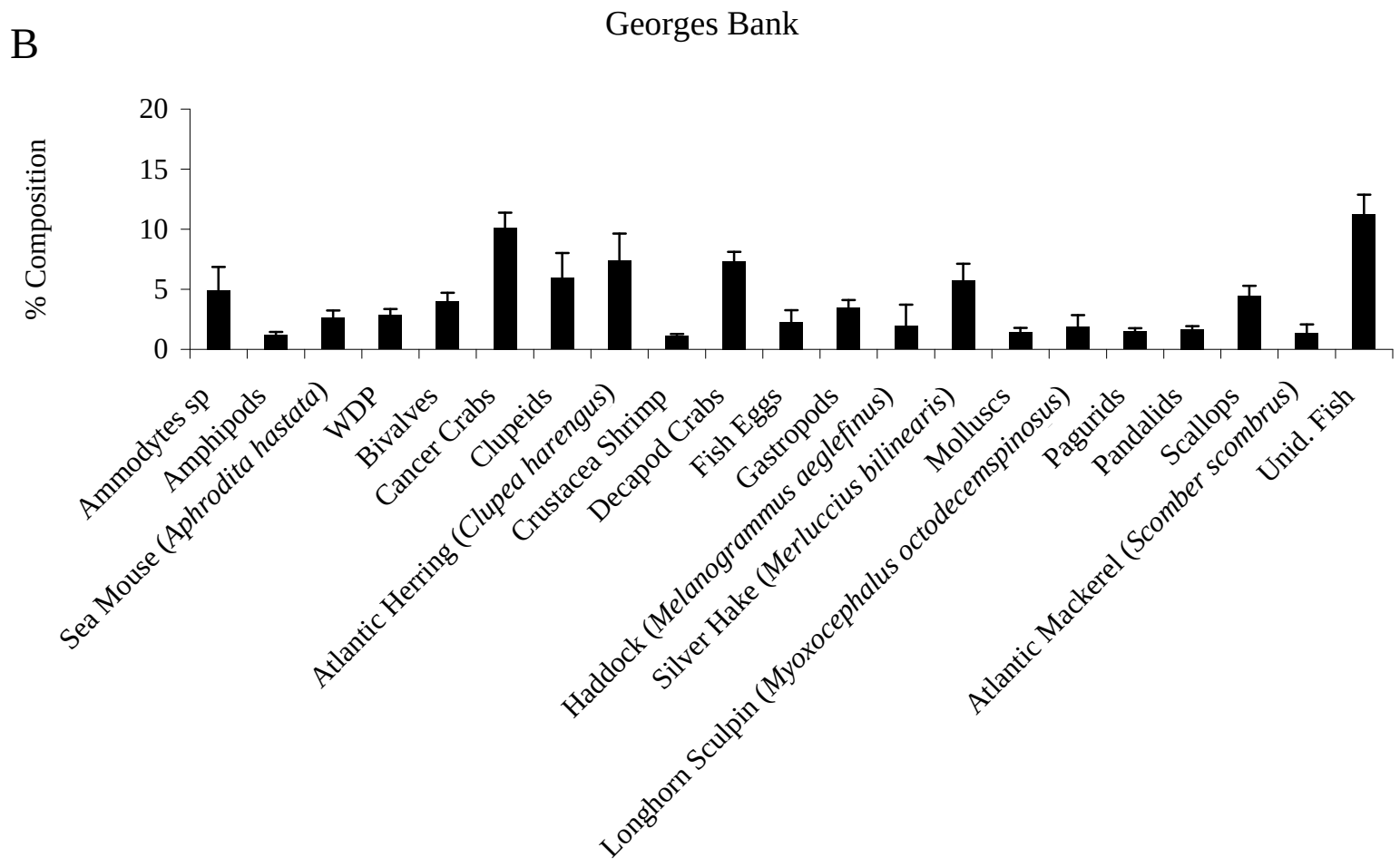

Figure 67B. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected on Georges Bank (n = 8,041). WDP = well-digested prey; Unid. Fish = unidentified fish.

C

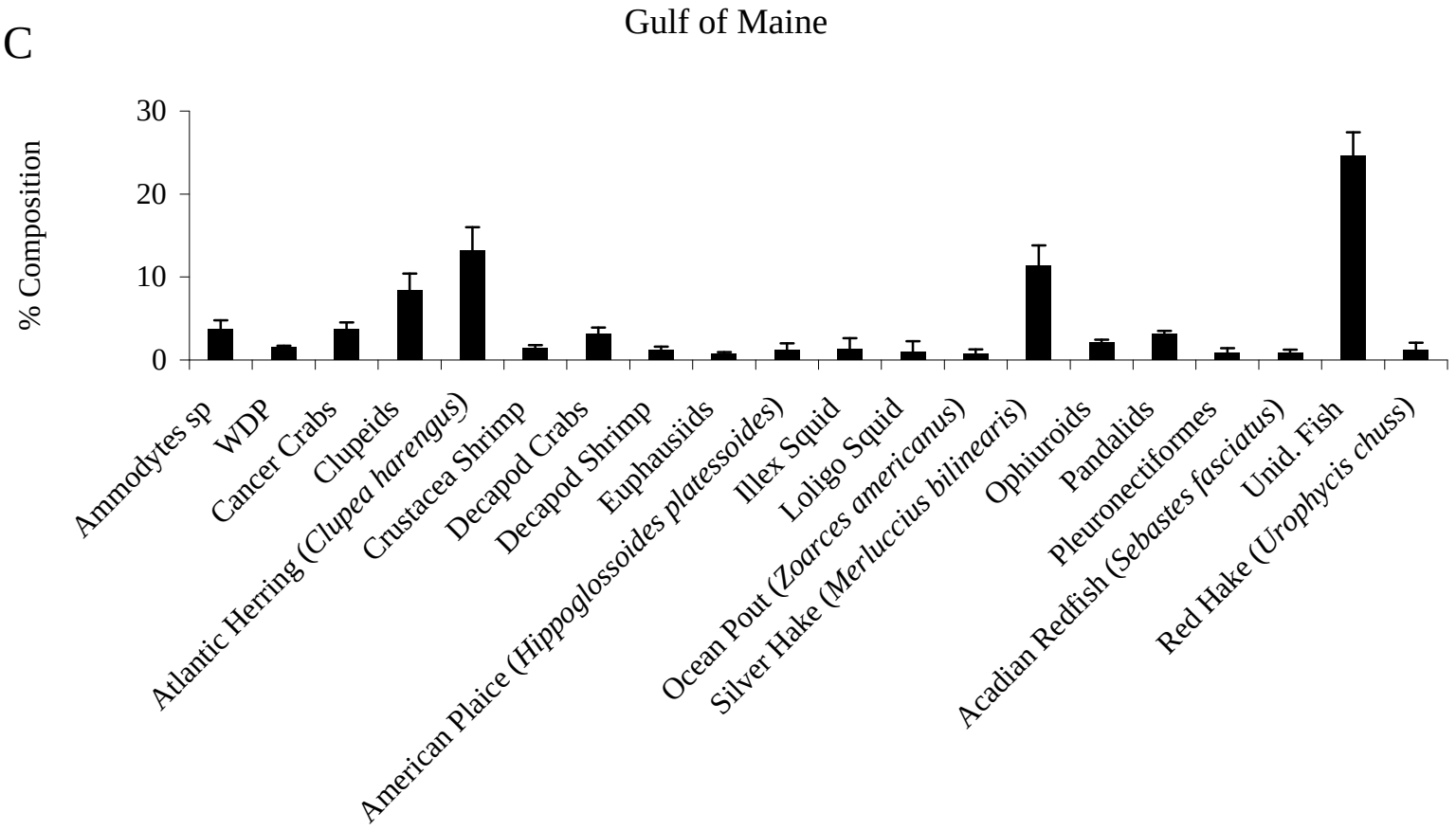

Figure 67C. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected in Gulf of Maine (n = 7,882). WDP = well-digested prey; Unid. Fish = unidentified fish.

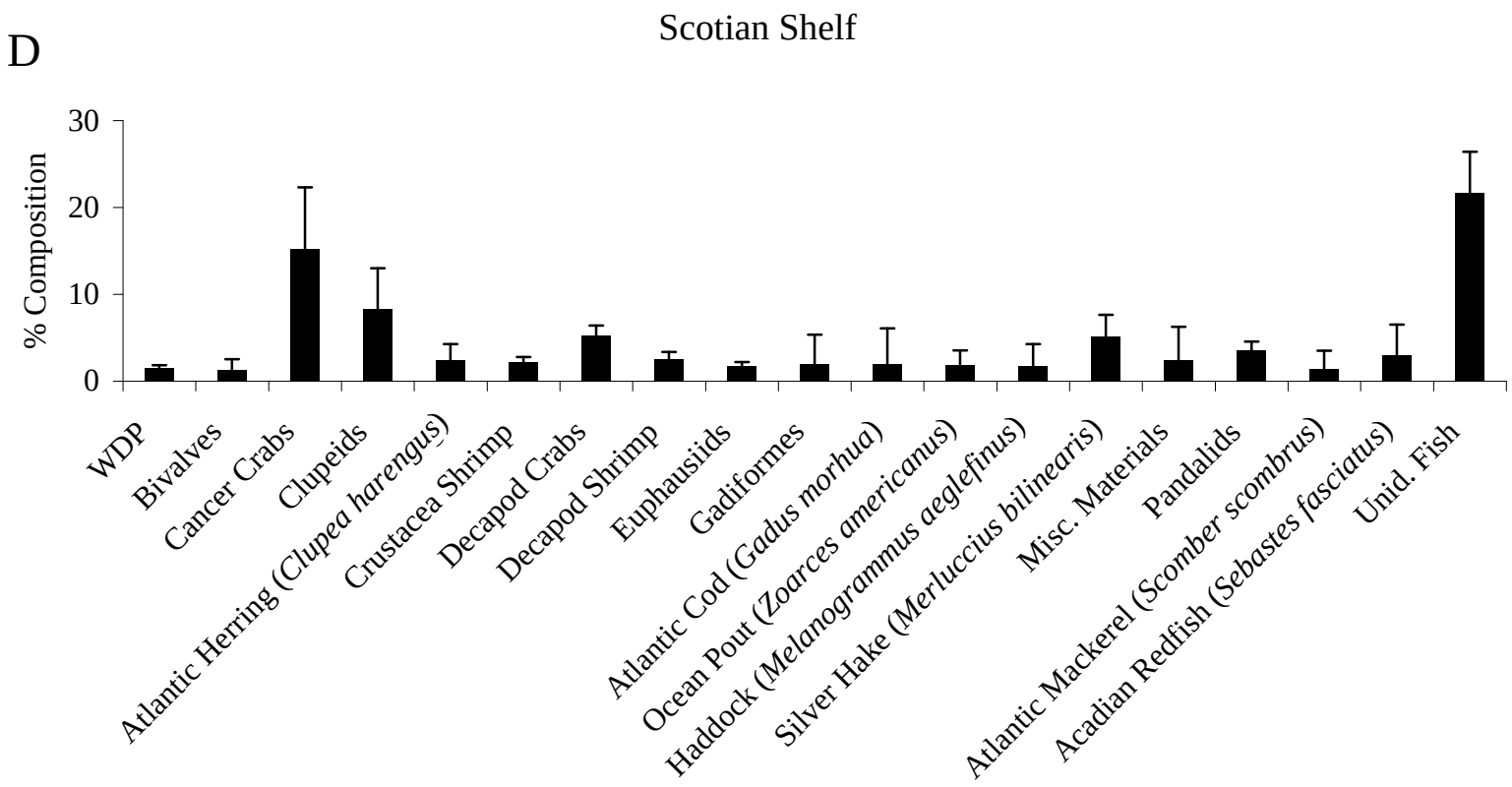

Figure 67D. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected on the Scotian Shelf (n = 2,417). WDP = well-digested prey; Unid. Fish = unidentified fish.

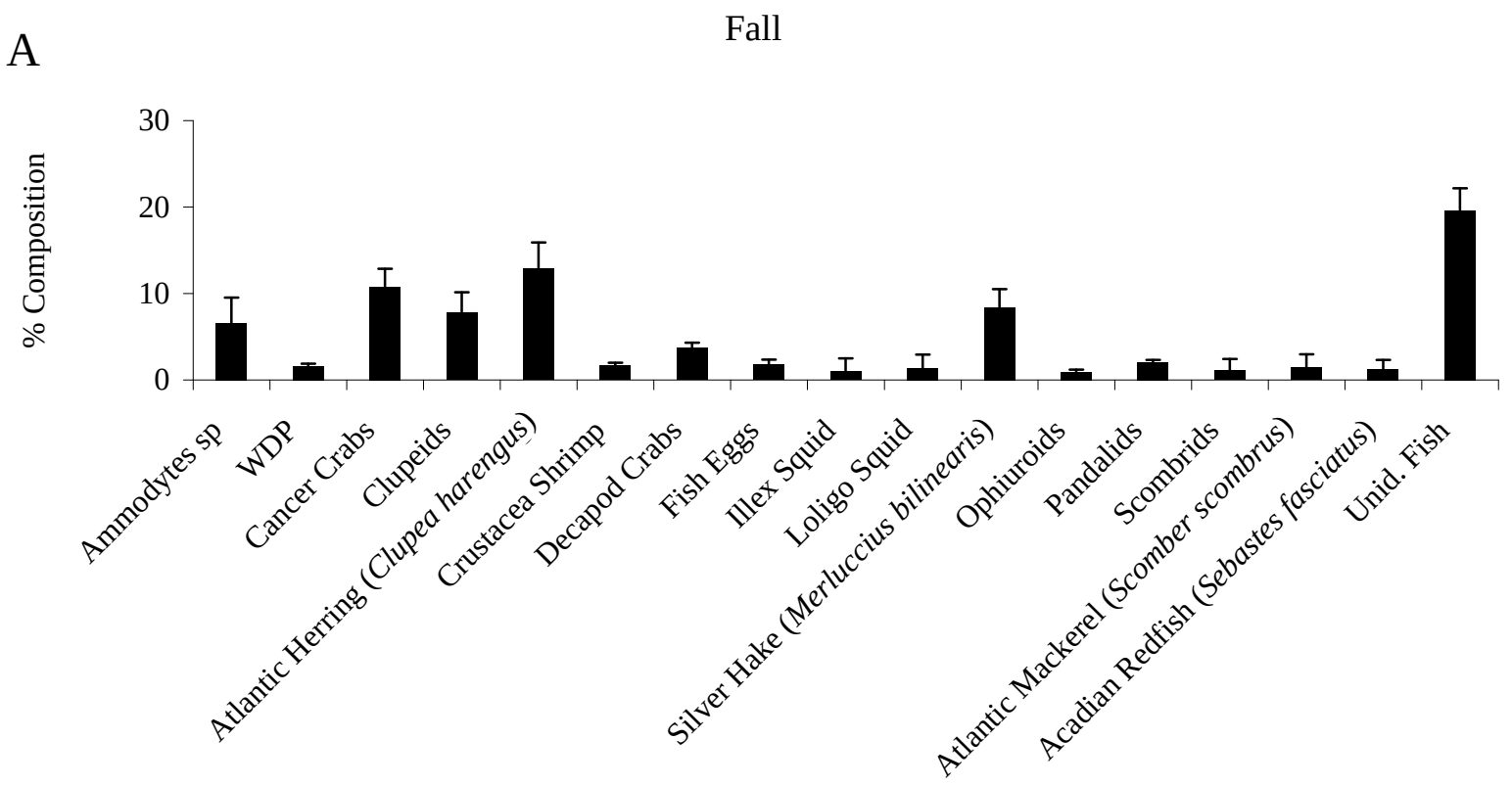

Figure 68A. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected in the fall (n = 7,170). WDP = well-digested prey; Unid. Fish = unidentified fish.

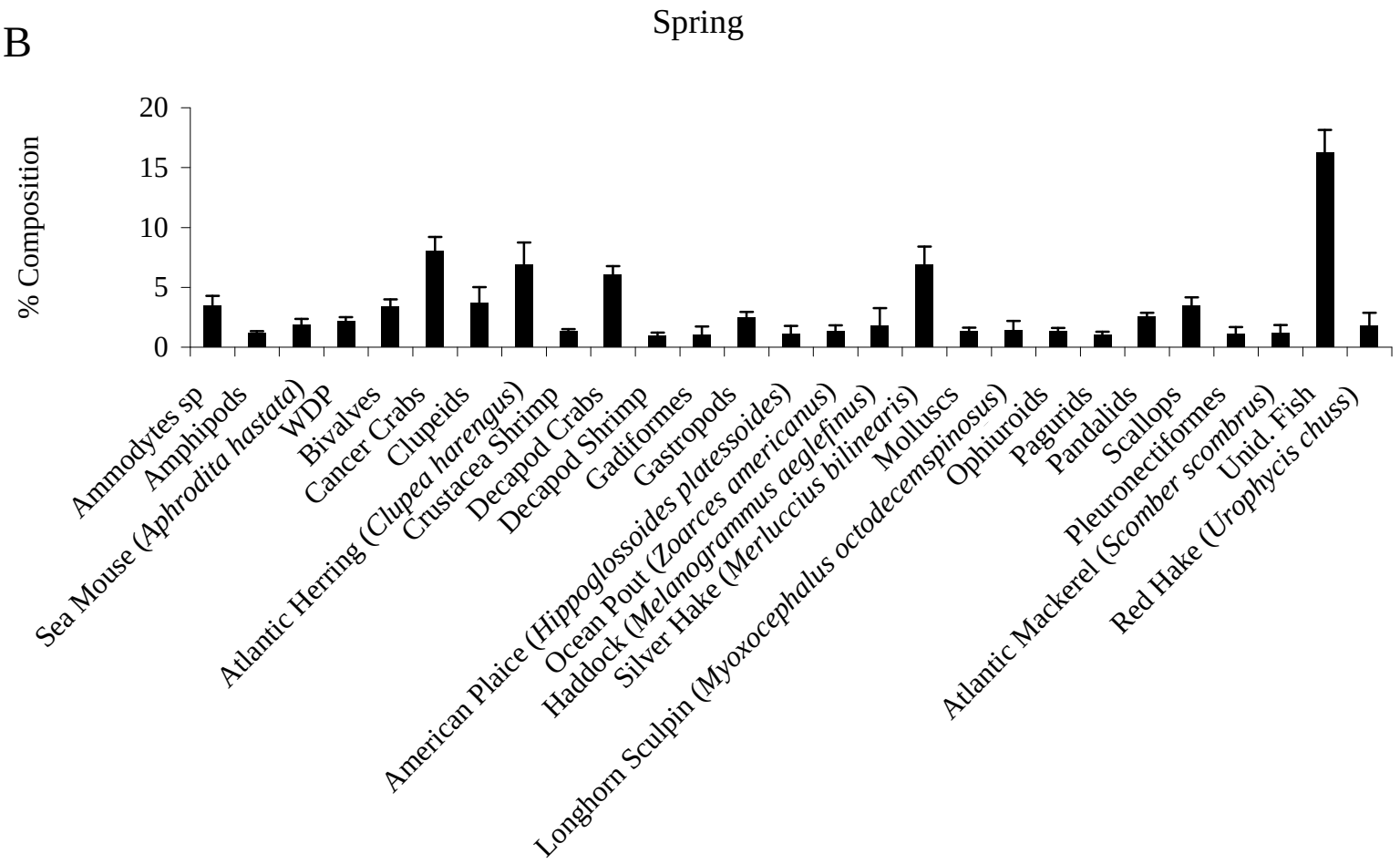

Figure 68B. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected collected in the spring (n = 10,114). WDP = well-digested prey; Unid. Fish = unidentified fish.

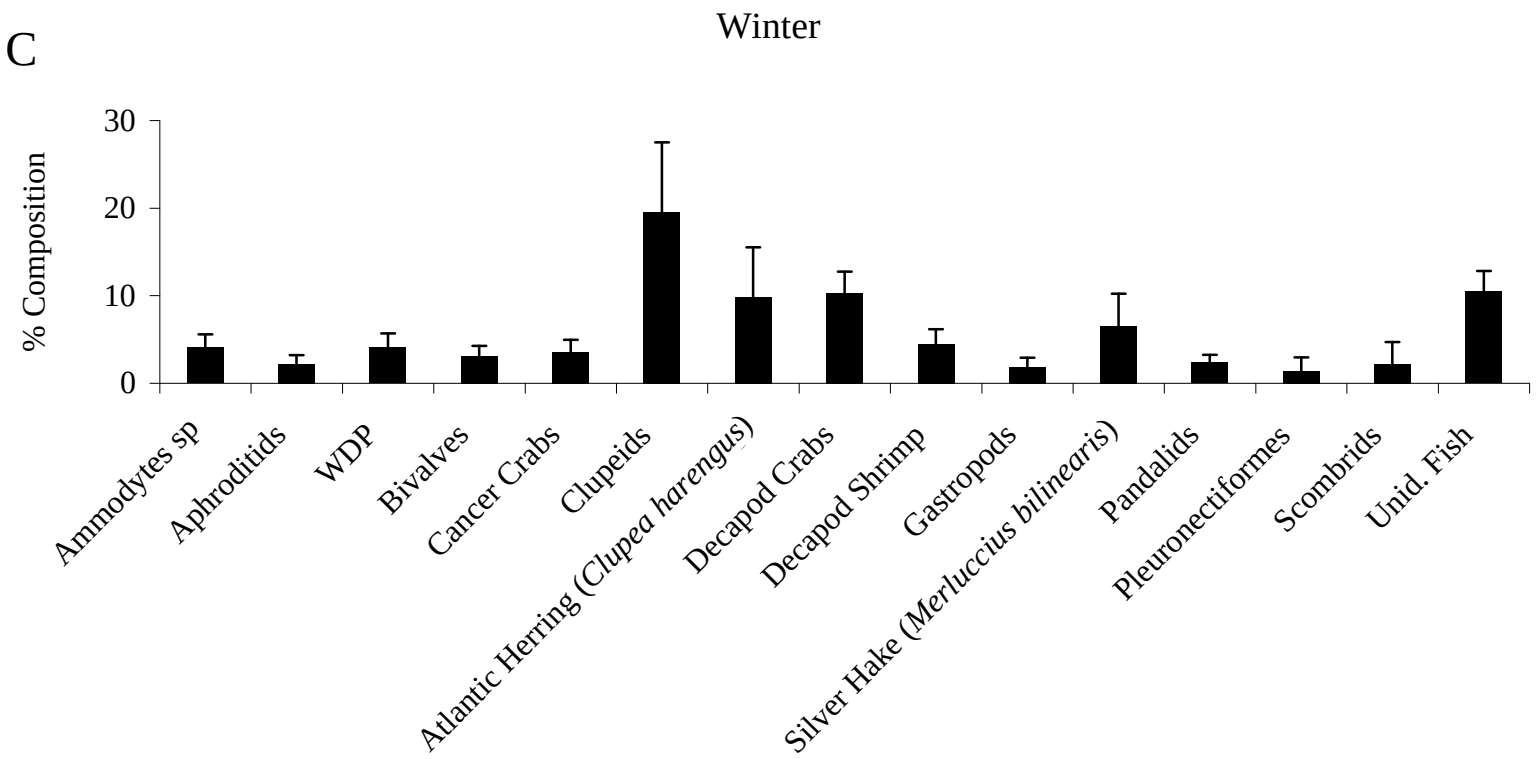

Figure 68C. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected in the winter (n = 1,389). WDP = well-digested prey; Unid. Fish = unidentified fish.

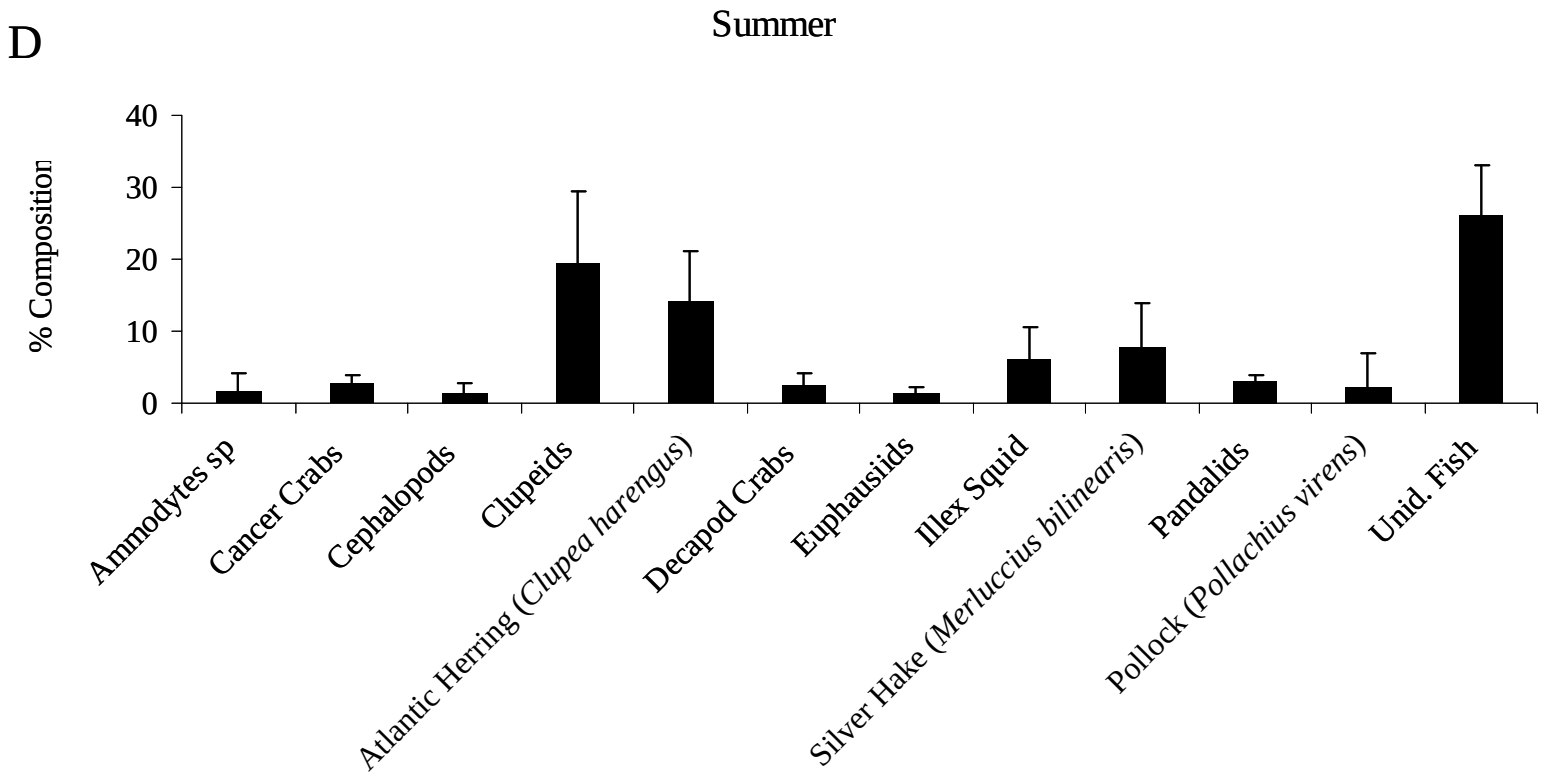

Figure 68D. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) collected in the summer (n = 972). Unid. Fish = unidentified fish.

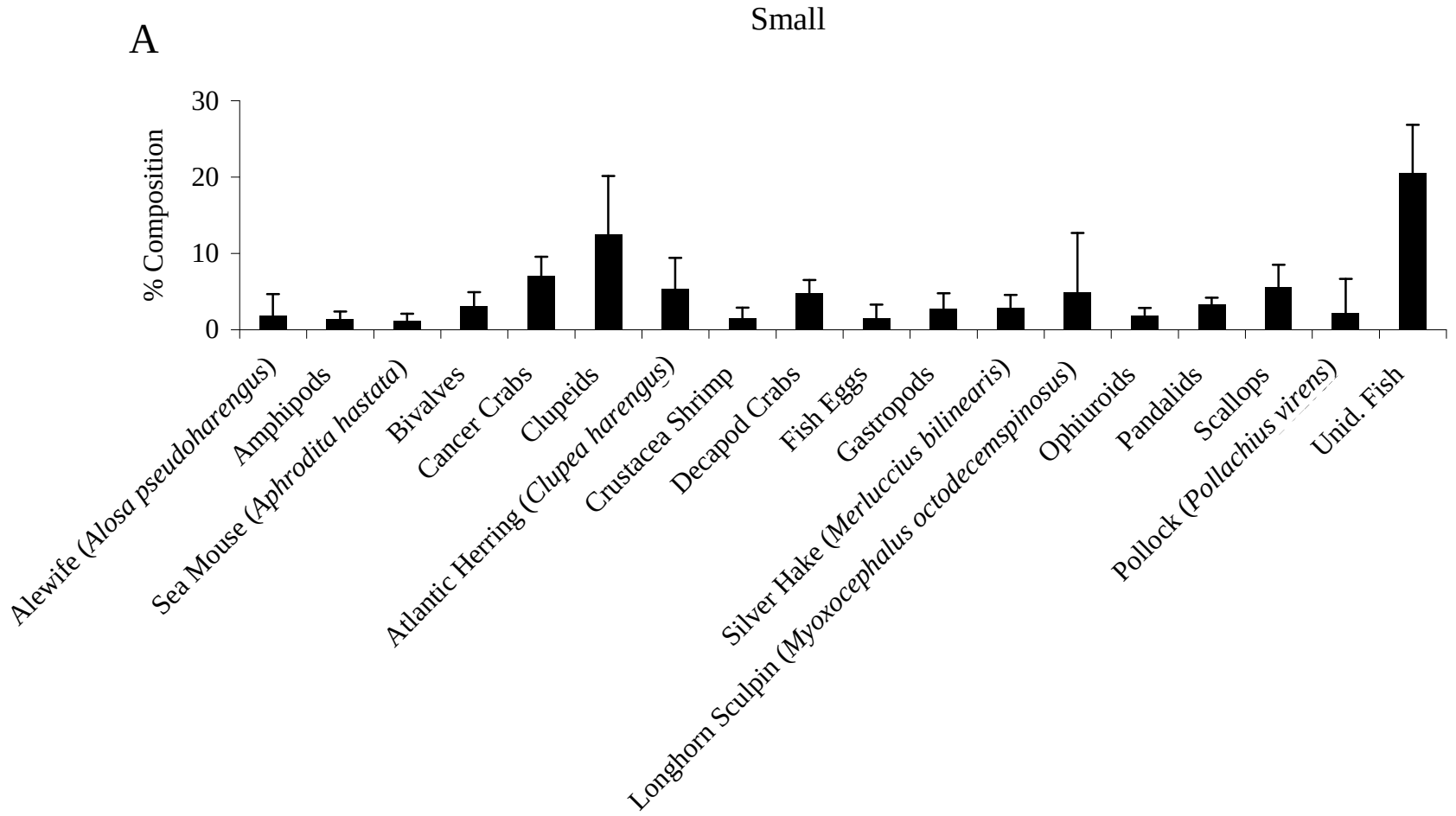

Figure 69A. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) in the small size class (n = 1,827). Unid. Fish = unidentified fish.

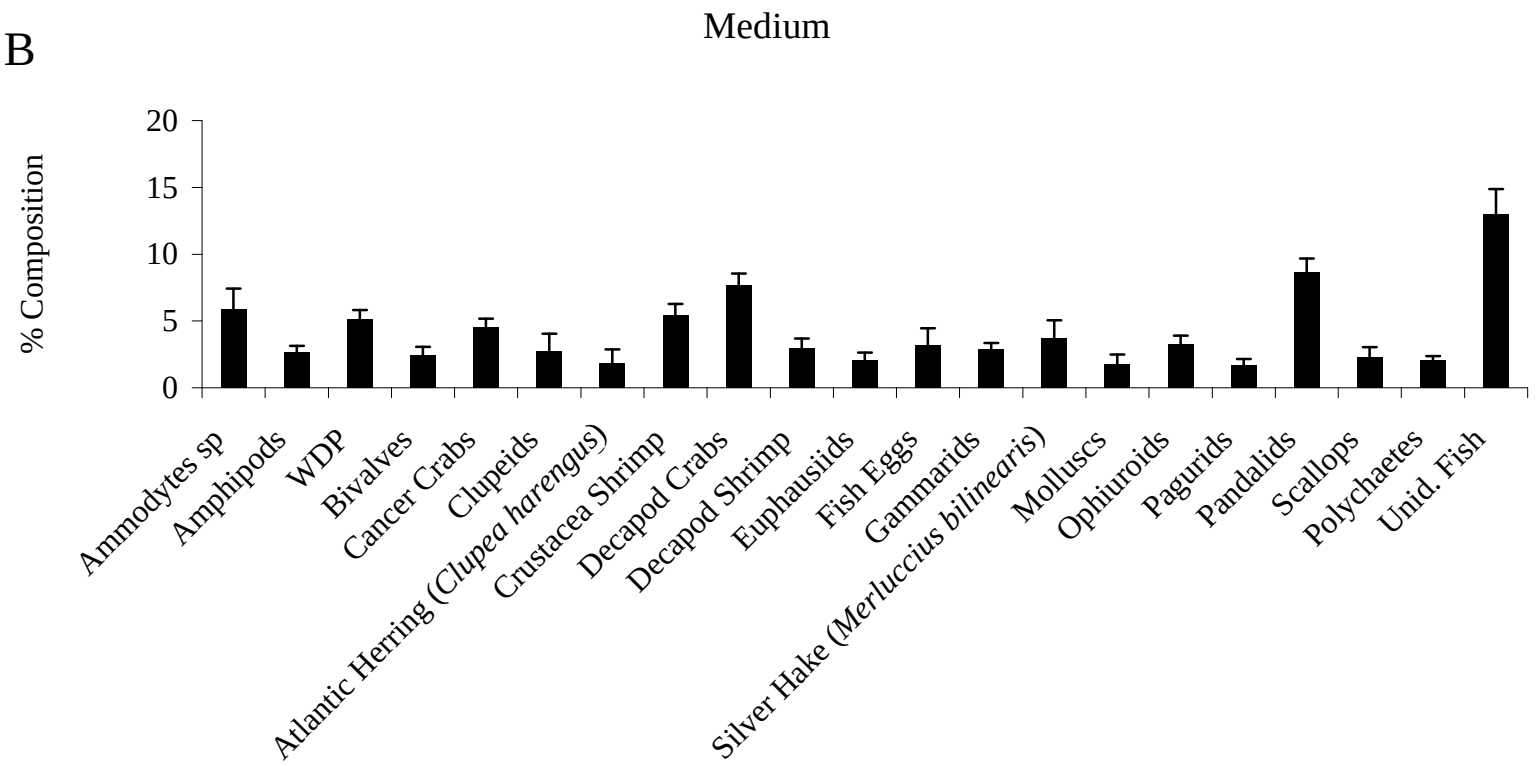

Figure 69B. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) in the medium size class (n = 7,749). WDP = well-digested prey; Unid. Fish = unidentified fish.

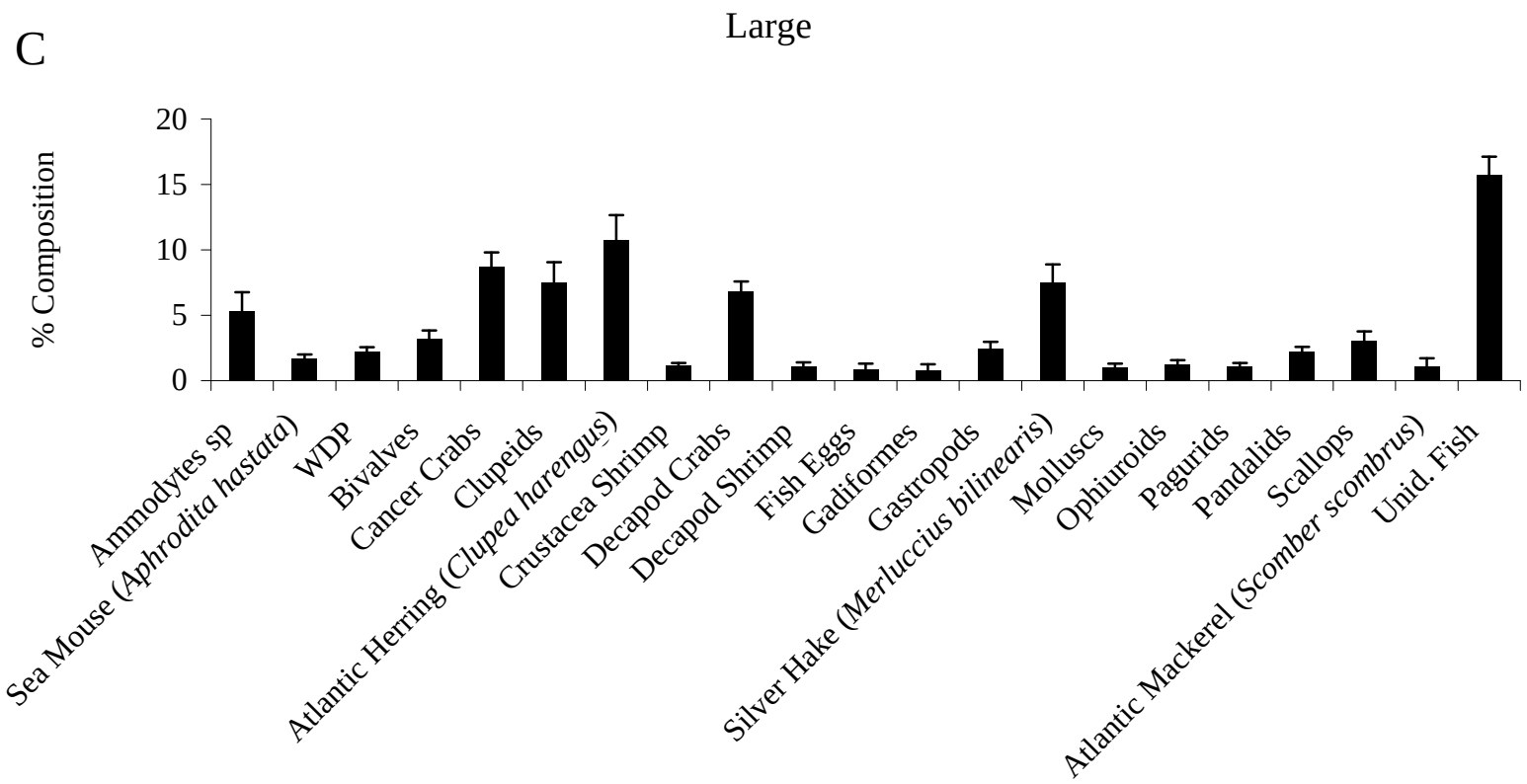

Figure 69C. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) in the large size class (n = 8,223). WDP = well-digested prey; Unid. Fish = unidentified fish.

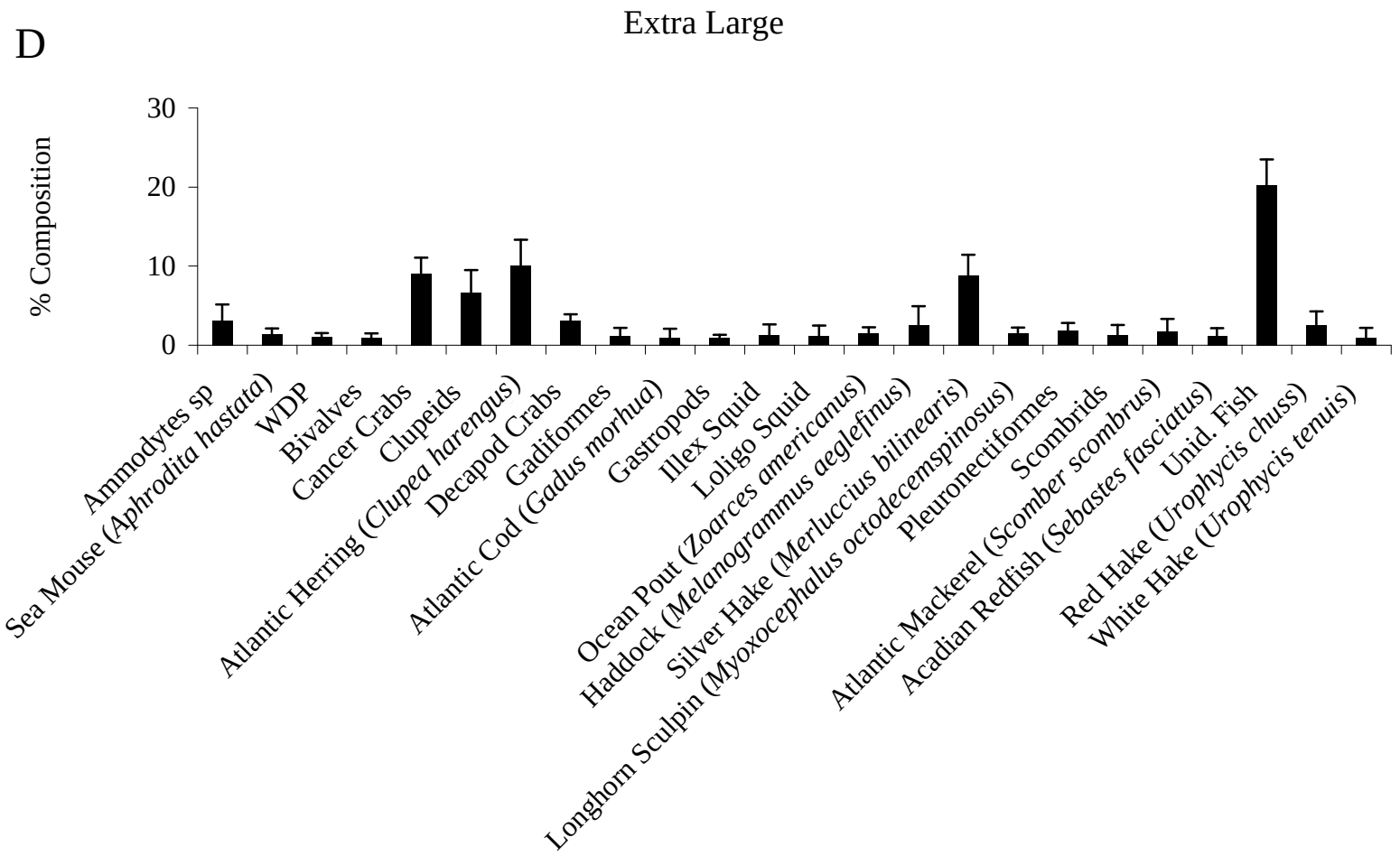

Figure 69D. Percent diet composition by weight of major prey taxa for Atlantic cod (*Gadus morhua*) in the extra-large size class (n = 1,846). WDP = well-digested prey; Unid. Fish = unidentified fish.

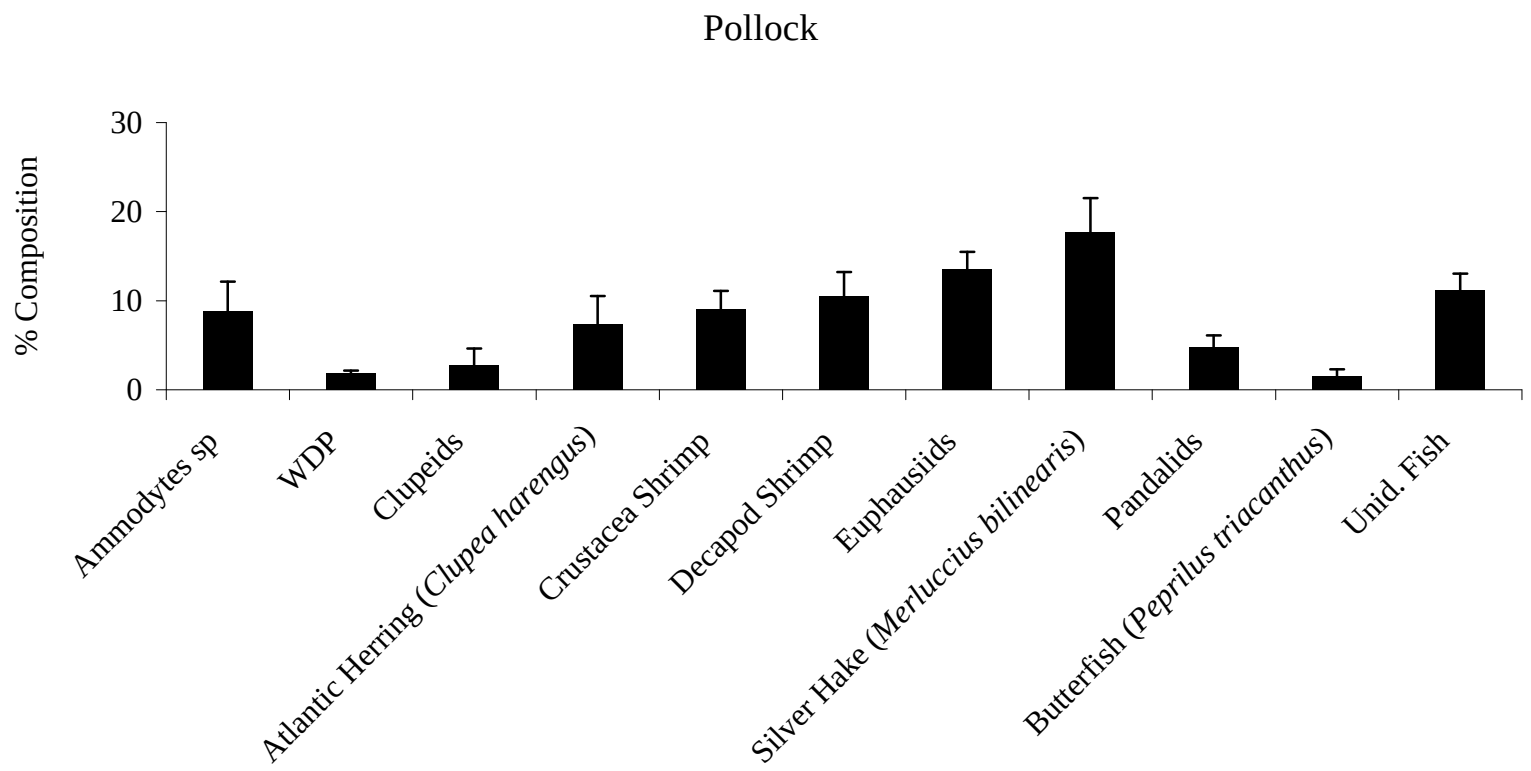

Figure 70. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*; n = 5,820). WDP = well-digested prey; Unid. Fish = unidentified fish.

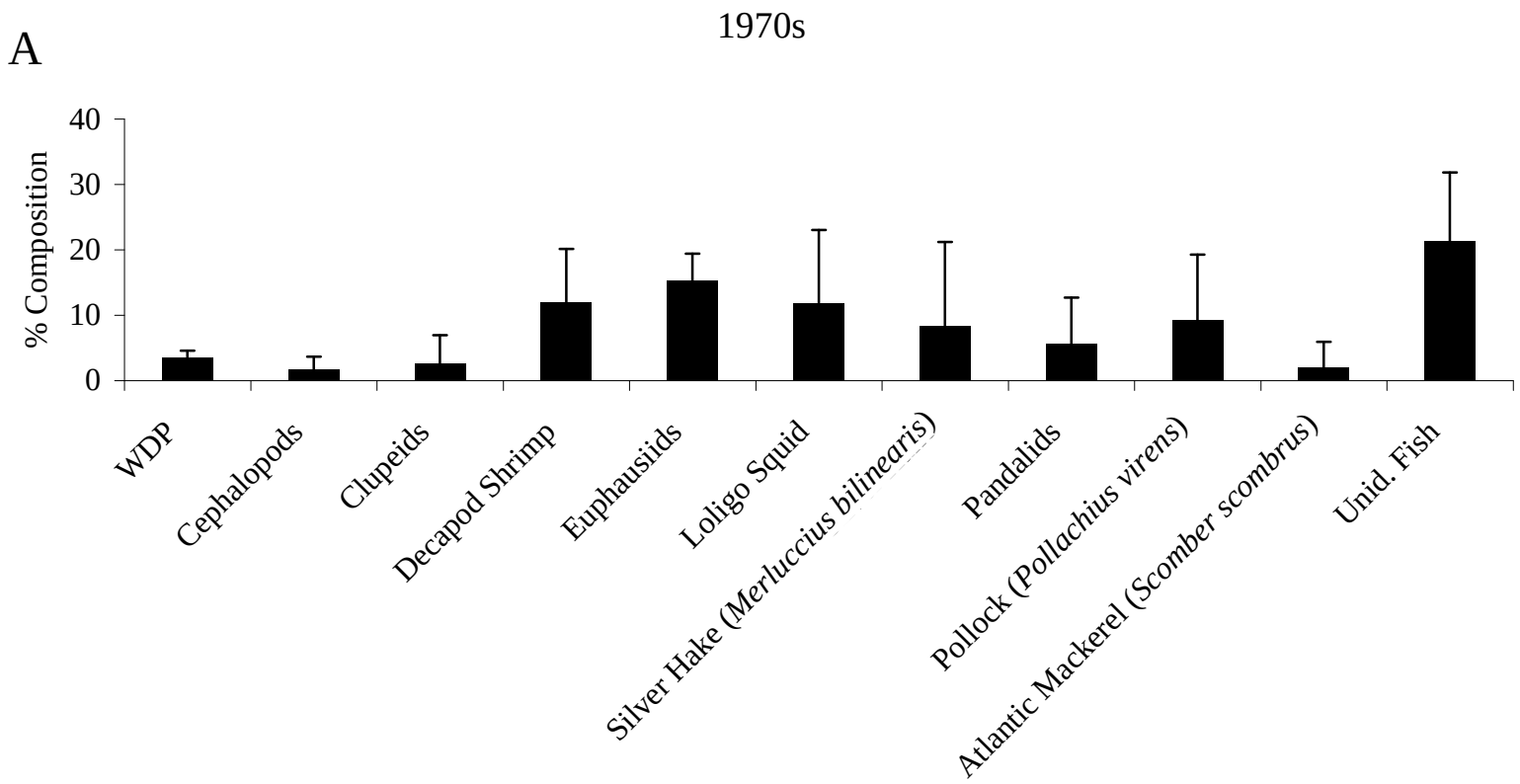

Figure 71A. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected in the 1970s (n = 630). WDP = well-digested prey; Unid. Fish = unidentified fish.

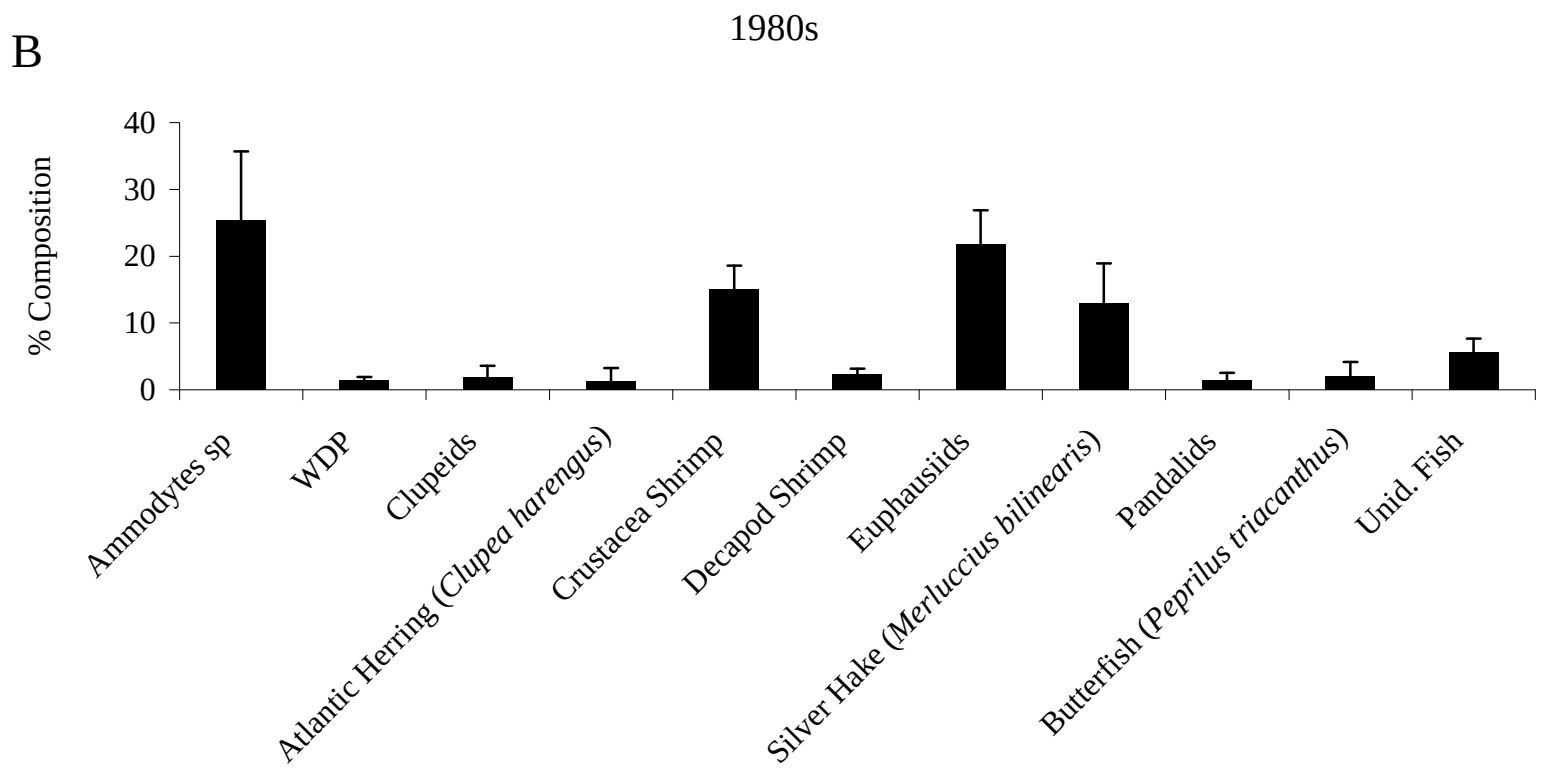

Figure 71B. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected in the 1980s (n = 1,579). WDP = well-digested prey; Unid. Fish = unidentified fish.

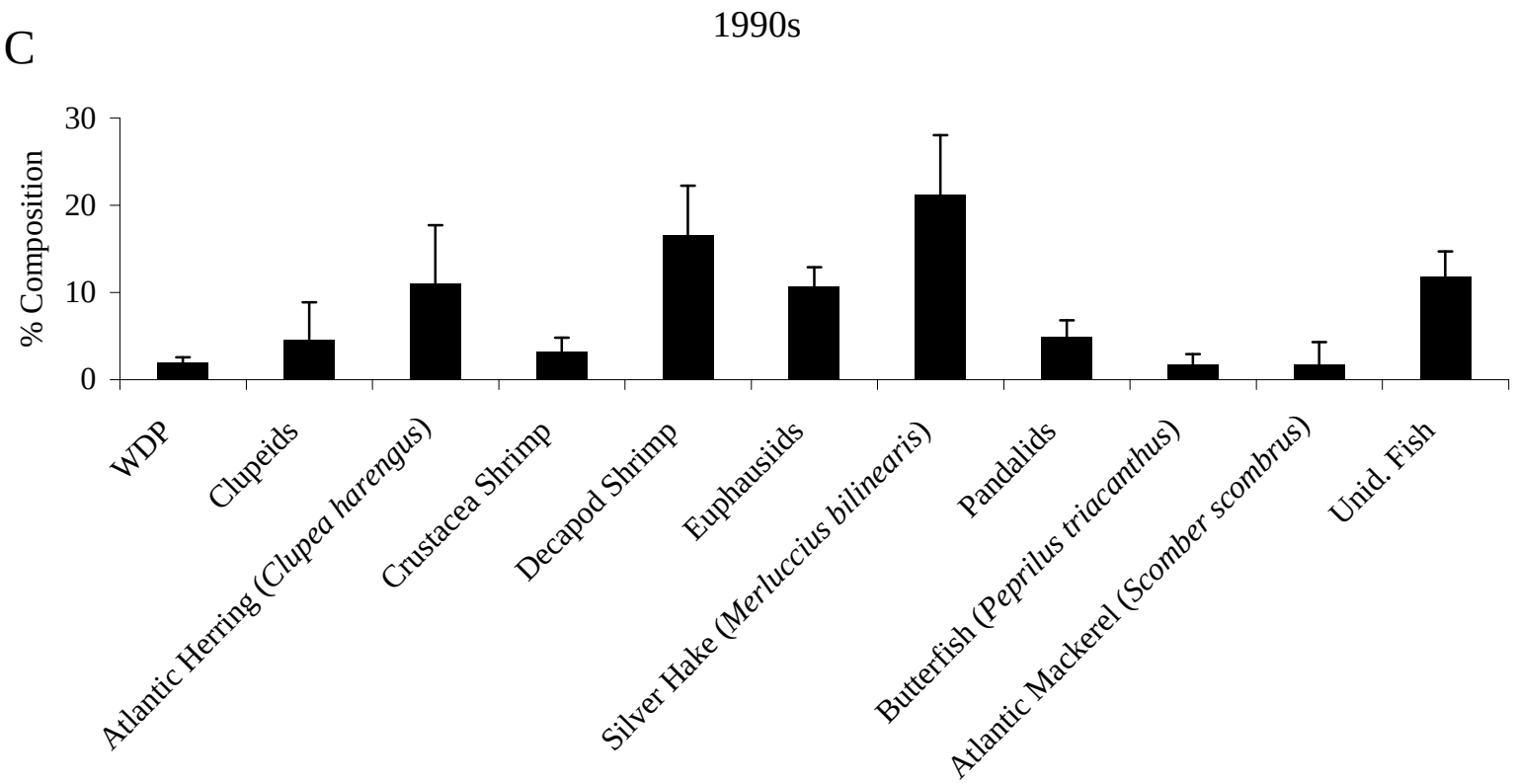

Figure 71C. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected in the 1990s (n = 2,413). WDP = well-digested prey; Unid. Fish = unidentified fish.

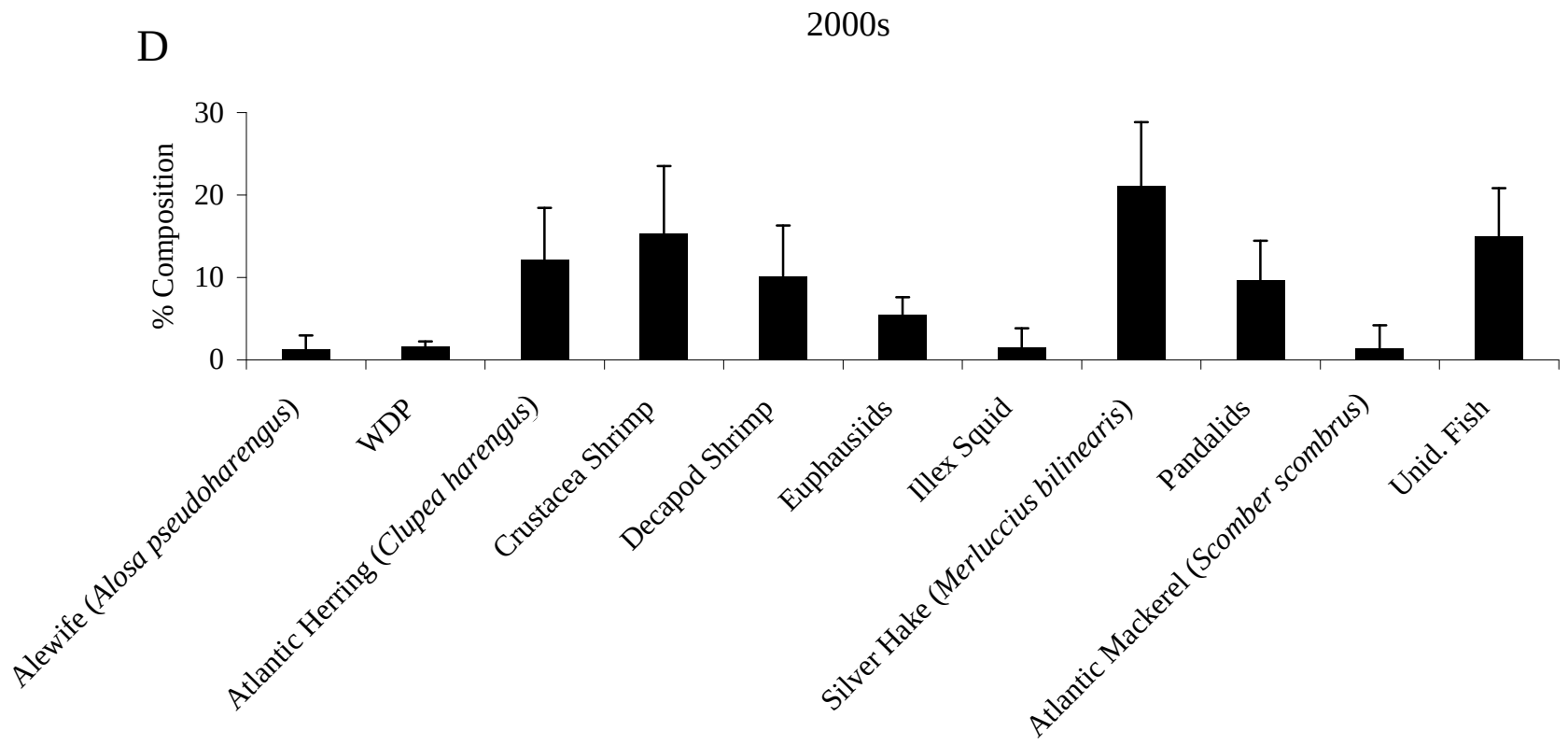

Figure 71D. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected in the 2000s (n = 1,198). WDP = well-digested prey; Unid. Fish = unidentified fish.

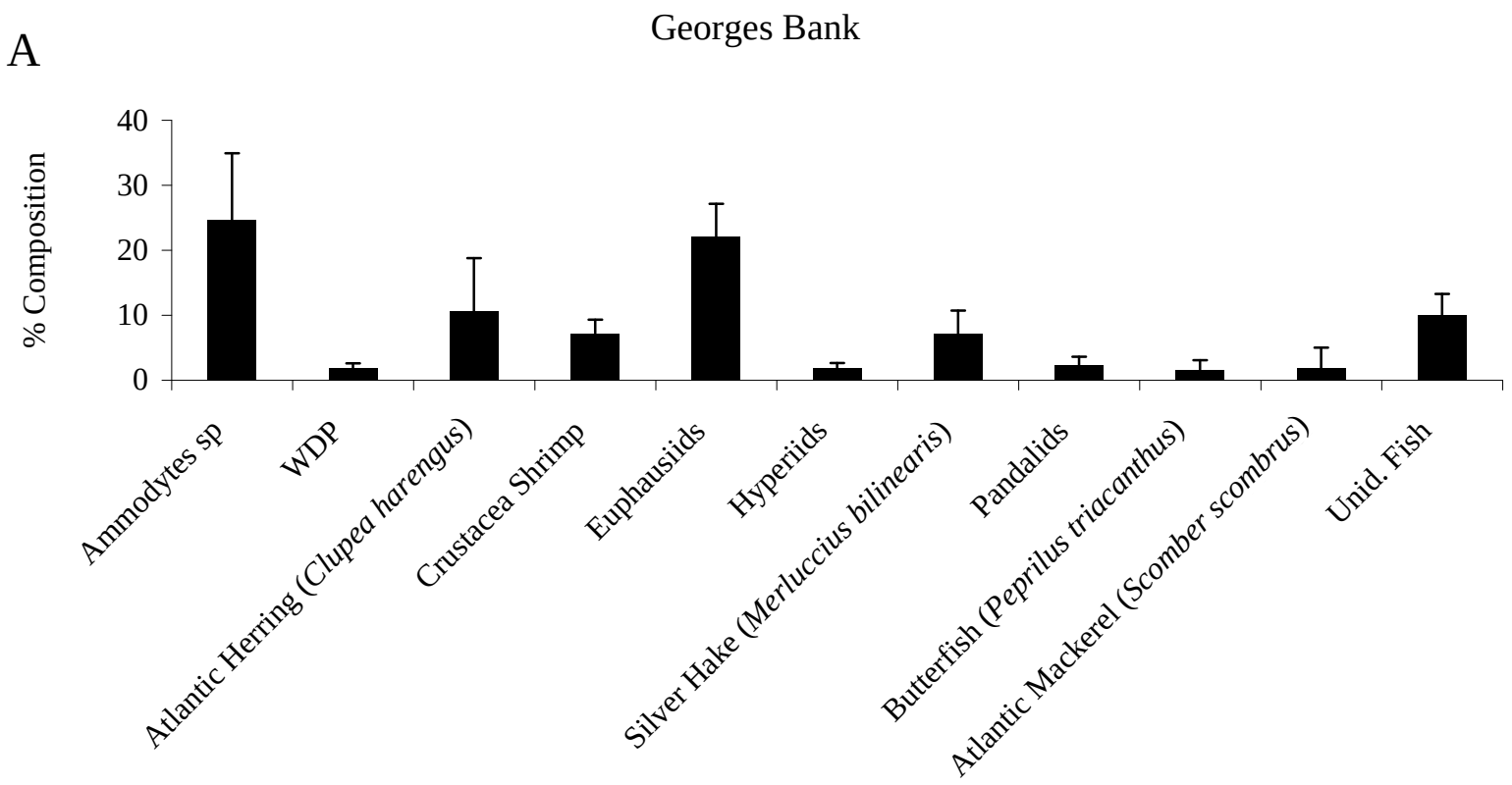

Figure 72A. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected on Georges Bank (n = 1,568). WDP = well-digested prey; Unid. Fish = unidentified fish.

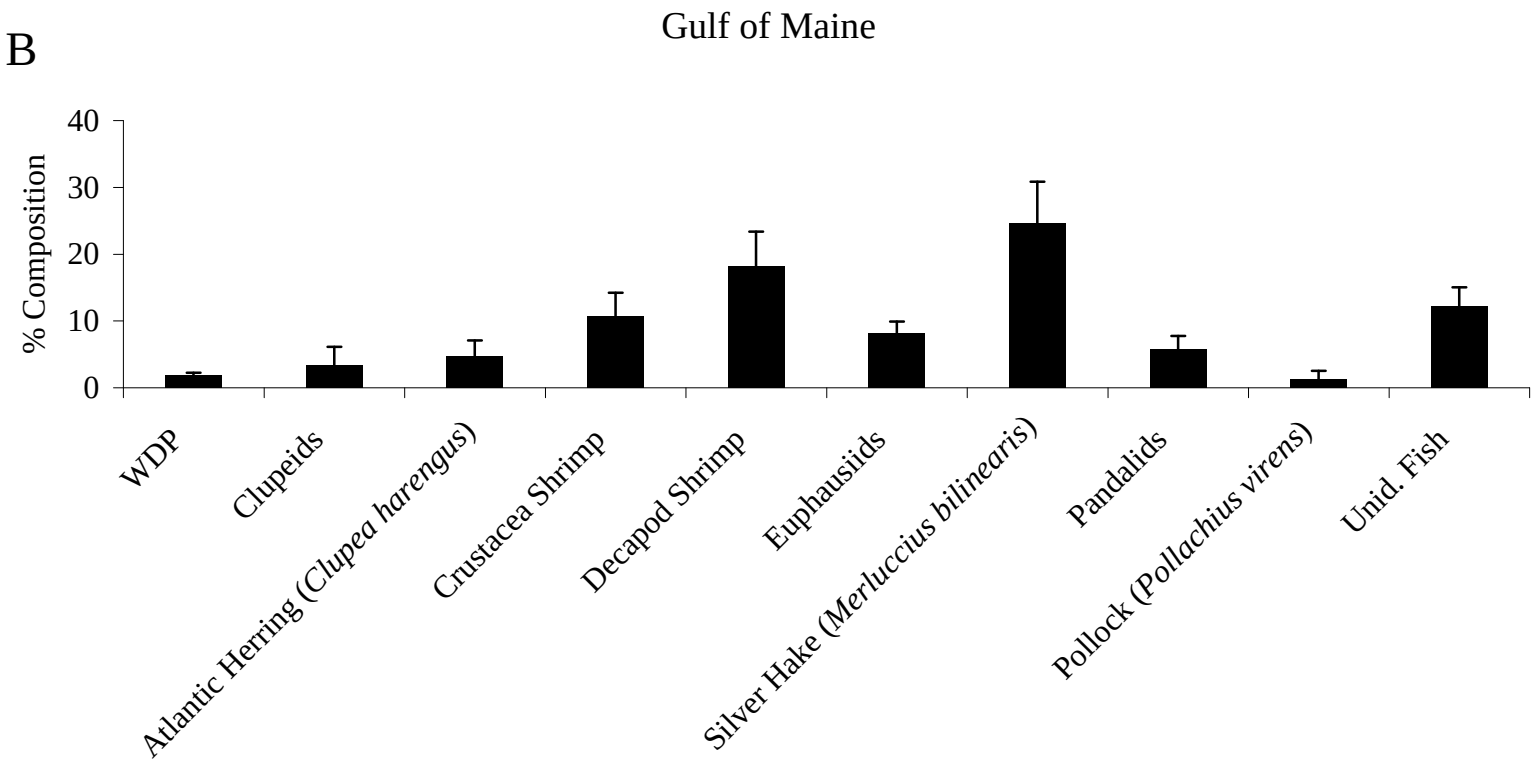

Figure 72B. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected collected in the Gulf of Maine (n = 3,132). WDP = well-digested prey; Unid. Fish = unidentified fish.

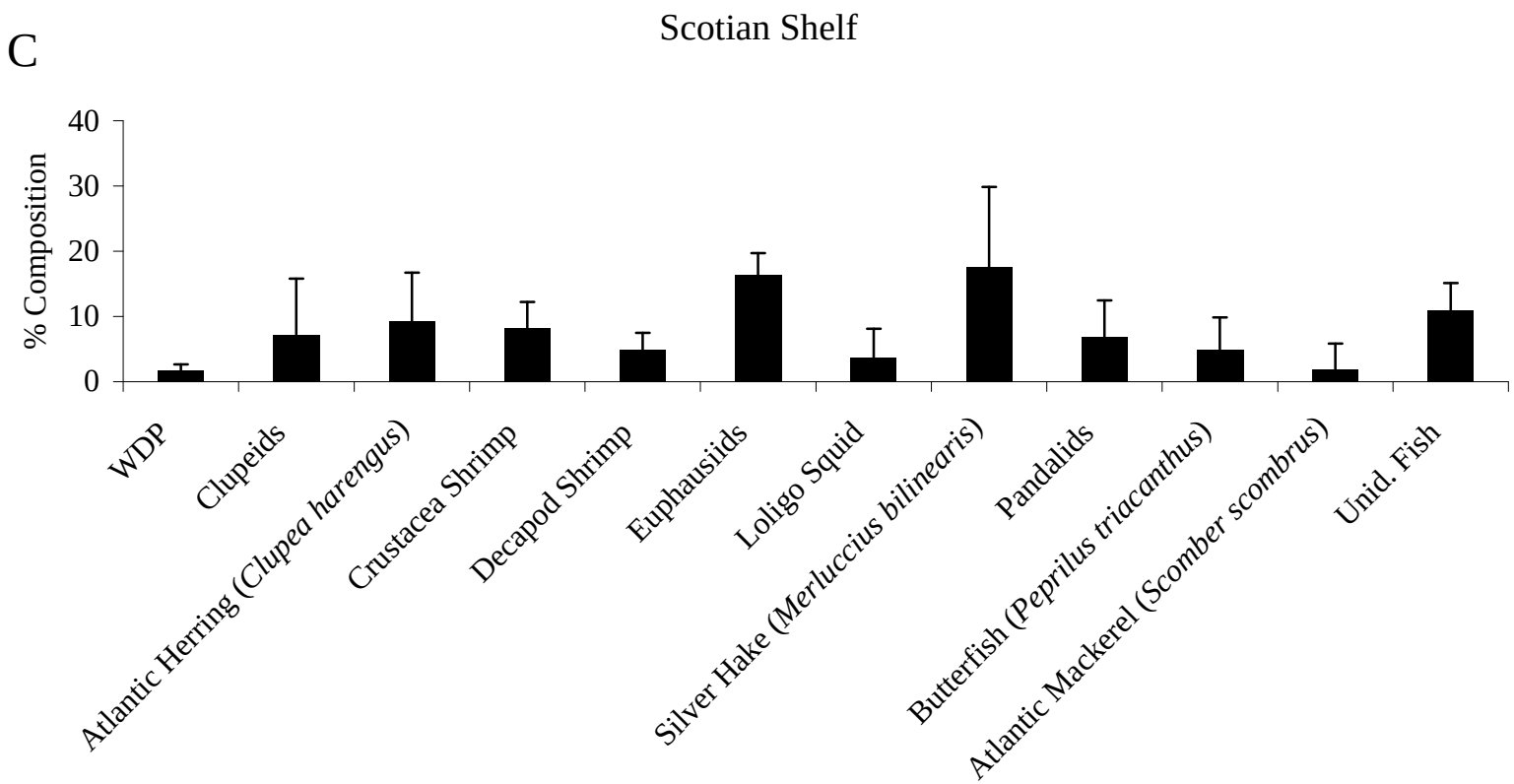

Figure 72C. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected on the Scotian Shelf (n = 1,045). WDP = well-digested prey; Unid. Fish = unidentified fish.

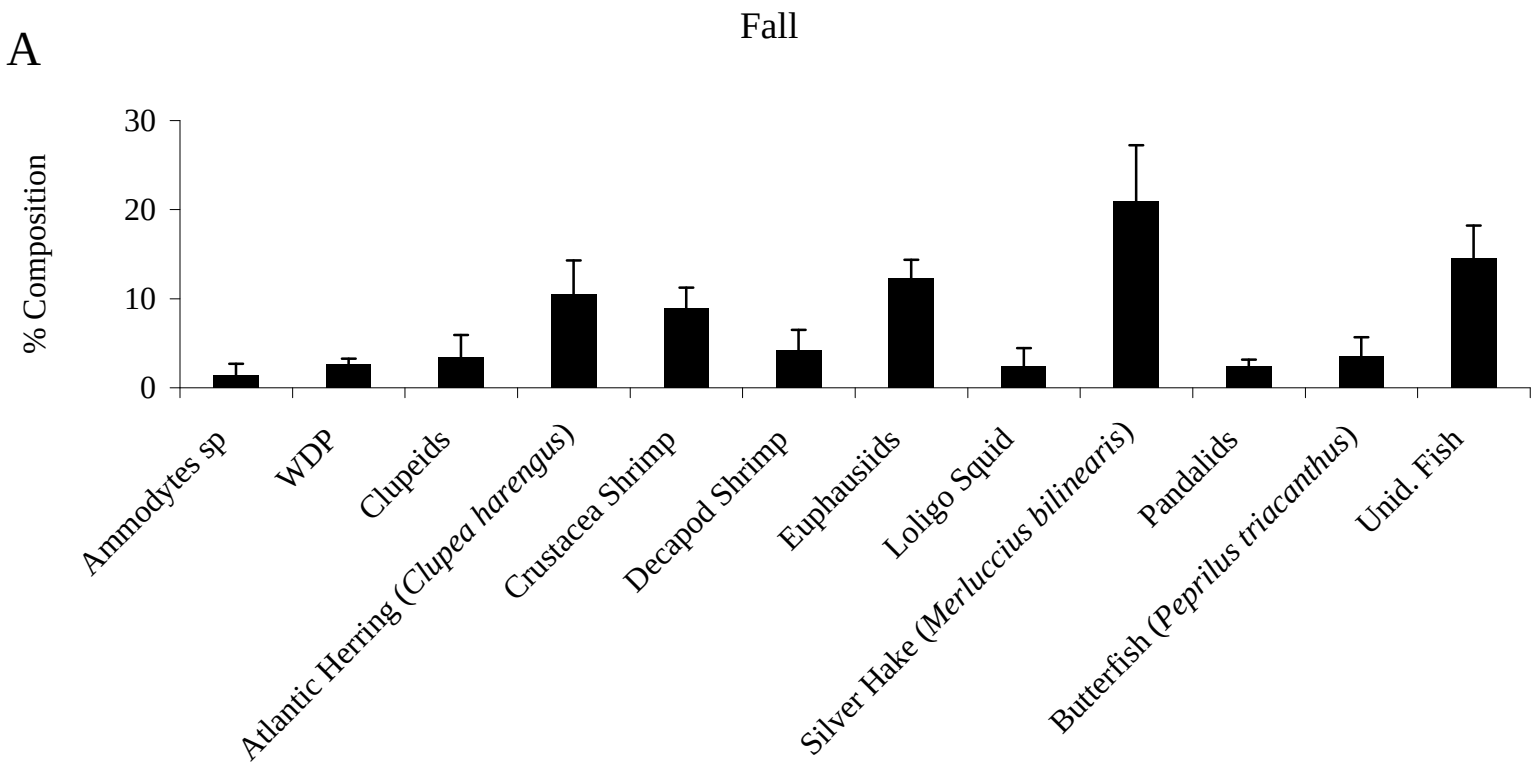

Figure 73A. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected in the fall (n = 2,551). WDP = well-digested prey; Unid. Fish = unidentified fish.

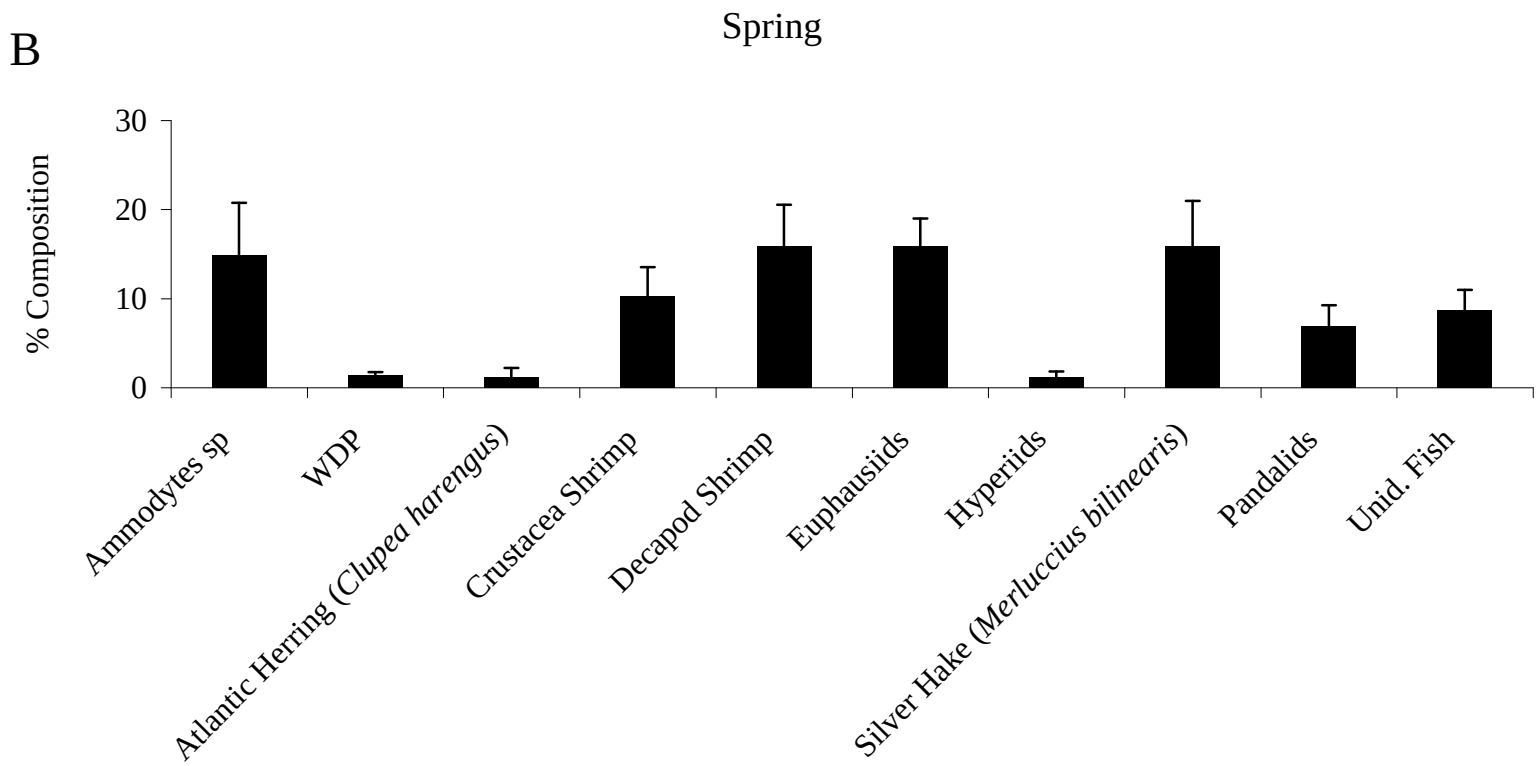

Figure 73B. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected in the spring (n = 2,980). WDP = well-digested prey; Unid. Fish = unidentified fish.

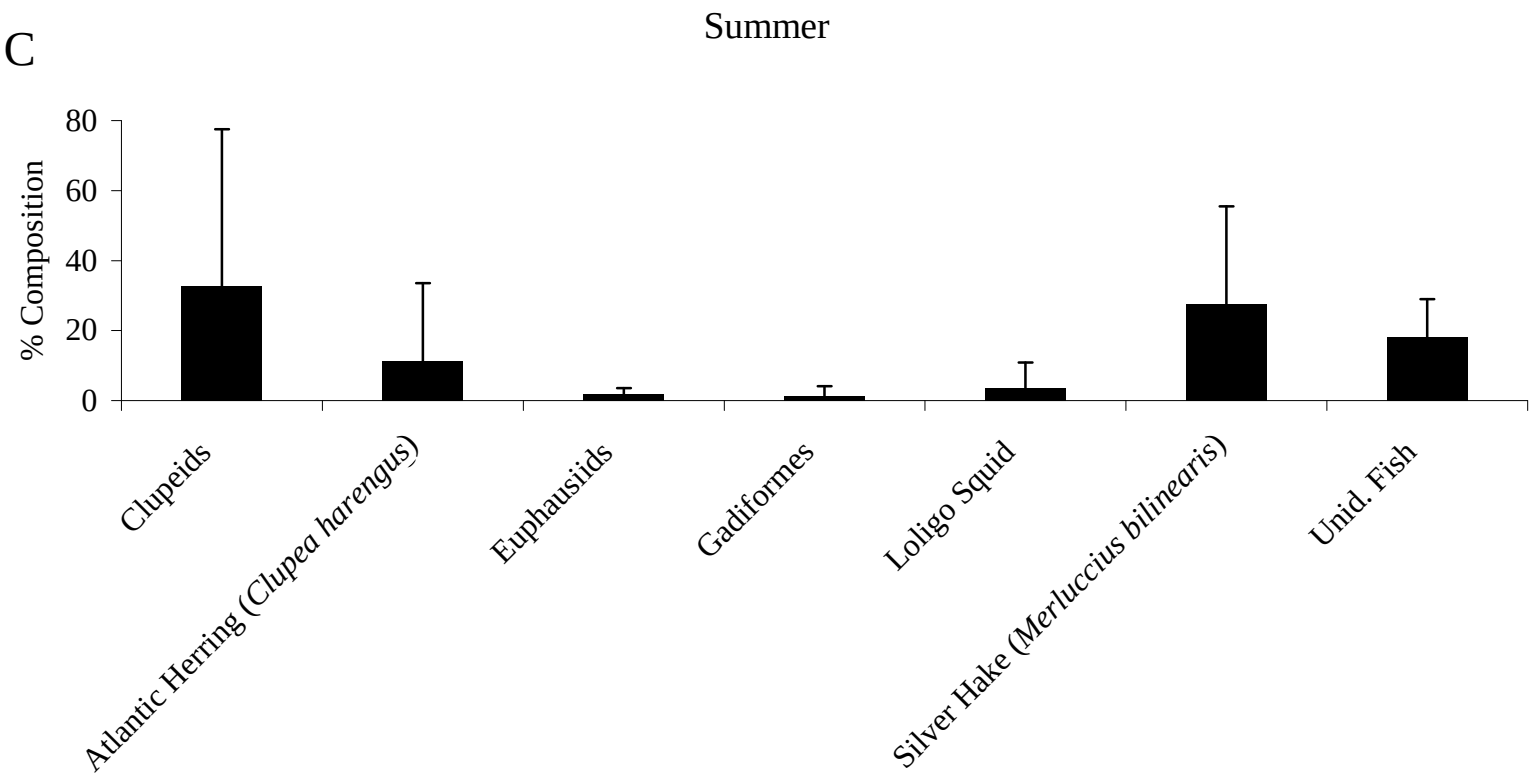

Figure 73C. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) collected in the summer (n = 263). Unid. Fish = unidentified fish.

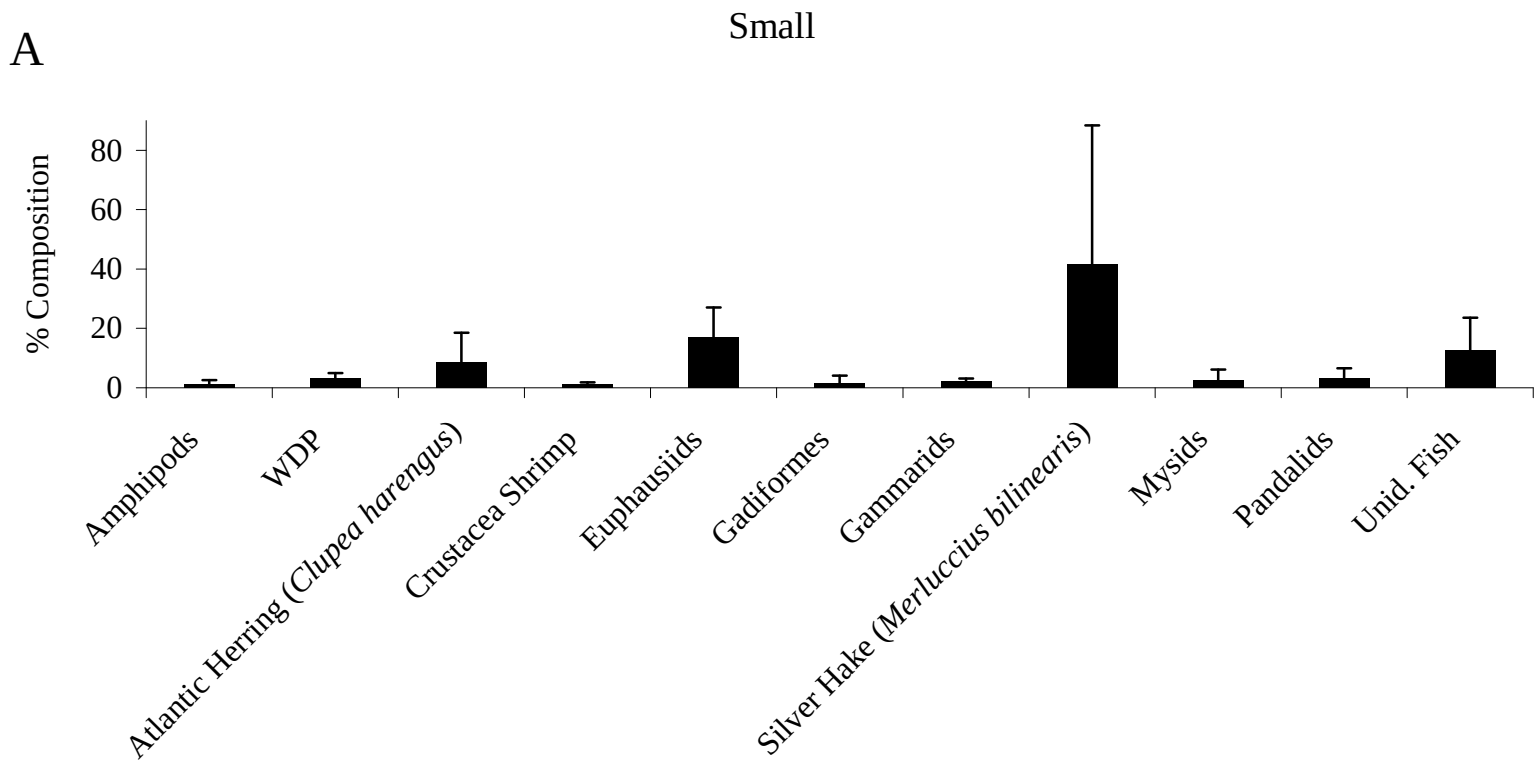

Figure 74A. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) in the small size class (n = 772). WDP = well-digested prey; Unid. Fish = unidentified fish.

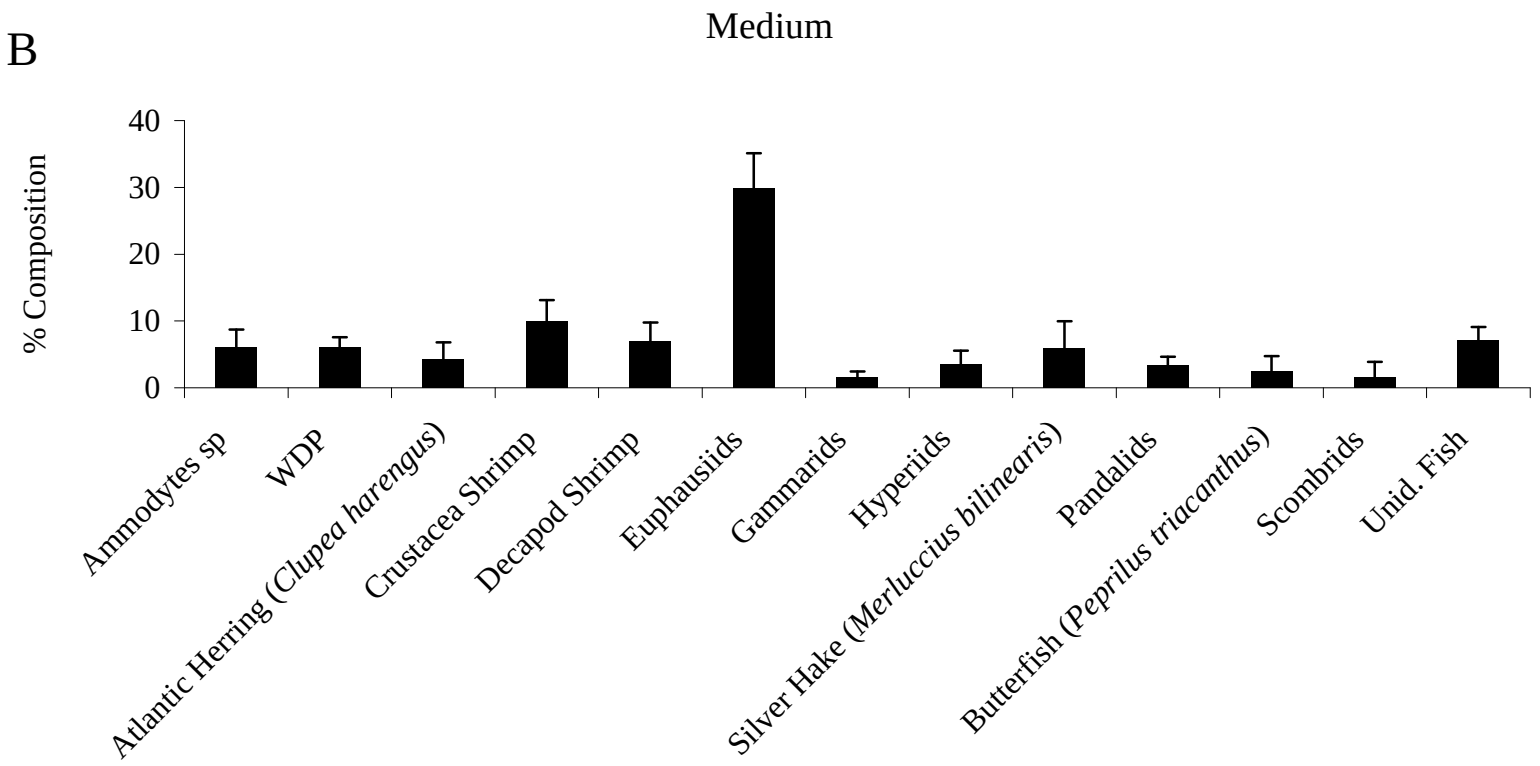

Figure 74B. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) in the medium size class (n = 2,503). WDP = well-digested prey; Unid. Fish = unidentified fish.

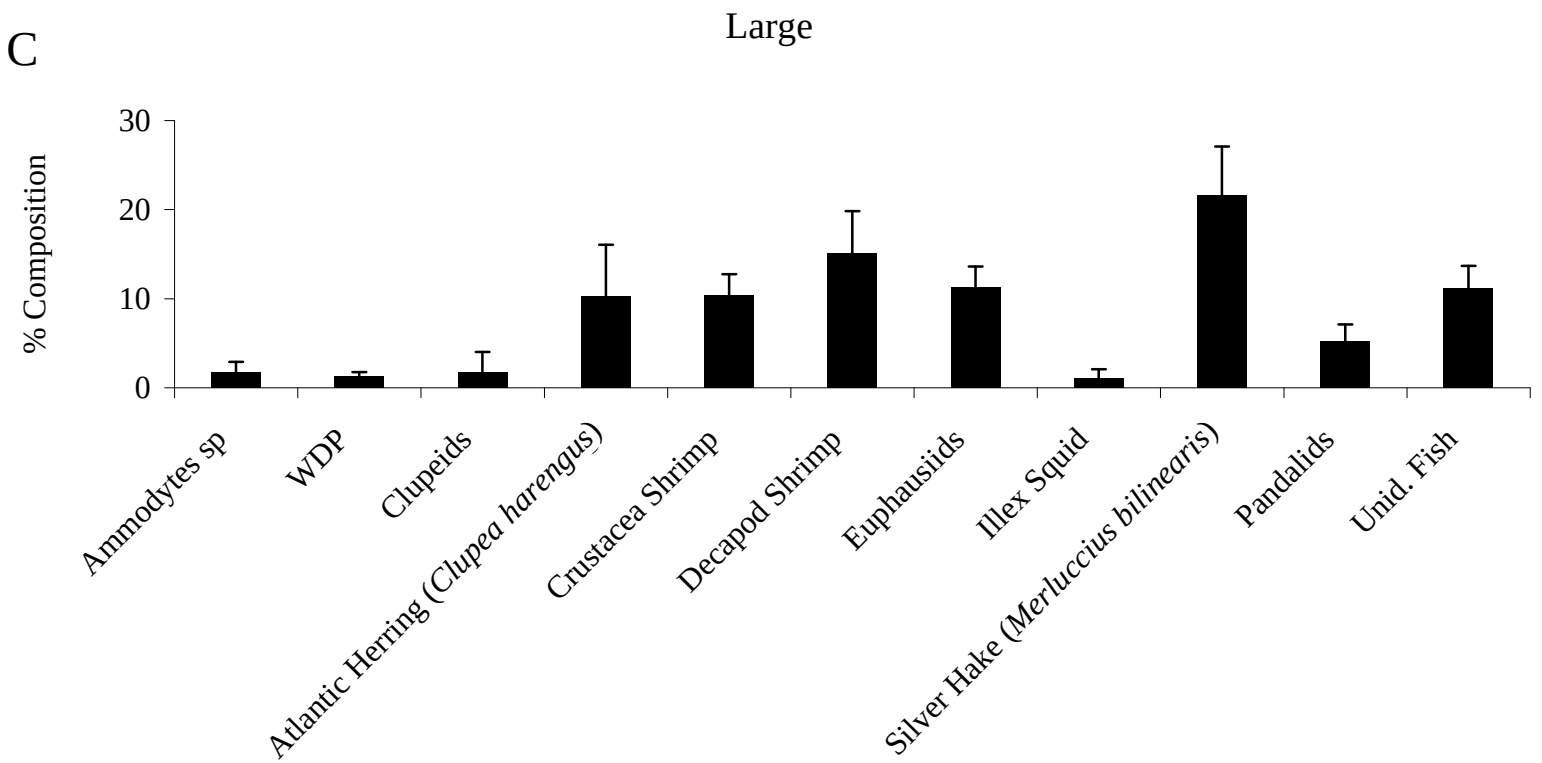

Figure 74C. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) in the large size class (n = 1,918). WDP = well-digested prey; Unid. Fish = unidentified fish.

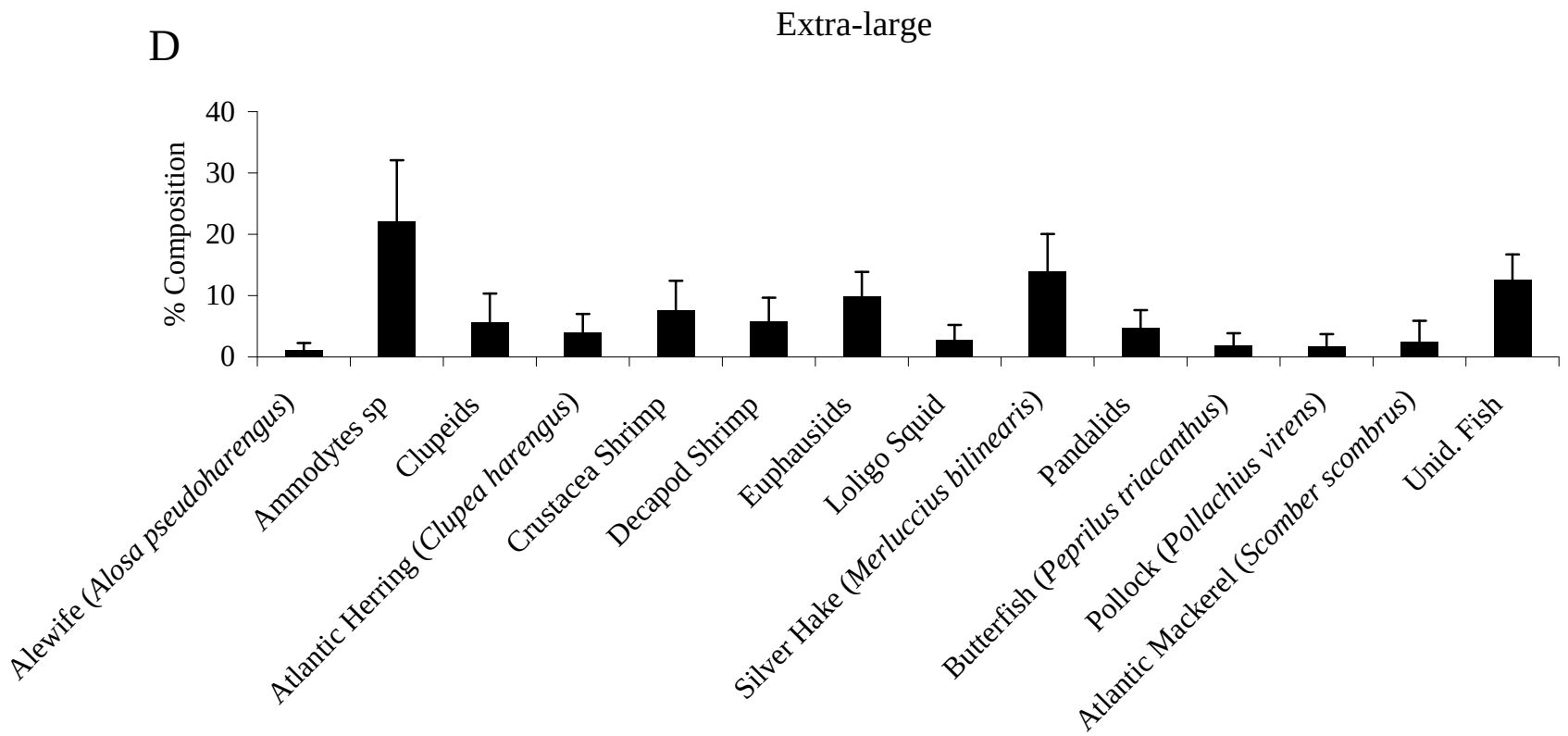

Figure 74D. Percent diet composition by weight of major prey taxa for pollock (*Pollachius virens*) in the extra-large size class (n = 627). Unid. Fish = unidentified fish.

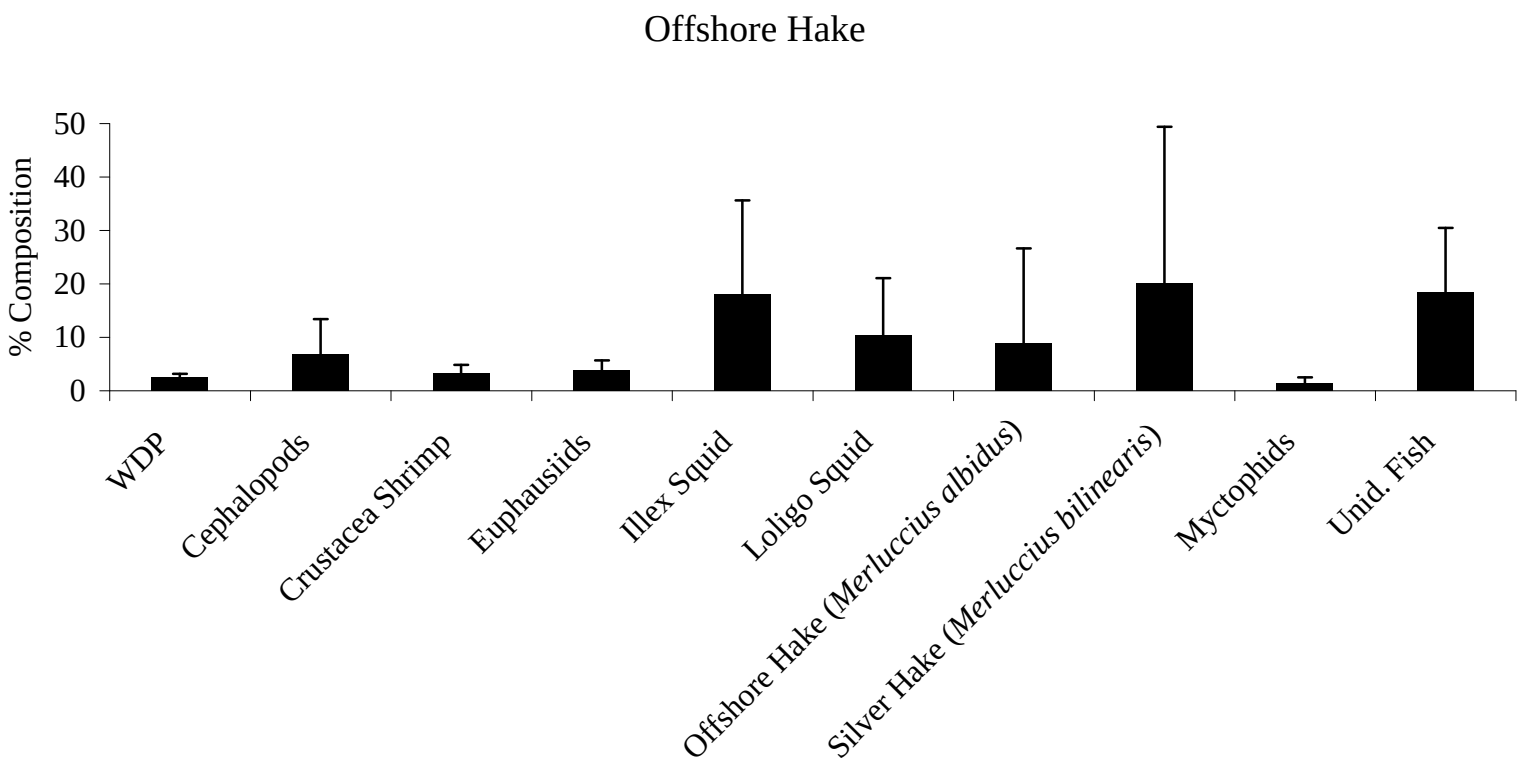

Figure 75. Percent diet composition by weight of major prey taxa for offshore hake (*Merluccius albidus*; n = 800). WDP = well-digested prey; Unid. Fish = unidentified fish.

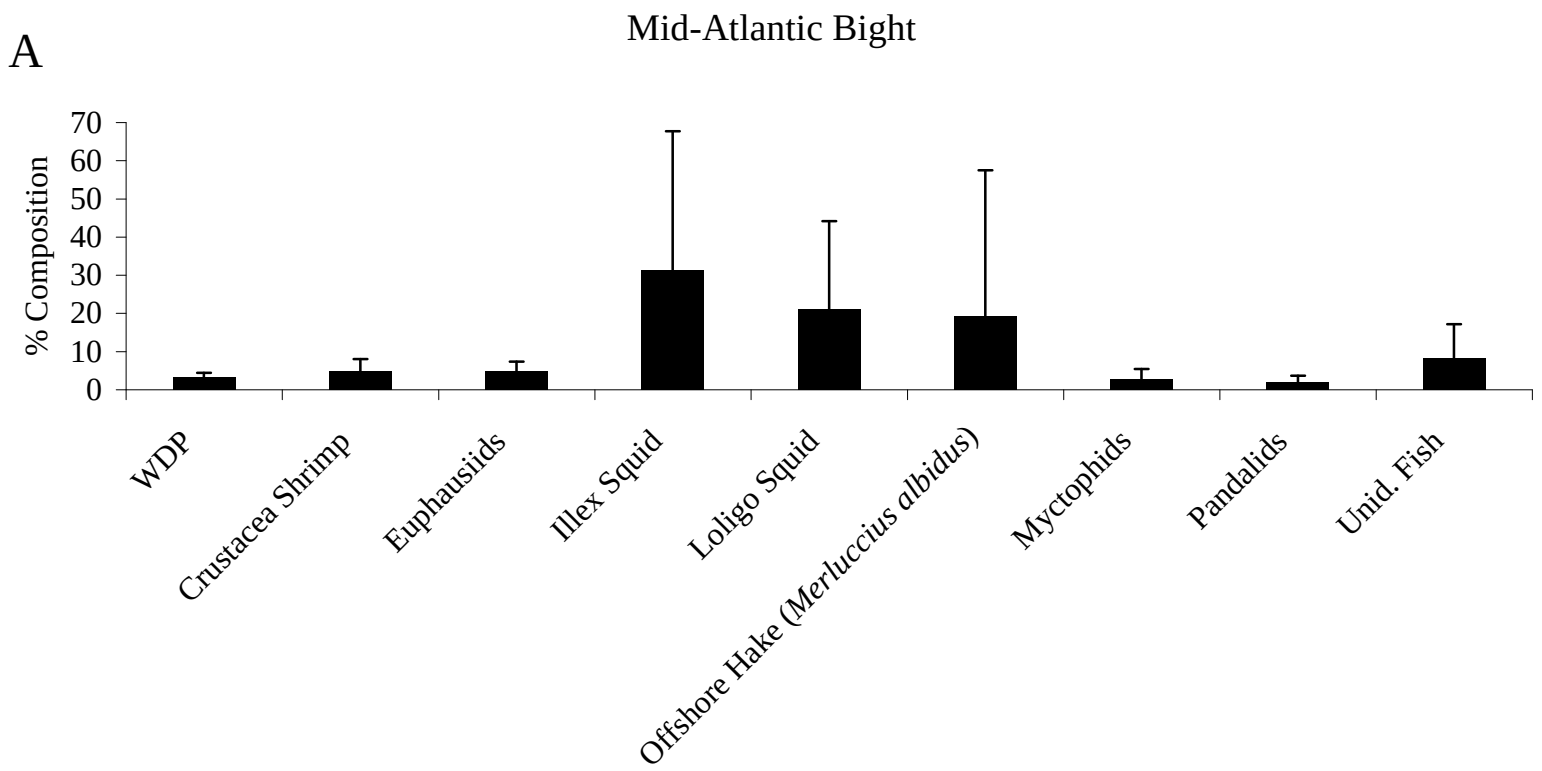

Figure 76A. Percent diet composition by weight of major prey taxa for offshore hake (*Merluccius albidus*) collected in the Mid-Atlantic Bight (n = 404). WDP = well-digested prey; Unid. Fish = unidentified fish.

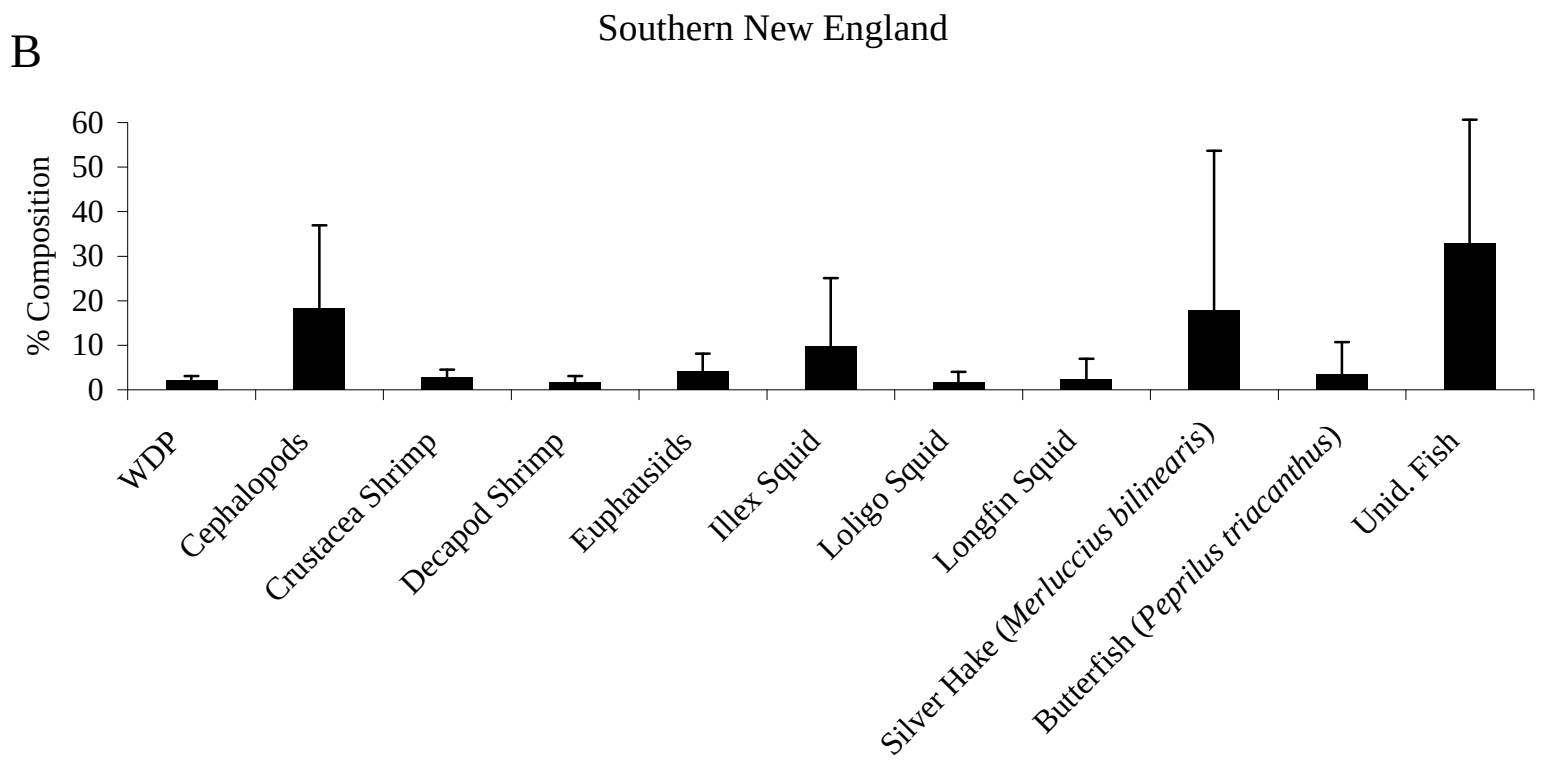

Figure 76B. Percent diet composition by weight of major prey taxa for offshore hake (*Merluccius albidus*) collected in Southern New England (n = 345). WDP = well-digested prey; Unid. Fish = unidentified fish.

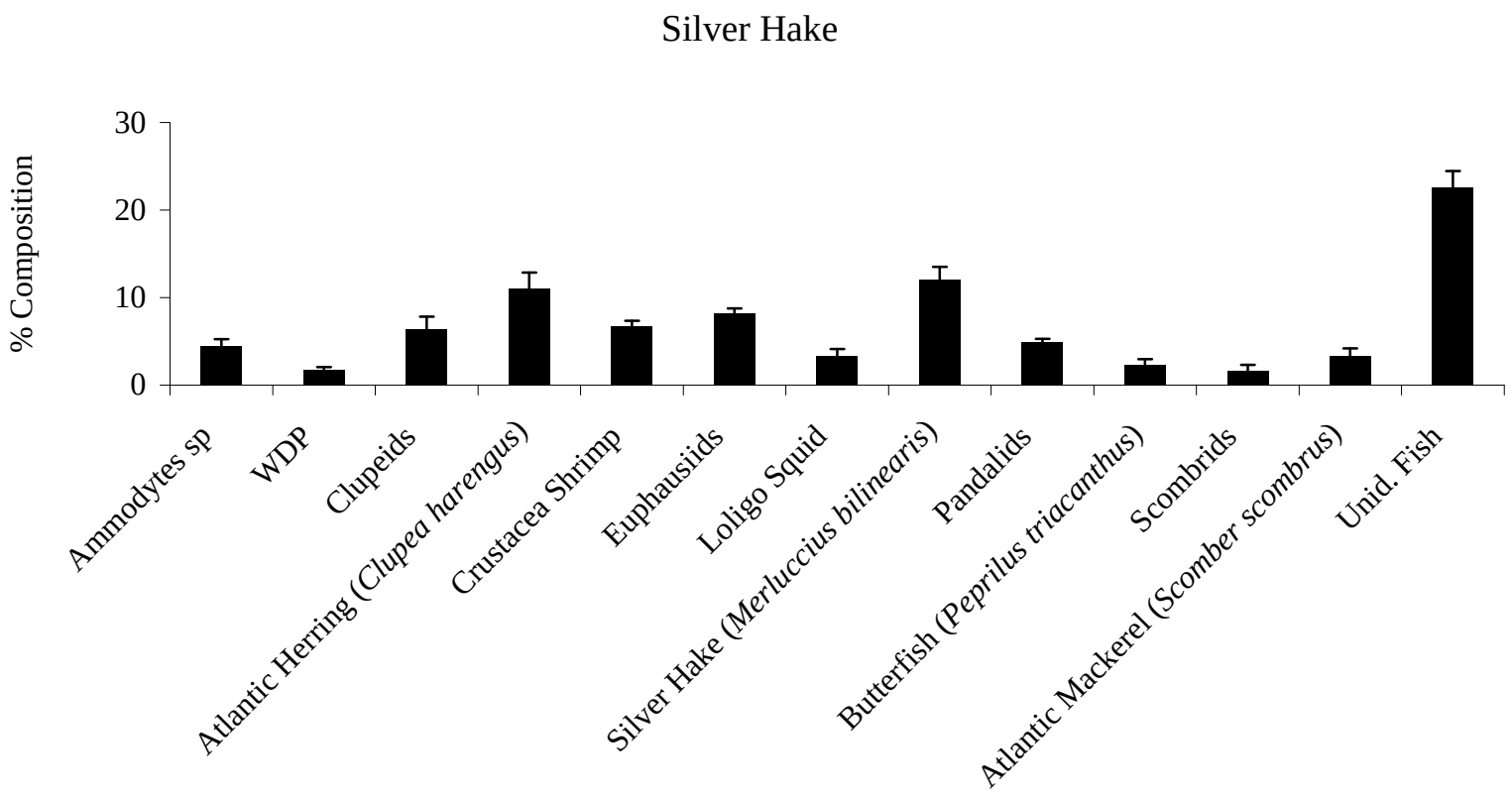

Figure 77. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*; n = 47,837). WDP = well-digested prey; Unid. Fish = unidentified fish.

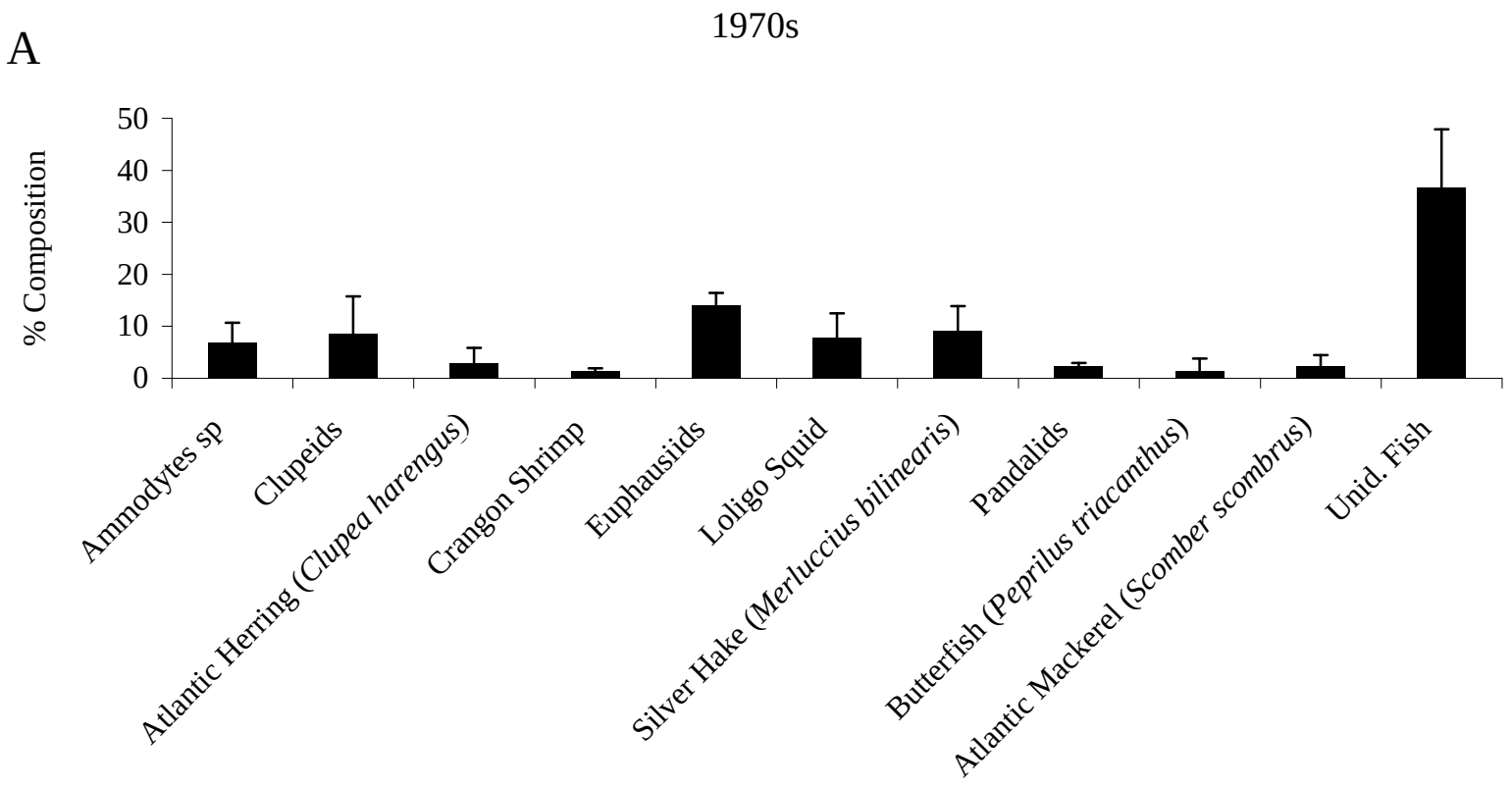

Figure 78A. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the 1970s (n = 4,277). Unid. Fish = unidentified fish.

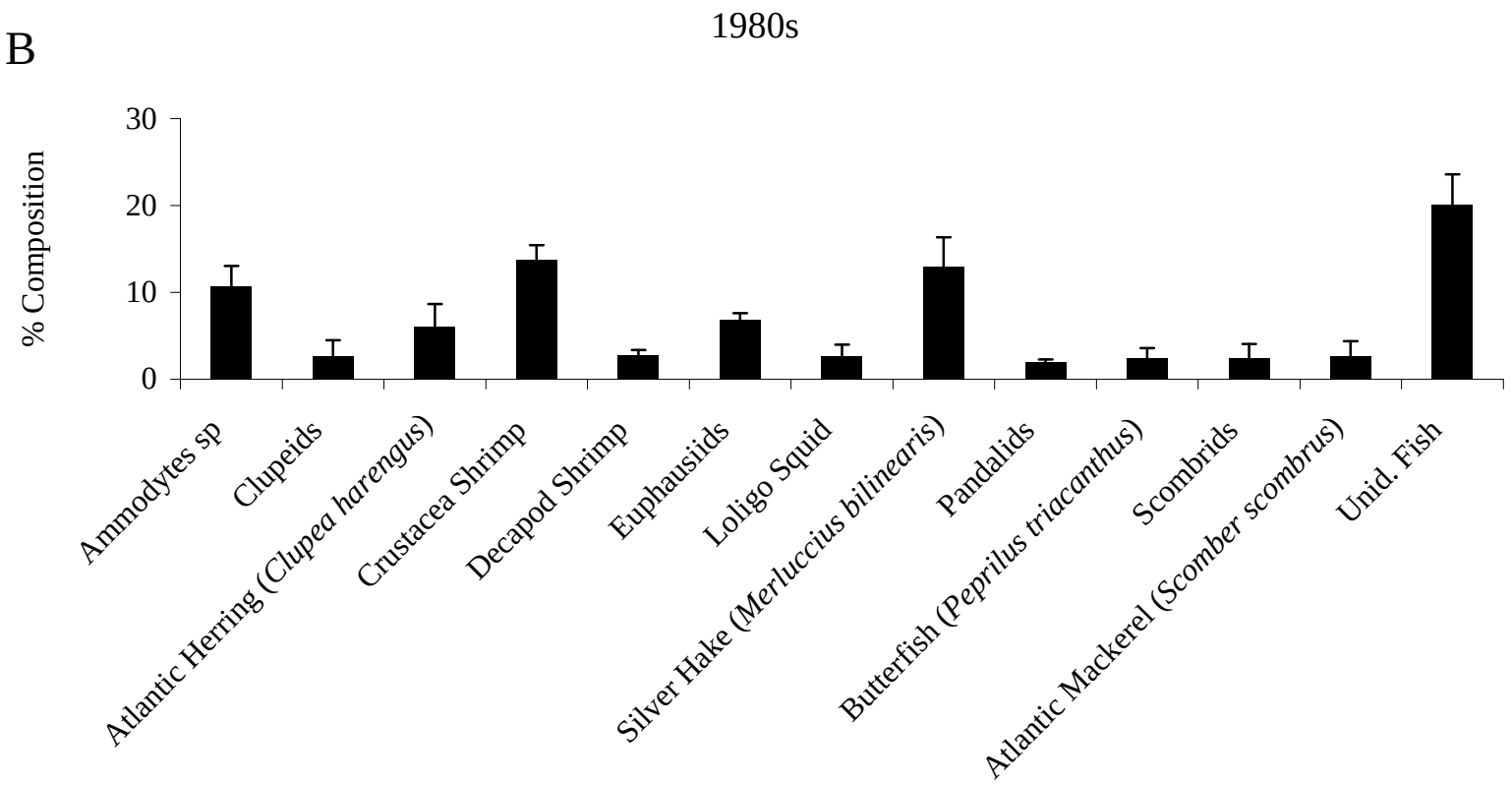

Figure 78B. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the 1980s (n = 12,679). Unid. Fish = unidentified fish.

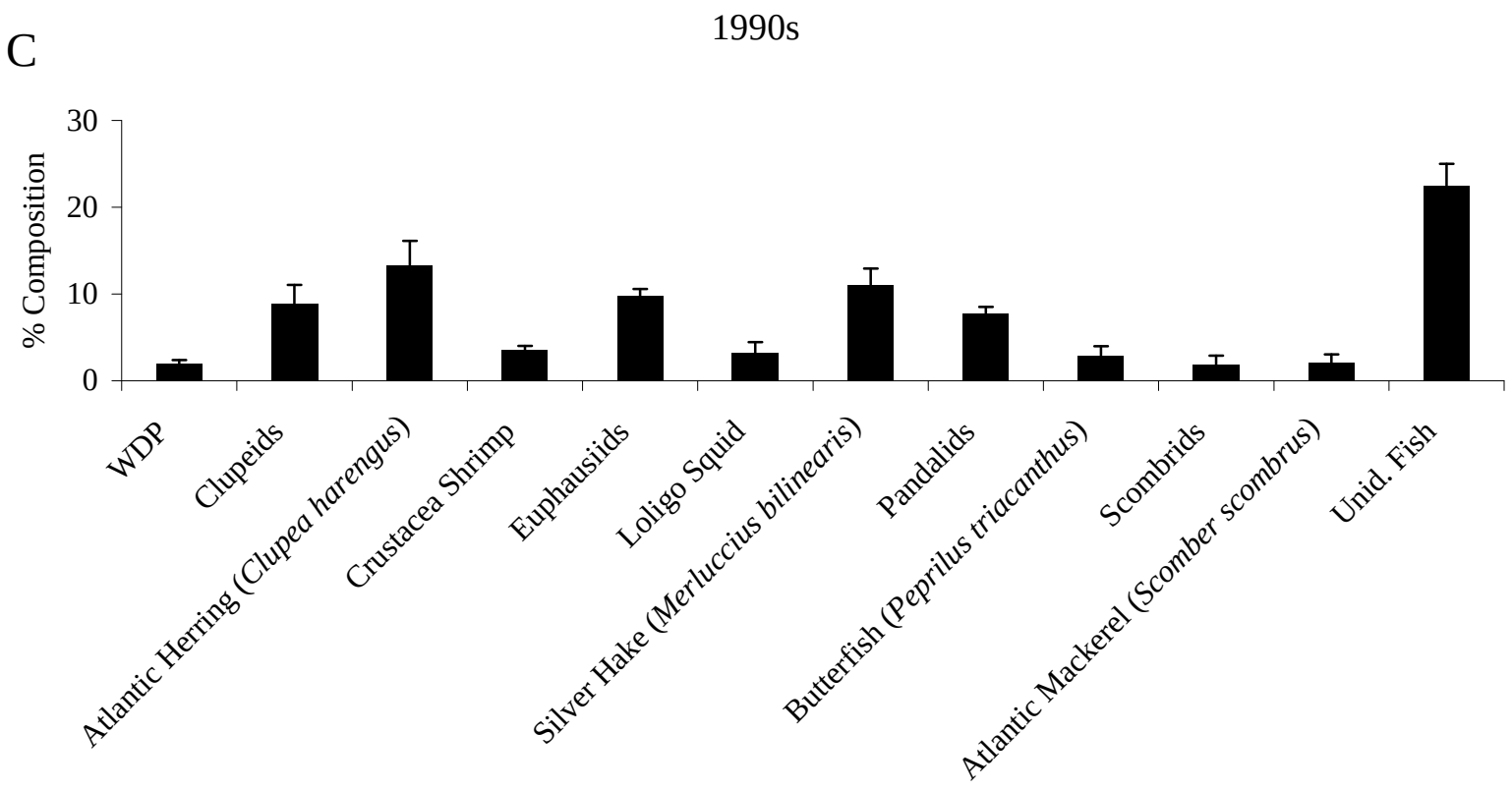

Figure 78C. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the 1990s (n = 22,779). WDP = well-digested prey; Unid. Fish = unidentified fish.

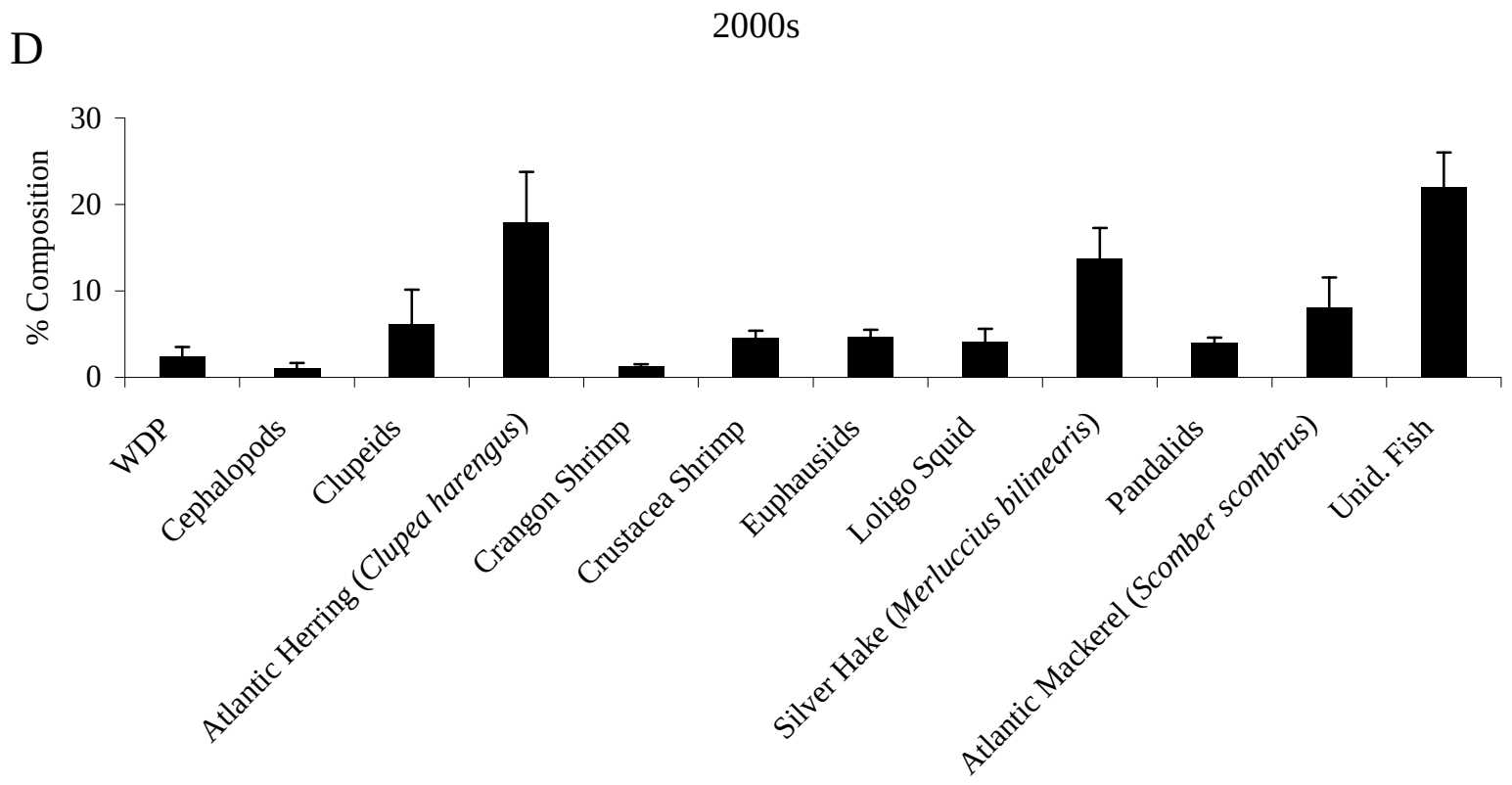

Figure 78D. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the 2000s (n = 8,102). WDP = well-digested prey; Unid. Fish = unidentified fish.

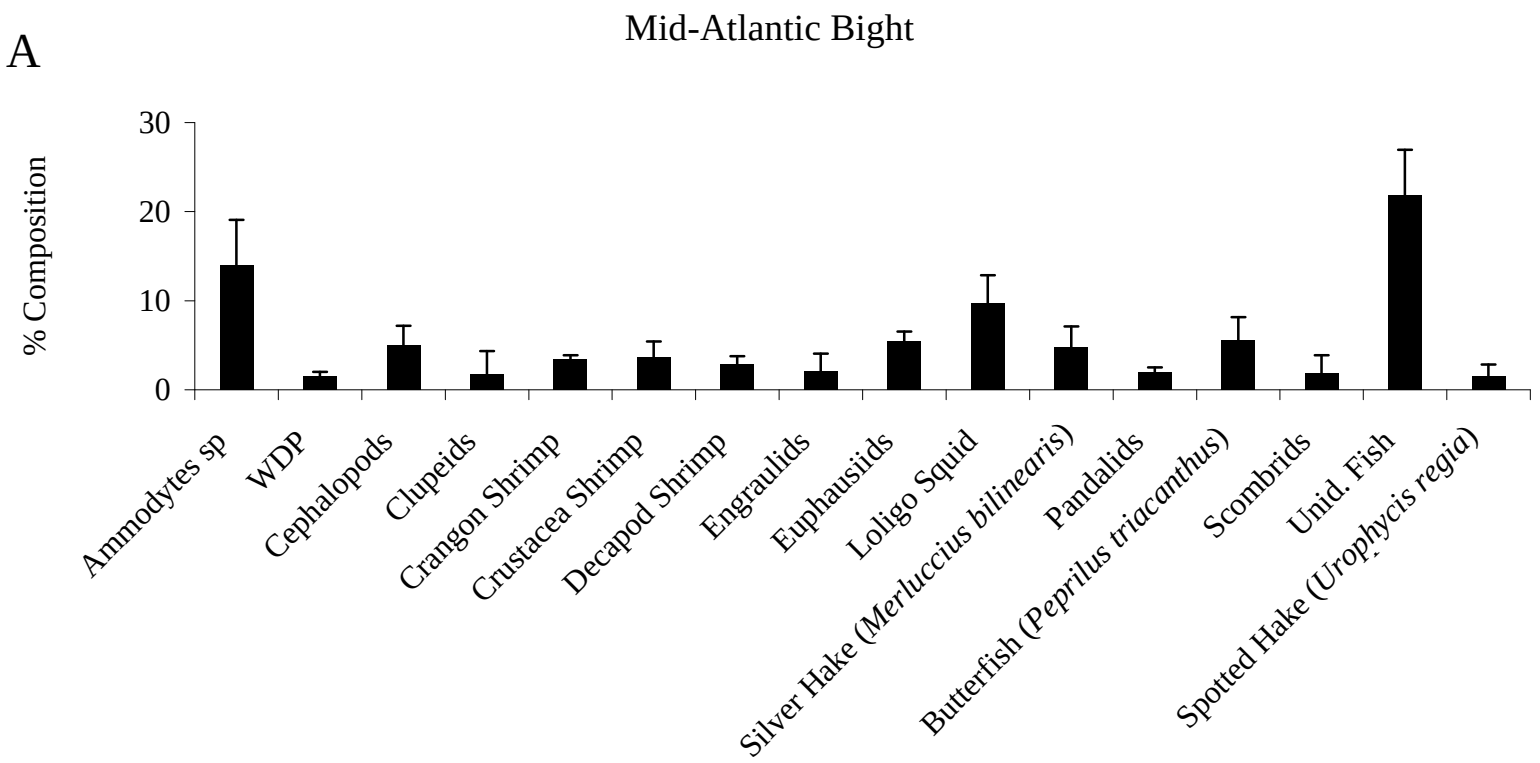

Figure 79A. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the Mid-Atlantic Bight (n = 5,007). WDP = well-digested prey; Unid. Fish = unidentified fish.

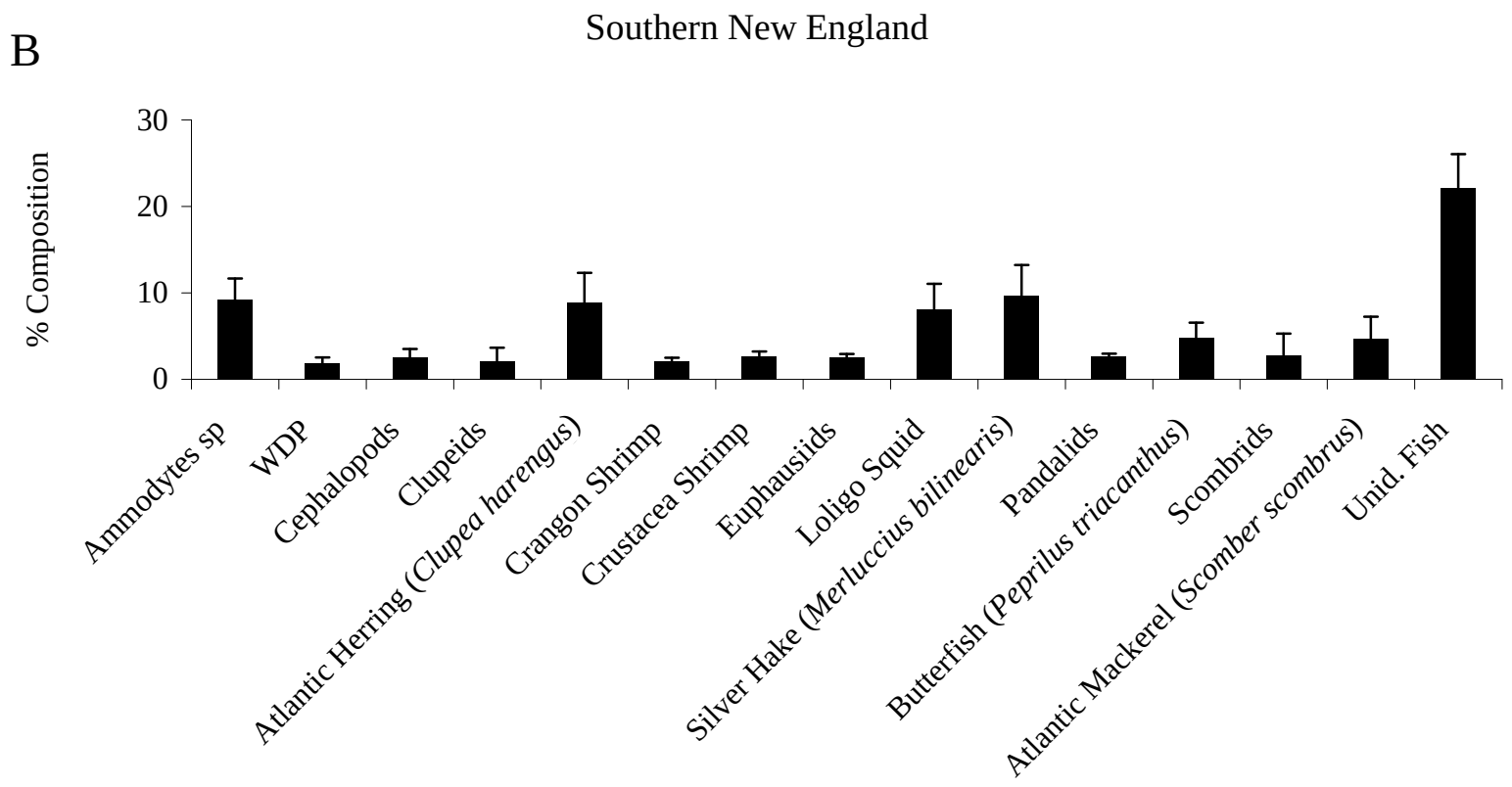

Figure 79B. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in Southern New England (n = 10,624). WDP = well-digested prey; Unid. Fish = unidentified fish.

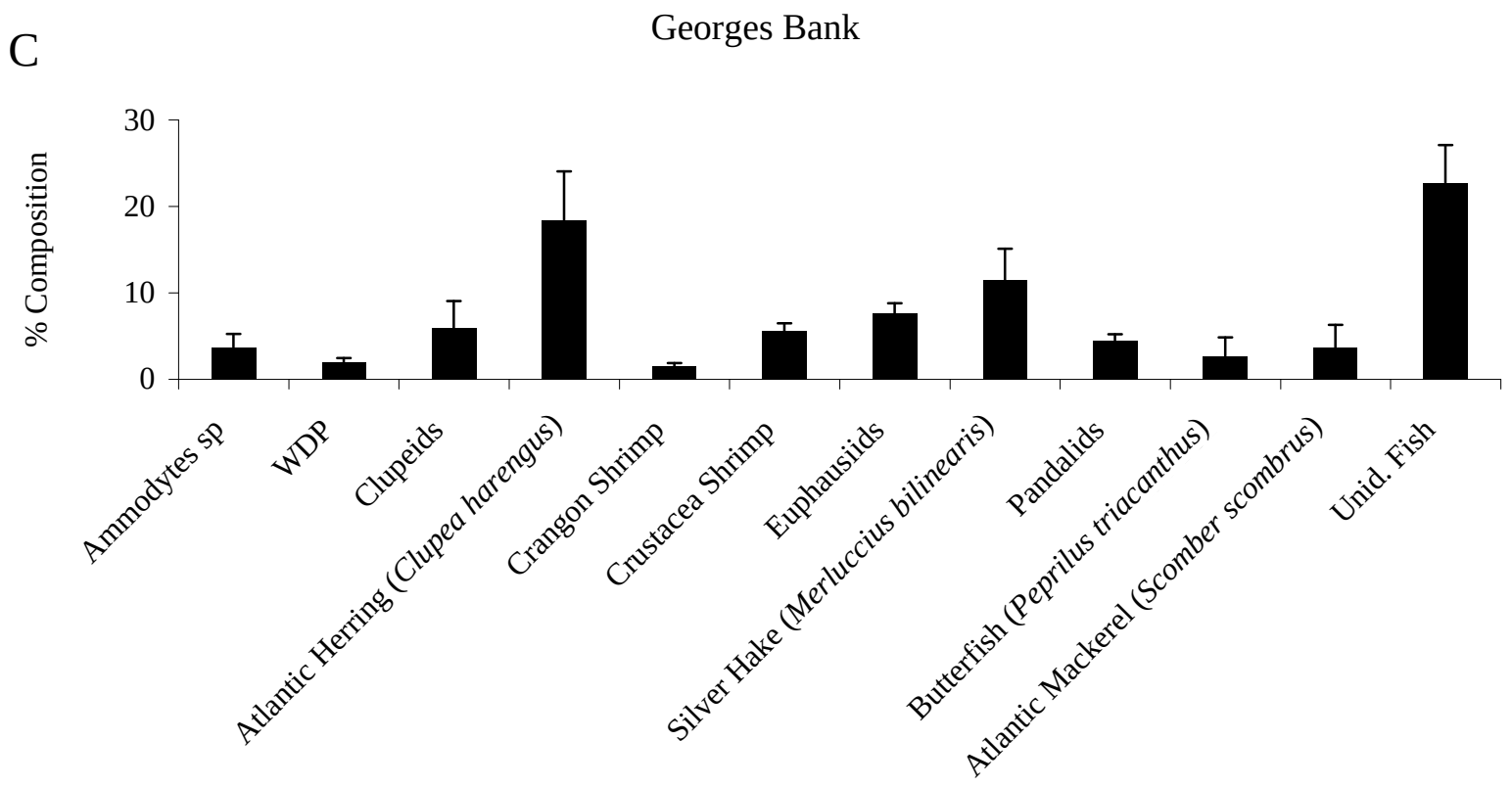

Figure 79C. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected on Georges Bank (n = 8,670). WDP = well-digested prey; Unid. Fish = unidentified fish.

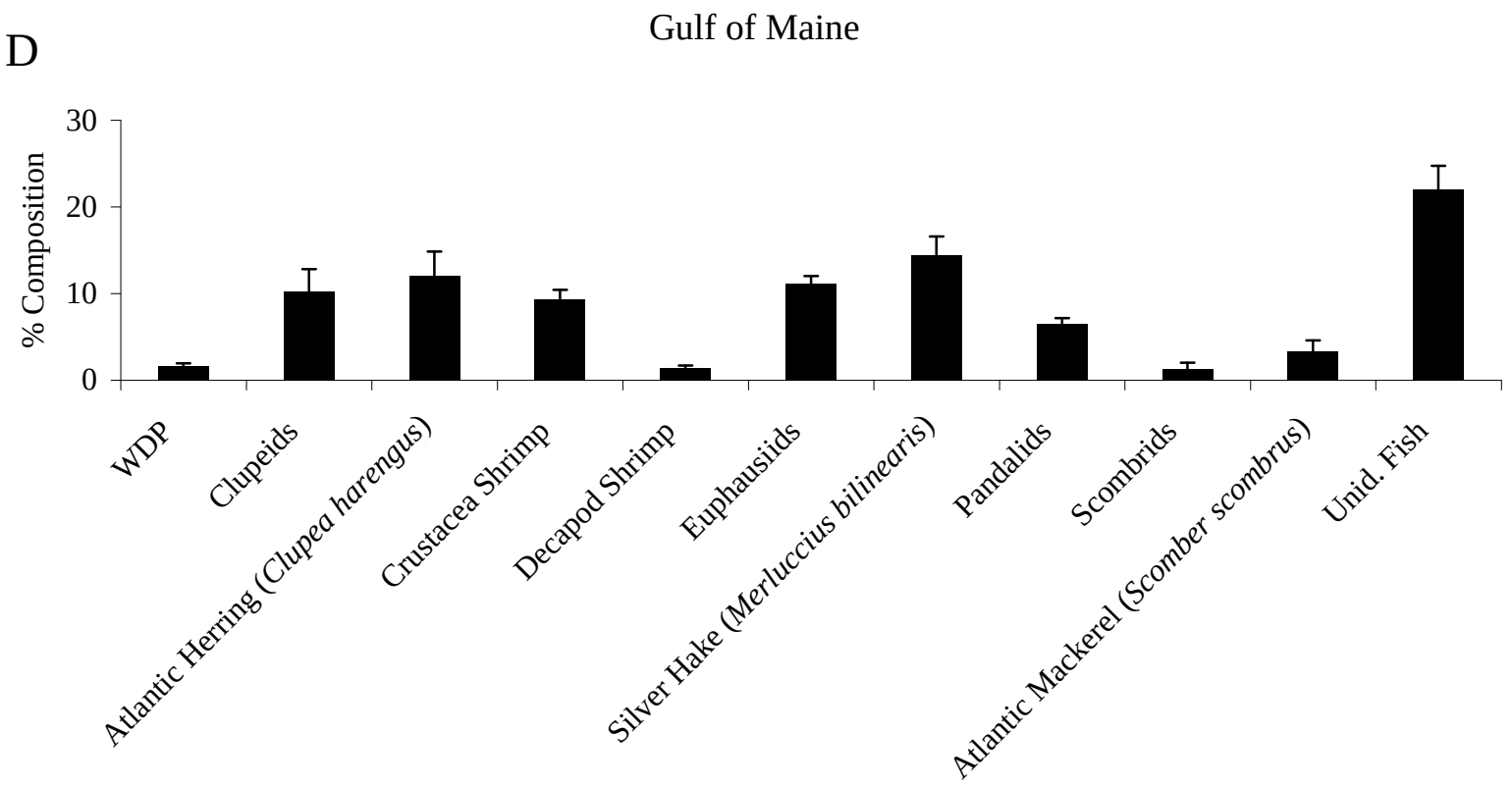

Figure 79D. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the Gulf of Maine (n = 21,204). WDP = well-digested prey; Unid. Fish = unidentified fish.

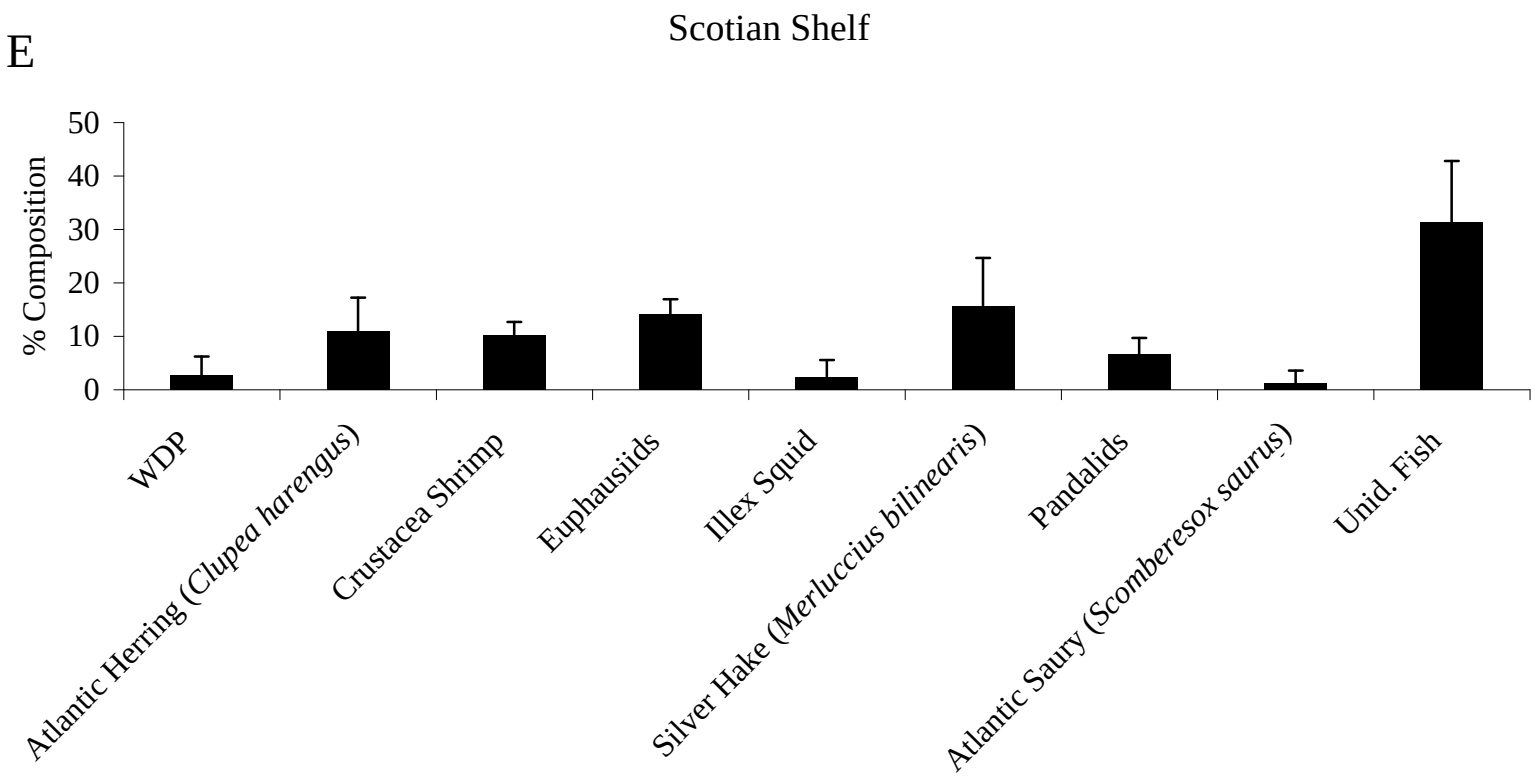

Figure 79E. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected on the Scotian Shelf (n = 2,290). WDP = well-digested prey; Unid. Fish = unidentified fish.

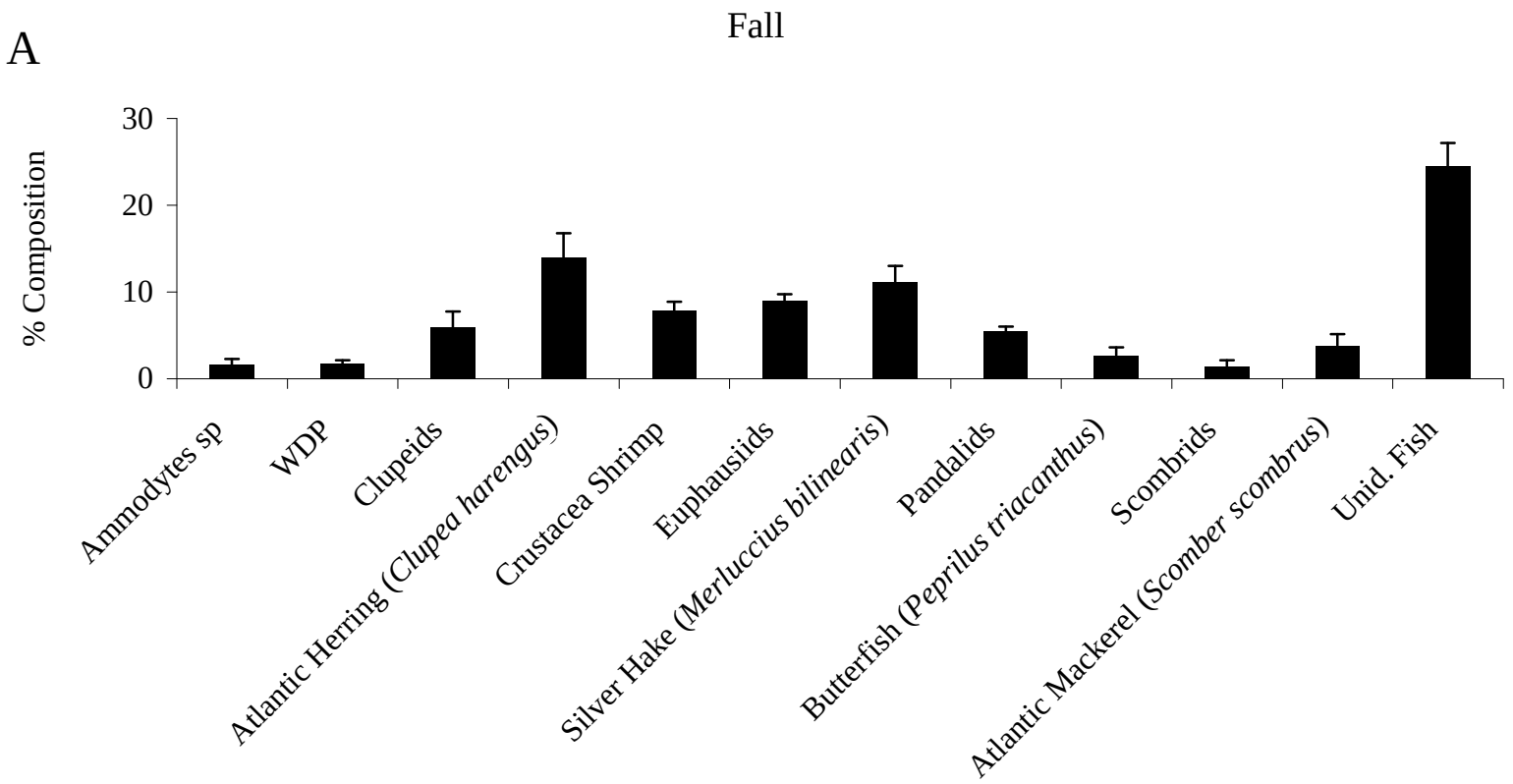

Figure 80A. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the fall (n = 21,465). WDP = well-digested prey; Unid. Fish = unidentified fish.

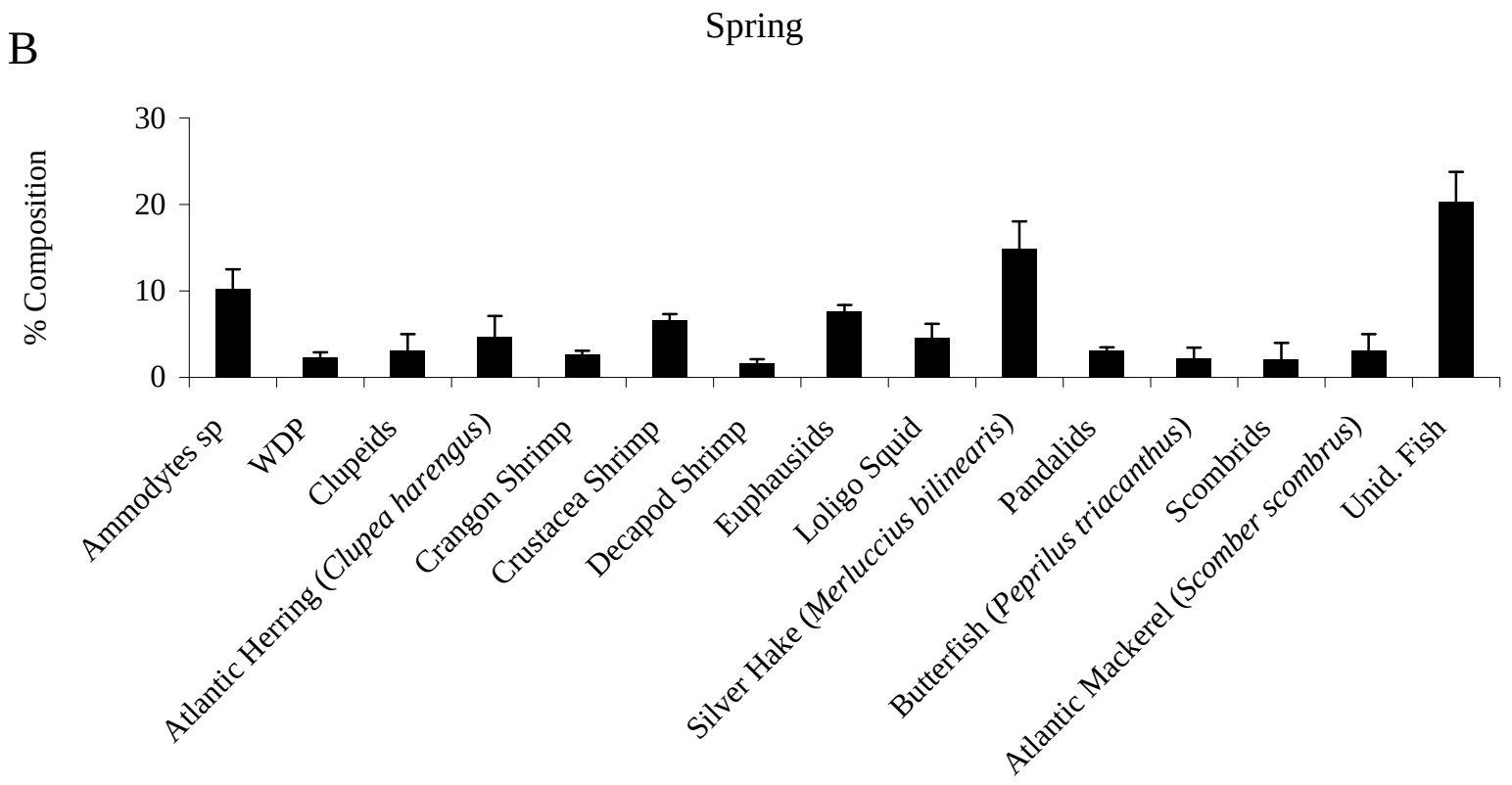

Figure 80B. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the spring (n = 18,894). WDP = well-digested prey; Unid. Fish = unidentified fish.

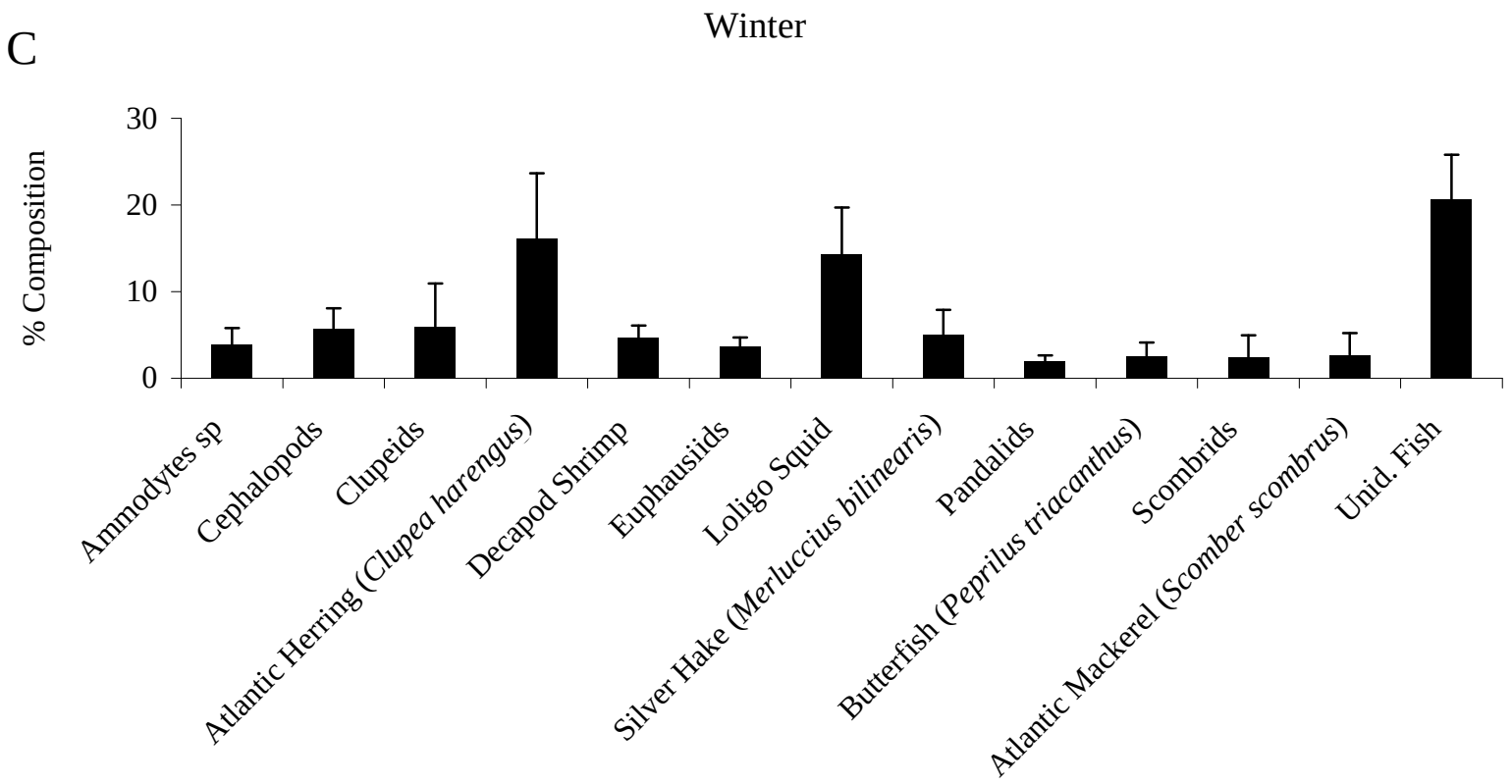

Figure 80C. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the winter (n = 3,826). Unid. Fish = unidentified fish.

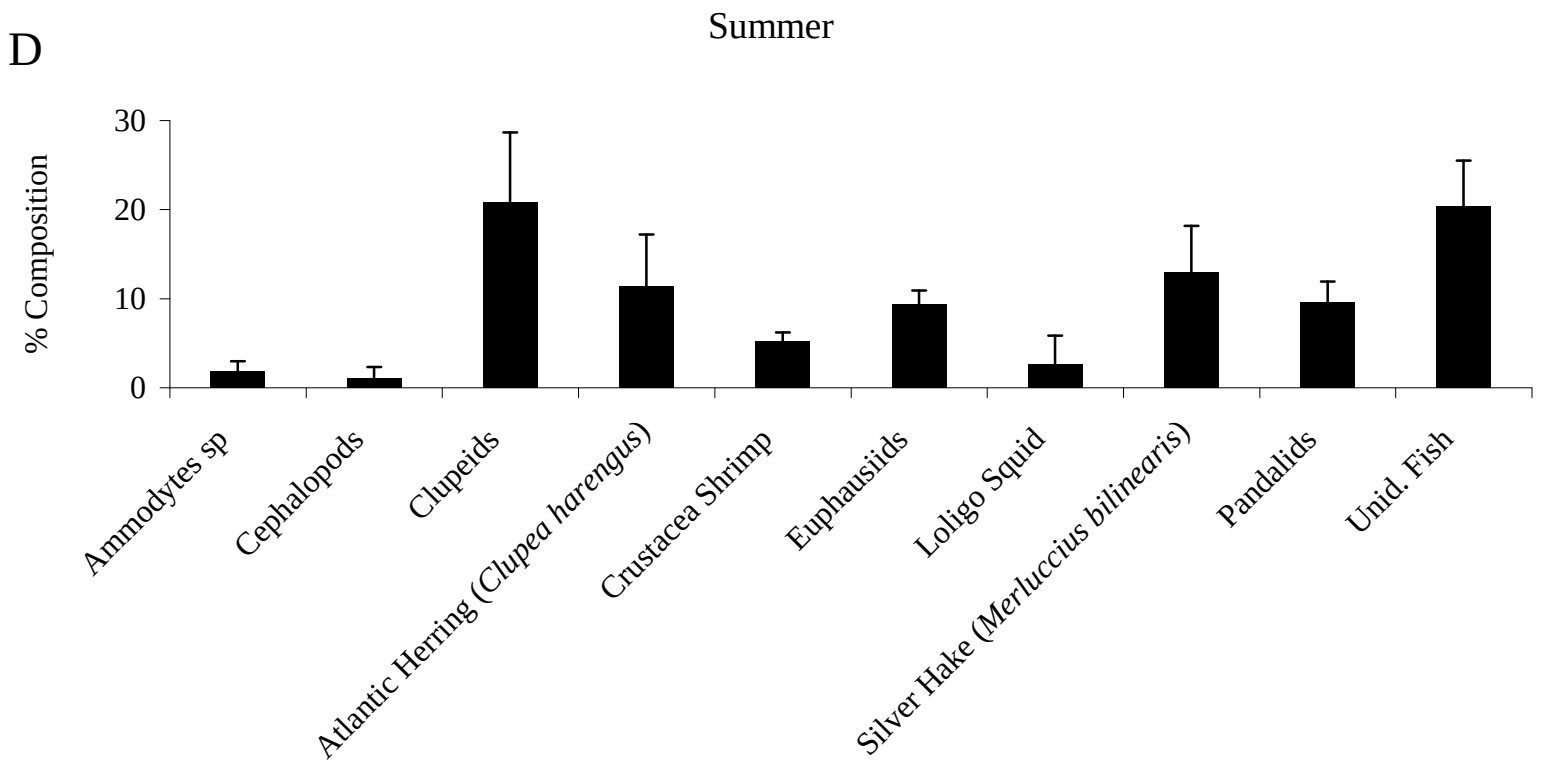

Figure 80D. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) collected in the summer (n = 3,652). Unid. Fish = unidentified fish.

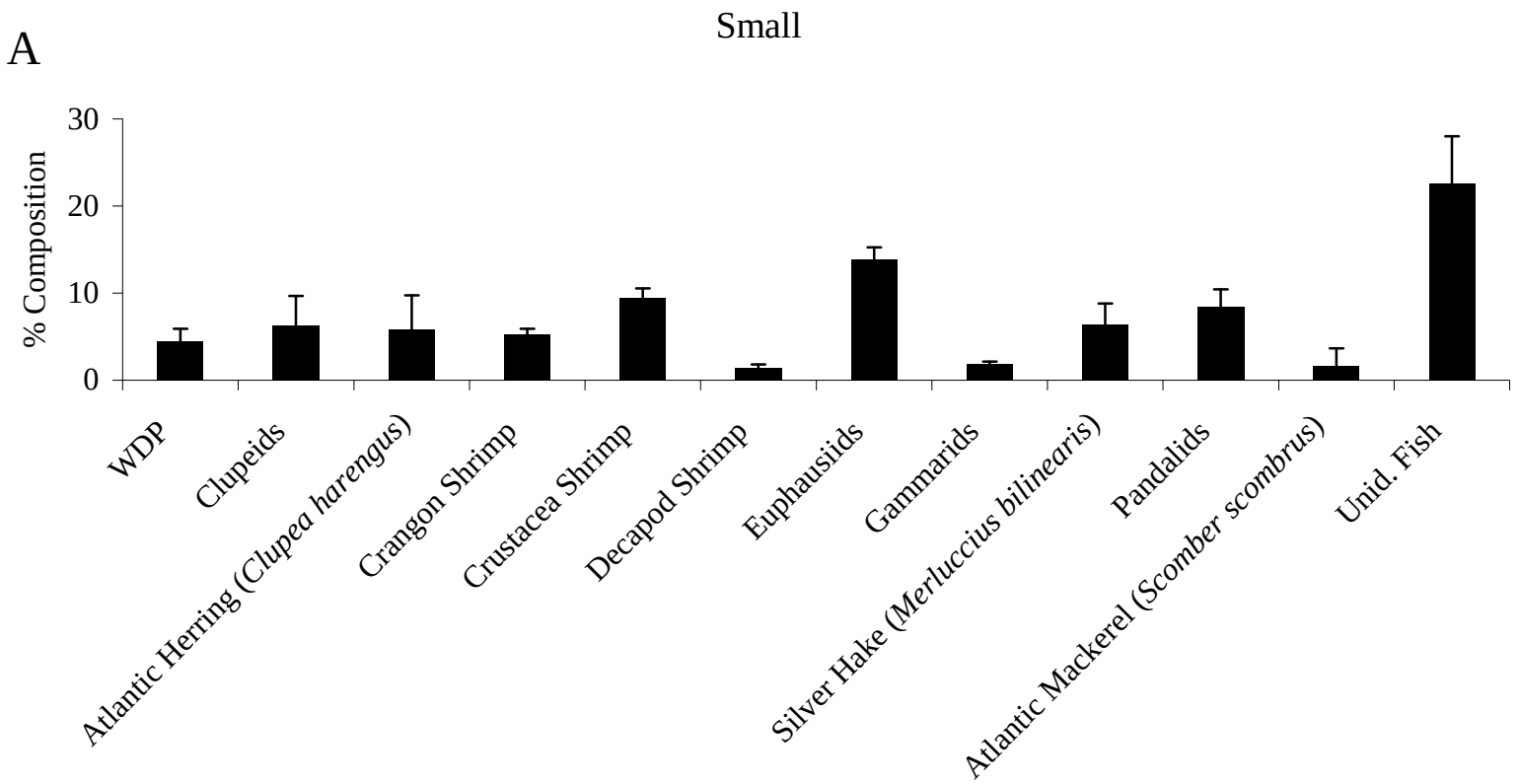

Figure 81A. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) in the small size class (n = 14,059). WDP = well-digested prey; Unid. Fish = unidentified fish.

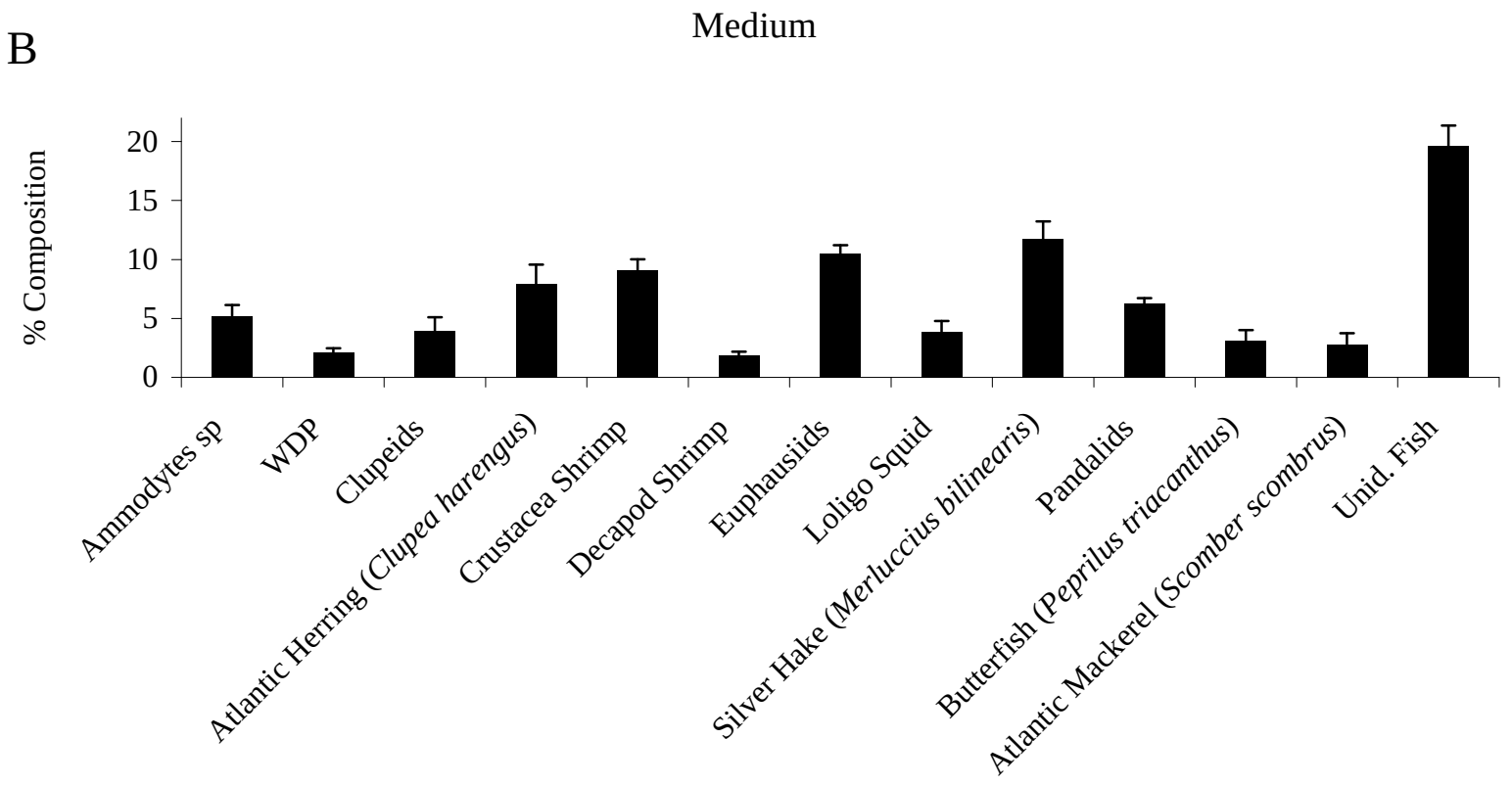

Figure 81B. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) in the medium size class (n = 32,446). WDP = well-digested prey; Unid. Fish = unidentified fish.

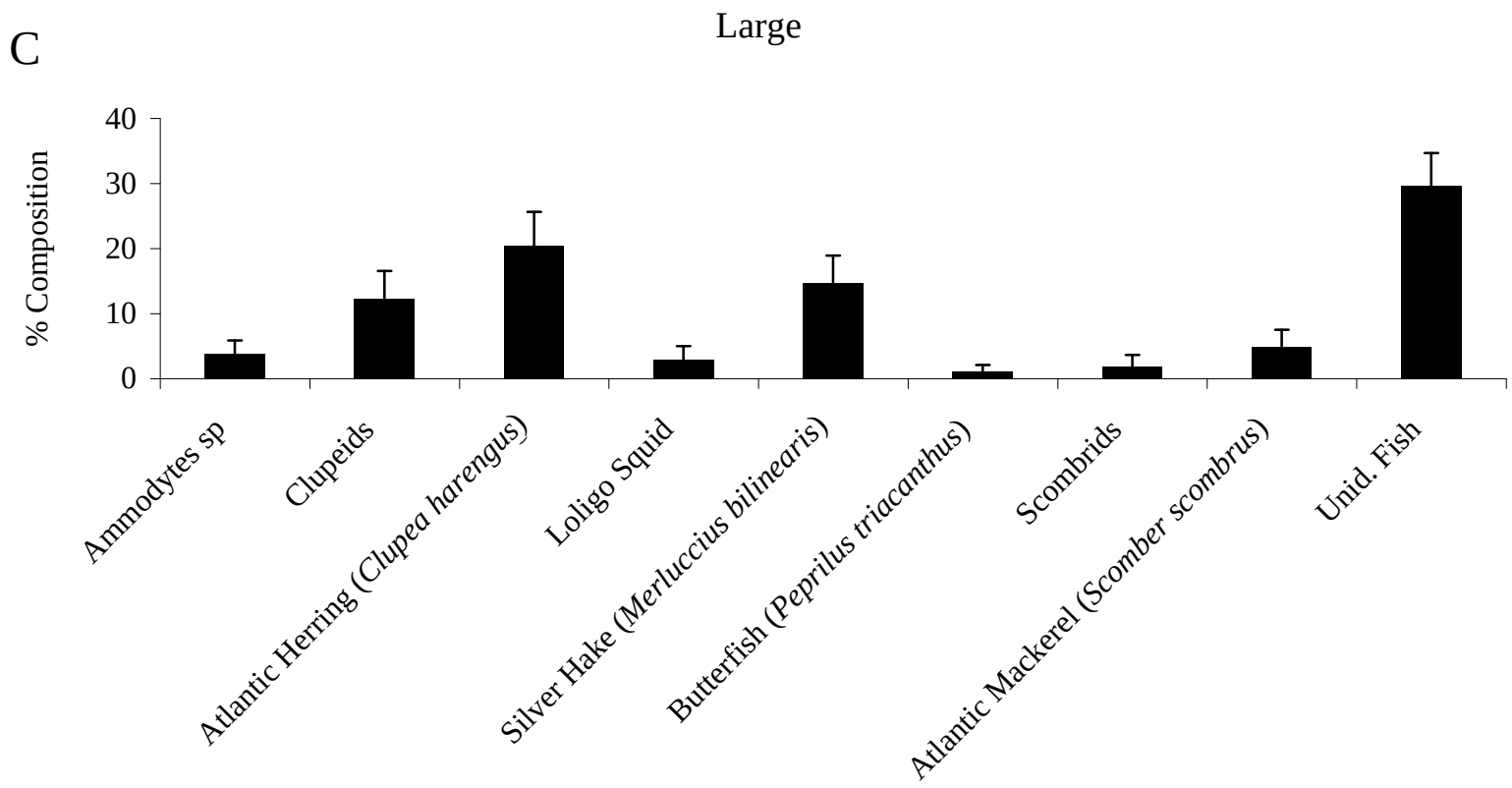

Figure 81C. Percent diet composition by weight of major prey taxa for silver hake (*Merluccius bilinearis*) in the large size class (n = 1,332). Unid. Fish = unidentified fish.

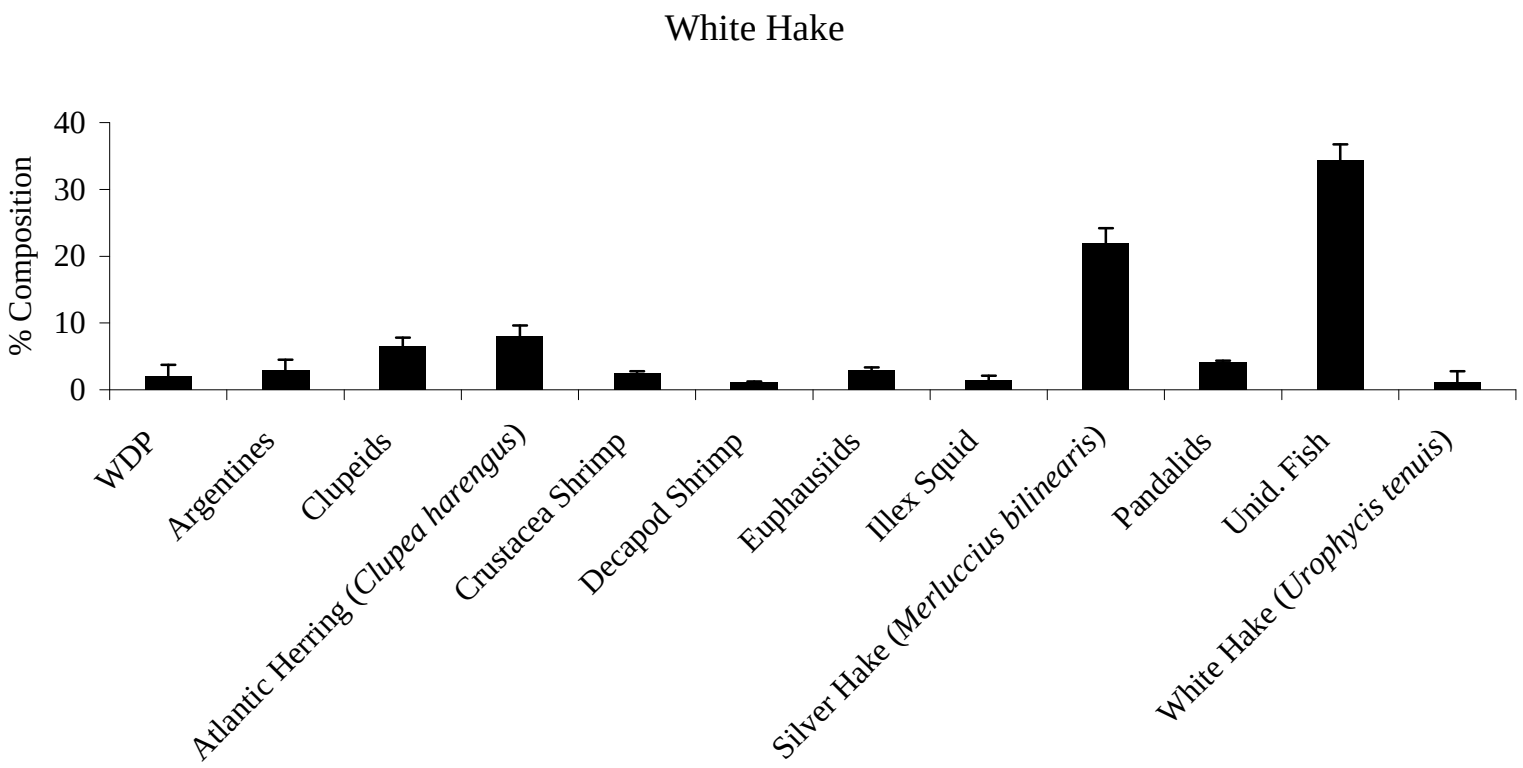

Figure 82. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*; n = 14,348). WDP = well-digested prey; Unid. Fish = unidentified fish.

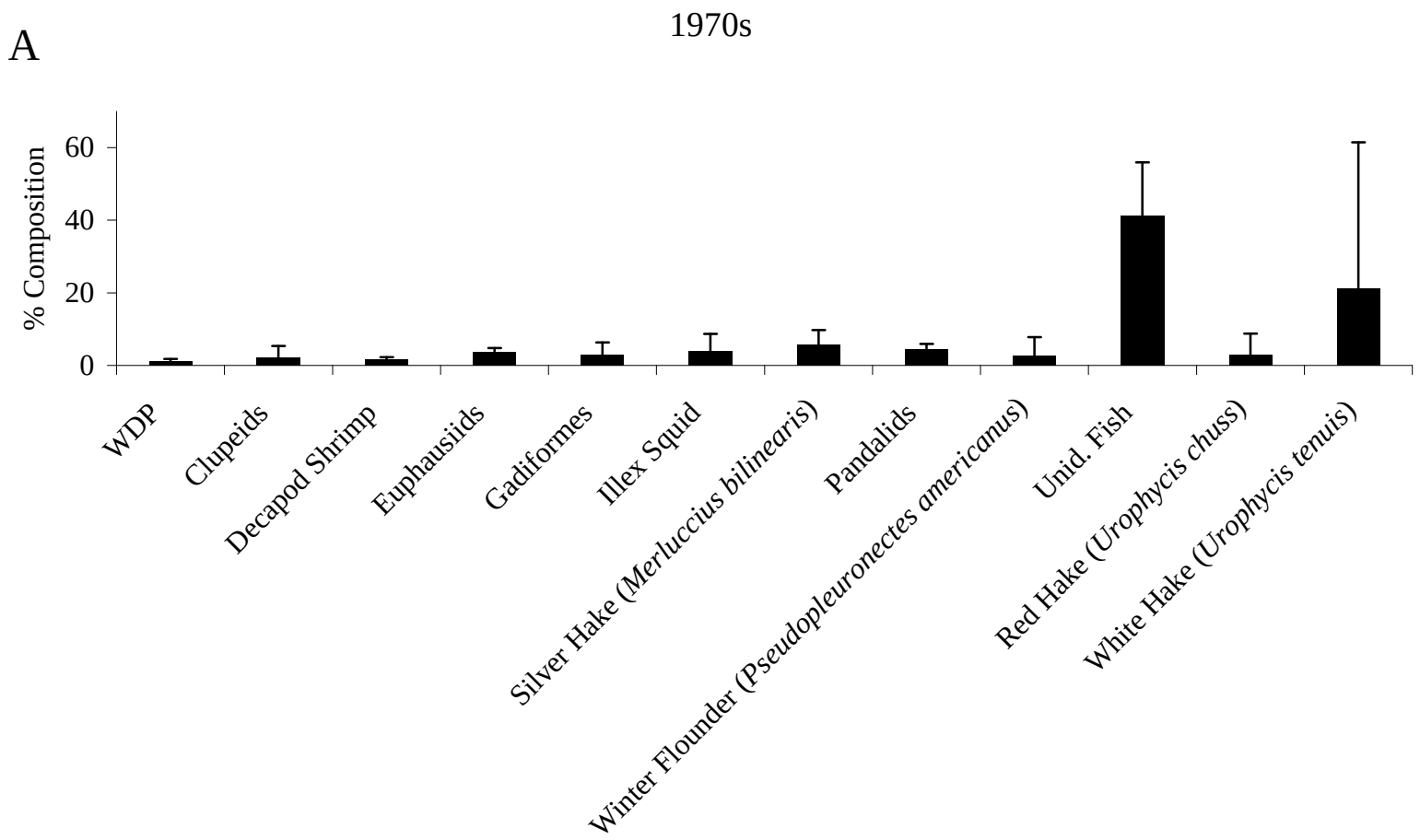

Figure 83A. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in the 1970s (n = 682). WDP = well-digested prey; Unid. Fish = unidentified fish.

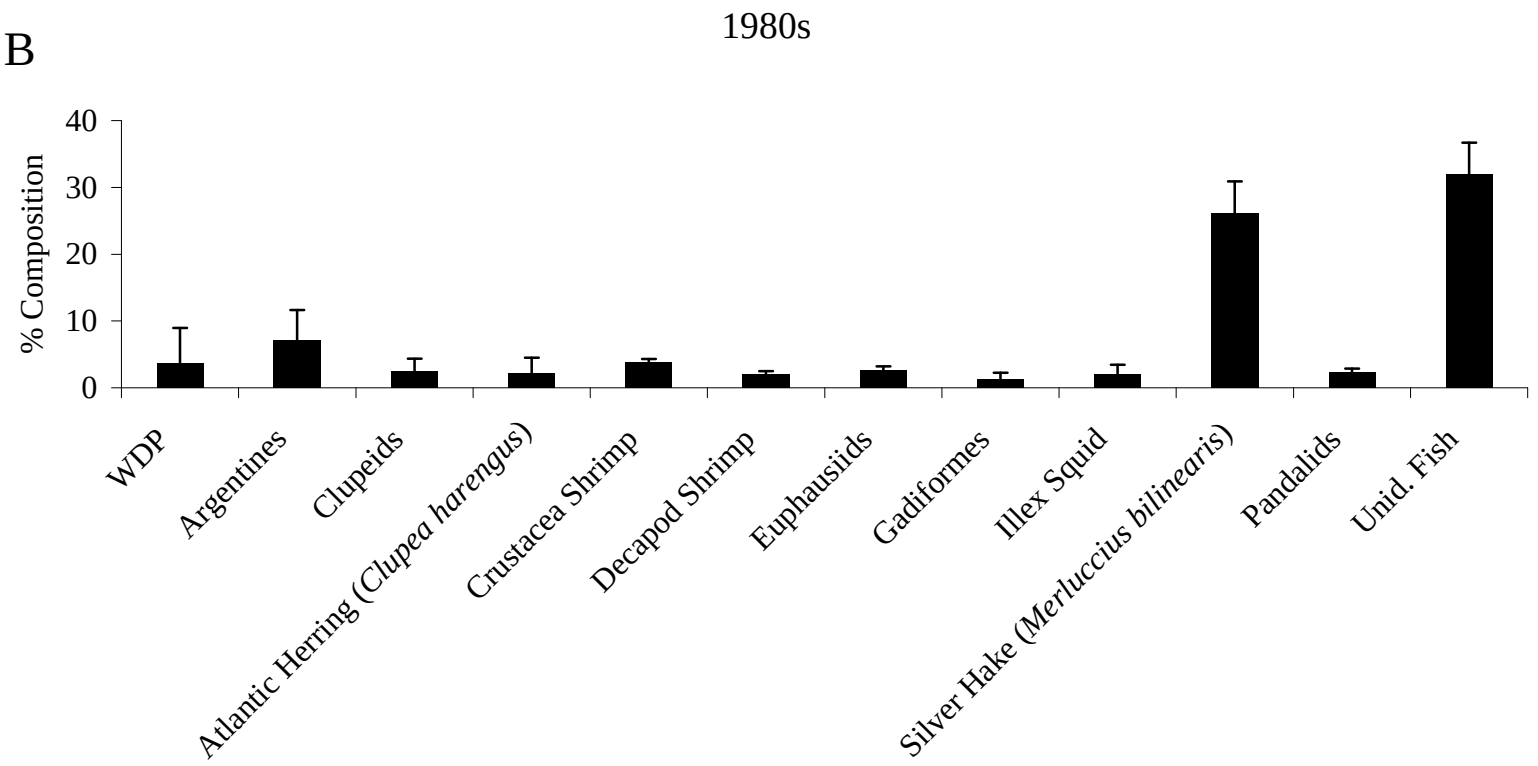

Figure 83B. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in the 1980s (n = 4,177). WDP = well-digested prey; Unid. Fish = unidentified fish.

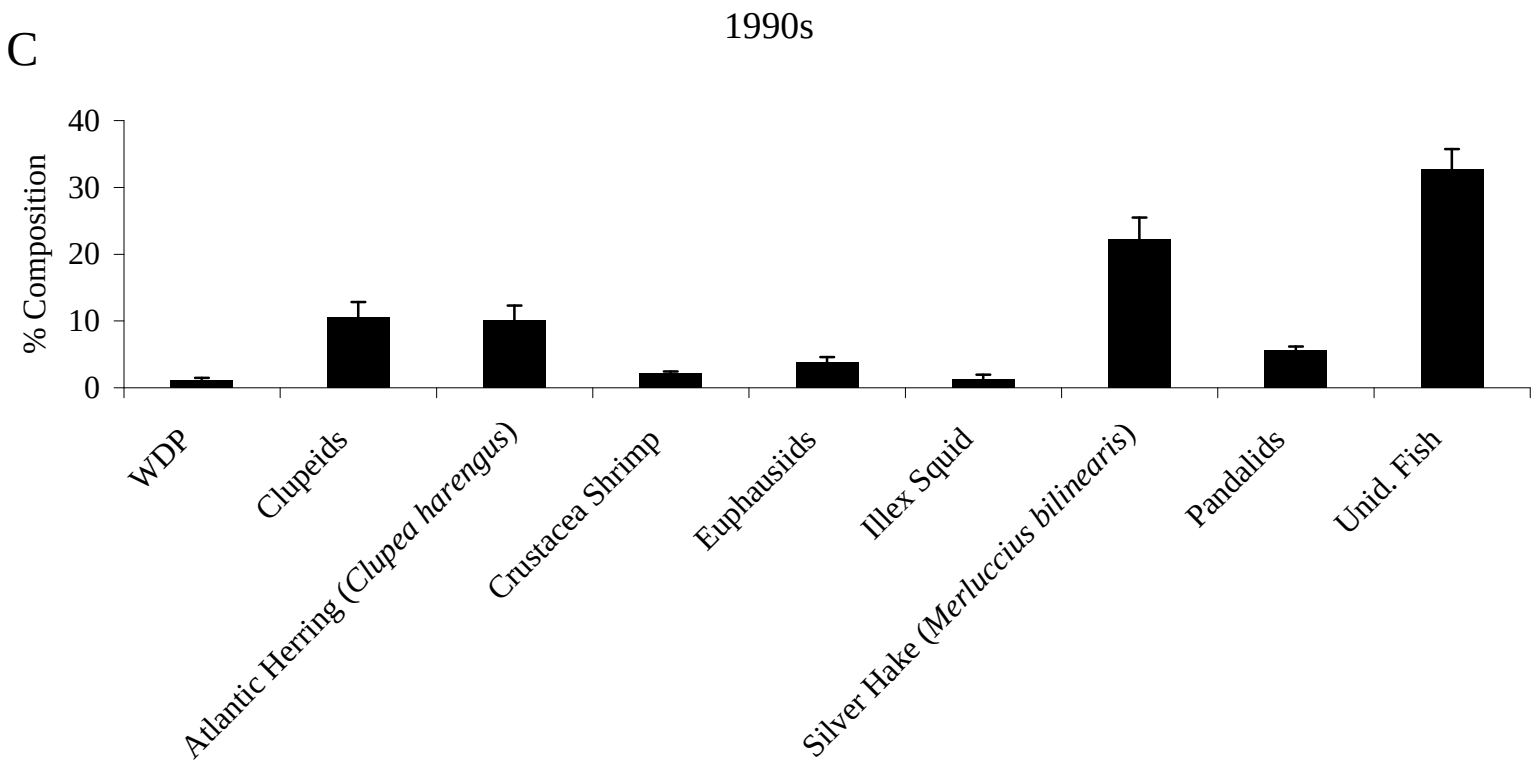

Figure 83C. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in the 1990s (n = 7,617). WDP = well-digested prey; Unid. Fish = unidentified fish.

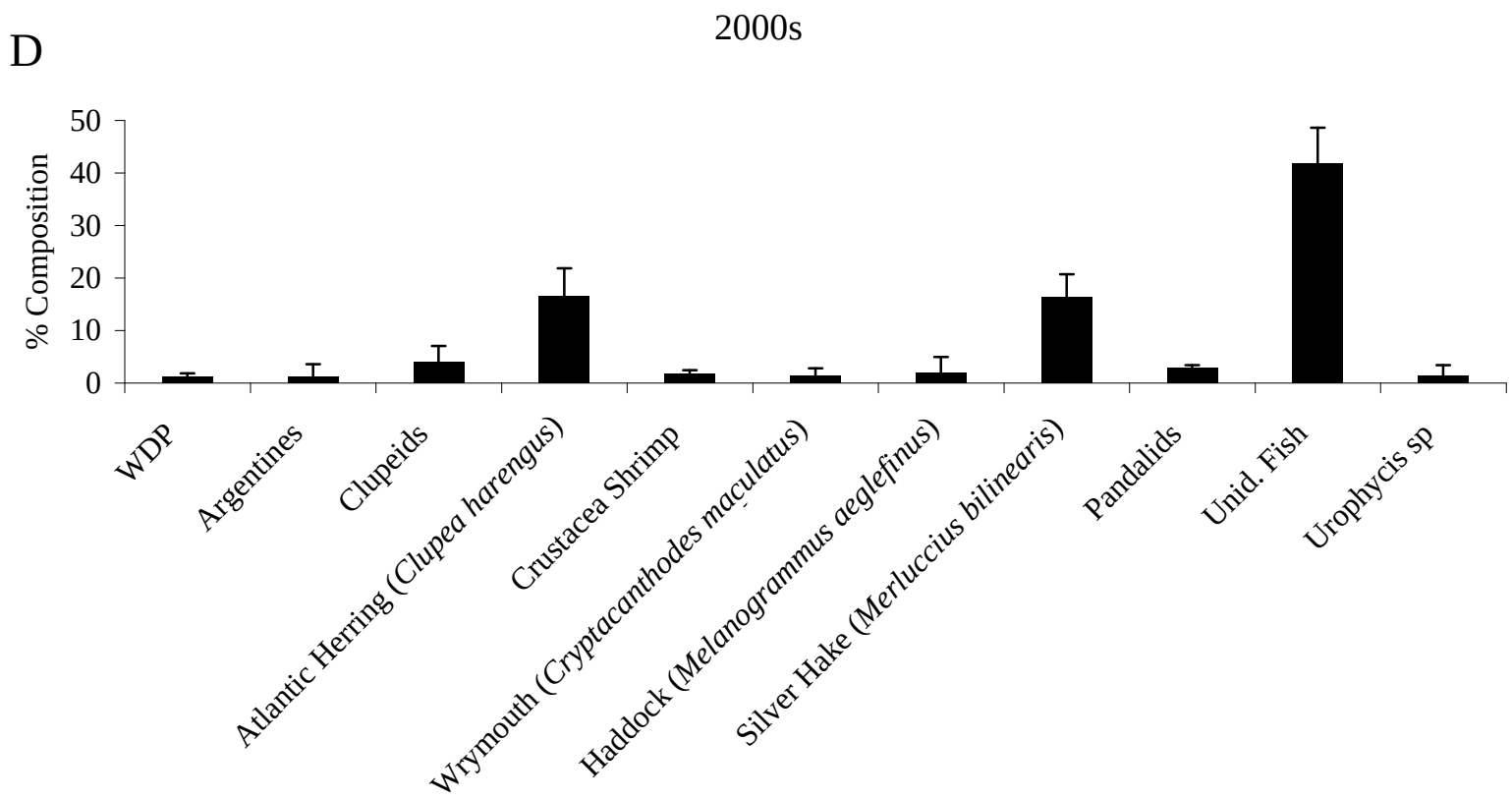

Figure 83D. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in the 2000s (n = 1,872). WDP = well-digested prey; Unid. Fish = unidentified fish.

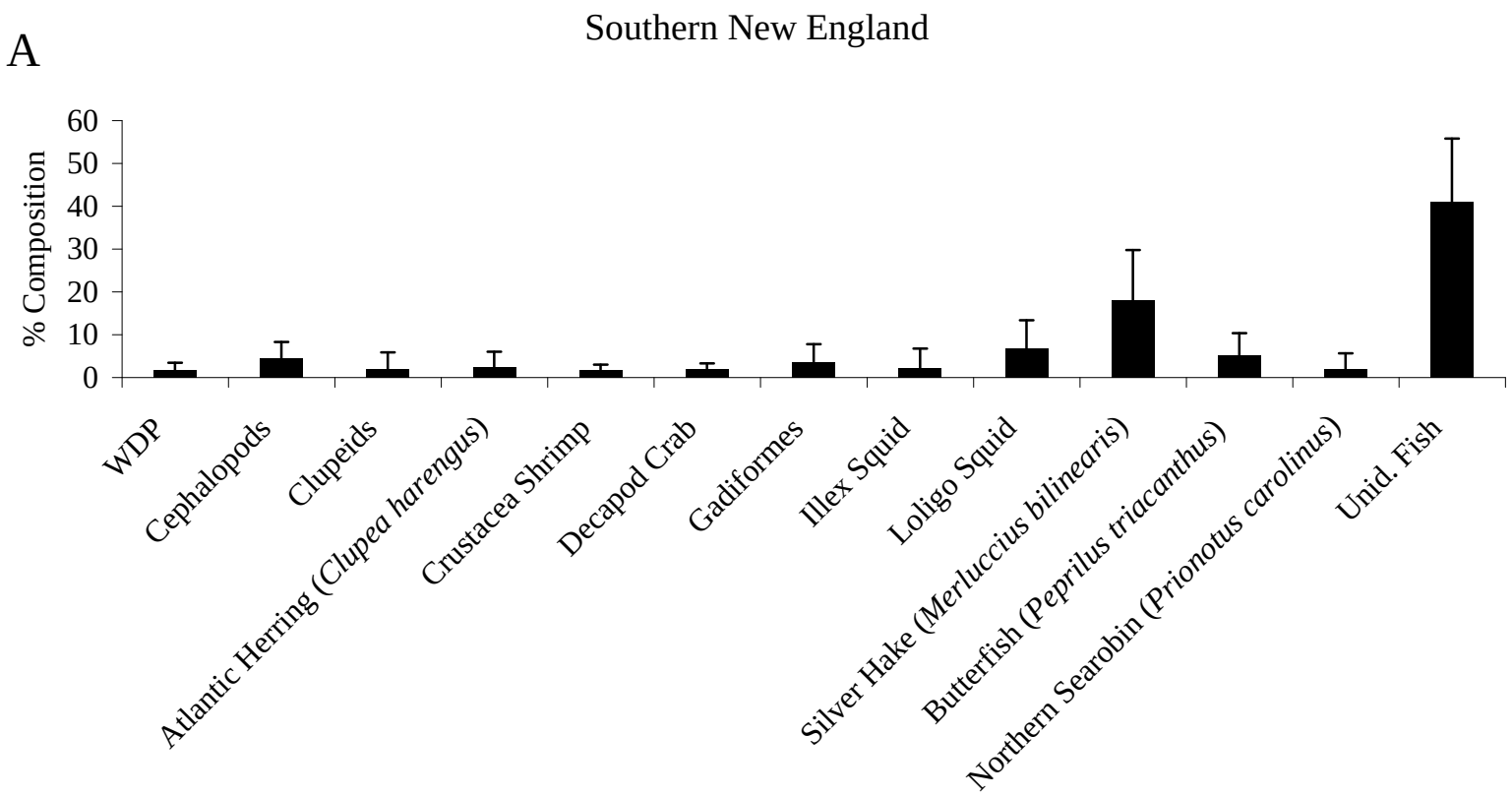

Figure 84A. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in Southern New England (n = 533). WDP = well-digested prey; Unid. Fish = unidentified fish.

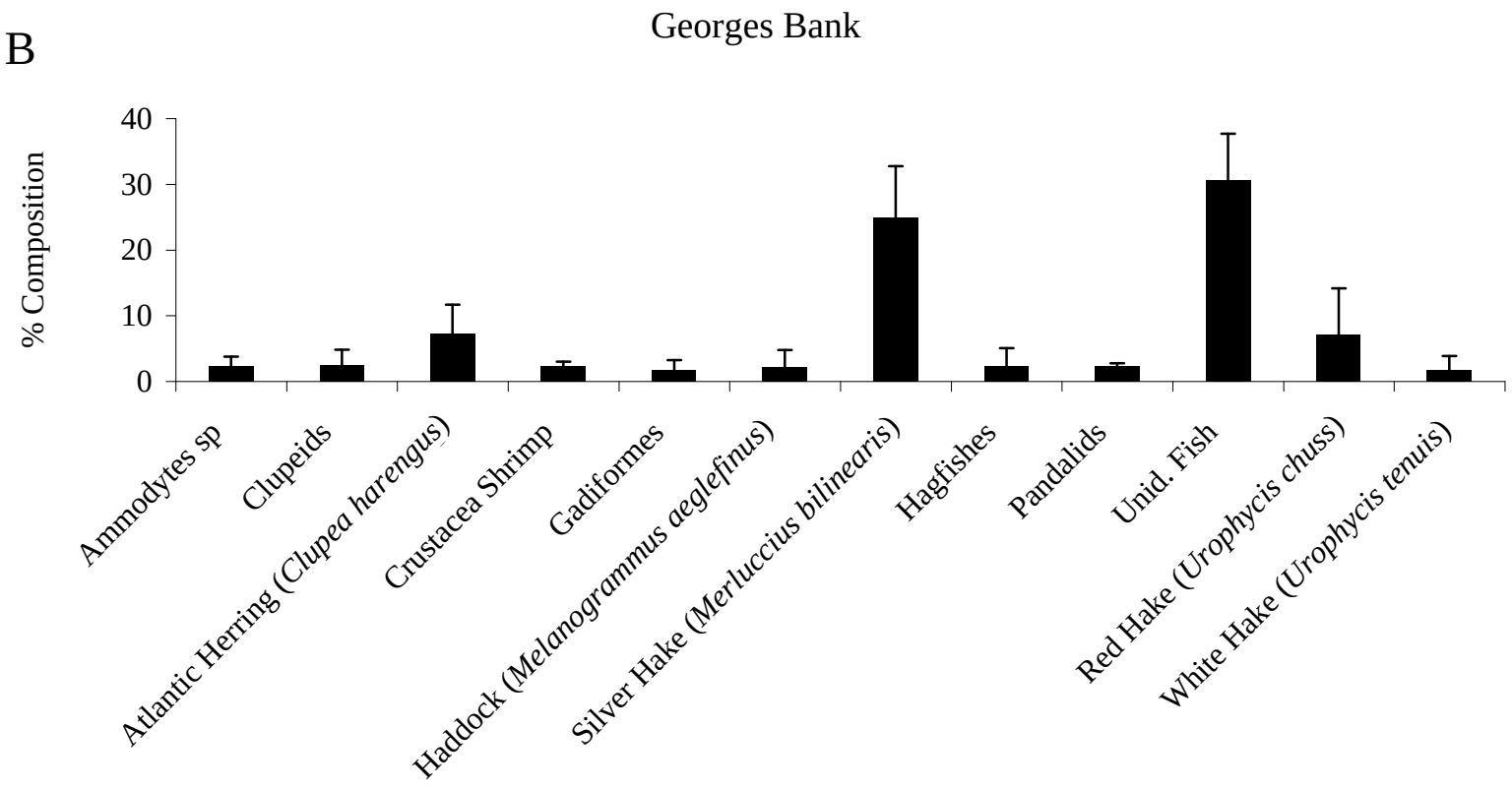

Figure 84B. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected on Georges Bank (n = 1,575). Unid. Fish = unidentified fish.

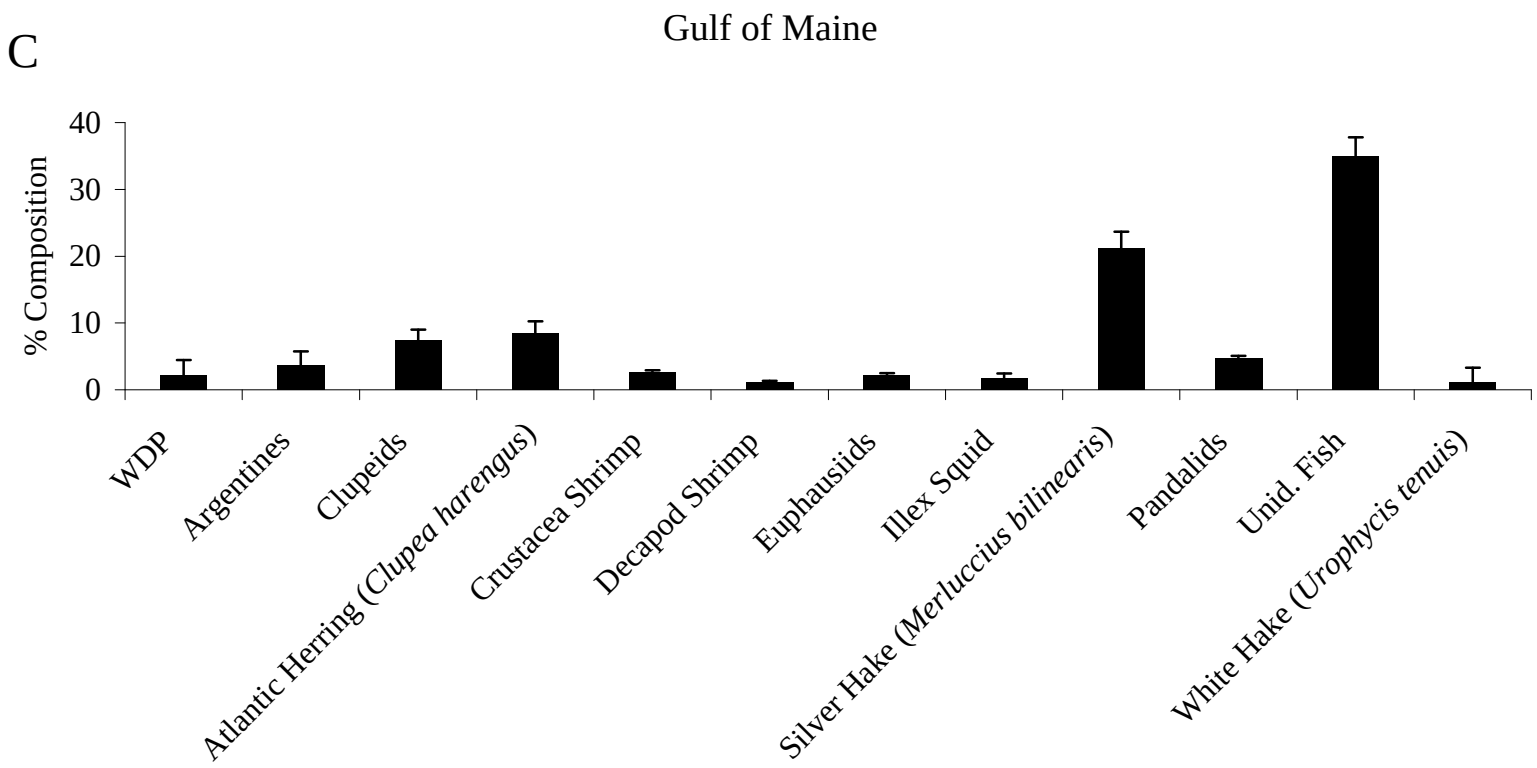

Figure 84C. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in the Gulf of Maine (n = 10,683). WDP = well-digested prey; Unid. Fish = unidentified fish.

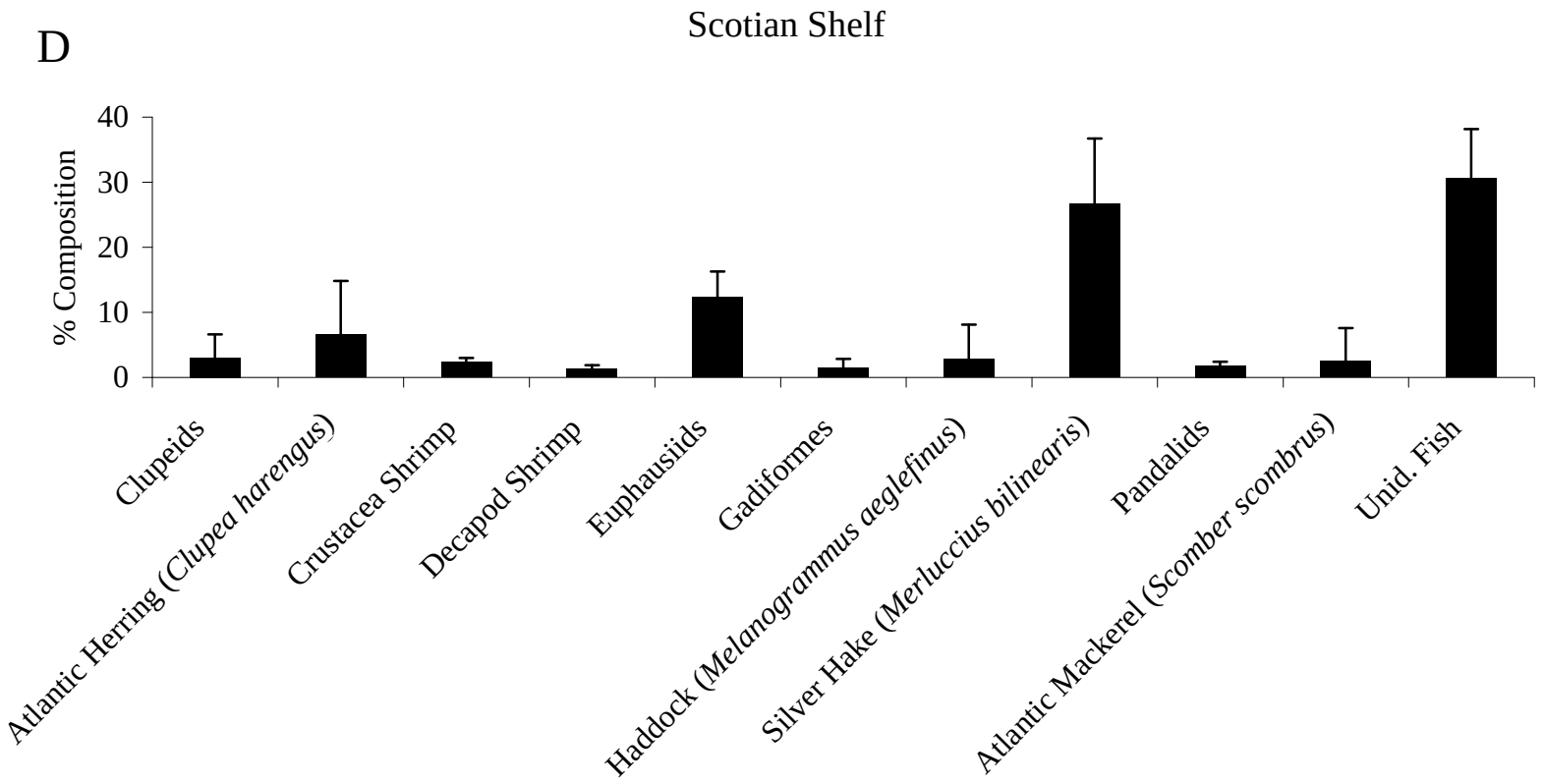

Figure 84D. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected on the Scotian Shelf (n = 1,467). Unid. Fish = unidentified fish.

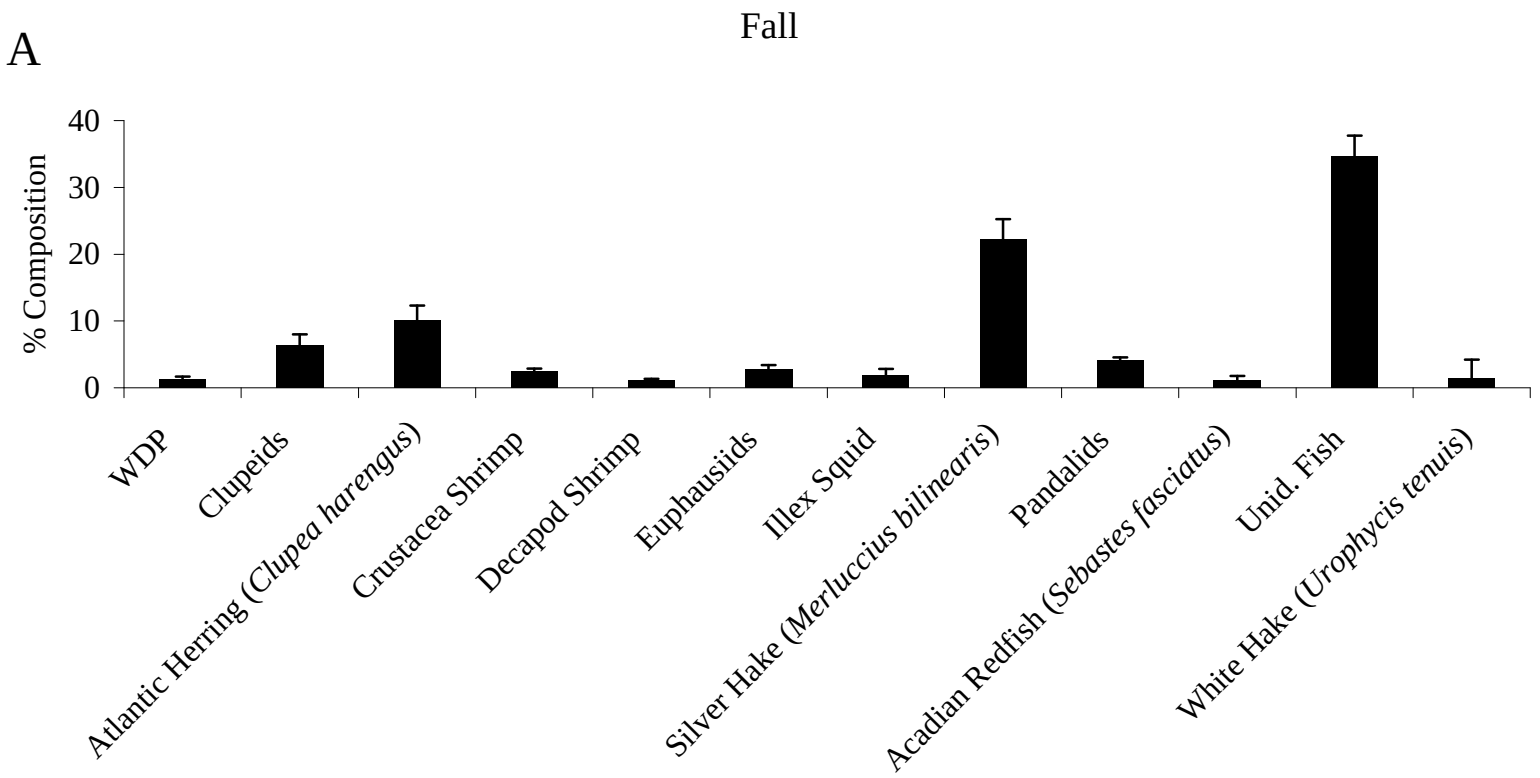

Figure 85A. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected collected in the fall (n = 7,766). WDP = well-digested prey; Unid. Fish = unidentified fish.

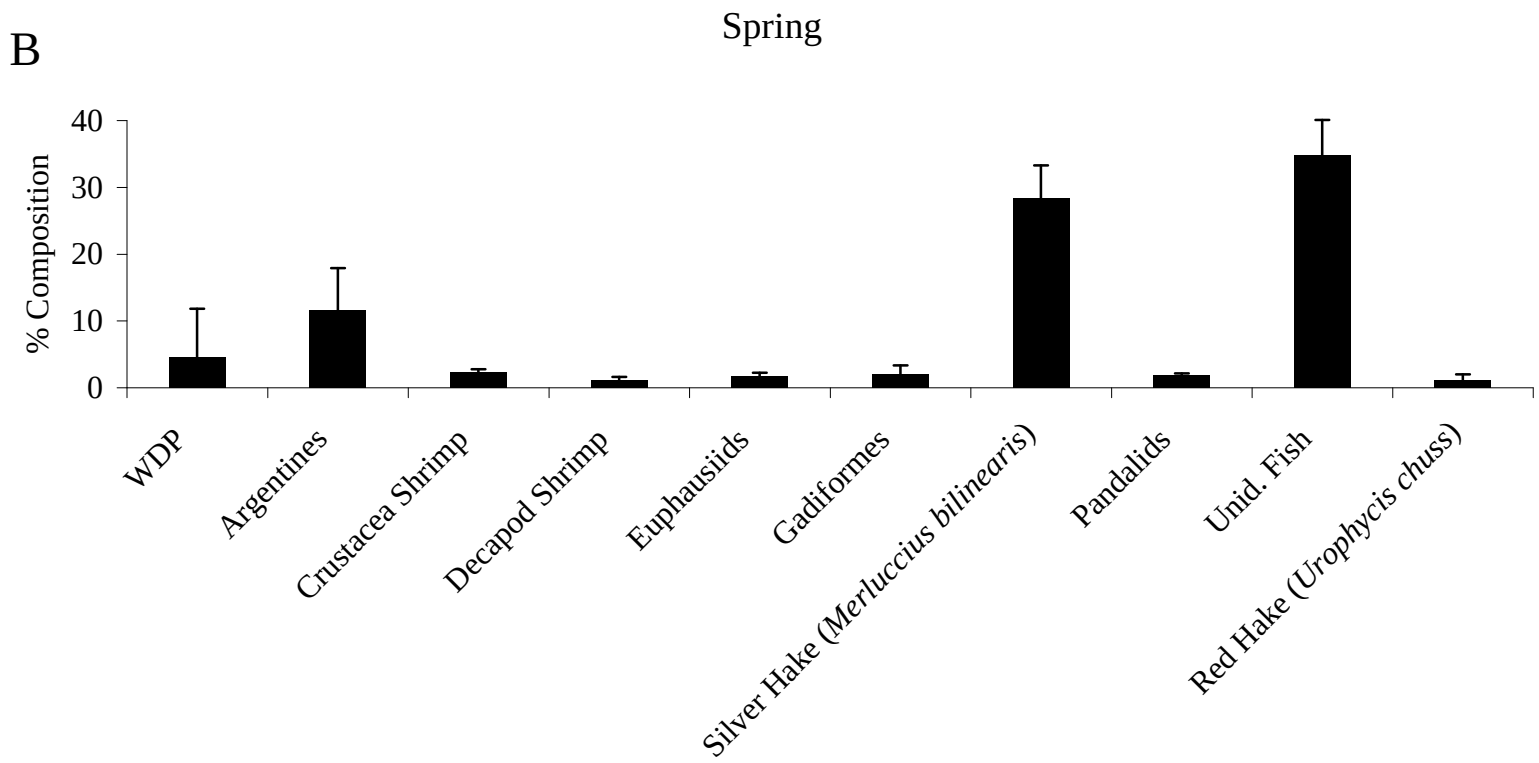

Figure 85B. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in the spring (n = 4,388). WDP = well-digested prey; Unid. Fish = unidentified fish.

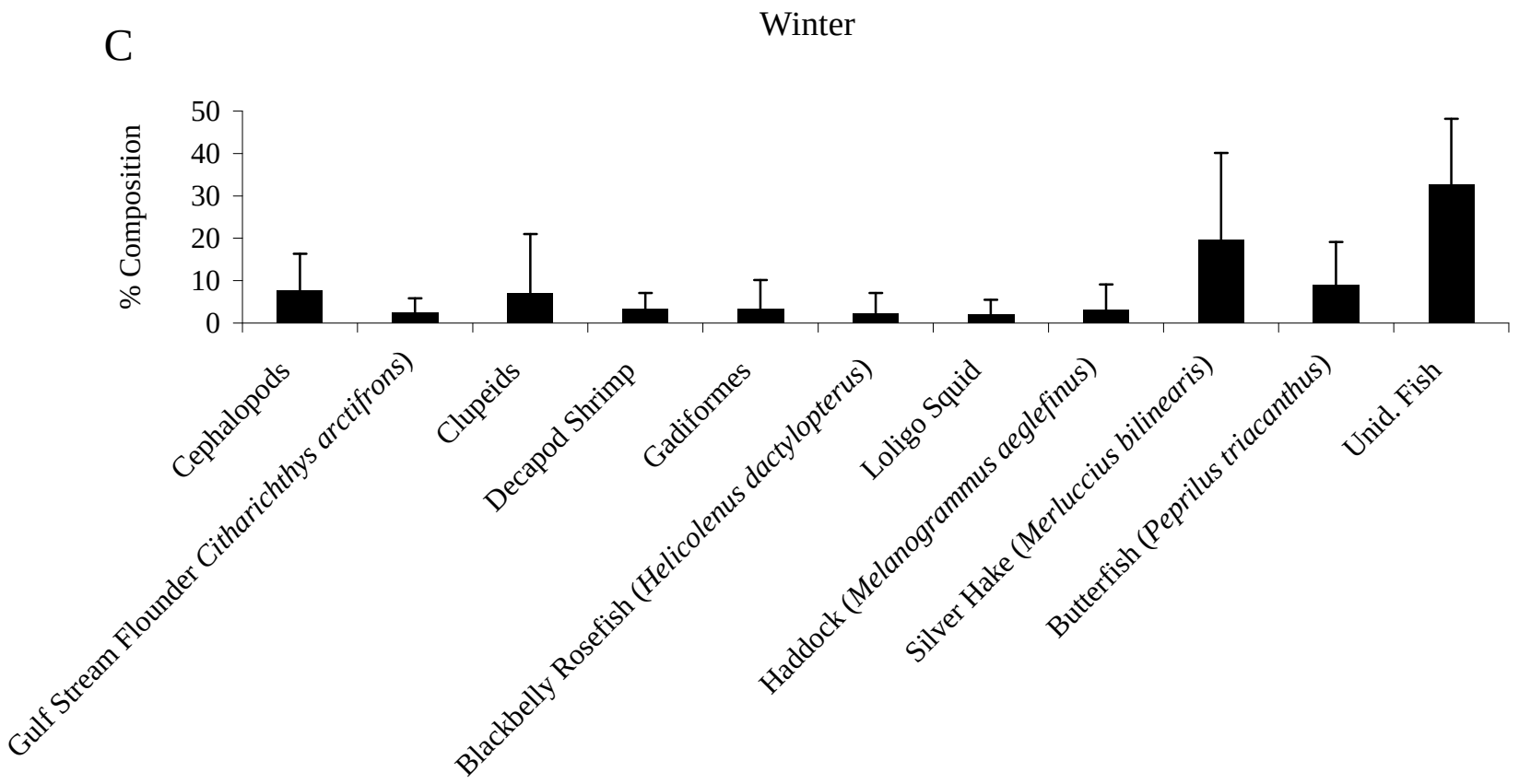

Figure 85C. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in the winter (n = 236). Unid. Fish = unidentified fish.

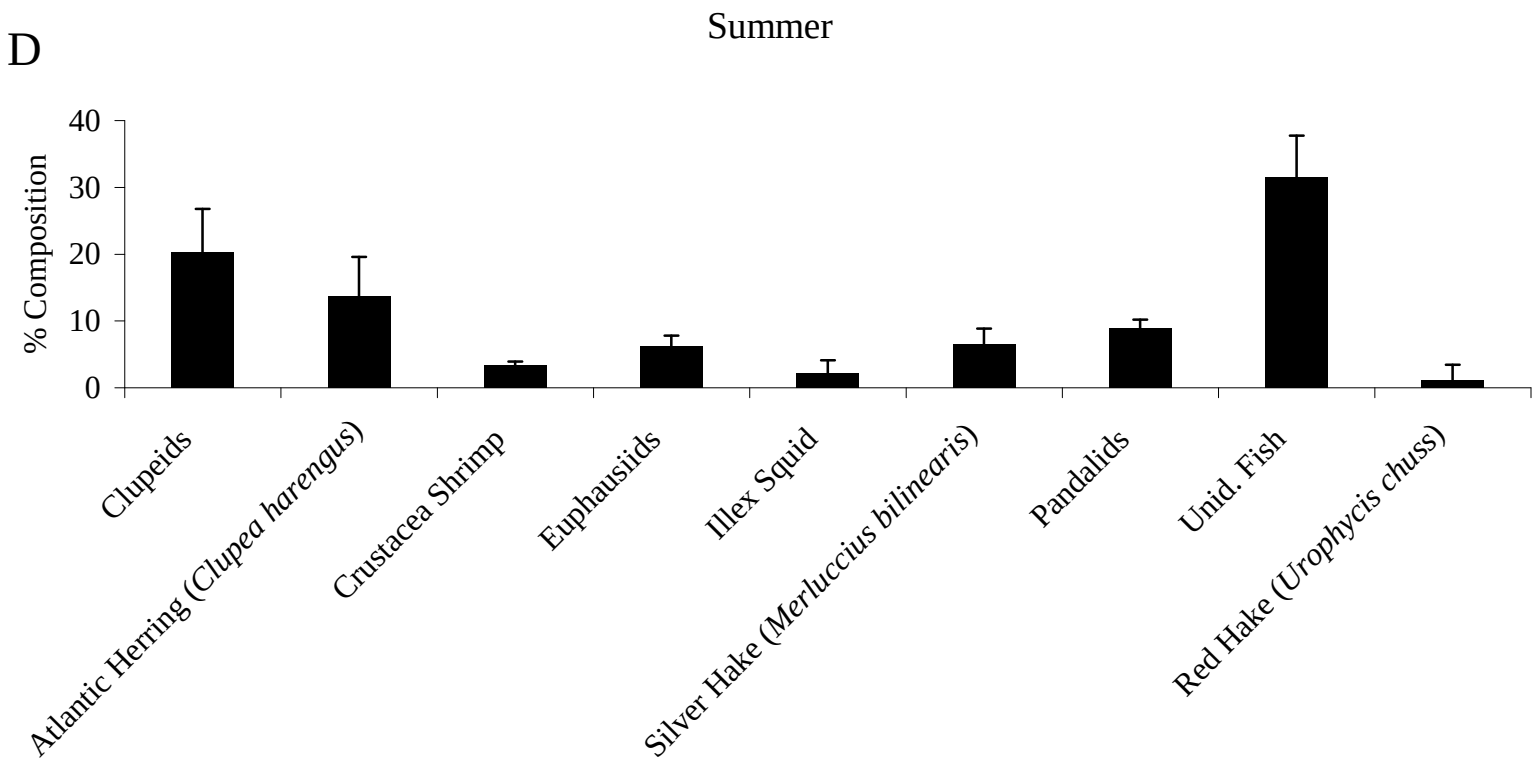

Figure 85D. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) collected in the summer (n = 1,958). Unid. Fish = unidentified fish.

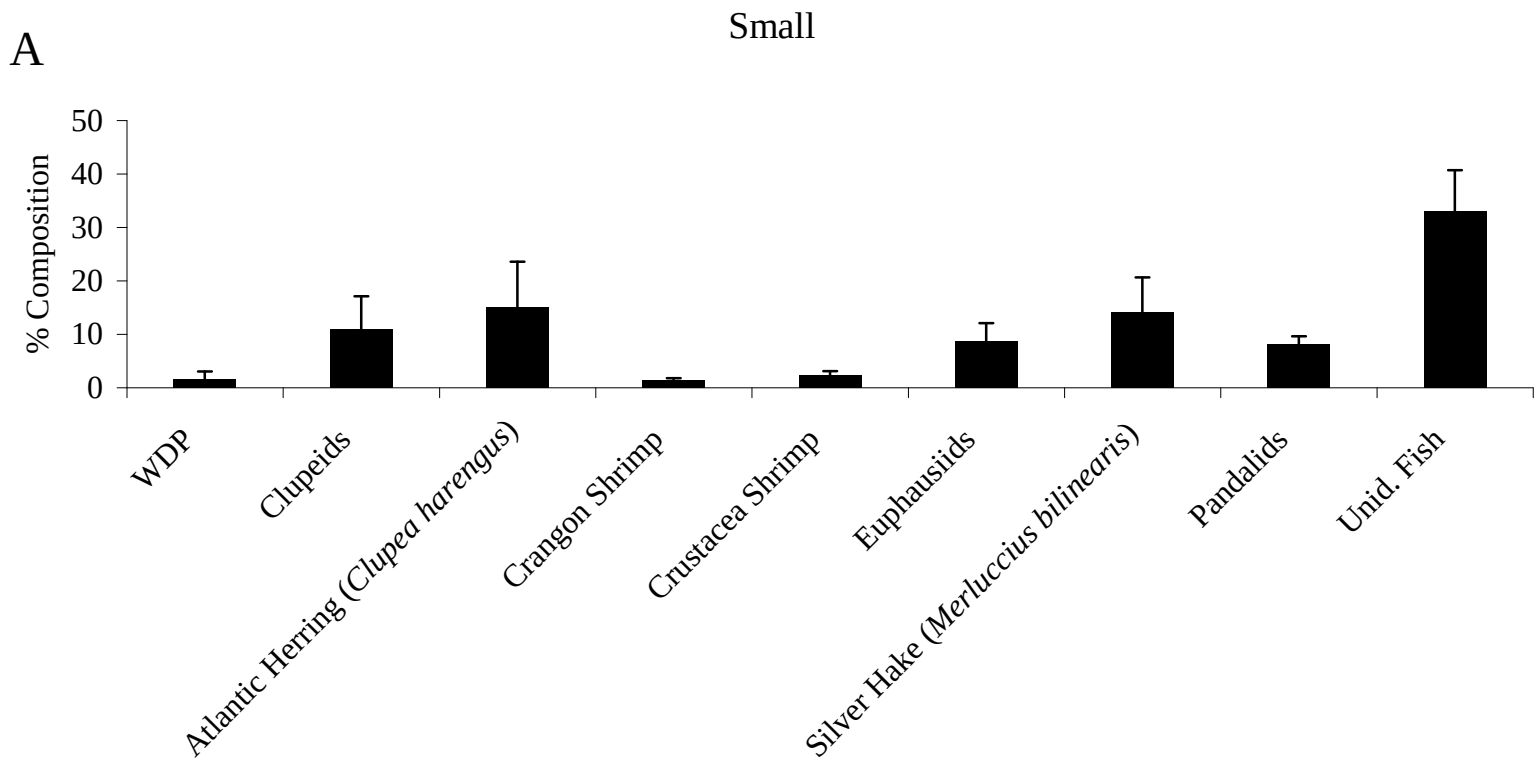

Figure 86A. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) in the small size class (n = 1,700). WDP = well-digested prey; Unid. Fish = unidentified fish.

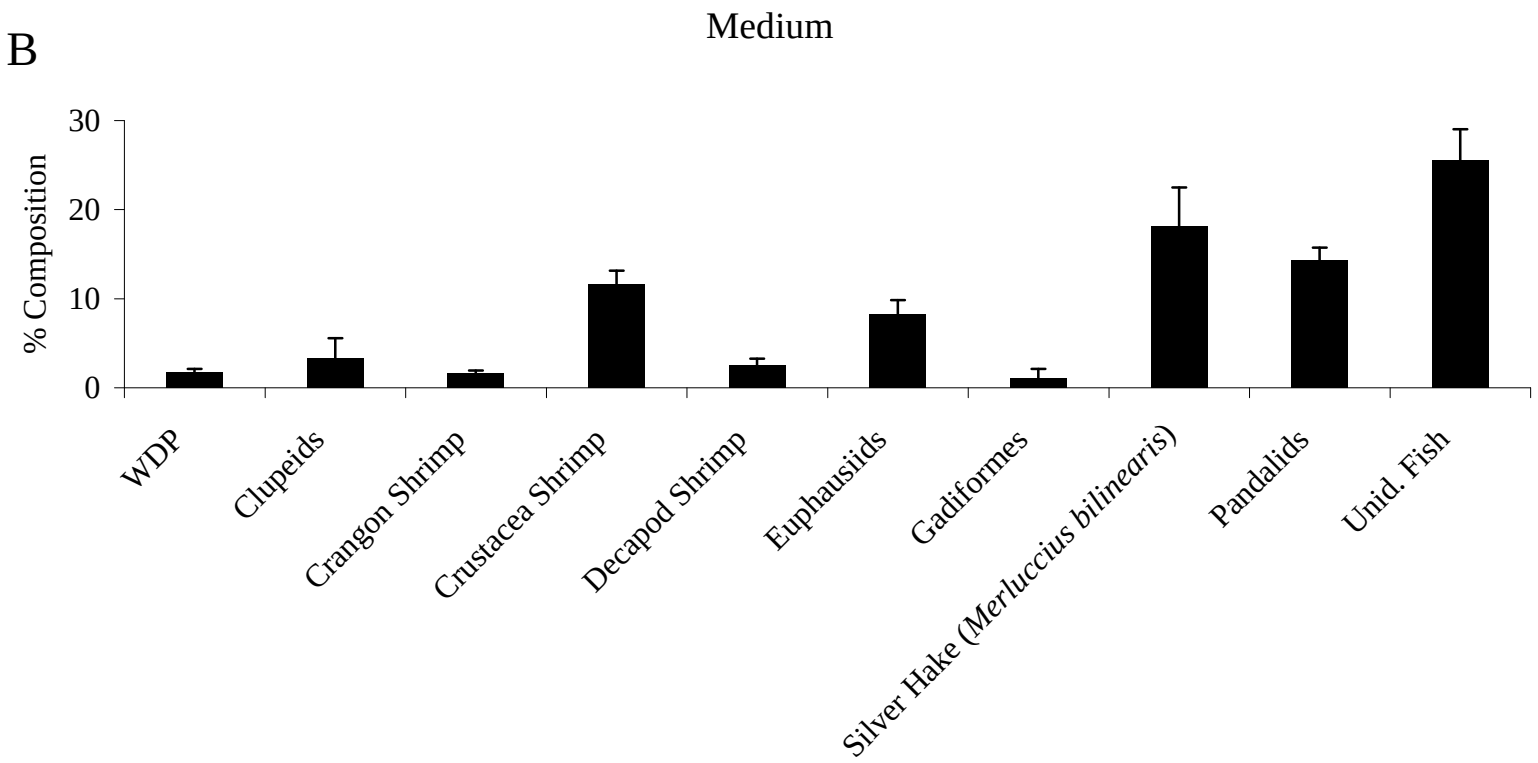

Figure 86B. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) in the medium size class (n = 5,617). WDP = well-digested prey; Unid. Fish = unidentified fish.

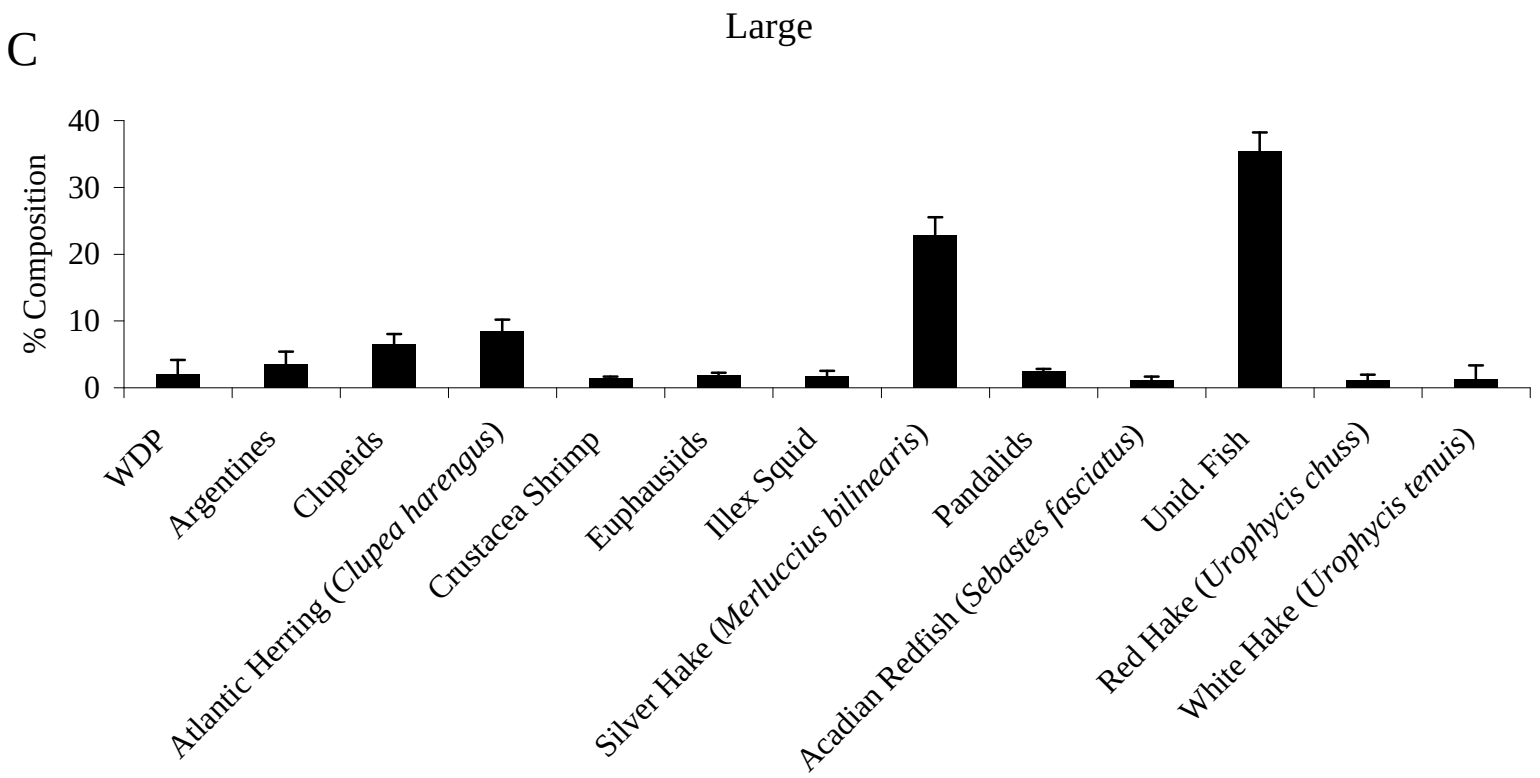

Figure 86C. Percent diet composition by weight of major prey taxa for white hake (*Urophycis tenuis*) in the large size class (n = 7,031). WDP = well-digested prey; Unid. Fish = unidentified fish.

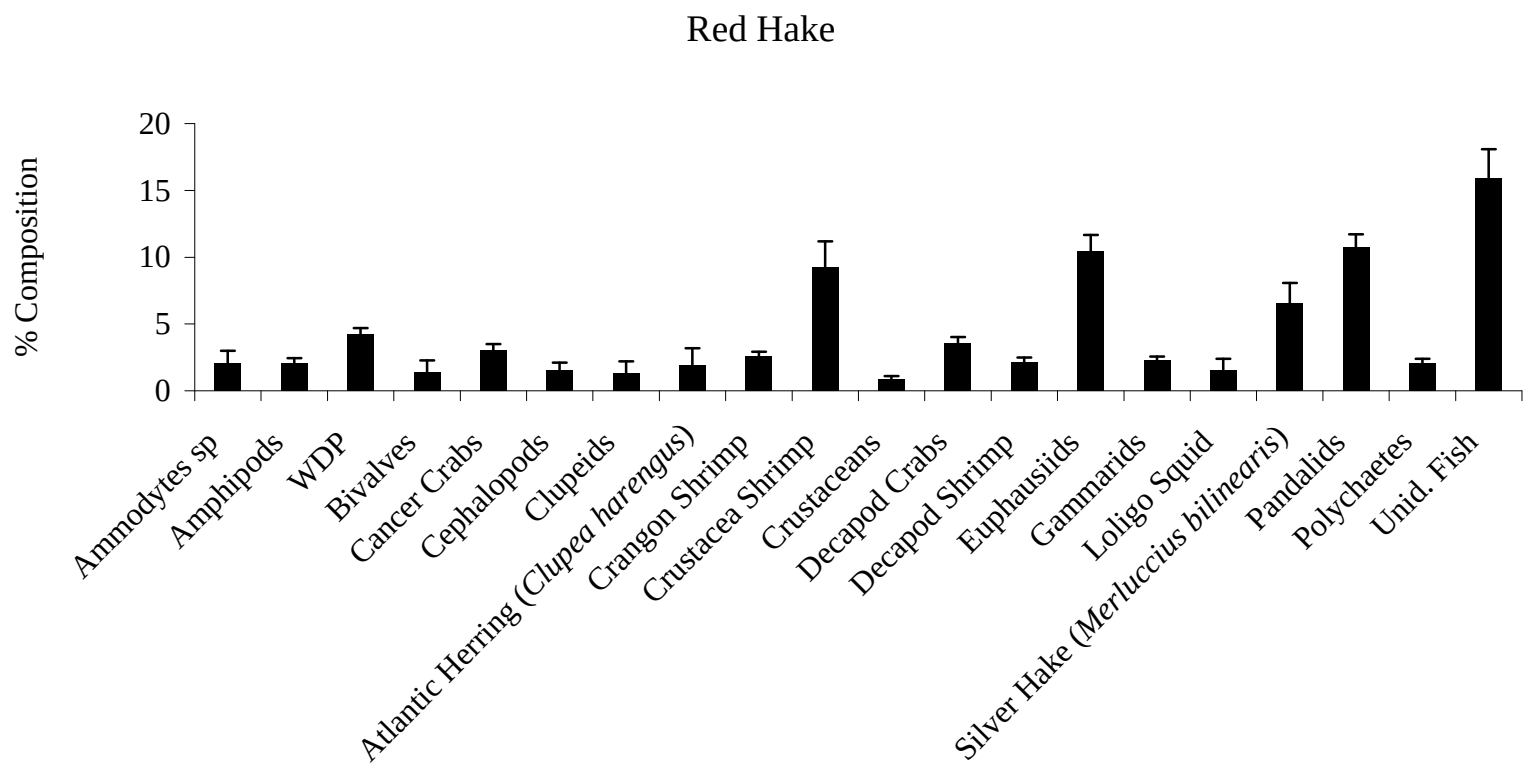

Figure 87. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*; n = 17,841). WDP = well-digested prey; Unid. Fish = unidentified fish.

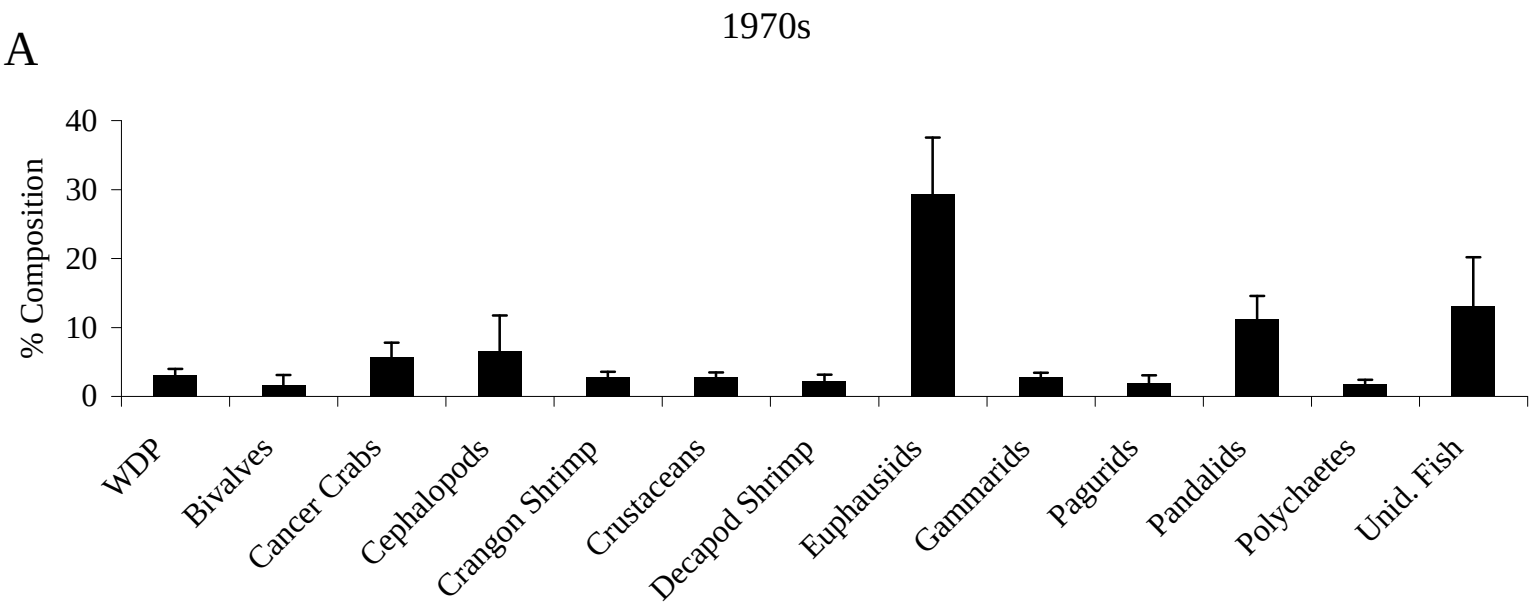

Figure 88A. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the 1970s (n = 1,662). WDP = well-digested prey; Unid. Fish = unidentified fish.

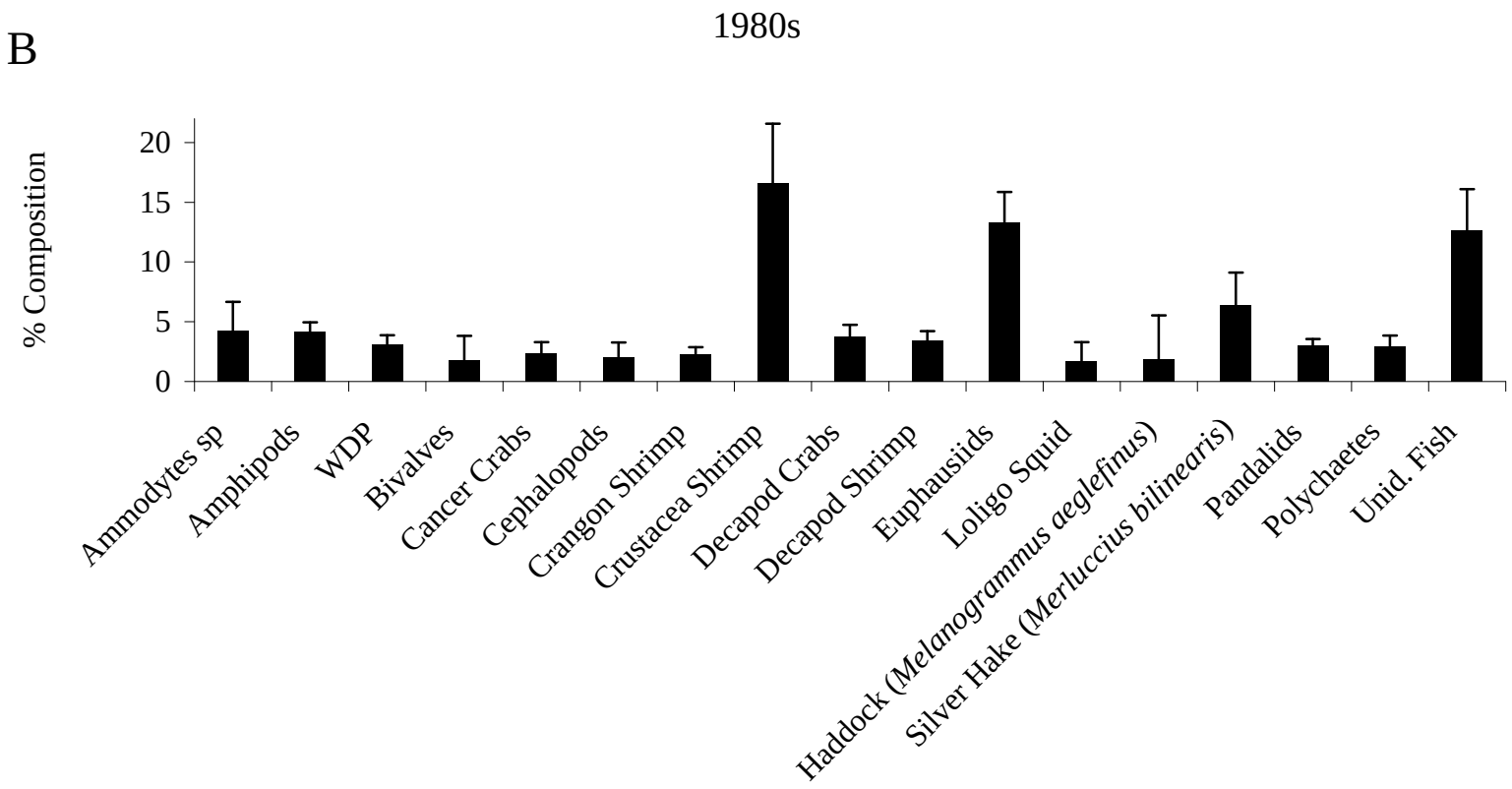

Figure 88B. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the 1980s (n = 4,765). WDP = well-digested prey; Unid. Fish = unidentified fish.

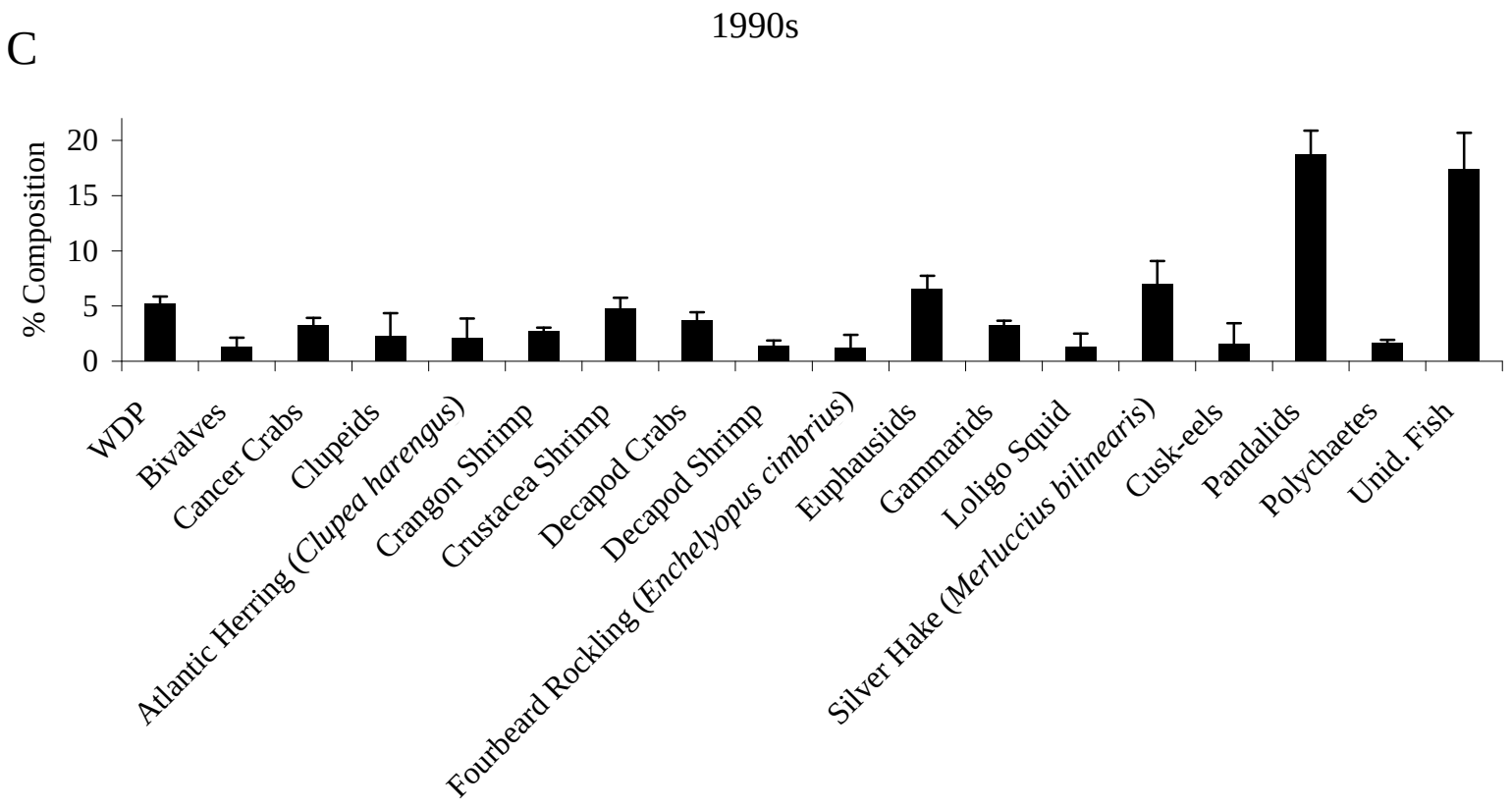

Figure 88C. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the 1990s (n = 7,906). WDP = well-digested prey; Unid. Fish = unidentified fish.

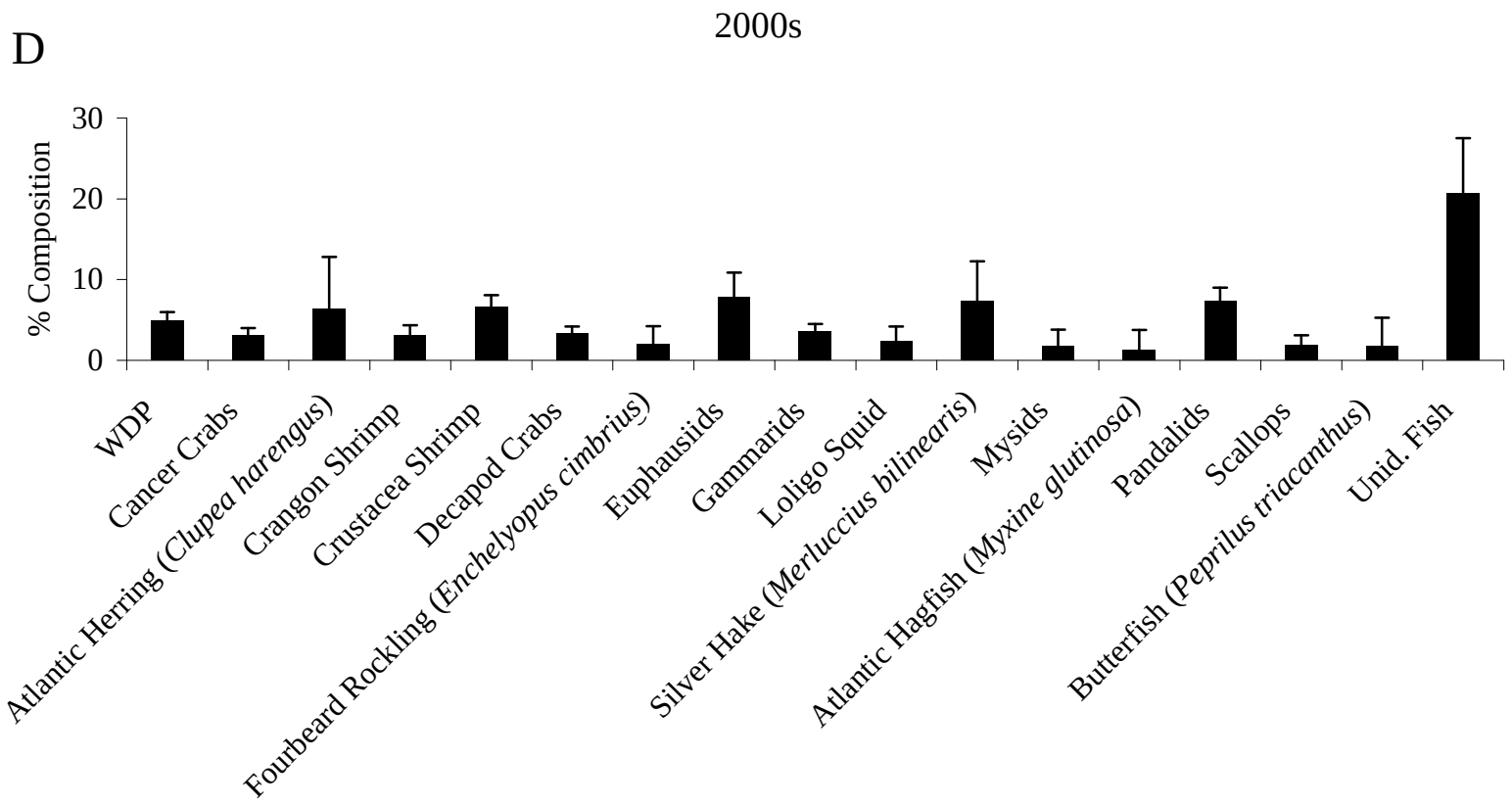

Figure 88D. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the 2000s (n = 3,508). WDP = well-digested prey; Unid. Fish = unidentified fish.

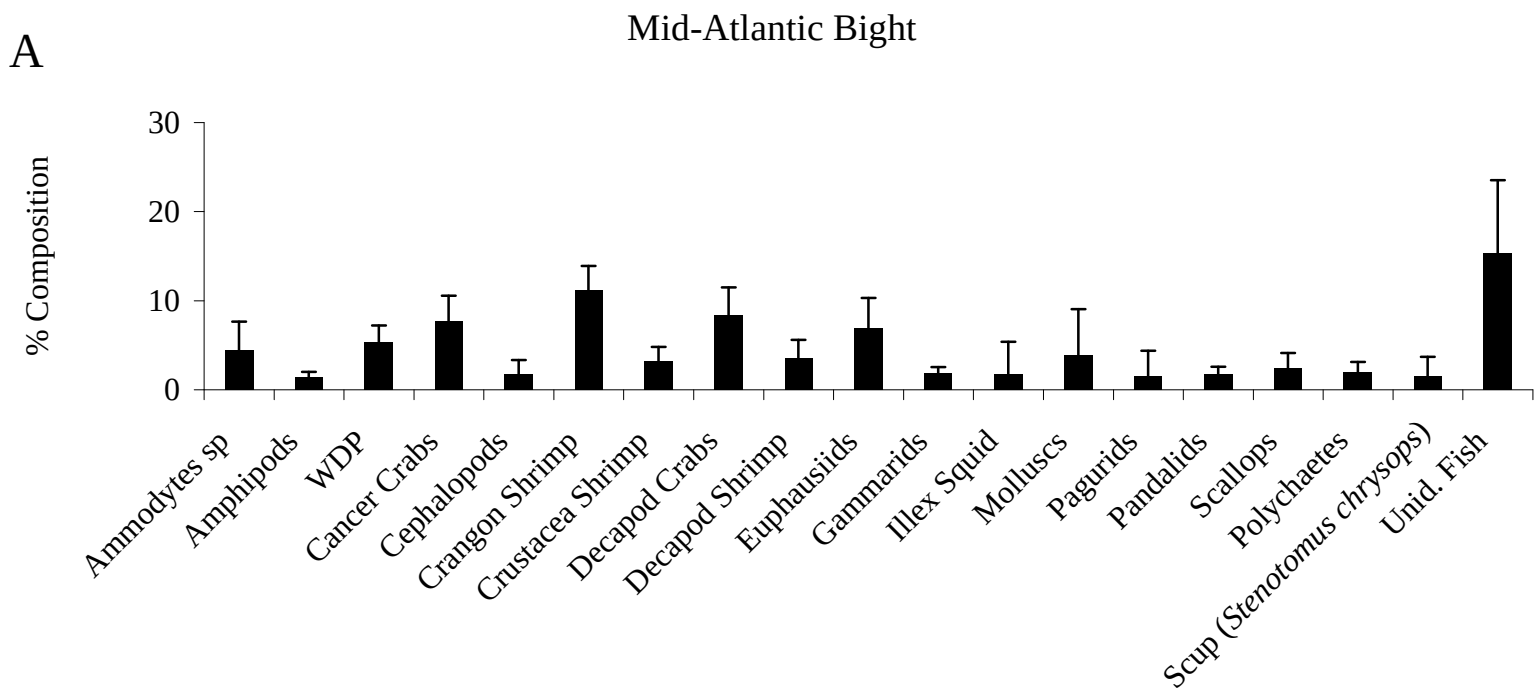

Figure 89A. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the Mid-Atlantic Bight (n = 1,106). WDP = well-digested prey; Unid. Fish = unidentified fish.

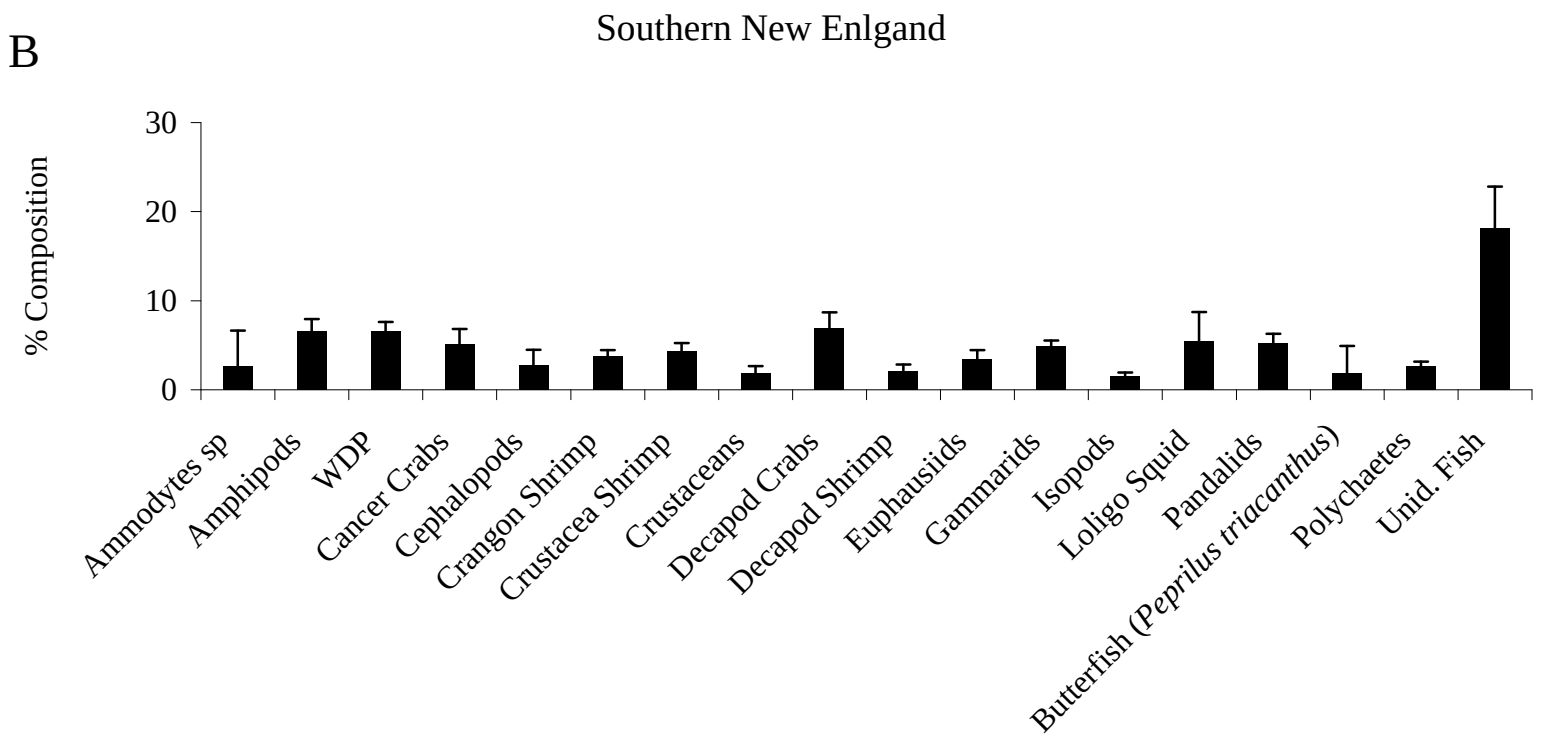

Figure 89B. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in Southern New England (n = 4,649). WDP = well-digested prey; Unid. Fish = unidentified fish.

C

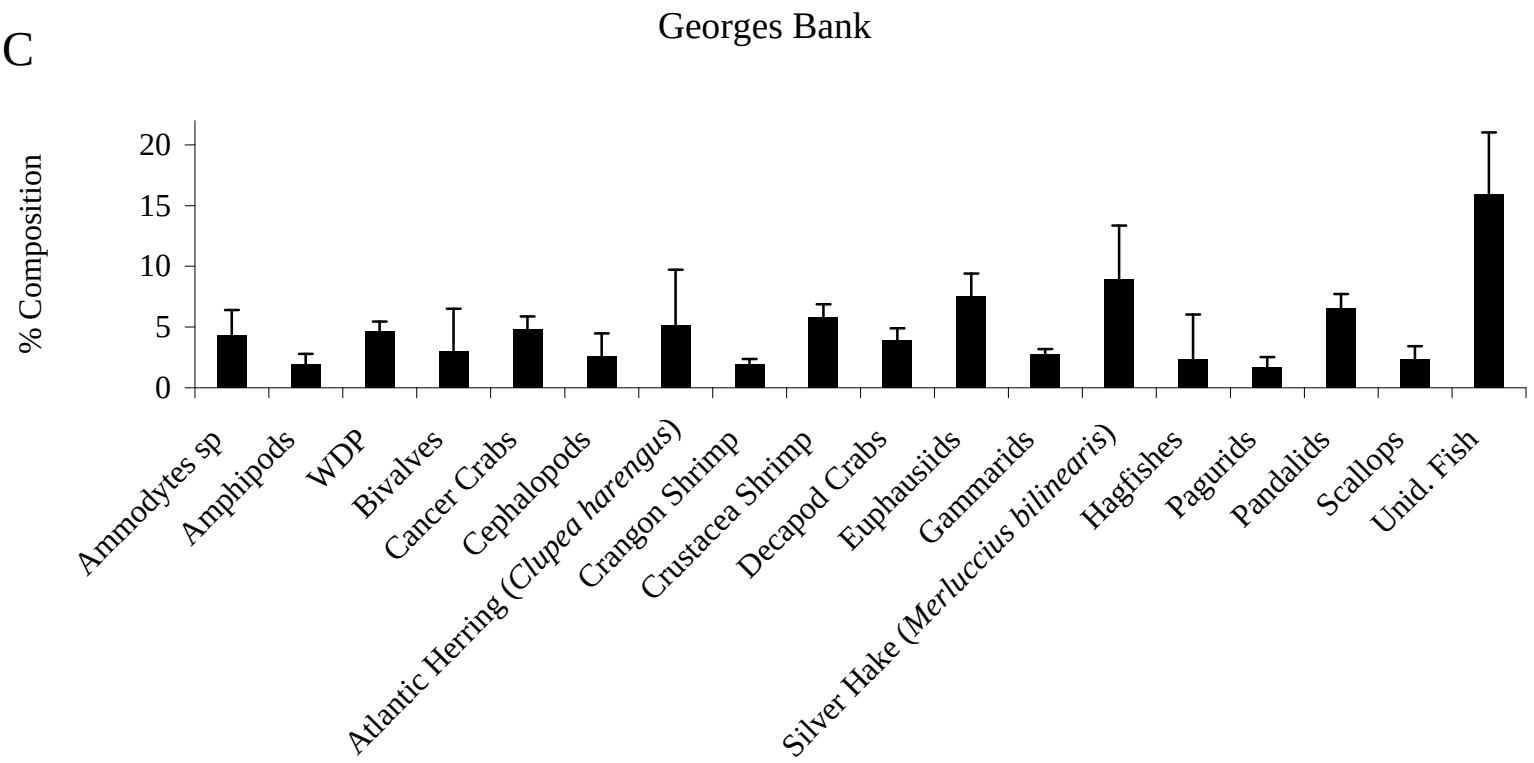

Figure 89C. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected on Georges Bank (n = 4,022). WDP = well-digested prey; Unid. Fish = unidentified fish.

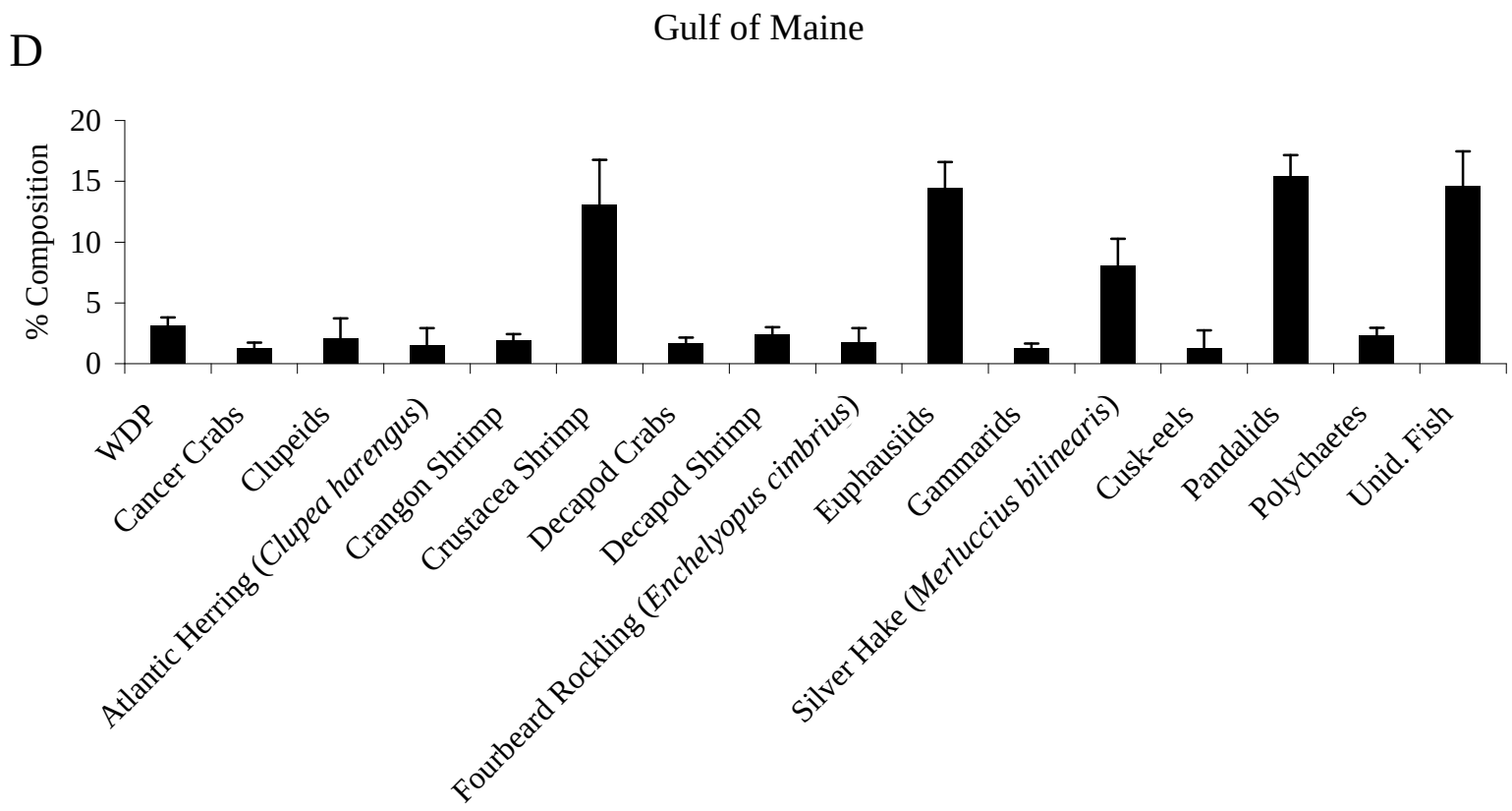

Figure 89D. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the Gulf of Maine (n = 7,383). WDP = well-digested prey; Unid. Fish = unidentified fish.

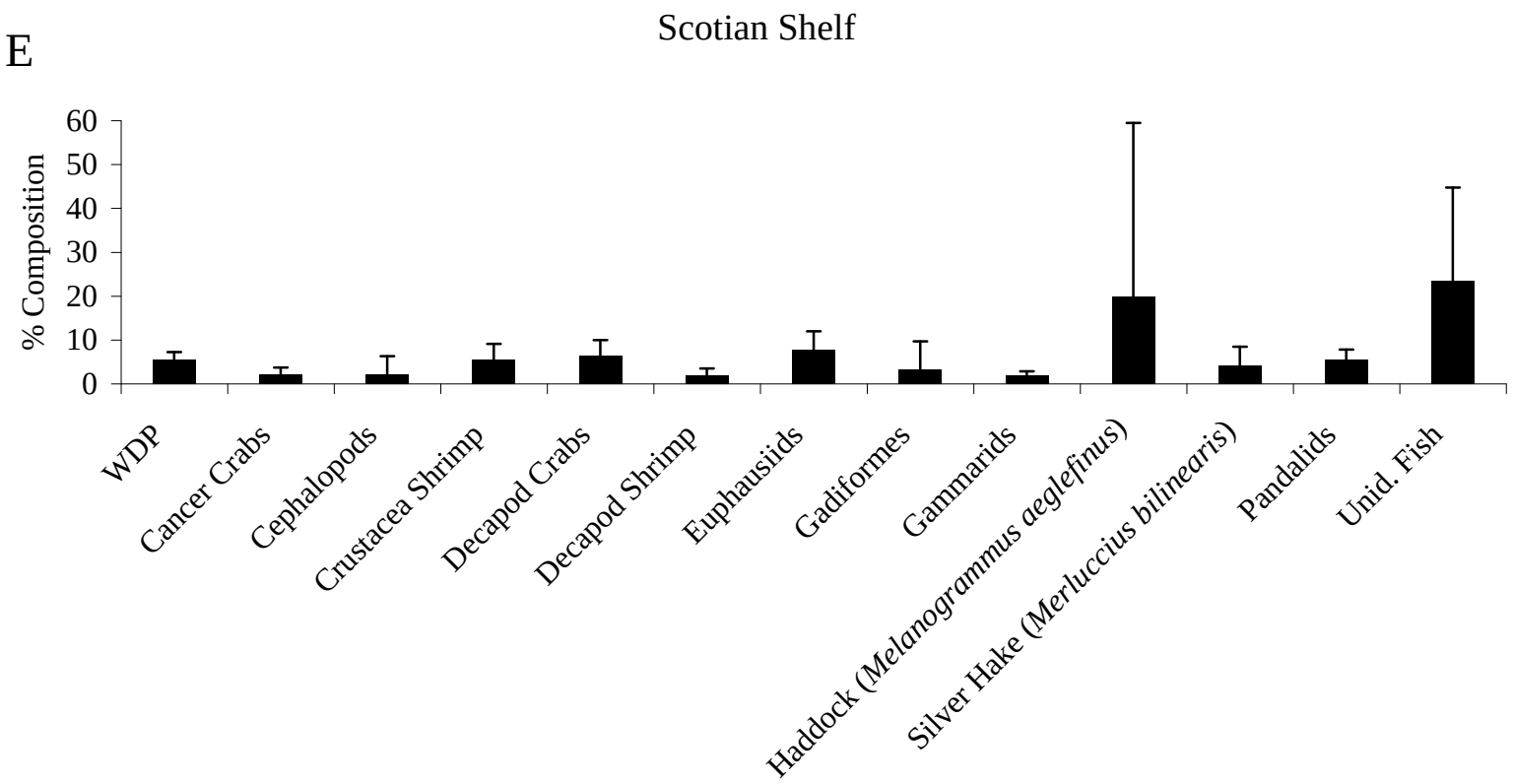

Figure 89E. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected collected on the Scotian Shelf (n = 681). WDP = well-digested prey; Unid. Fish = unidentified fish.

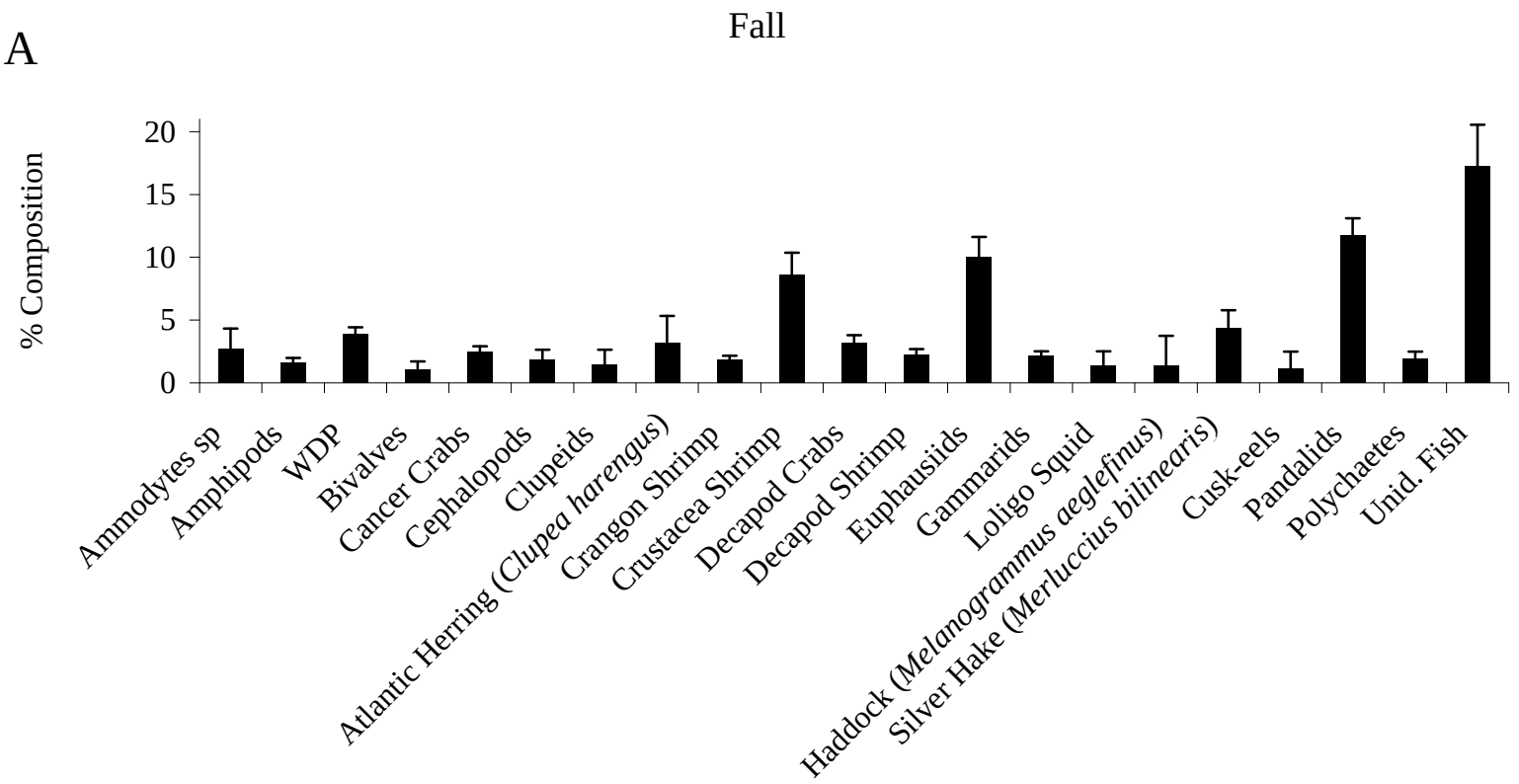

Figure 90A. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the fall (n = 8,399). WDP = well-digested prey; Unid. Fish = unidentified fish.

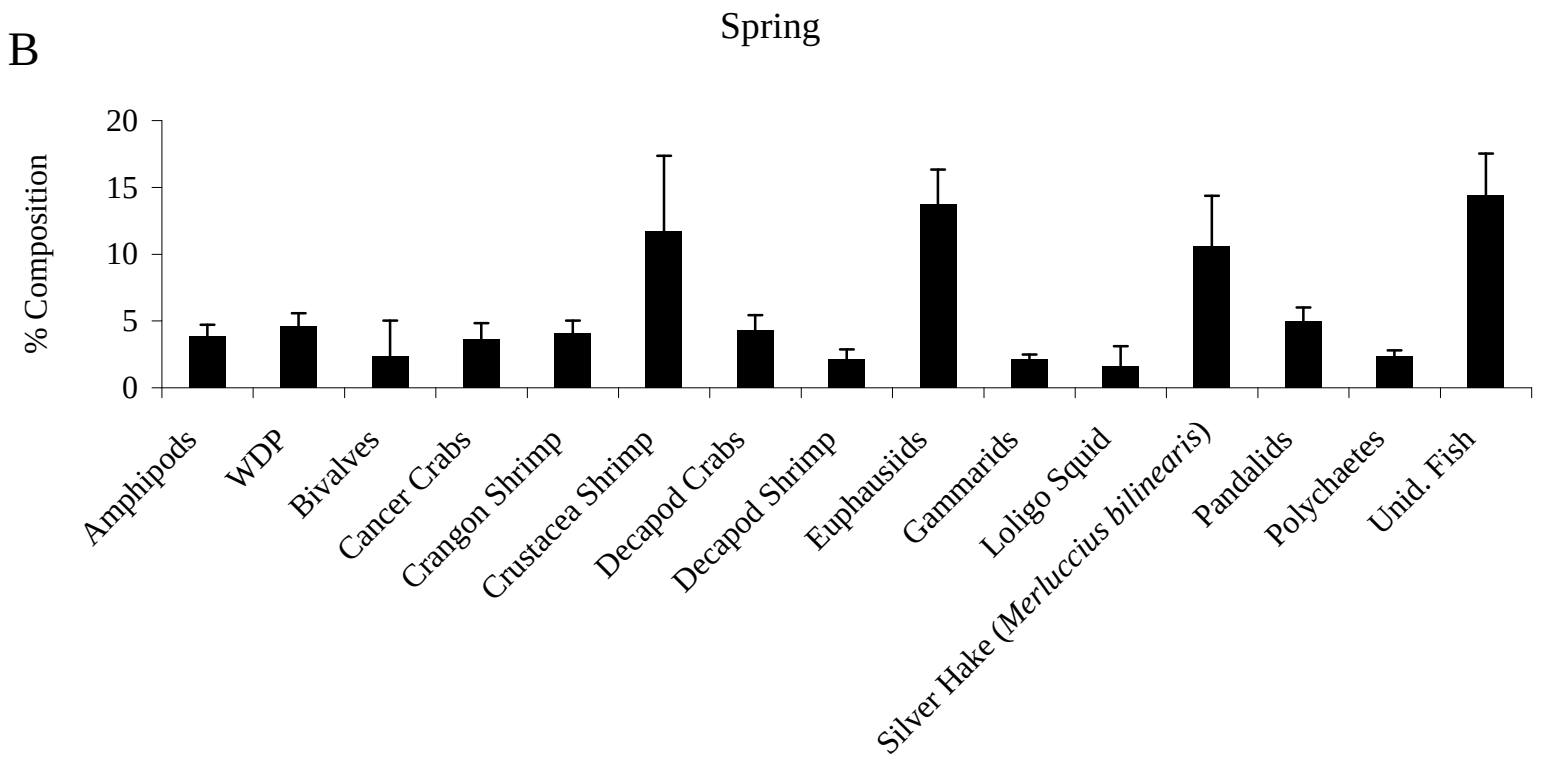

Figure 90B. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the spring (n = 6,437). WDP = well-digested prey; Unid. Fish = unidentified fish.

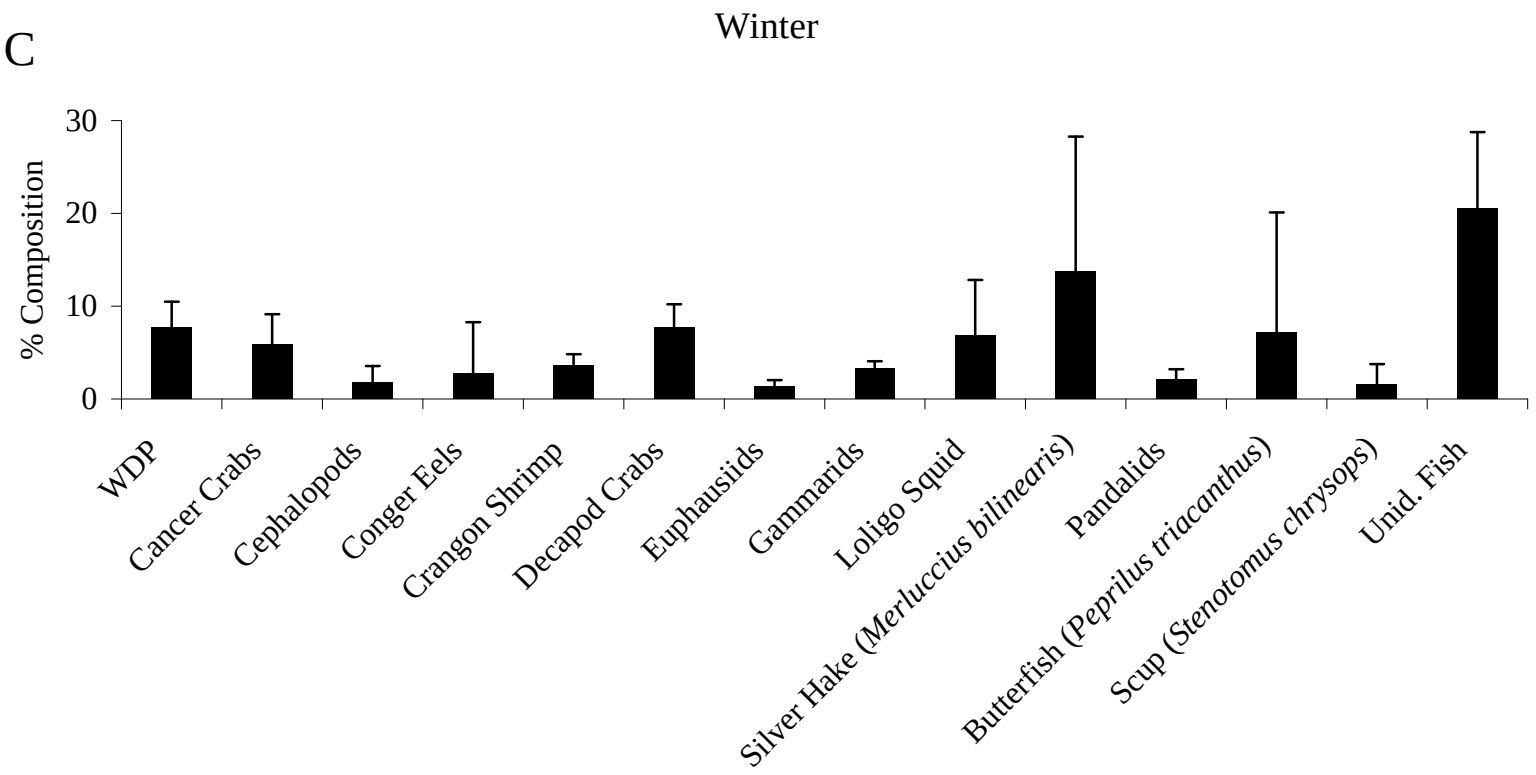

Figure 90C. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the winter (n = 1,270). WDP = well-digested prey; Unid. Fish = unidentified fish.

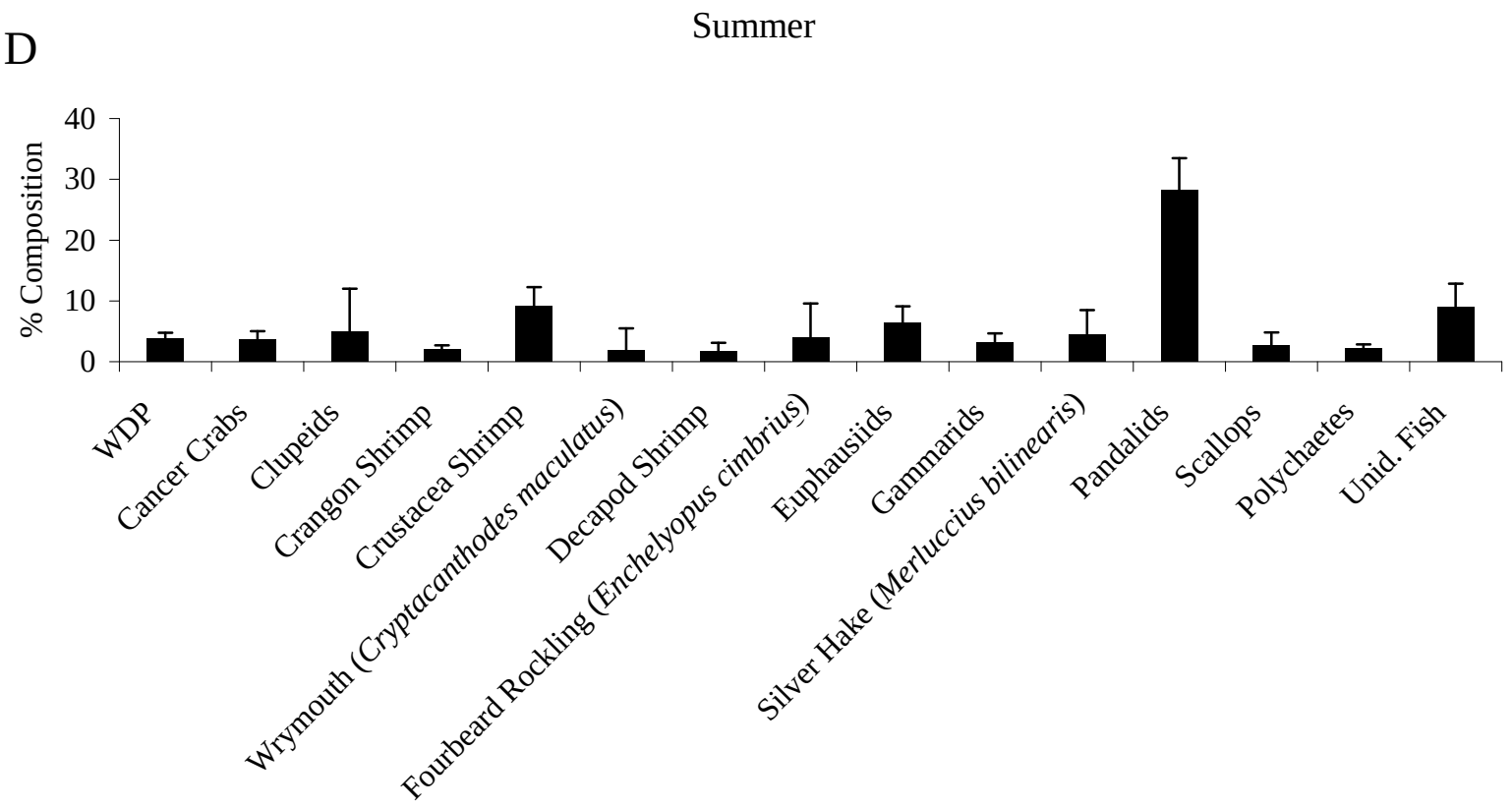

Figure 90D. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the summer (n = 1,735). WDP = well-digested prey; Unid. Fish = unidentified fish.

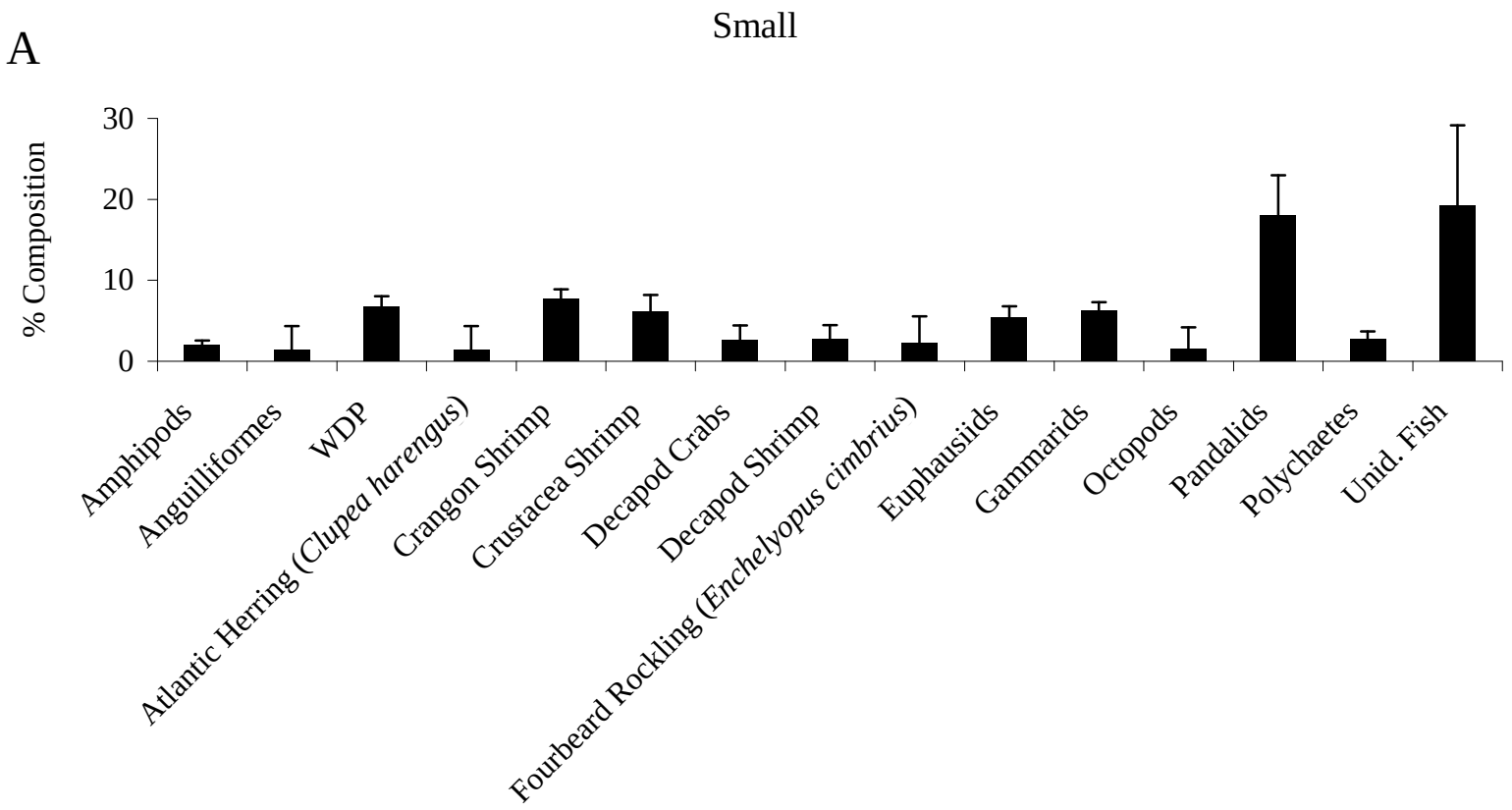

Figure 91A. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the small size class (n = 3,493). WDP = well-digested prey; Unid. Fish = unidentified fish.

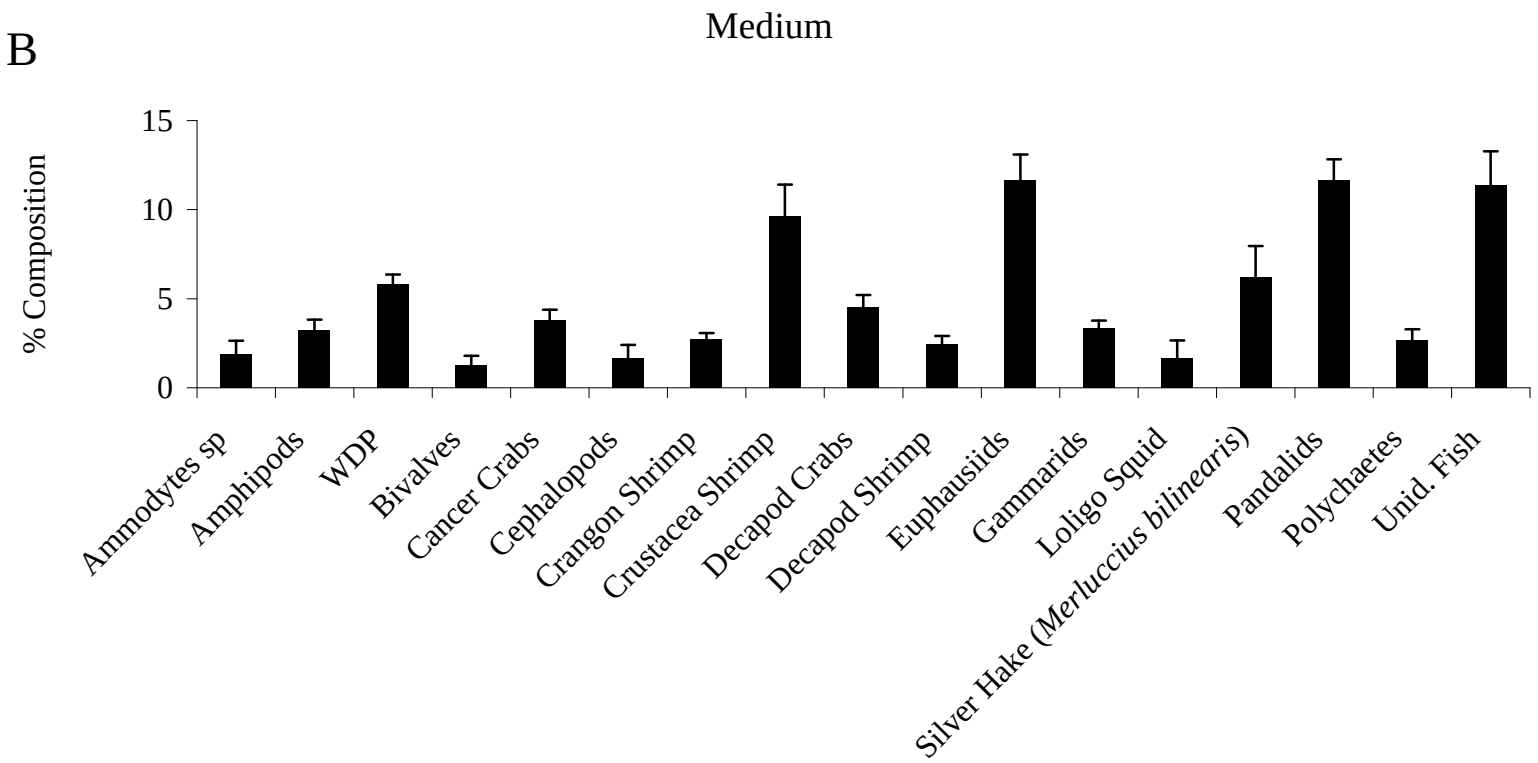

Figure 91B. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the medium size class (n = 12,273). WDP = well-digested prey; Unid. Fish = unidentified fish.

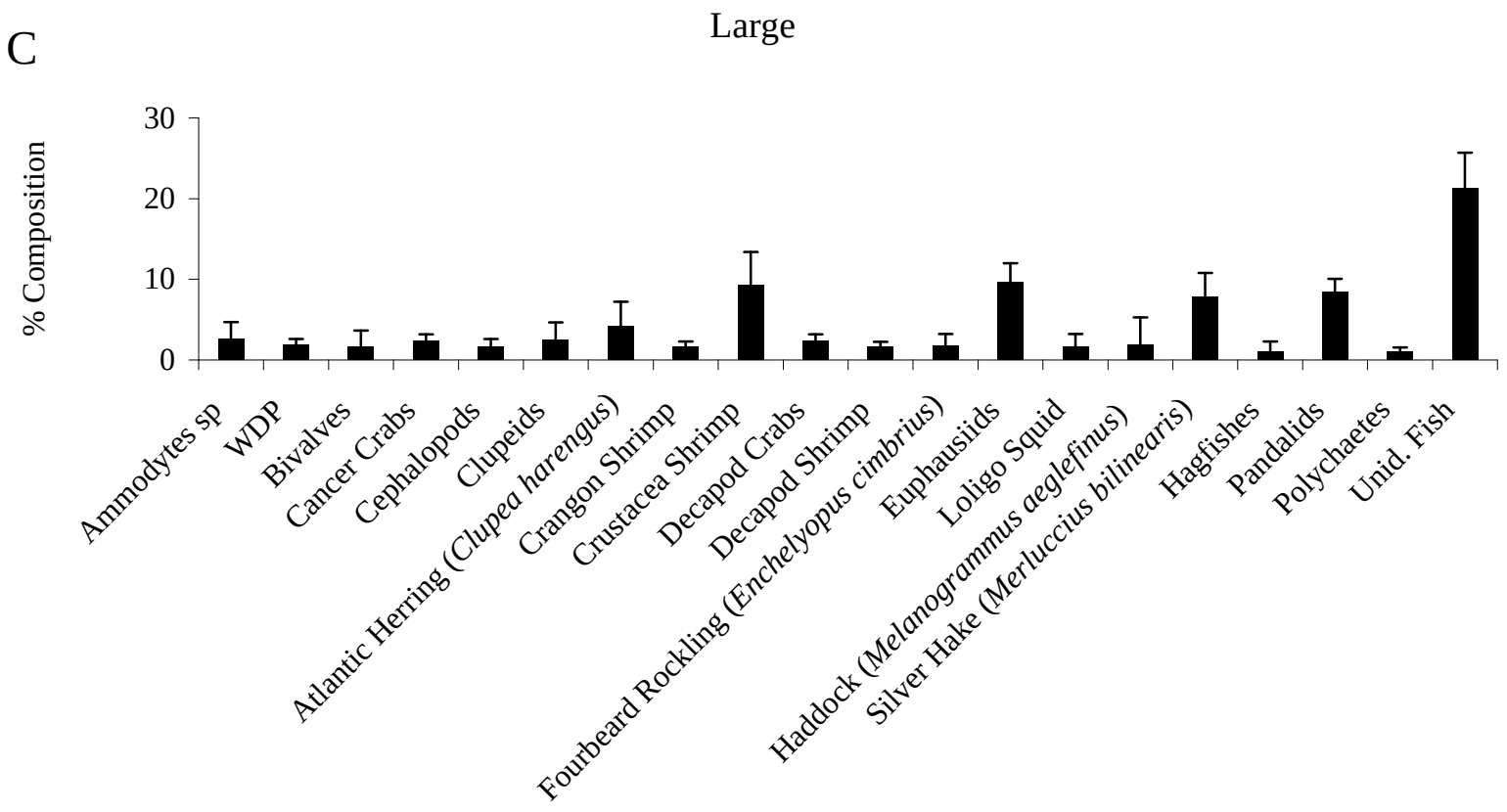

Figure 91C. Percent diet composition by weight of major prey taxa for red hake (*Urophycis chuss*) collected in the large size class (n = 2,075). WDP = well-digested prey; Unid. Fish = unidentified fish.

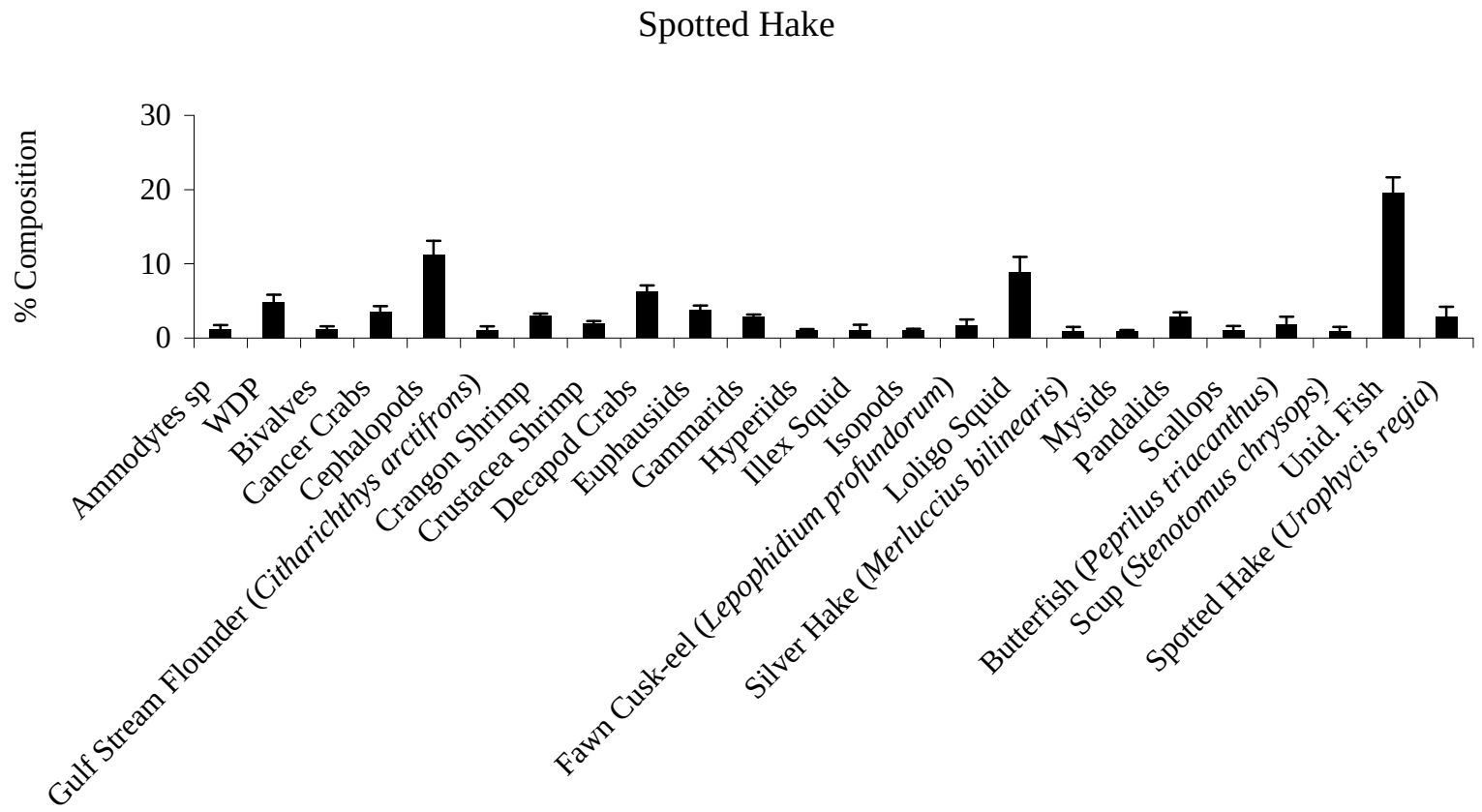

Figure 92. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*; n = 13,297). WDP = well-digested prey; Unid. Fish = unidentified fish.

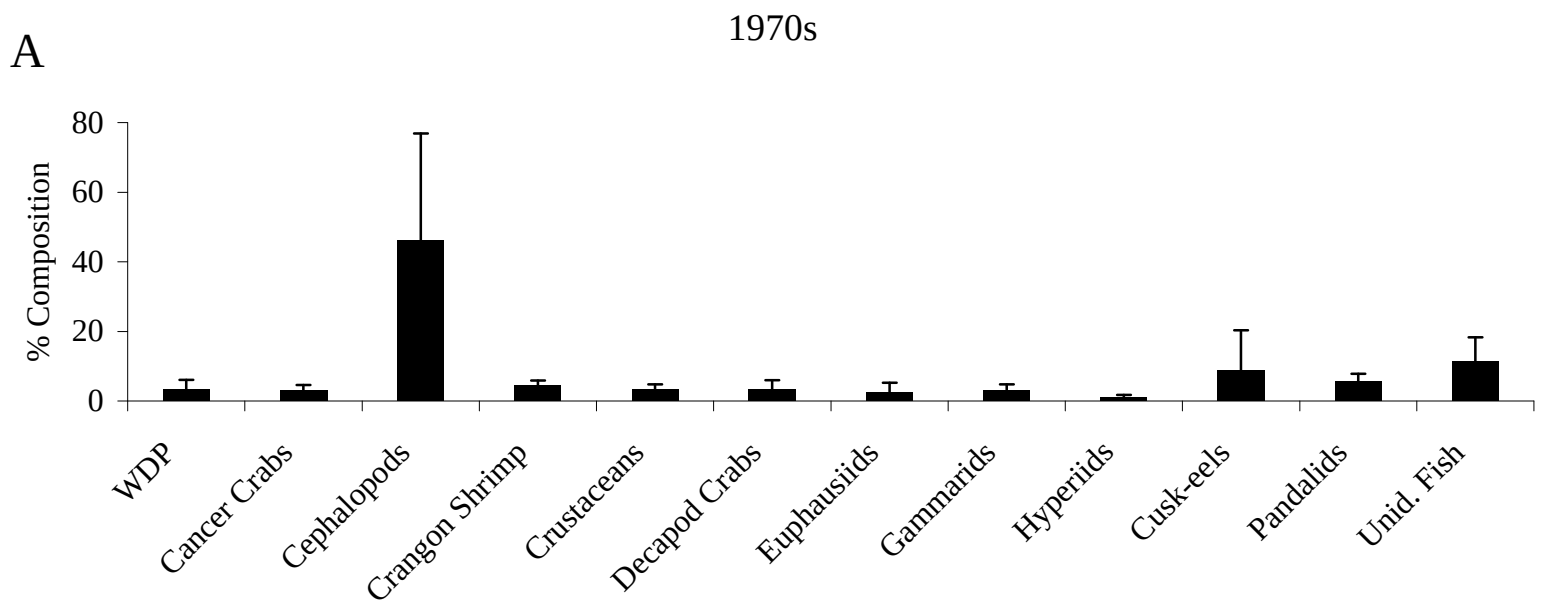

Figure 93A. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected in the 1970s (n = 476). WDP = well-digested prey; Unid. Fish = unidentified fish.

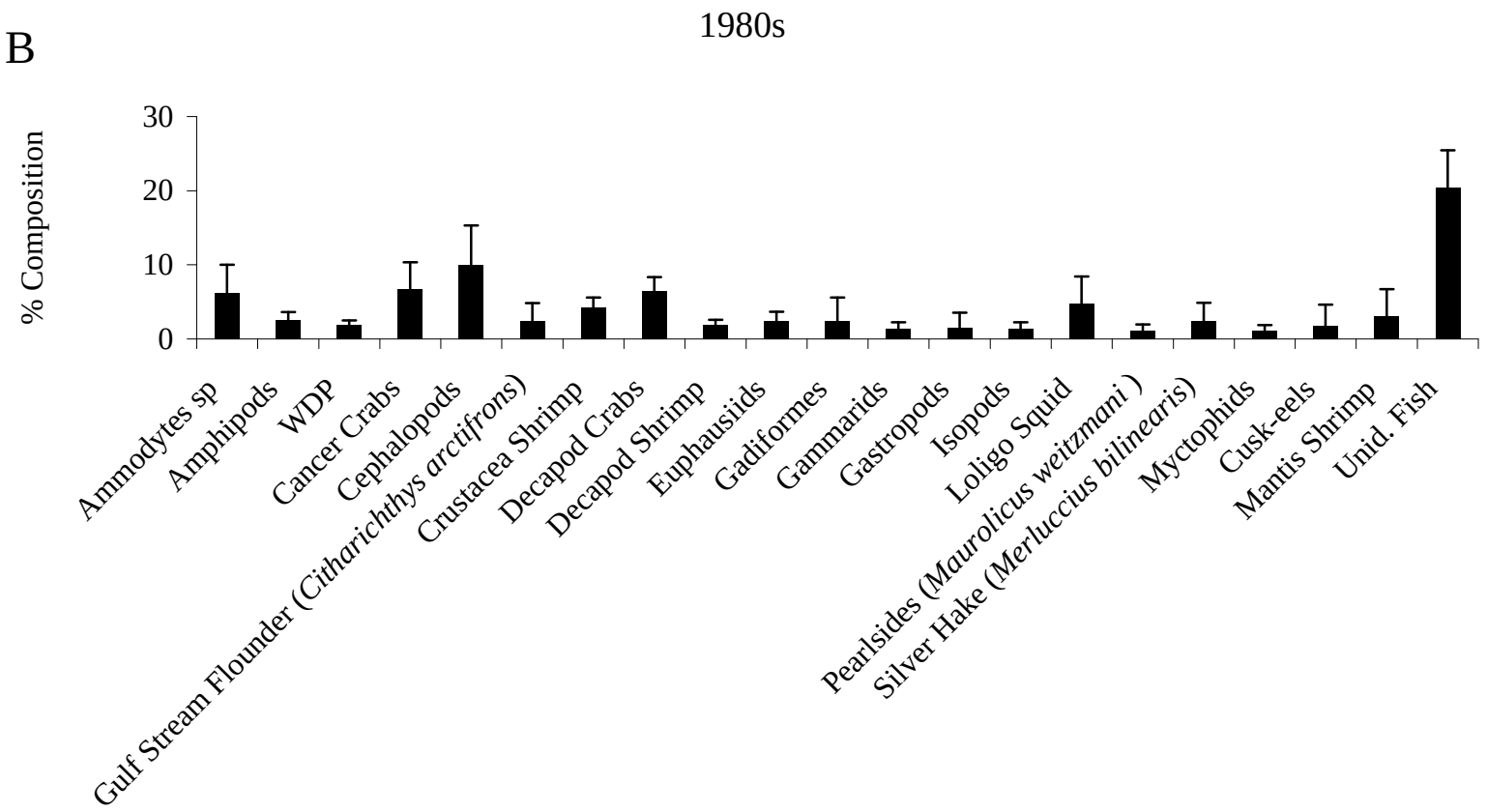

Figure 93B. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected collected in the 1980s (n = 1,296). WDP = well-digested prey; Unid. Fish = unidentified fish.

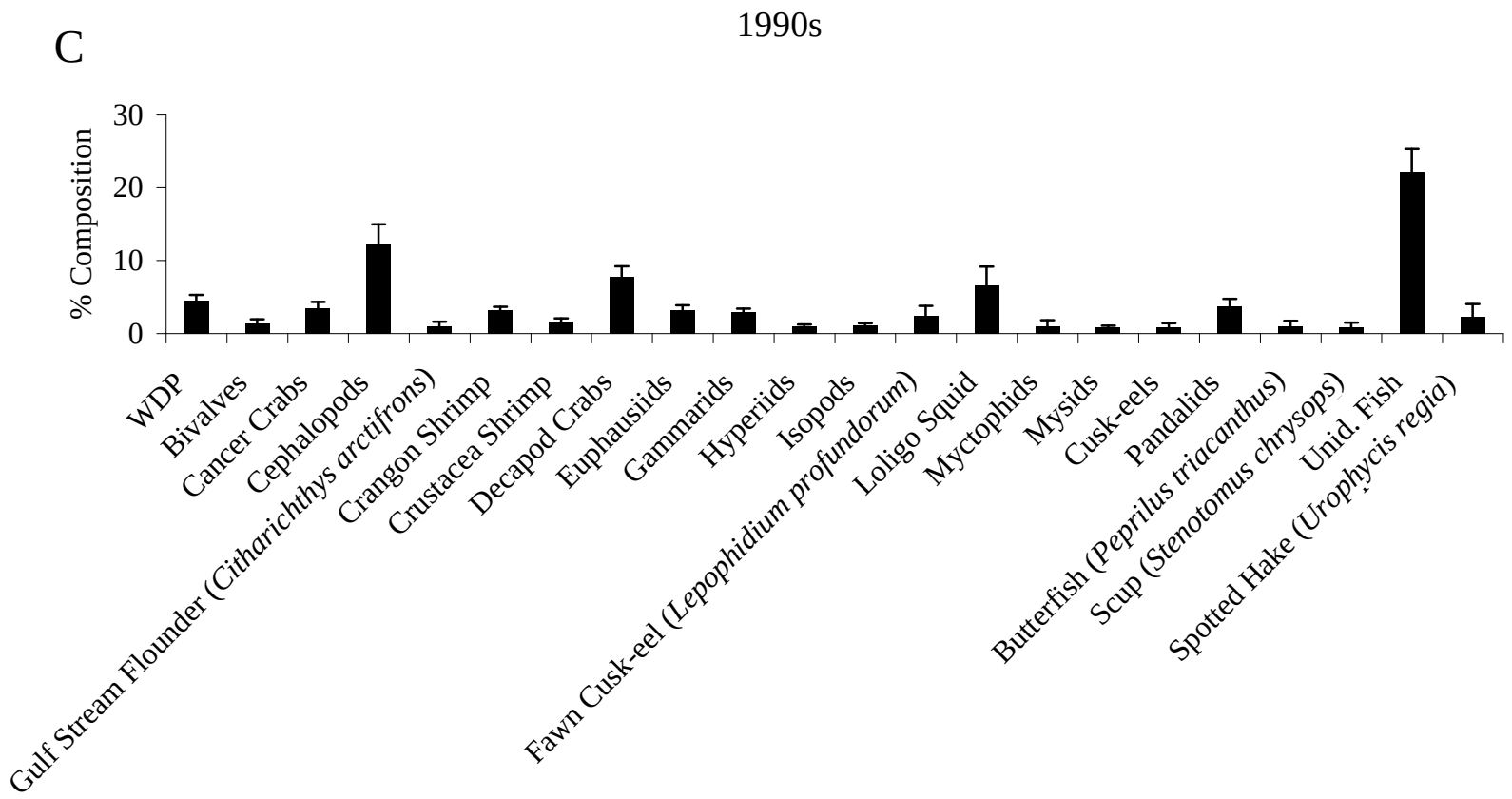

Figure 93C. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected in the 1990s (n = 7,042). WDP = well-digested prey; Unid. Fish = unidentified fish.

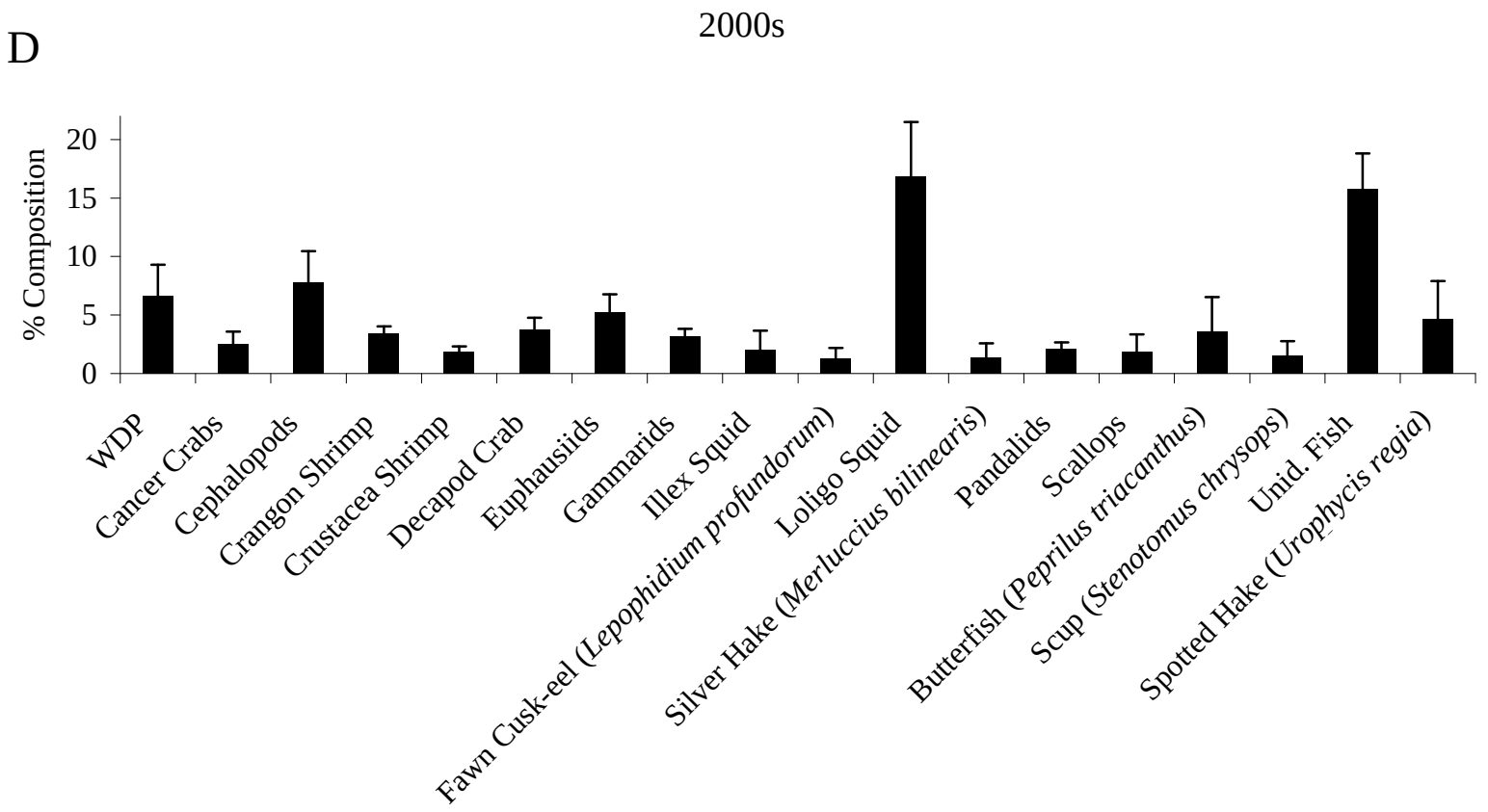

Figure 93D. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected in the 2000s (n = 4,483). WDP = well-digested prey; Unid. Fish = unidentified fish.

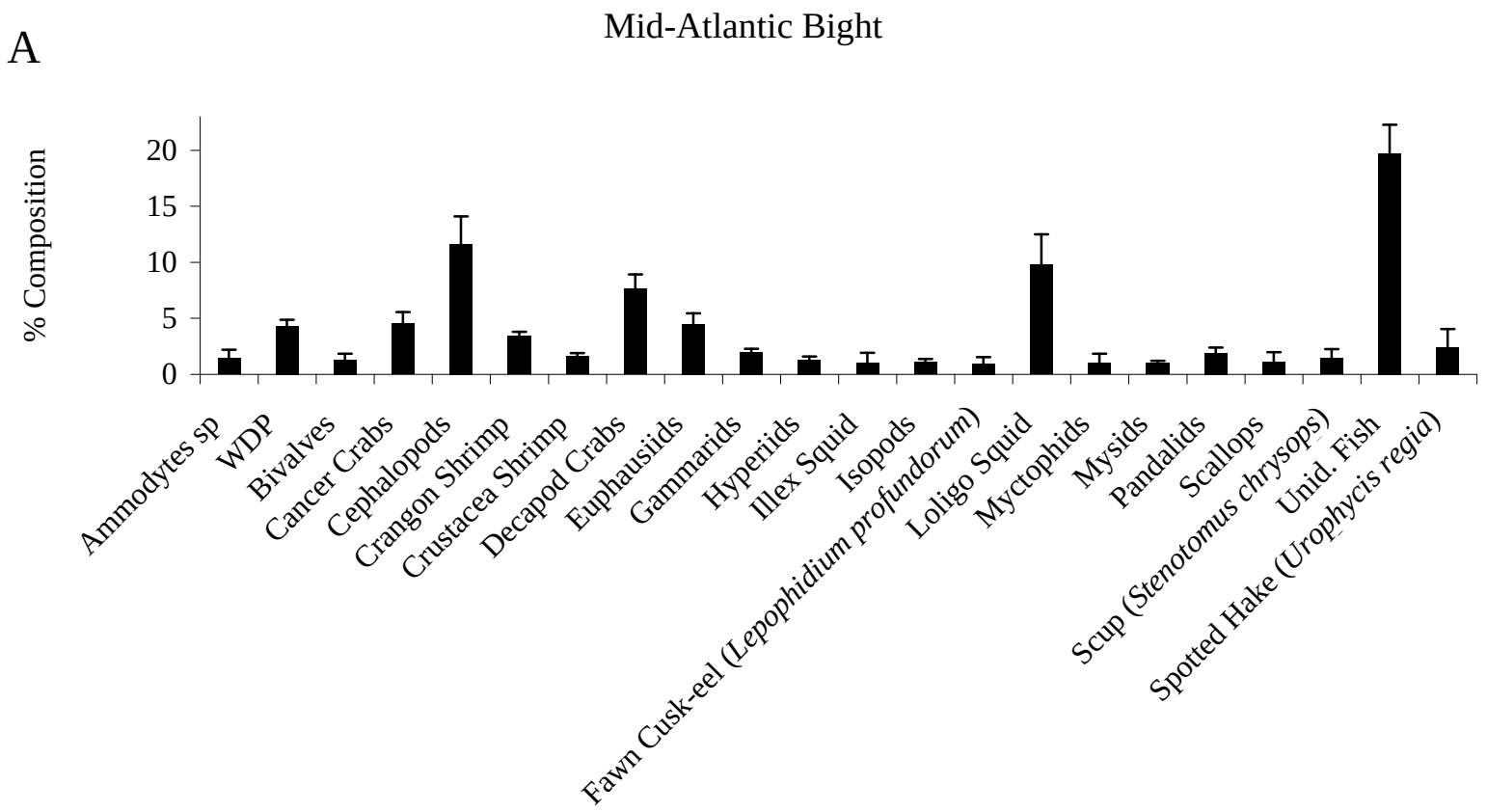

Figure 94A. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected collected in the Mid-Atlantic Bight (n = 8,908). WDP = well-digested prey; Unid. Fish = unidentified fish.

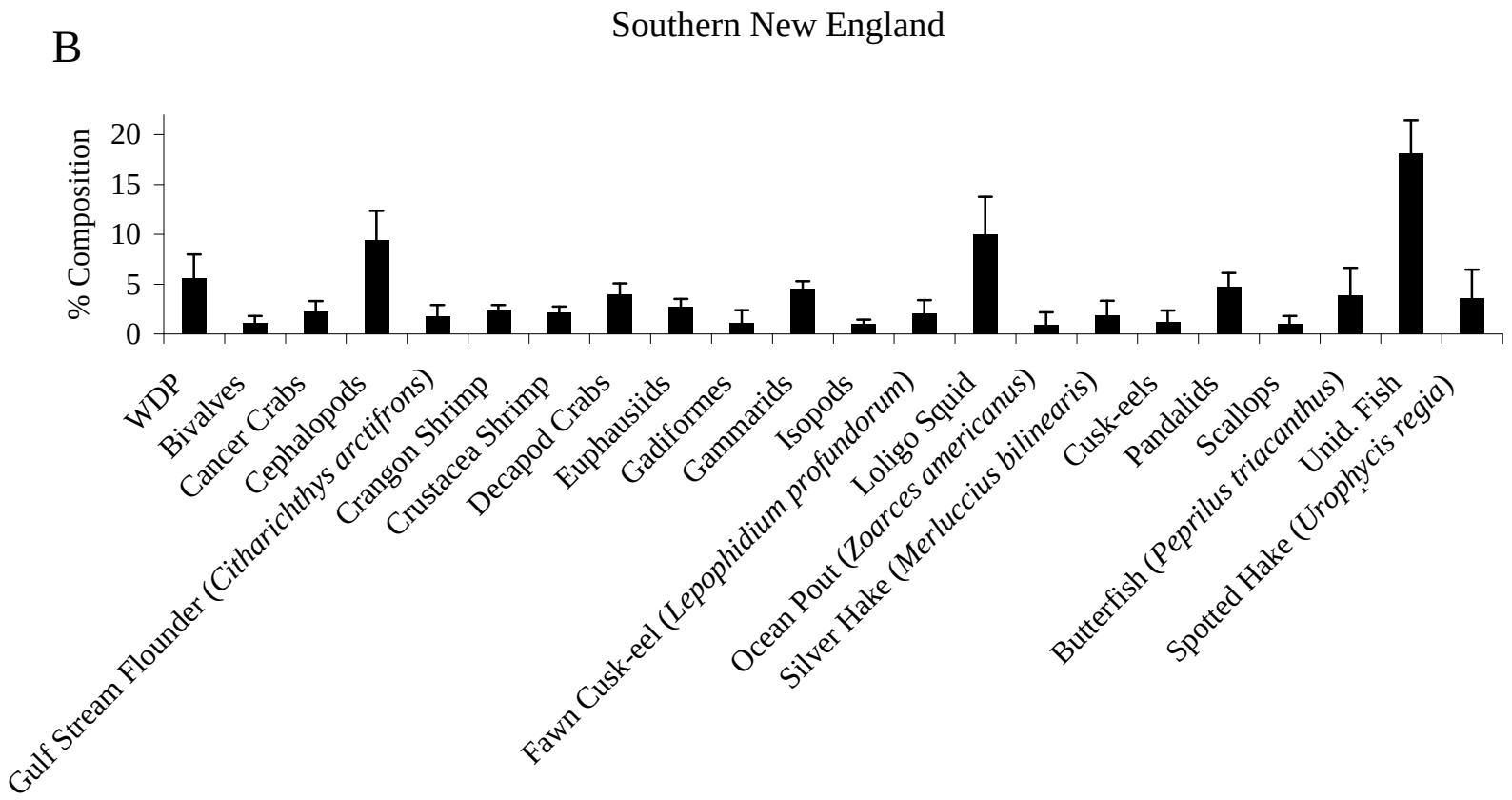

Figure 94B. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected in Southern New England (n = 3,809). WDP = well-digested prey; Unid. Fish = unidentified fish.

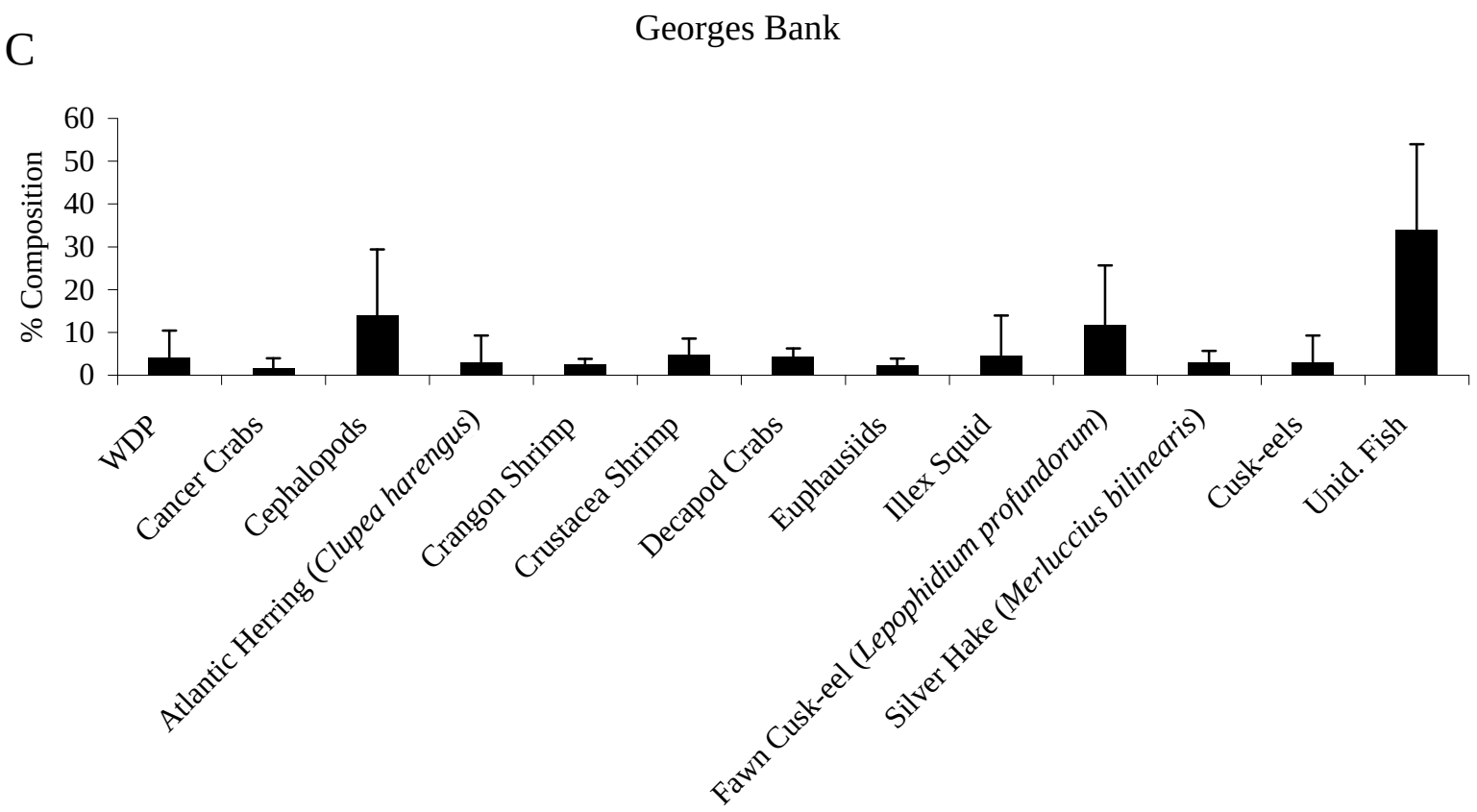

Figure 94C. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected on Georges Bank (n = 304). WDP = well-digested prey; Unid. Fish = unidentified fish.

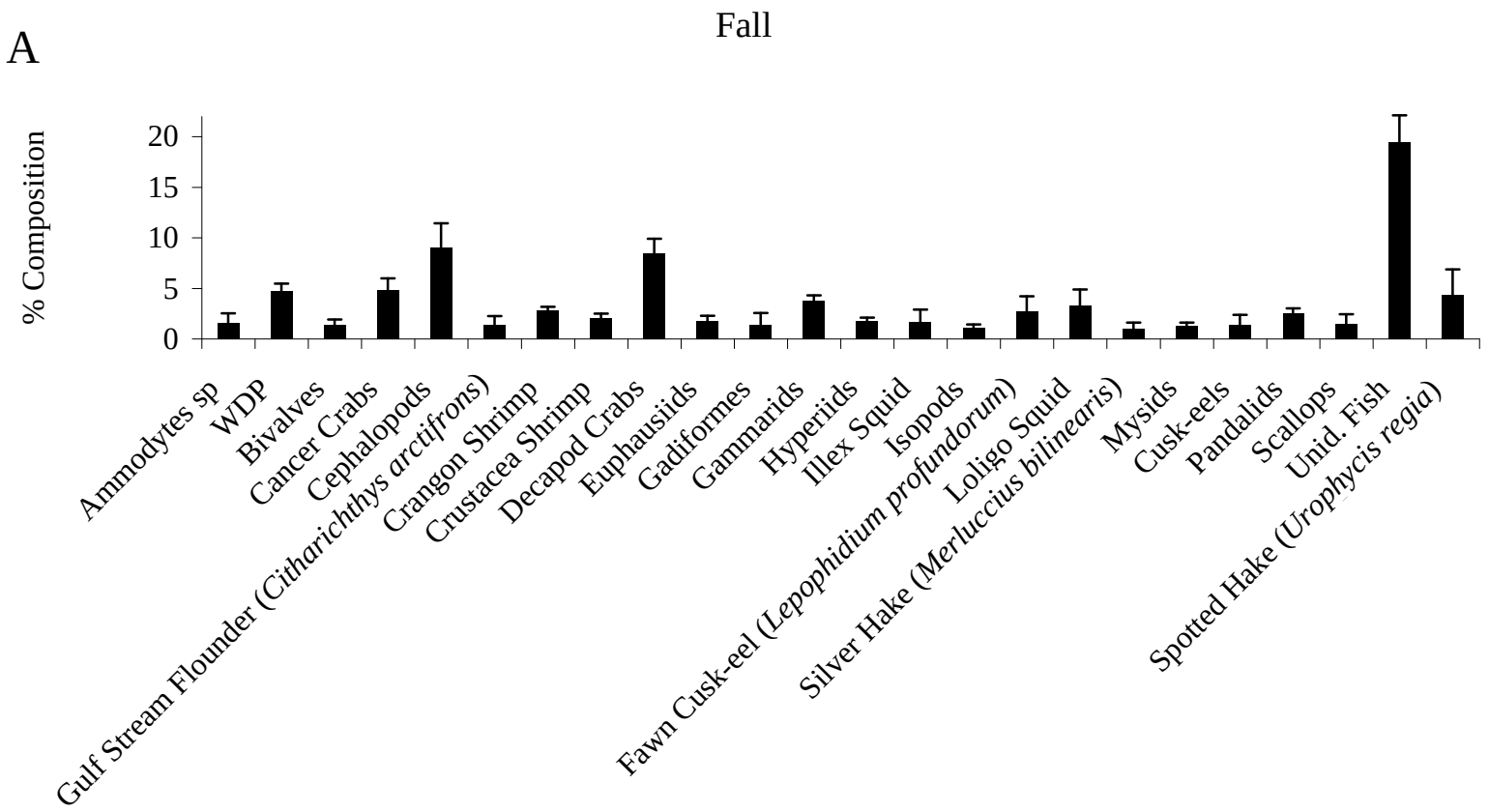

Figure 95A. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected in the fall (n = 6,677). WDP = well-digested prey; Unid. Fish = unidentified fish.

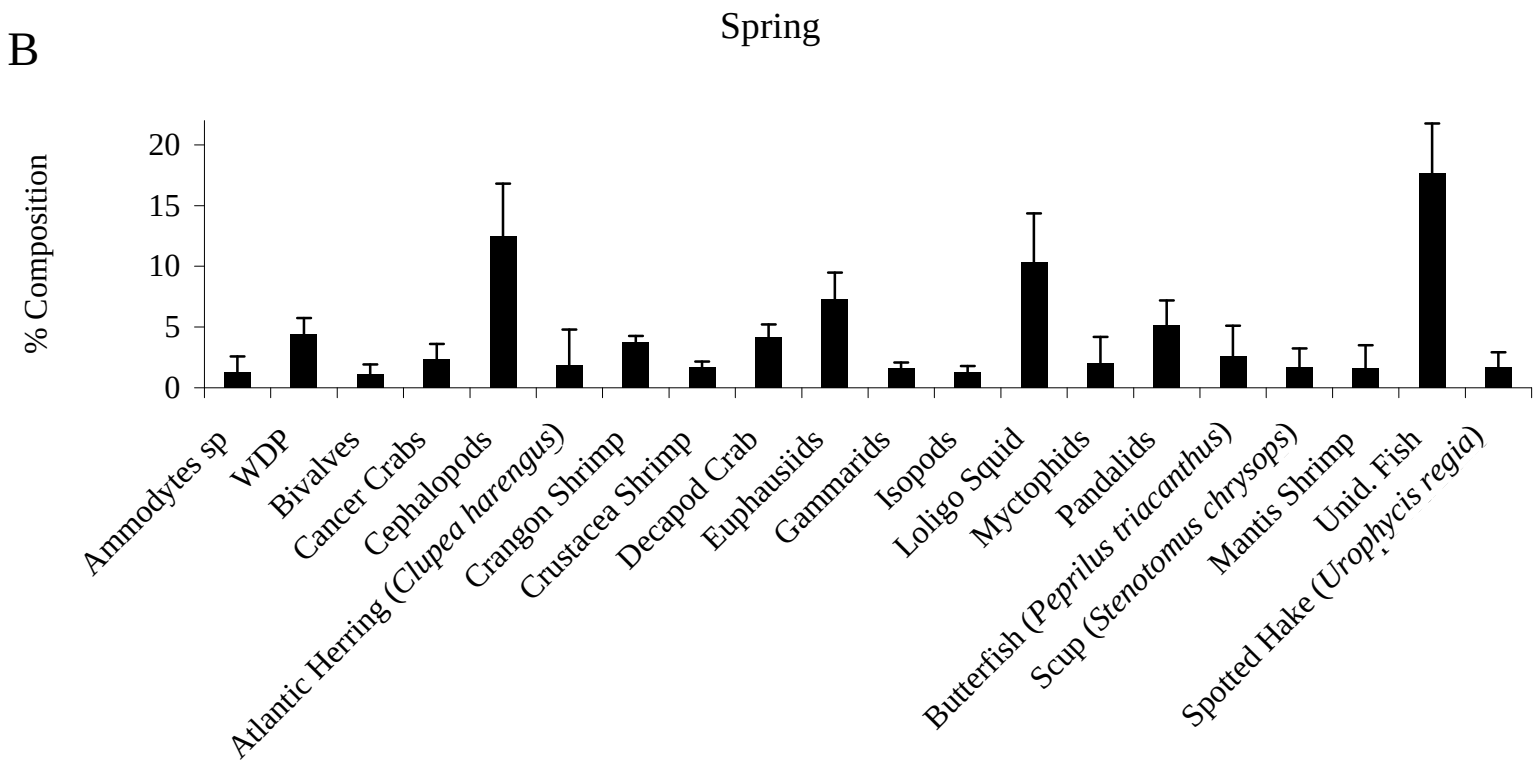

Figure 95B. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected in the spring (n = 3,471). WDP = well-digested prey; Unid. Fish = unidentified fish.

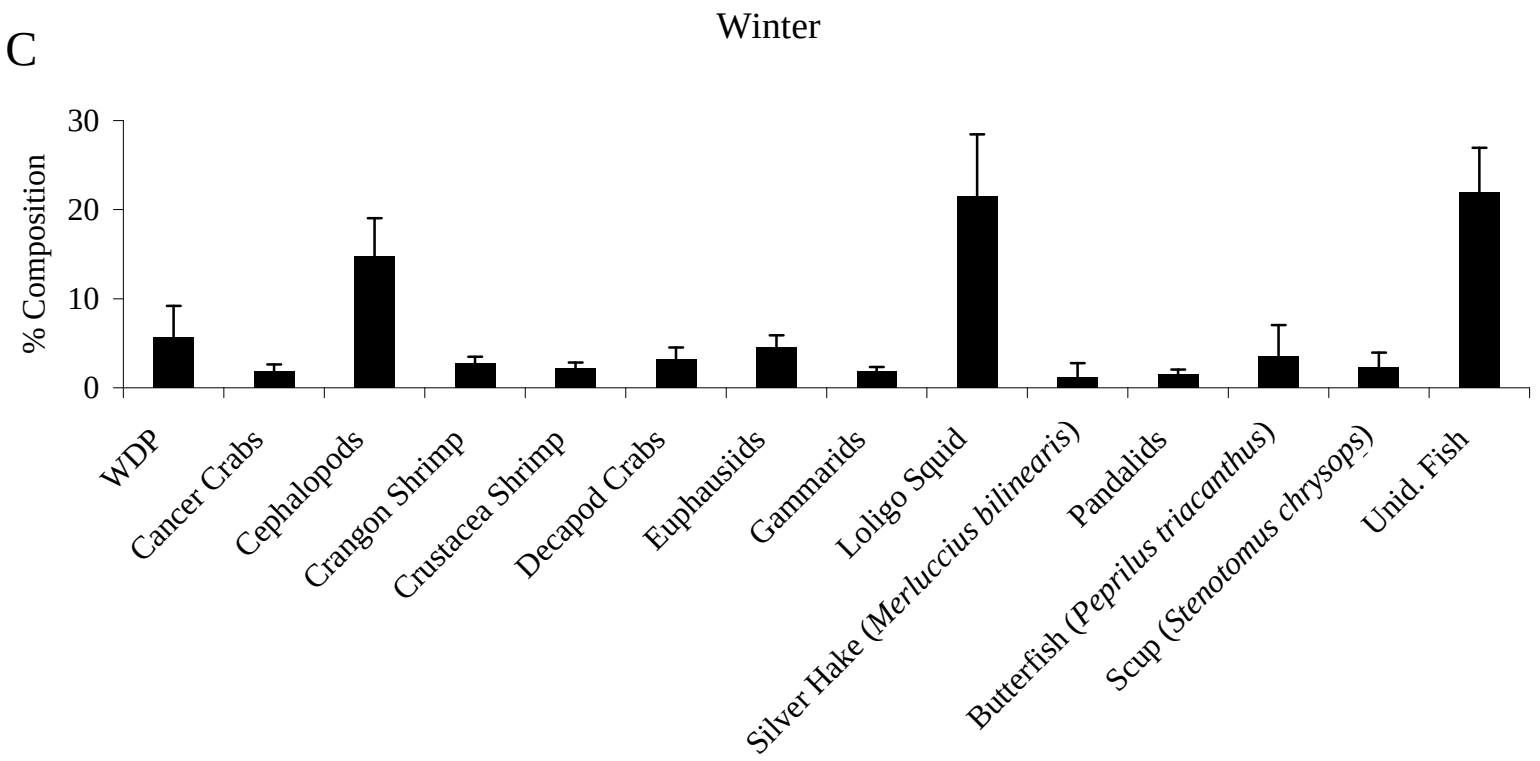

Figure 95C. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) collected in the winter (n = 3,100). WDP = well-digested prey; Unid. Fish = unidentified fish.

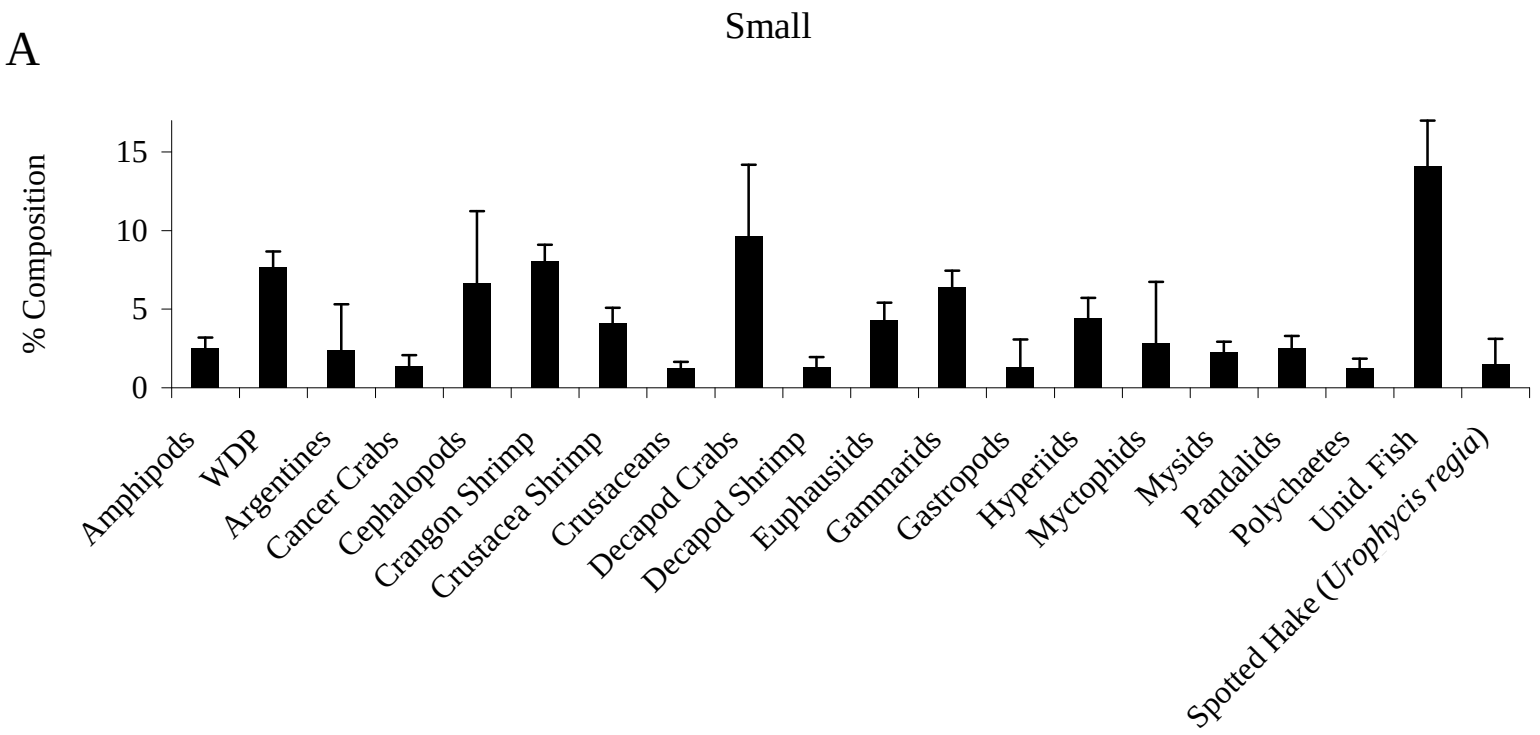

Figure 96A. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) in the small size class (n = 4,276). WDP = well-digested prey; Unid. Fish = unidentified fish.

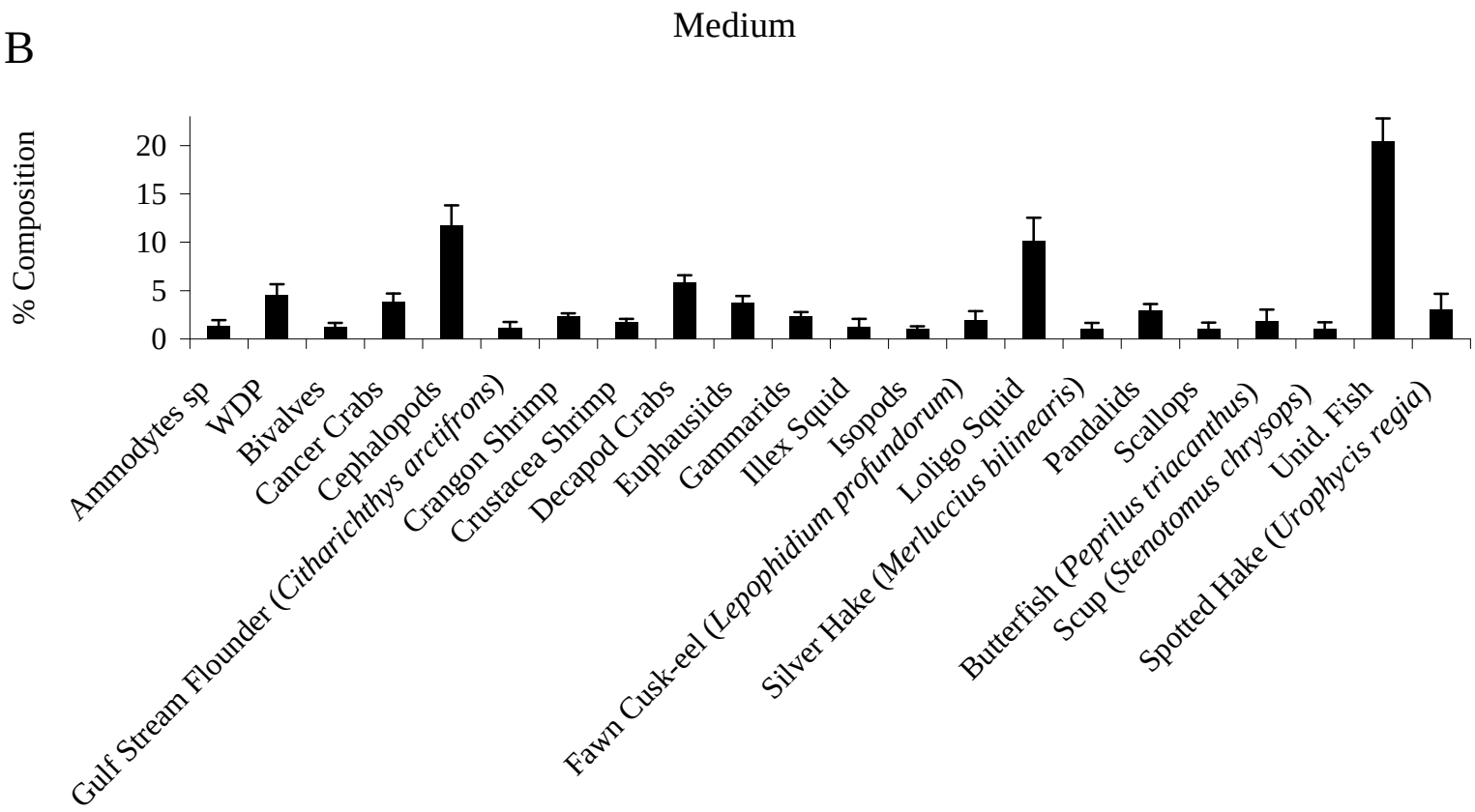

Figure 96B. Percent diet composition by weight of major prey taxa for spotted hake (*Urophycis regia*) in the medium size class (n = 8,995). WDP = well-digested prey; Unid. Fish = unidentified fish.

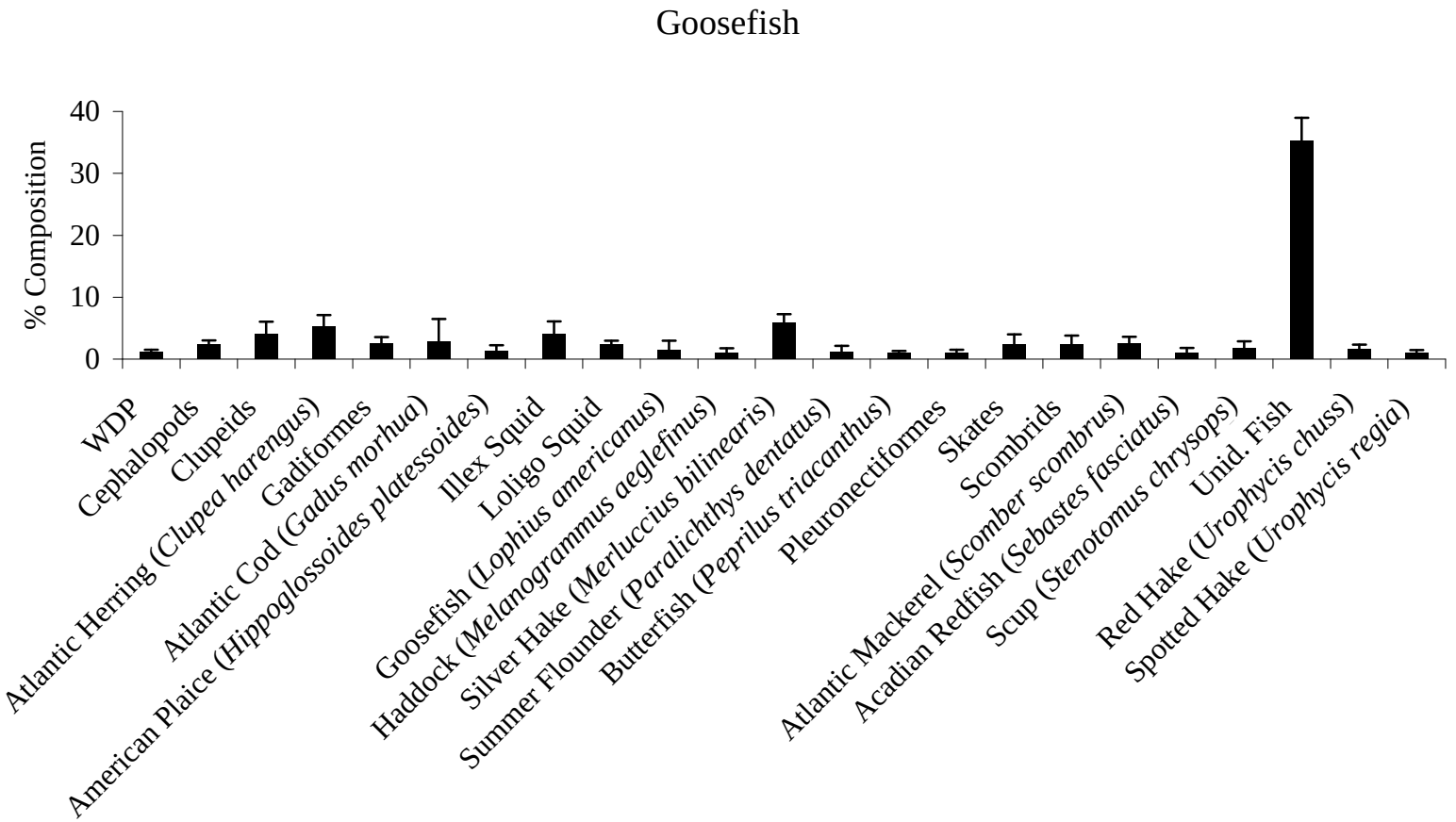

Figure 97. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*; n = 10,188). WDP = well-digested prey; Unid. Fish = unidentified fish.

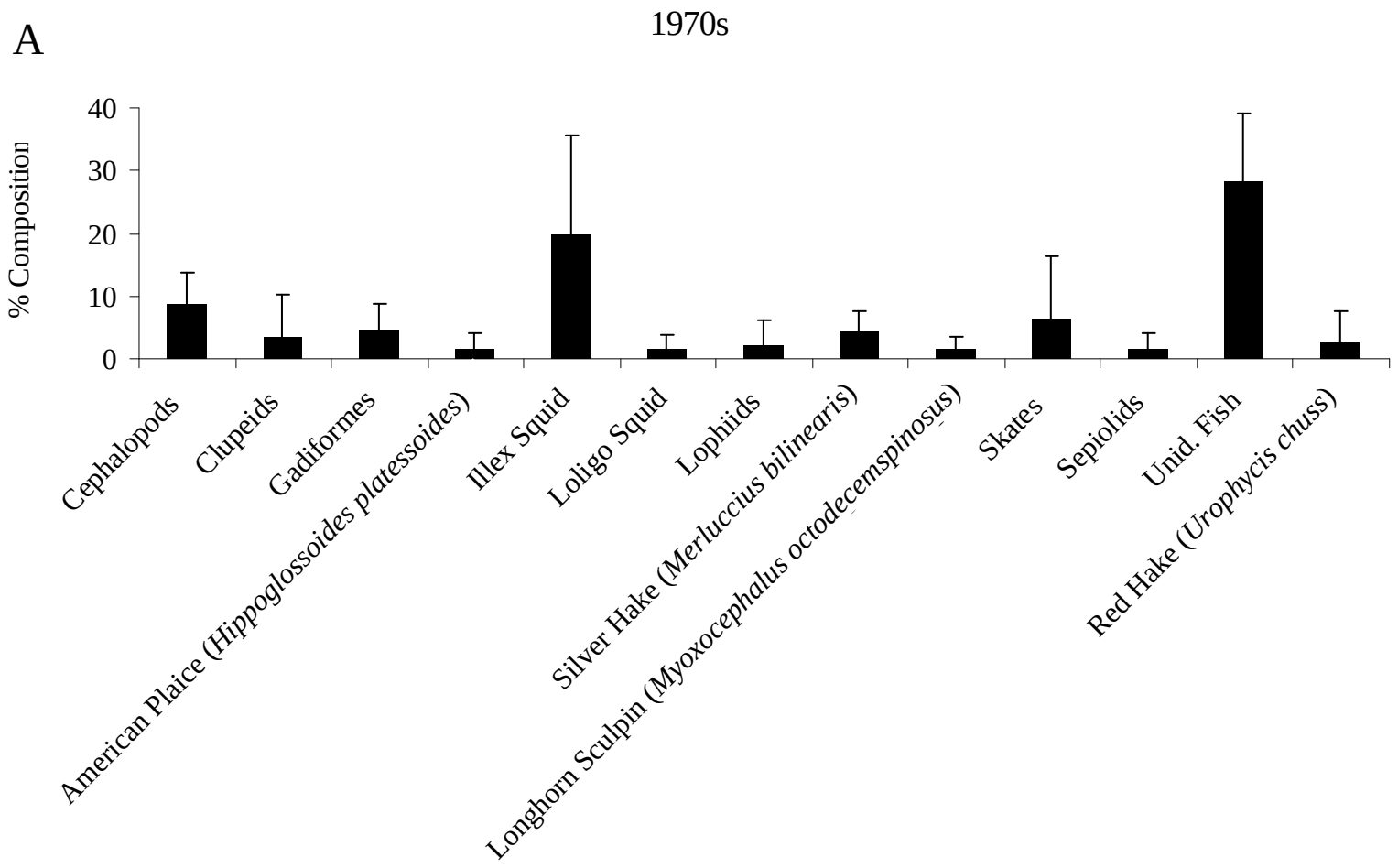

Figure 98A. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in the 1970s (n = 587). Unid. Fish = unidentified fish.

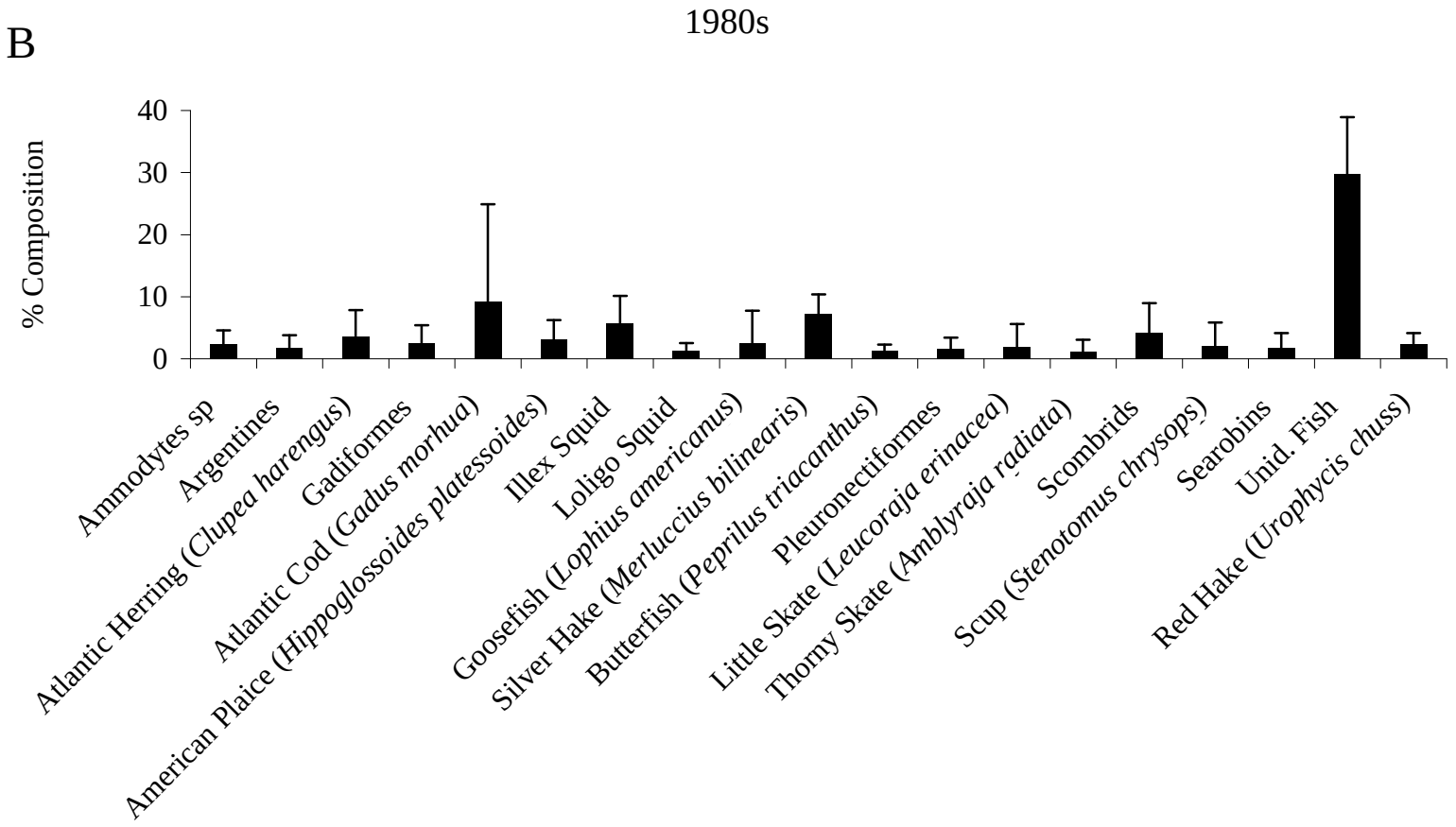

Figure 98B. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected collected in the 1980s (n = 1,383). Unid. Fish = unidentified fish.

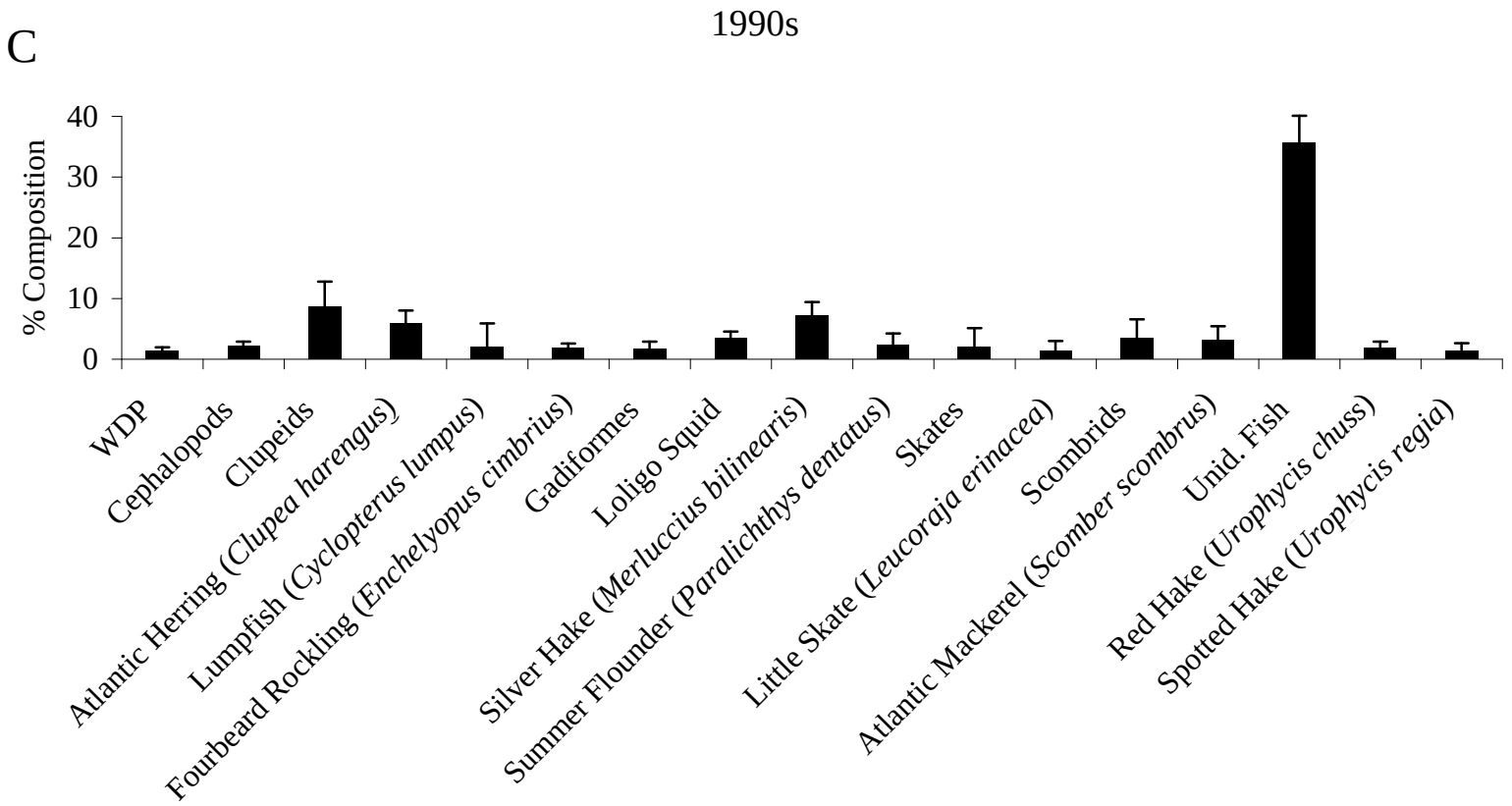

Figure 98C. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in the 1990s (n = 4,385). WDP = well-digested prey; Unid. Fish = unidentified fish.

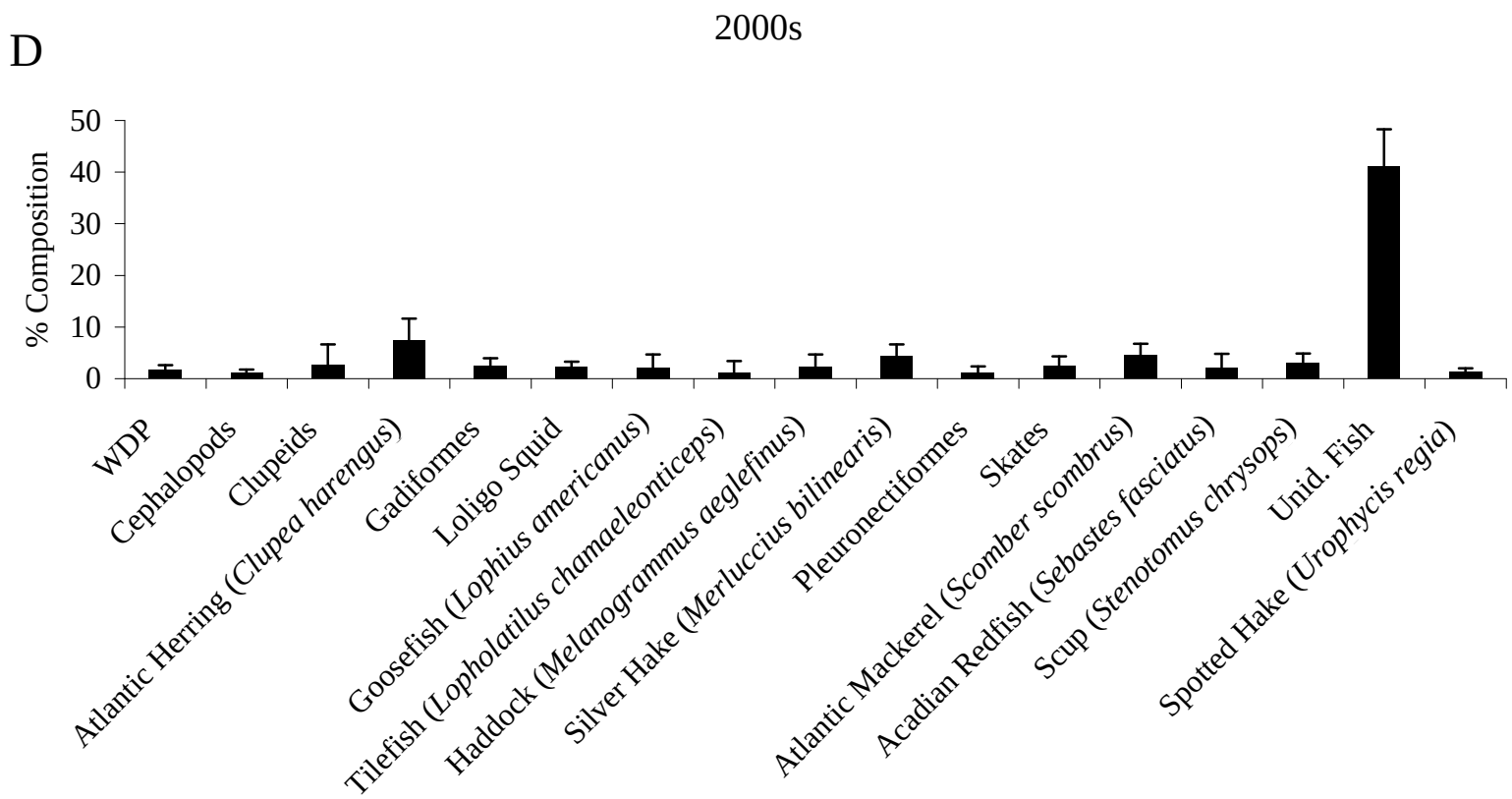

Figure 98D. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in the 2000s (n = 3,833). WDP = well-digested prey; Unid. Fish = unidentified fish.

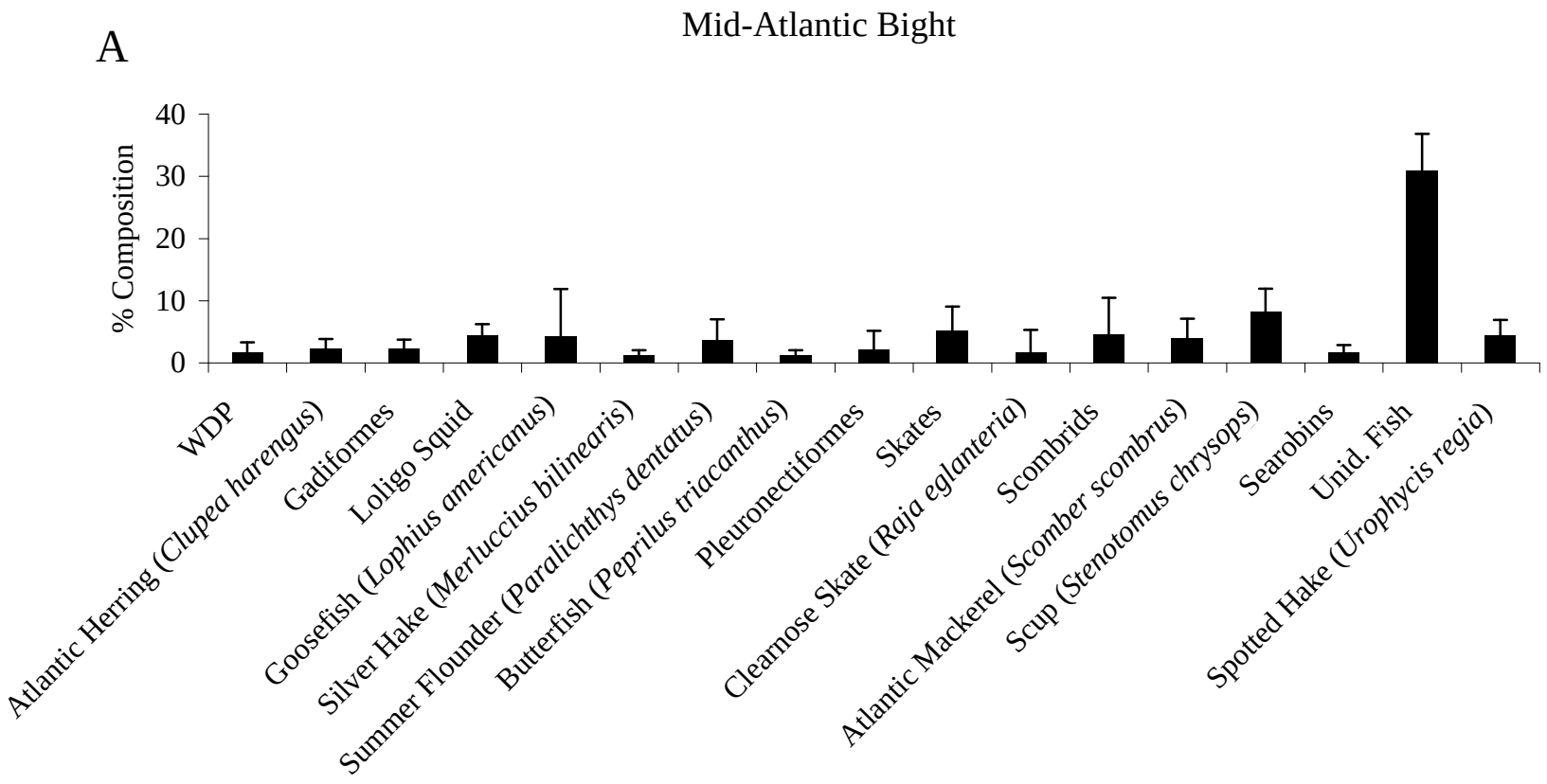

Figure 99A. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in the Mid-Atlantic Bight (n = 2,265). WDP = well-digested prey; Unid. Fish = unidentified fish.

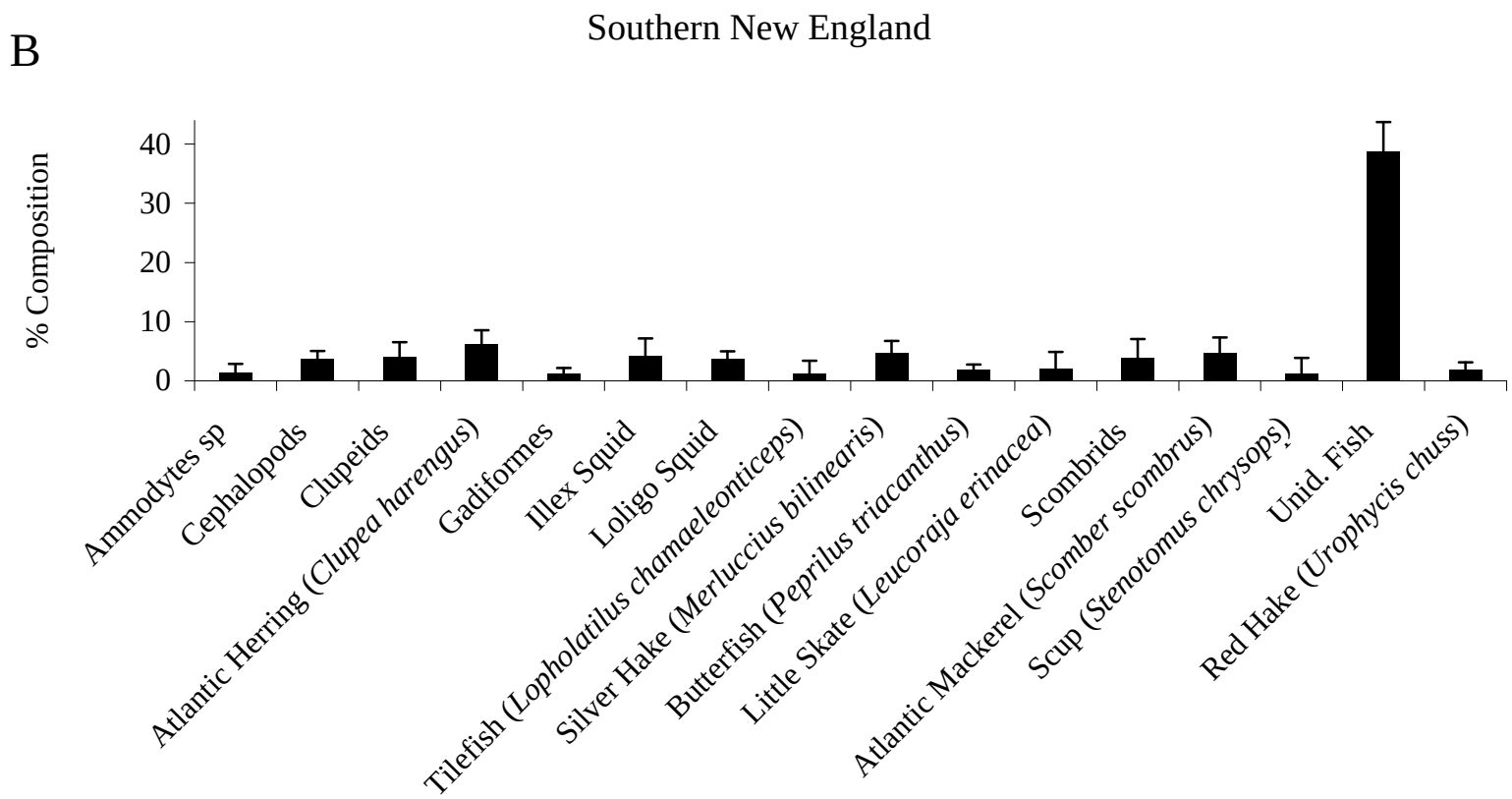

Figure 99B. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in Southern New England (n = 3,953). Unid. Fish = unidentified fish.

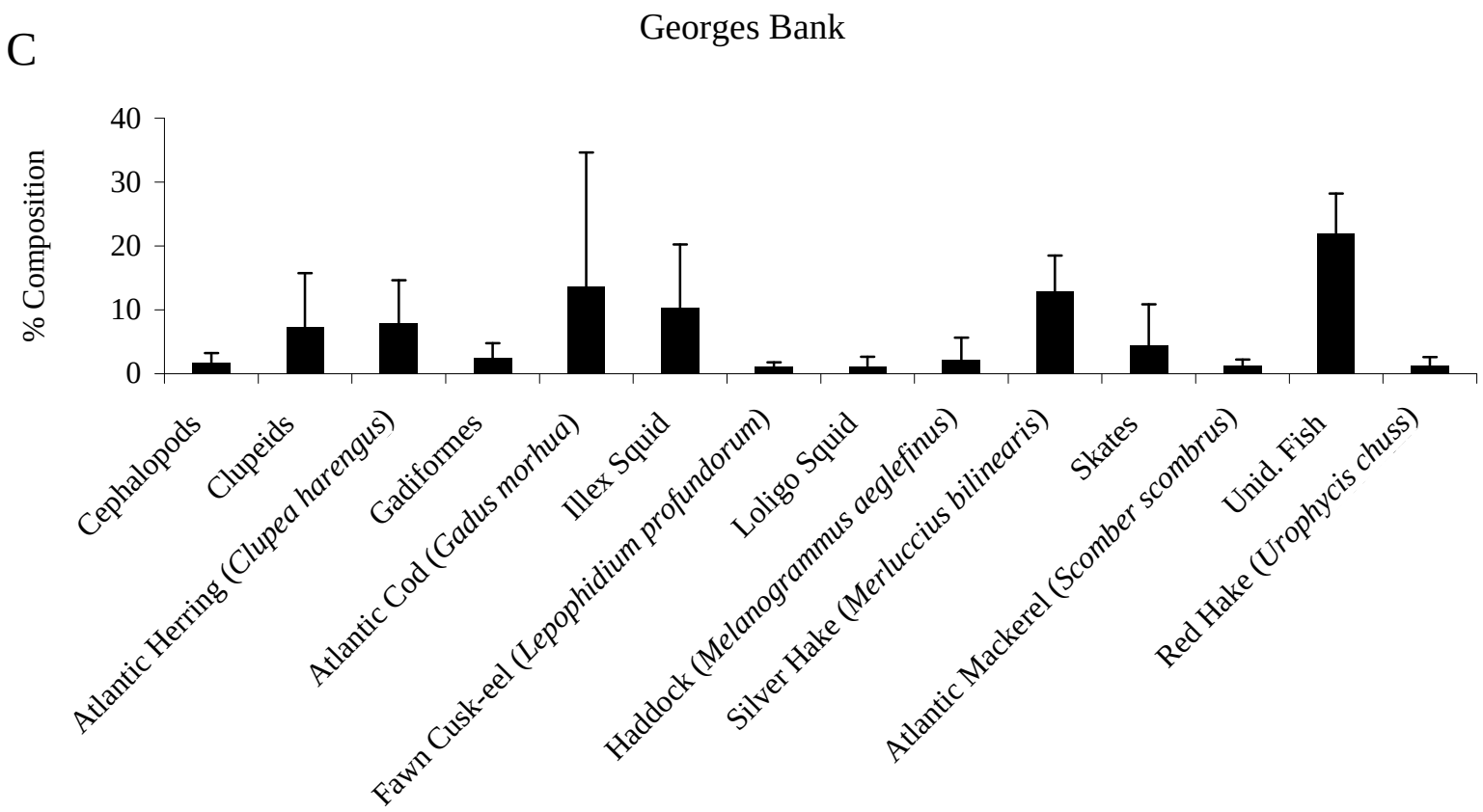

Figure 99C. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected on Georges Bank (n = 1,006). Unid. Fish = unidentified fish.

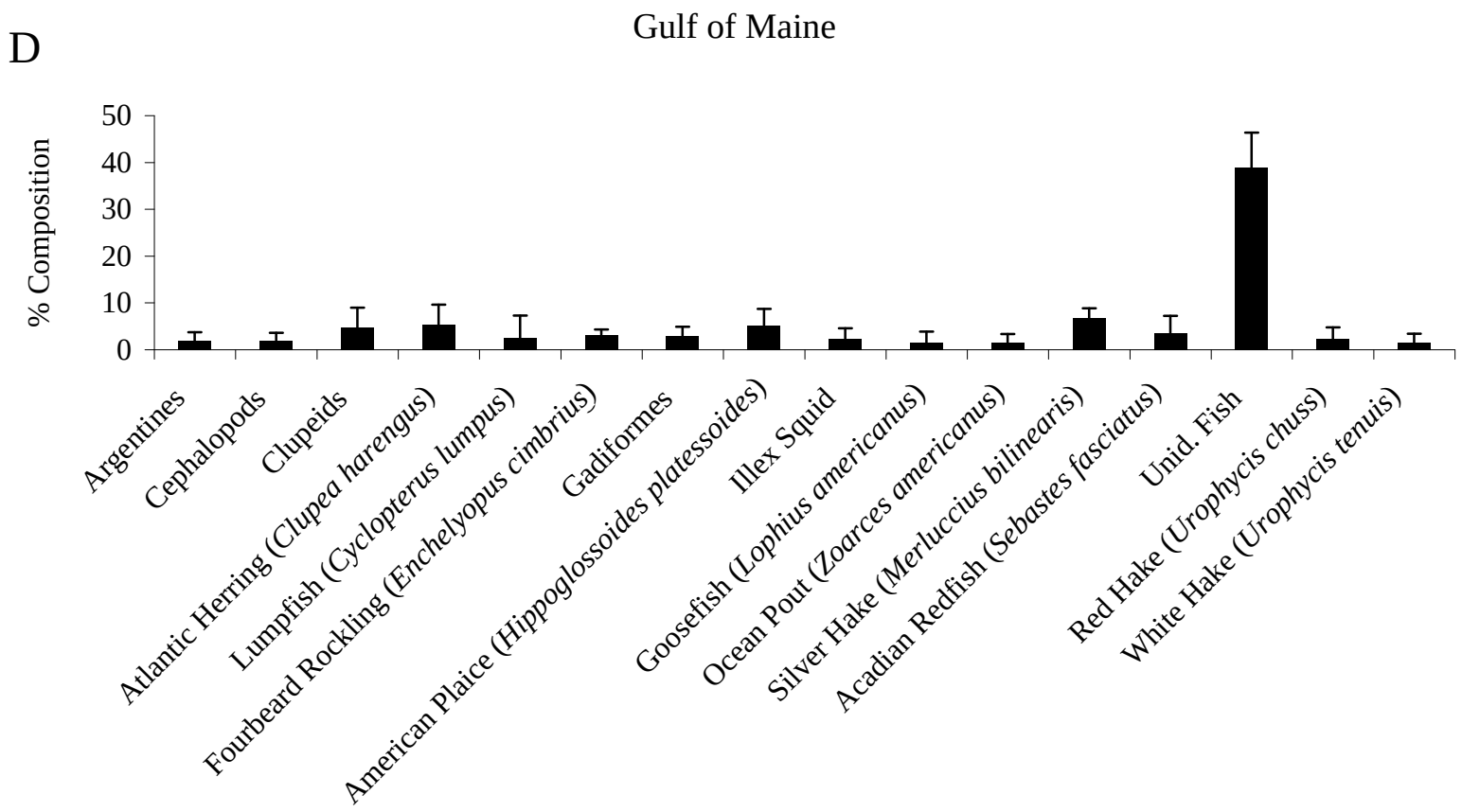

Figure 99D. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in the Gulf of Maine (n = 2,761). Unid. Fish = unidentified fish.

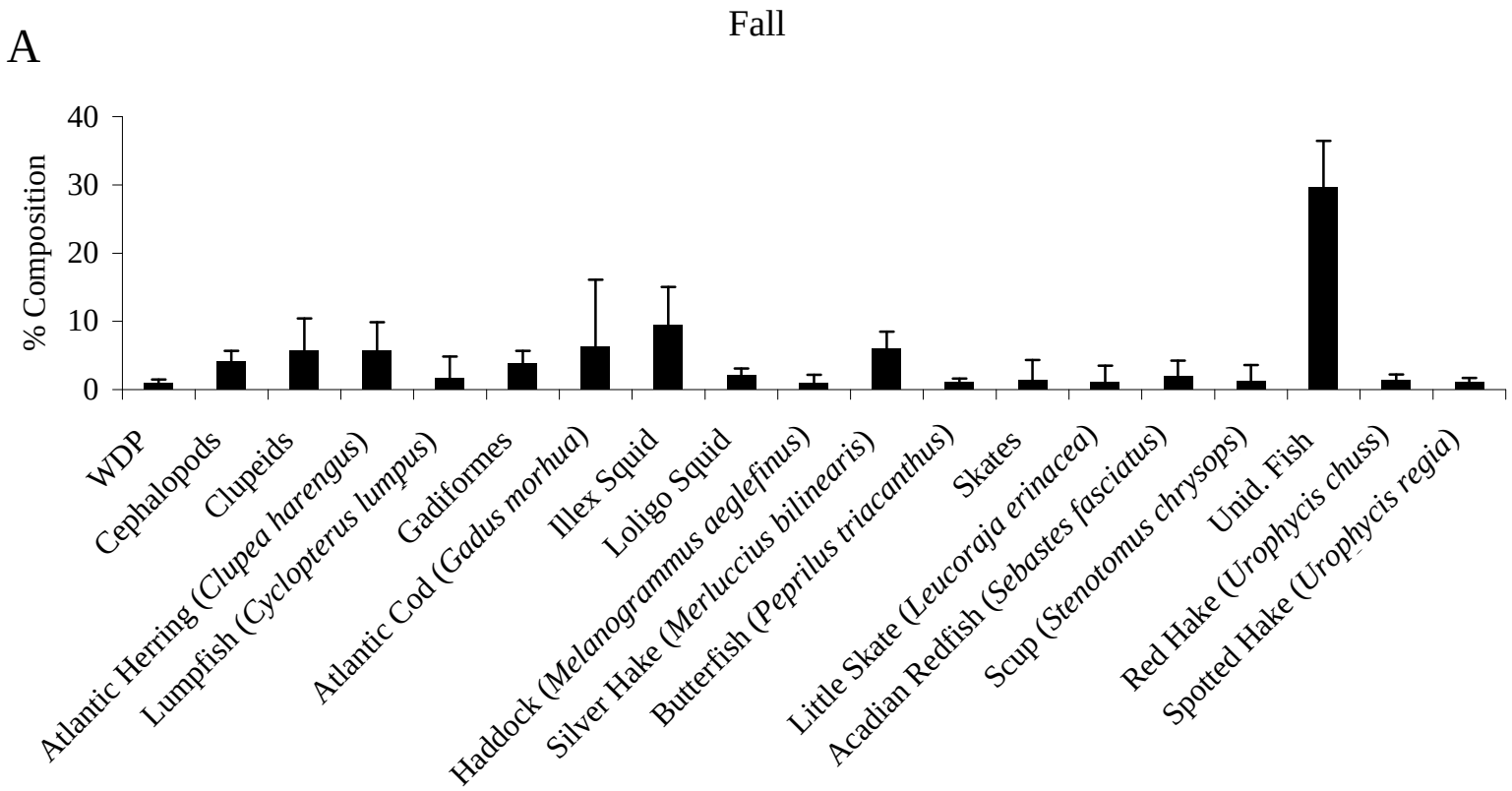

Figure 100A. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in the fall (n = 2,823). WDP = well-digested prey; Unid. Fish = unidentified fish.

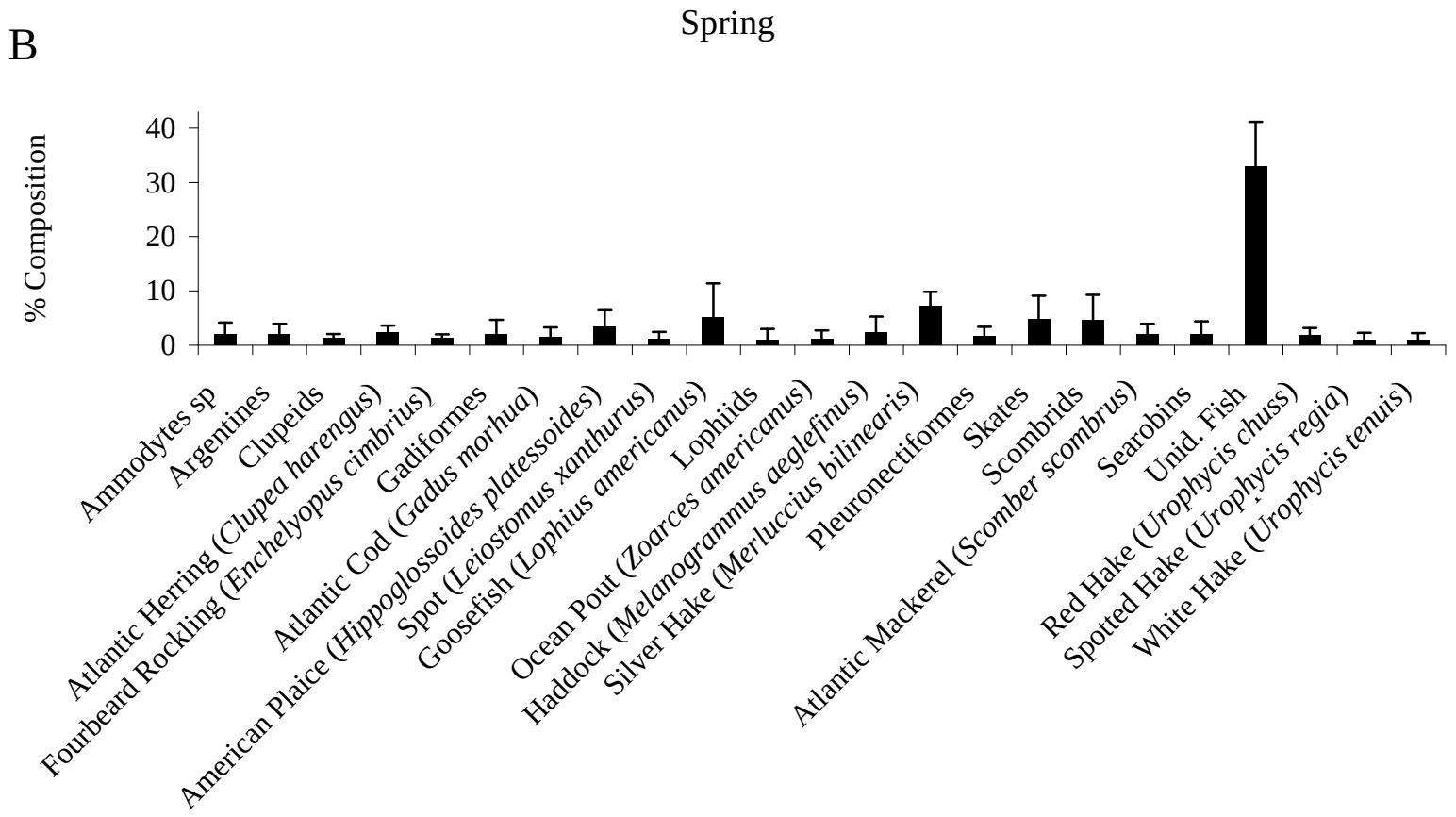

Figure 100B. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected collected in the spring (n = 2,568). Unid. Fish = unidentified fish.

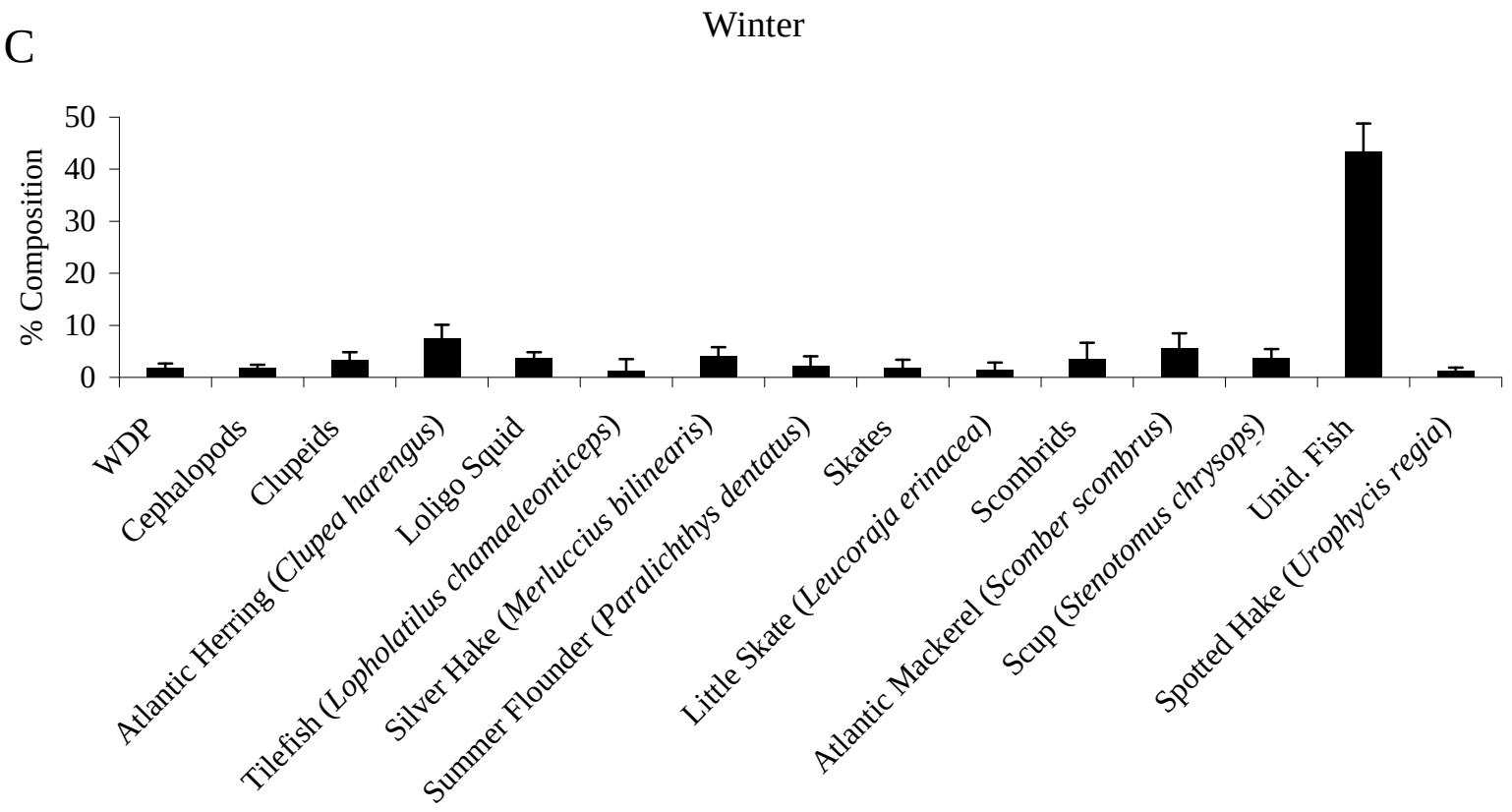

Figure 100C. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in the winter (n = 4,246). WDP = well-digested prey; Unid. Fish = unidentified fish.

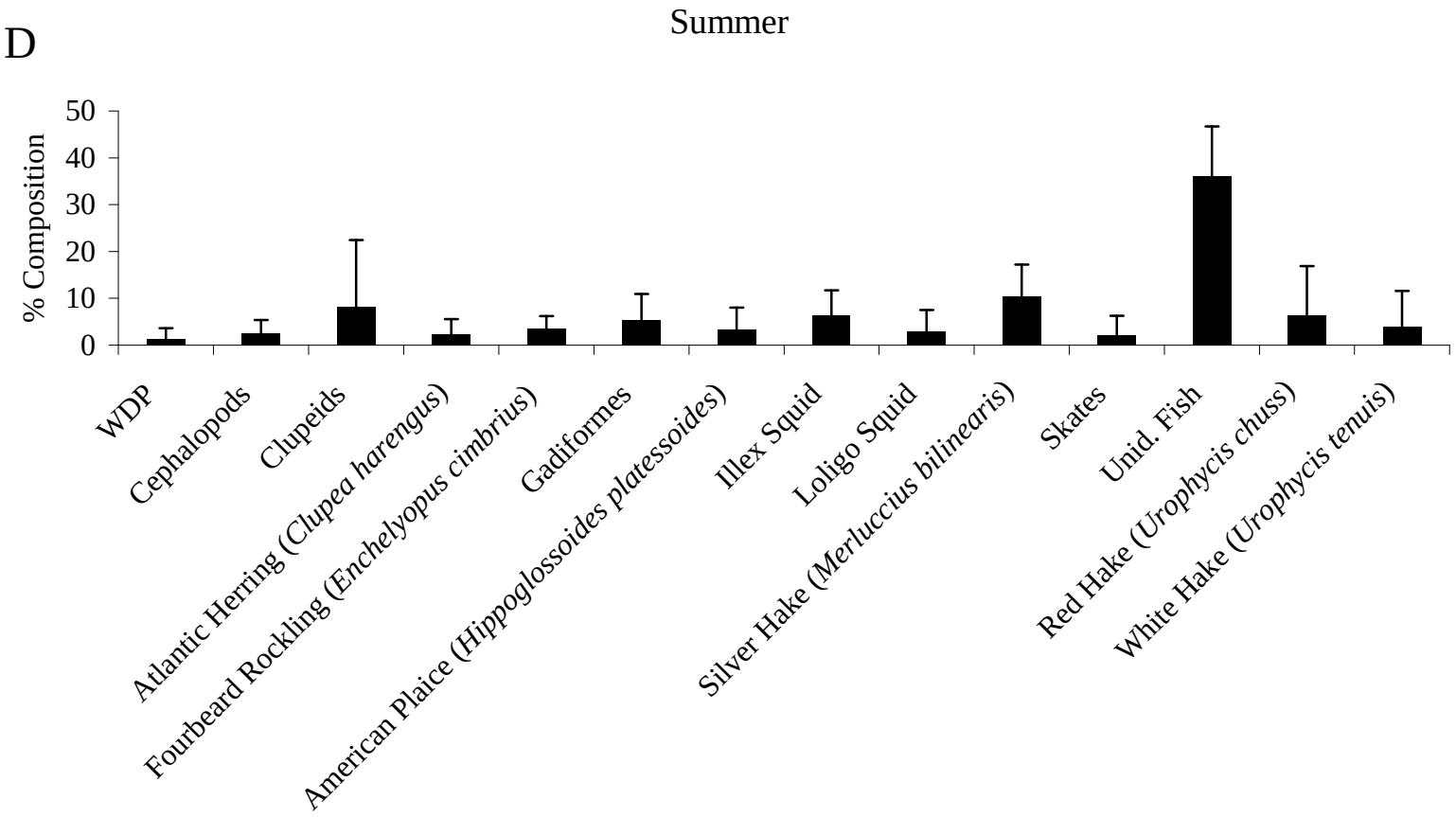

Figure 100D. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) collected in the summer (n = 551). WDP = well-digested prey; Unid. Fish = unidentified fish.

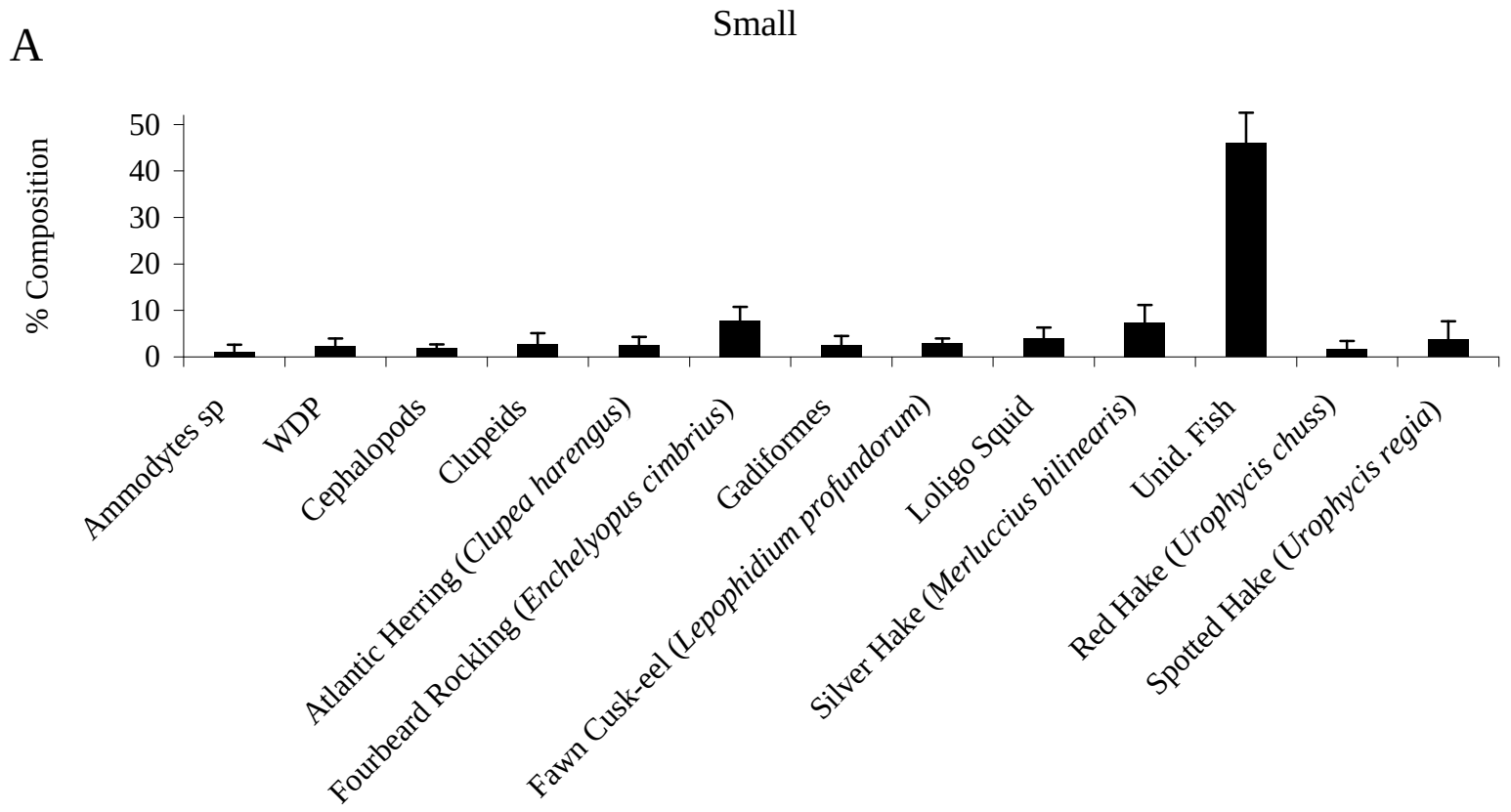

Figure 101A. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) in the small size class (n = 3,095). WDP = well-digested prey; Unid. Fish = unidentified fish.

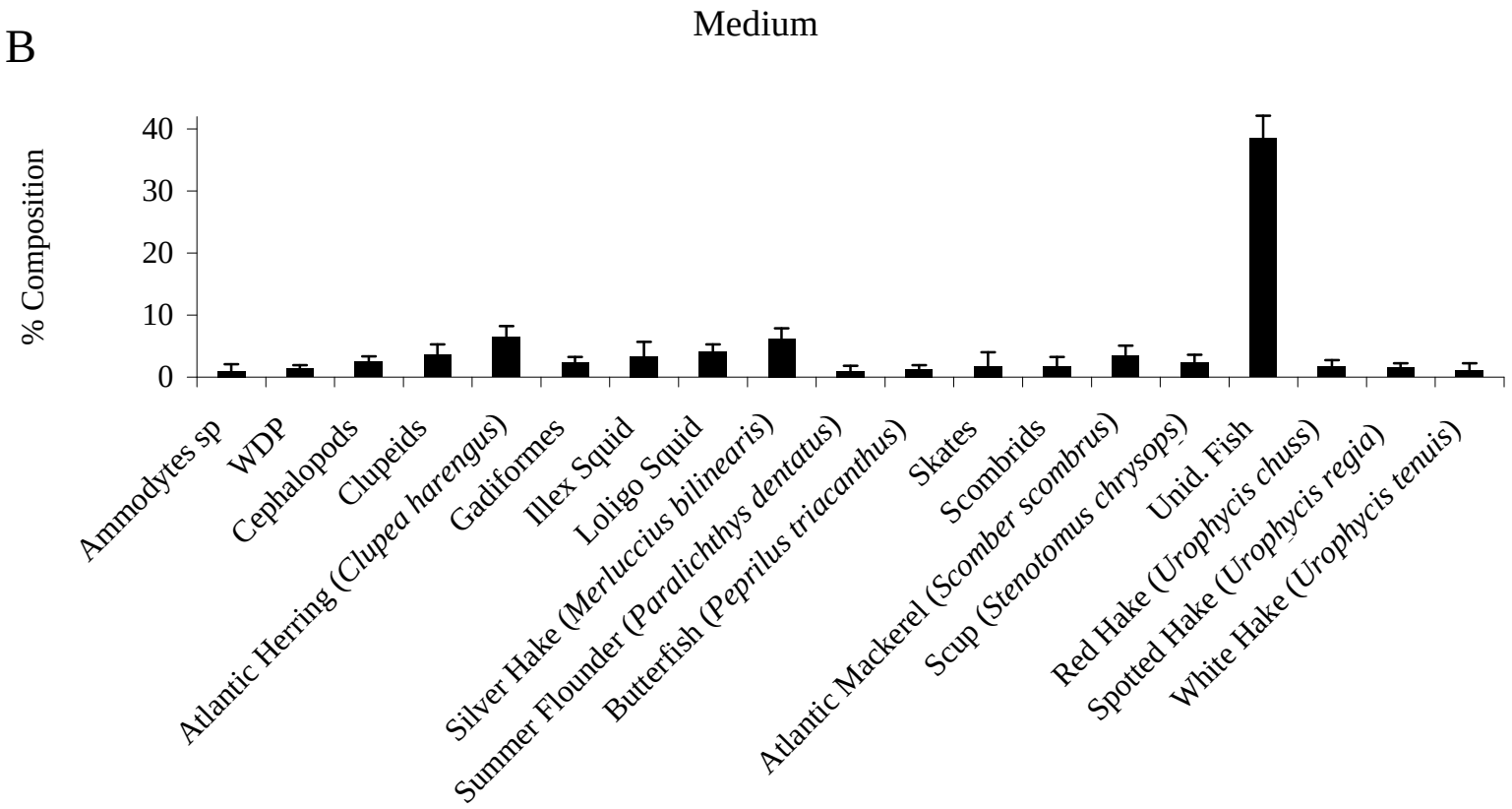

Figure 101B. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) in the medium size class (n = 5,471). WDP = well-digested prey; Unid. Fish = unidentified fish.

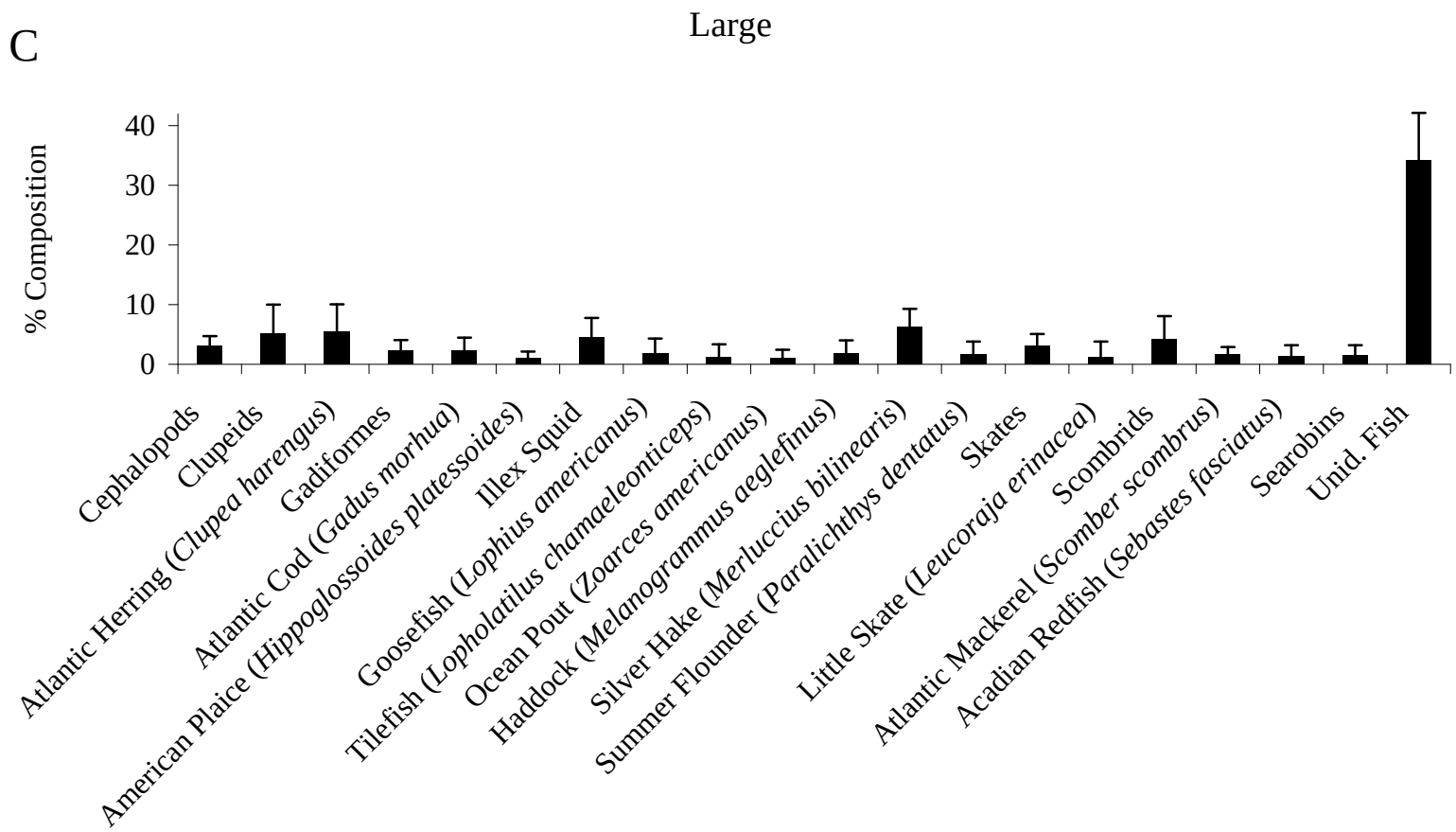

Figure 101C. Percent diet composition by weight of major prey taxa for goosefish (*Lophius americanus*) in the large size class (n = 1,420). Unid. Fish = unidentified fish.

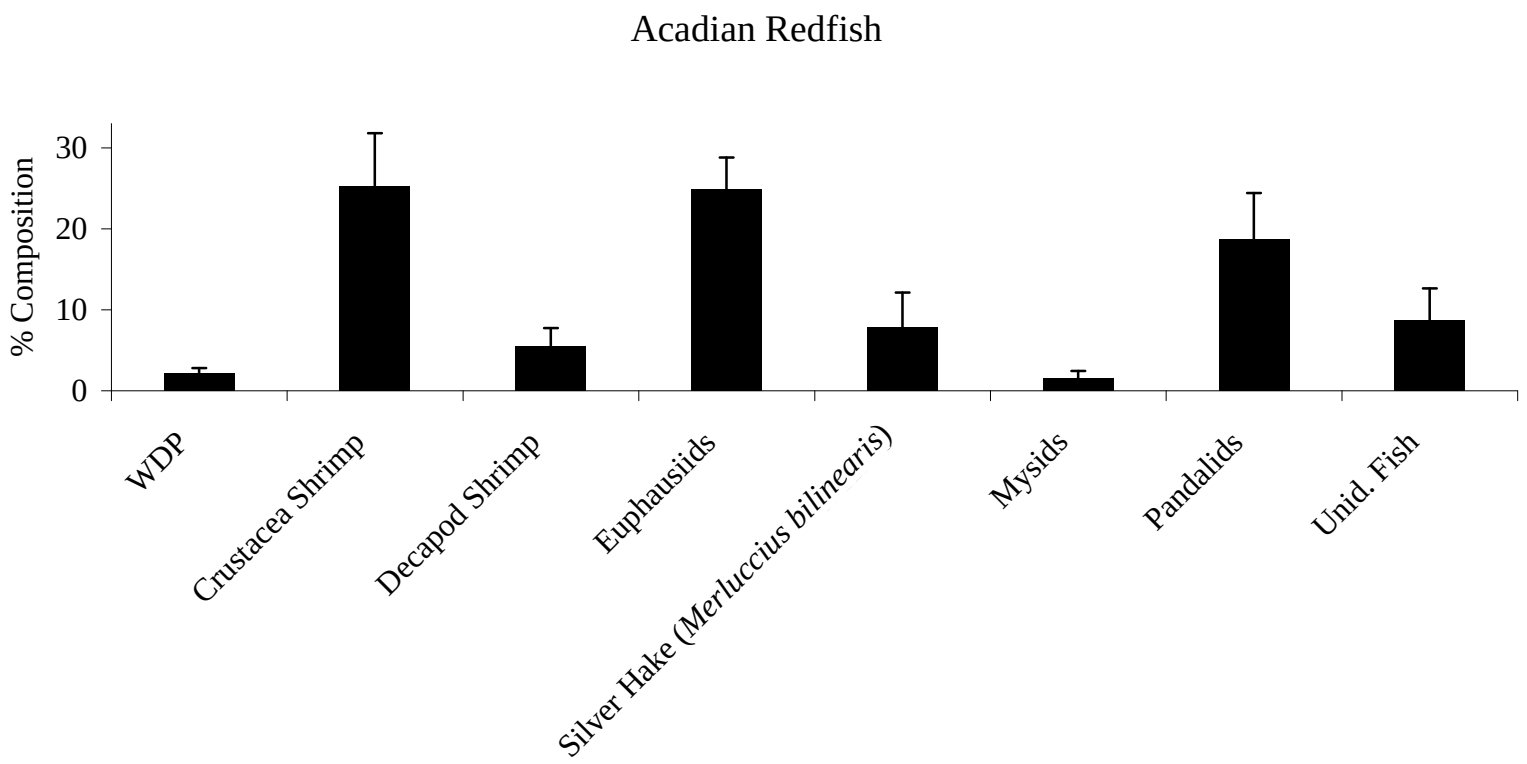

Figure 102. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*; n = 3,904). WDP = well-digested prey; Unid. Fish = unidentified fish.

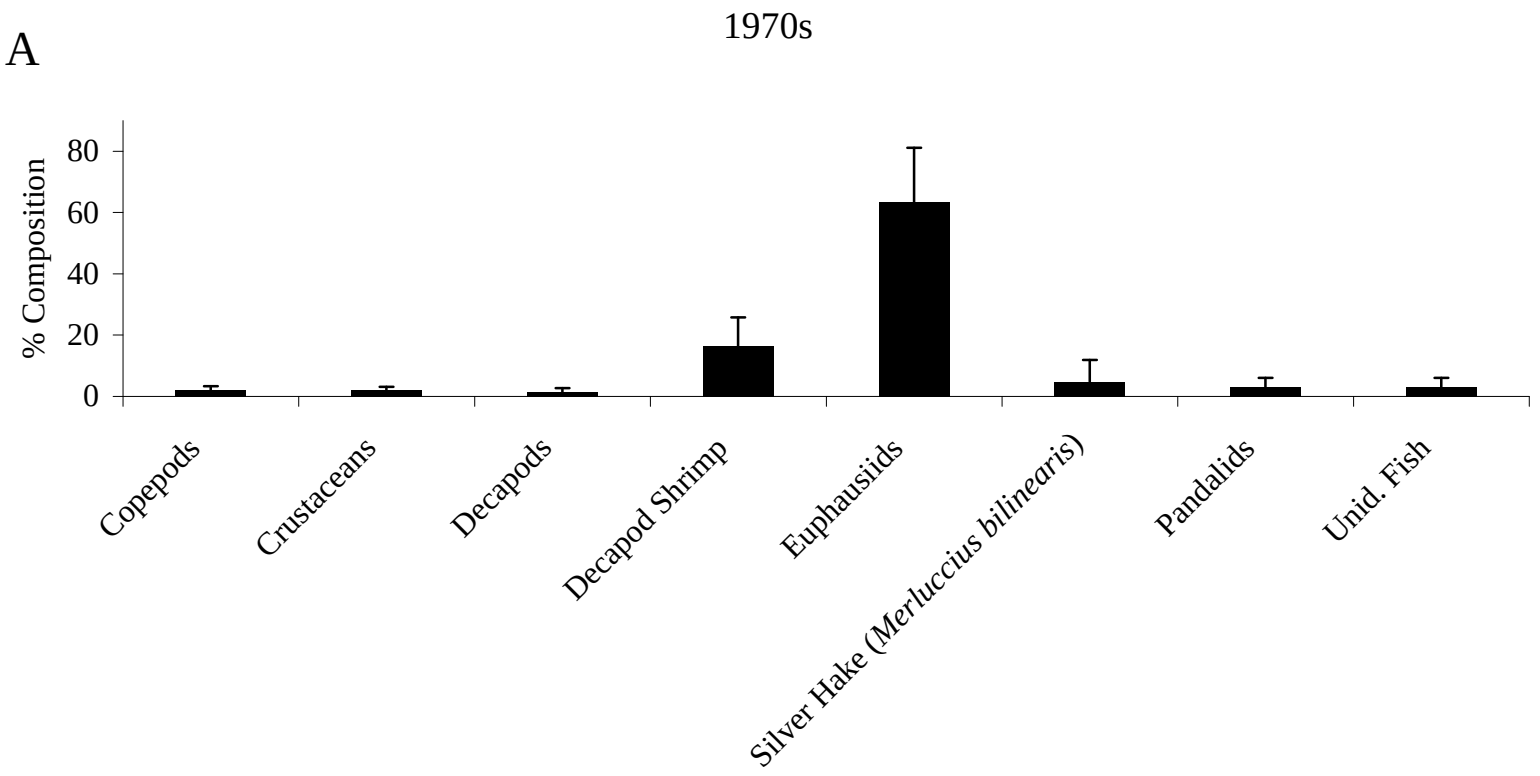

Figure 103A. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) collected in the 1970s (n = 660). Unid. Fish = unidentified fish.

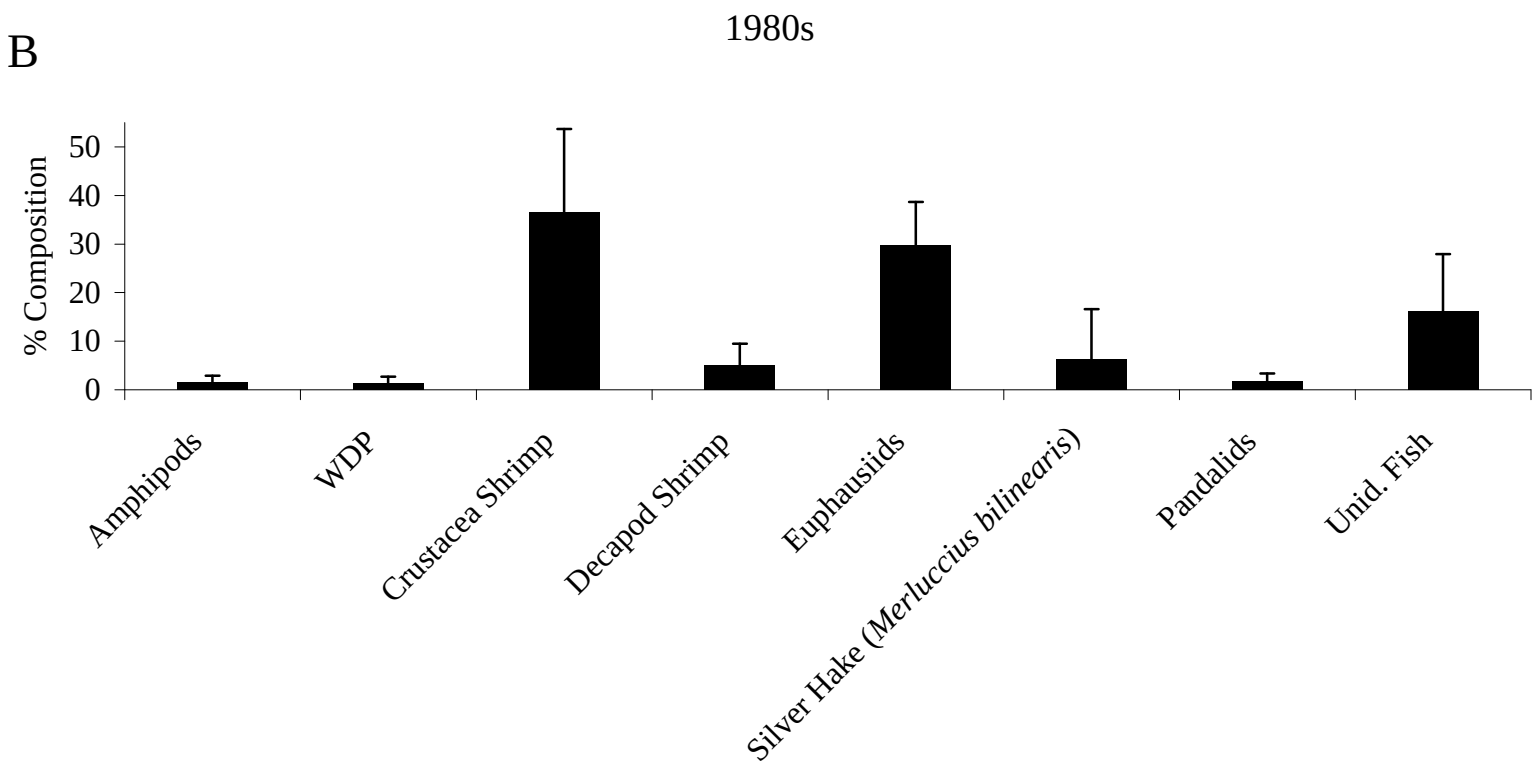

Figure 103B. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) collected in the 1980s (n = 578). WDP = well-digested prey; Unid. Fish = unidentified fish.

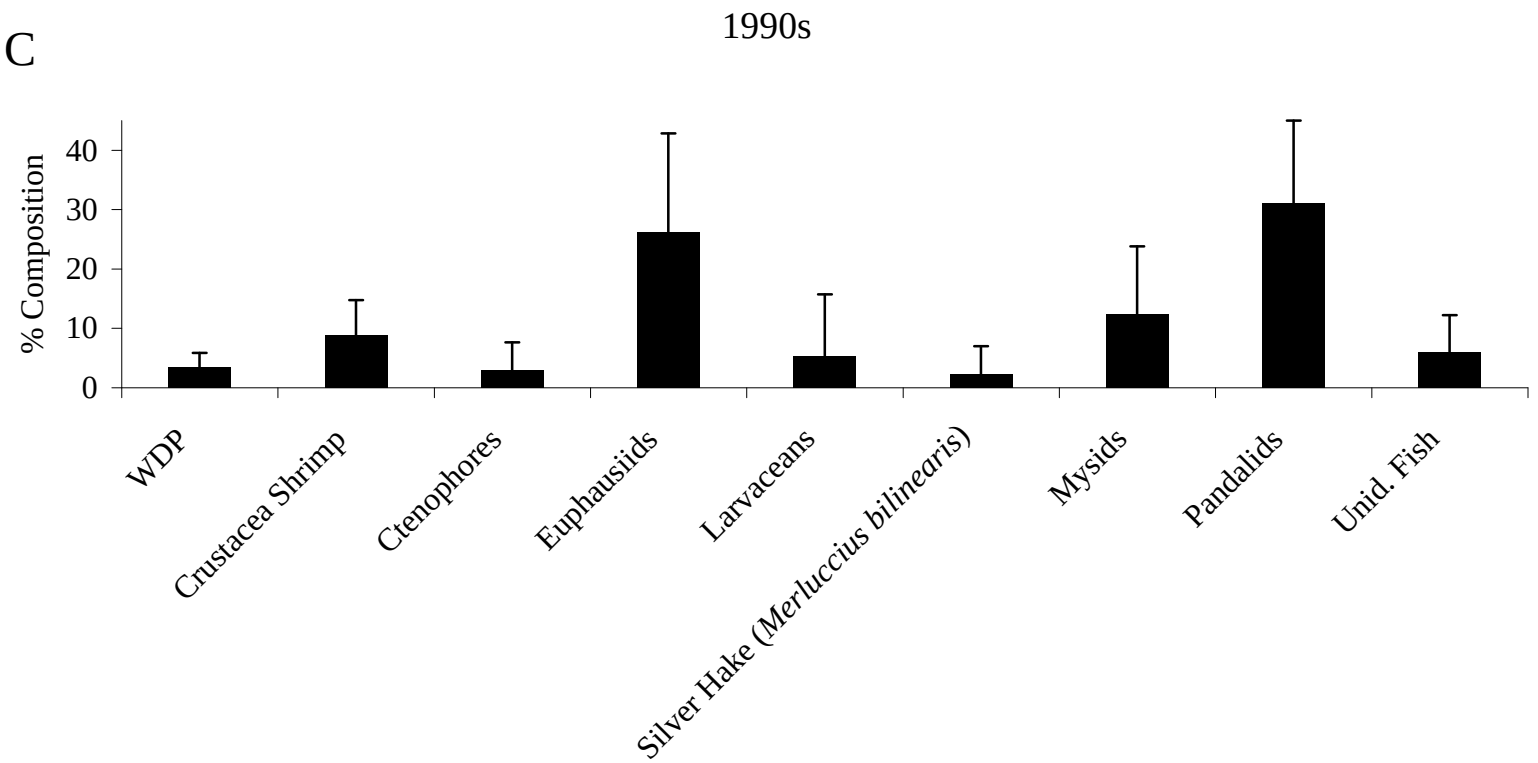

Figure 103C. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) collected in the 1990s (n = 326). WDP = well-digested prey; Unid. Fish = unidentified fish.

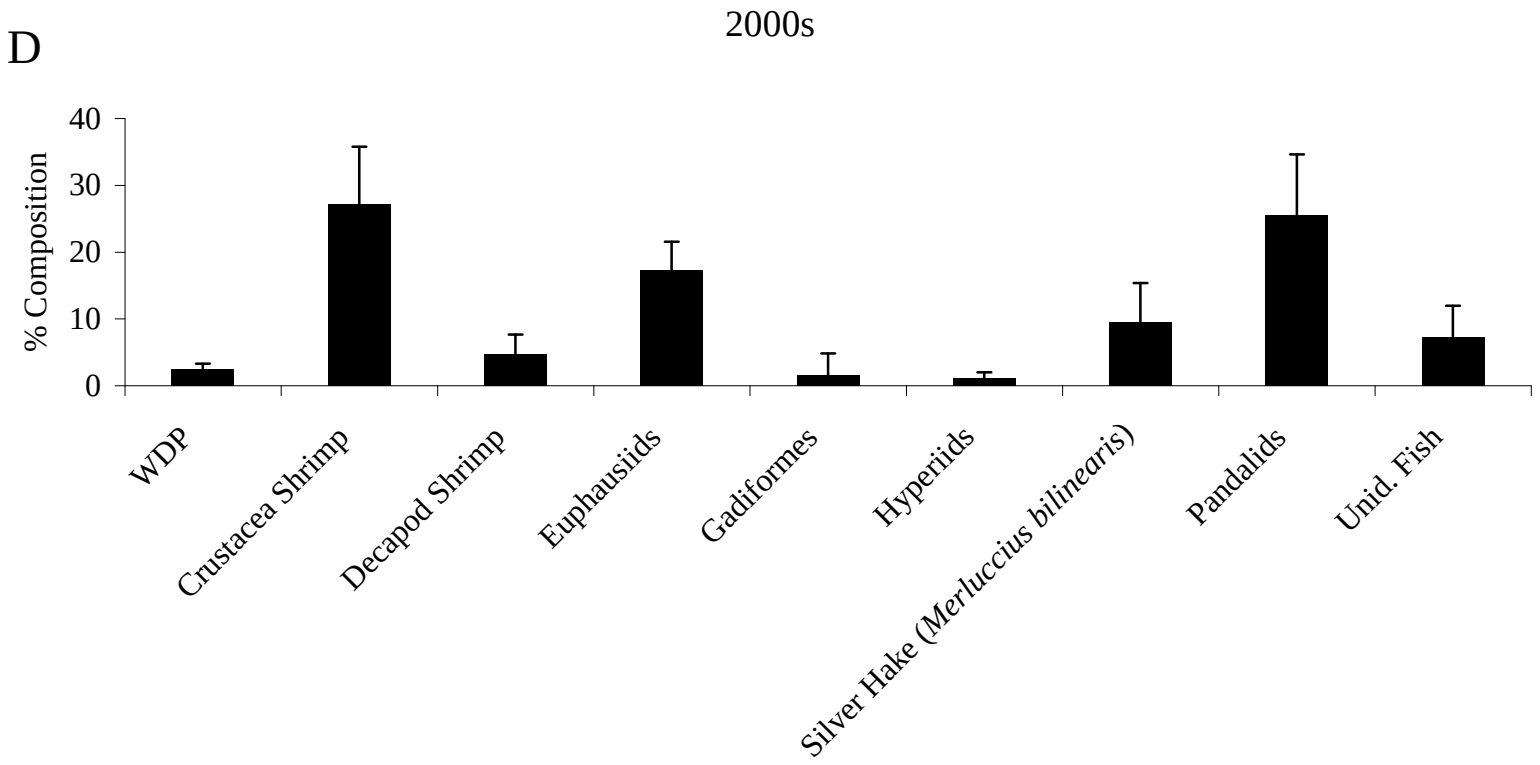

Figure 103D. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) collected in the 2000s (n = 2,340). WDP = well-digested prey; Unid. Fish = unidentified fish.

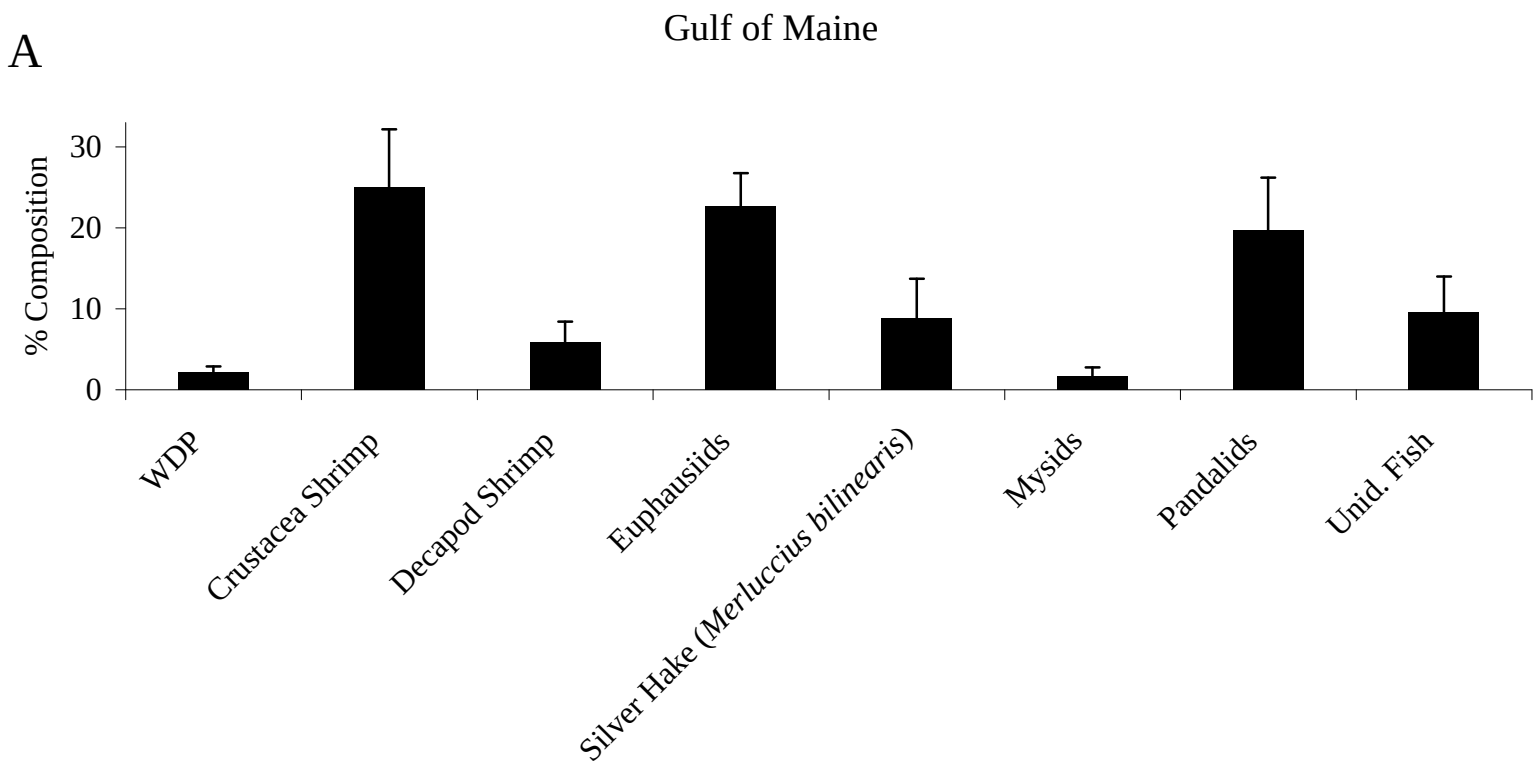

Figure 104A. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) collected in the Gulf of Maine (n = 3,149). WDP = well-digested prey; Unid. Fish = unidentified fish.

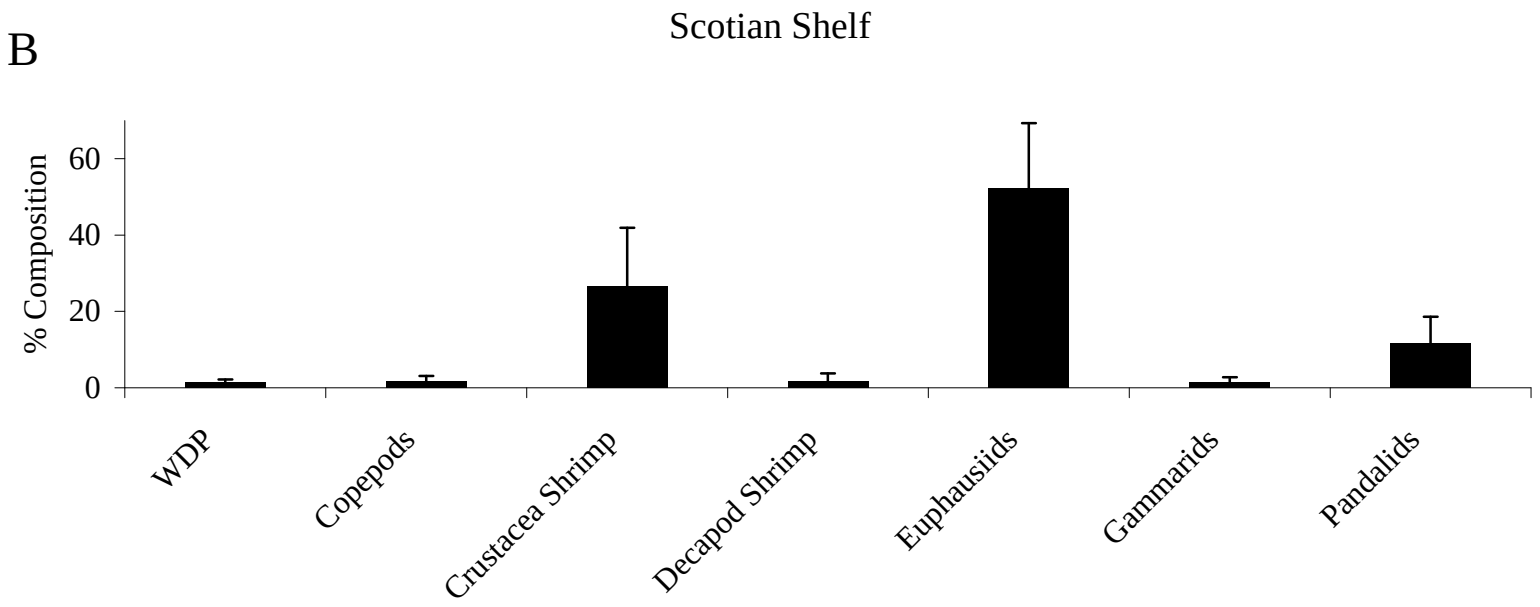

Figure 104B. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) collected on the Scotian Shelf (n = 582). WDP = well-digested prey.

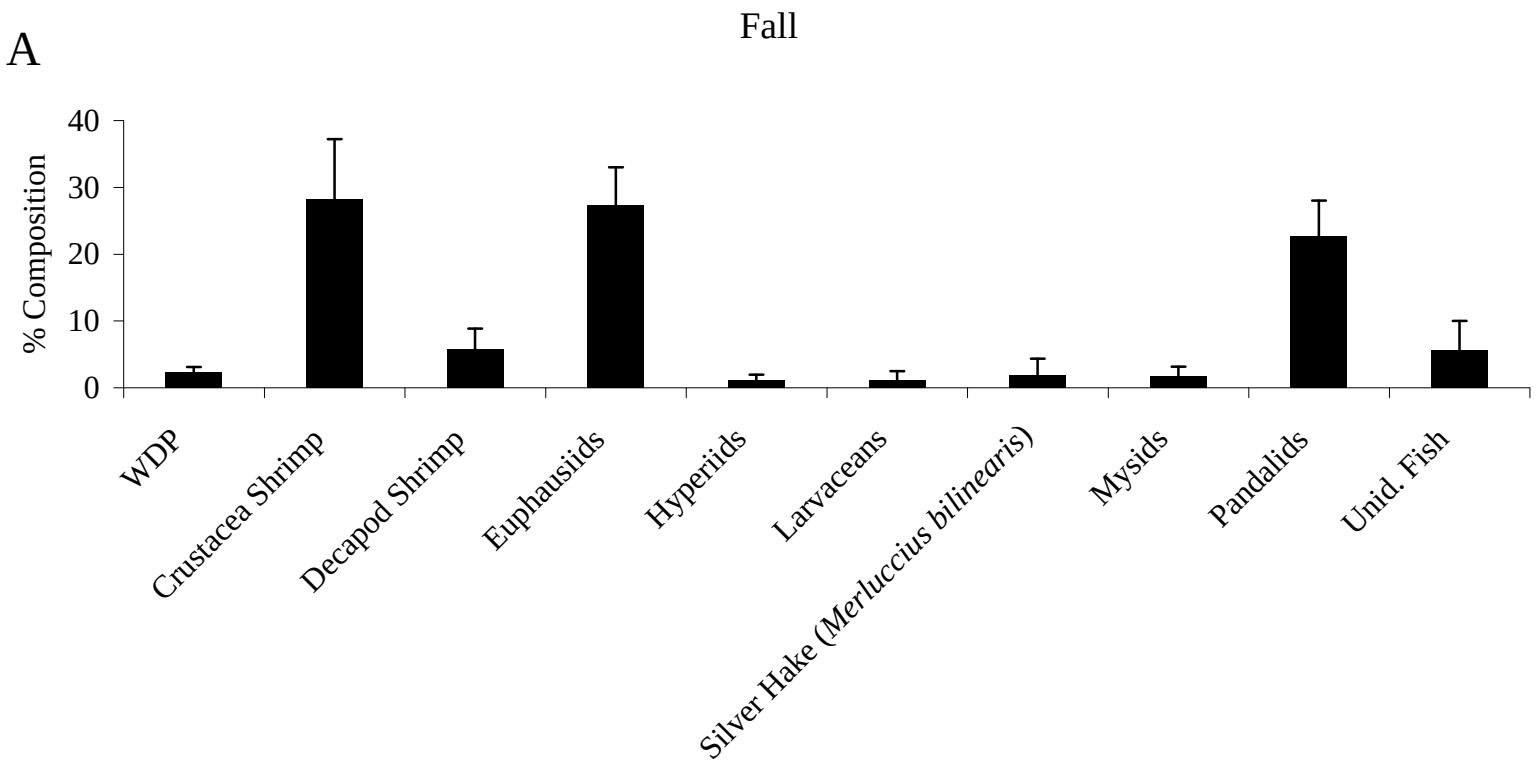

Figure 105A. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) collected in the fall (n = 2,152). WDP = well-digested prey; Unid. Fish = unidentified fish.

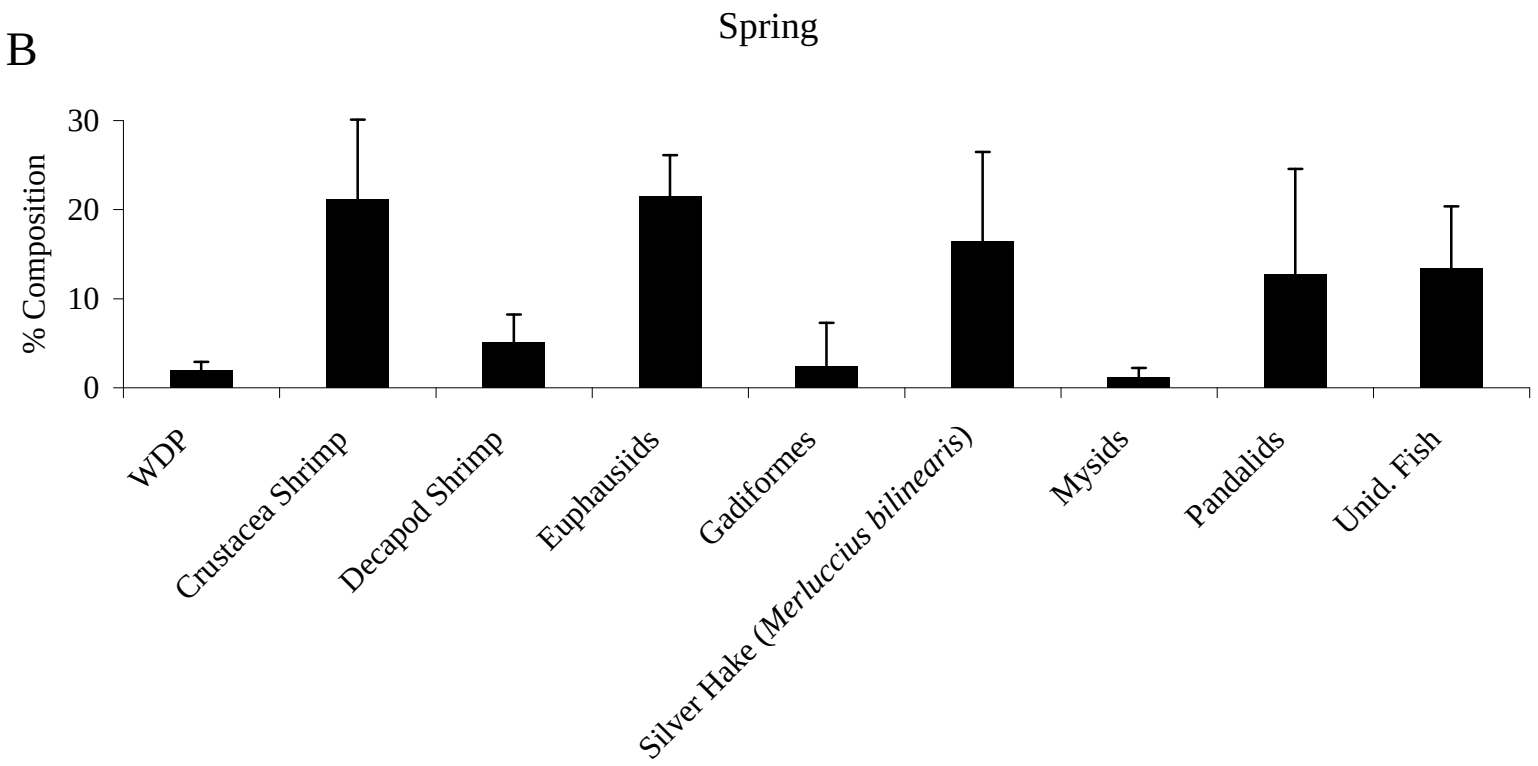

Figure 105B. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) collected in the spring (n = 1,748). WDP = well-digested prey; Unid. Fish = unidentified fish.

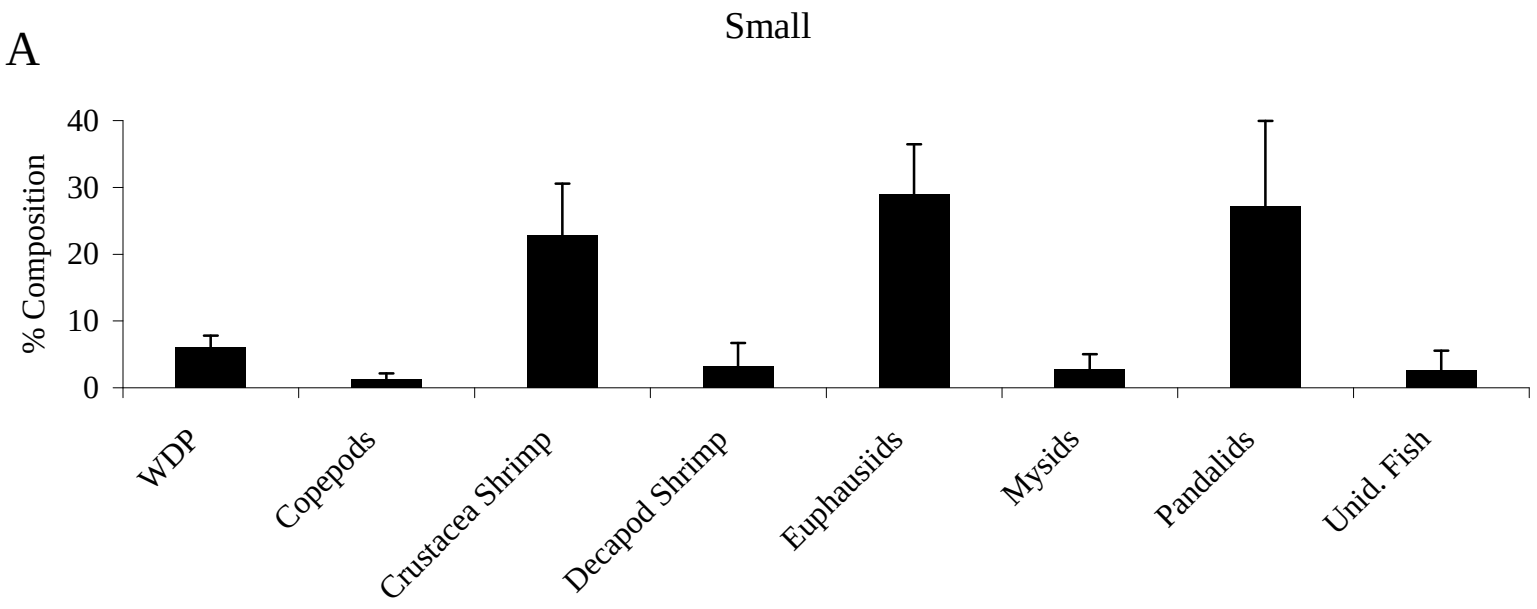

Figure 106A. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) in the small size class (n = 1,592). WDP = well-digested prey; Unid. Fish = unidentified fish.

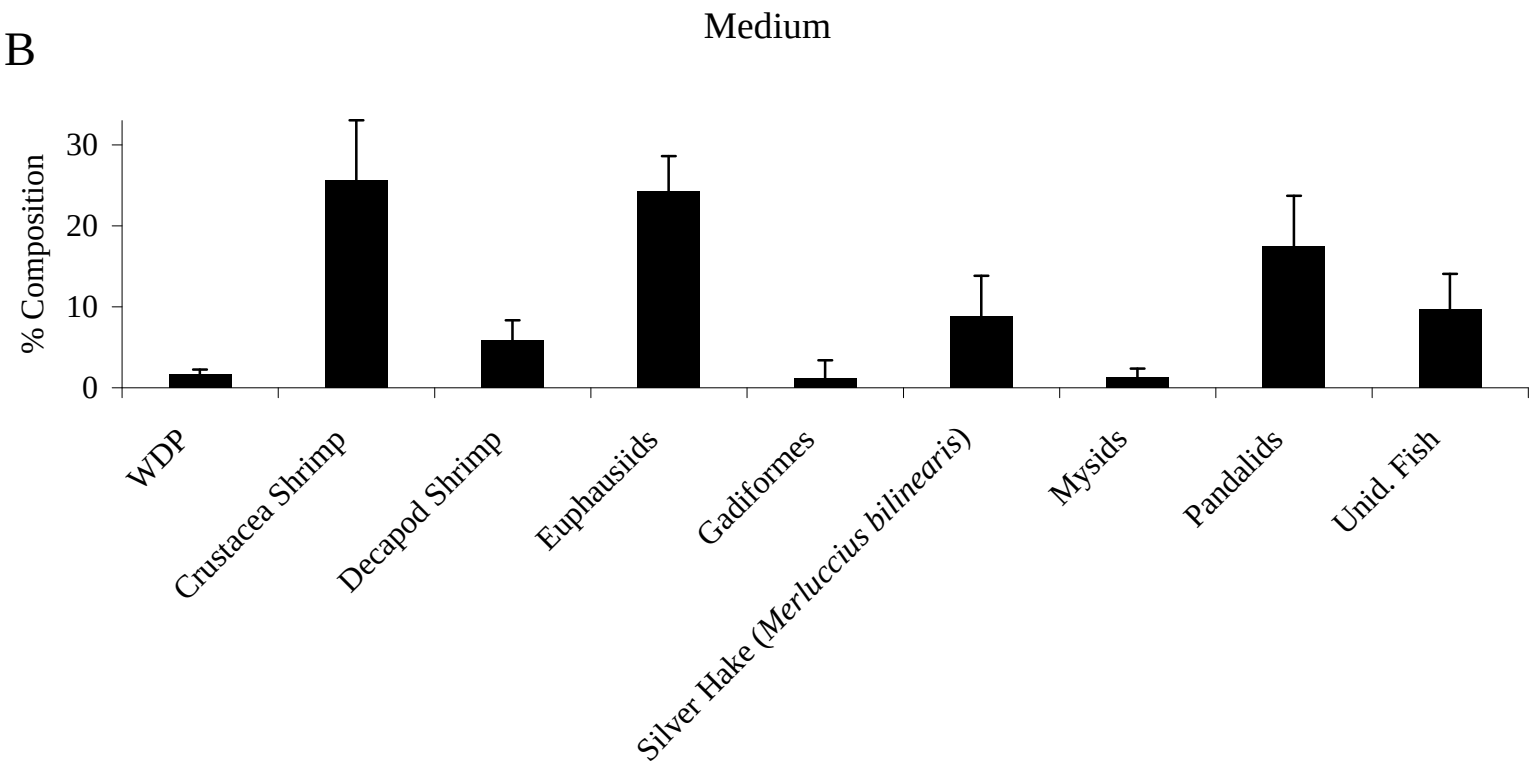

Figure 106B. Percent diet composition by weight of major prey taxa for Acadian redfish (*Sebastes fasciatus*) in the medium size class (n = 2,312). WDP = well-digested prey; Unid. Fish = unidentified fish.

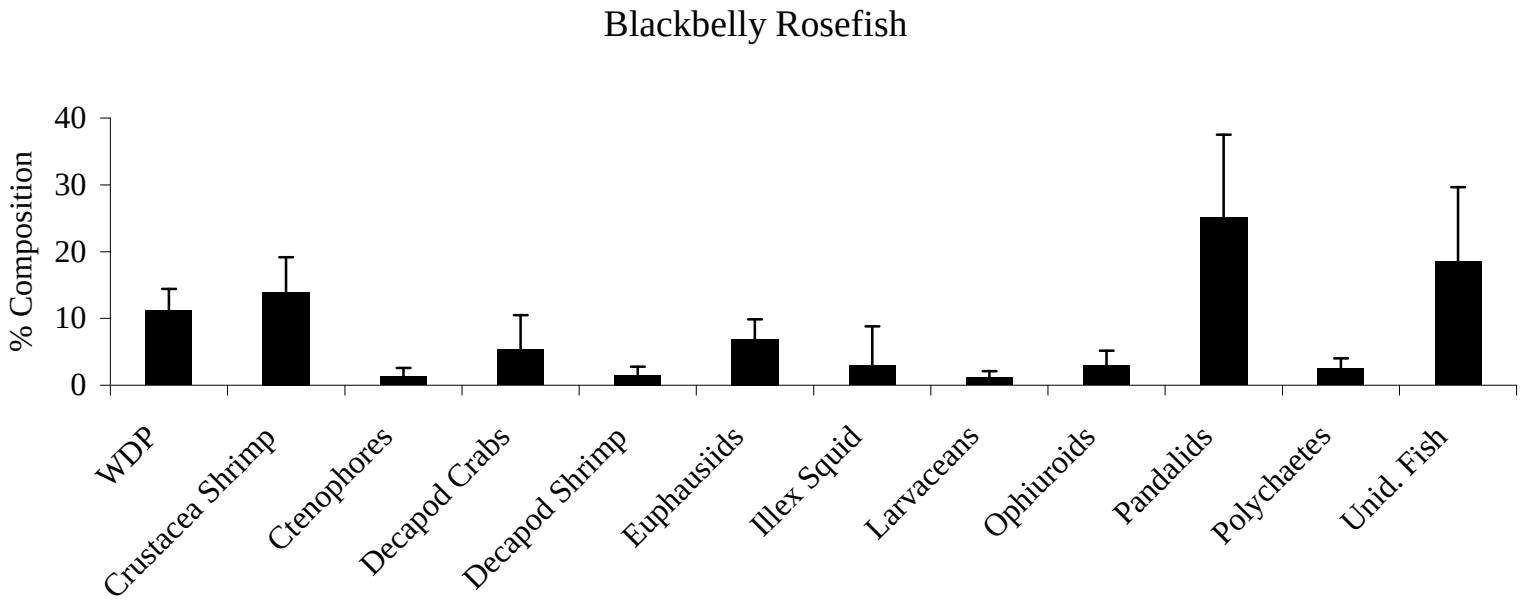

Figure 107. Percent diet composition by weight of major prey taxa for blackbelly rosefish (*Helicolenus dactylopterus*; n = 957). WDP = well-digested prey; Unid. Fish = unidentified fish.

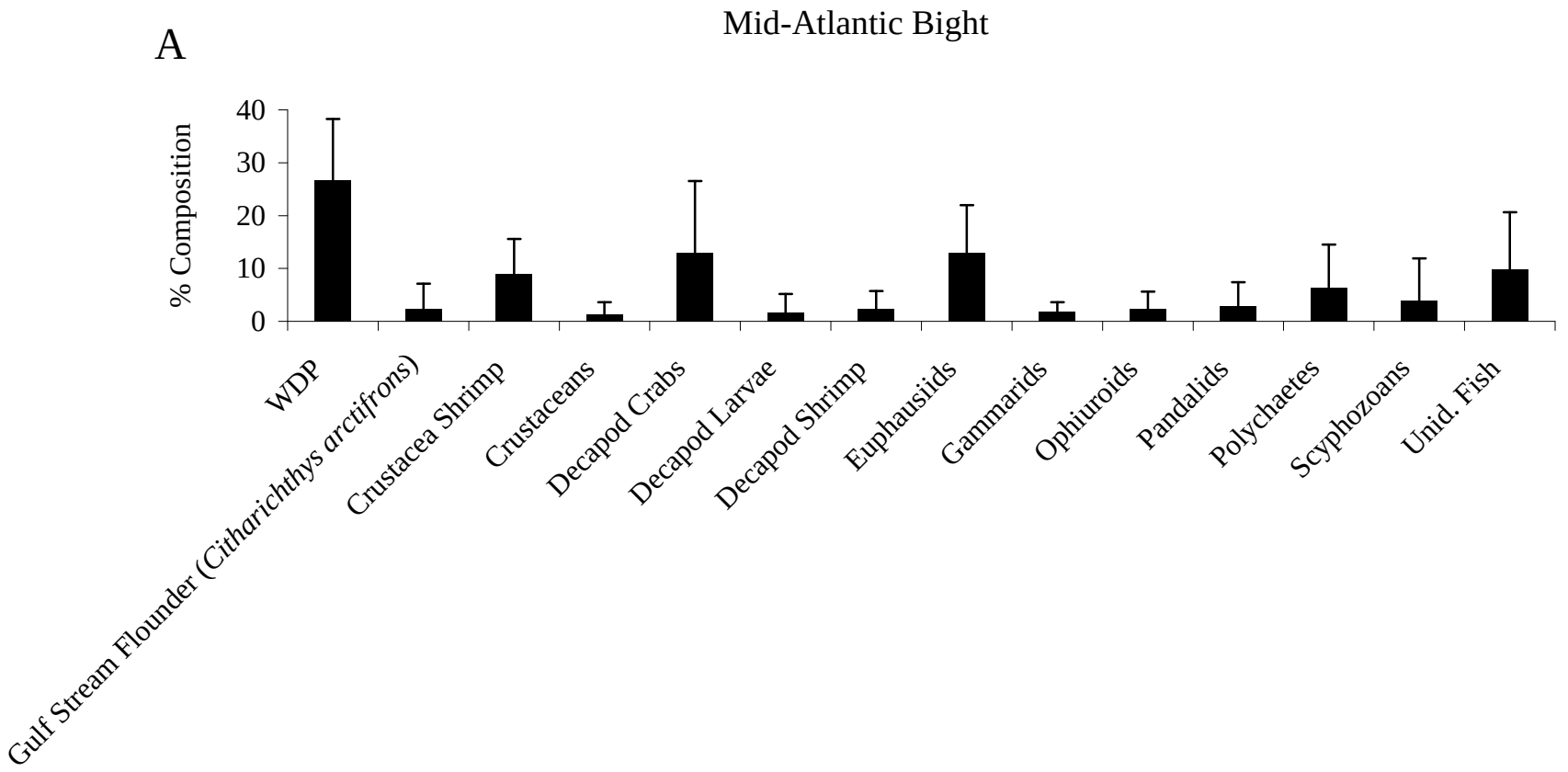

Figure 108A. Percent diet composition by weight of major prey taxa for blackbelly rosefish (*Helicolenus dactylopterus*) collected in the Mid-Atlantic Bight (n = 300). WDP = well-digested prey; Unid. Fish = unidentified fish.

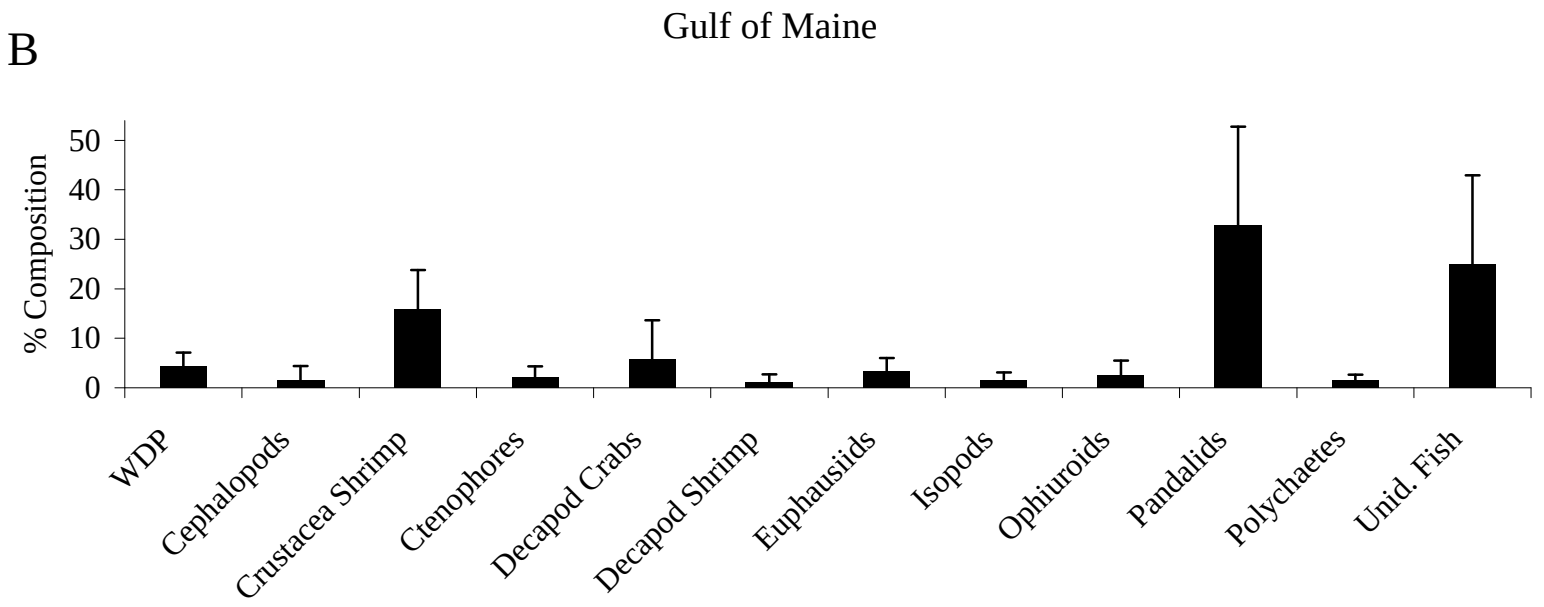

Figure 108B. Percent diet composition by weight of major prey taxa for blackbelly rosefish (*Helicolenus dactylopterus*) collected in the Gulf of Maine (n = 332). WDP = well-digested prey; Unid. Fish = unidentified fish.

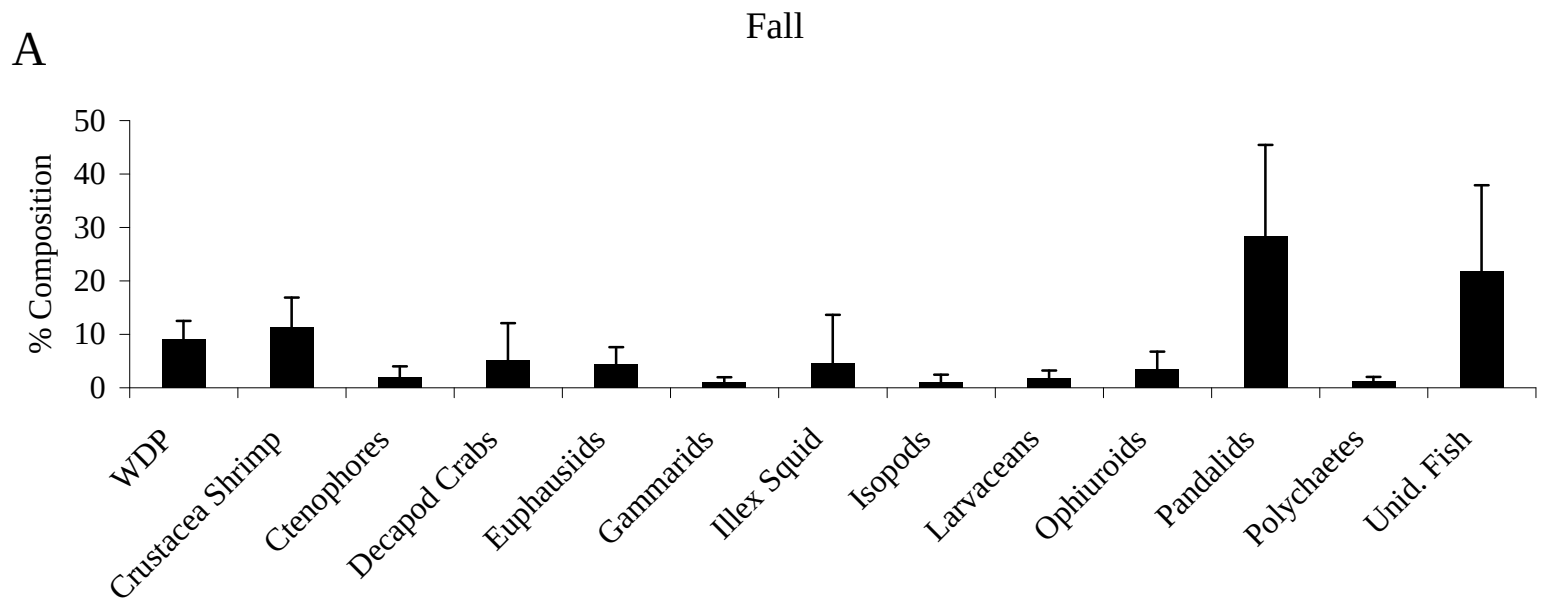

Figure 109A. Percent diet composition by weight of major prey taxa for blackbelly rosefish (*Helicolenus dactylopterus*) collected in fall (n = 443). WDP = well-digested prey; Unid. Fish = unidentified fish.

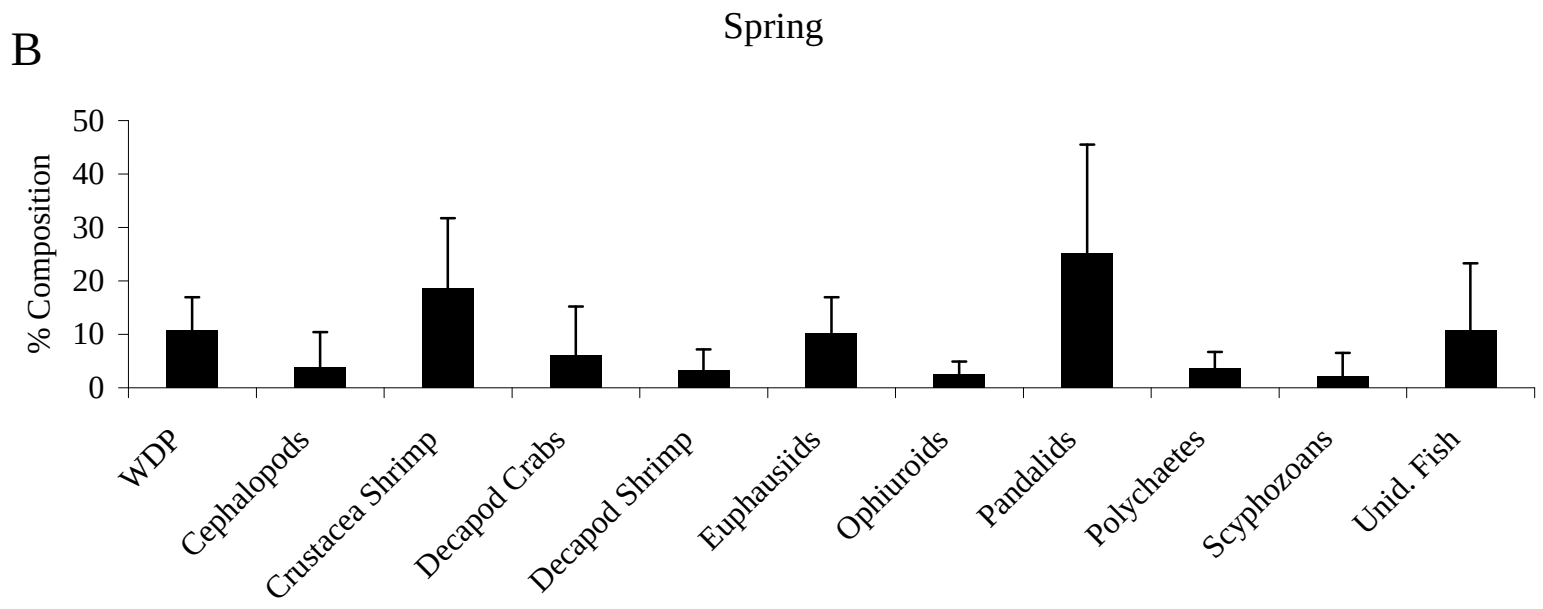

Figure 109B. Percent diet composition by weight of major prey taxa for blackbelly rosefish (*Helicolenus dactylopterus*) collected in spring (n = 372). WDP = well-digested prey; Unid. Fish = unidentified fish.

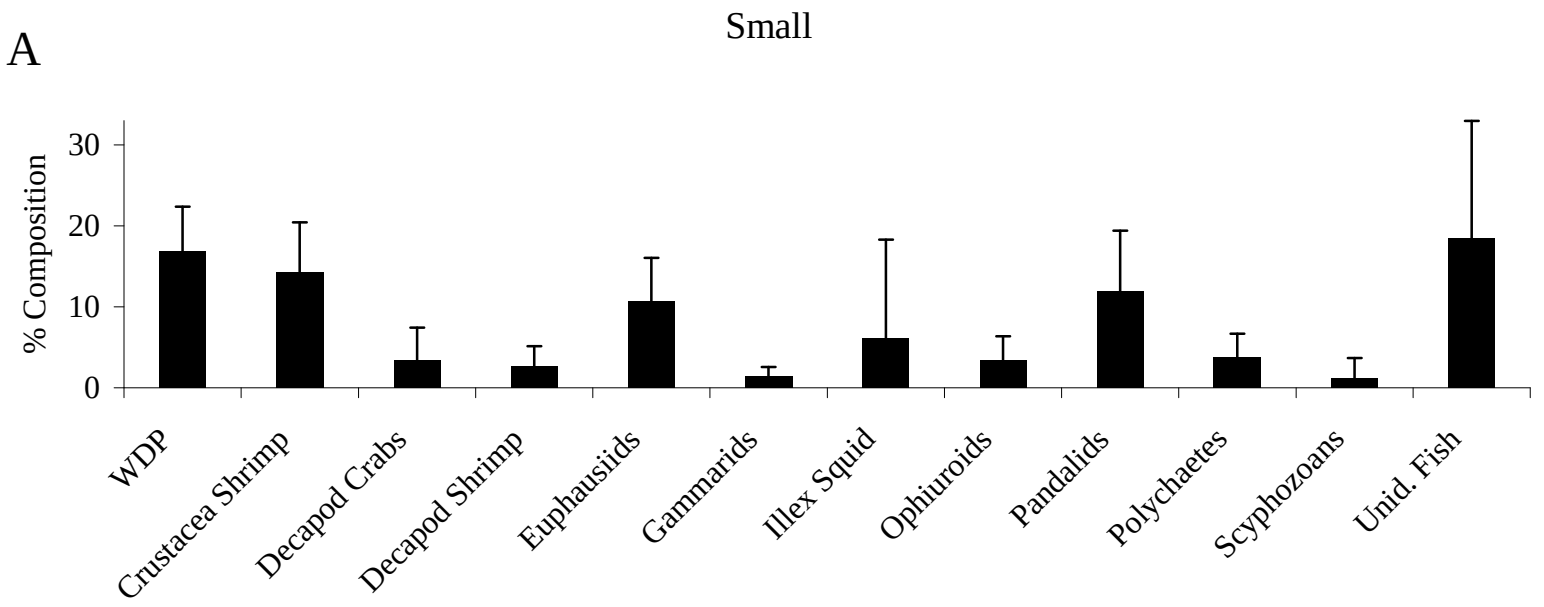

Figure 110A. Percent diet composition by weight of major prey taxa for blackbelly rosefish (*Helicolenus dactylopterus*) in the small size class (n = 677). WDP = well-digested prey; Unid. Fish = unidentified fish.

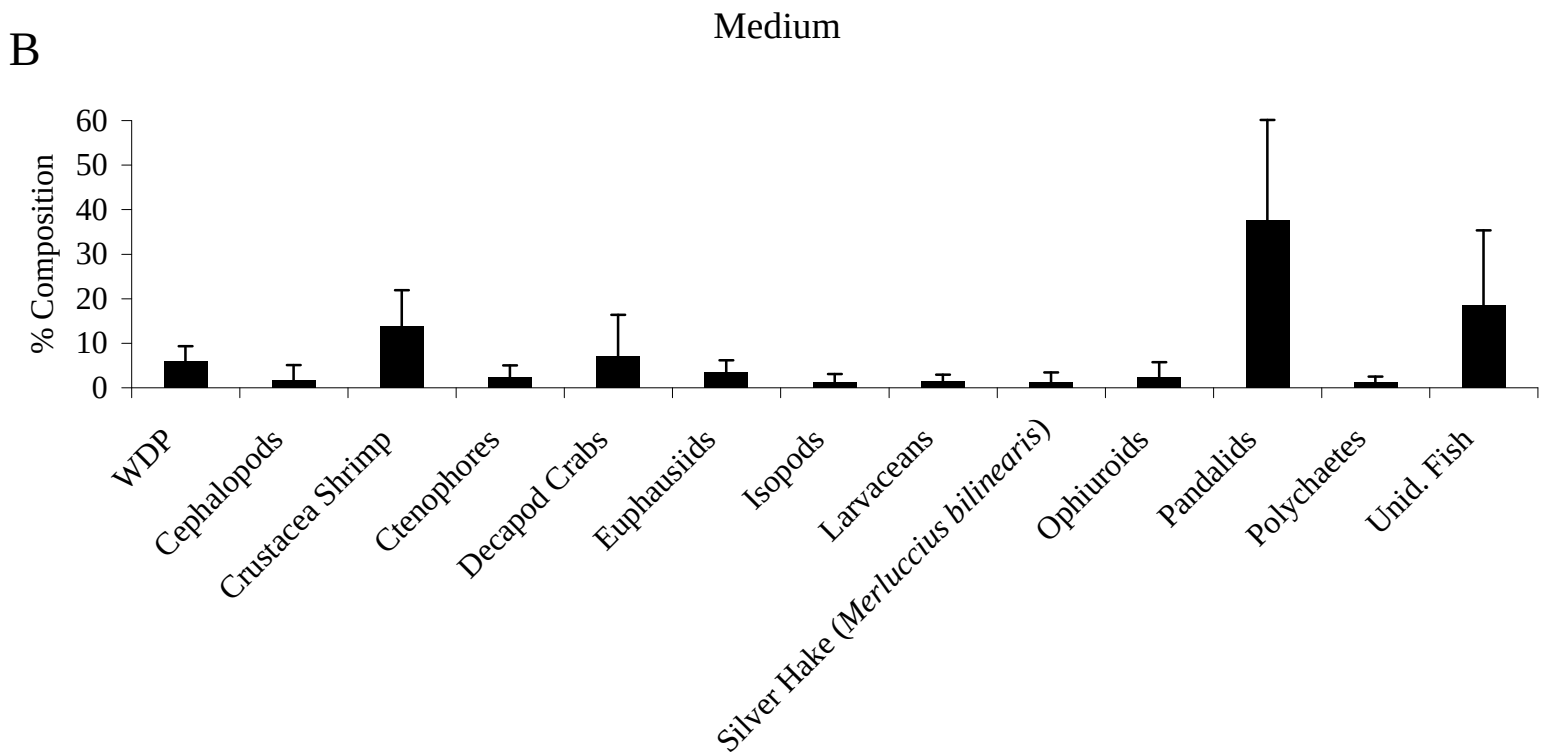

Figure 110B. Percent diet composition by weight of major prey taxa for blackbelly rosefish (*Helicolenus dactylopterus*) in the medium size class (n = 279). WDP = well-digested prey; Unid. Fish = unidentified fish.

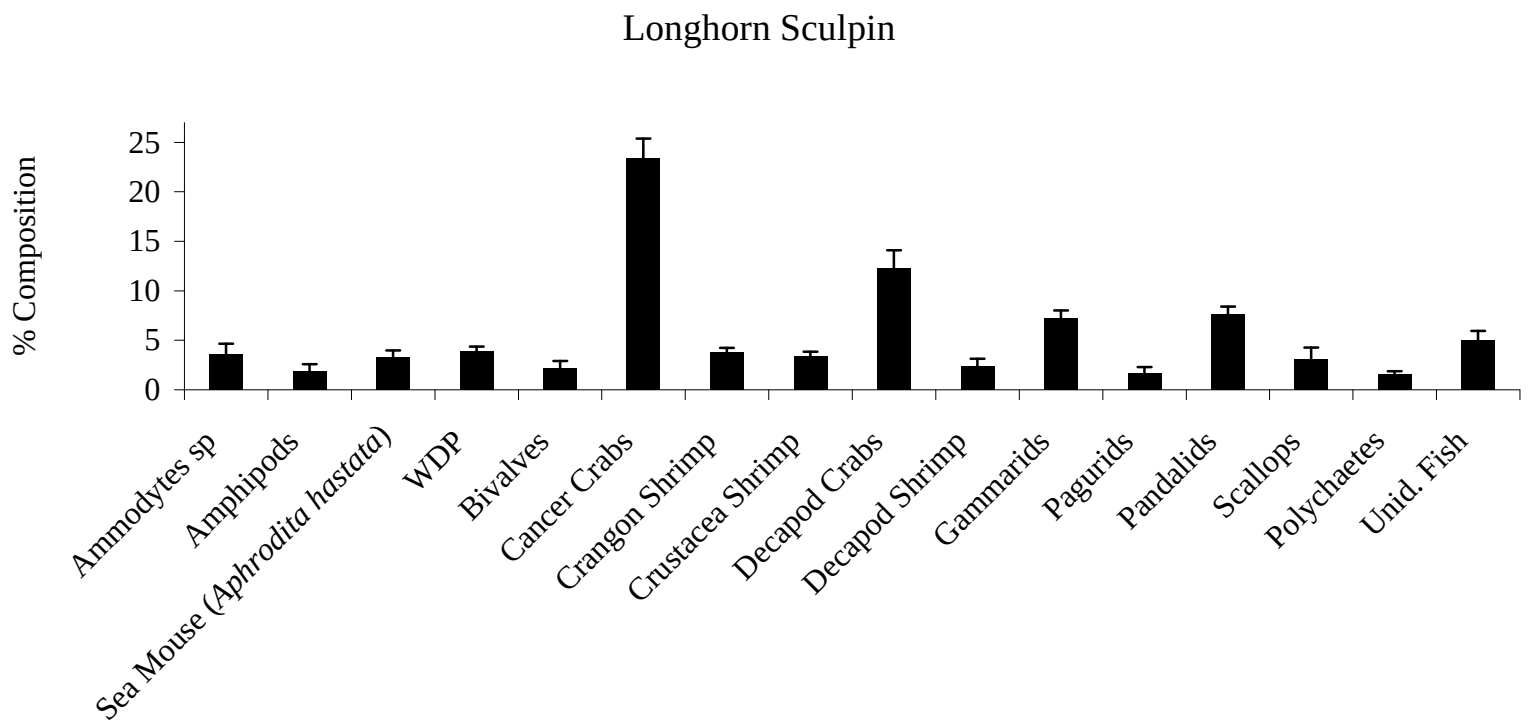

Figure 111. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*; n = 12,188). WDP = well-digested prey; Unid. Fish = unidentified fish.

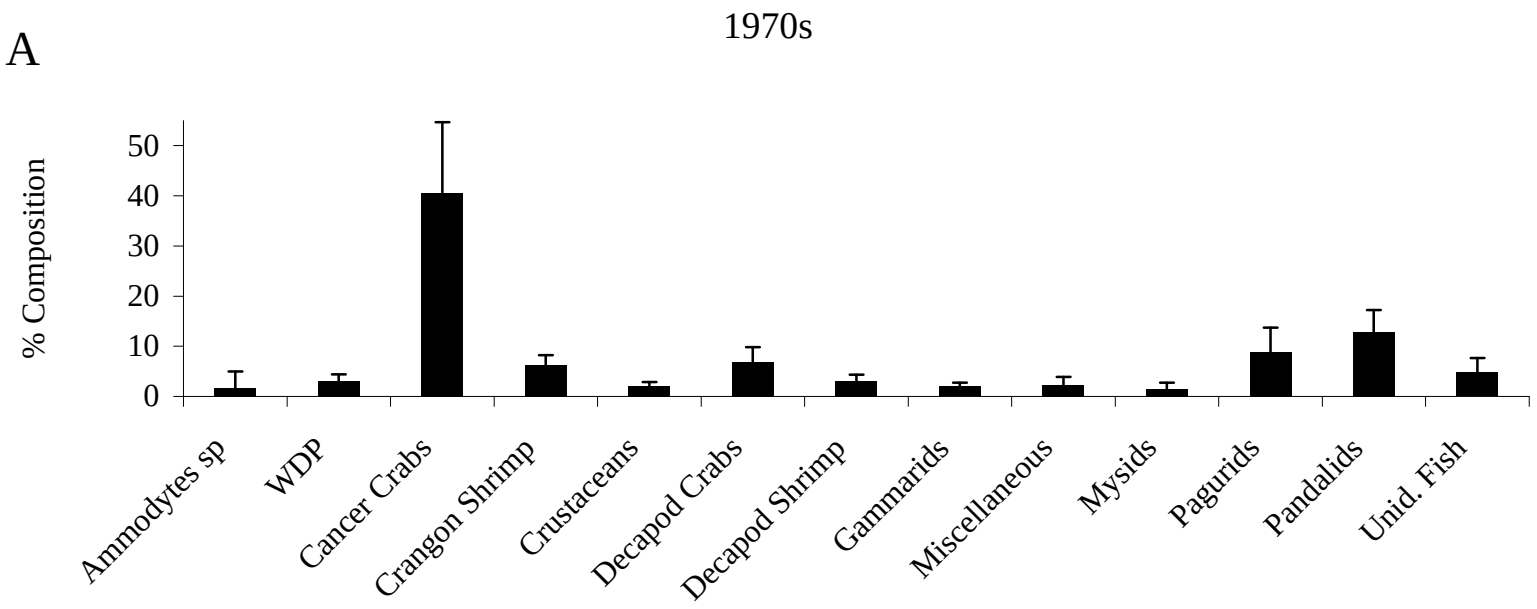

Figure 112A. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the 1970s (n = 715). WDP = well-digested prey; Unid. Fish = unidentified fish.

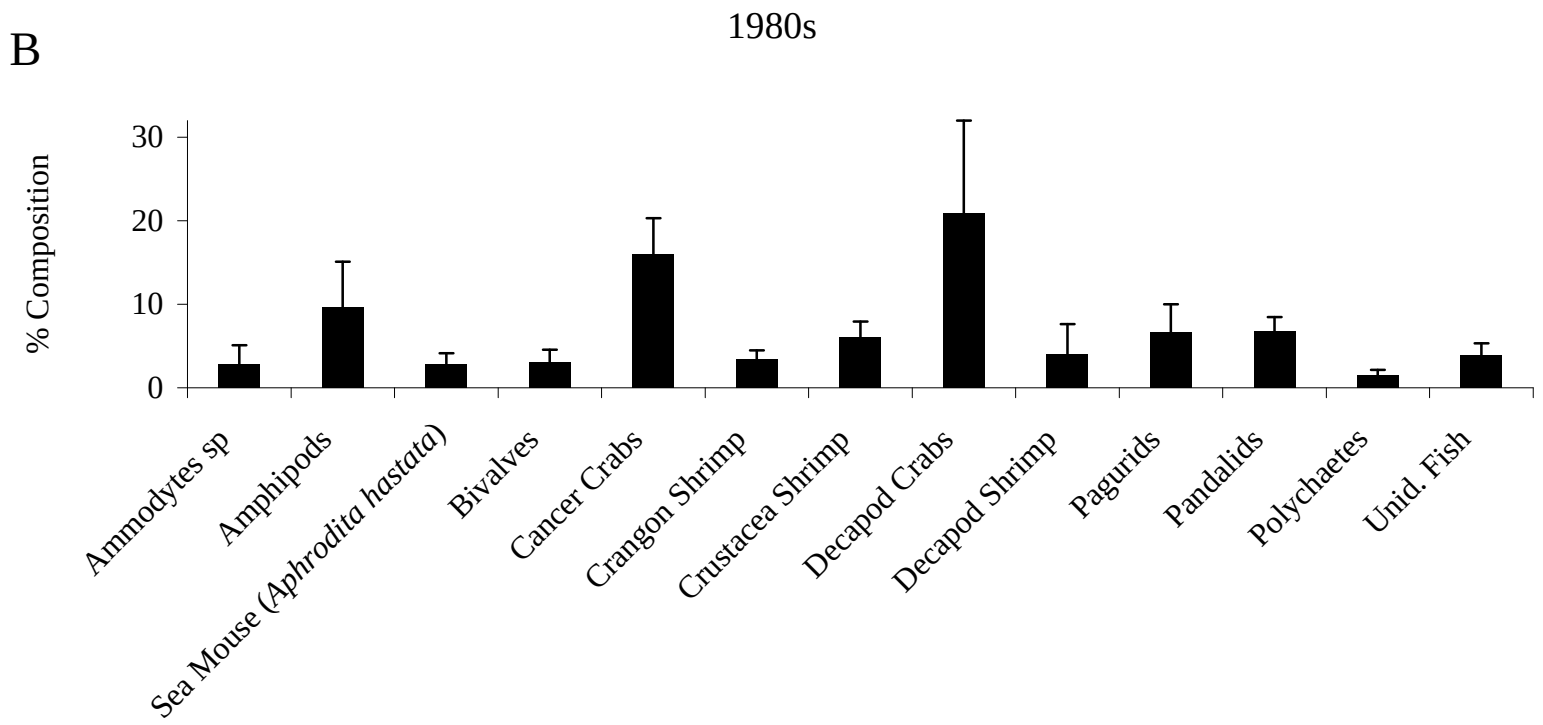

Figure 112B. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the 1980s (n = 1,346). Unid. Fish = unidentified fish.

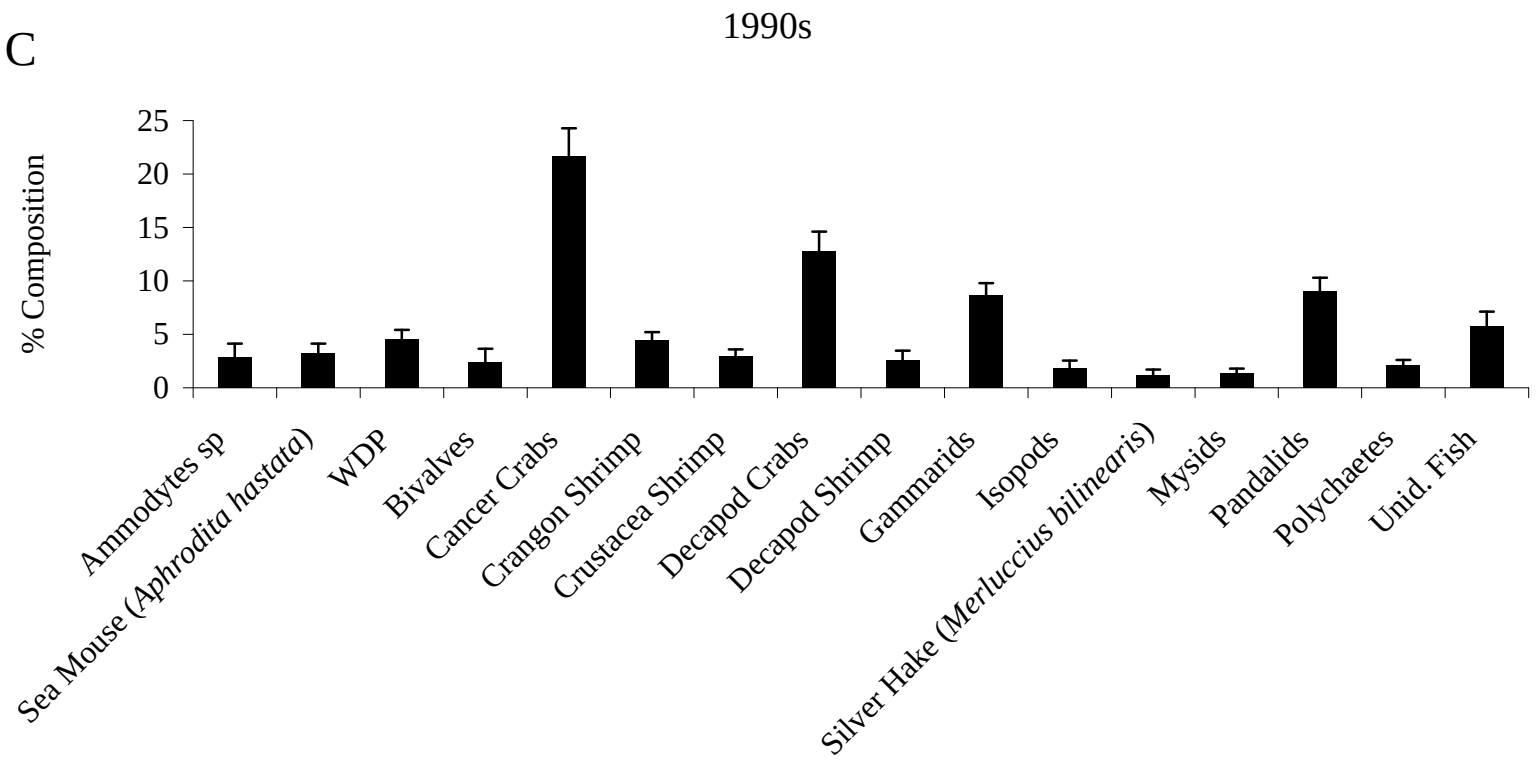

Figure 112C. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the 1990s (n = 6,484). WDP = well-digested prey; Unid. Fish = unidentified fish.

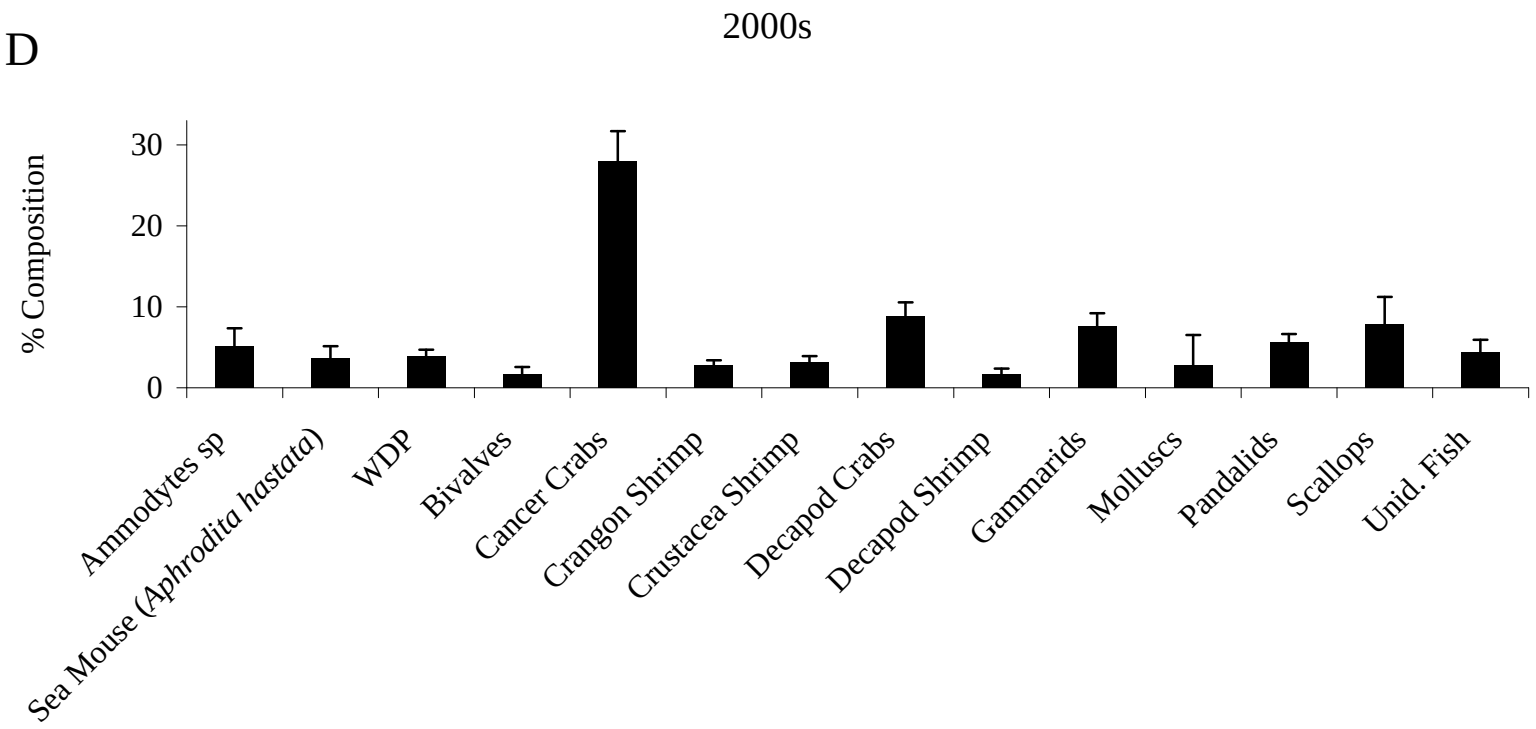

Figure 112D. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the 2000s (n = 3,643). WDP = well-digested prey; Unid. Fish = unidentified fish.

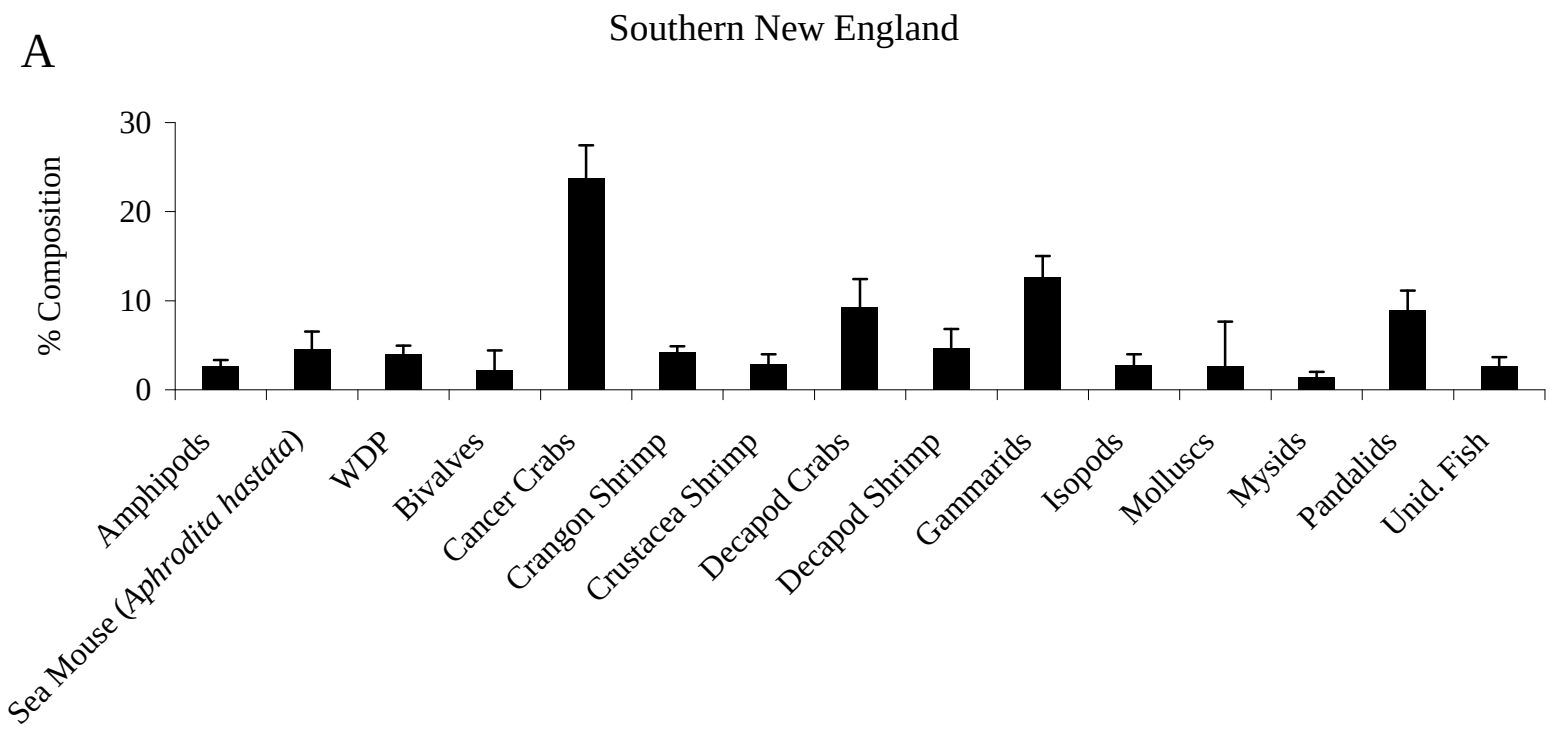

Figure 113A. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in Southern New England (n = 1,898). WDP = well-digested prey; Unid. Fish = unidentified fish.

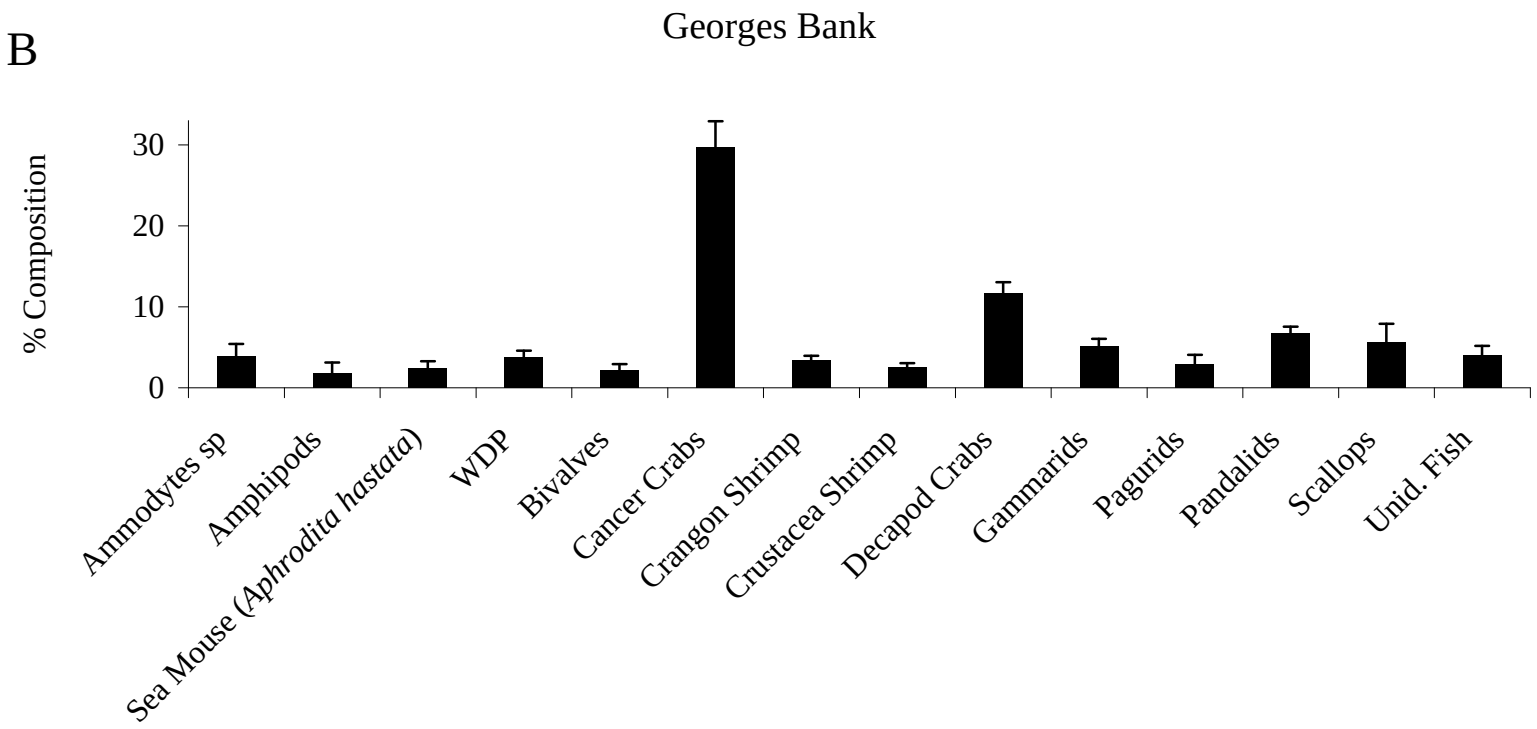

Figure 113B. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected on Georges Bank (n = 6,703). WDP = well-digested prey; Unid. Fish = unidentified fish.

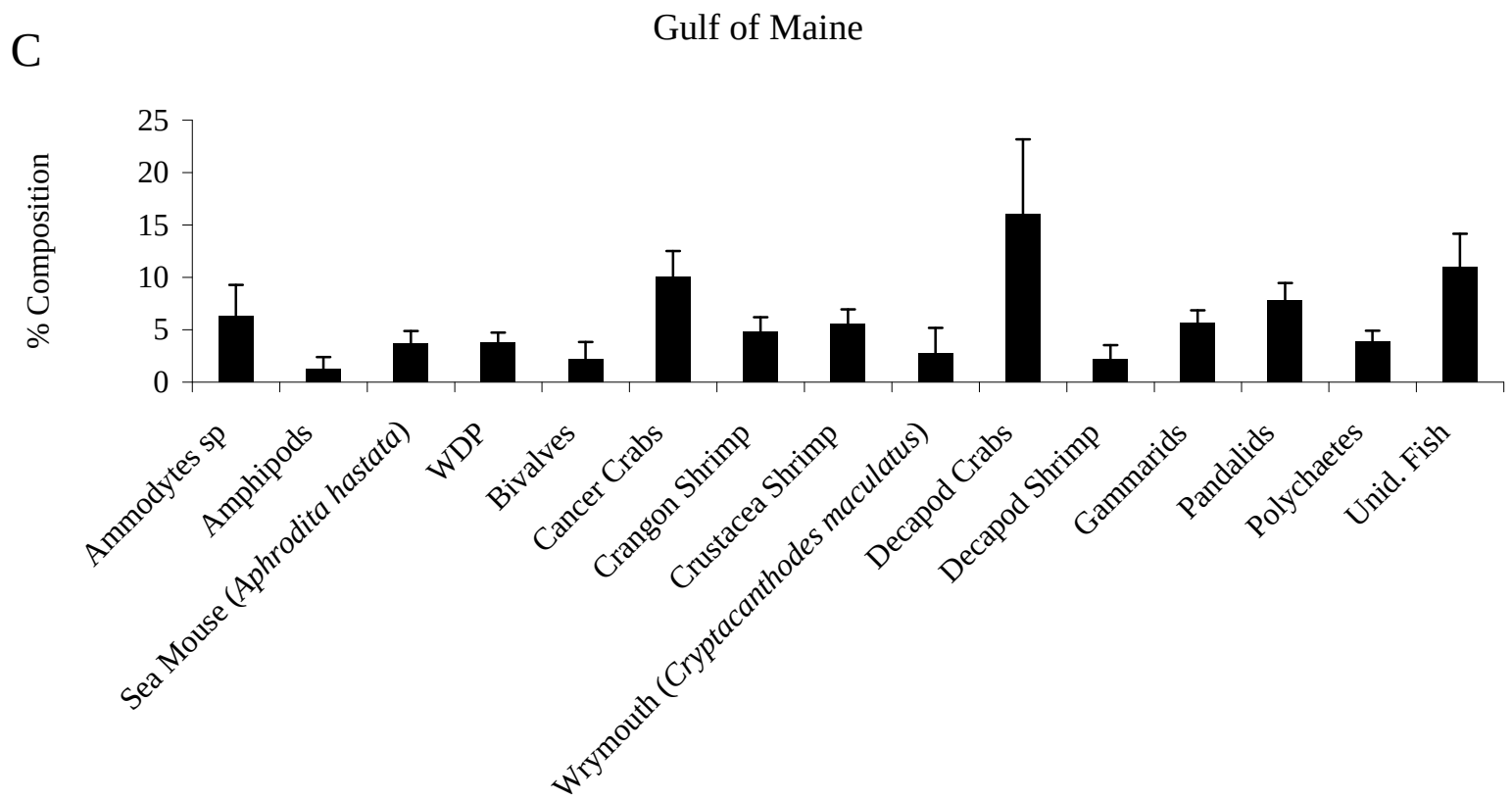

Figure 113C. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the Gulf of Maine (n = 2,825). WDP = well-digested prey; Unid. Fish = unidentified fish.

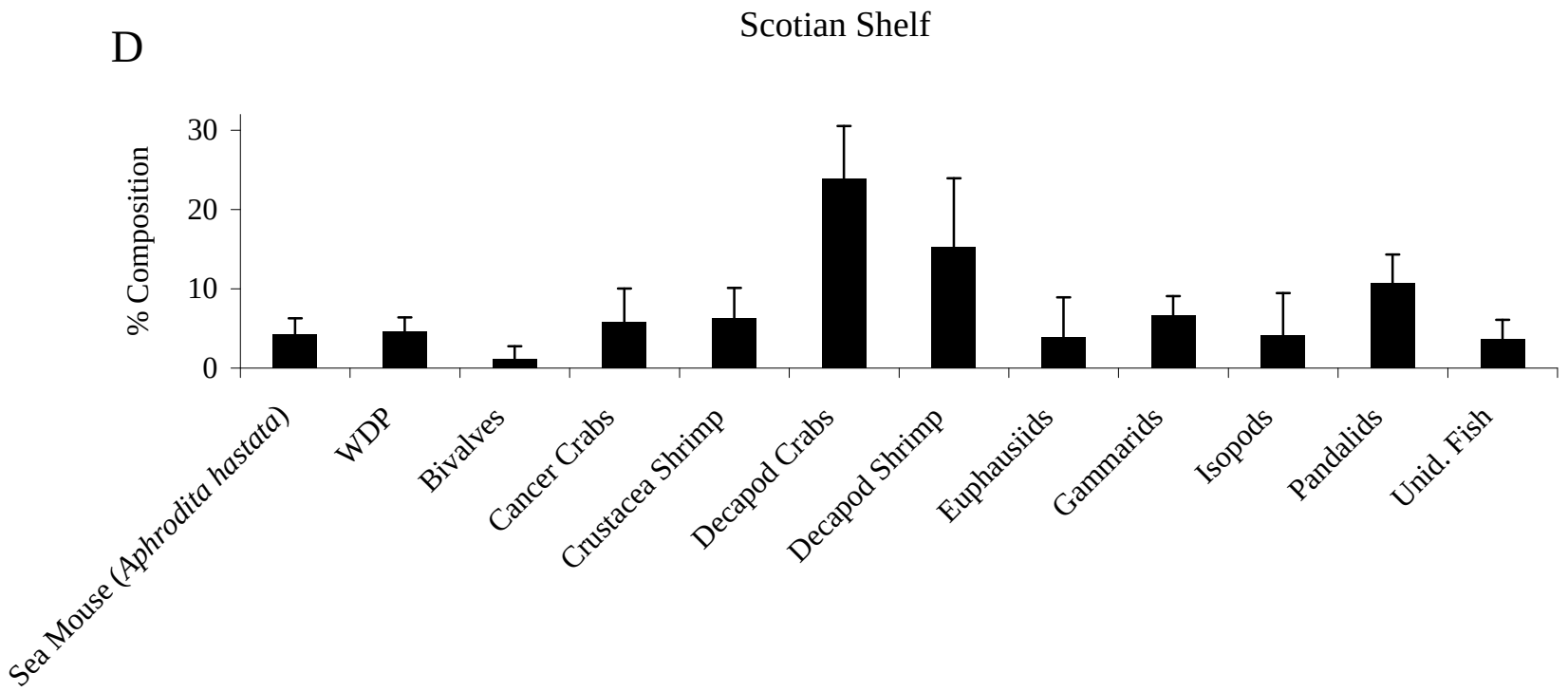

Figure 113D. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected on the Scotian Shelf (n = 748). WDP = well-digested prey; Unid. Fish = unidentified fish.

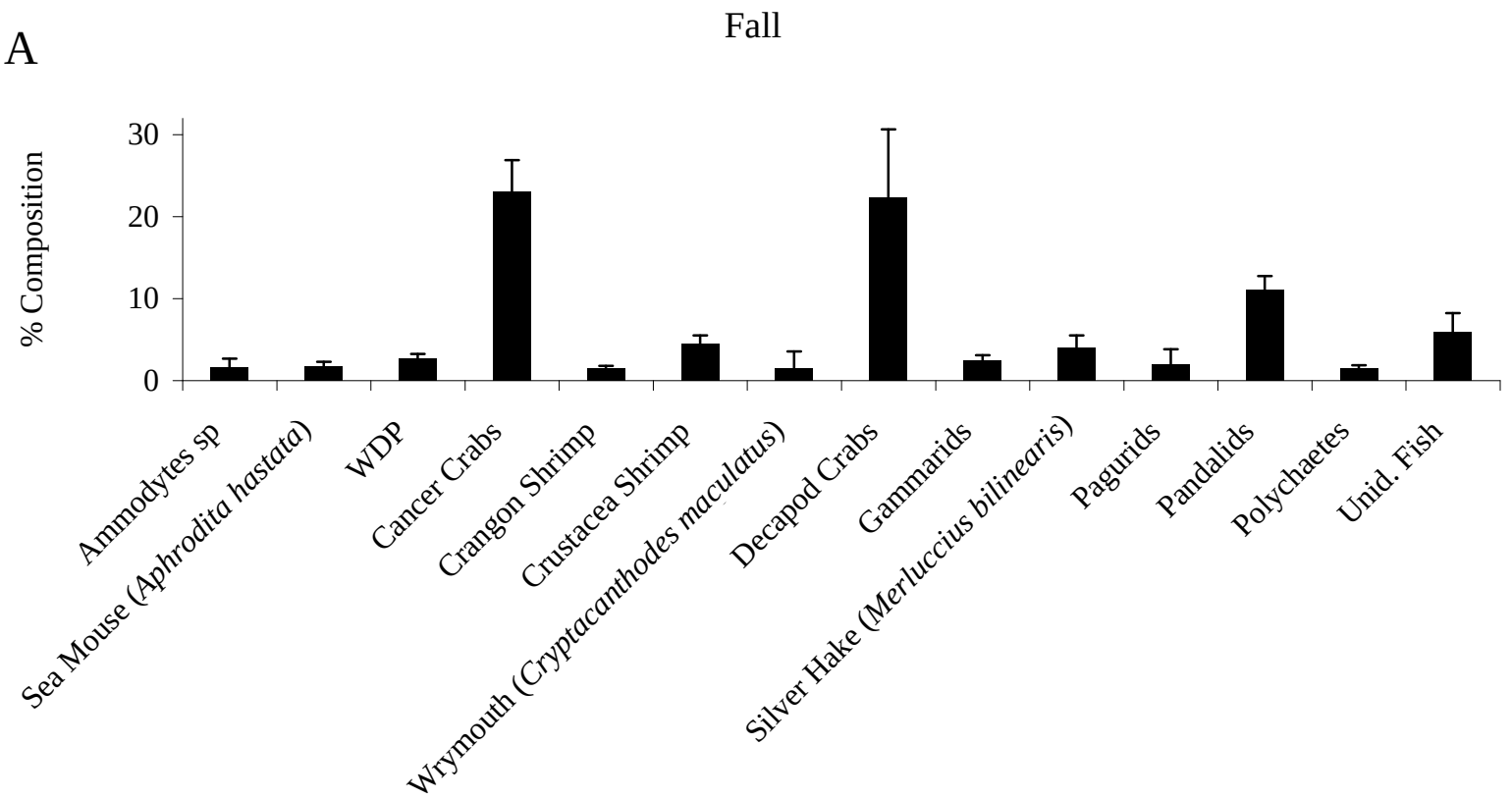

Figure 114A. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the fall (n = 3,654). WDP = well-digested prey; Unid. Fish = unidentified fish.

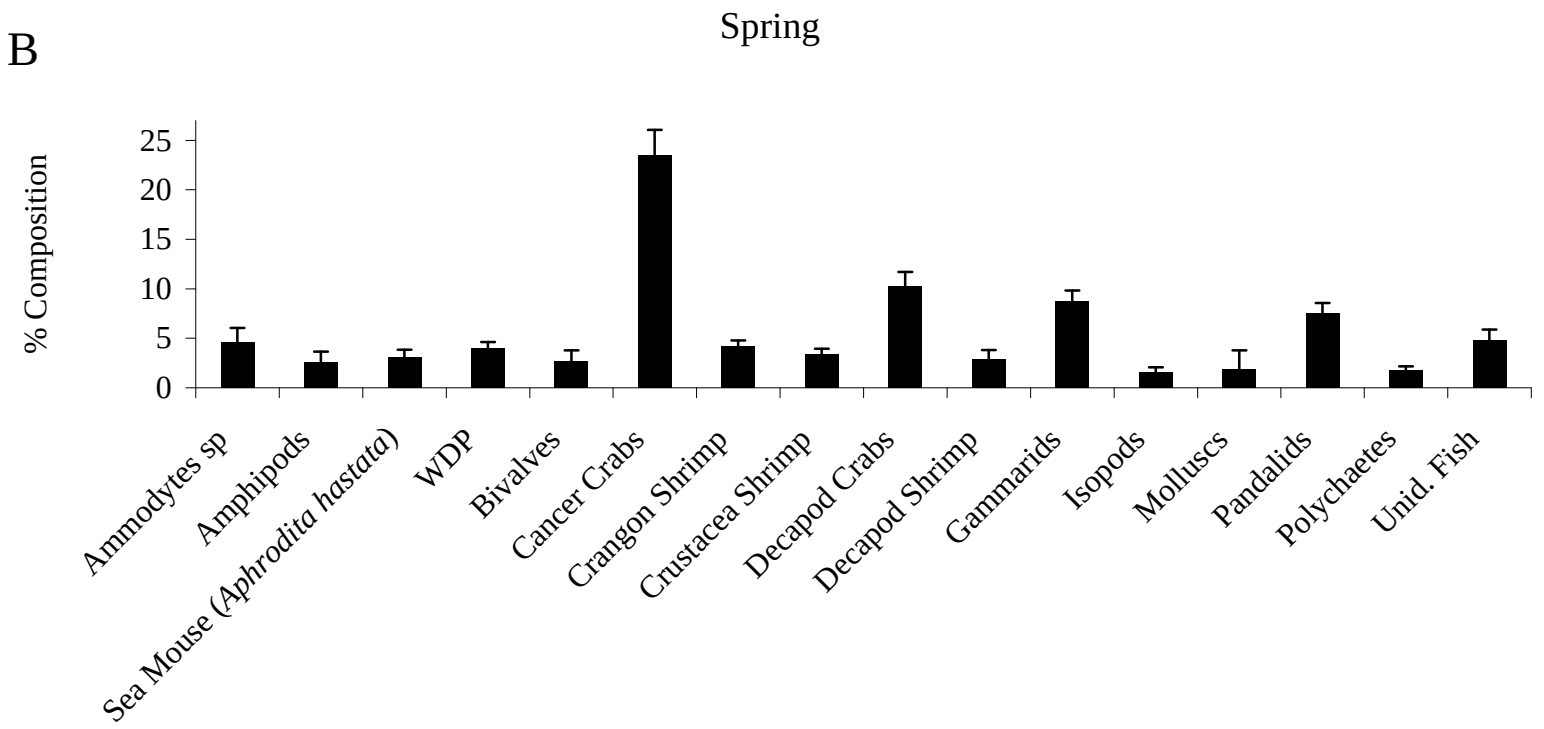

Figure 114B. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the spring (n = 6,873). WDP = well-digested prey; Unid. Fish = unidentified fish.

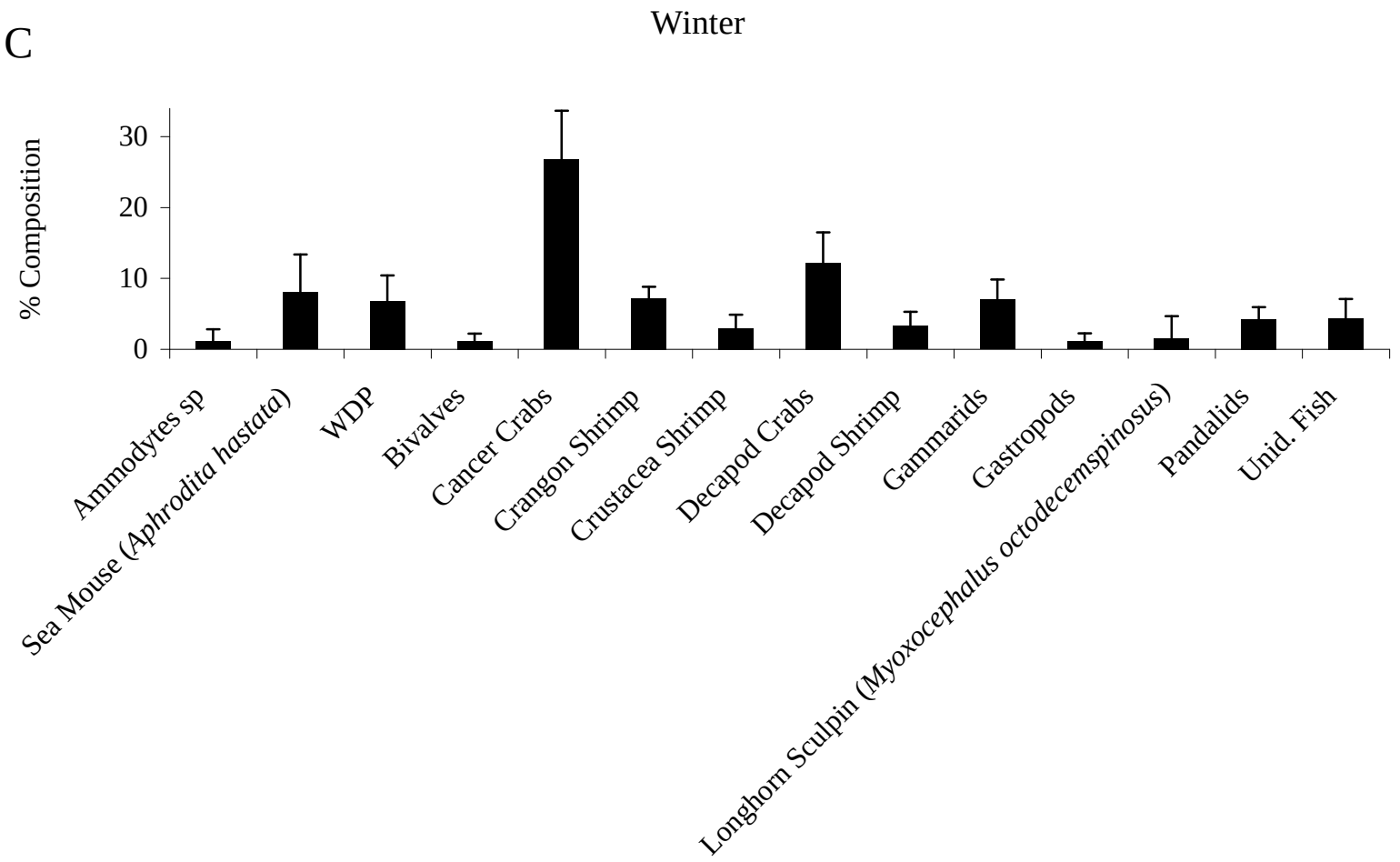

Figure 114C. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the winter (n = 897). WDP = well-digested prey; Unid. Fish = unidentified fish.

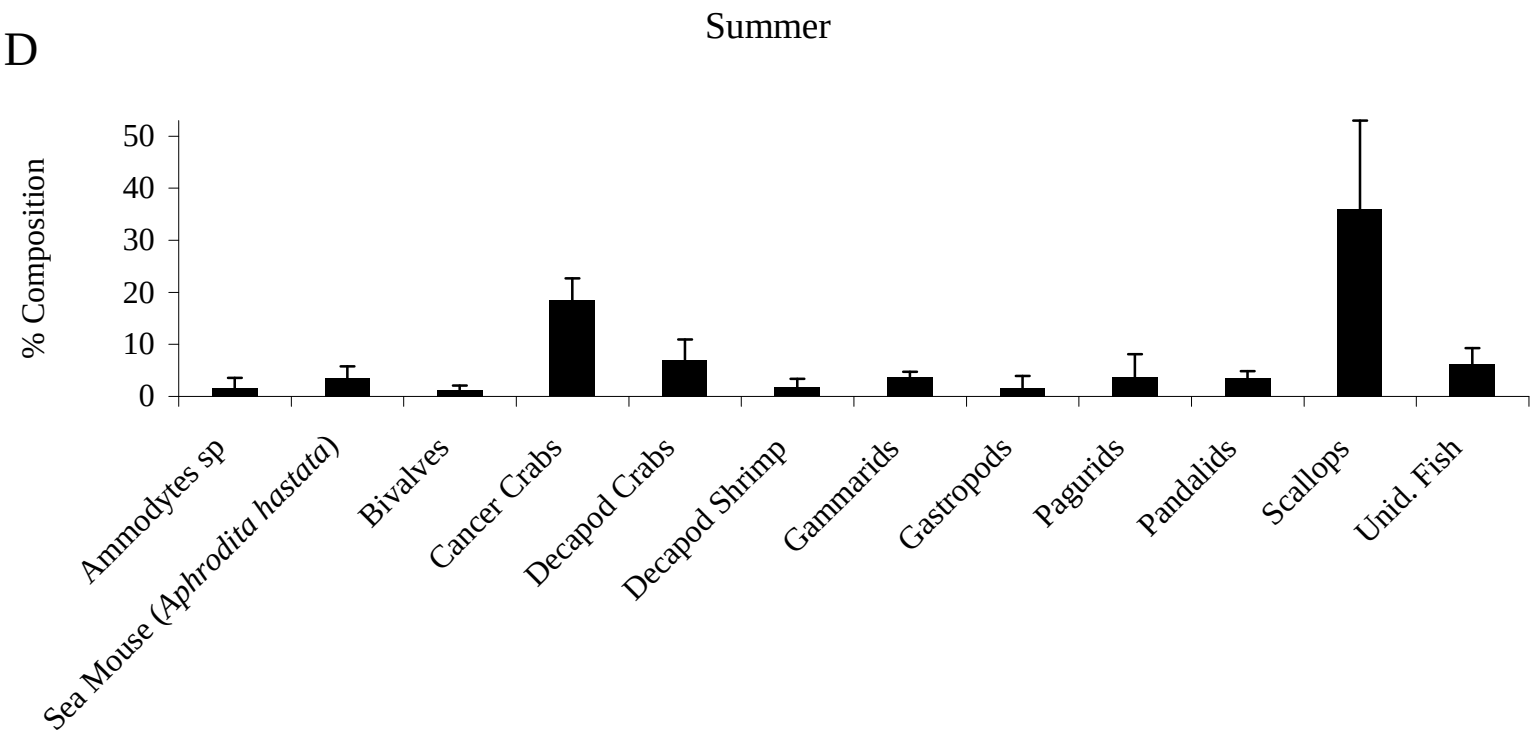

Figure 114D. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) collected in the summer (n = 764). Unid. Fish = unidentified fish.

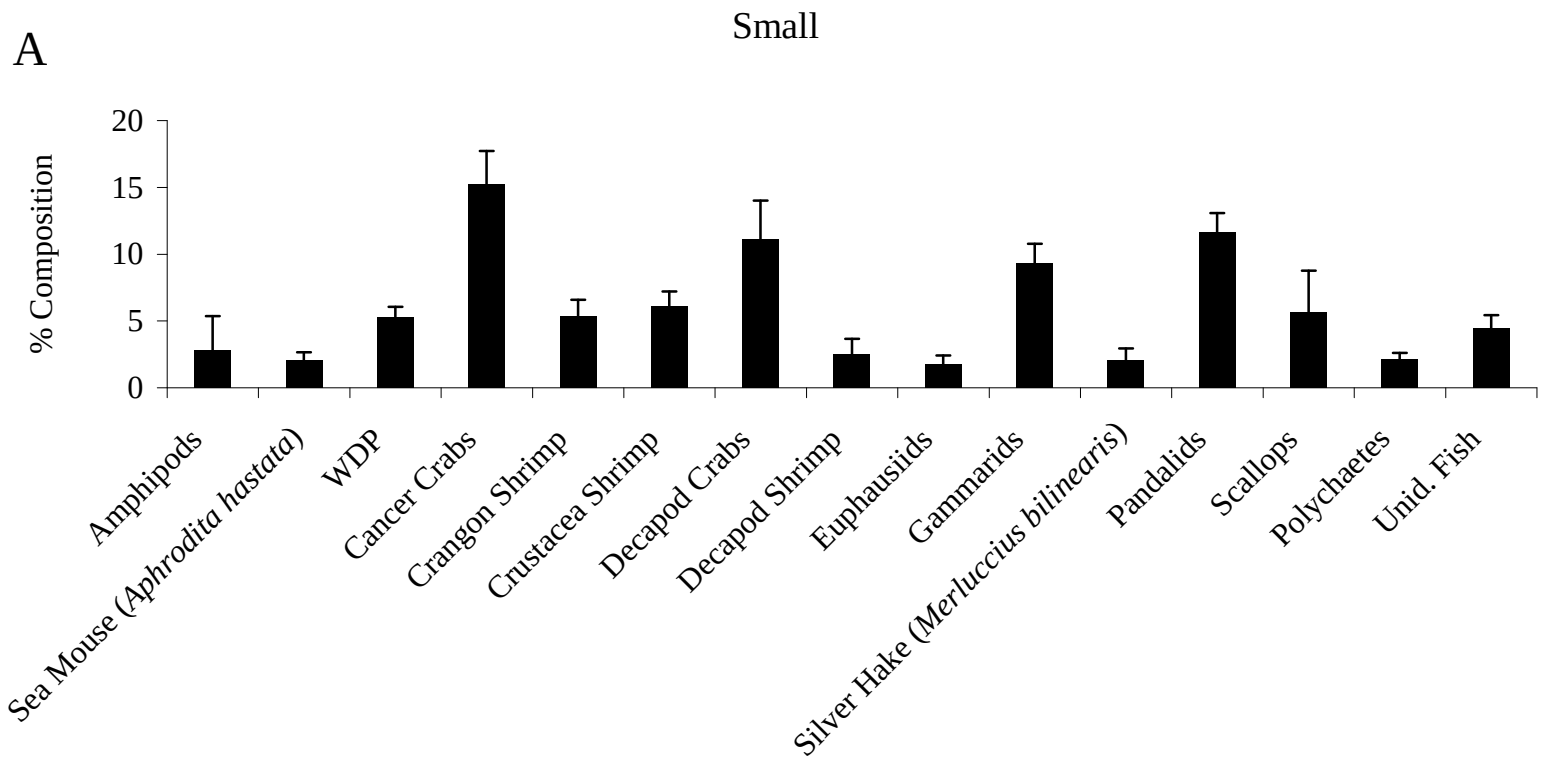

Figure 115A. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) in the small size class (n = 6,126). WDP = well-digested prey; Unid. Fish = unidentified fish.

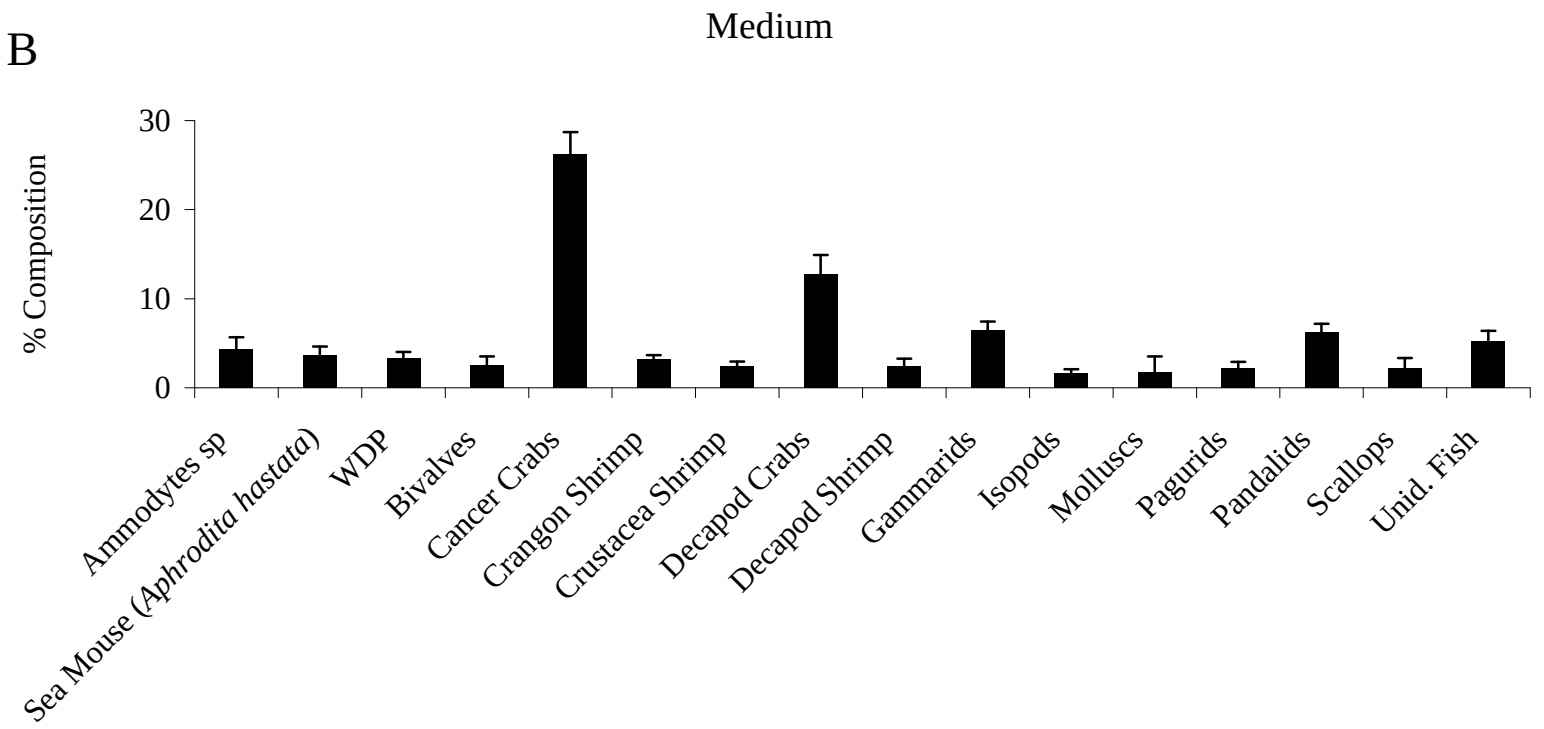

Figure 115B. Percent diet composition by weight of major prey taxa for longhorn sculpin (*Myoxocephalus octodecemspinosus*) in the medium size class (n = 6,062). WDP = well-digested prey; Unid. Fish = unidentified fish.

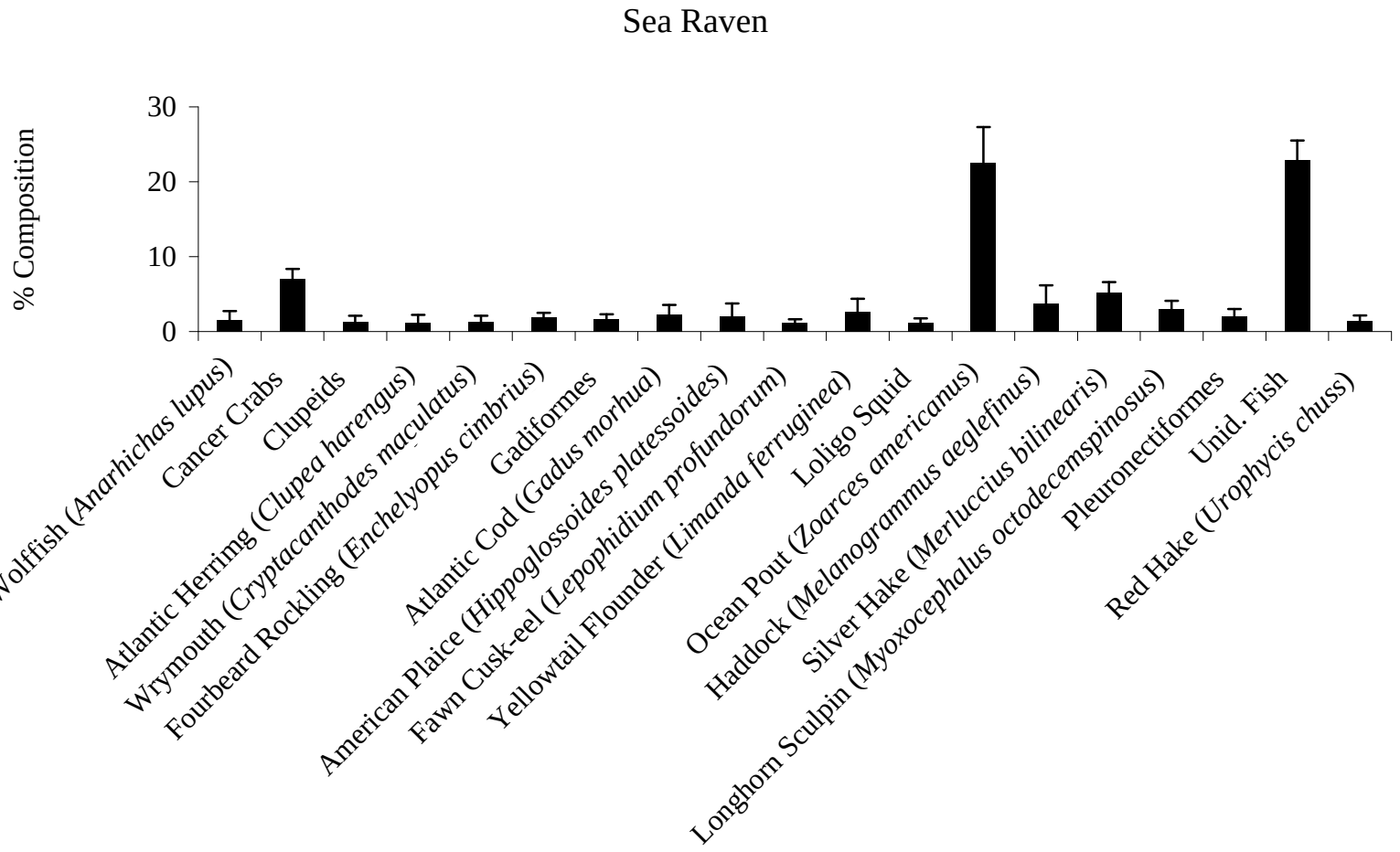

Figure 116. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*; n = 7,472). Unid. Fish = unidentified fish.

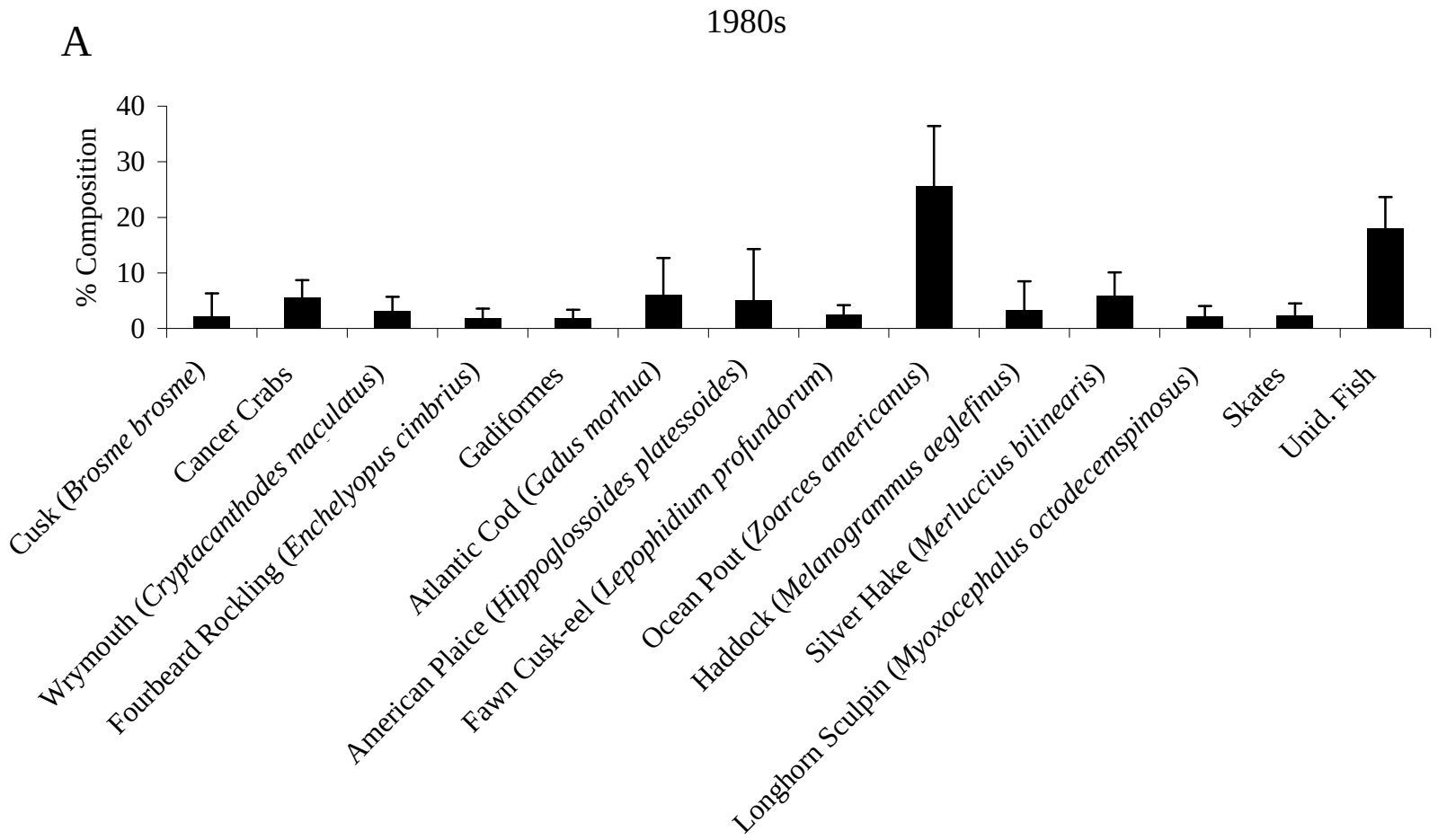

Figure 117A. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in the 1980s (n = 1,072). Unid. Fish = unidentified fish.

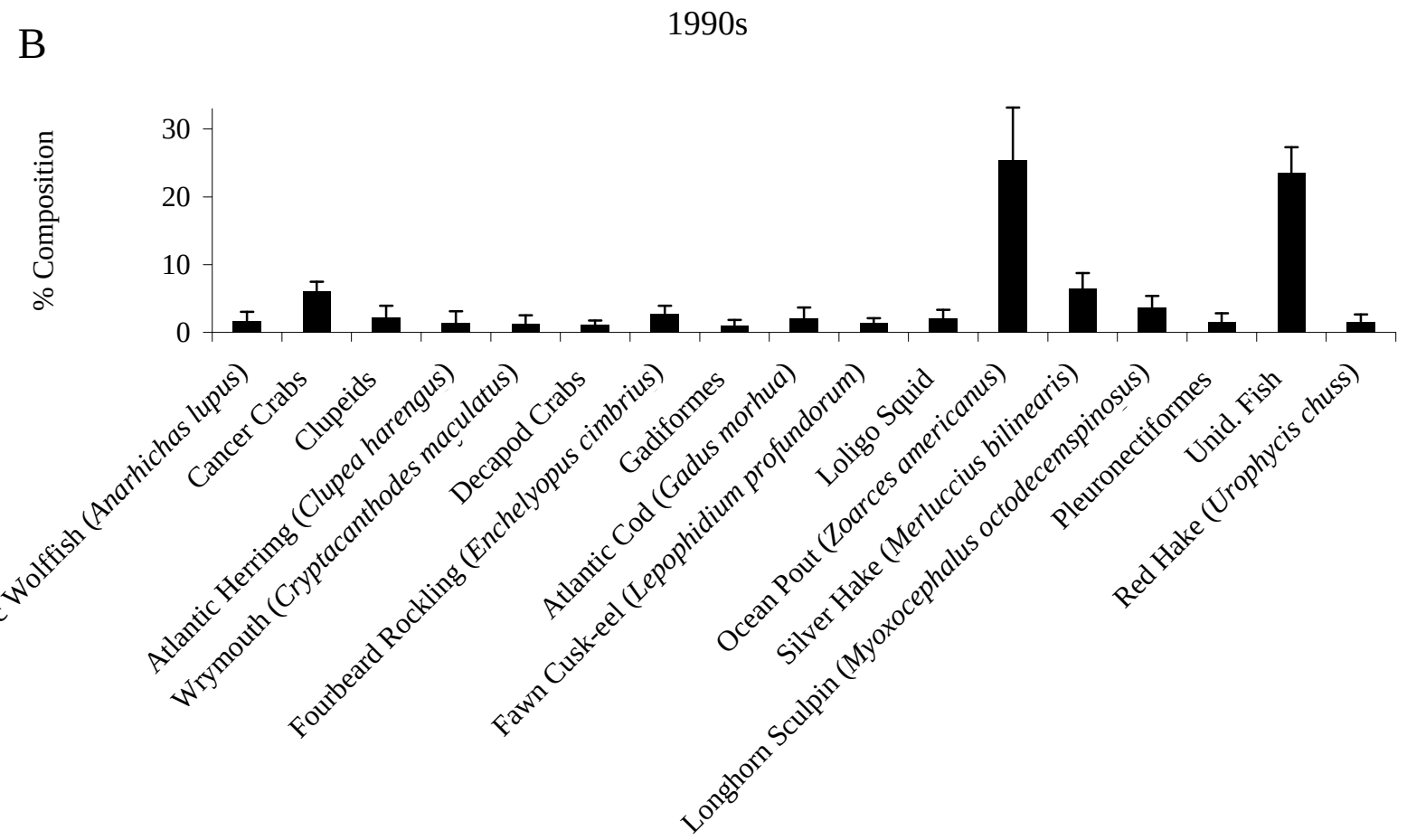

Figure 117B. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in the 1990s (n = 3,765). Unid. Fish = unidentified fish.

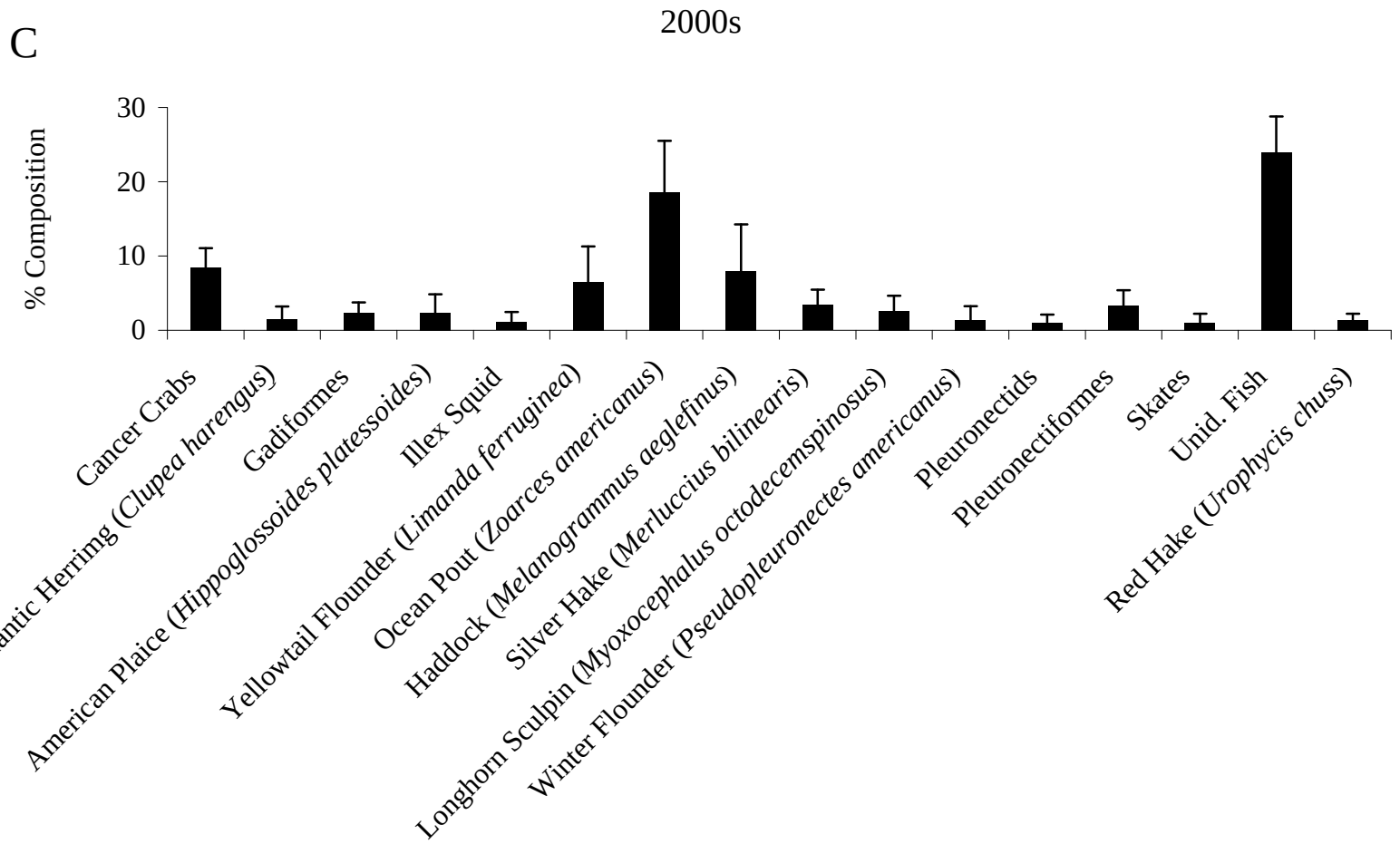

Figure 117C. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in the 2000s (n = 2,519). Unid. Fish = unidentified fish.

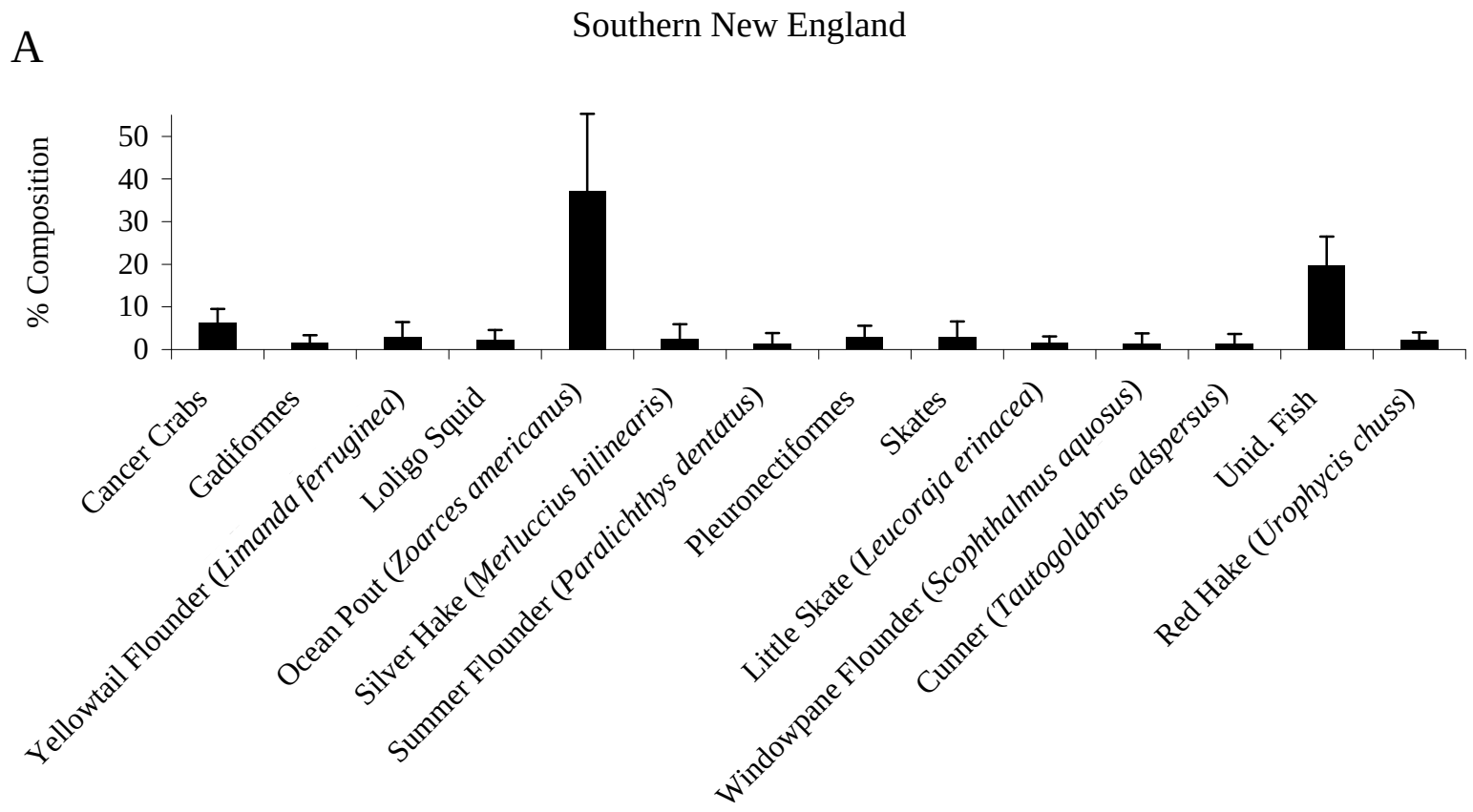

Figure 118A. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in Southern New England (n = 906). Unid. Fish = unidentified fish.

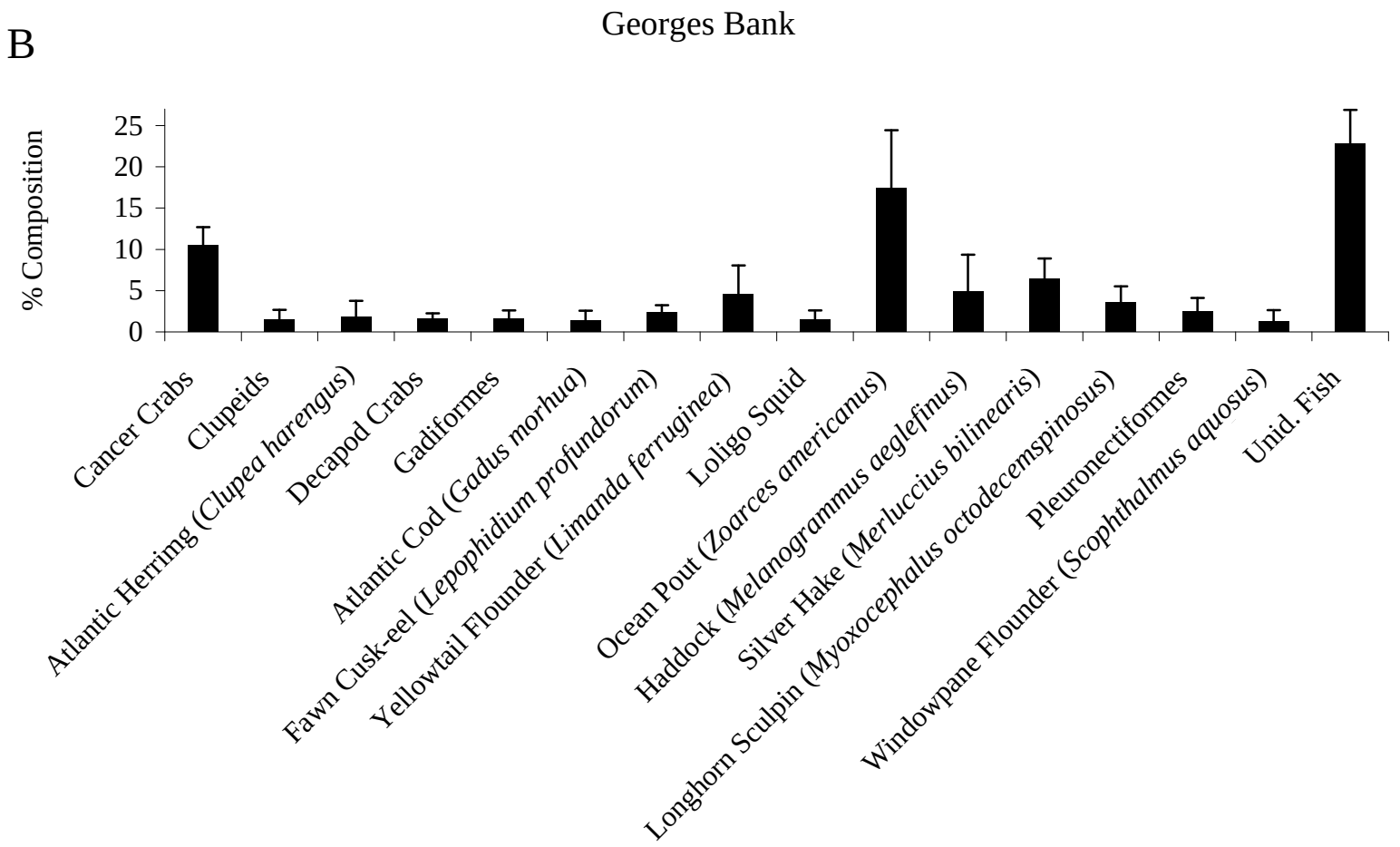

Figure 118B. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected on Georges Bank (n = 3,760). Unid. Fish = unidentified fish.

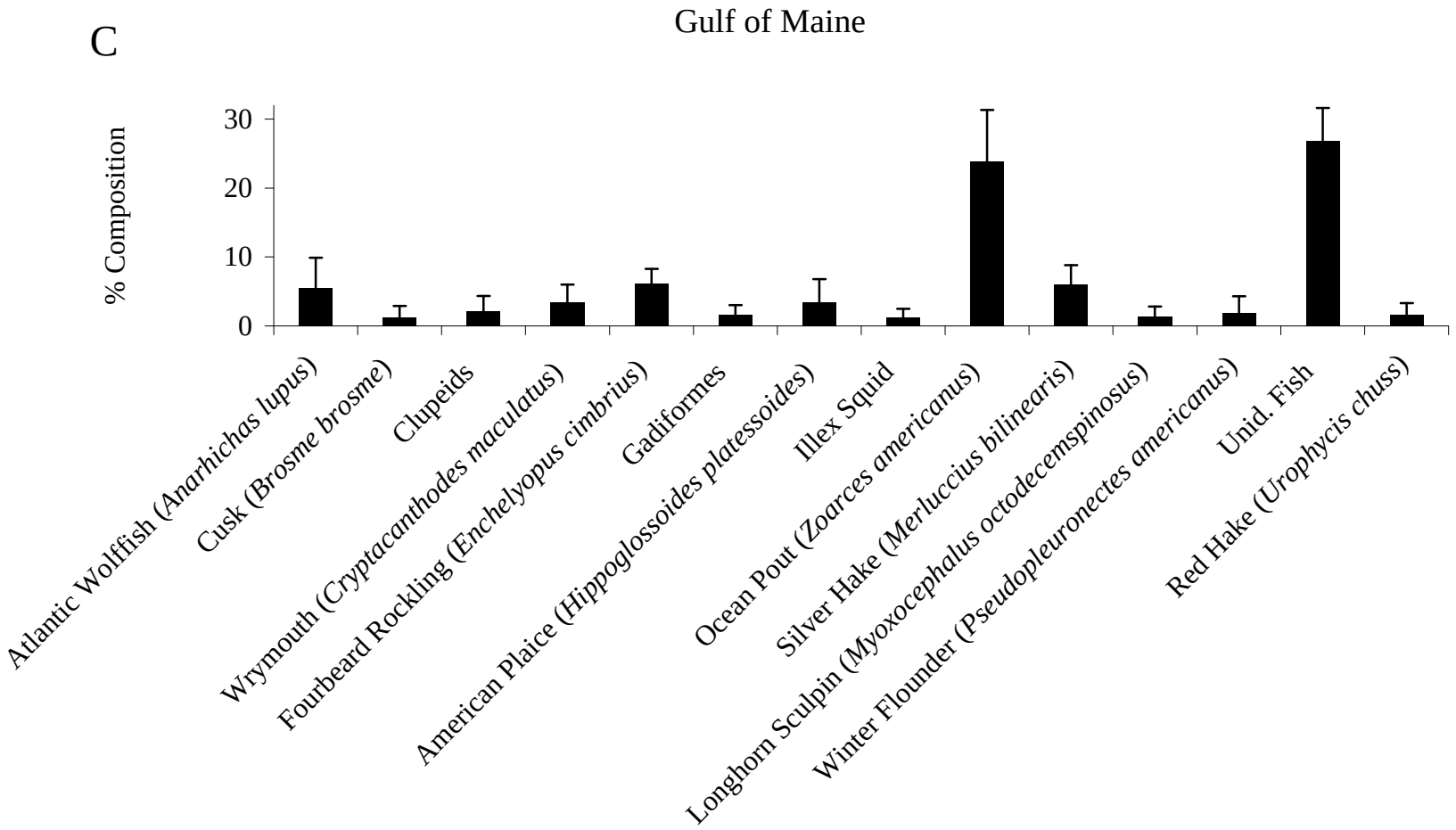

Figure 118C. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in the Gulf of Maine (n = 1,992). Unid. Fish = unidentified fish.

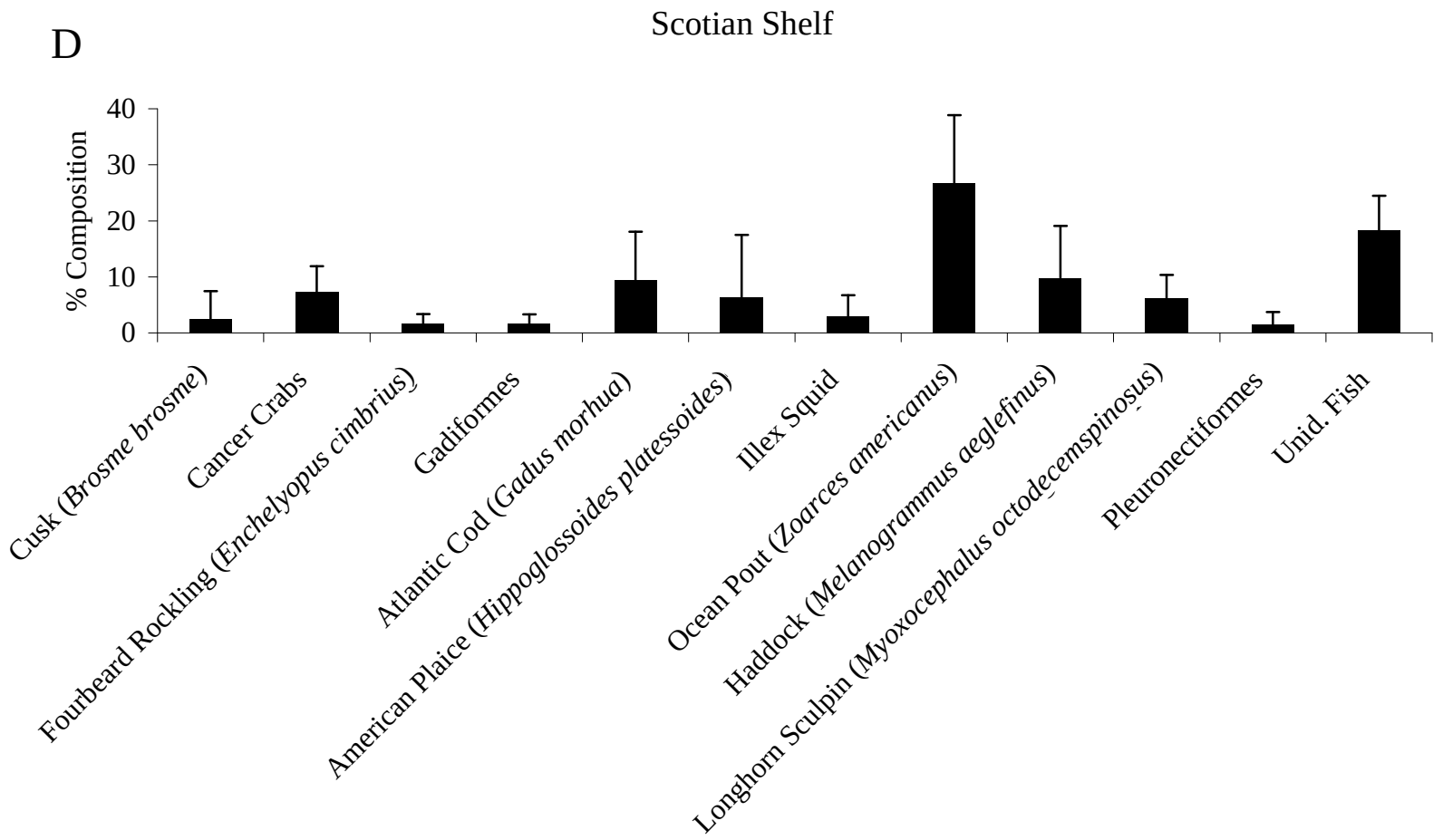

Figure 118D. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected on the Scotian Shelf (n = 760). Unid. Fish = unidentified fish.

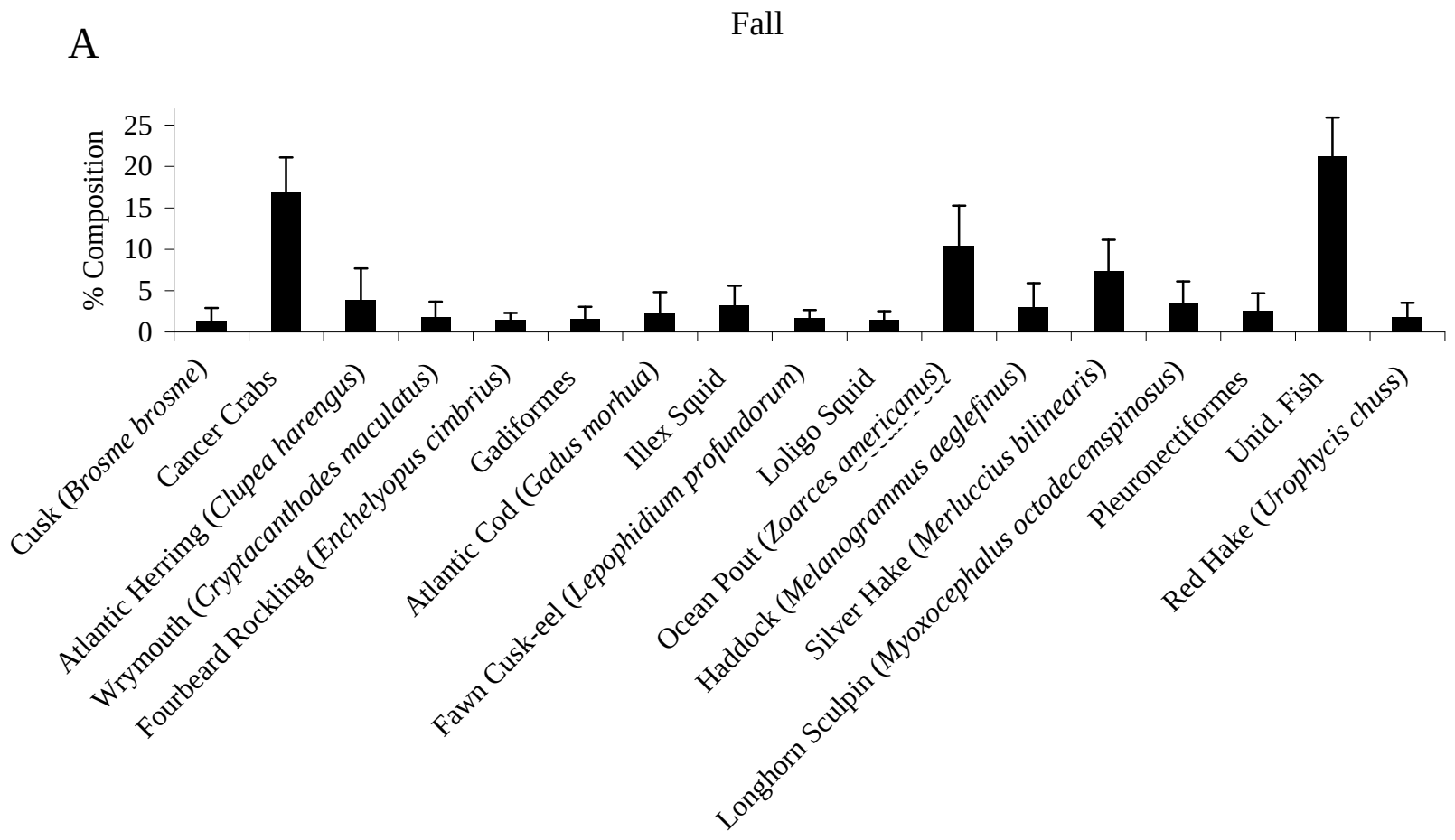

Figure 119A. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in the fall (n = 2,512). Unid. Fish = unidentified fish.

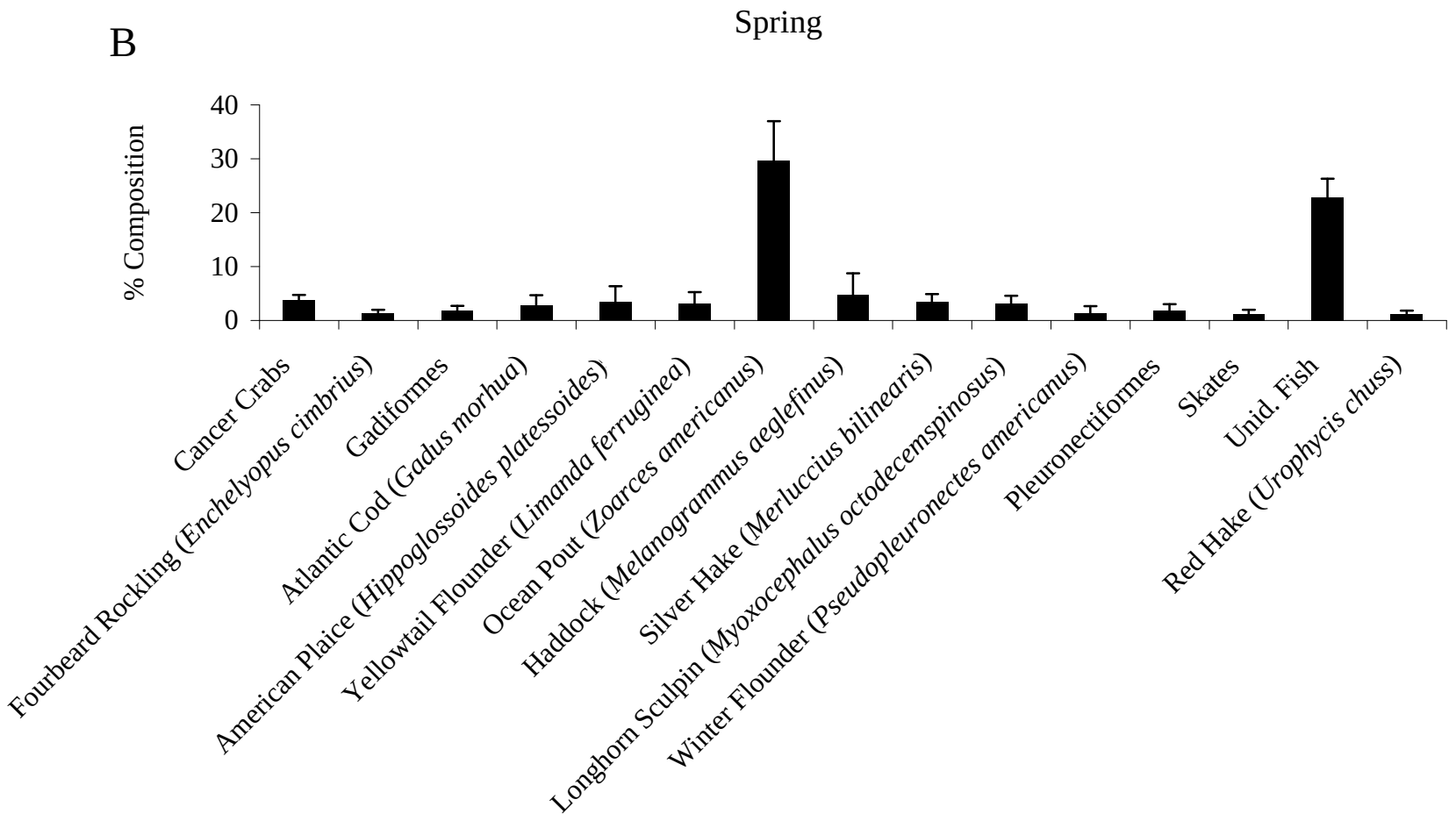

Figure 119B. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in the spring (n = 3,898). Unid. Fish = unidentified fish.

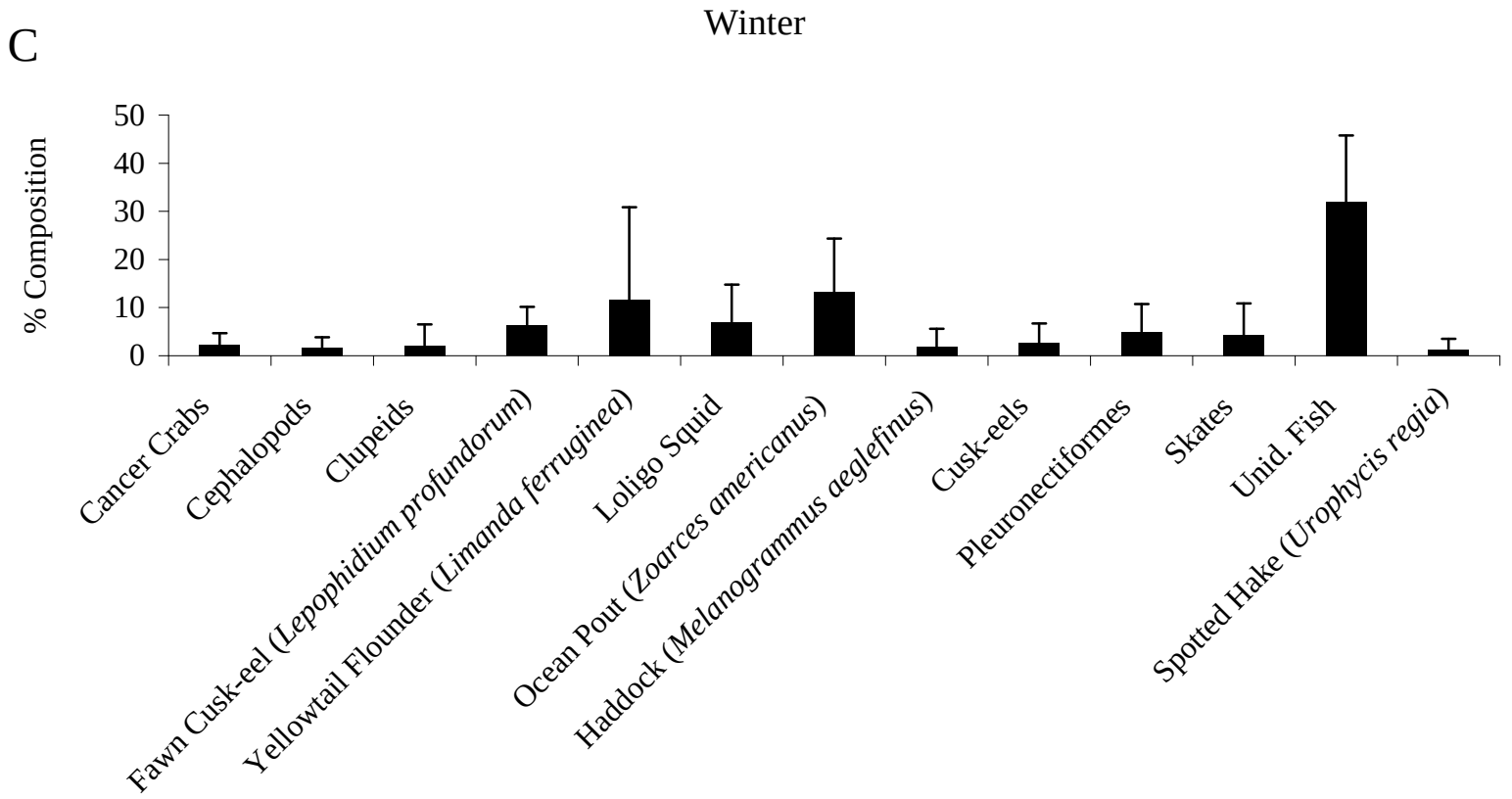

Figure 119C. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in the winter (n = 459). Unid. Fish = unidentified fish.

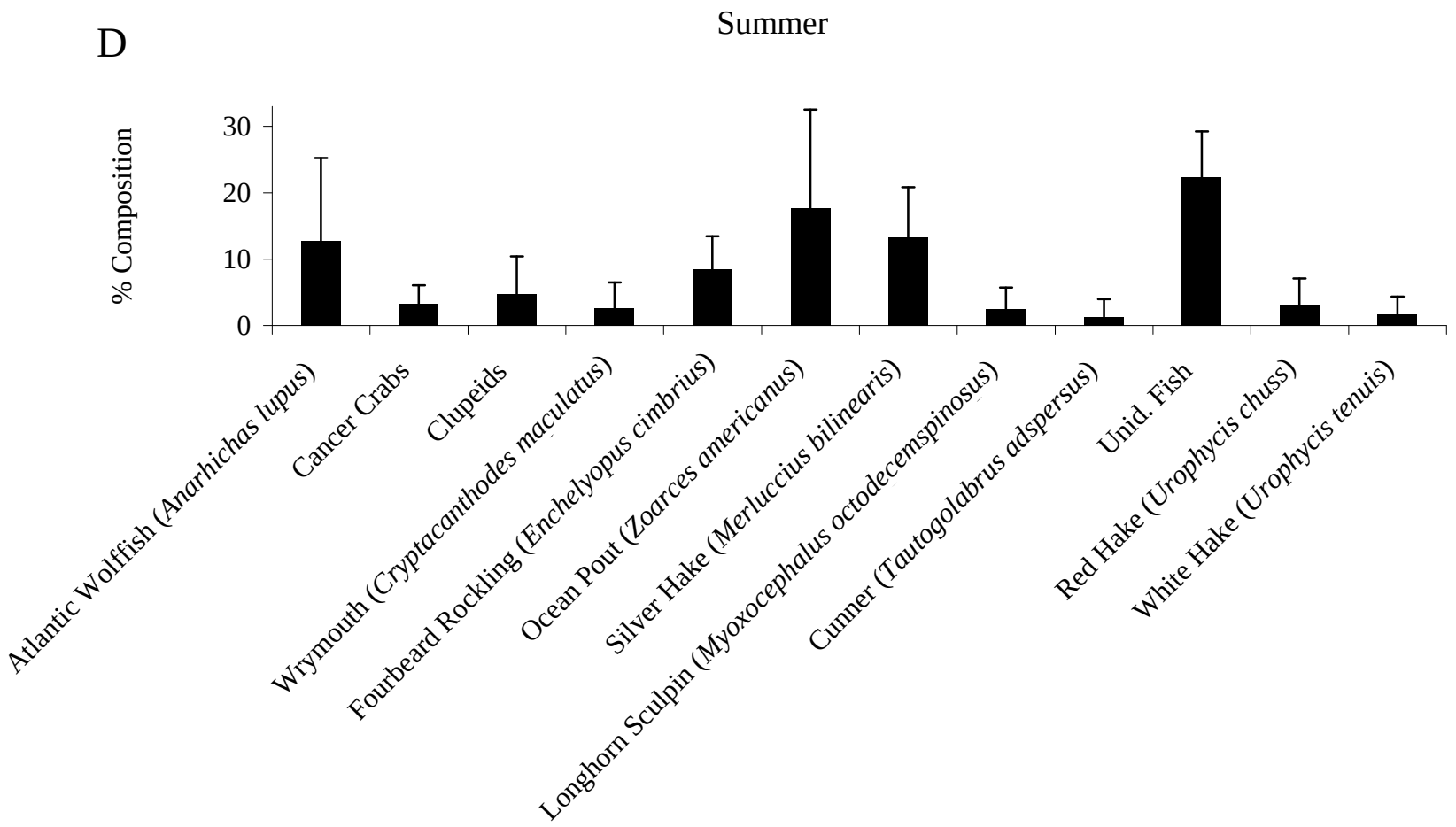

Figure 119D. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) collected in the summer (n = 603). Unid. Fish = unidentified fish.

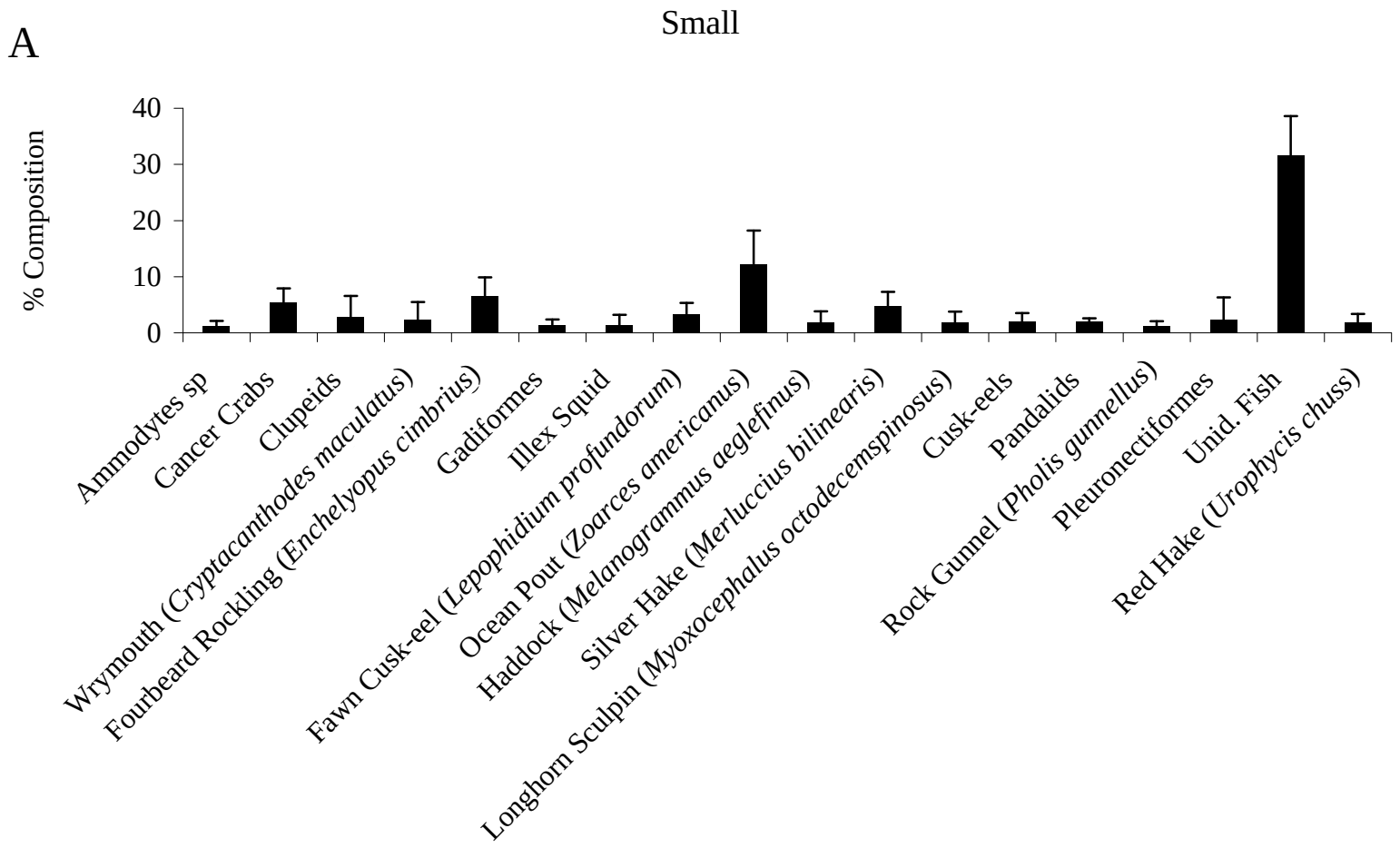

Figure 120A. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) in the small size class (n = 2,302). Unid. Fish = unidentified fish.

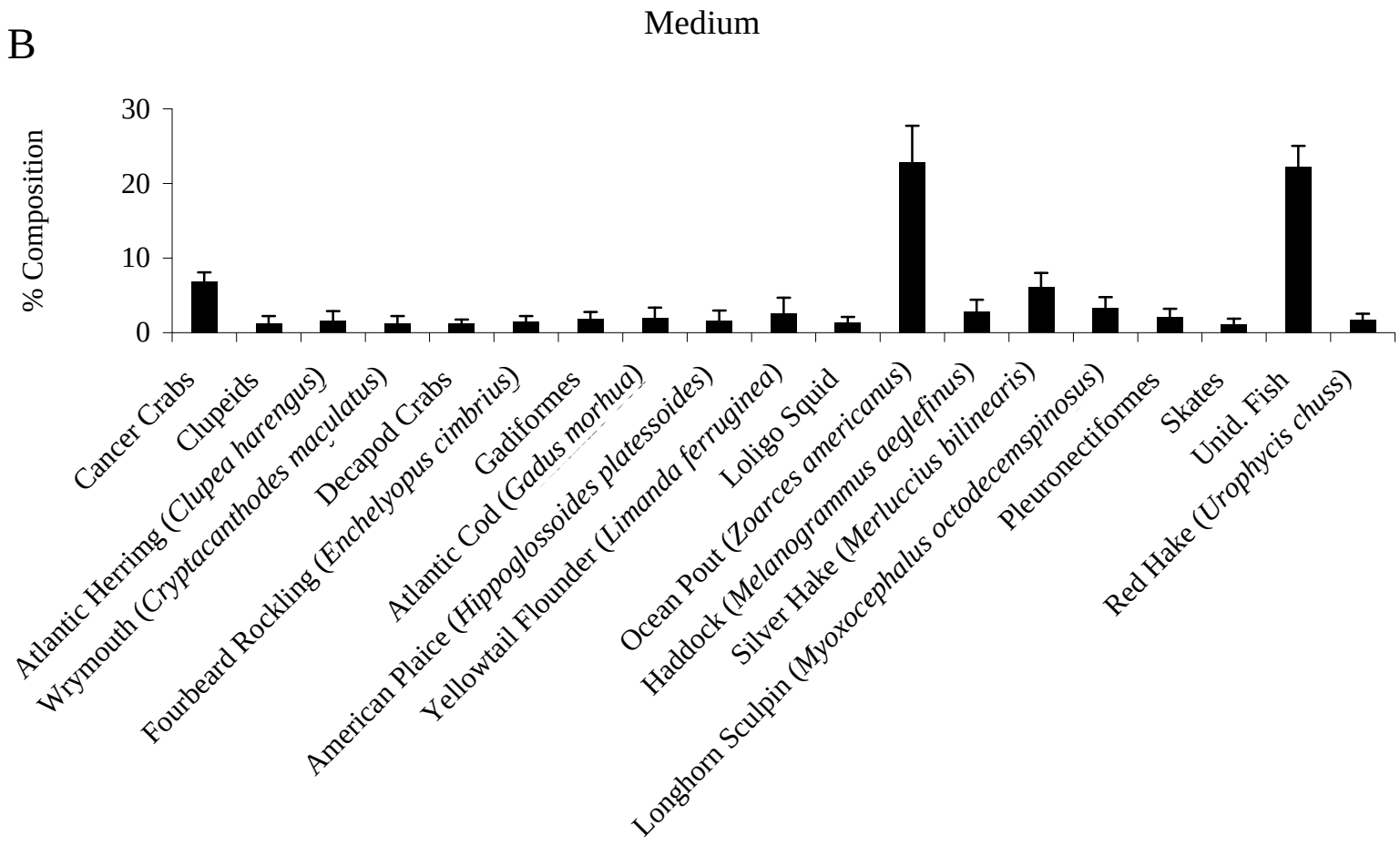

Figure 120B. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) in the medium size class (n = 4,942). Unid. Fish = unidentified fish.

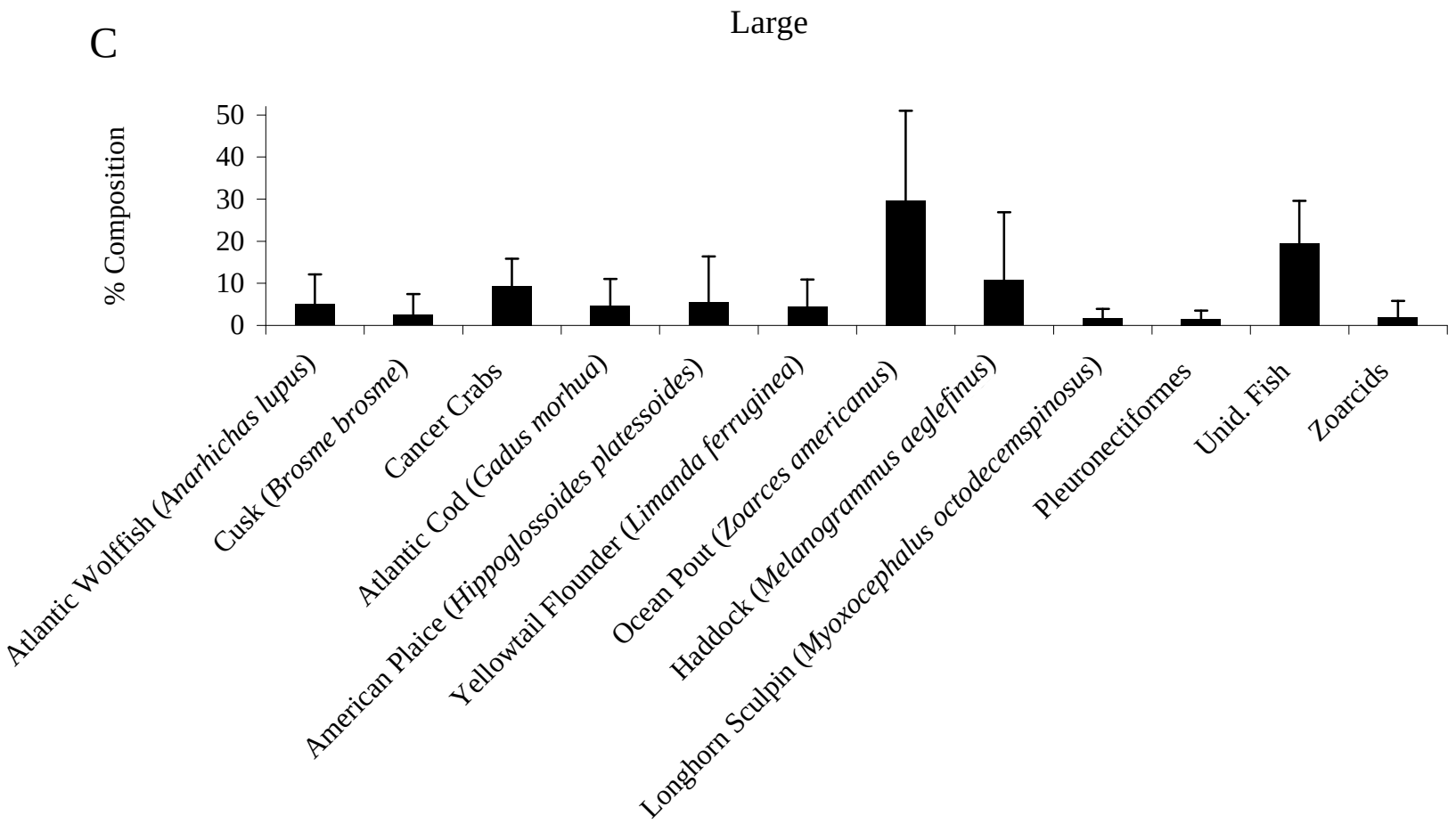

Figure 120C. Percent diet composition by weight of major prey taxa for sea raven (*Hemitripterus americanus*) in the large size class (n = 228). Unid. Fish = unidentified fish.

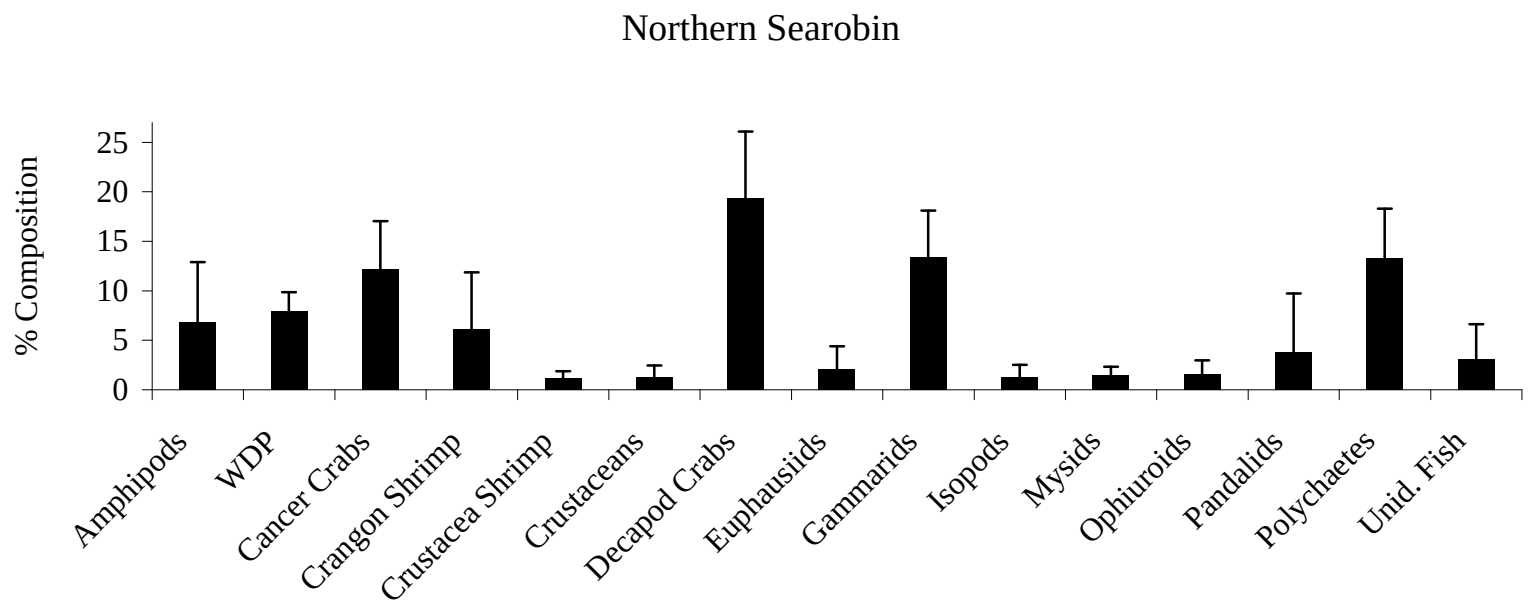

Figure 121. Percent diet composition by weight of major prey taxa for northern searobin (*Prionotus carolinus*; n = 727). WDP = well-digested prey; Unid. Fish = unidentified fish.

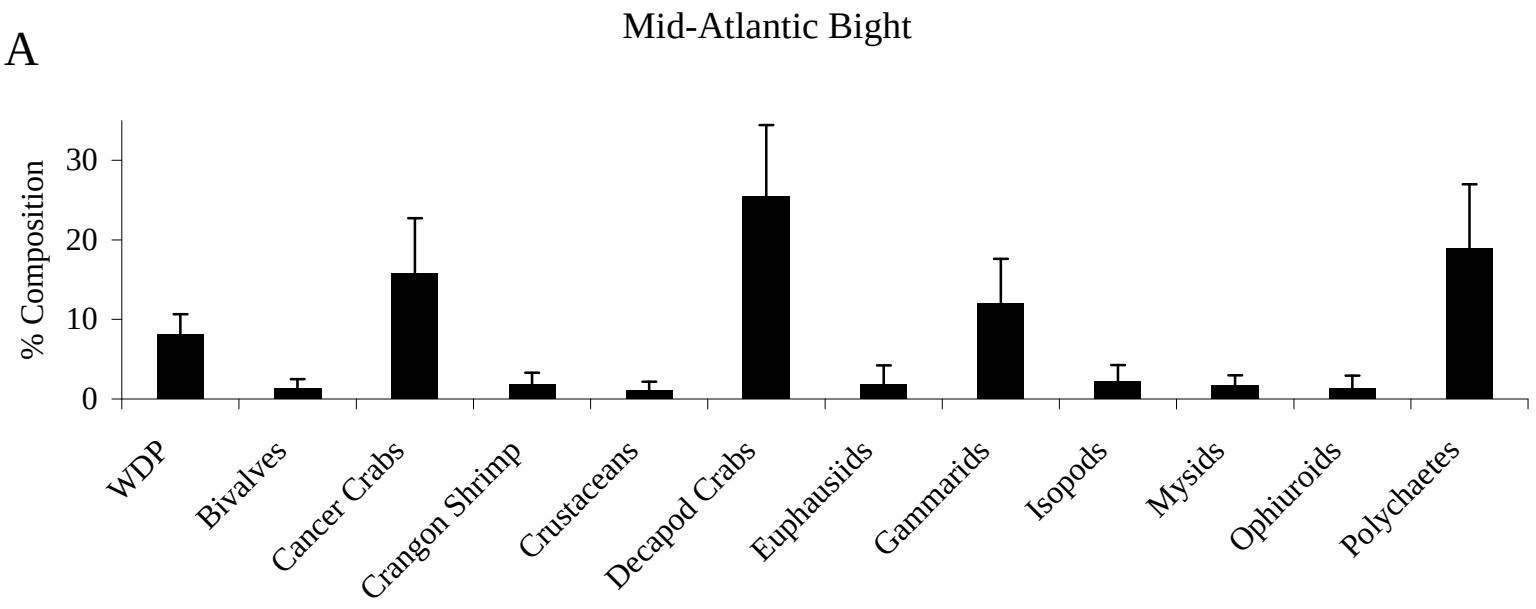

Figure 122A. Percent diet composition by weight of major prey taxa for northern searobin (*Prionotus carolinus*) collected in the Mid-Atlantic Bight (n = 481). WDP = well-digested prey.

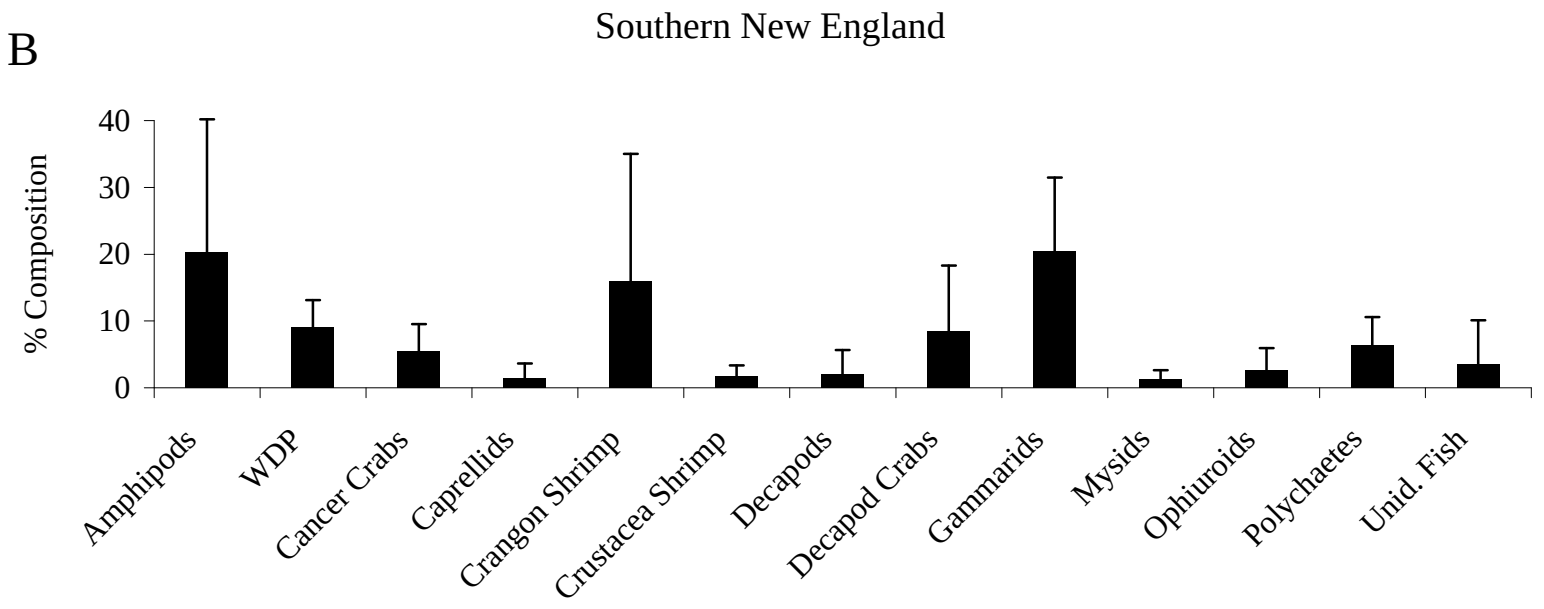

Figure 122B. Percent diet composition by weight of major prey taxa for northern searobin (*Prionotus carolinus*) collected in Southern New England (n = 210). WDP = well-digested prey; Unid. Fish = unidentified fish.

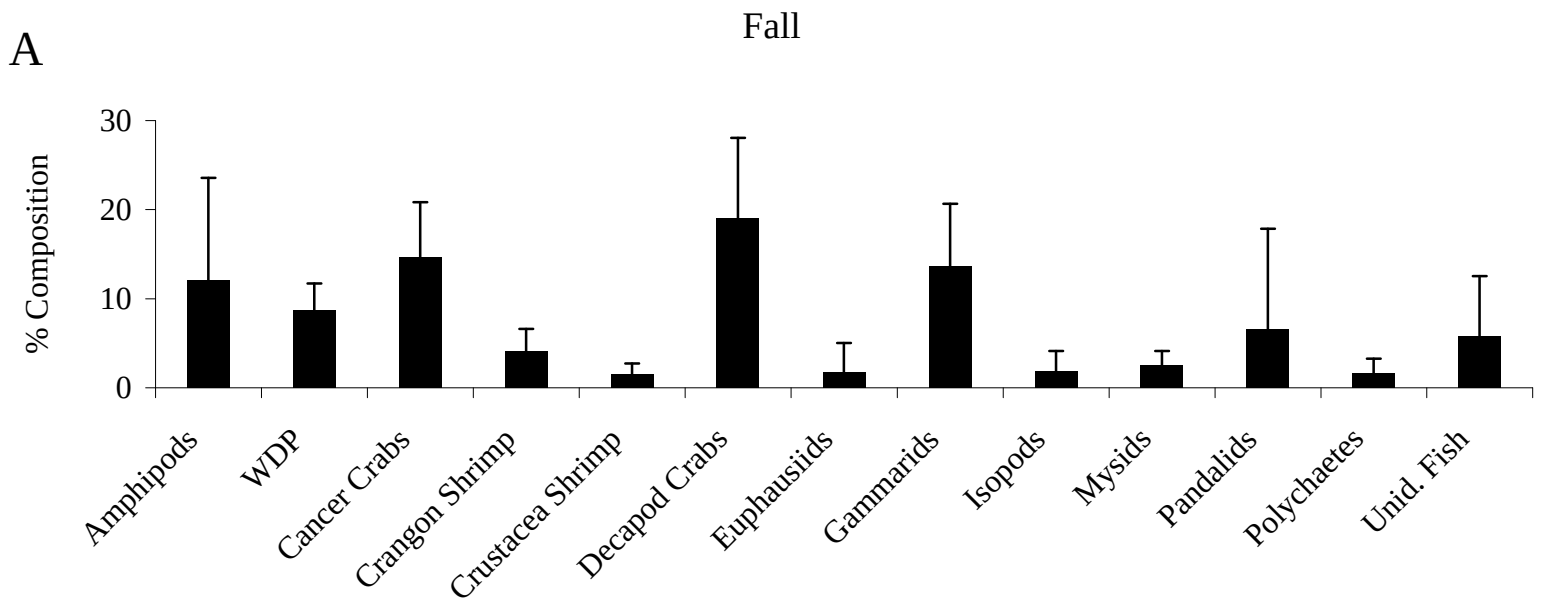

Figure 123A. Percent diet composition by weight of major prey taxa for northern searobin (*Prionotus carolinus*) collected in the fall (n = 301). WDP = well-digested prey; Unid. Fish = unidentified fish.

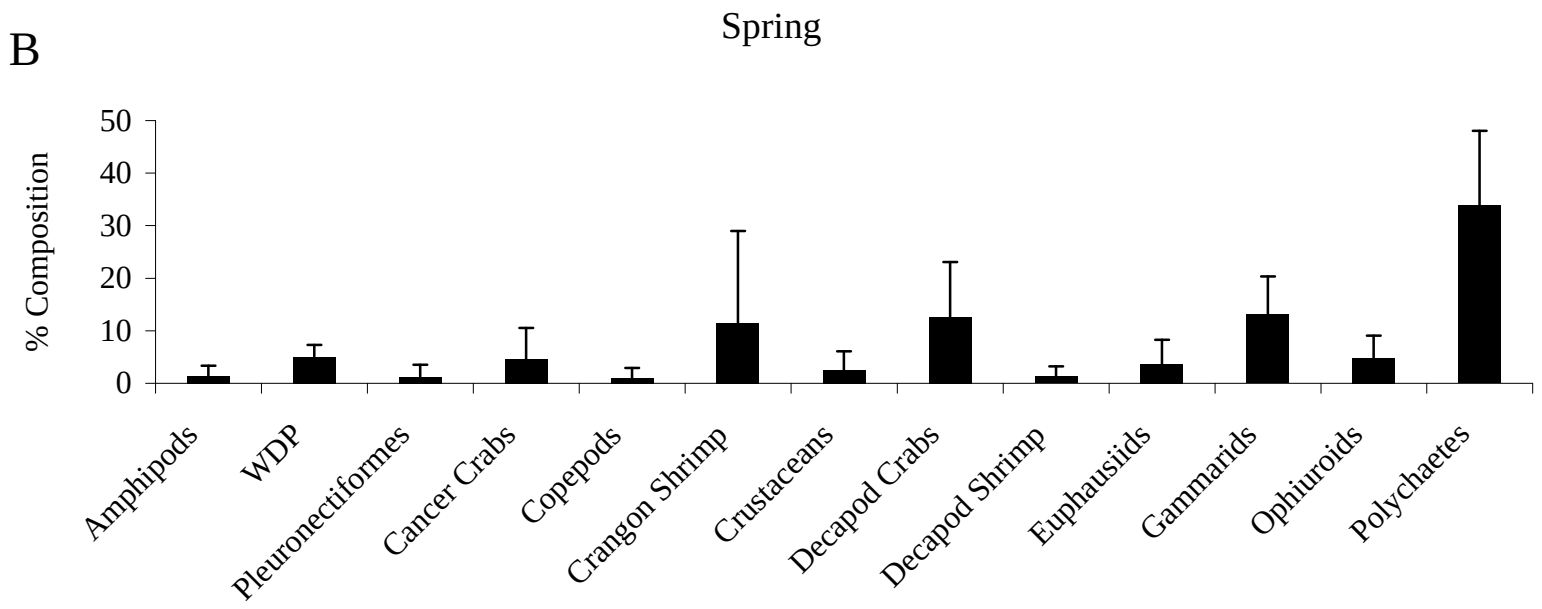

Figure 123B. Percent diet composition by weight of major prey taxa for northern searobin (*Prionotus carolinus*) collected in the spring (n = 217). WDP = well-digested prey.

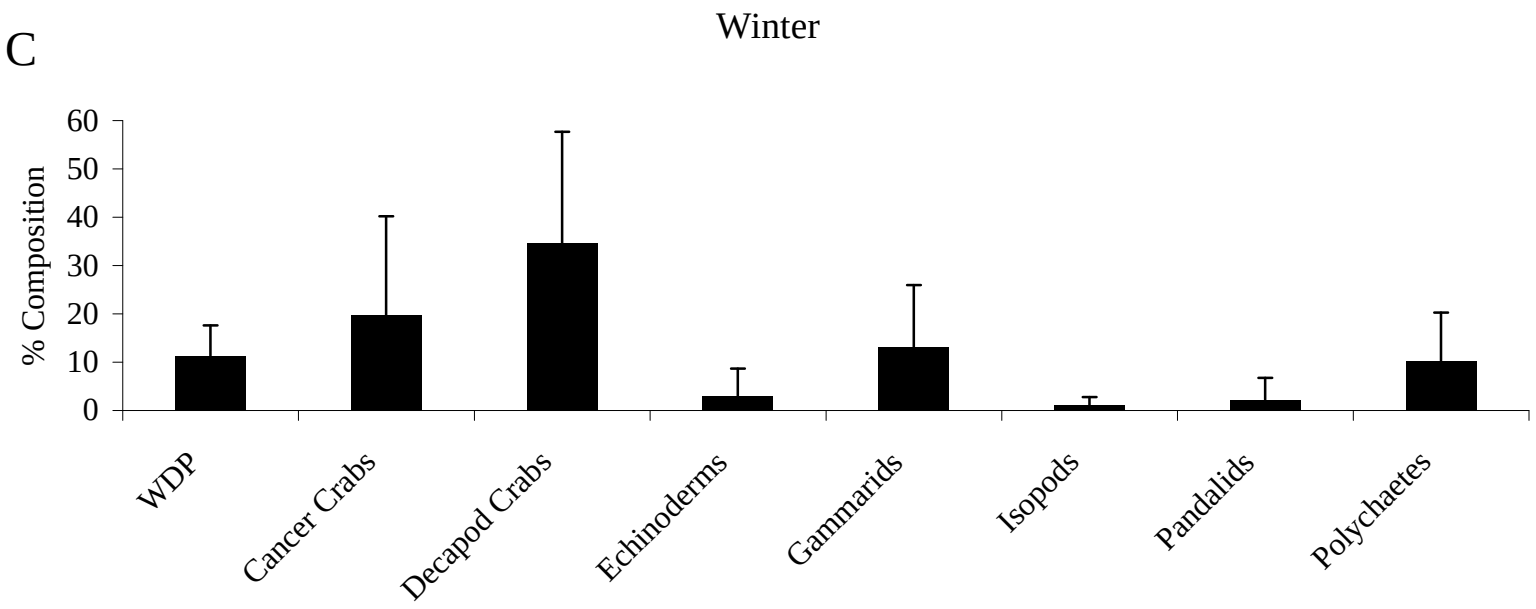

Figure 123C. Percent diet composition by weight of major prey taxa for northern searobin (*Prionotus carolinus*) collected in the winter (n = 205). WDP = well-digested prey.

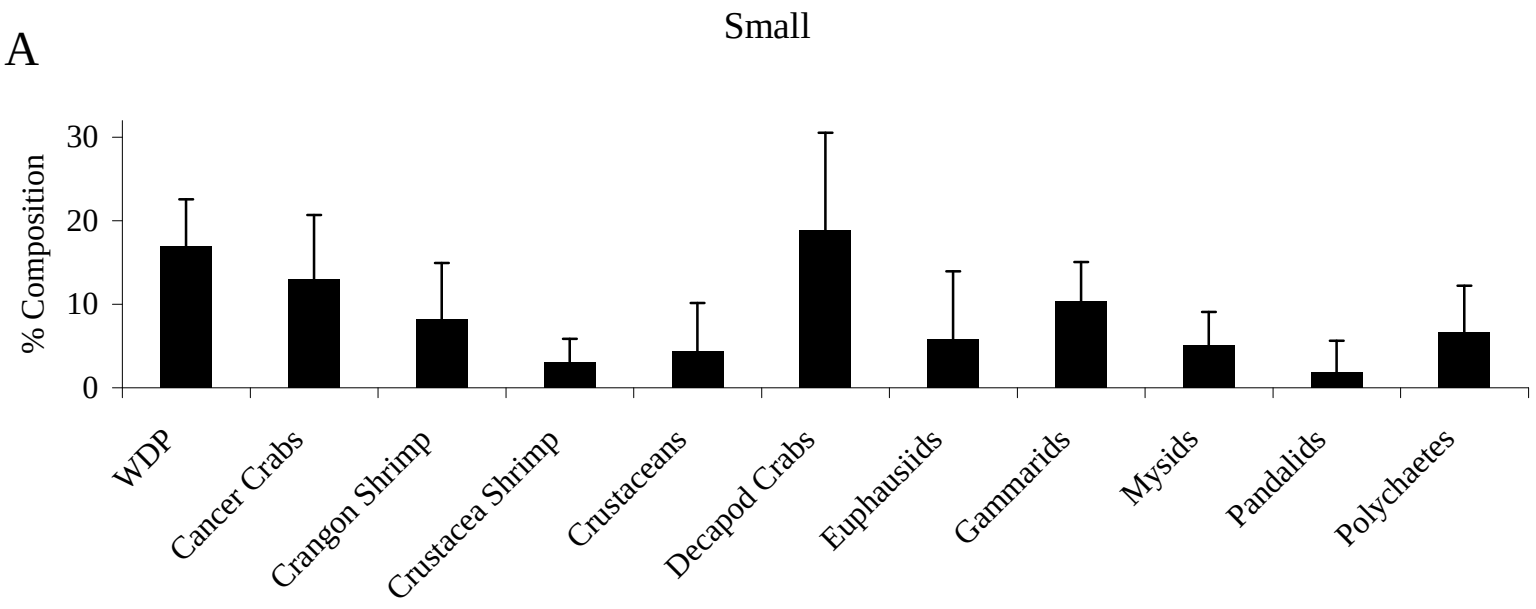

Figure 124A. Percent diet composition by weight of major prey taxa for northern searobin (*Prionotus carolinus*) in the small size class (n = 335). WDP = well-digested prey.

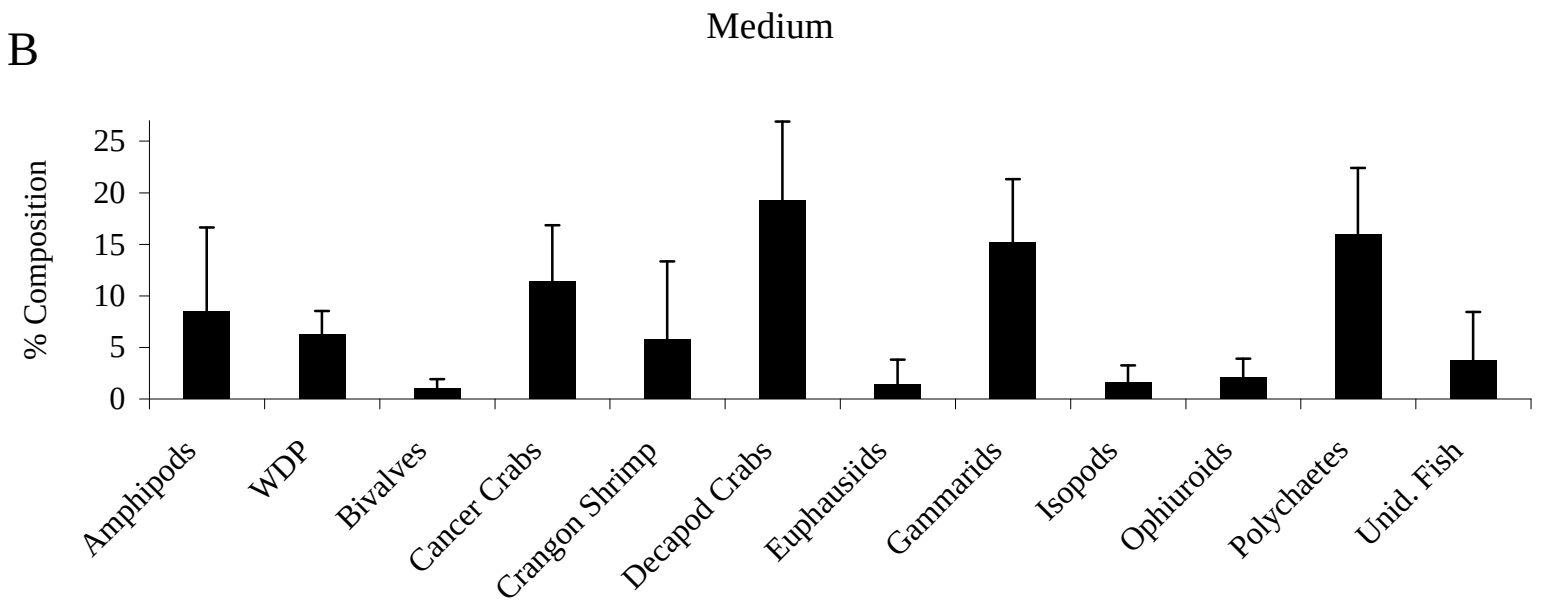

Figure 124B. Percent diet composition by weight of major prey taxa for northern searobin (*Prionotus carolinus*) in the medium size class (n = 377). WDP = well-digested prey; Unid. Fish = unidentified fish.

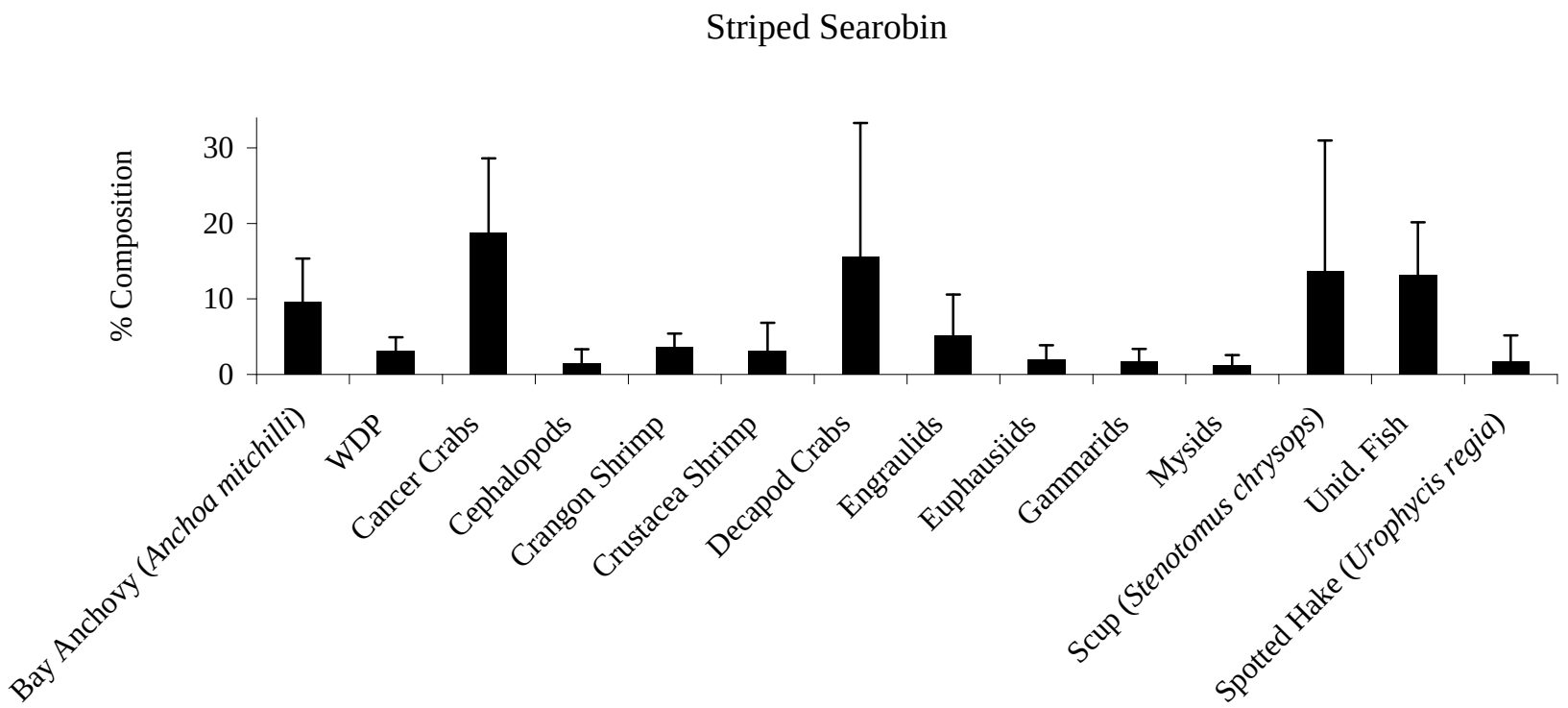

Figure 125. Percent diet composition by weight of major prey taxa for striped searobin (*Prionotus evolans*; n = 362). WDP = well-digested prey; Unid. Fish = unidentified fish.

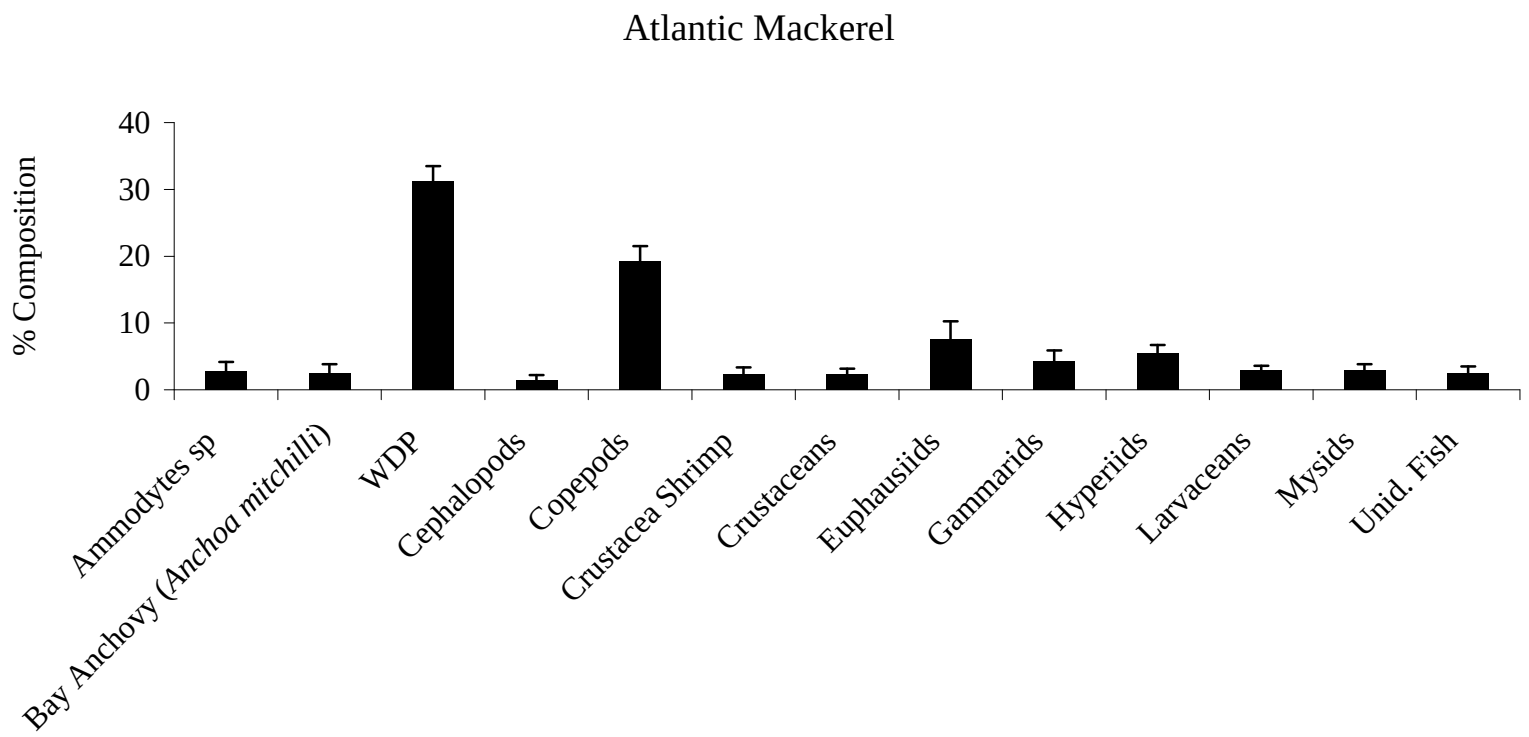

Figure 126. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*; n = 6,875). WDP = well-digested prey; Unid. Fish = unidentified fish.

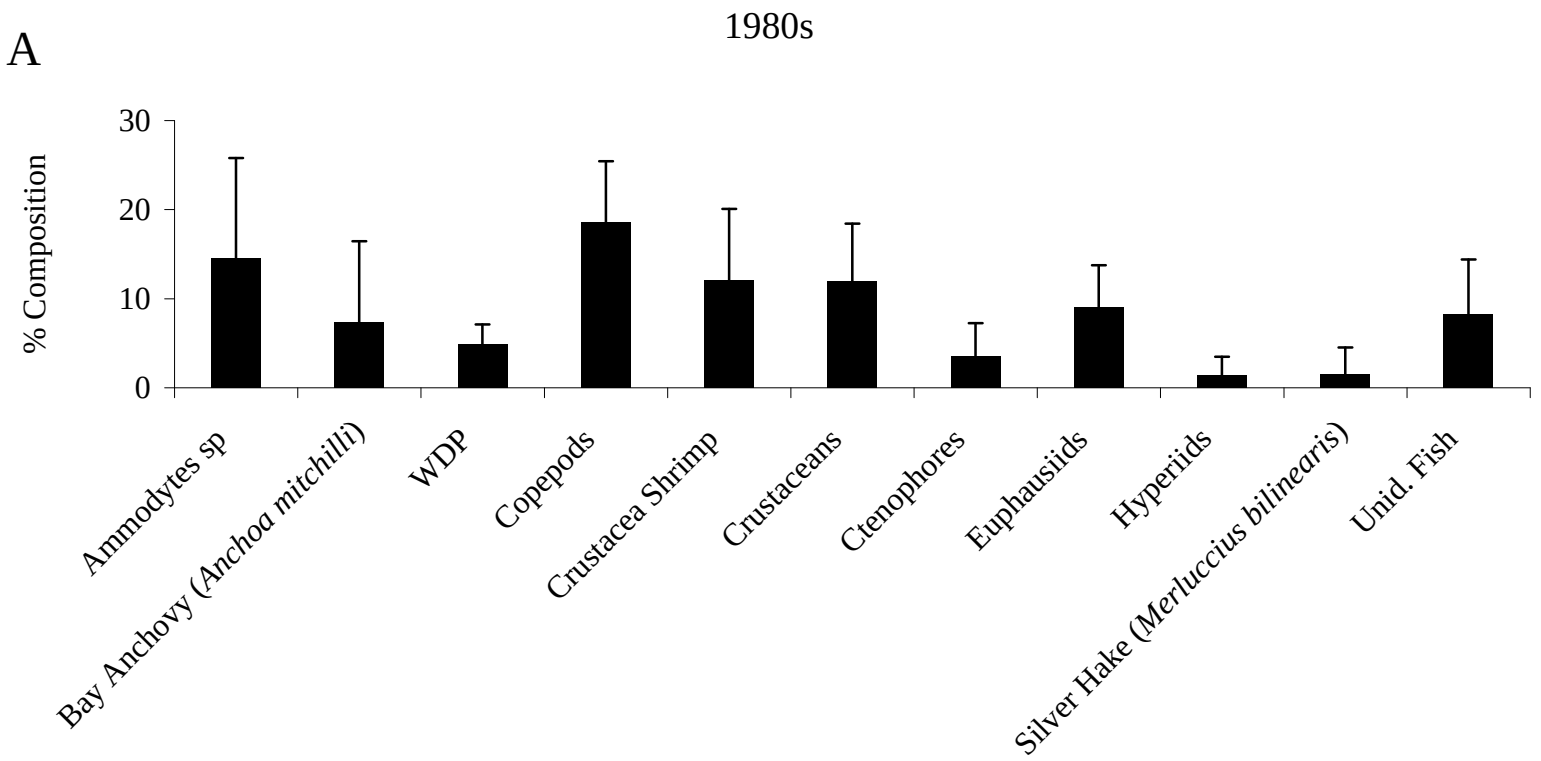

Figure 127A. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in the 1980s (n = 353). WDP = well-digested prey; Unid. Fish = unidentified fish.

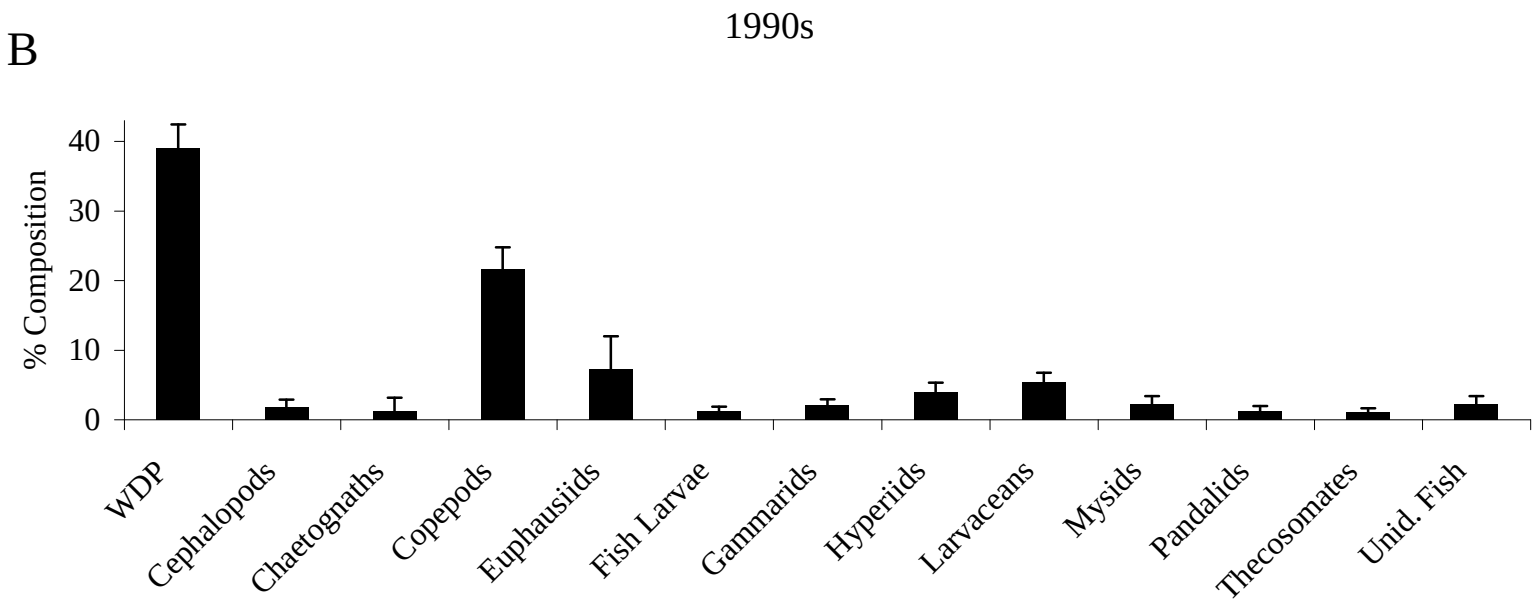

Figure 127B. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in the 1990s (n = 4,120). WDP = well-digested prey; Unid. Fish = unidentified fish.

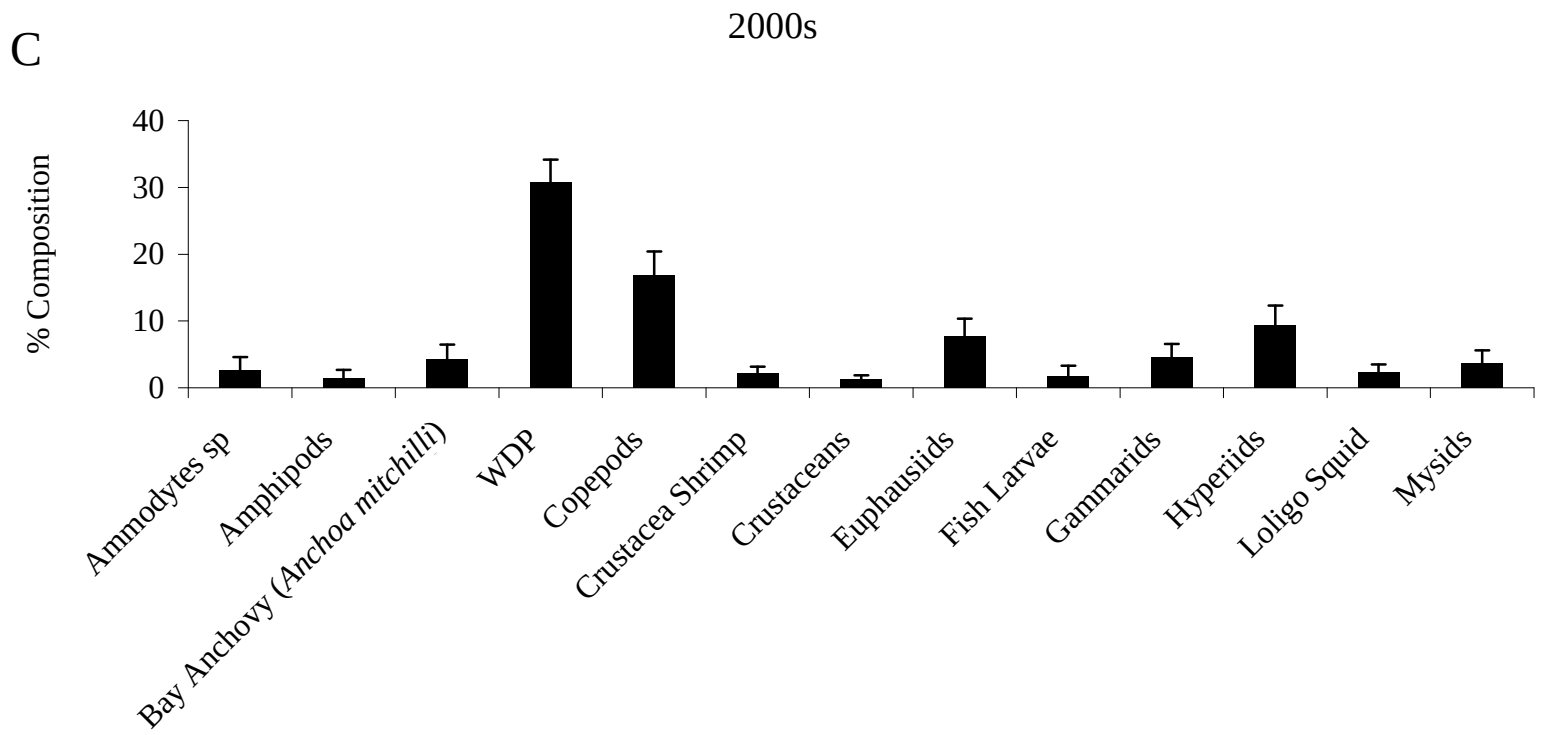

Figure 127C. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in the 2000s (n = 2,130). WDP = well-digested prey.

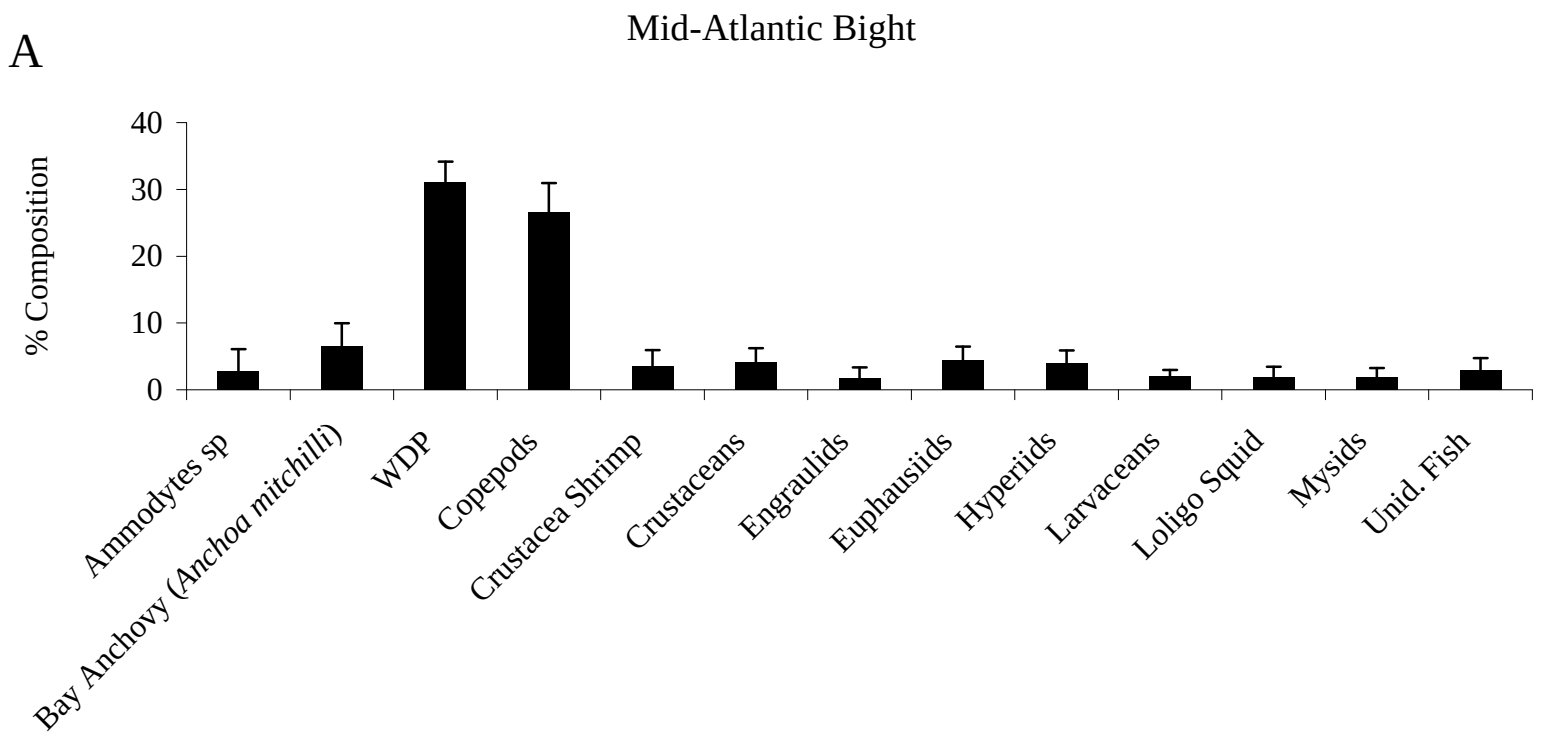

Figure 128A. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in the Mid-Atlantic Bight (n = 2,565). WDP = well-digested prey; Unid. Fish = unidentified fish.

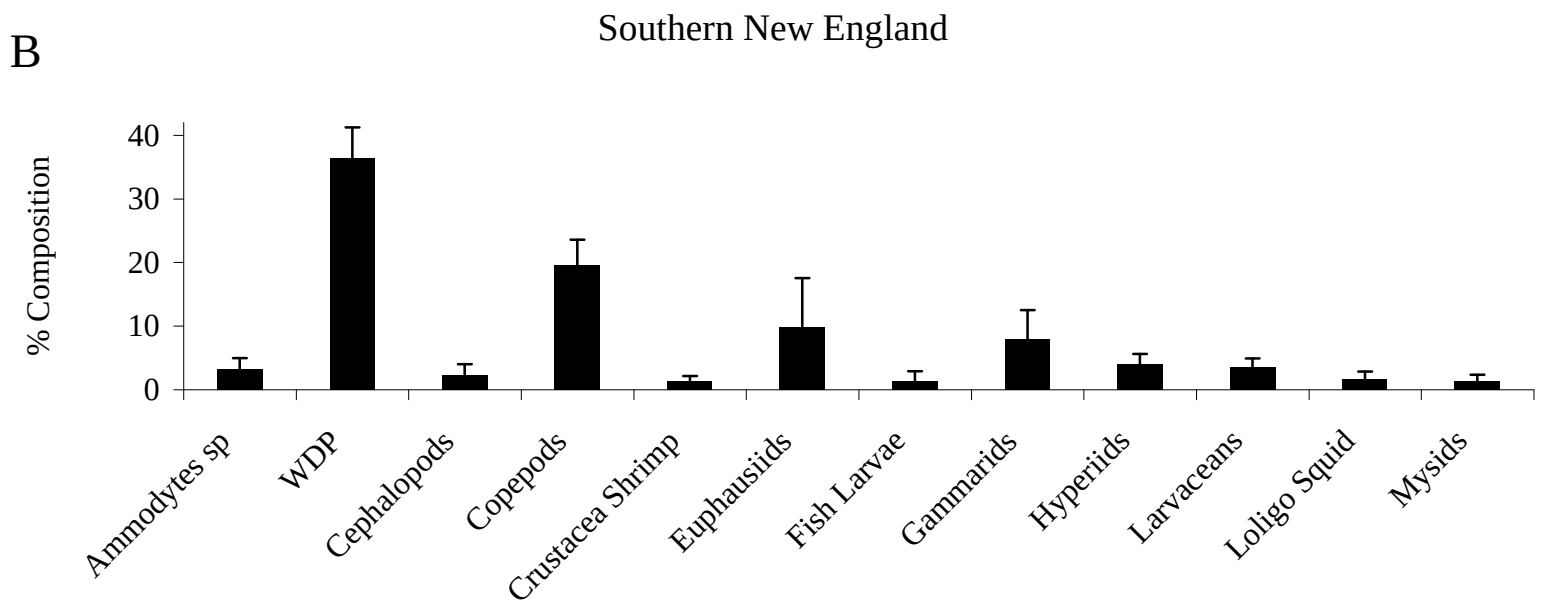

Figure 128B. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in Southern New England (n = 2,554). WDP = well-digested prey.

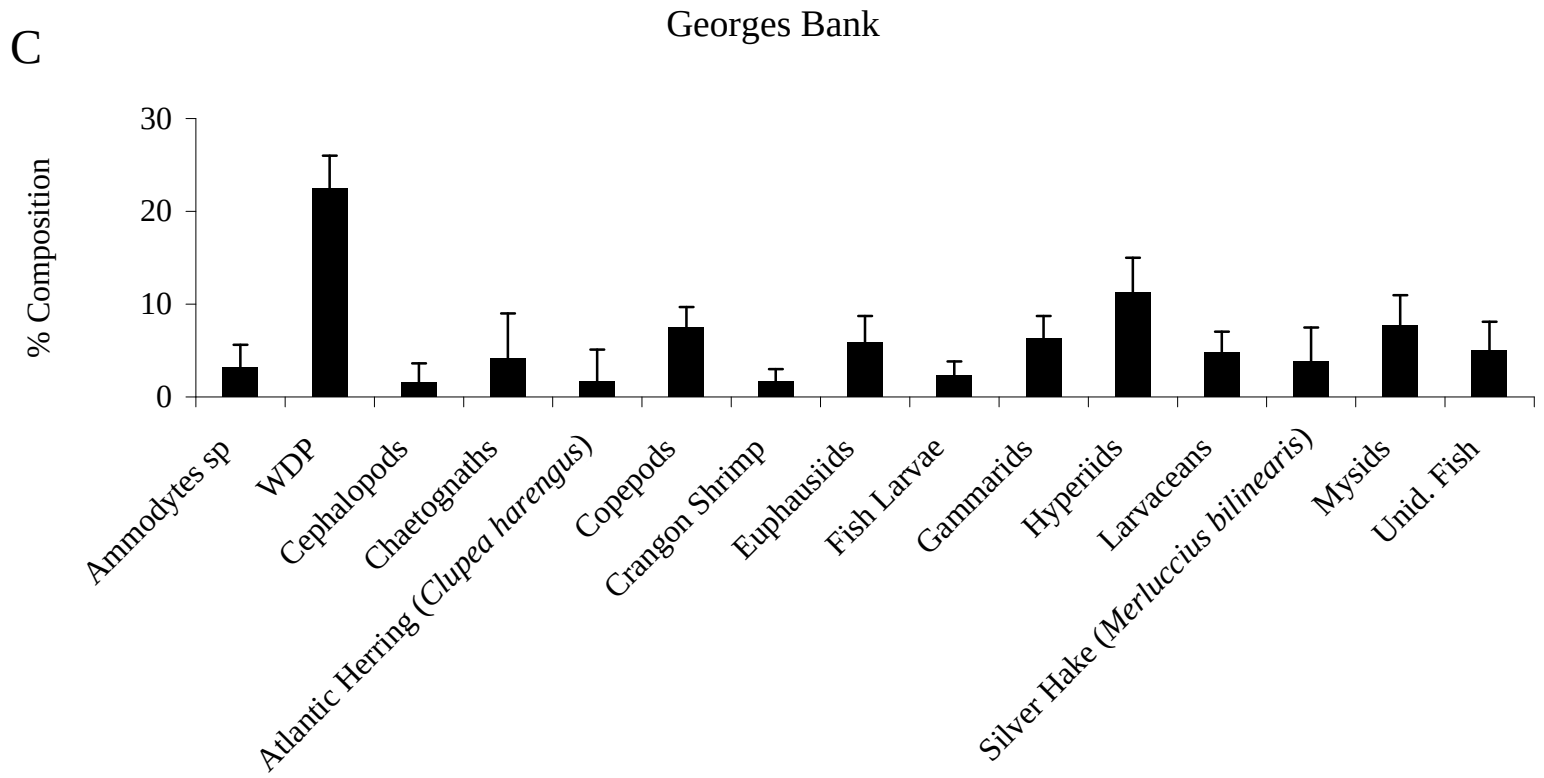

Figure 128C. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected on Georges Bank (n = 1,144). WDP = well-digested prey; Unid. Fish = unidentified fish.

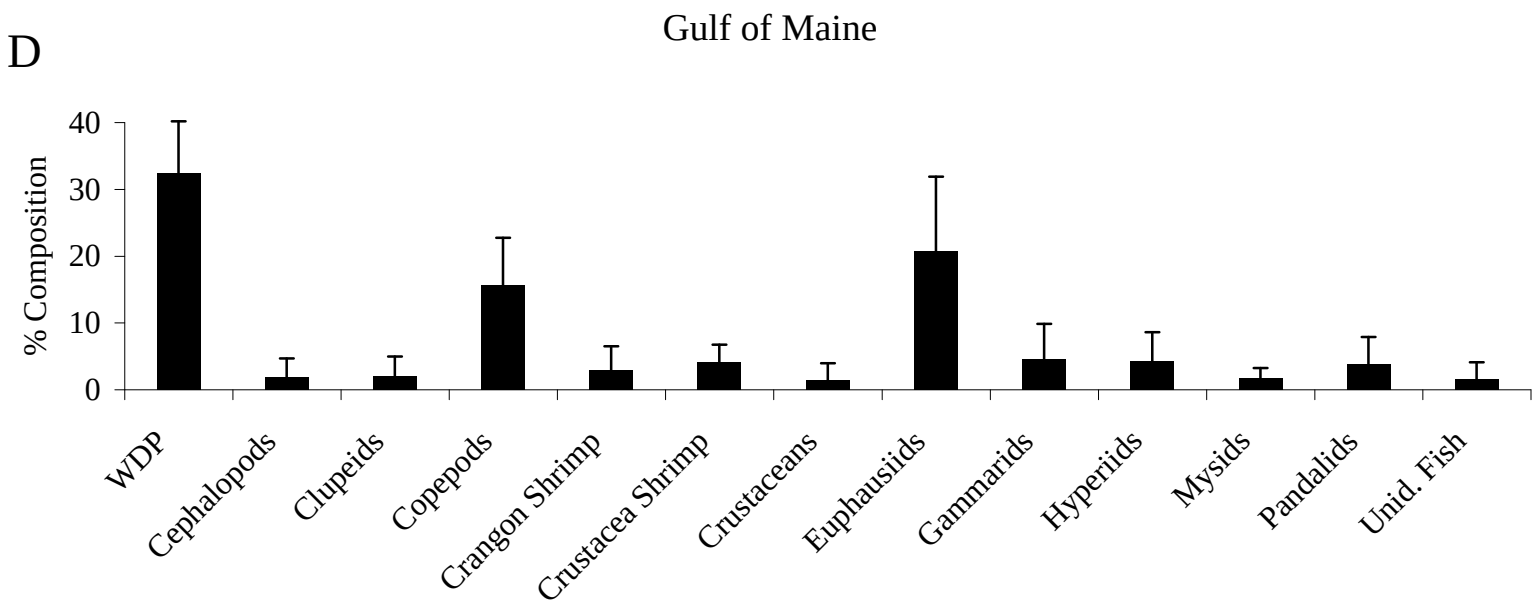

Figure 128D. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in the Gulf of Maine (n = 499). WDP = well-digested prey; Unid. Fish = unidentified fish.

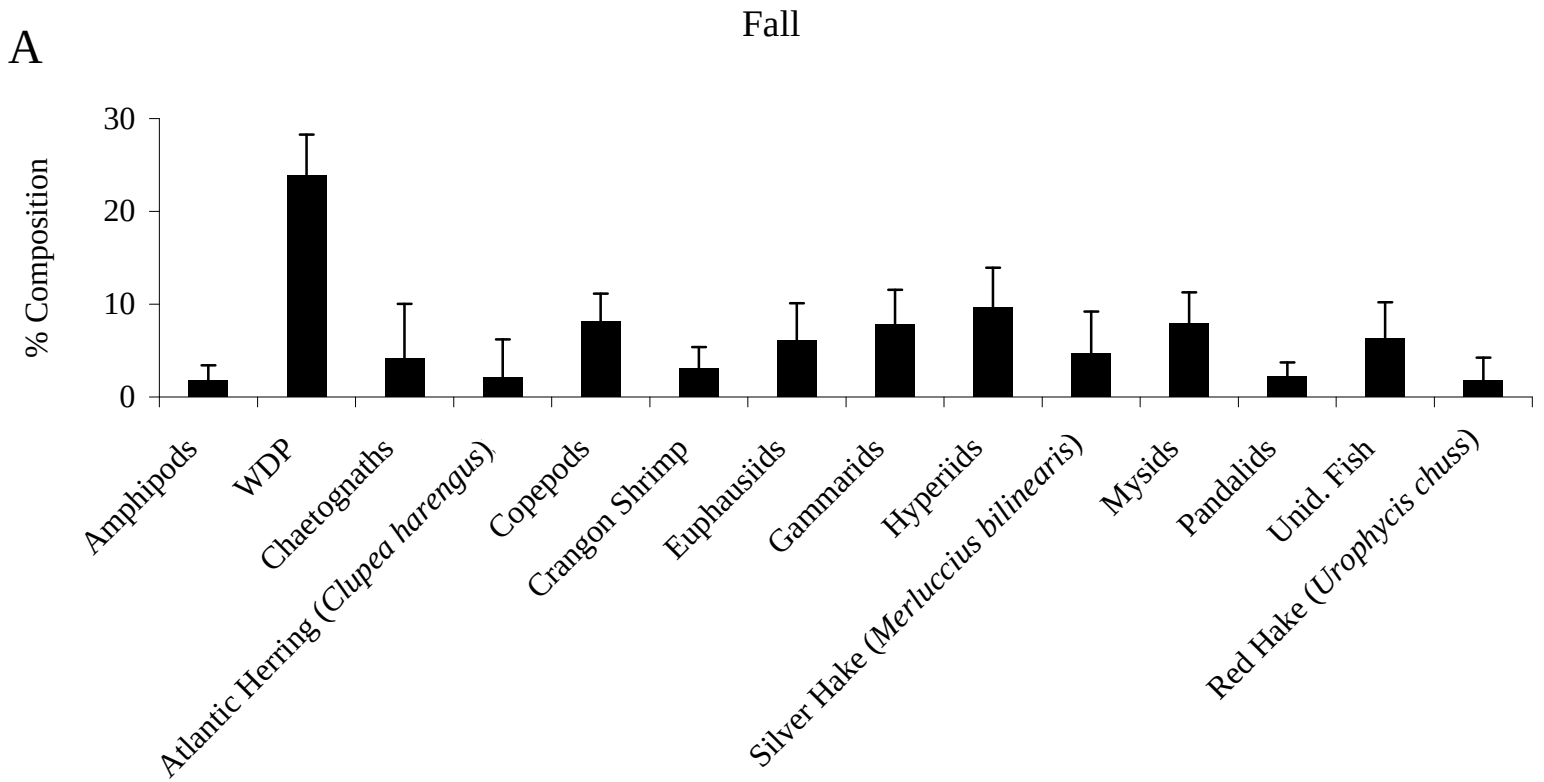

Figure 129A. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in the fall (n = 960). WDP = well-digested prey; Unid. Fish = unidentified fish.

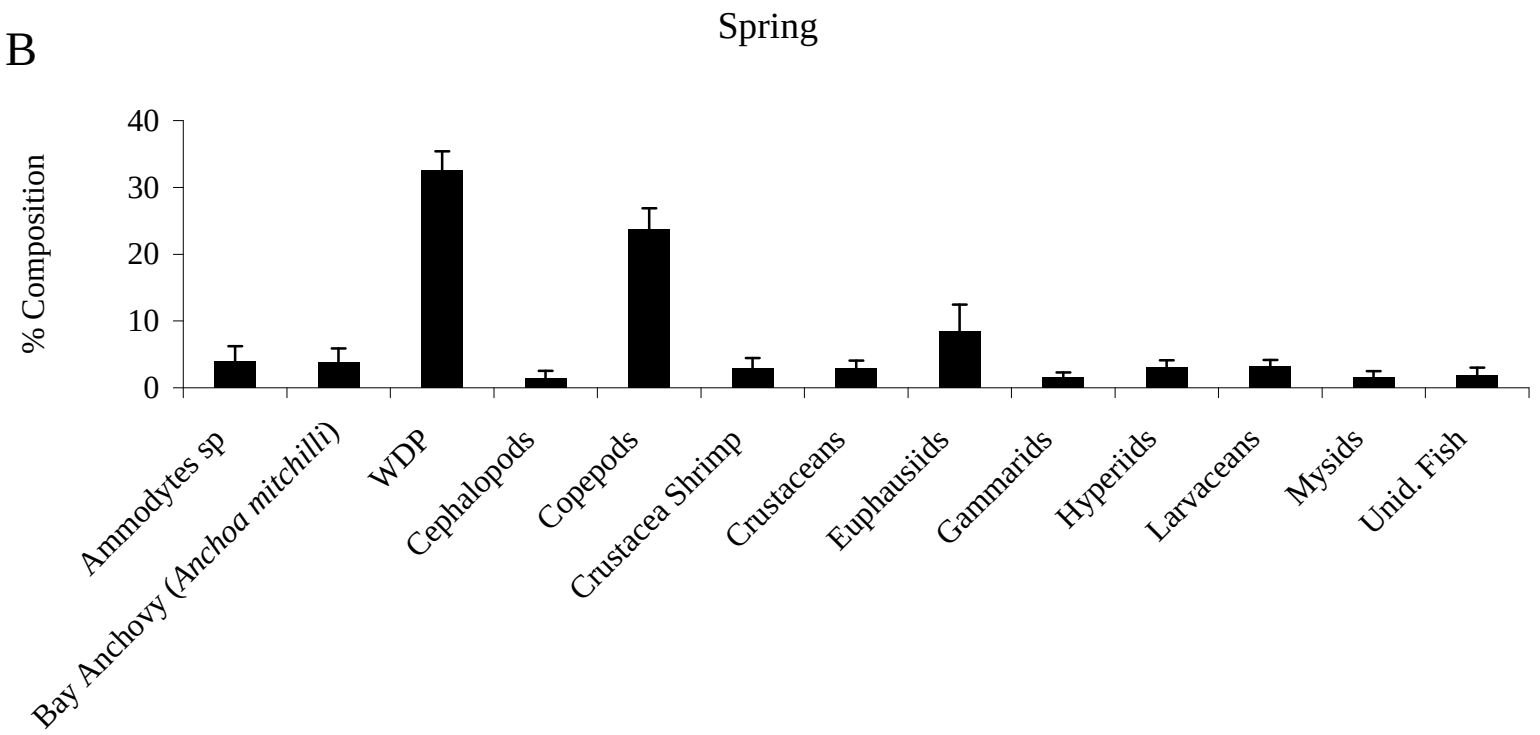

Figure 129B. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in the spring (n = 4,057). WDP = well-digested prey; Unid. Fish = unidentified fish.

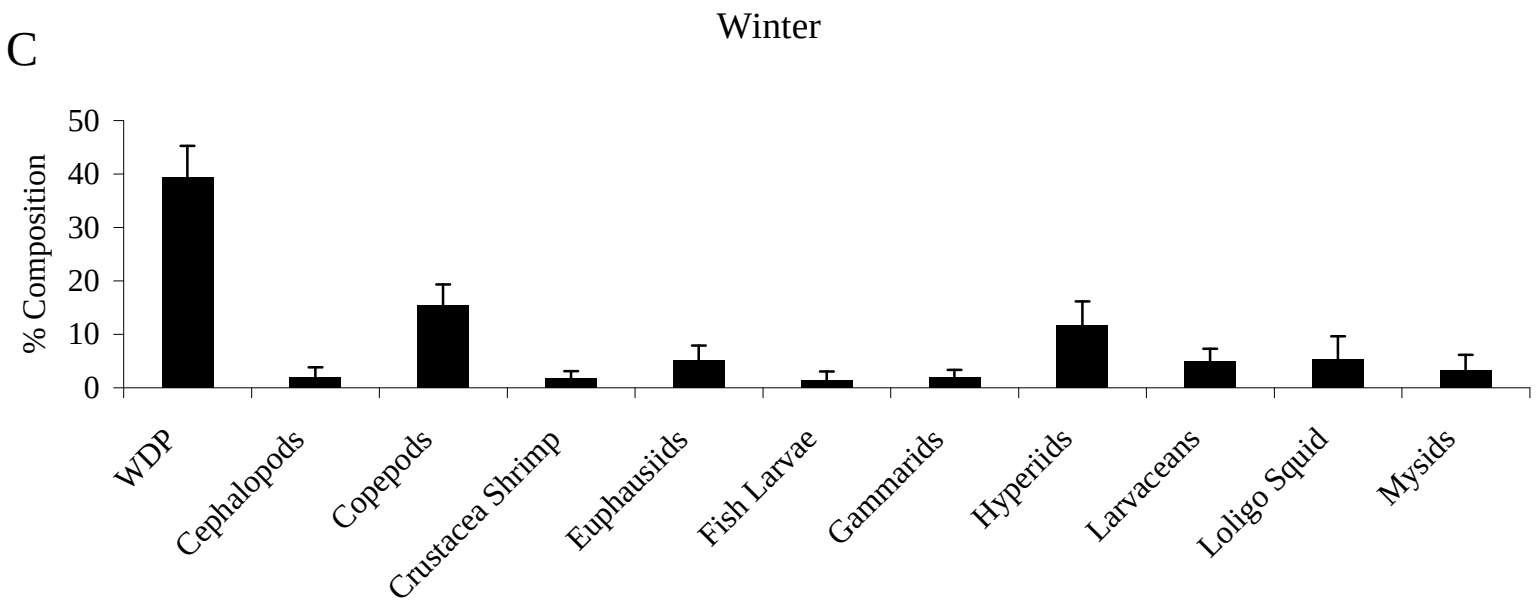

Figure 129C. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) collected in the winter (n = 1,784). WDP = well-digested prey.

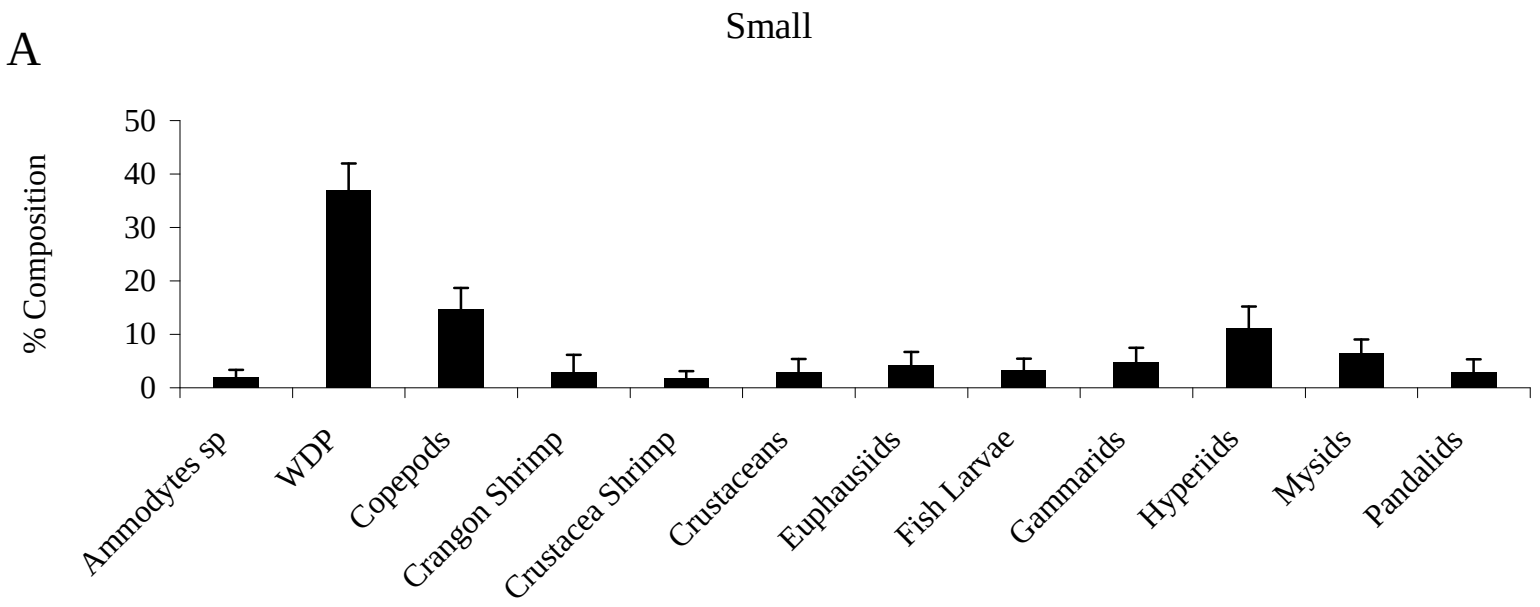

Figure 130A. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) in the small size class (n = 1,158). WDP = well-digested prey.

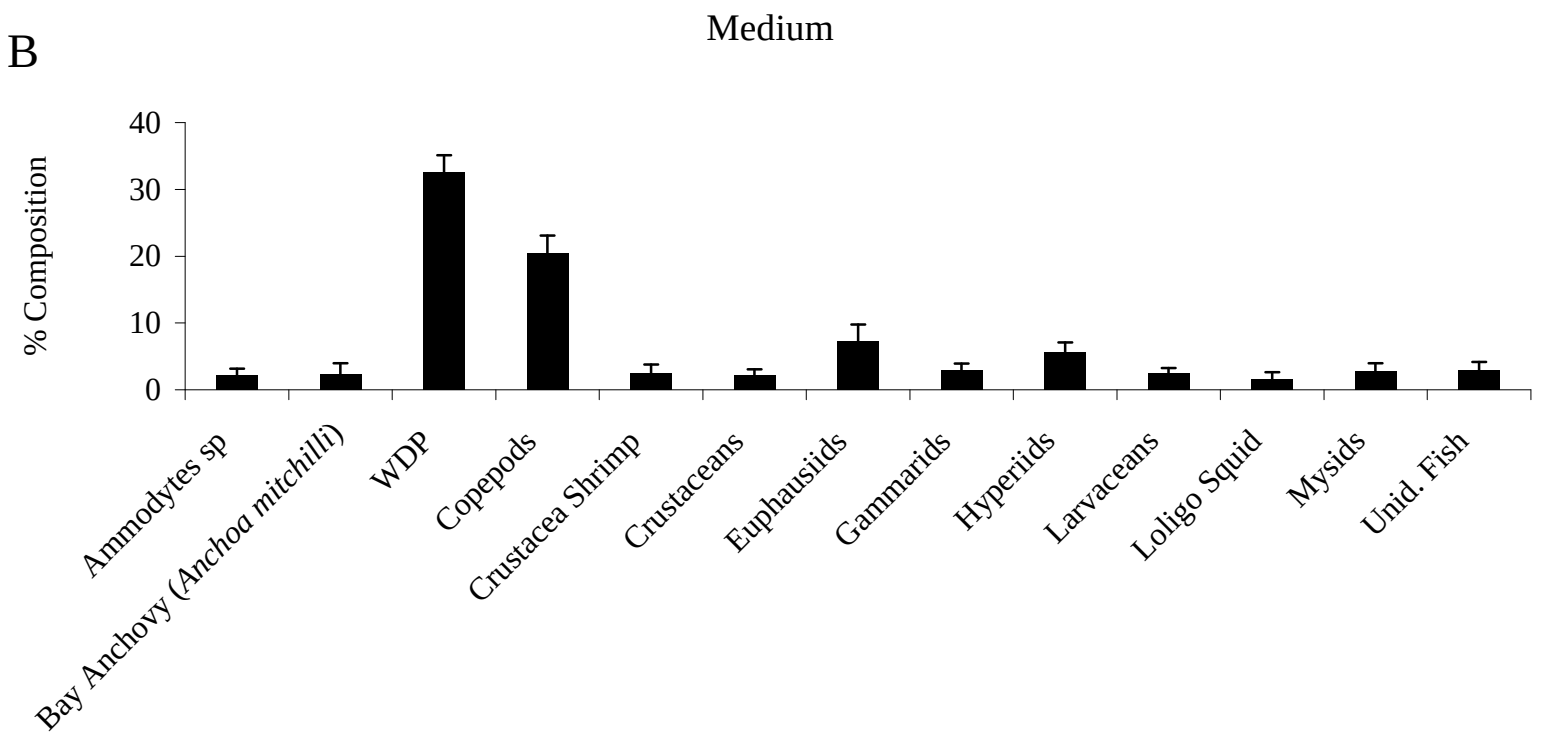

Figure 130B. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) in the medium size class (n = 4,886). WDP = well-digested prey; Unid. Fish = unidentified fish.

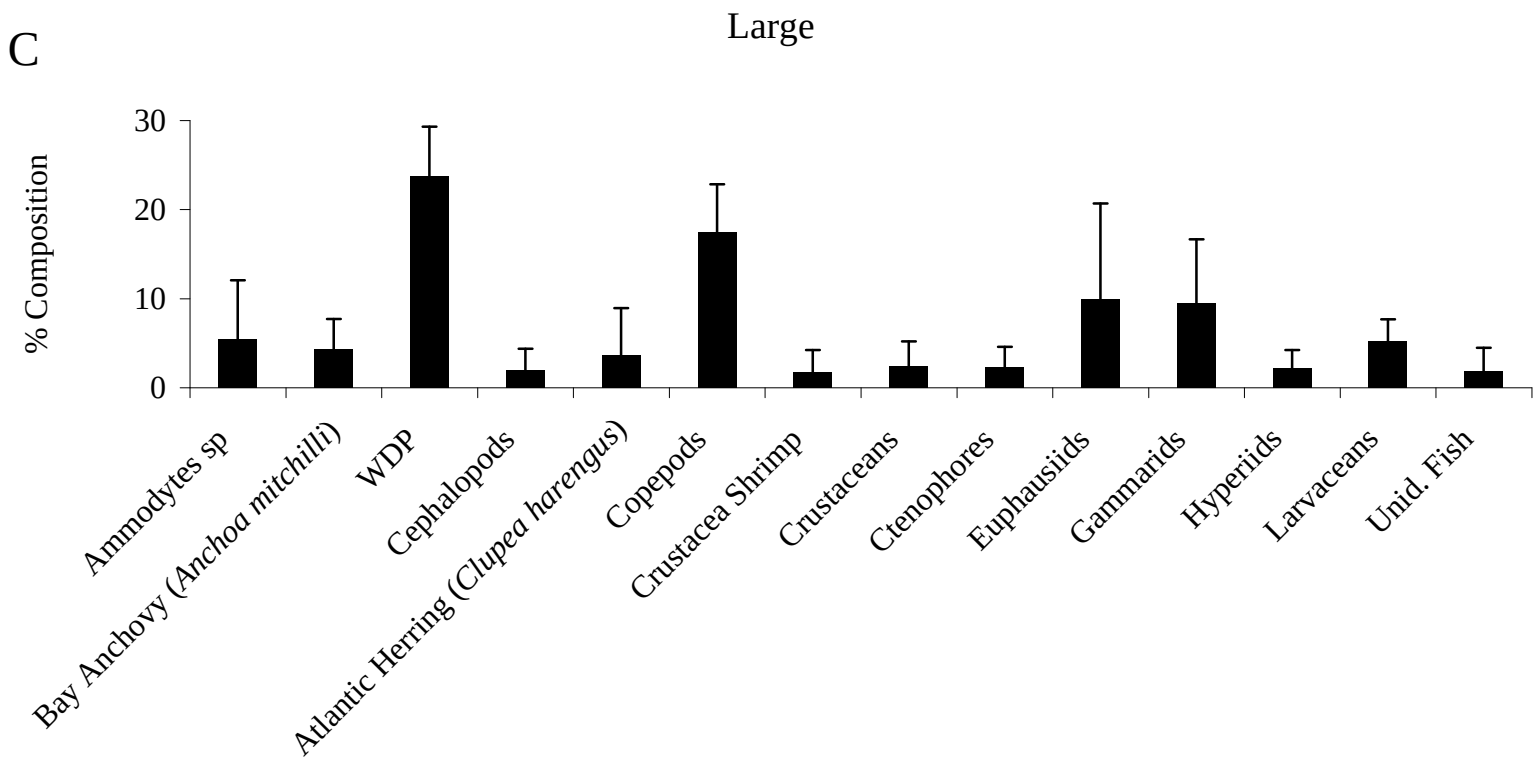

Figure 130C. Percent diet composition by weight of major prey taxa for Atlantic mackerel (*Scomber scombrus*) in the large size class (n = 826). WDP = well-digested prey; Unid. Fish = unidentified fish.

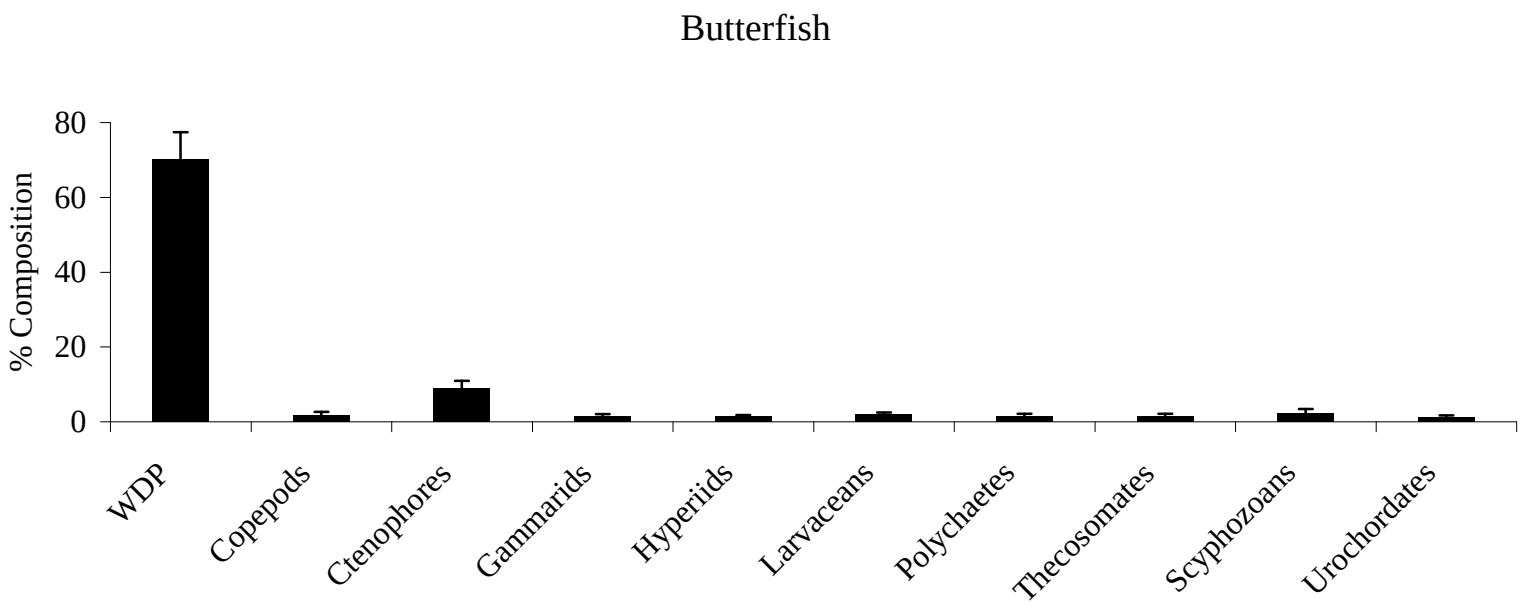

Figure 131. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*; n = 6,098). WDP = well-digested prey.

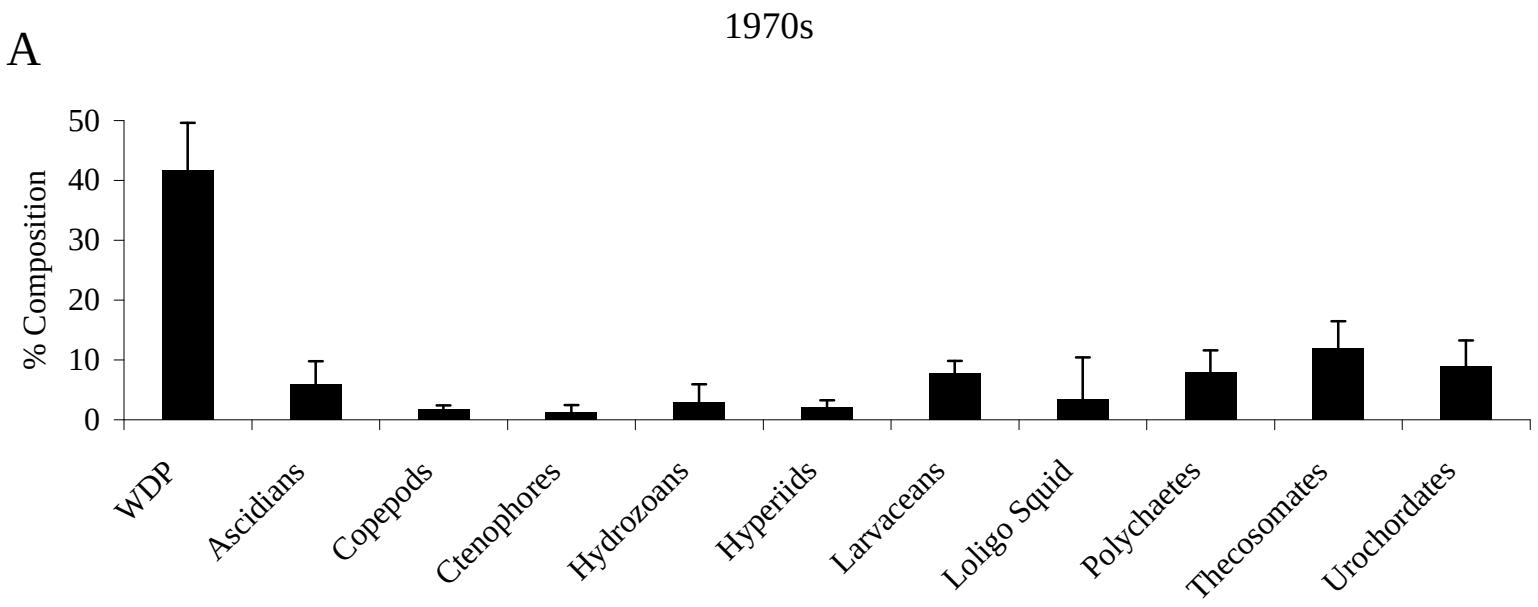

Figure 132A. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the 1970s (n = 1,750). WDP = well-digested prey.

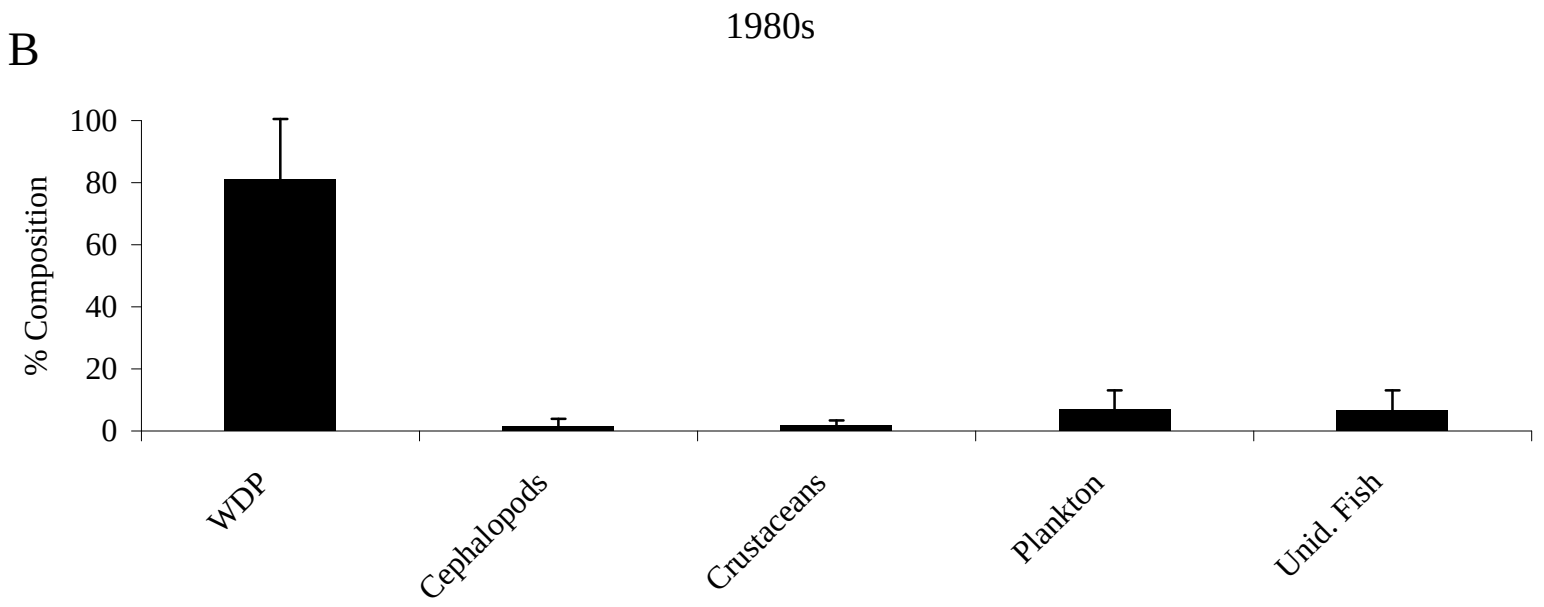

Figure 132B. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the 1980s (n = 287). WDP = well-digested prey; Unid. Fish = unidentified fish.

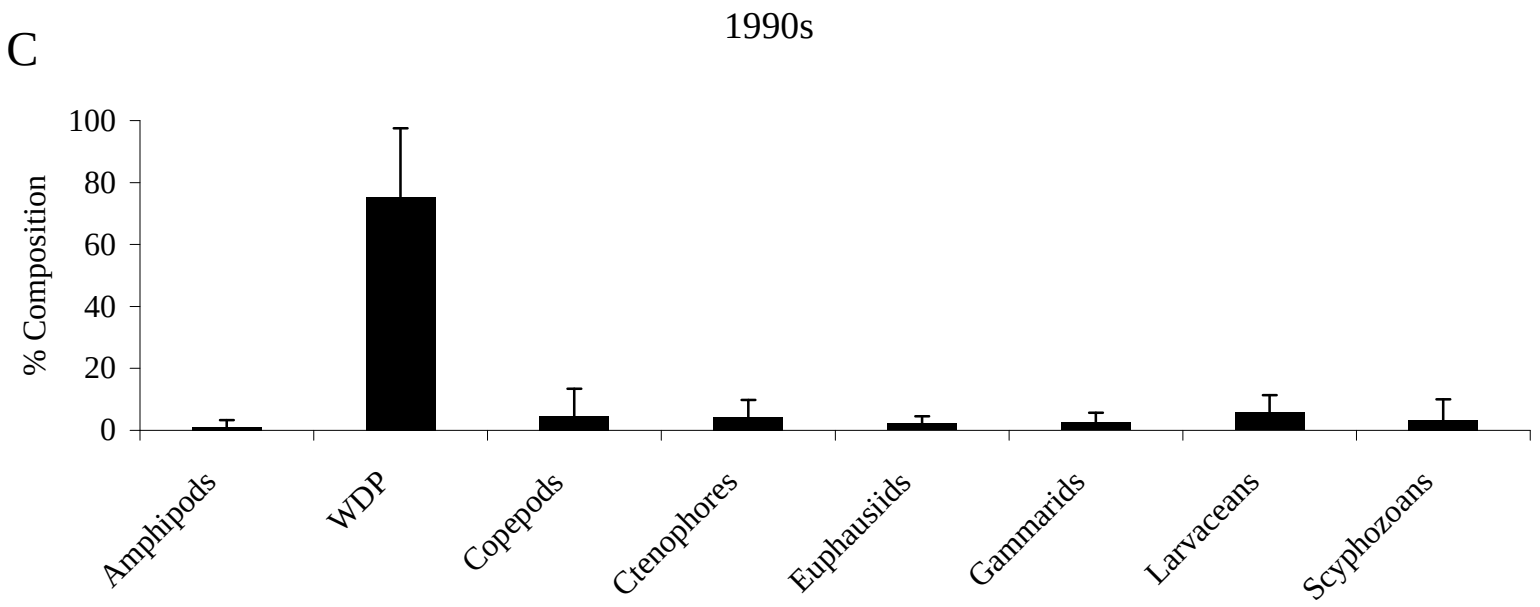

Figure 132C. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected collected in the 1990s (n = 367). WDP = well-digested prey.

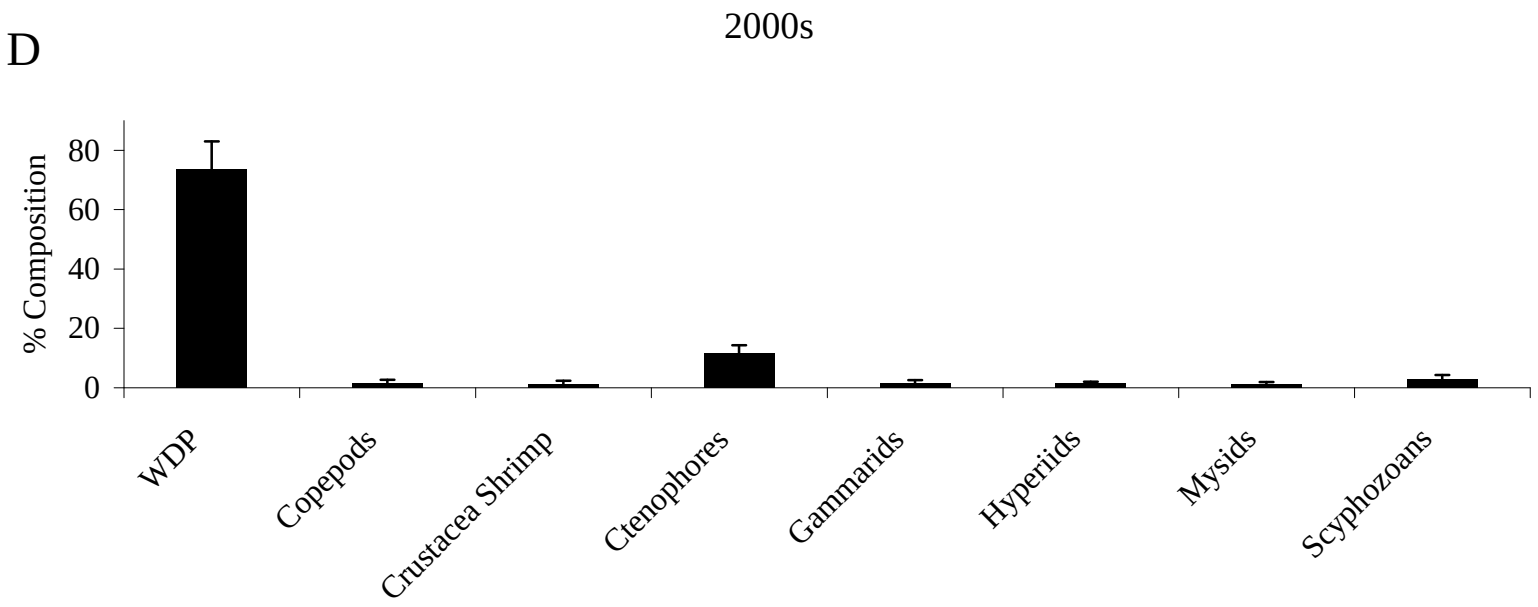

Figure 132D. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the 2000s (n = 3,694). WDP = well-digested prey.

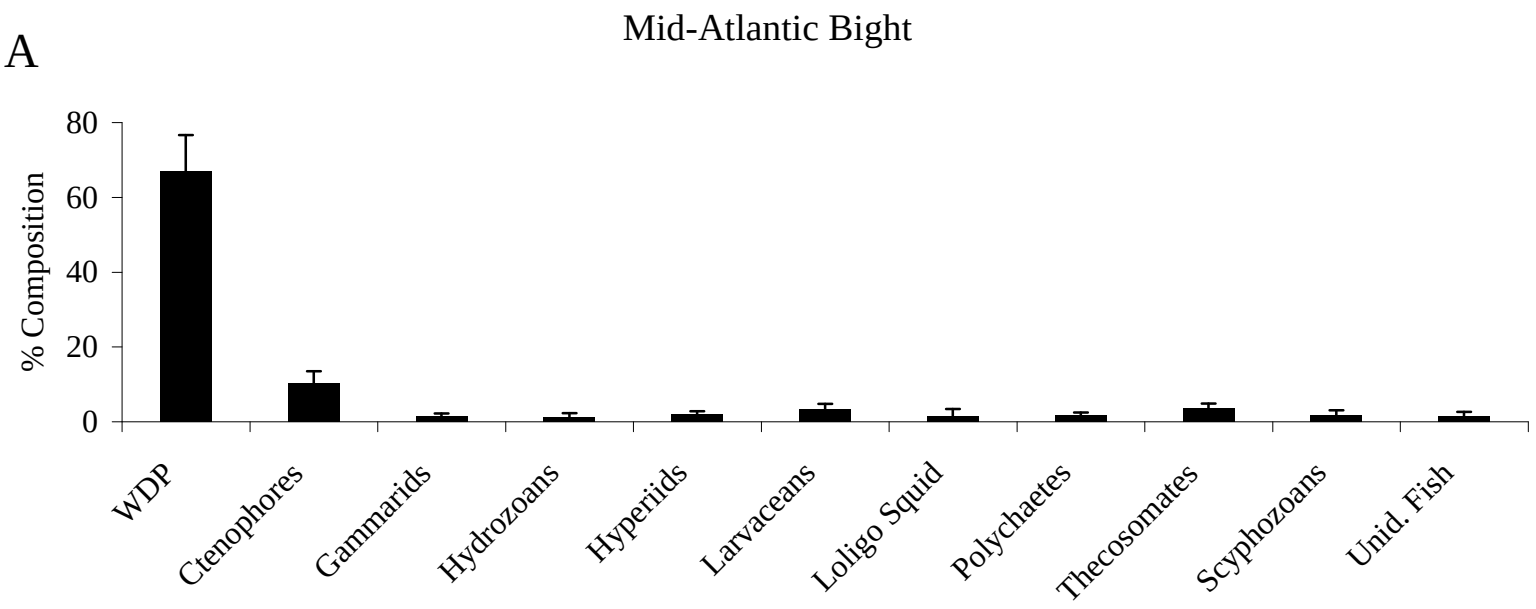

Figure 133A. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the Mid-Atlantic Bight (n = 2,988). WDP = well-digested prey; Unid. Fish = unidentified fish.

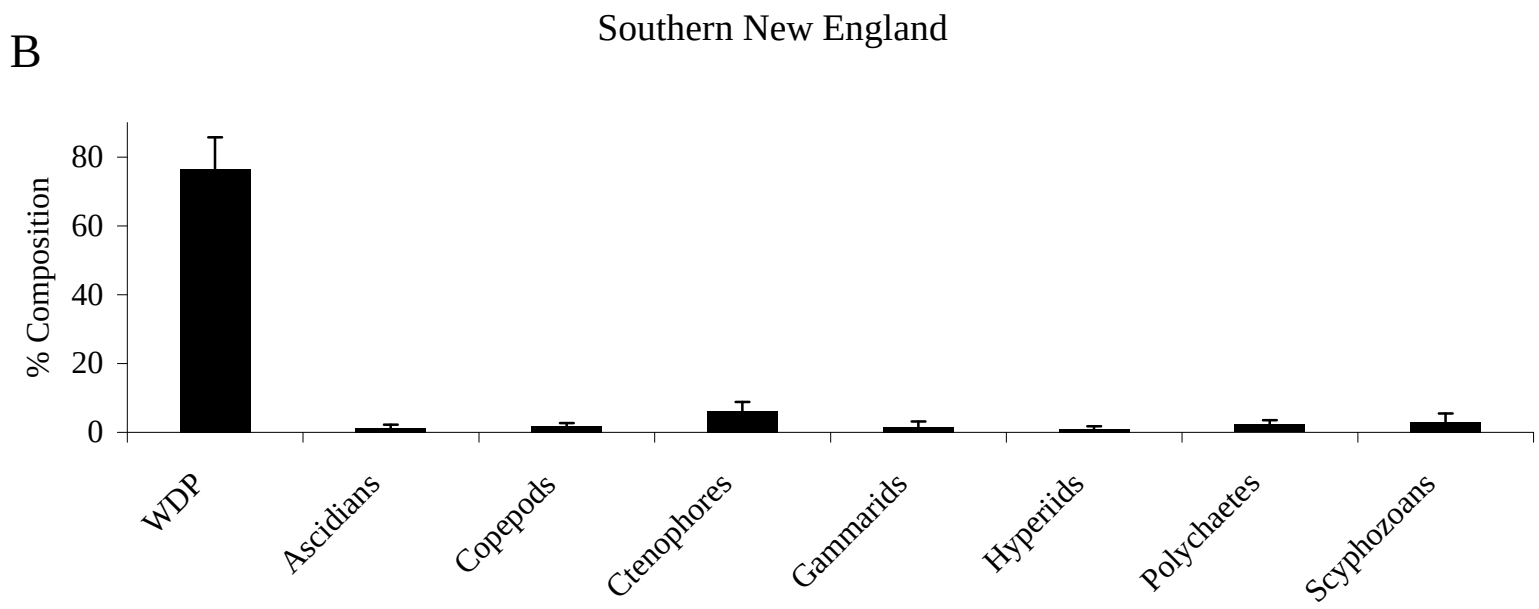

Figure 133B. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in Southern New England (n = 2,174). WDP = well-digested prey.

C

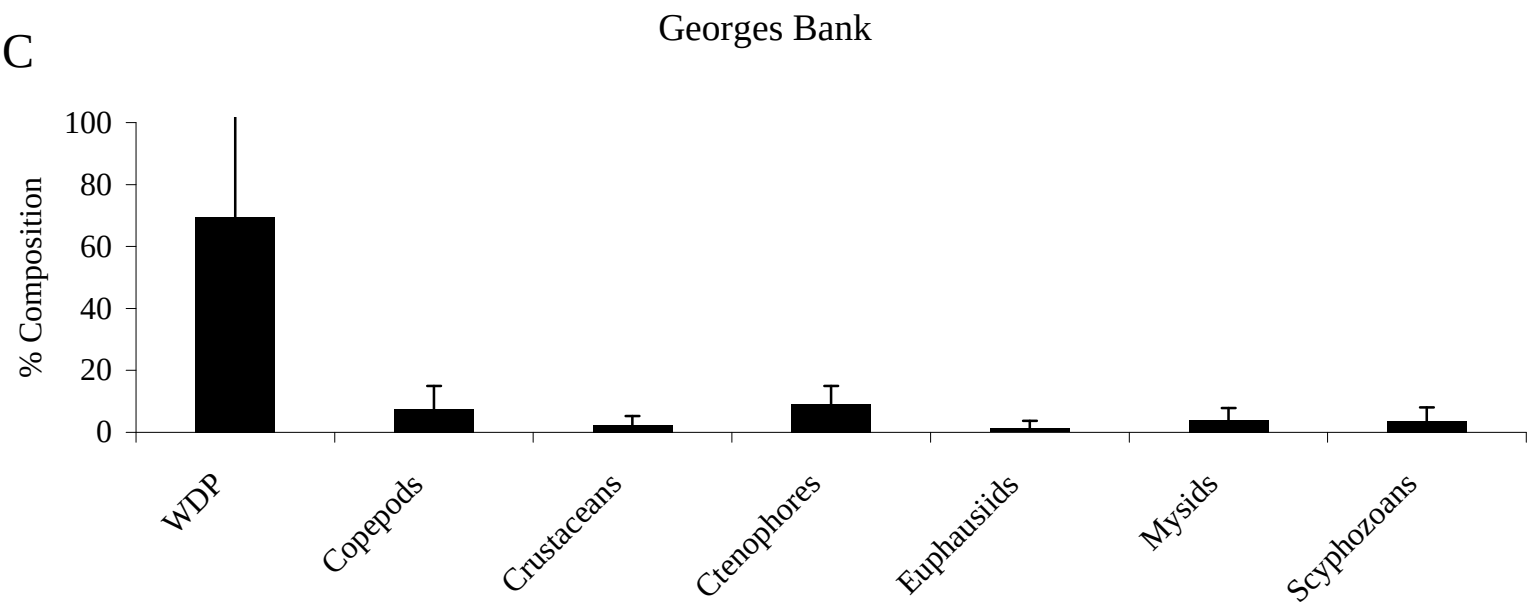

Figure 133C. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected on Georges Bank (n = 465). WDP = well-digested prey.

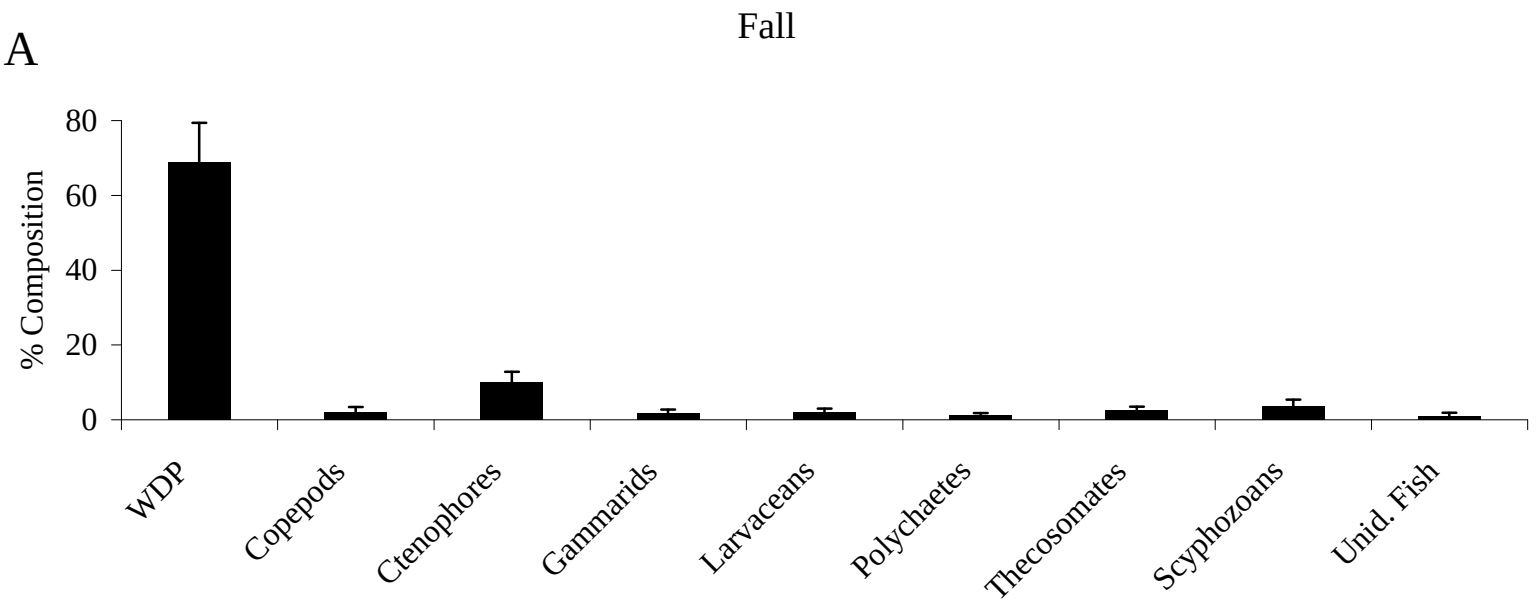

Figure 134A. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the fall (n = 3,303). WDP = well-digested prey; Unid. Fish = unidentified fish.

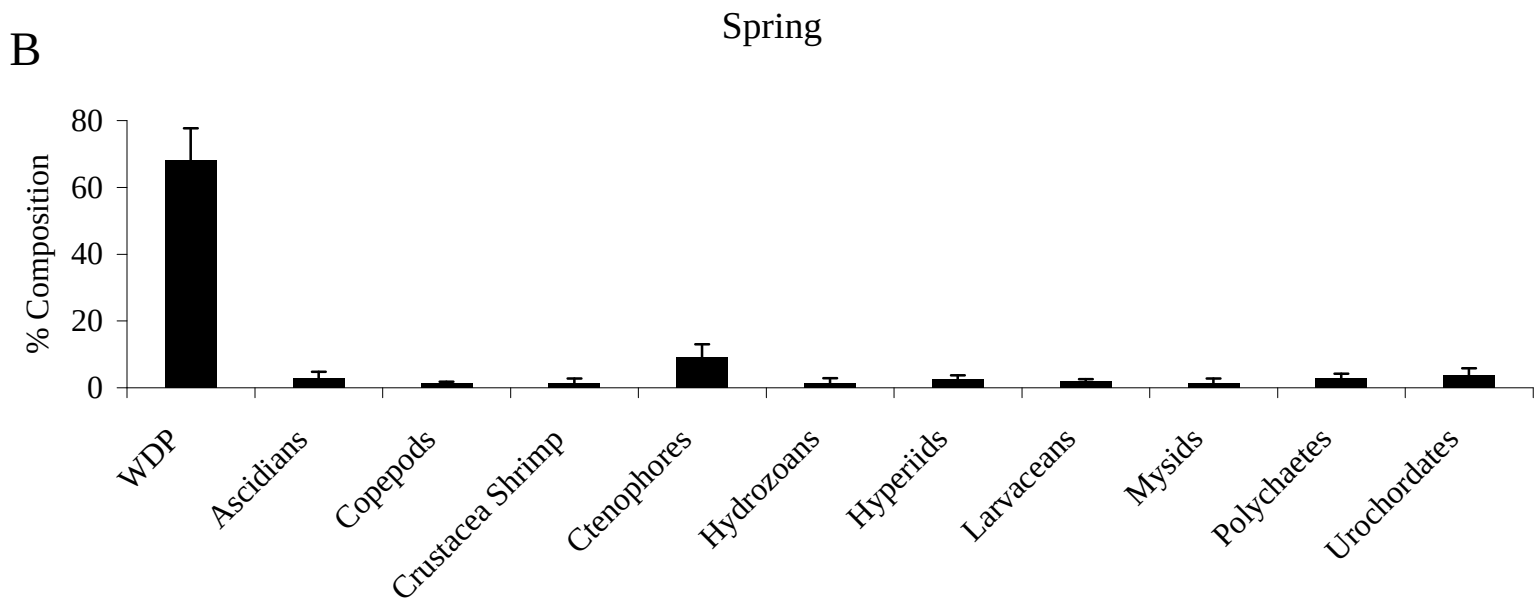

Figure 134B. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the spring (n = 1,571). WDP = well-digested prey.

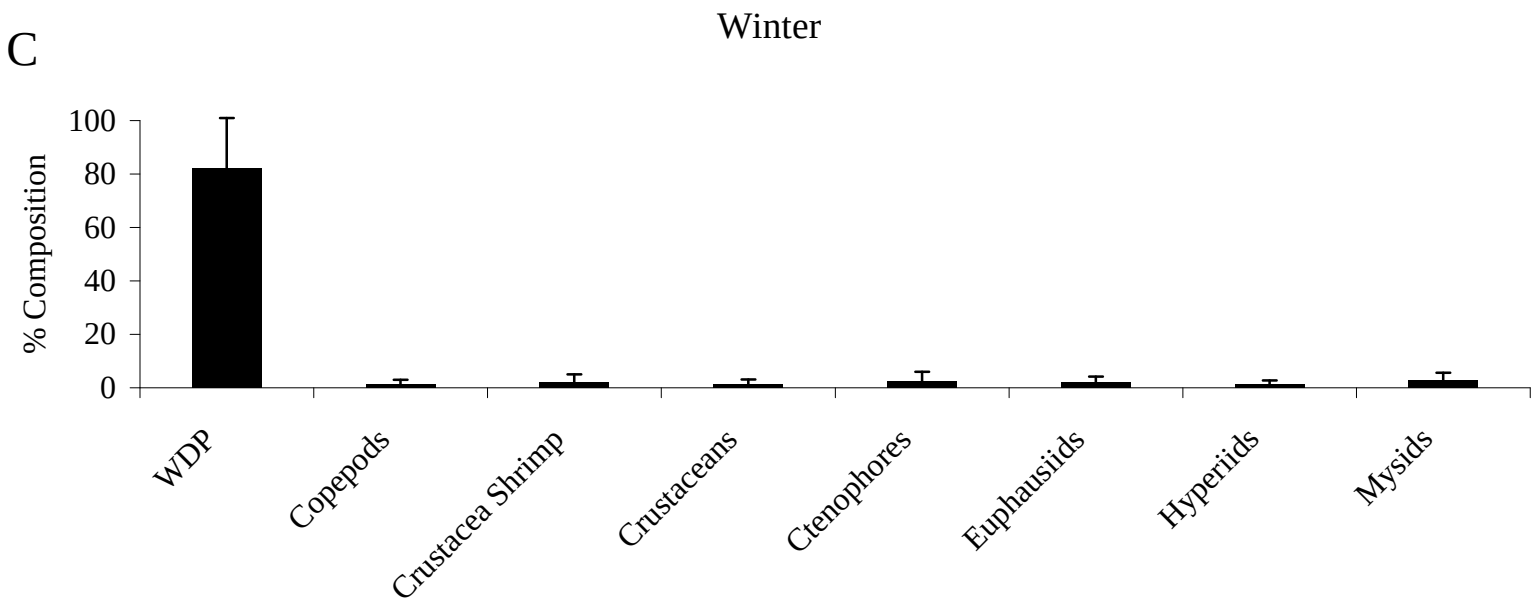

Figure 134C. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the winter (n = 880). WDP = well-digested prey.

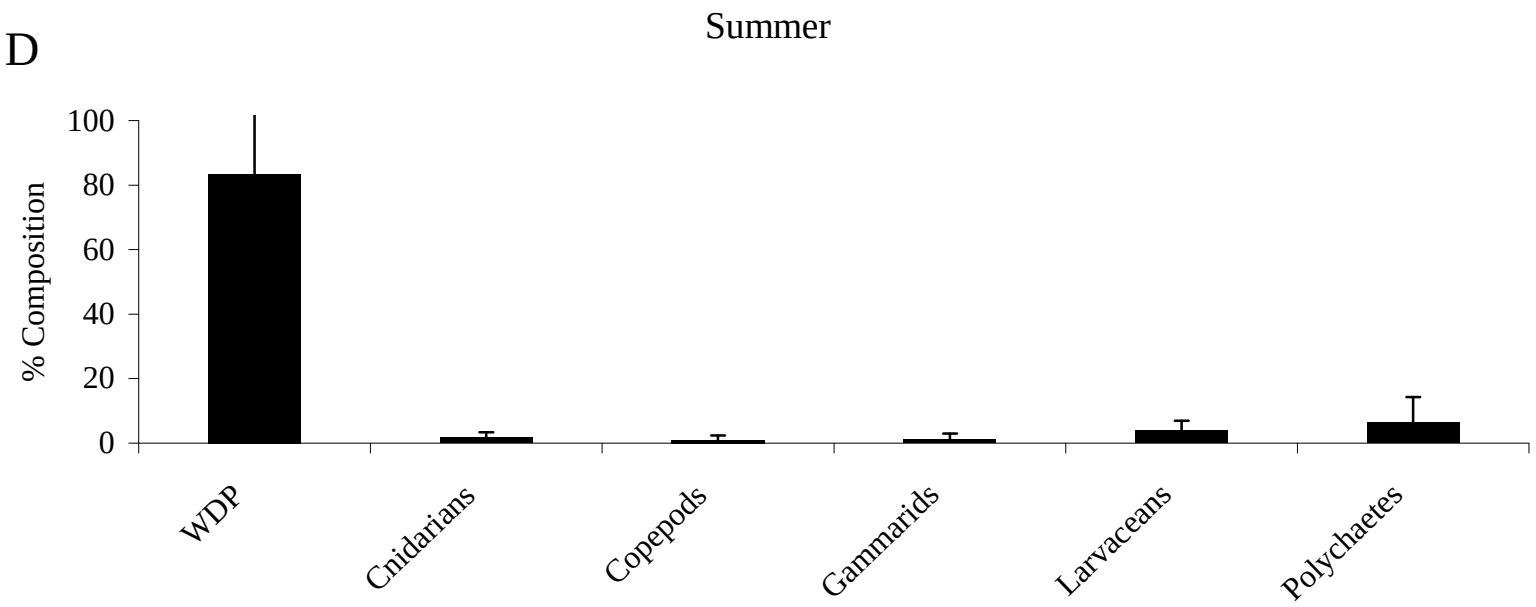

Figure 134D. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the summer (n = 344). WDP = well-digested prey.

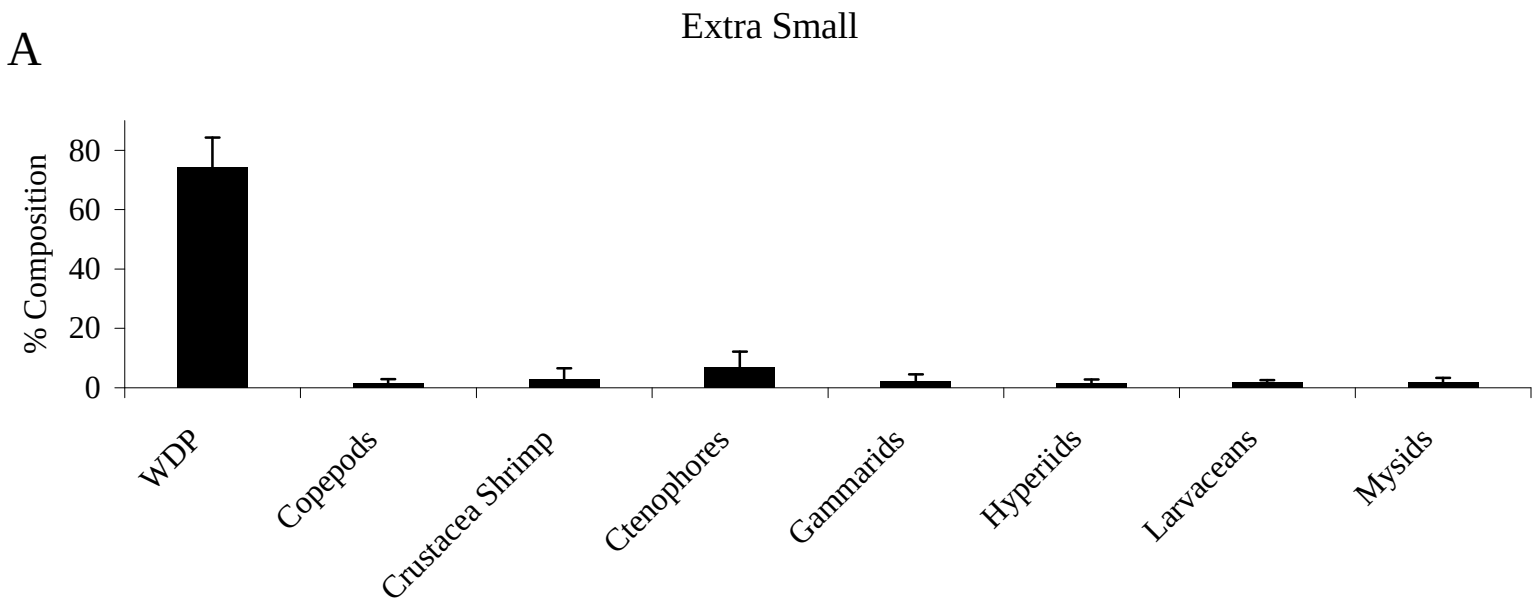

Figure 135A. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the extra-small size class (n = 1,773). WDP = well-digested prey.

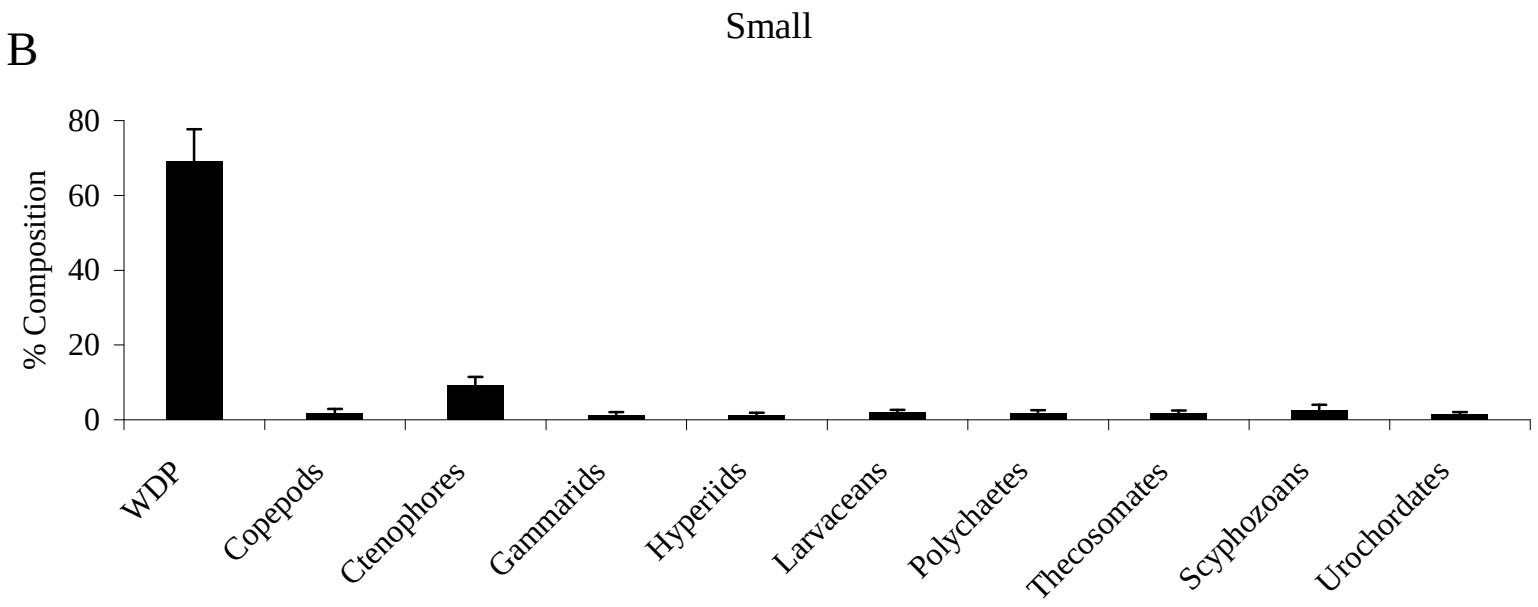

Figure 135B. Percent diet composition by weight of major prey taxa for butterfish (*Peprilus triacanthus*) collected in the small size class (n = 4,230). WDP = well-digested prey.

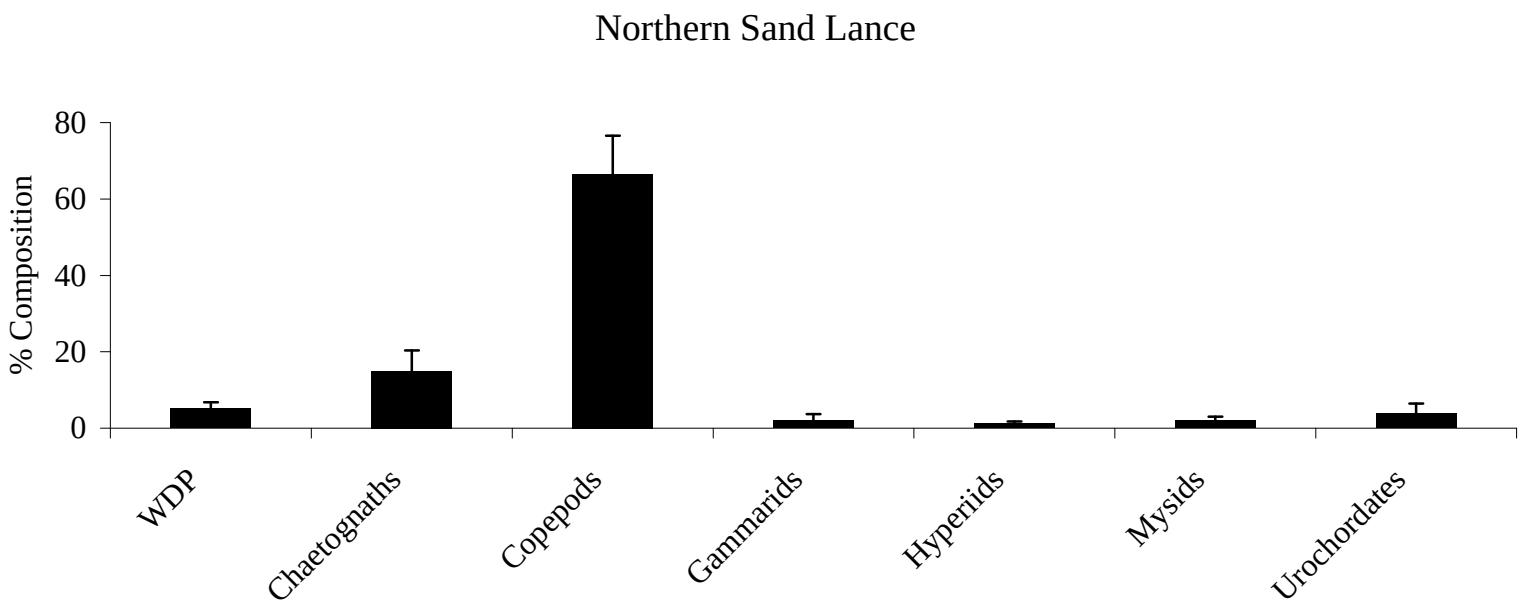

Figure 136. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*; n = 1,357). WDP = well-digested prey.

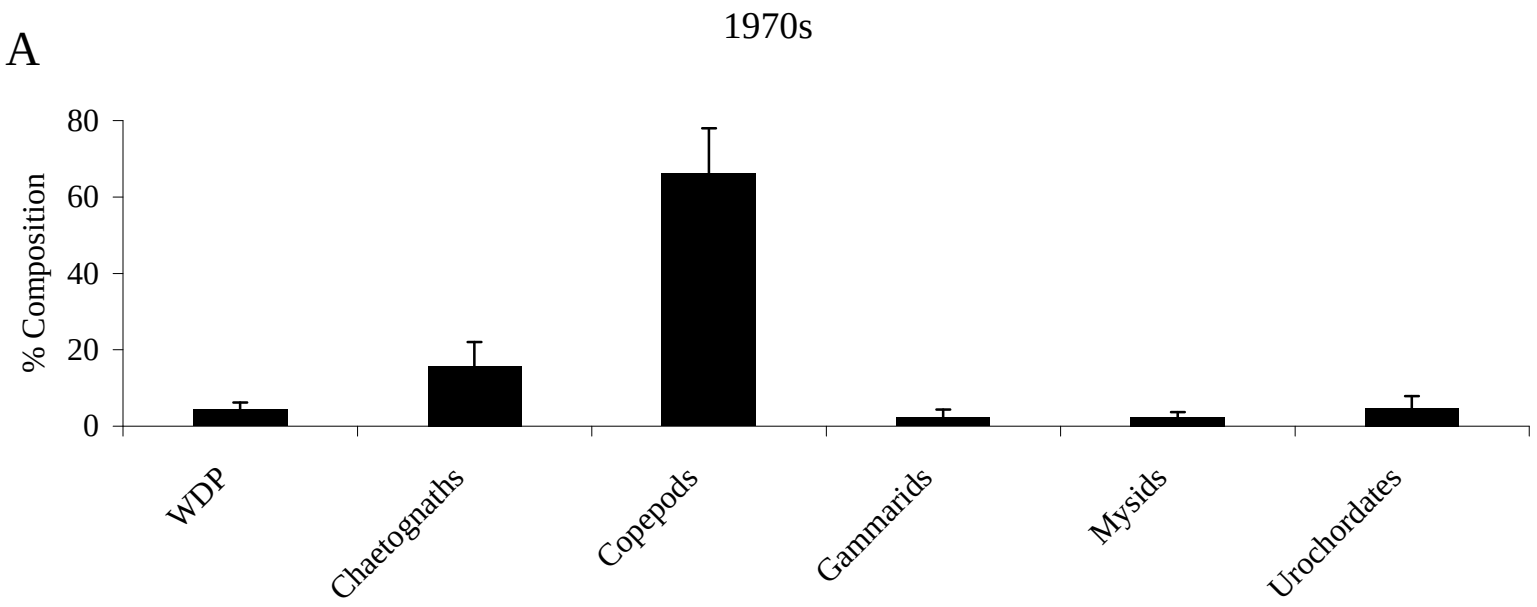

Figure 137A. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*) collected in the 1970s (n = 1,021). WDP = well-digested prey.

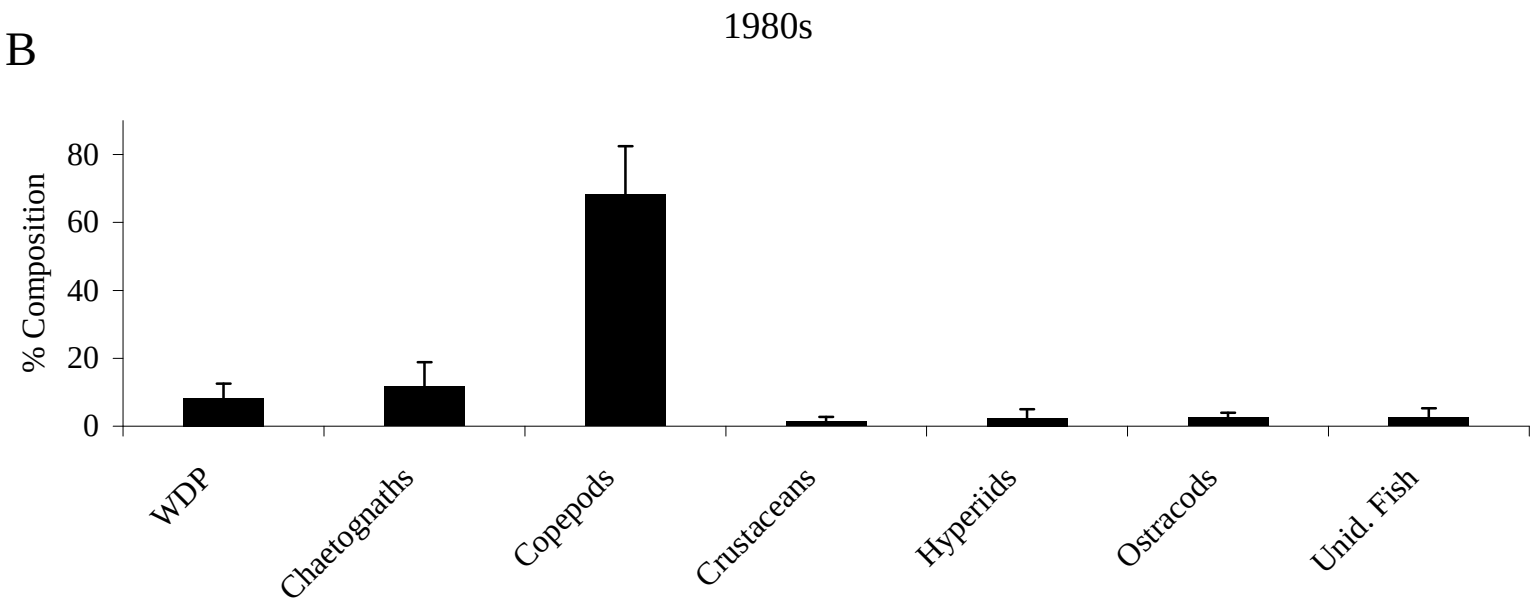

Figure 137B. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*) collected in the 1980s (n = 336). WDP = well-digested prey; Unid. Fish = unidentified fish.

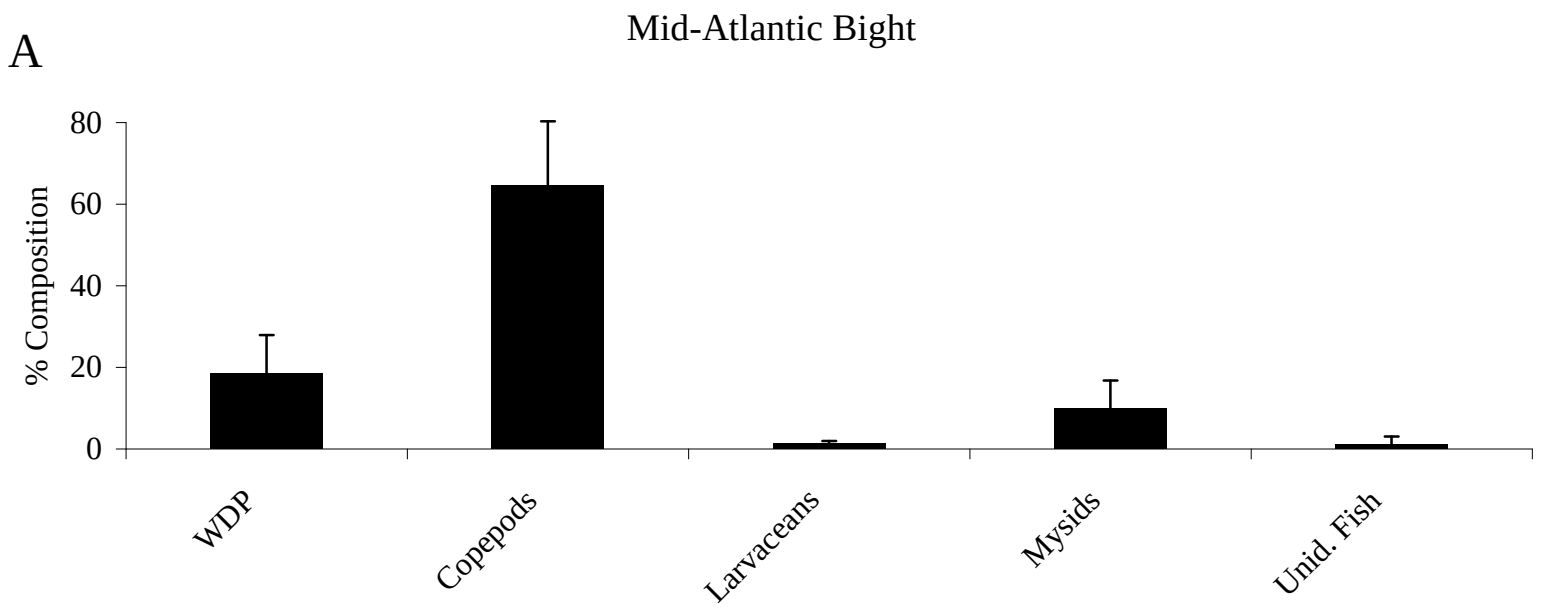

Figure 138A. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*) collected in the Mid-Atlantic Bight (n = 342). WDP = well-digested prey; Unid. Fish = unidentified fish.

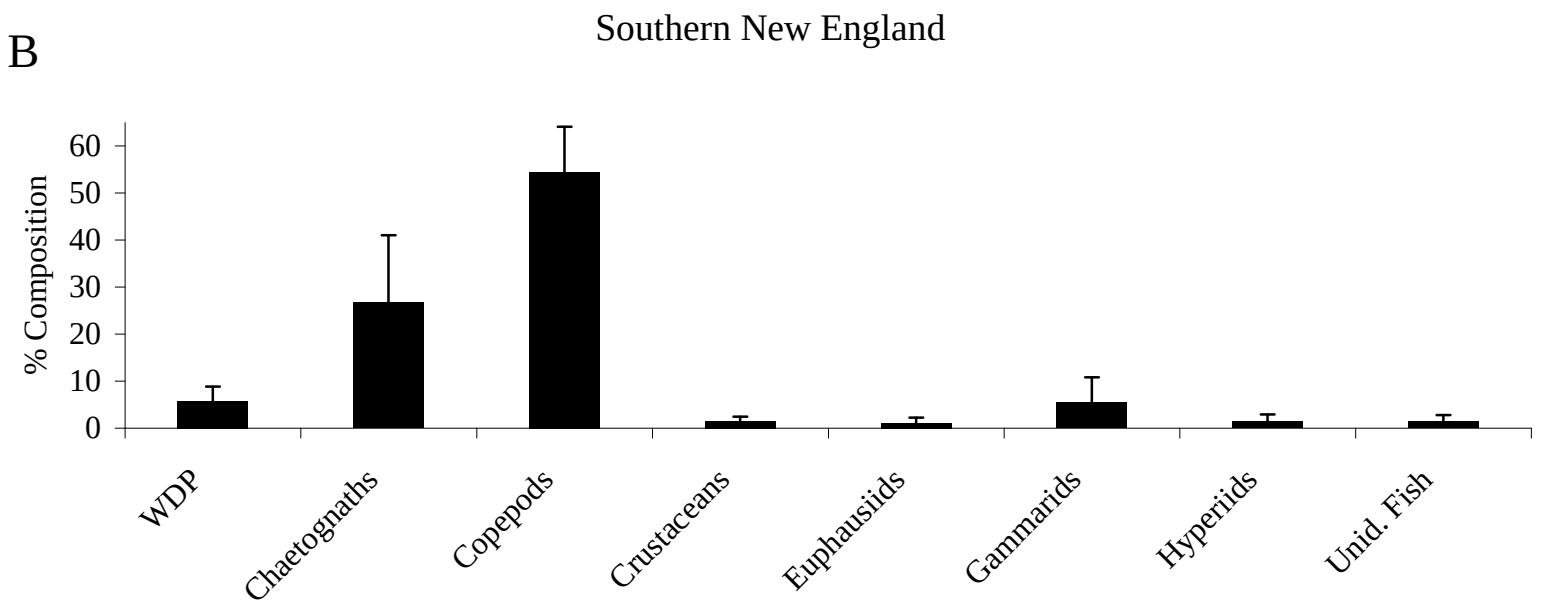

Figure 138B. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*) collected in Southern New England (n = 521). WDP = well-digested prey; Unid. Fish = unidentified fish.

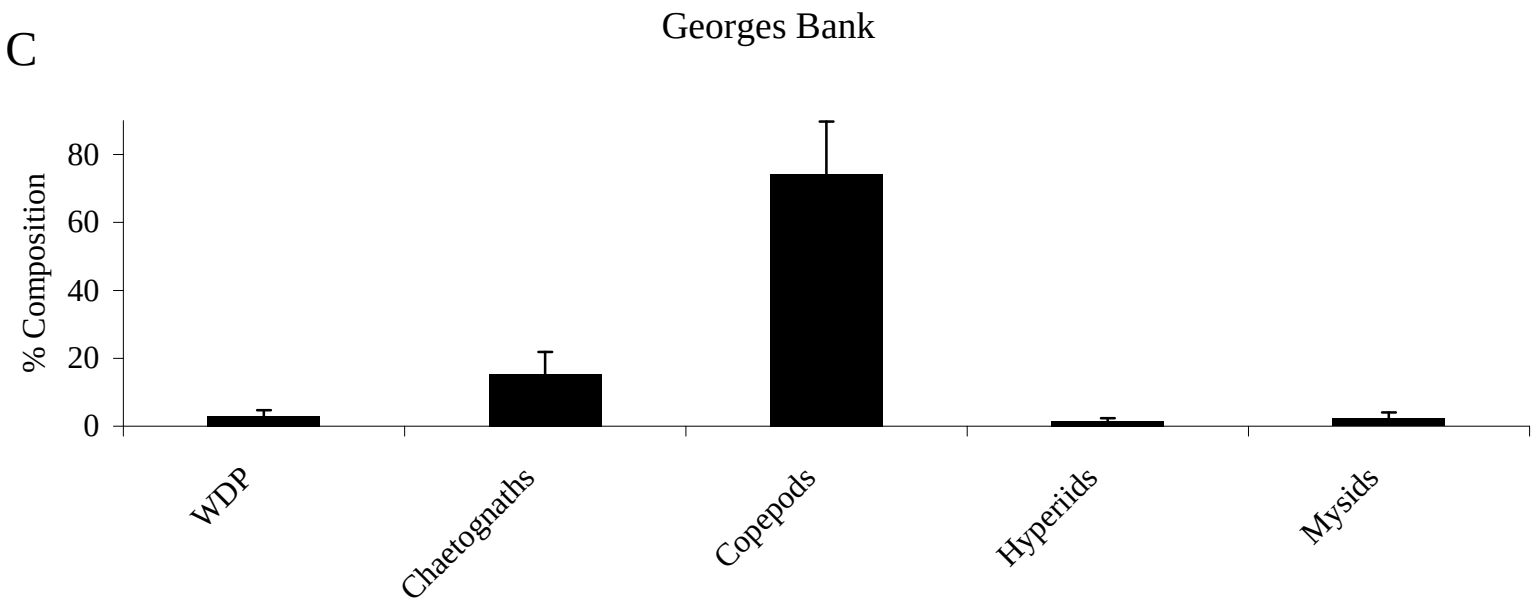

Figure 138C. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*) collected on Georges Bank (n = 424). WDP = well-digested prey.

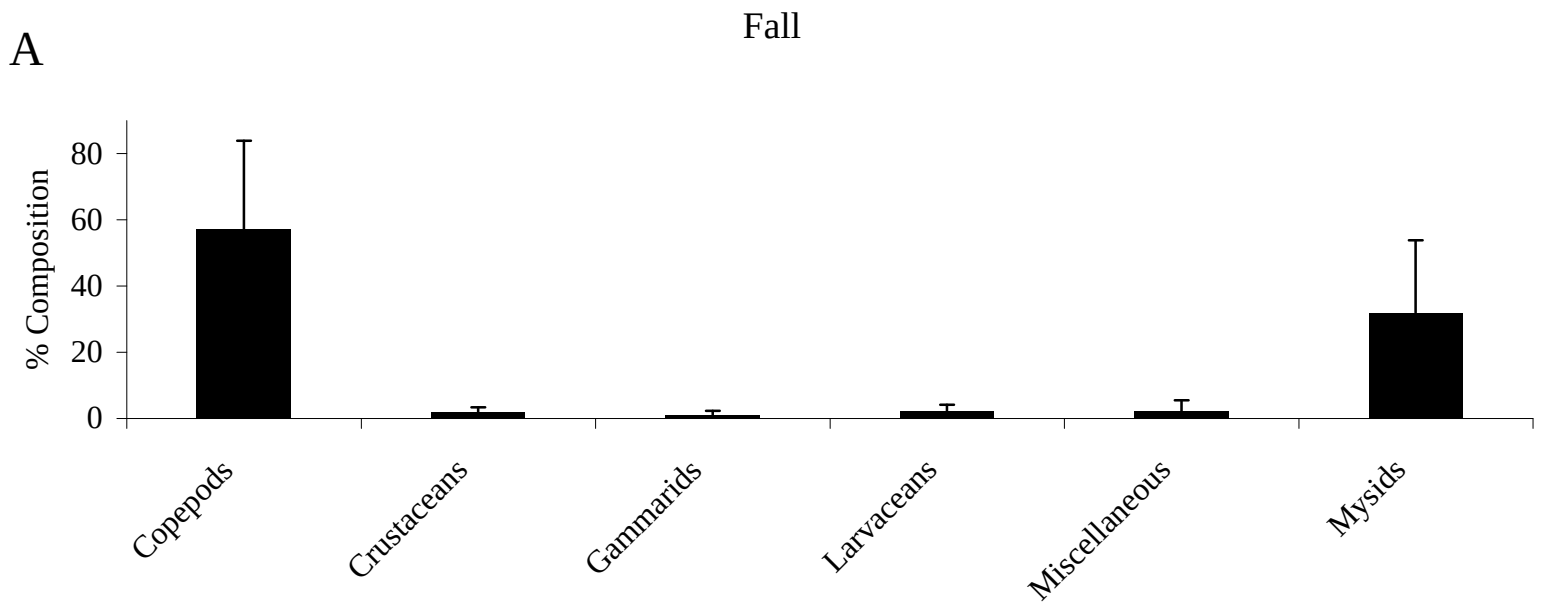

Figure 139A. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*) collected in the fall (n = 207).

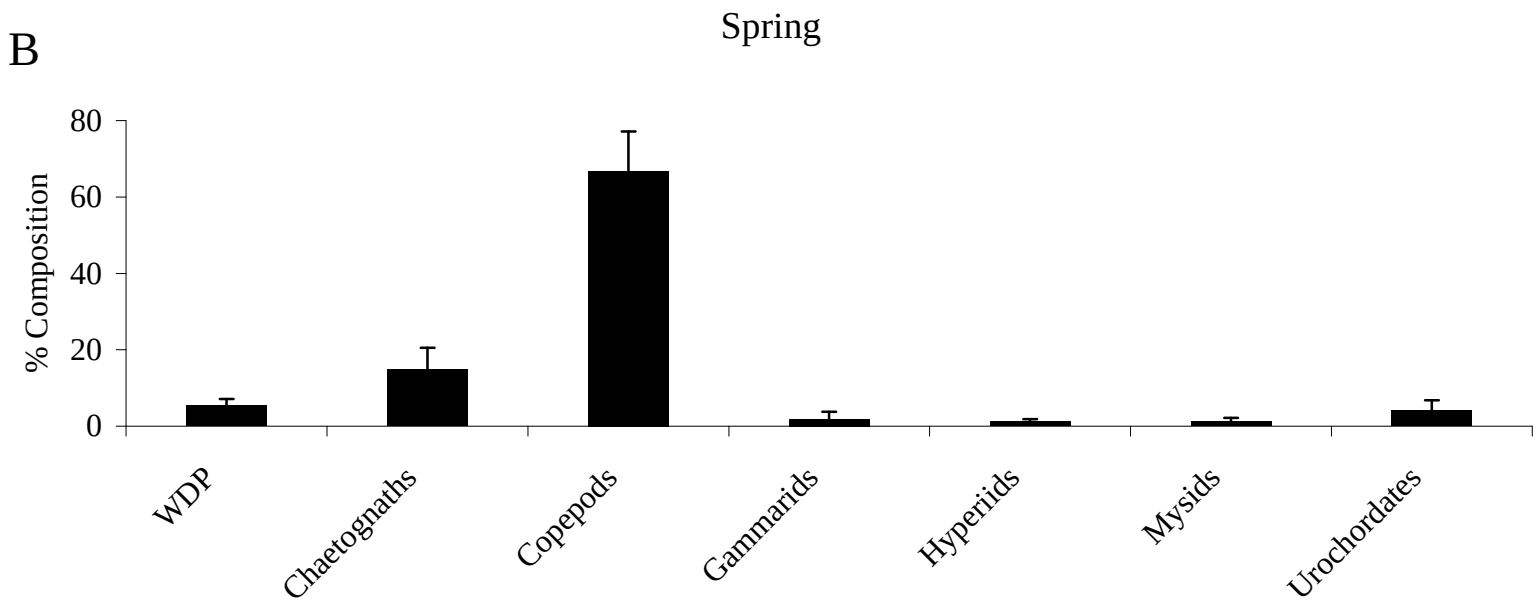

Figure 139B. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*) collected in the spring (n = 915). WDP = well-digested prey.

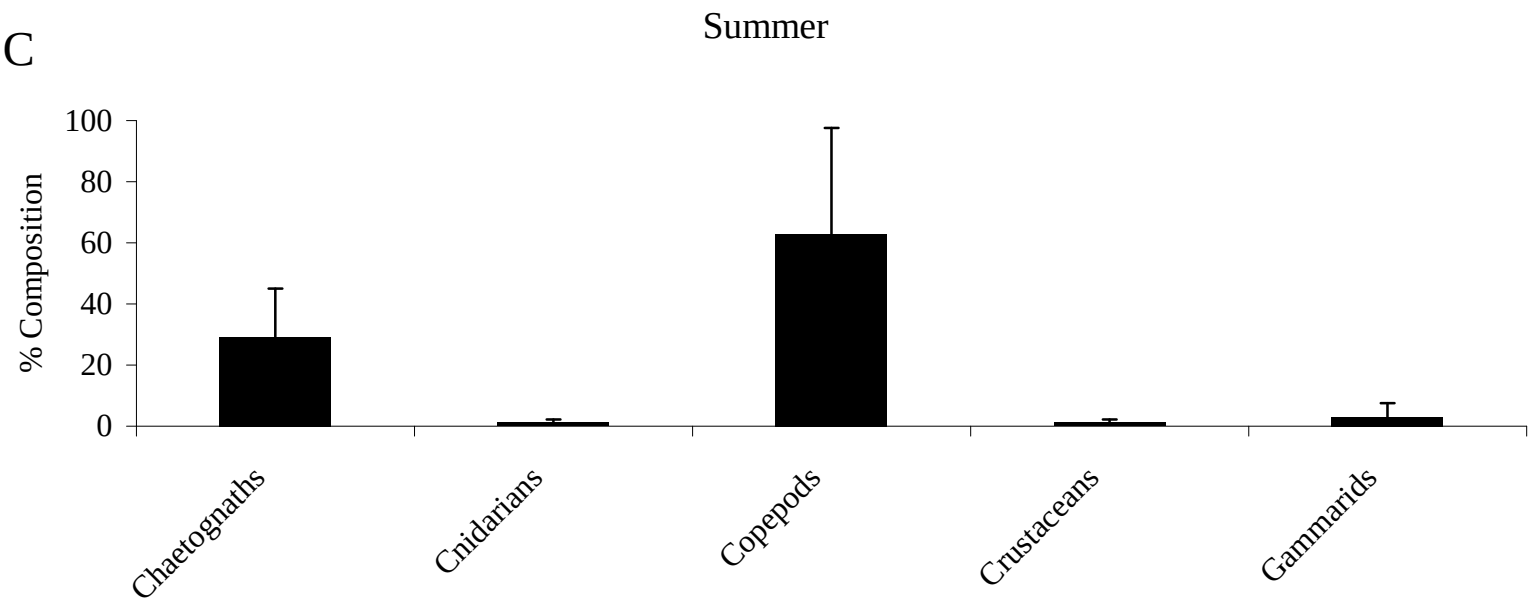

Figure 139C. Percent diet composition by weight of major prey taxa for northern sand lance (*Ammodytes dubius*) collected in the summer (n = 235).

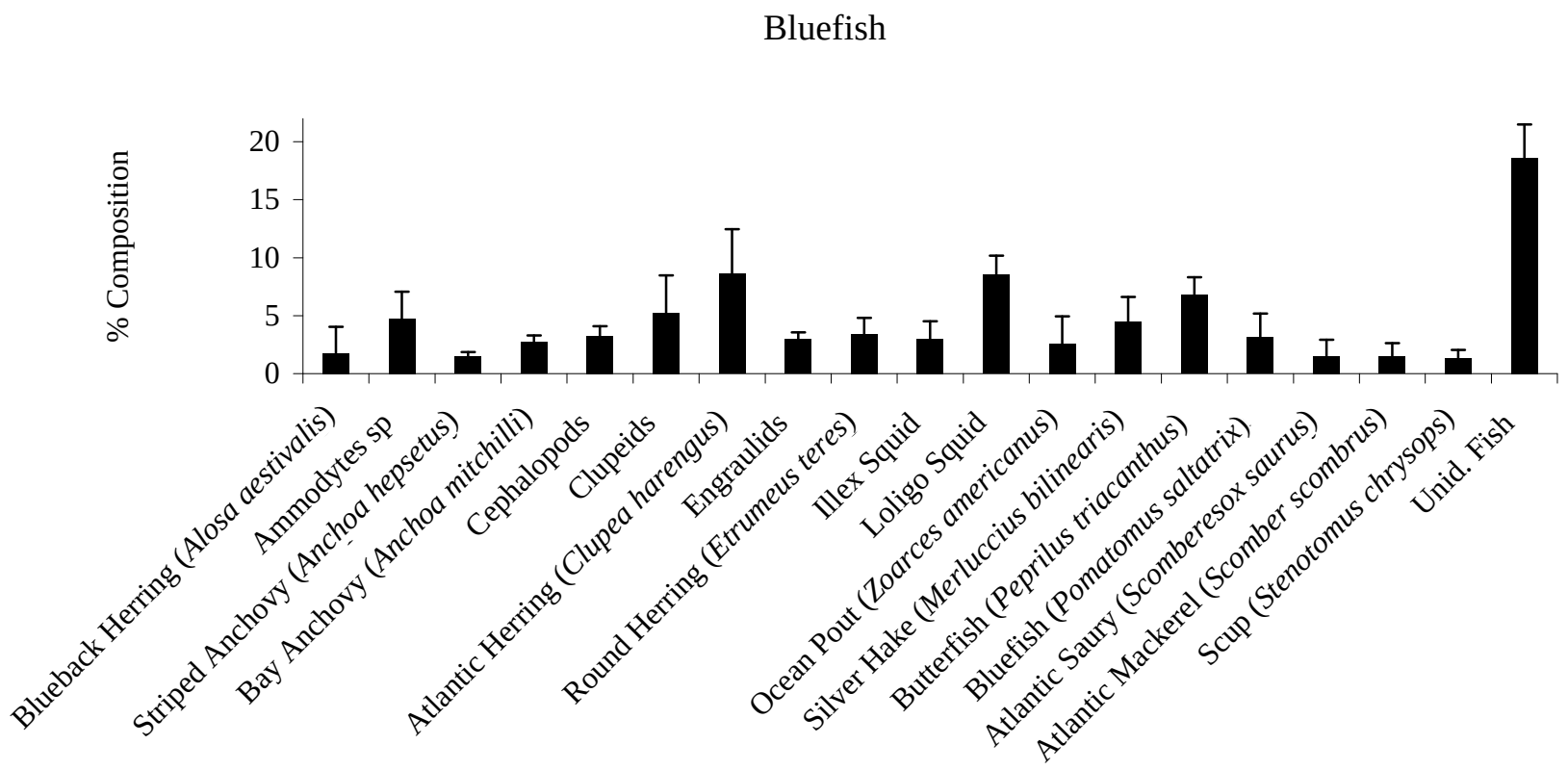

Figure 140. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*; n = 4,826). Unid. Fish = unidentified fish.

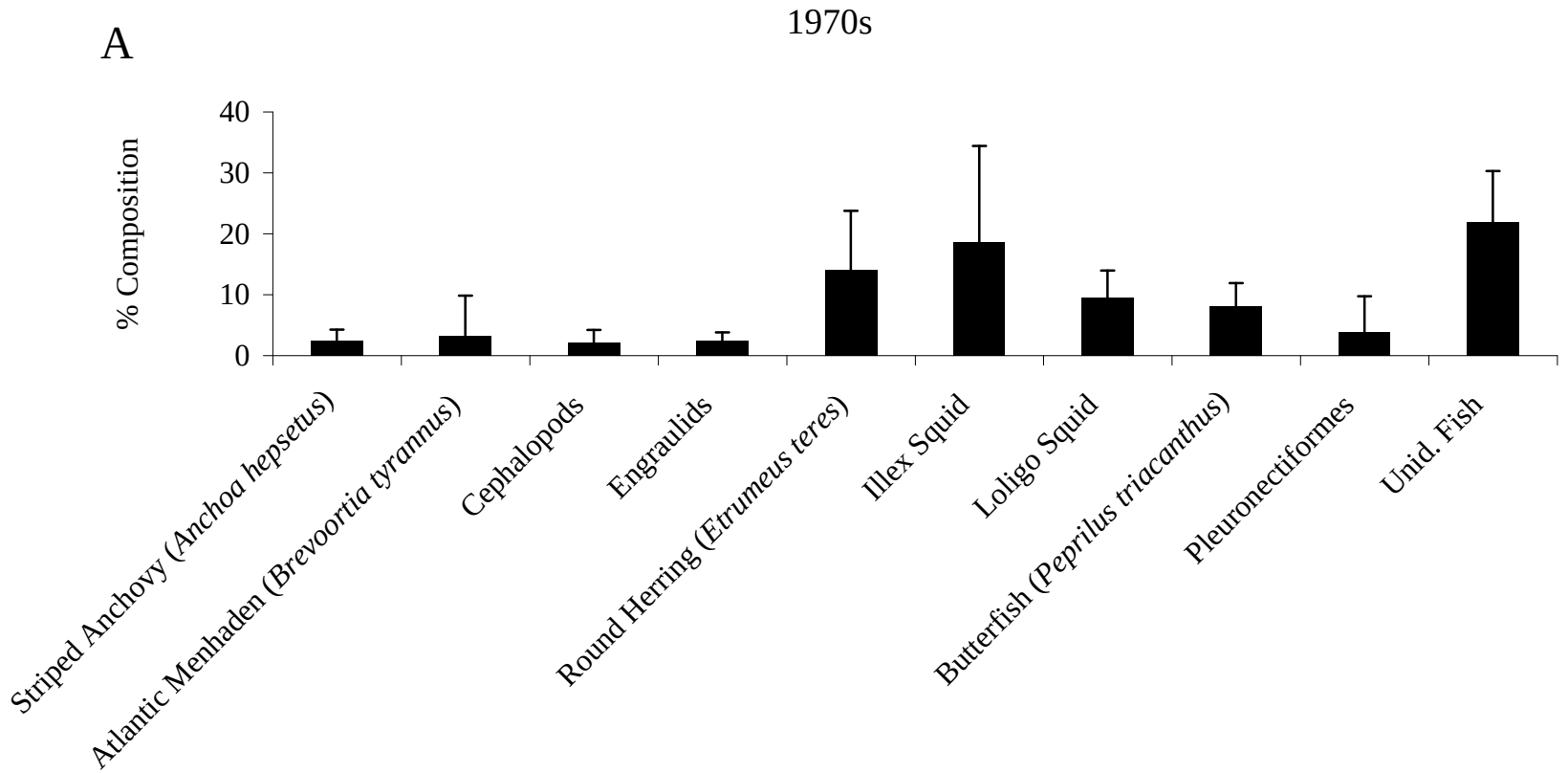

Figure 141A. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected in the 1970s (n = 433). Unid. Fish = unidentified fish.

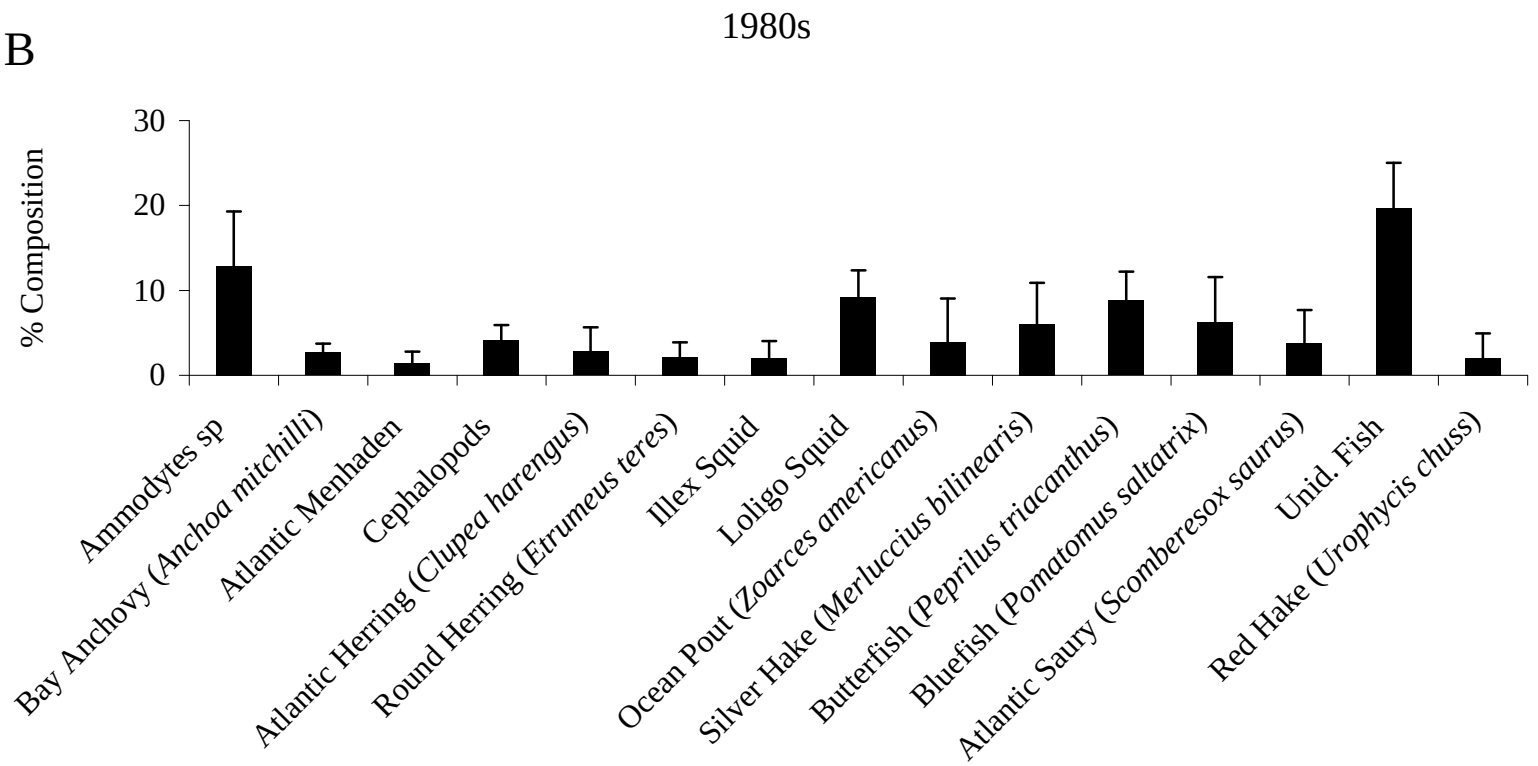

Figure 141B. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected in the 1980s (n = 1,575). Unid. Fish = unidentified fish.

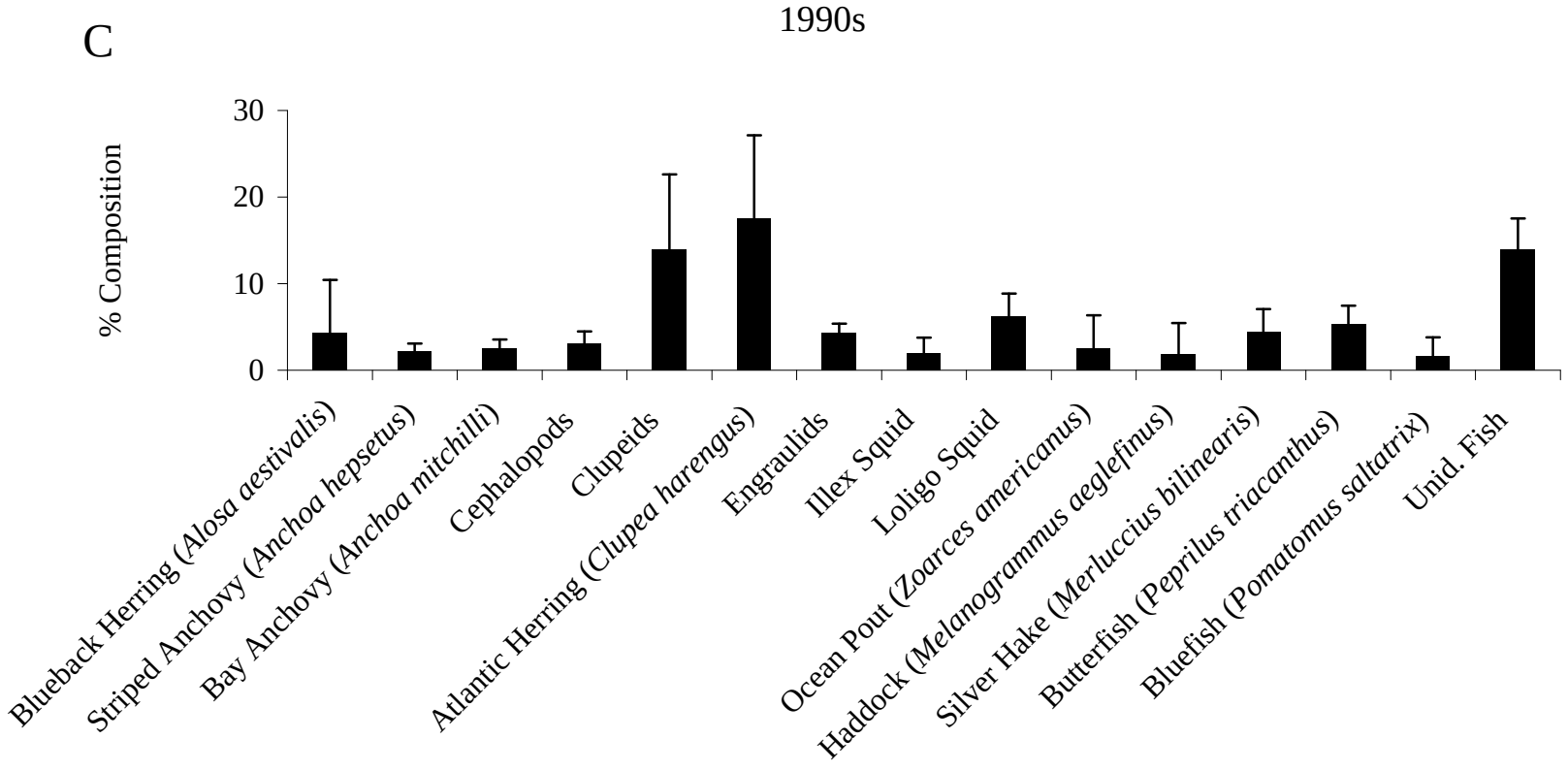

Figure 141C. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected in the 1990s (n = 1,616). Unid. Fish = unidentified fish.

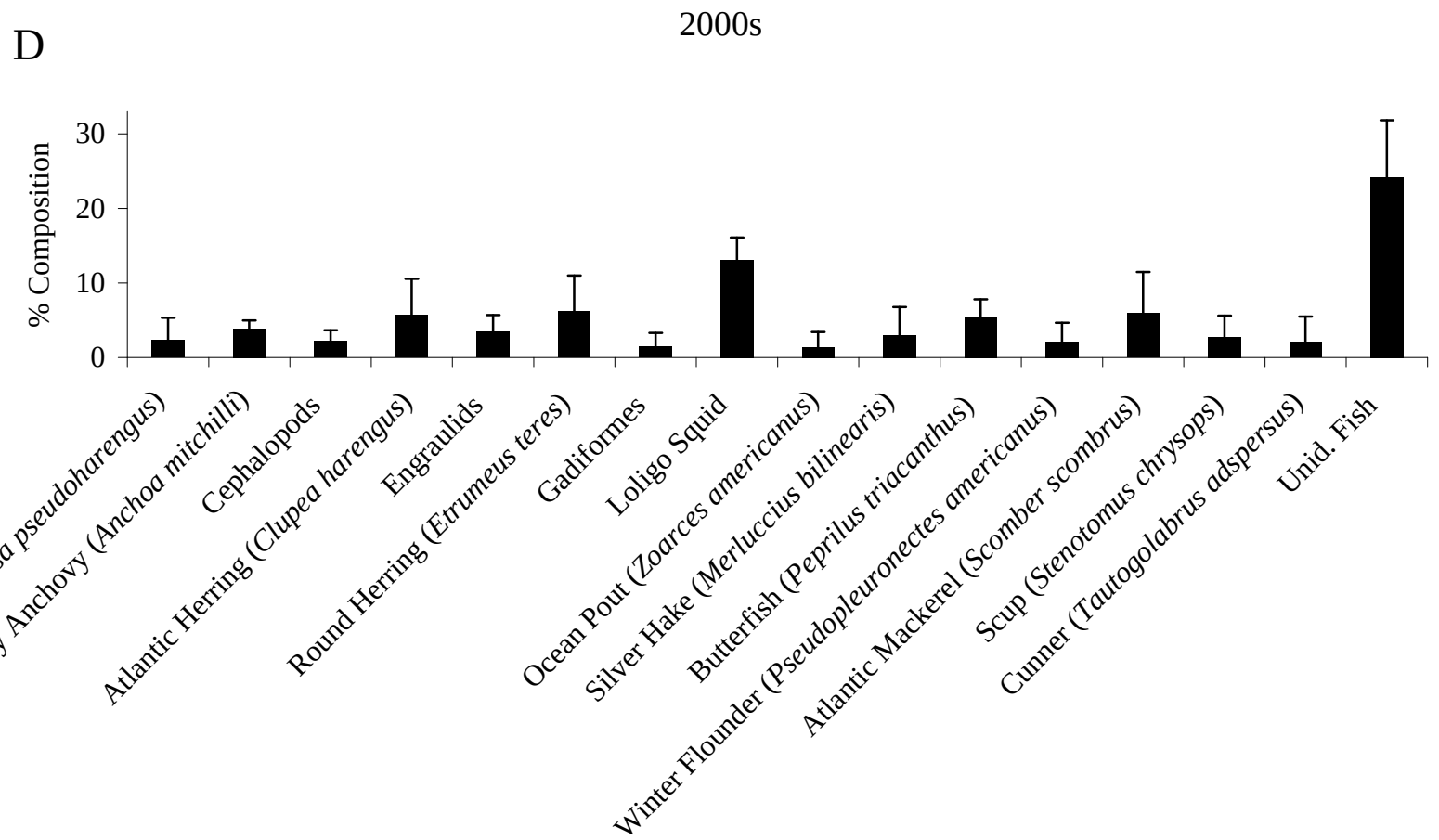

Figure 141D. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected in the 2000s (n = 1,202). Unid. Fish = unidentified fish.

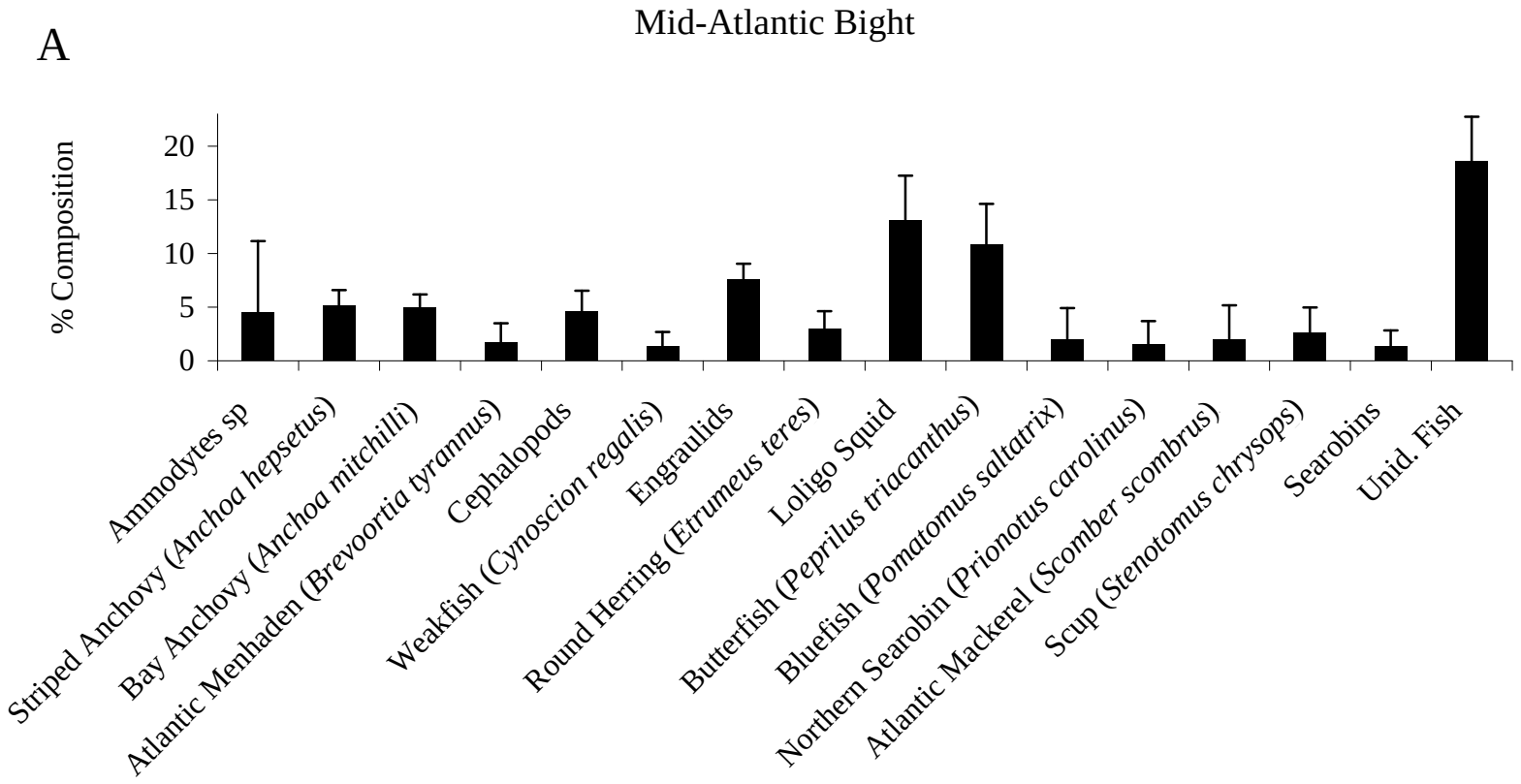

Figure 142A. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected in the Mid-Atlantic Bight (n = 2,763). Unid. Fish = unidentified fish.

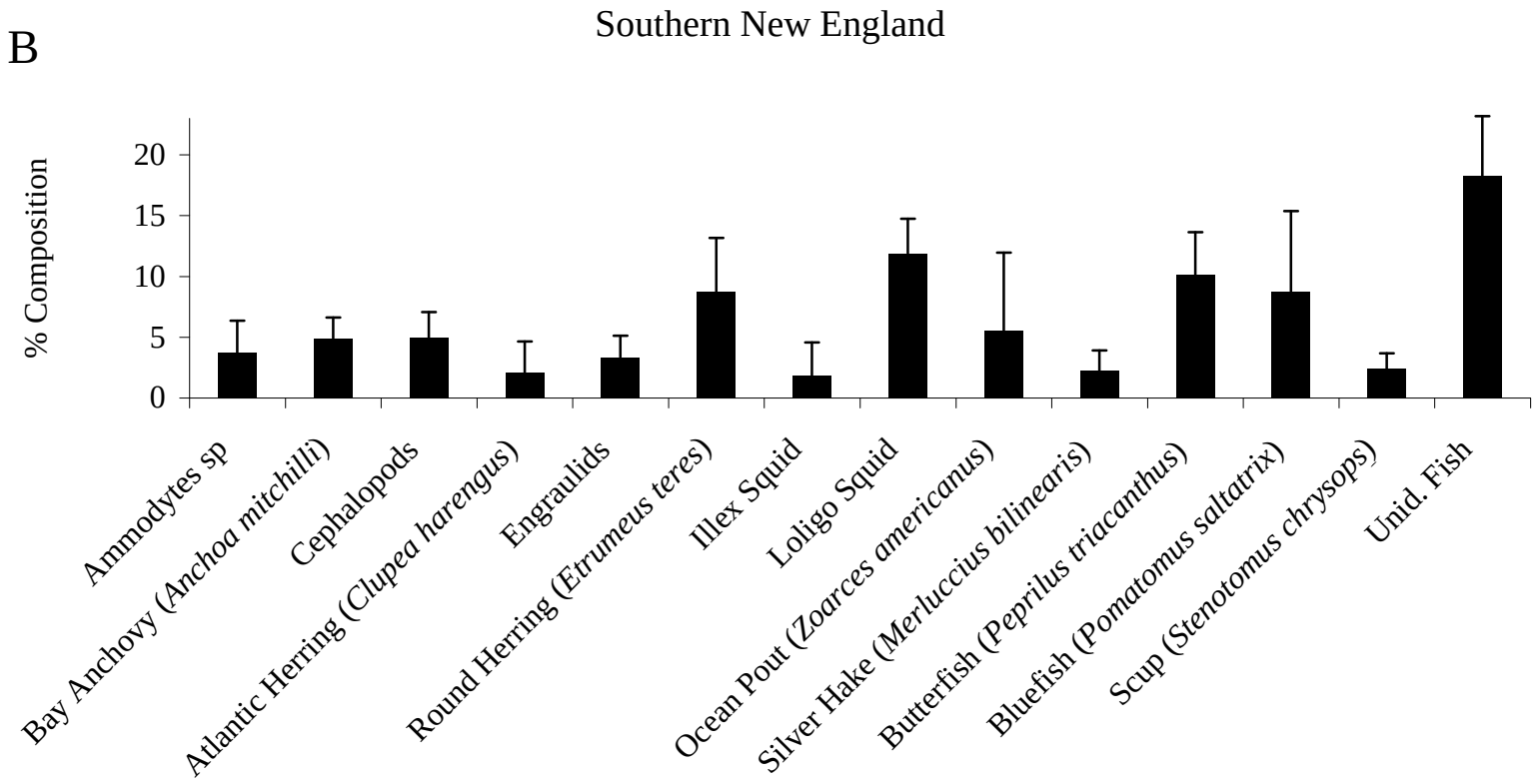

Figure 142B. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected in Southern New England (n = 1,296). Unid. Fish = unidentified fish.

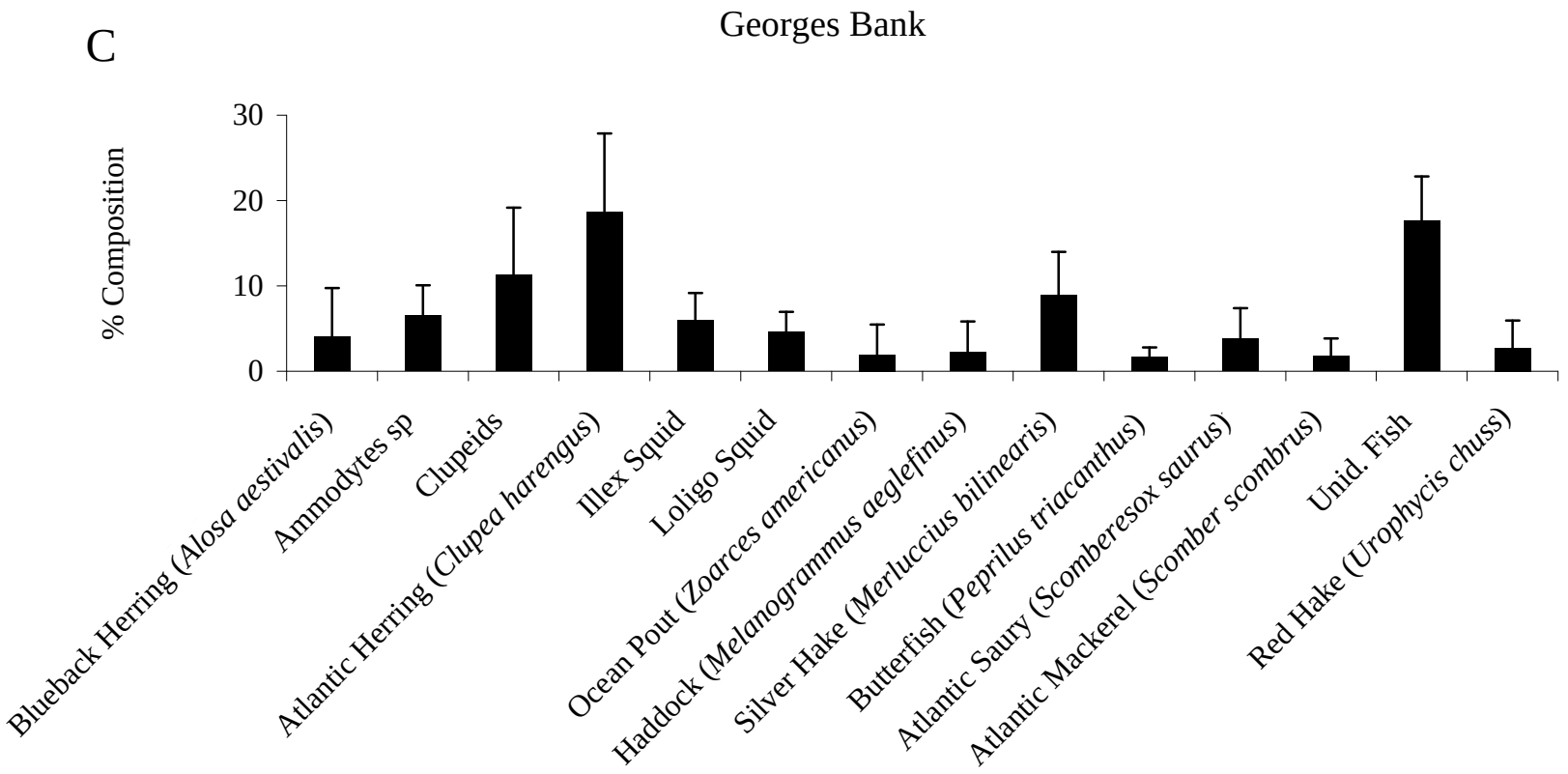

Figure 142C. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected on Georges Bank (n = 472). Unid. Fish = unidentified fish.

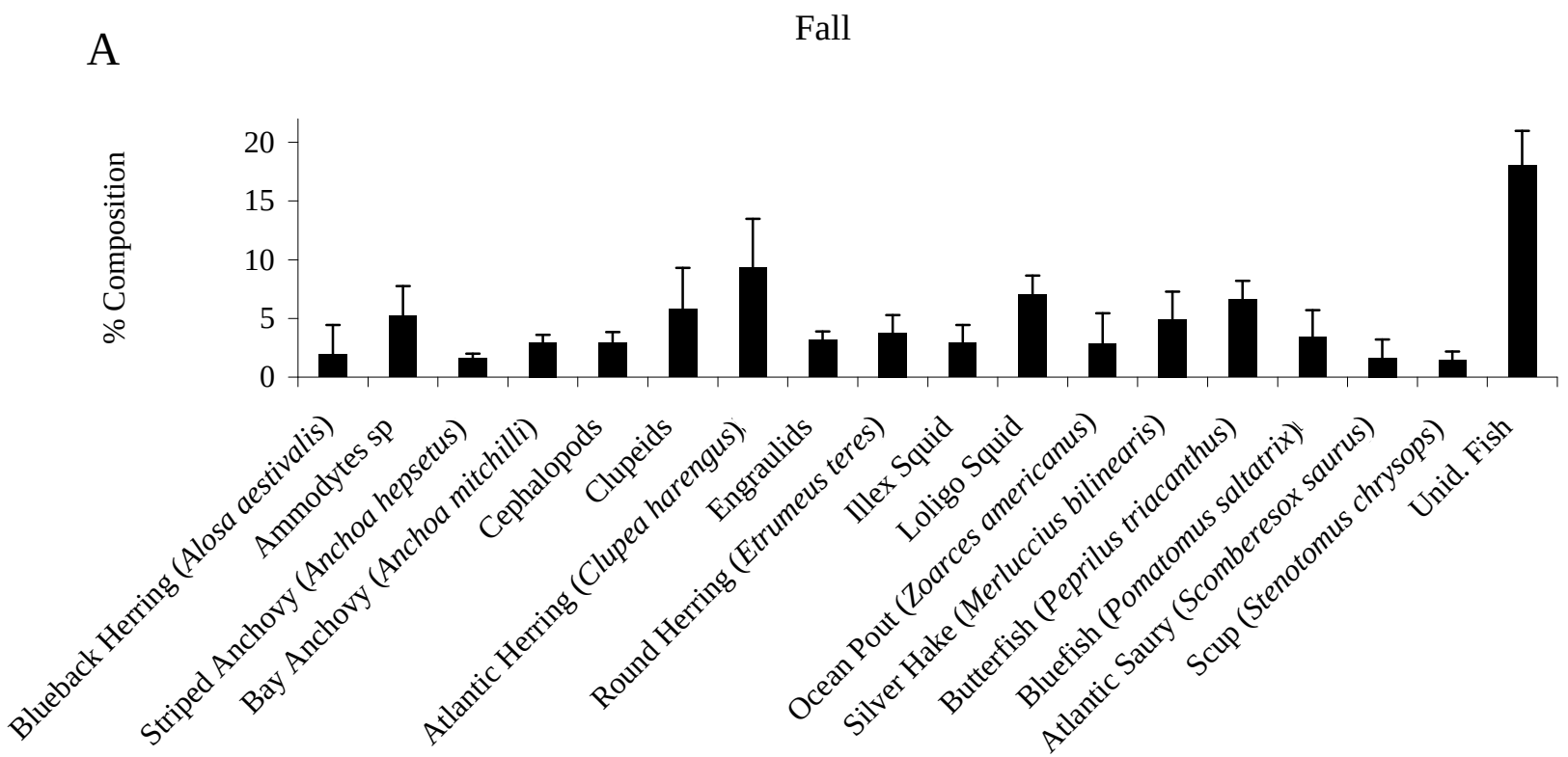

Figure 143A. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected in the fall (n = 4,312). Unid. Fish = unidentified fish.

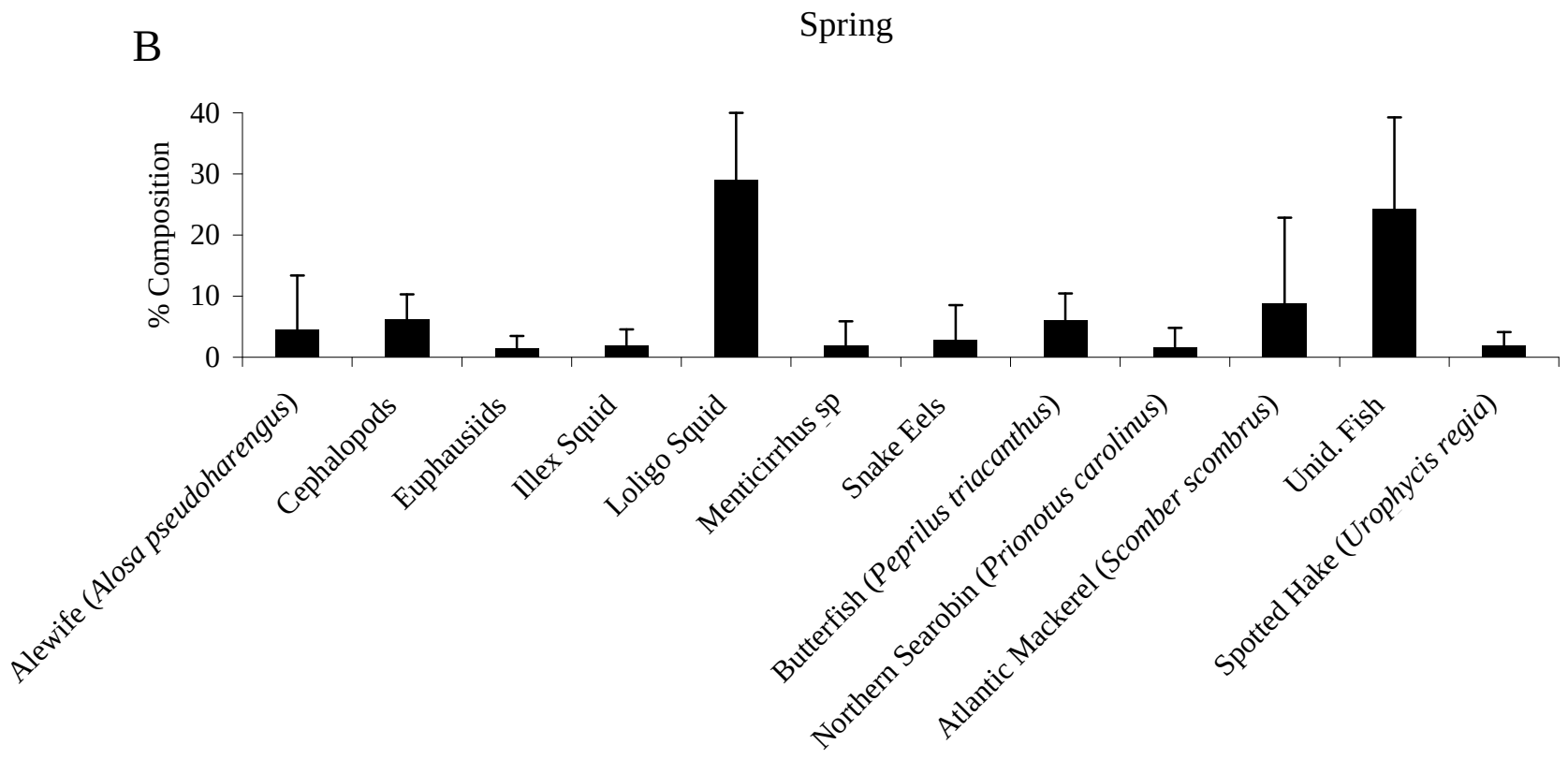

Figure 143B. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) collected in the spring (n = 237). Unid. Fish = unidentified fish.

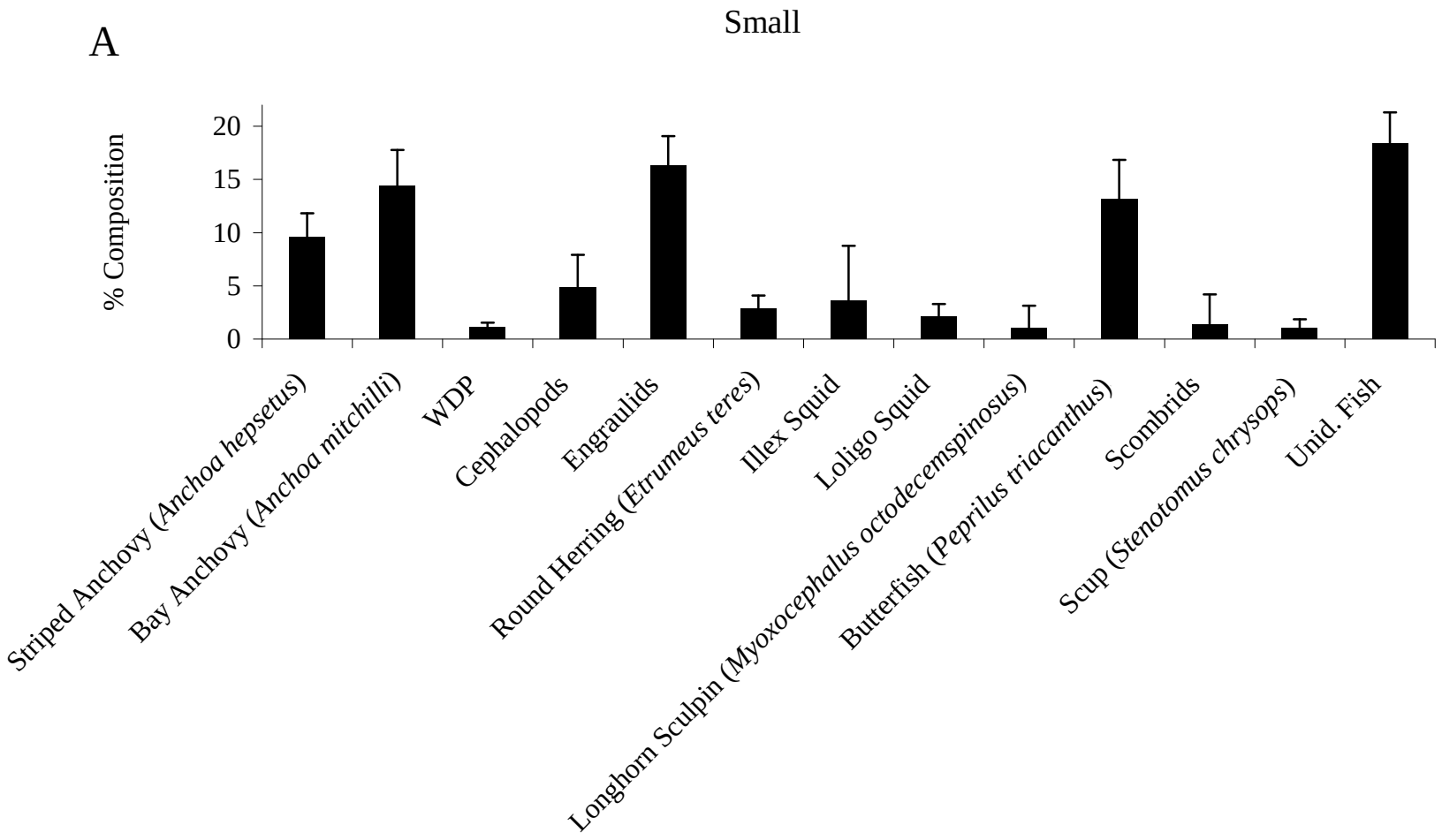

Figure 144A. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) in the small size class (n = 2,645). WDP = well-digested prey; Unid. Fish = unidentified fish.

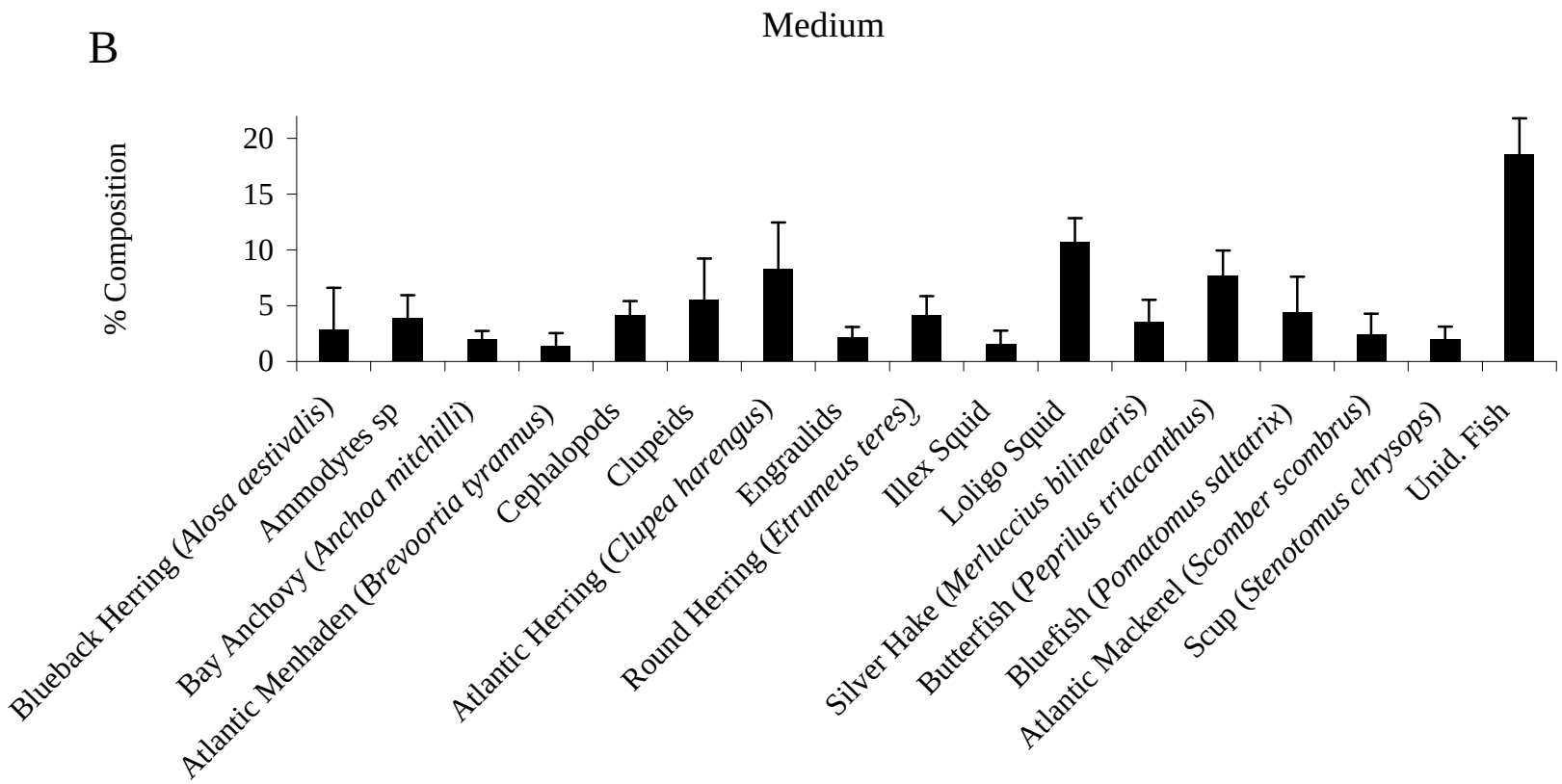

Figure 144B. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) in the medium size class (n = 1,882). Unid. Fish = unidentified fish.

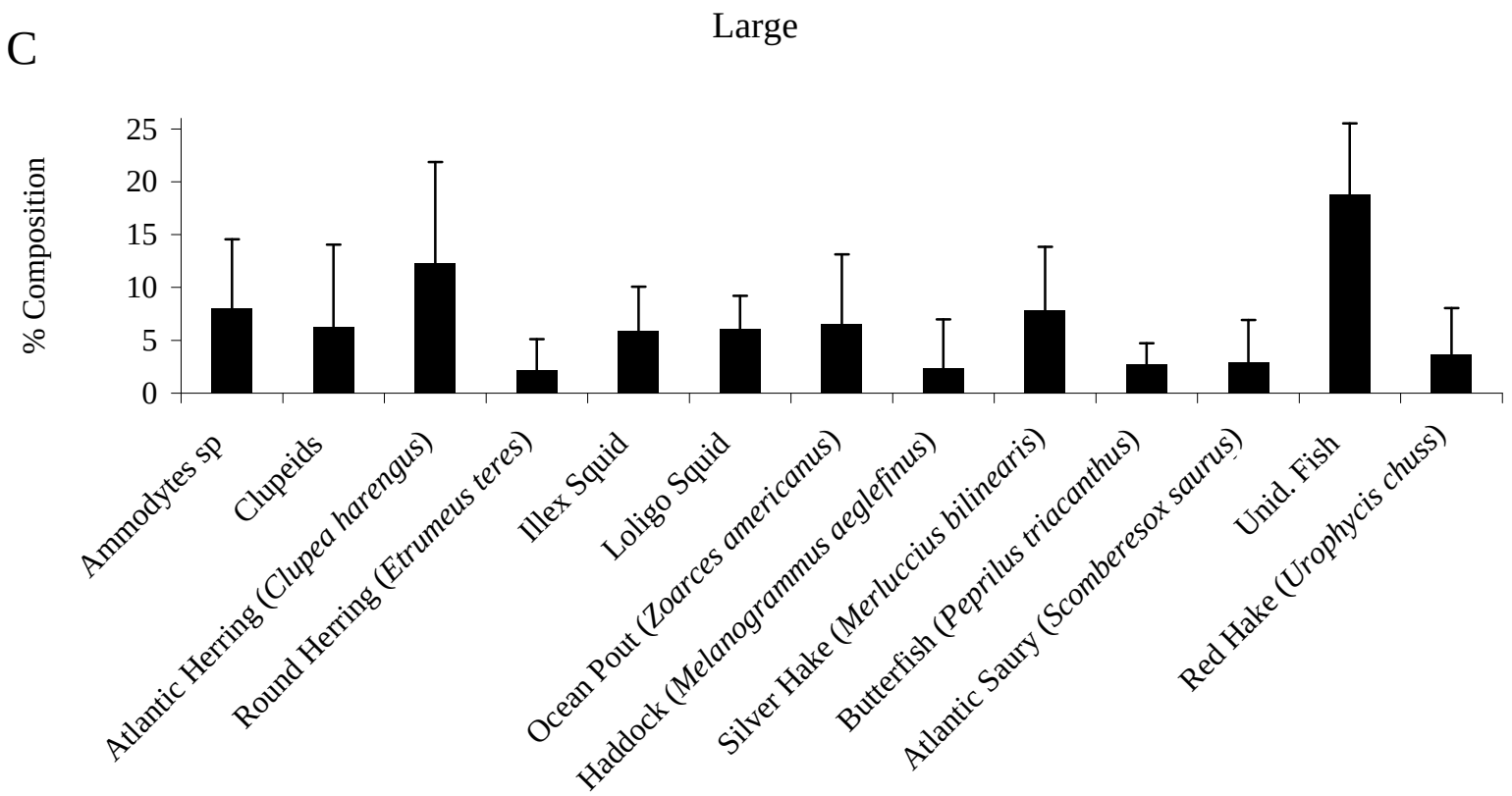

Figure 144C. Percent diet composition by weight of major prey taxa for bluefish (*Pomatomus saltatrix*) in the large size class (n = 299). Unid. Fish = unidentified fish.

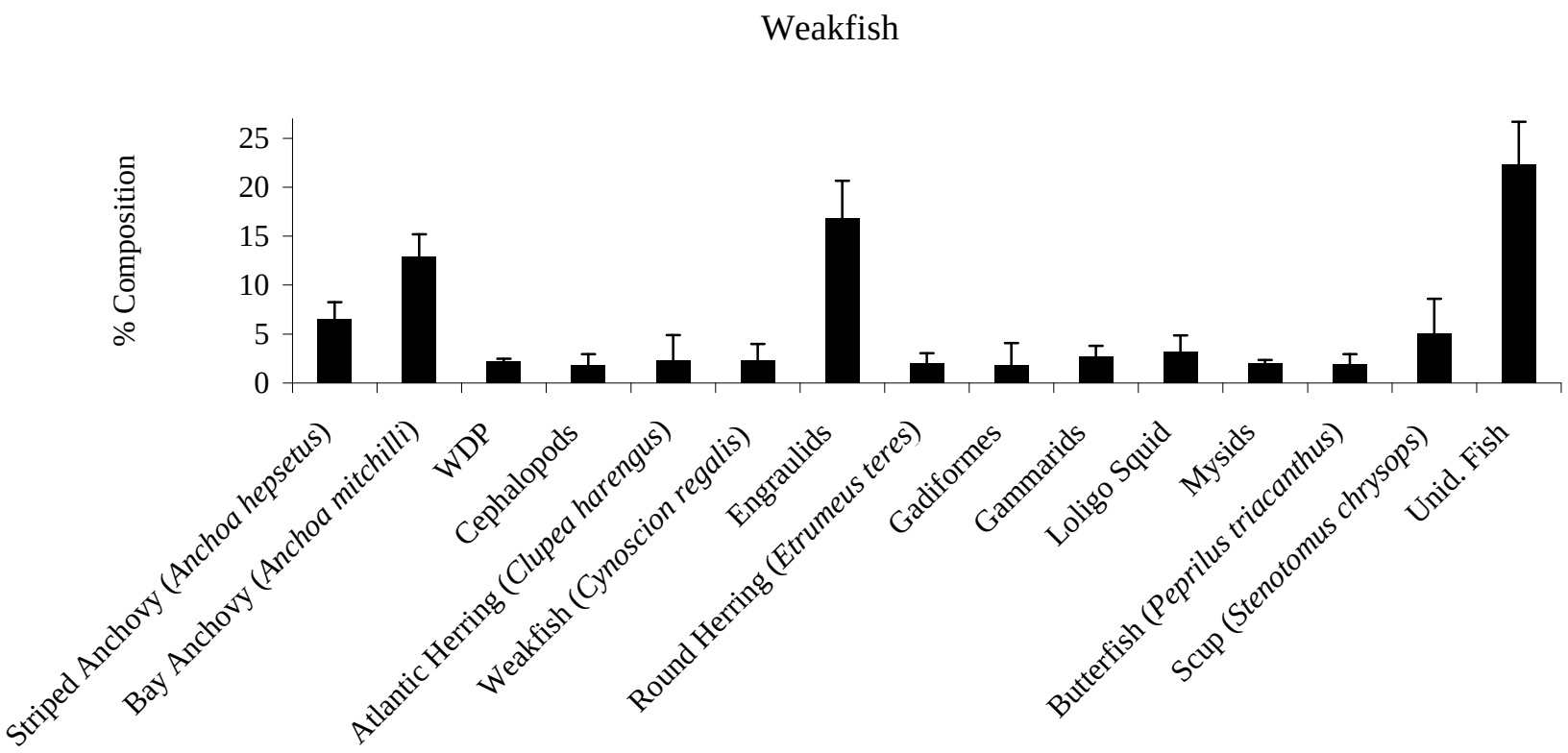

Figure 145. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*; n = 5,117). WDP = well-digested prey; Unid. Fish = unidentified fish.

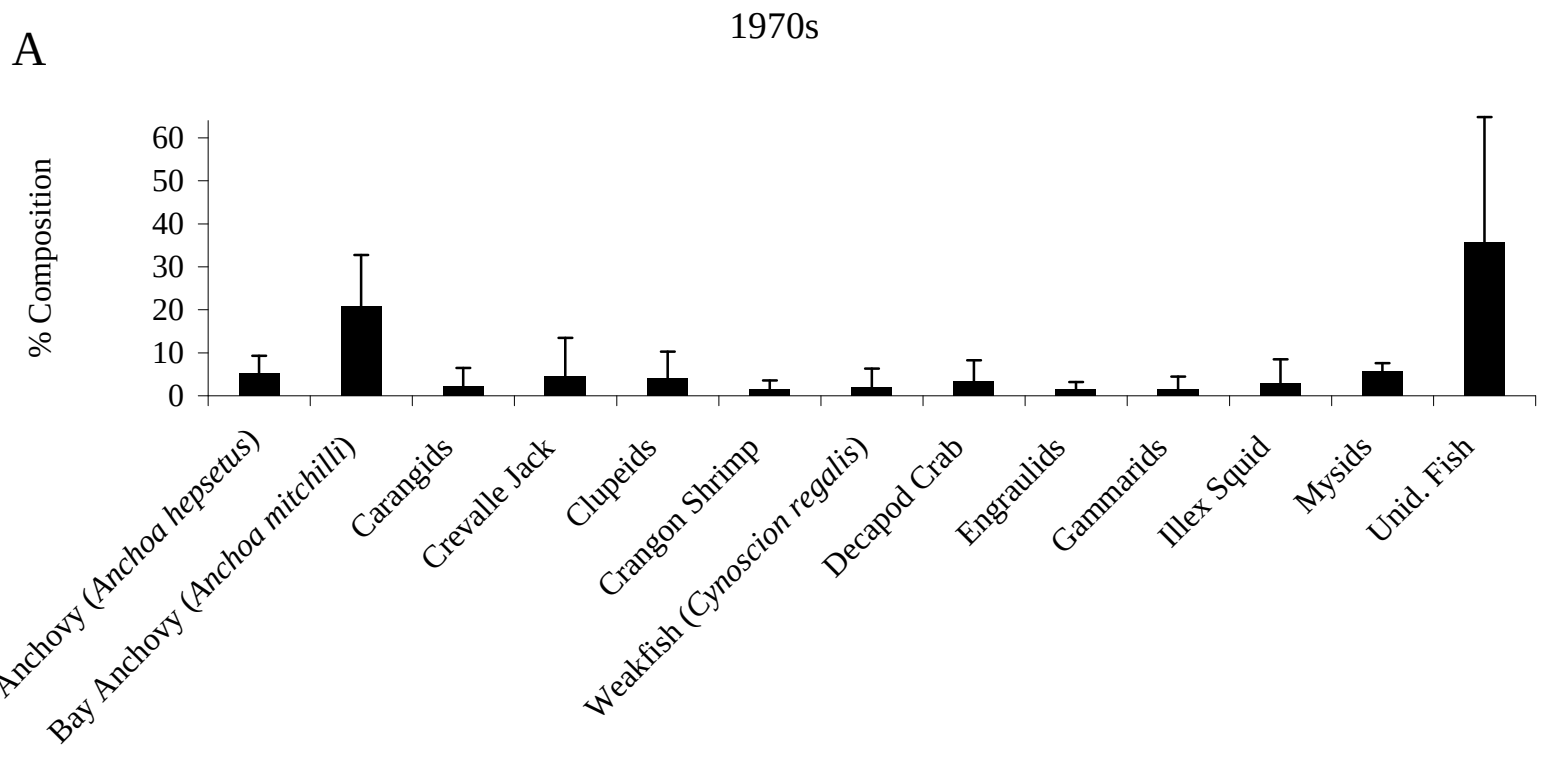

Figure 146A. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) collected in the 1970s (n = 316). Unid. Fish = unidentified fish.

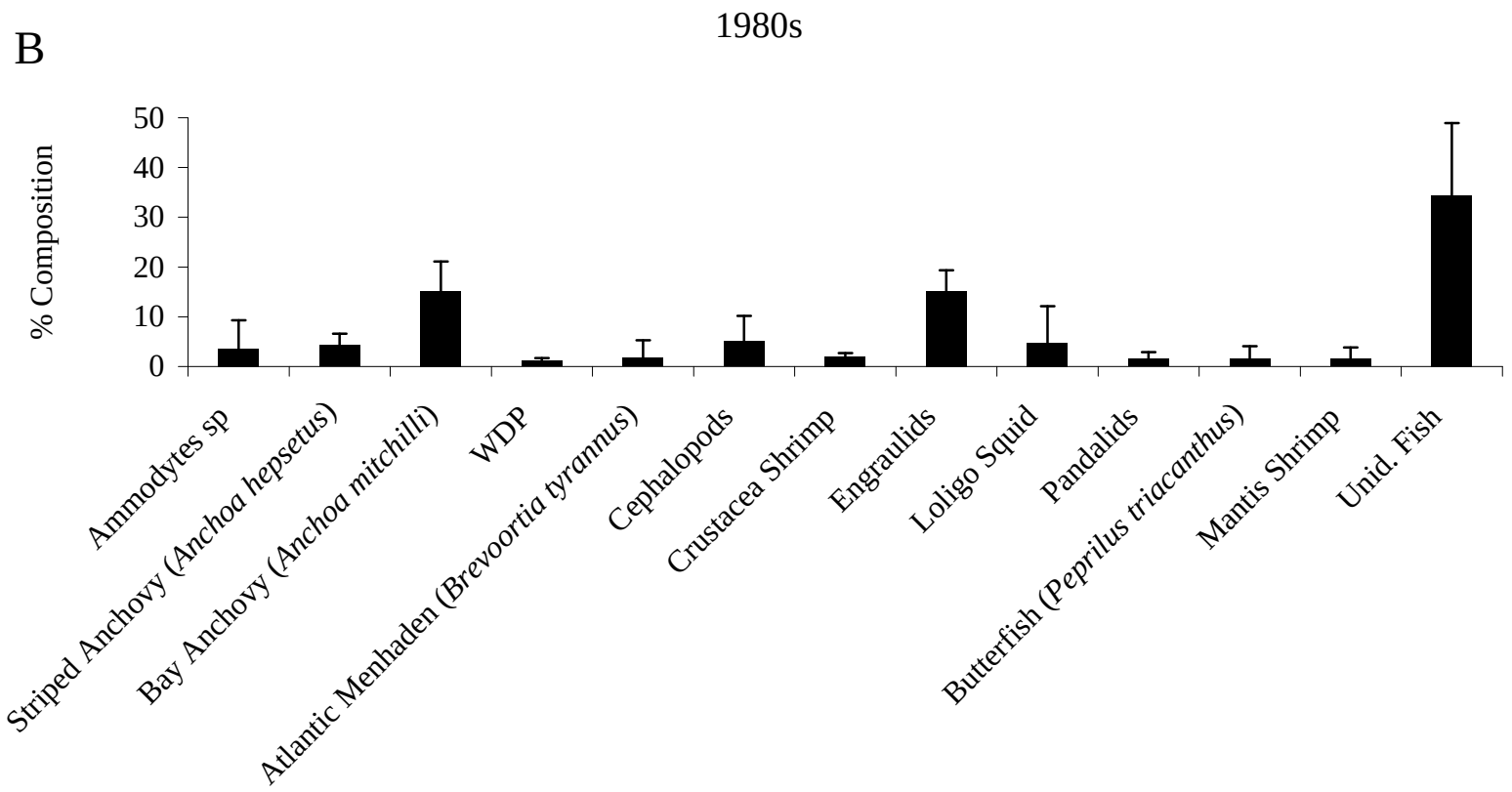

Figure 146B. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) collected in the 1980s (n = 739). WDP = well-digested prey; Unid. Fish = unidentified fish.

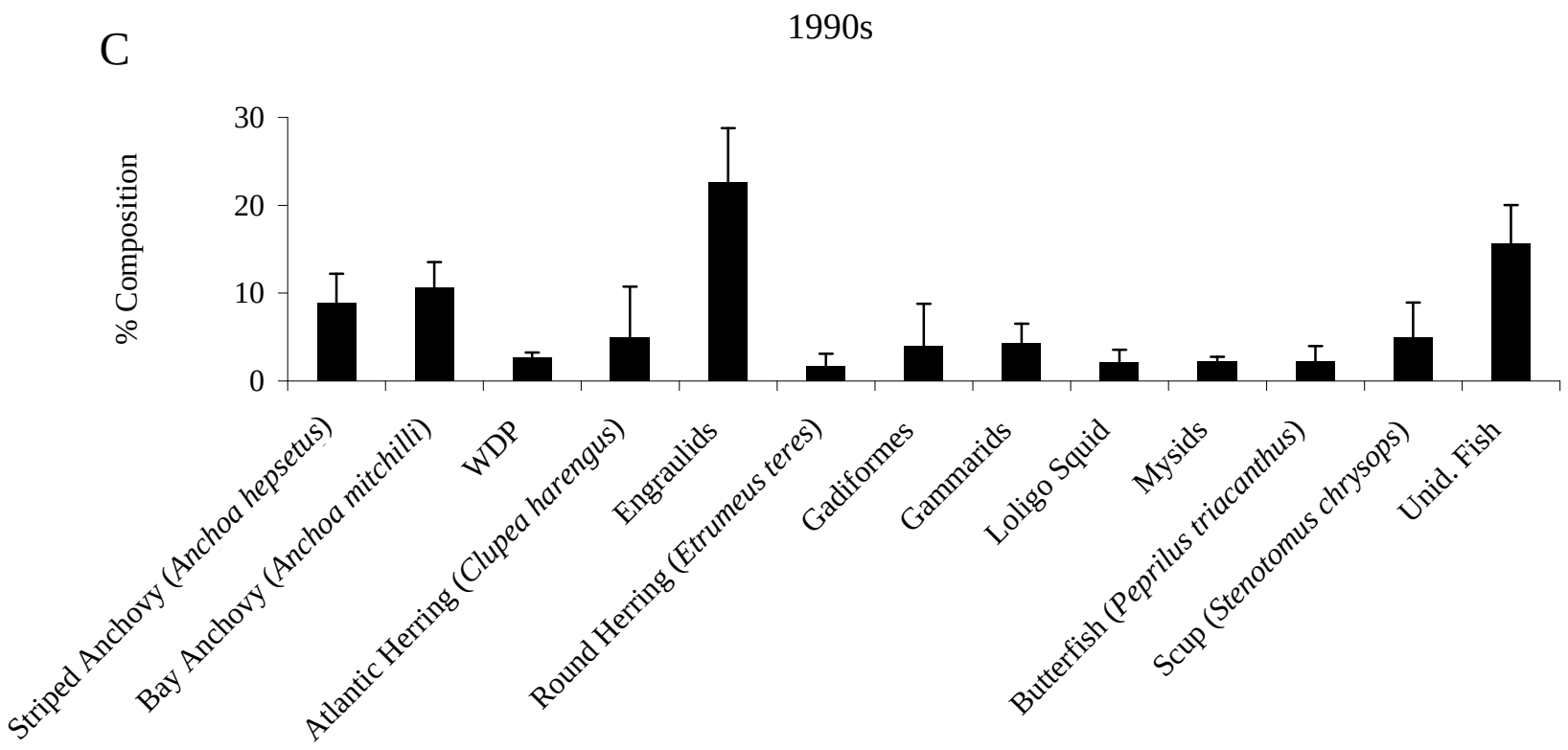

Figure 146C. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) collected in the 1990s (n = 2,575). WDP = well-digested prey; Unid. Fish = unidentified fish.

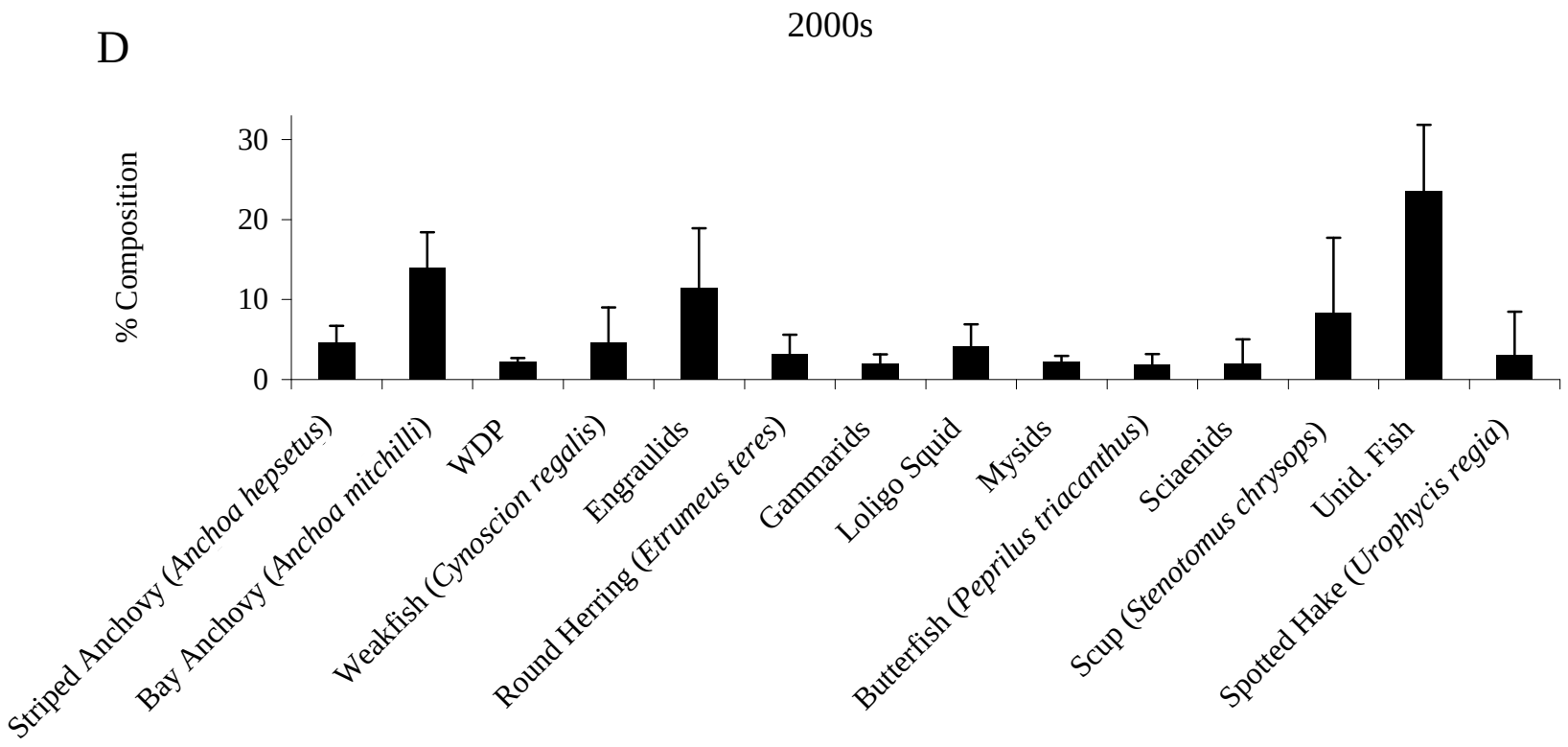

Figure 146D. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) collected in the 2000s (n = 1,487). WDP = well-digested prey; Unid. Fish = unidentified fish.

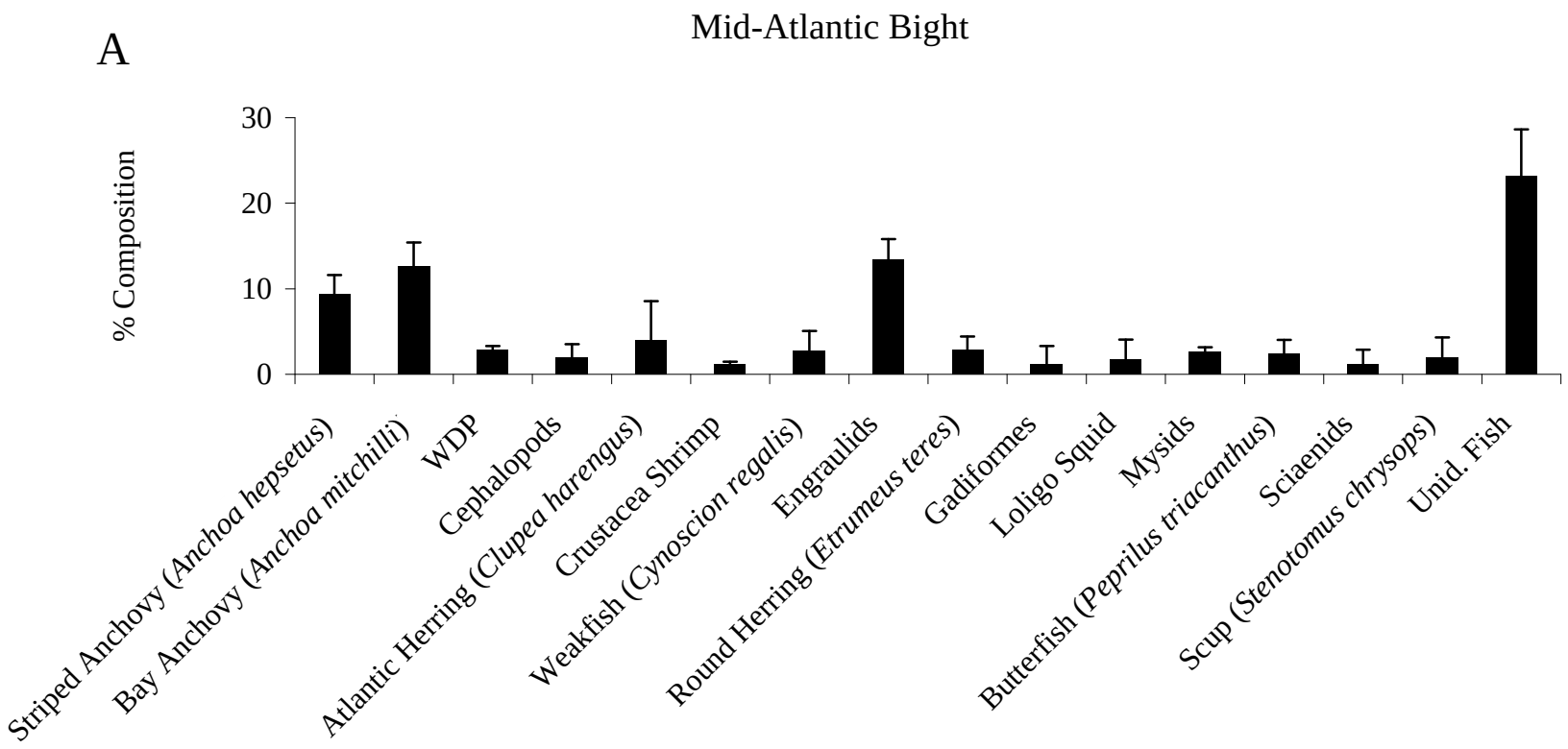

Figure 147A. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) collected in the Mid-Atlantic Bight (n = 4,014). WDP = well-digested prey; Unid. Fish = unidentified fish.

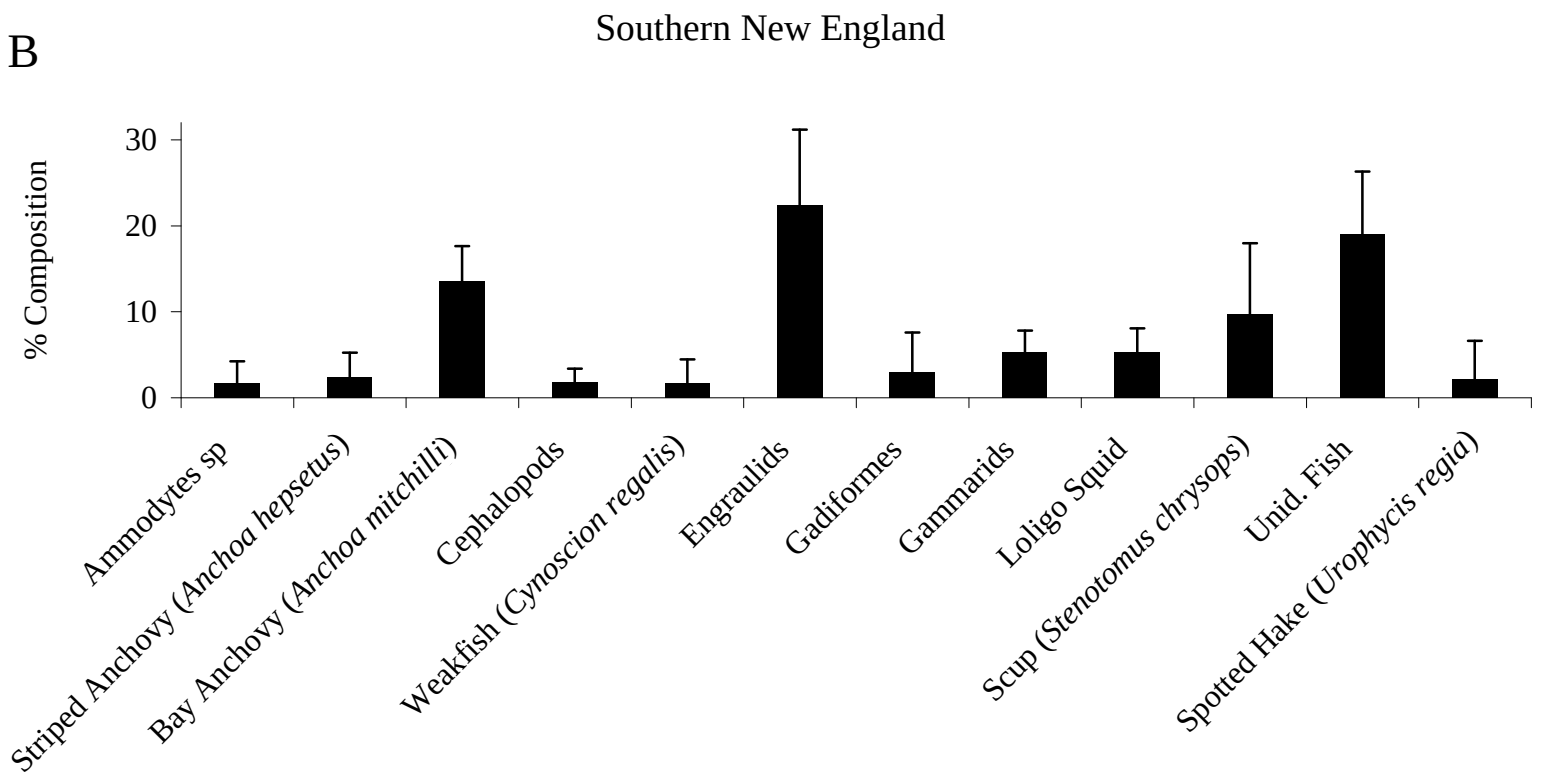

Figure 147B. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) collected in Southern New England (n = 740). Unid. Fish = unidentified fish.

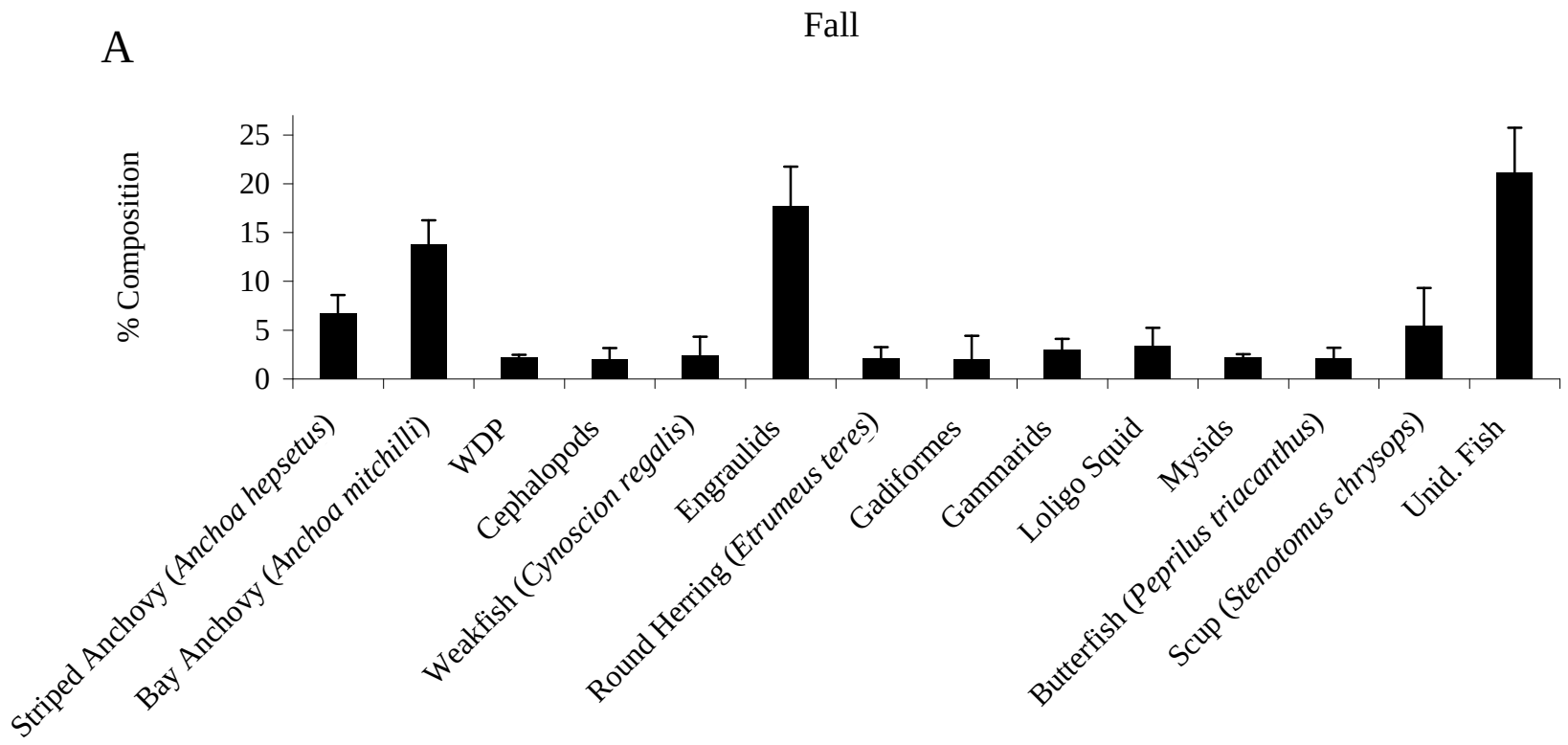

Figure 148A. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) collected in the fall (n = 4,433). WDP = well-digested prey; Unid. Fish = unidentified fish.

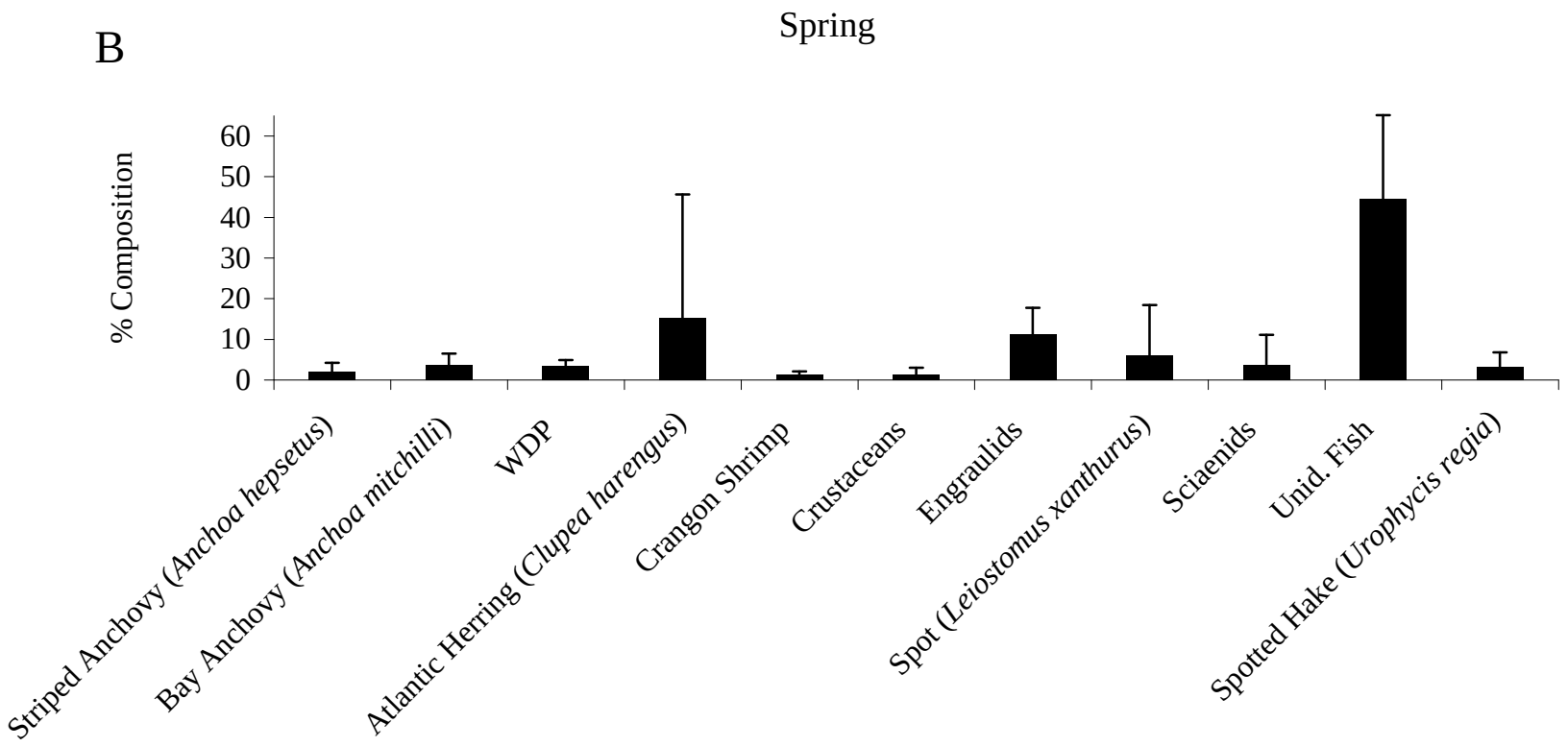

Figure 148B. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) collected in the spring (n = 532). WDP = well-digested prey; Unid. Fish = unidentified fish.

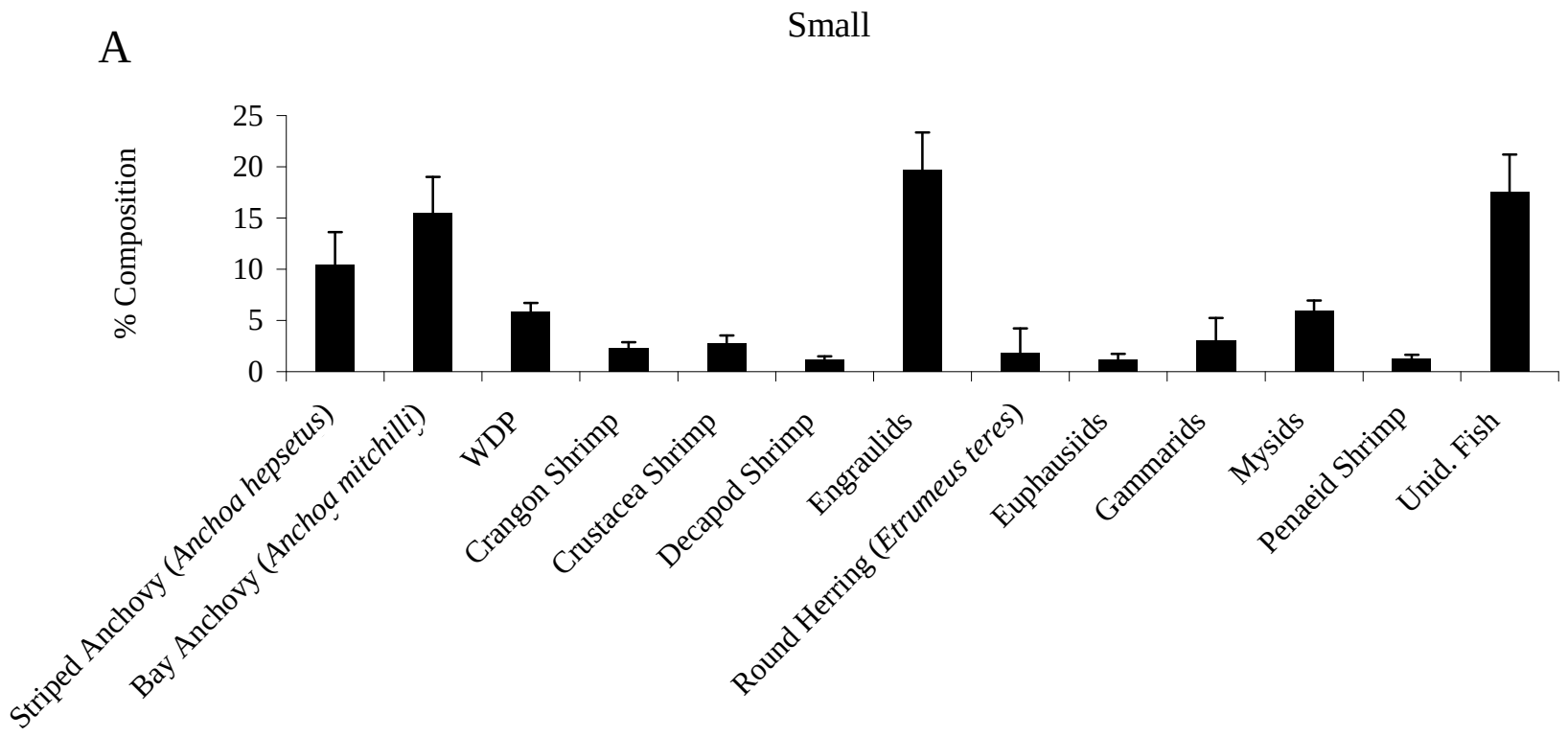

Figure 149A. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) in the small size class (n = 2,925). WDP = well-digested prey; Unid. Fish = unidentified fish.

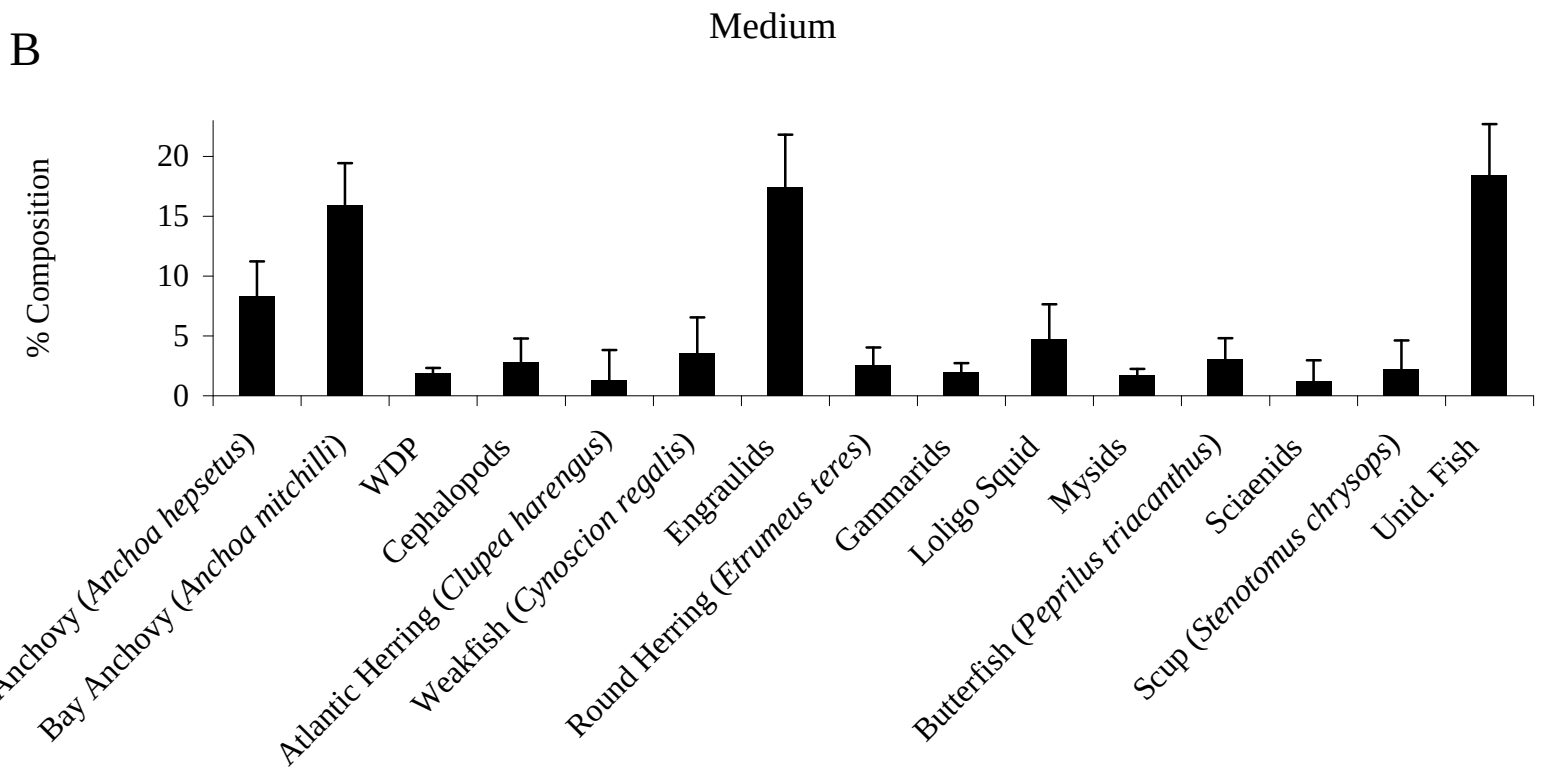

Figure 149B. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) in the medium size class (n = 1,989). WDP = well-digested prey; Unid. Fish = unidentified fish.

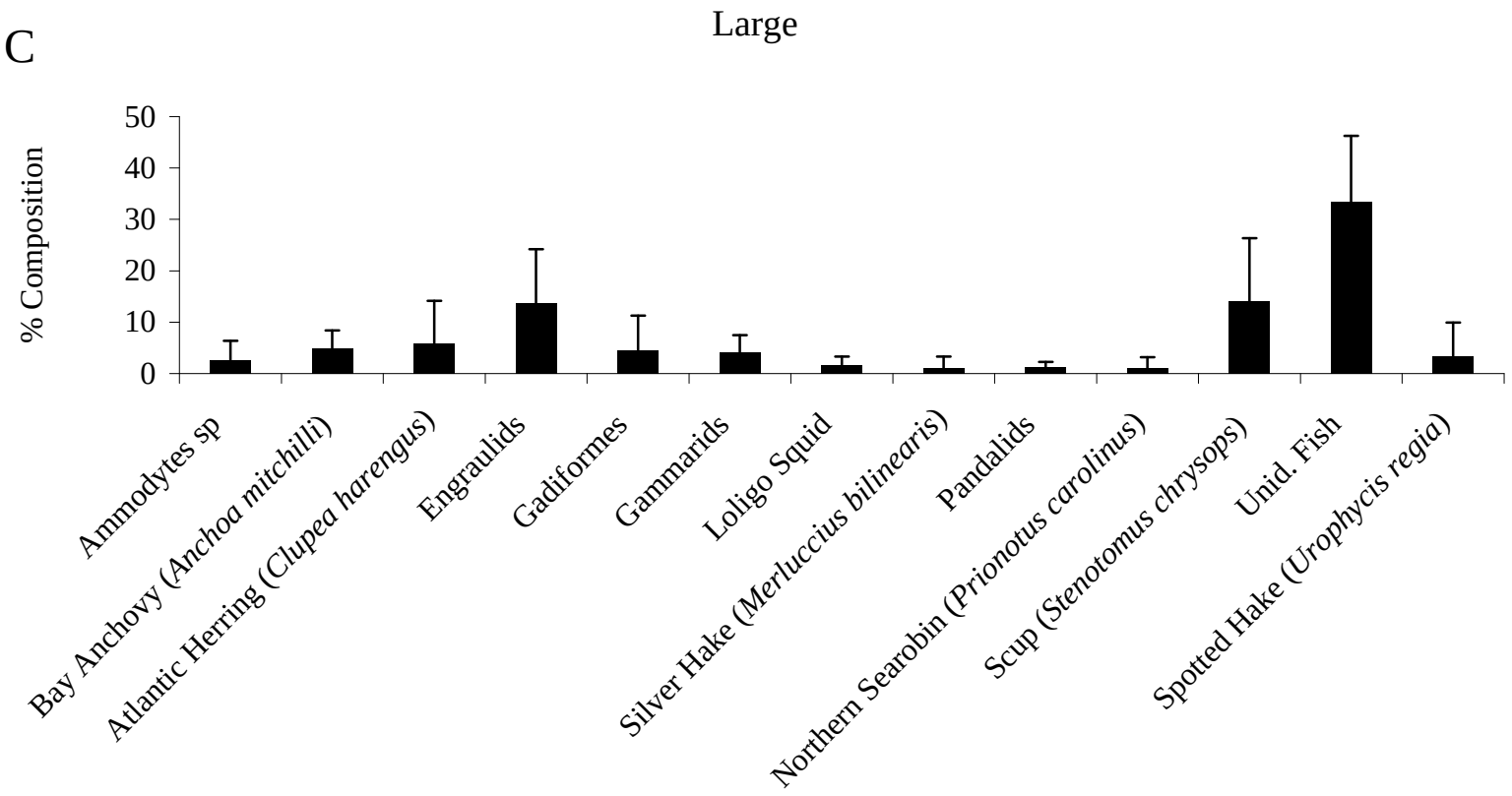

Figure 149C. Percent diet composition by weight of major prey taxa for weakfish (*Cynoscion regalis*) in the large size class (n = 203). Unid. Fish = unidentified fish.

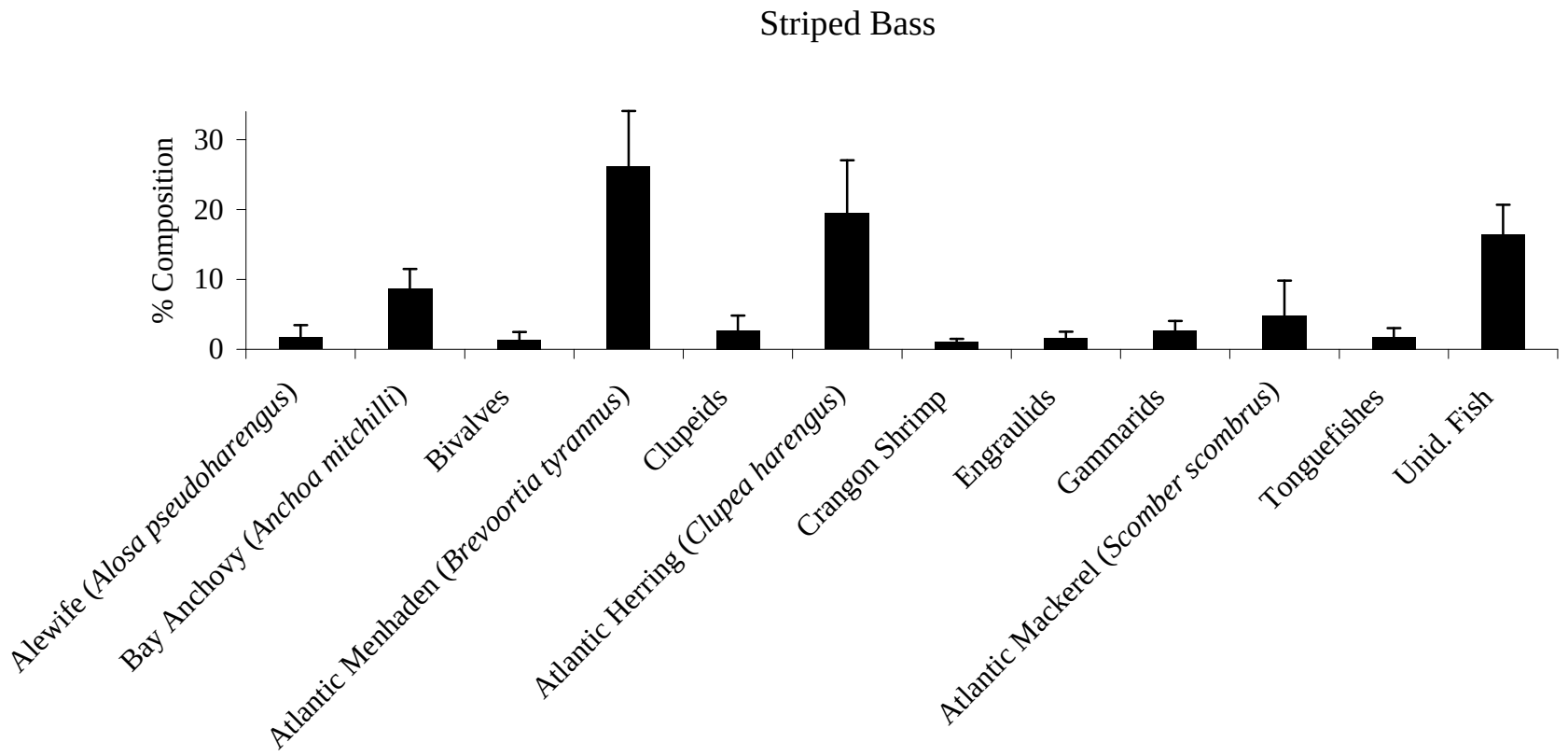

Figure 150. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*; n = 1,089). Unid. Fish = unidentified fish.

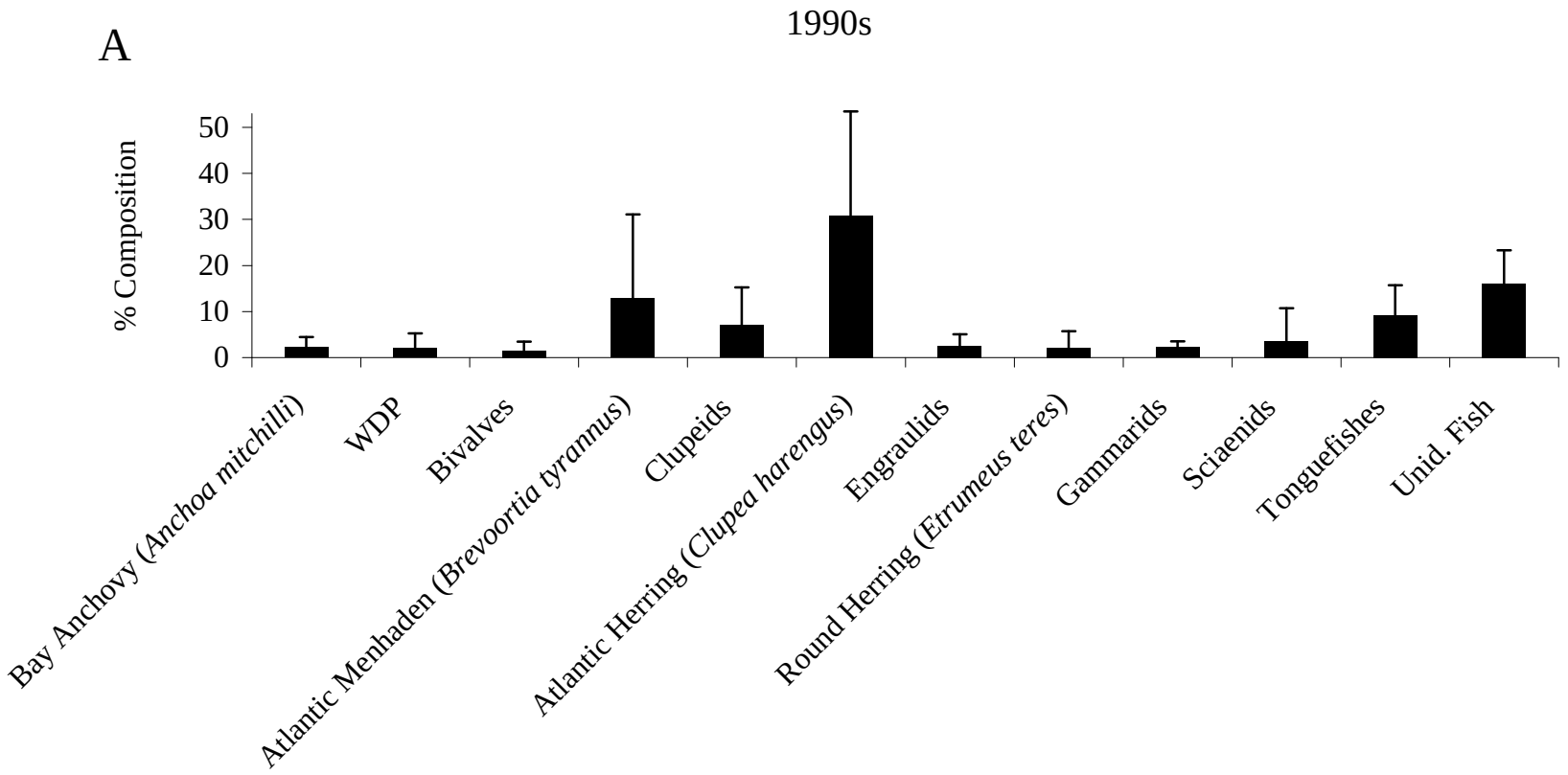

Figure 151A. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*) collected in the 1990s (n = 261). WDP = well-digested prey; Unid. Fish = unidentified fish.

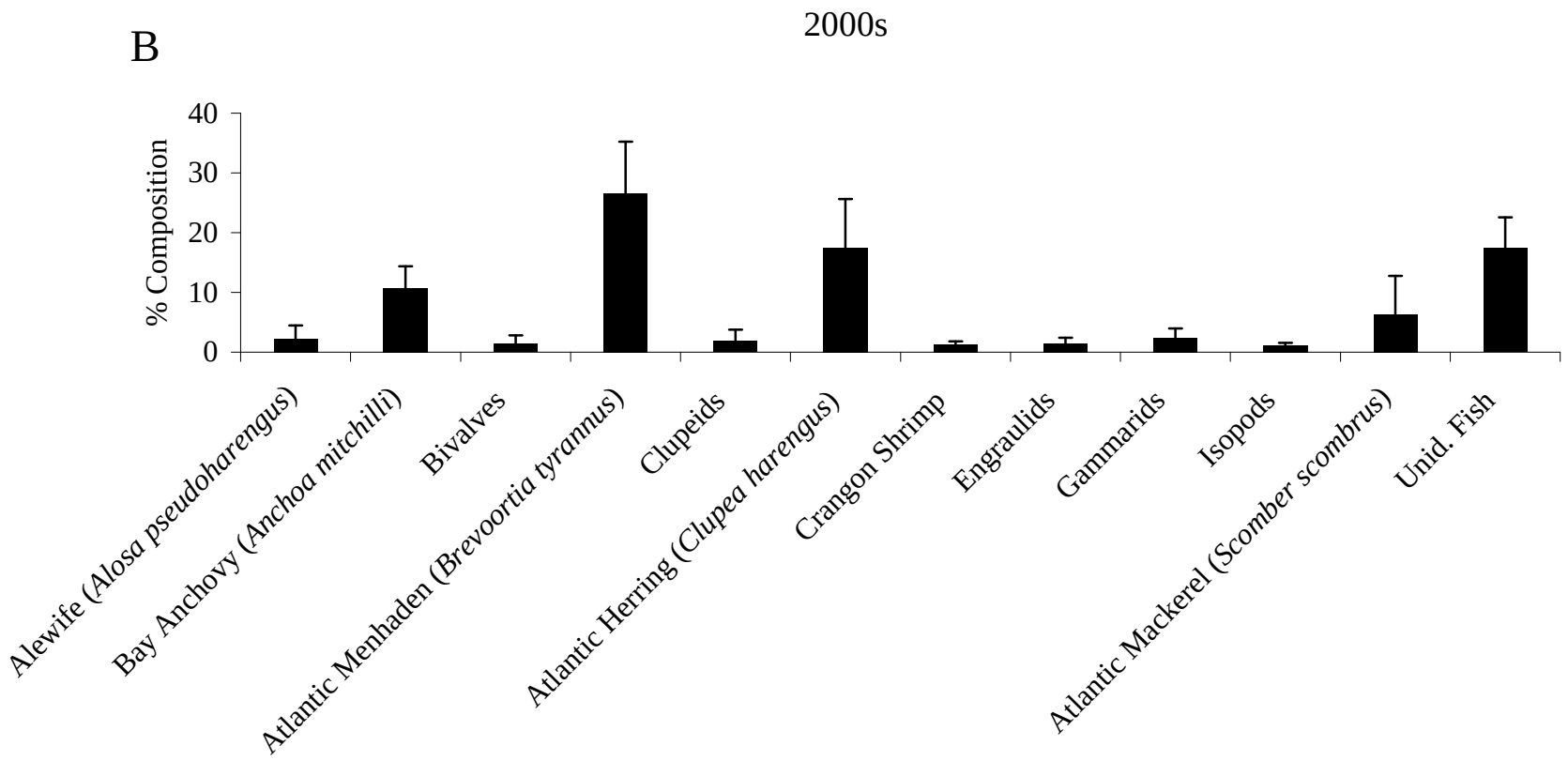

Figure 151B. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*) collected in the 2000s (n = 811). Unid. Fish = unidentified fish.

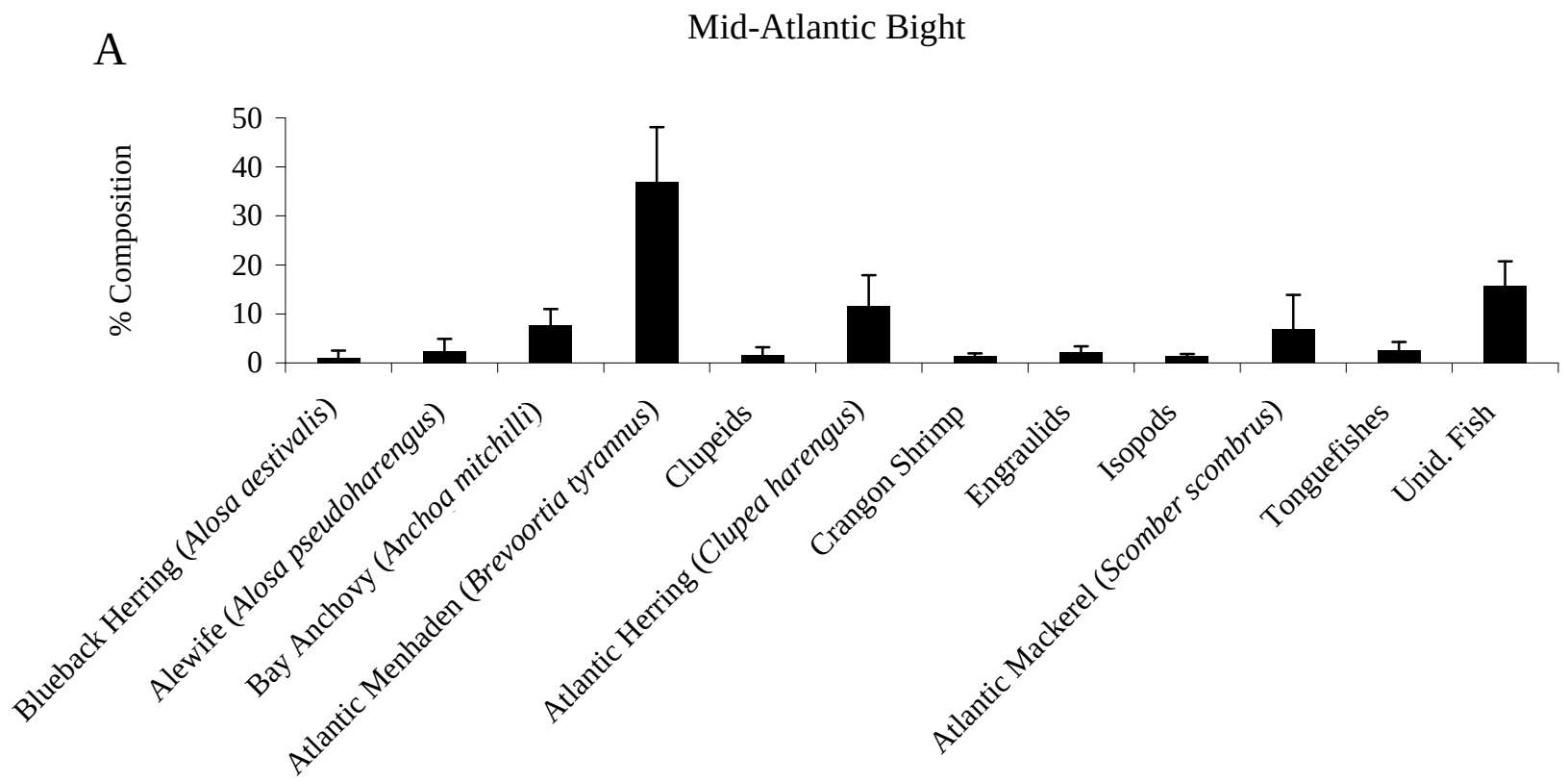

Figure 152A. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*) collected in the Mid-Atlantic Bight (n = 764). Unid. Fish = unidentified fish.

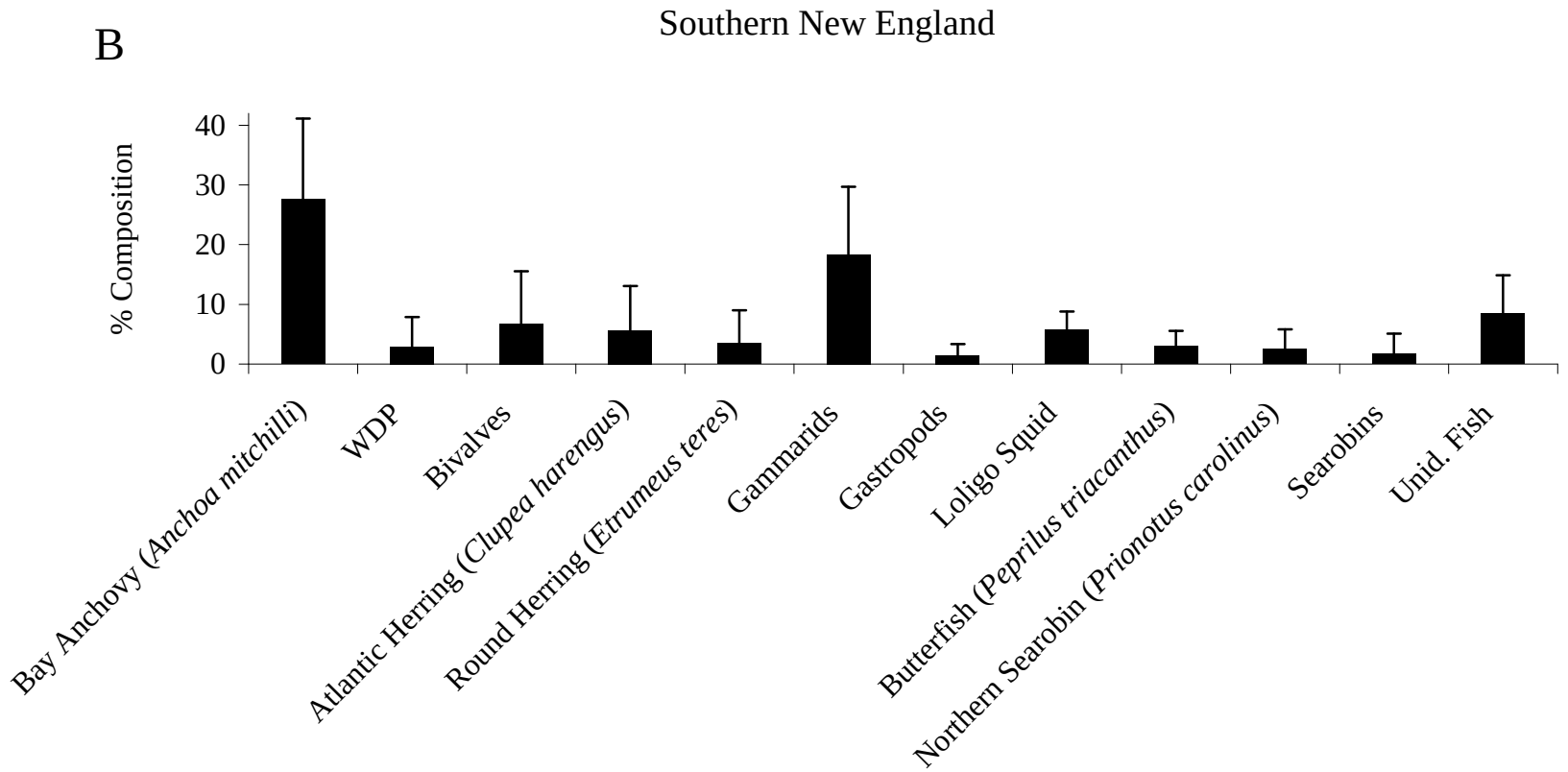

Figure 152B. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*) collected in Southern New England (n = 220). WDP = well-digested prey; Unid. Fish = unidentified fish.

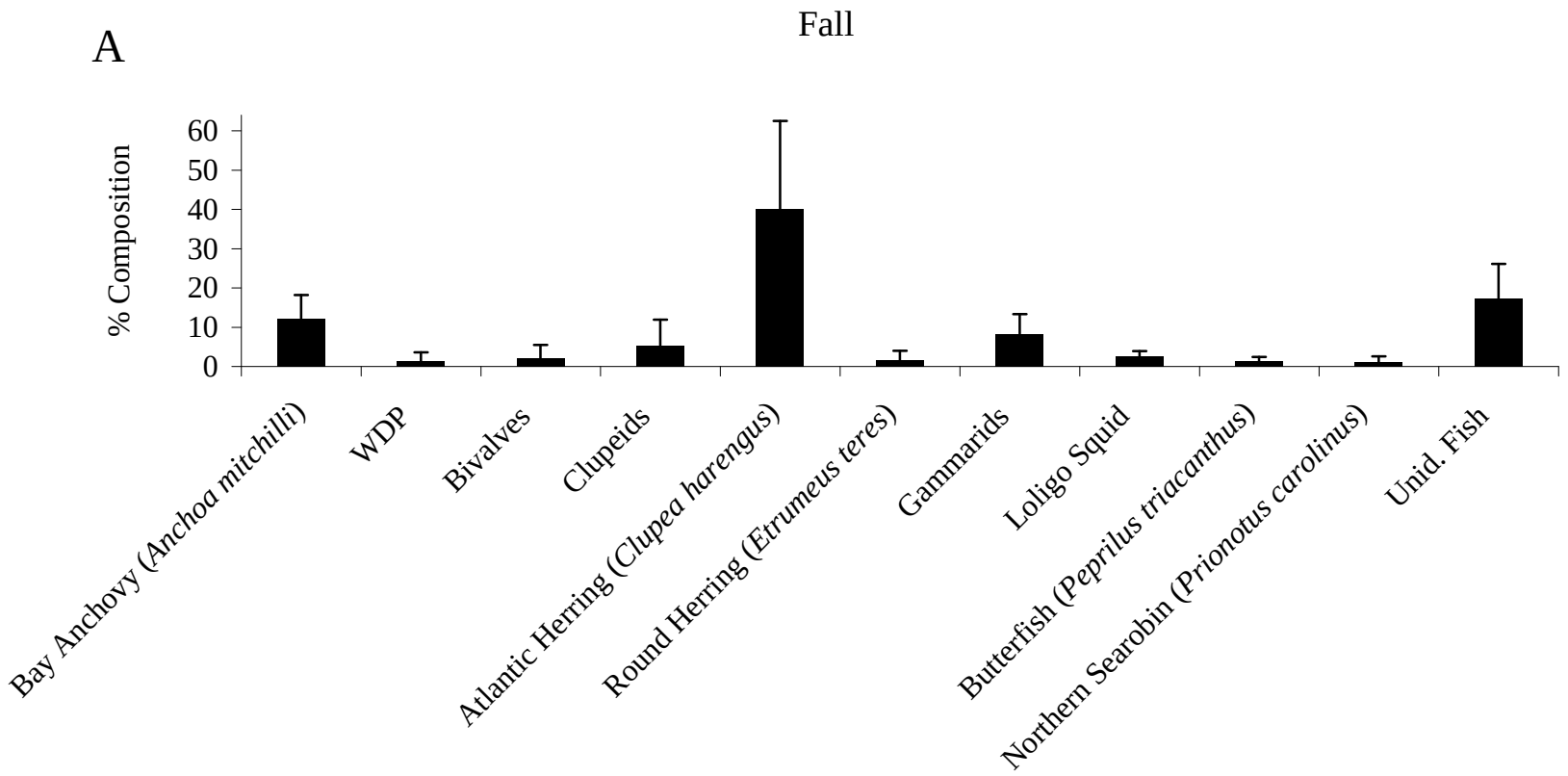

Figure 153A. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*) collected in the fall (n = 243). WDP = well-digested prey; Unid. Fish = unidentified fish.

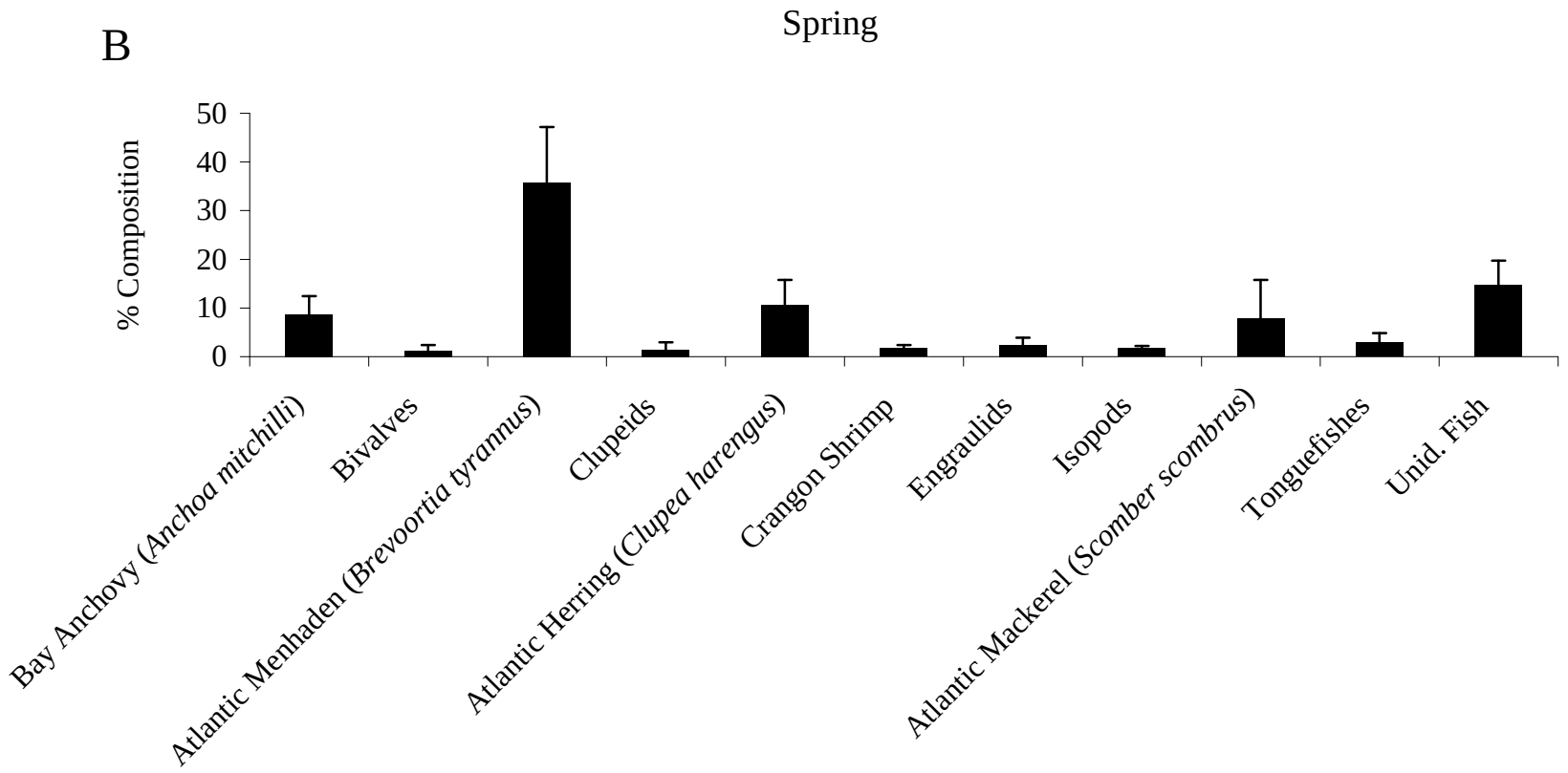

Figure 153B. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*) collected in the spring (n = 772). Unid. Fish = unidentified fish.

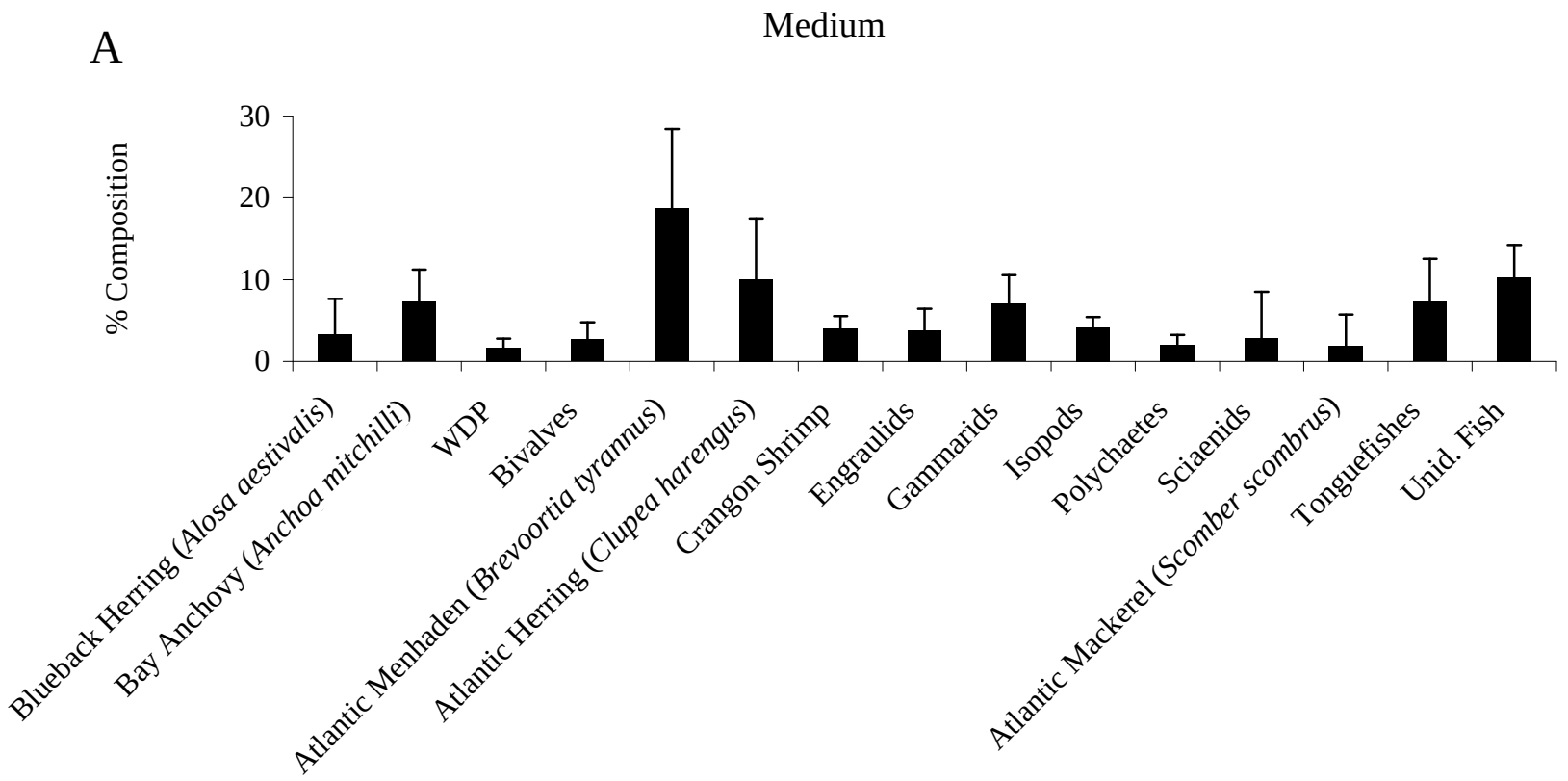

Figure 154A. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*) in the medium size class (n = 604). WDP = well-digested prey; Unid. Fish = unidentified fish.

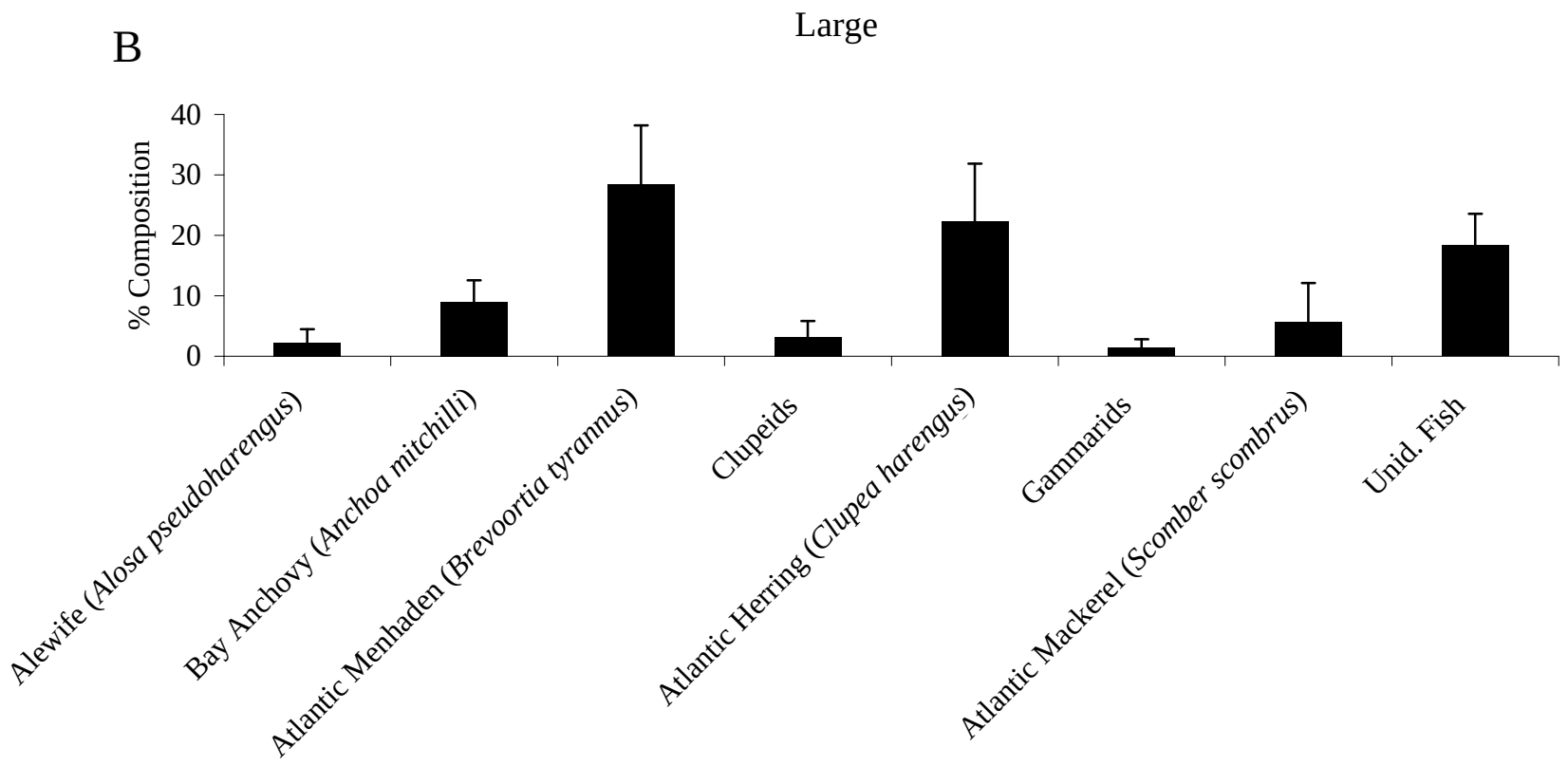

Figure 154B. Percent diet composition by weight of major prey taxa for striped bass (*Morone saxatilis*) in the large size class (n = 435). Unid. Fish = unidentified fish.

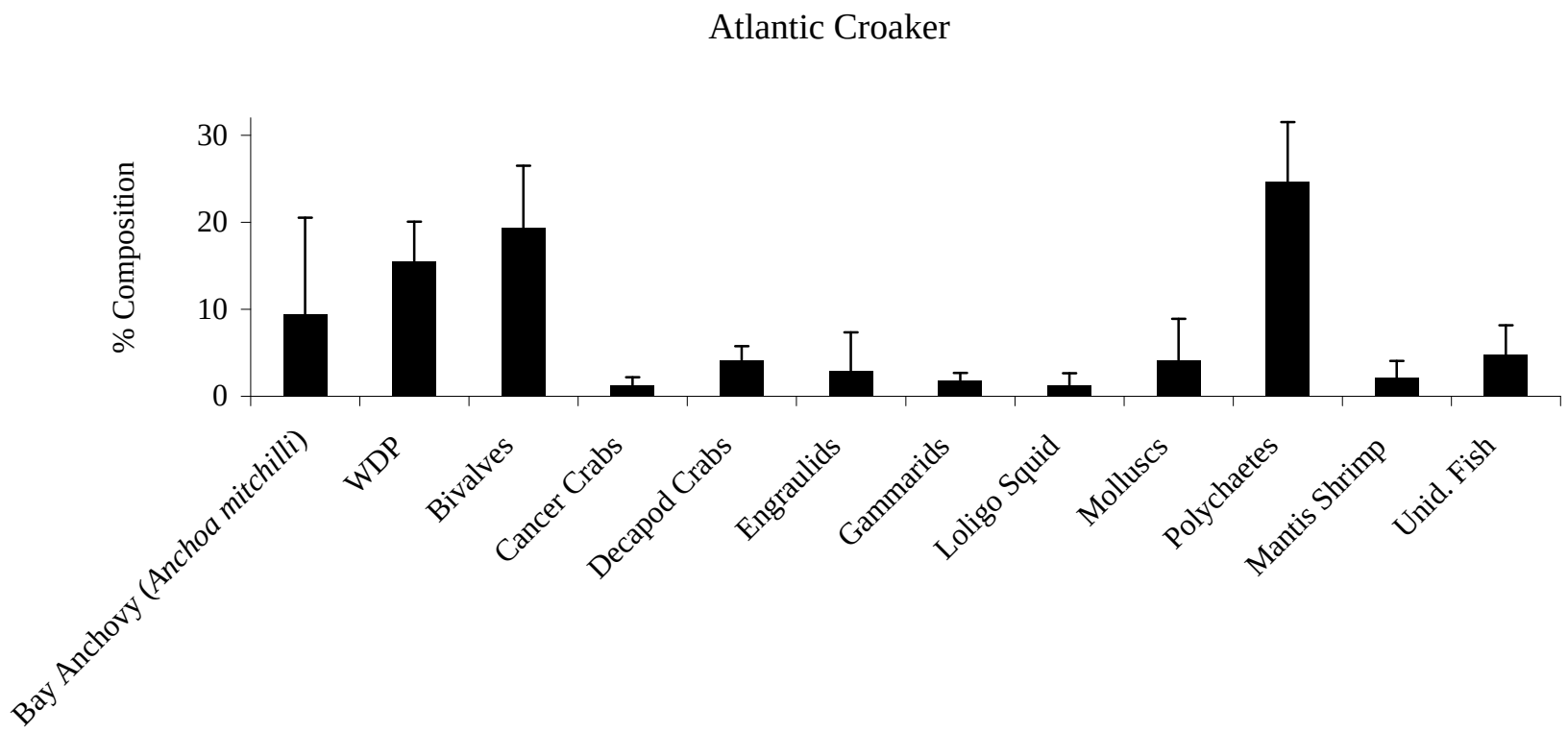

Figure 155. Percent diet composition by weight of major prey taxa for Atlantic croaker (*Micropogonias undulatus*; n = 924). WDP = well-digested prey; Unid. Fish = unidentified fish.

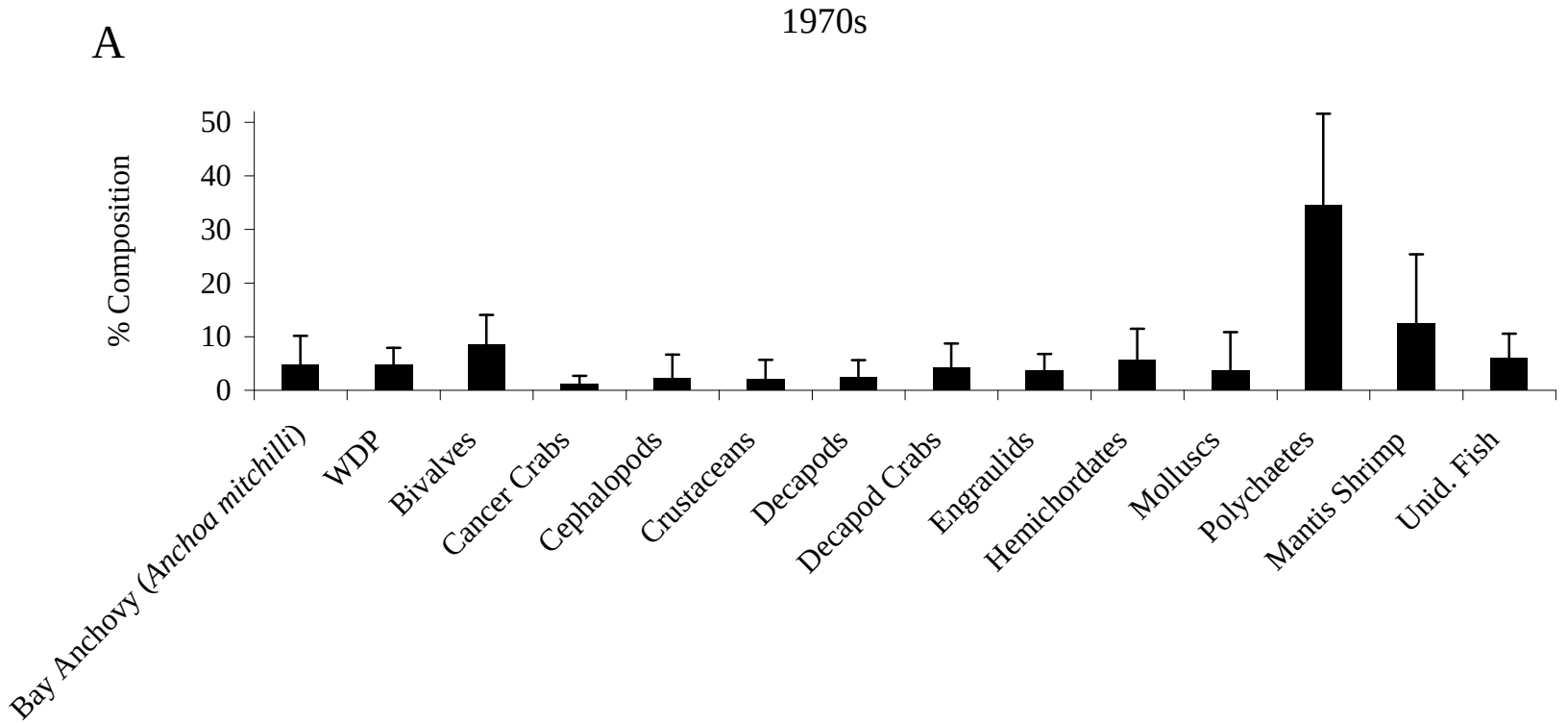

Figure 156A. Percent diet composition by weight of major prey taxa for Atlantic croaker (*Micropogonias undulatus*) collected in the 1970s (n = 205). WDP = well-digested prey; Unid. Fish = unidentified fish.

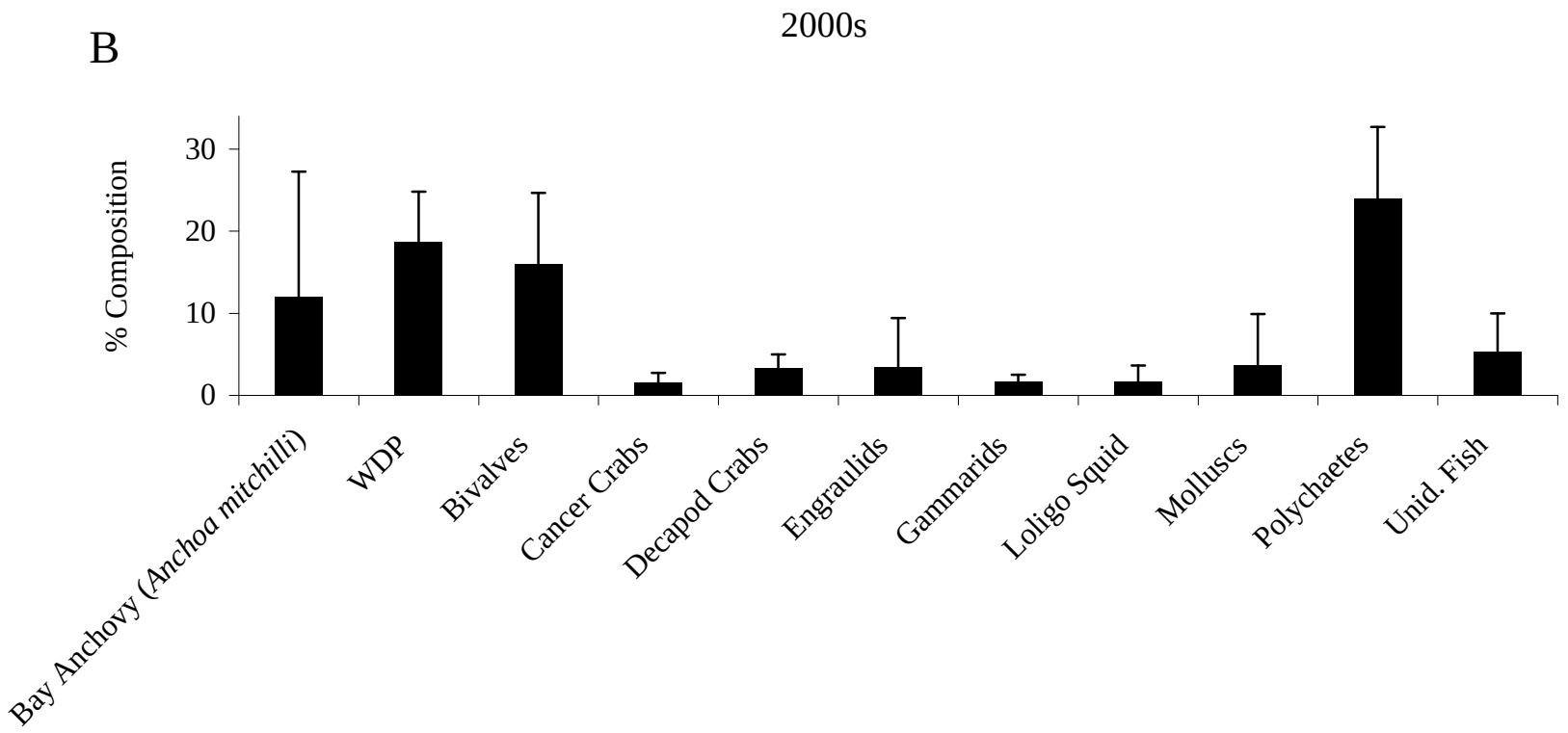

Figure 156B. Percent diet composition by weight of major prey taxa for Atlantic croaker (*Micropogonias undulatus*) collected in the 2000s (n = 518). WDP = well-digested prey; Unid. Fish = unidentified fish.

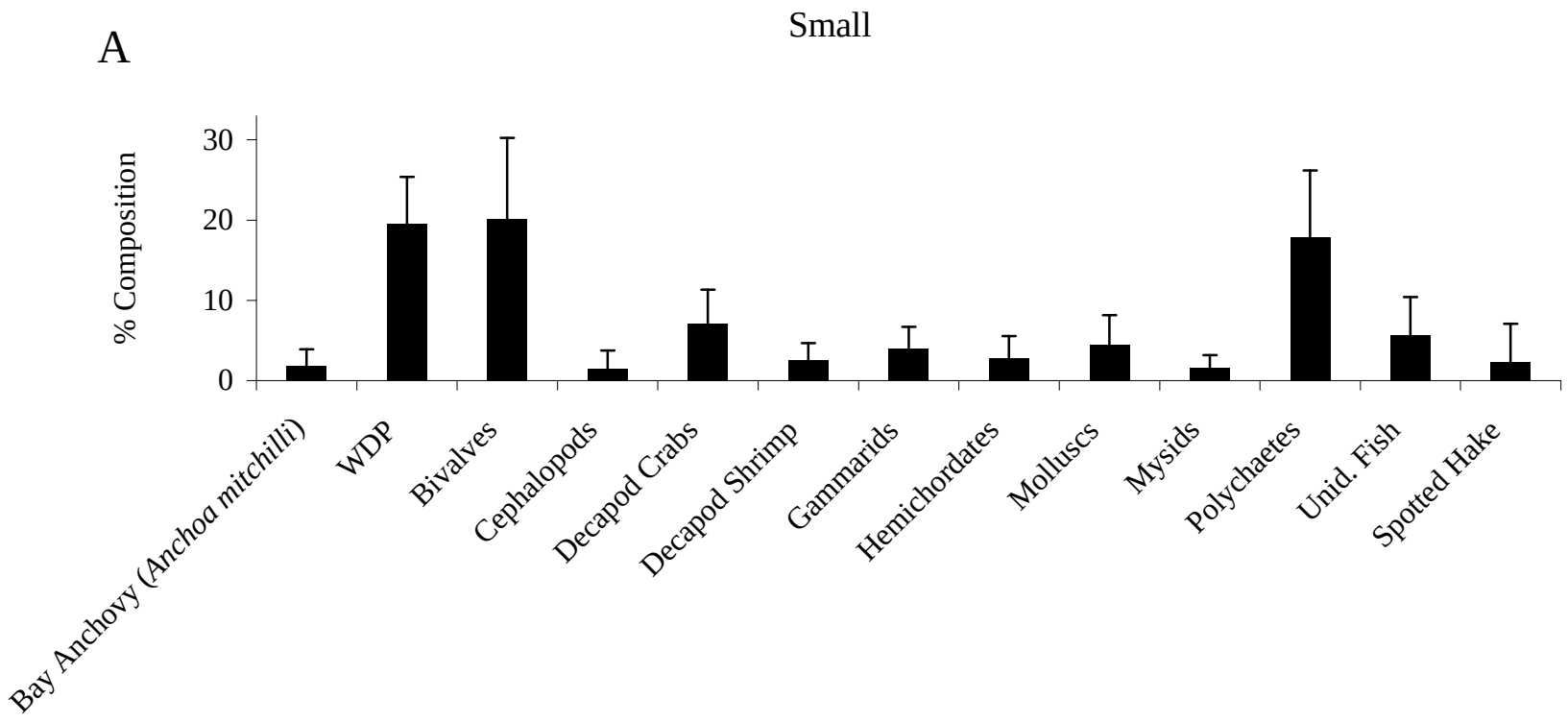

Figure 157A. Percent diet composition by weight of major prey taxa for Atlantic croaker (*Micropogonias undulatus*) in the small size class (n = 555). WDP = well-digested prey; Unid. Fish = unidentified fish.

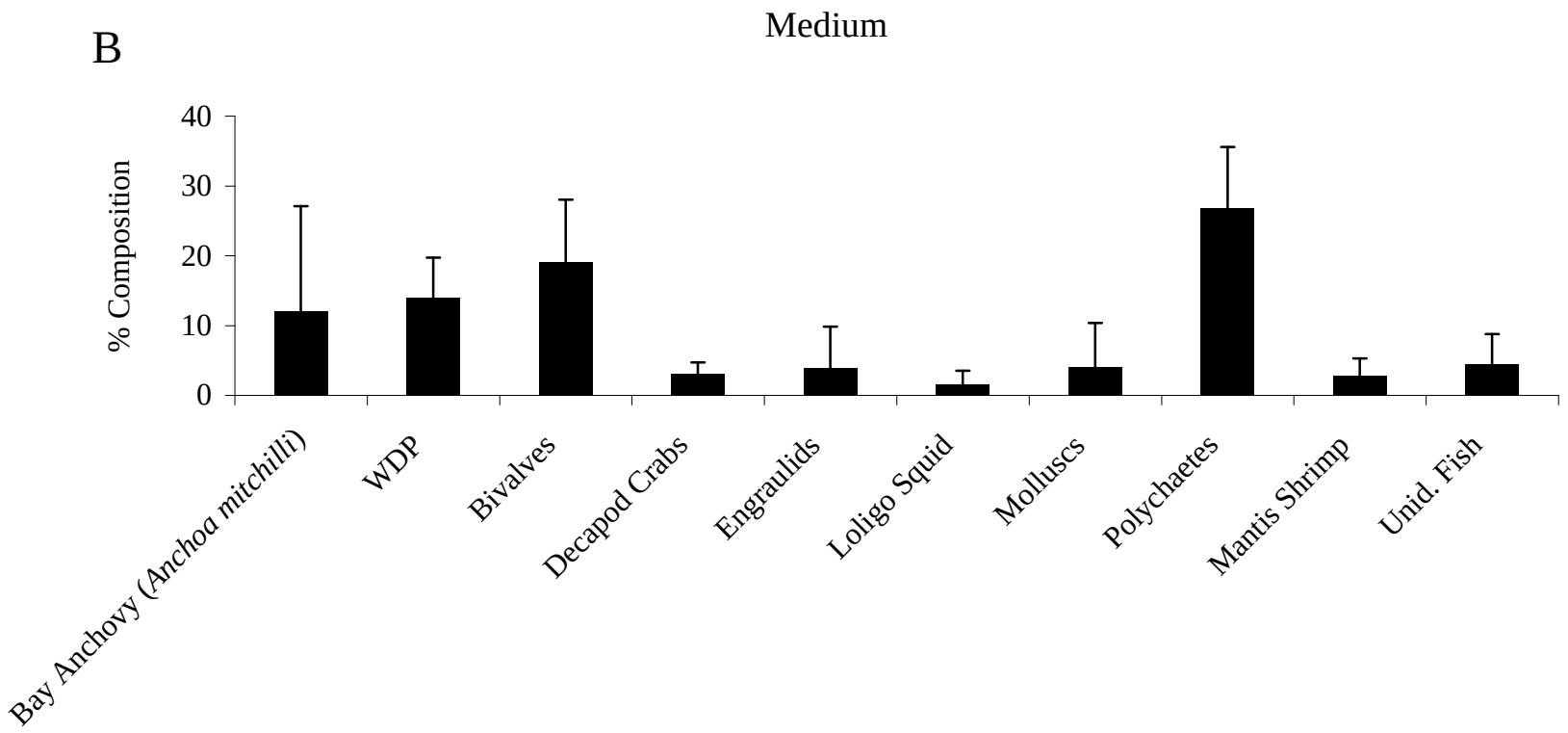

Figure 157B. Percent diet composition by weight of major prey taxa for Atlantic croaker (*Micropogonias undulatus*) in the medium size class (n = 368). WDP = well-digested prey; Unid. Fish = unidentified fish.

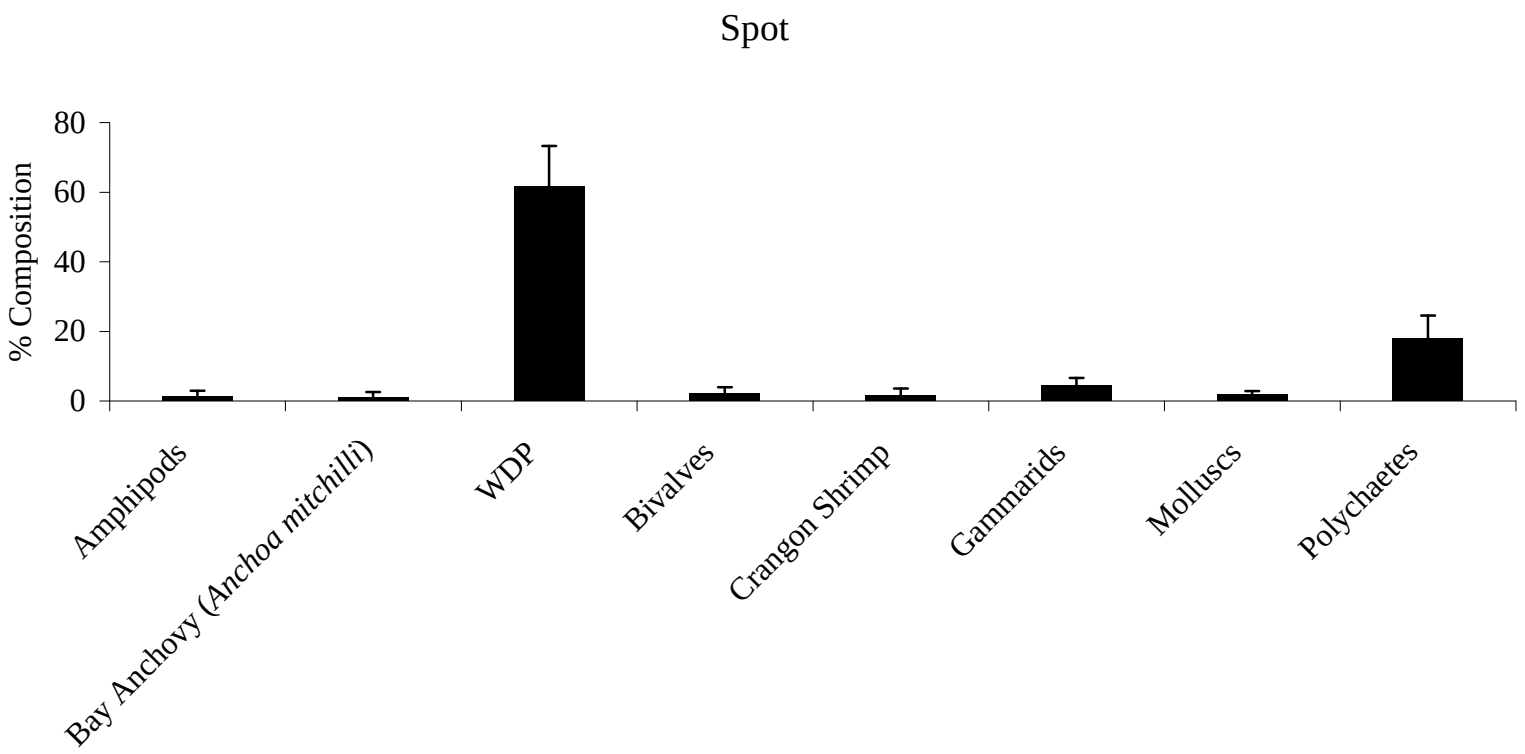

Figure 158. Percent diet composition by weight of major prey taxa for spot (*Leiostomus xanthurus*; n = 1,156). WDP = well-digested prey.

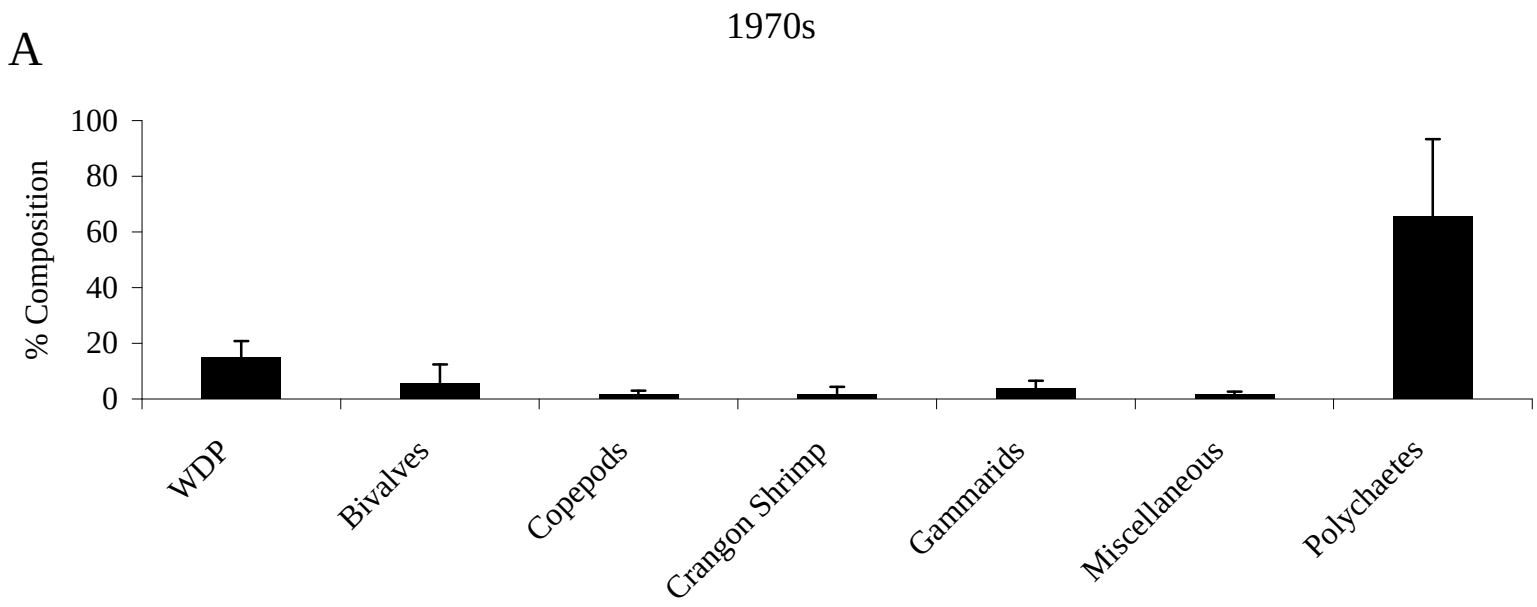

Figure 159A. Percent diet composition by weight of major prey taxa for spot (*Leiostomus xanthurus*) collected in the 1970s (n = 296). WDP = well-digested prey.

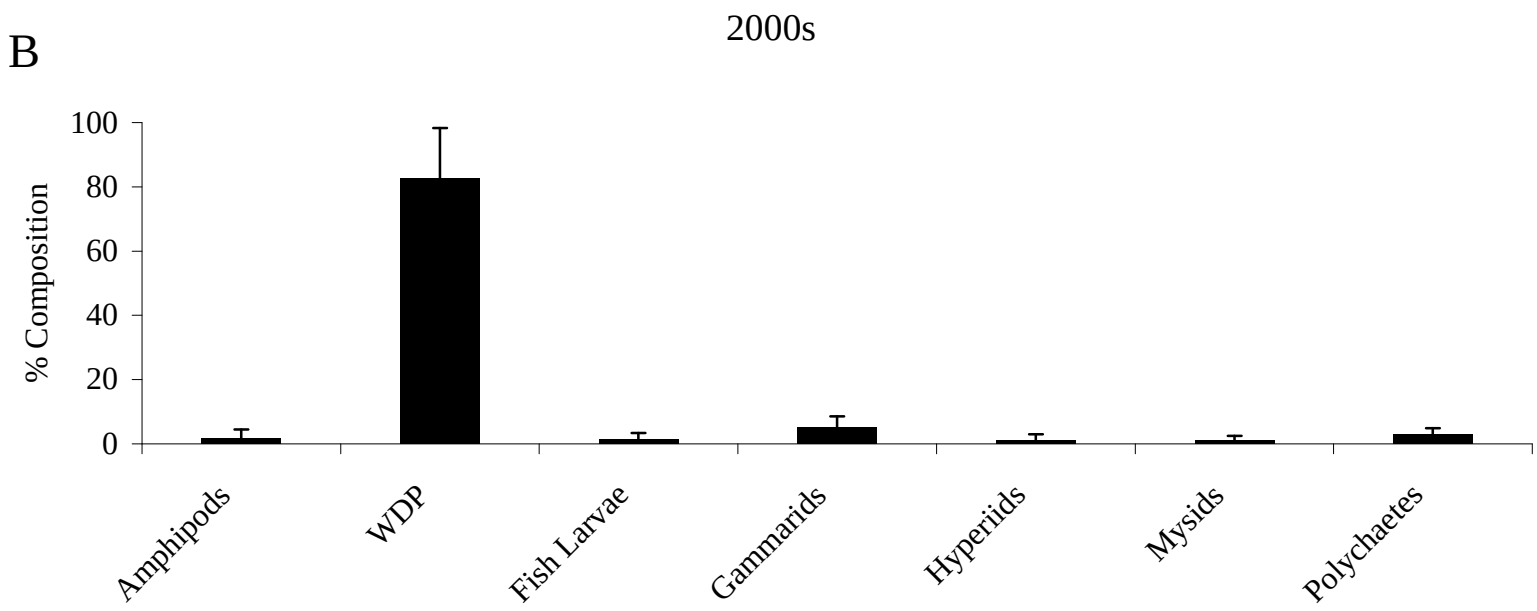

Figure 159B. Percent diet composition by weight of major prey taxa for spot (*Leiostomus xanthurus*) collected in the 2000s (n = 600). WDP = well-digested prey.

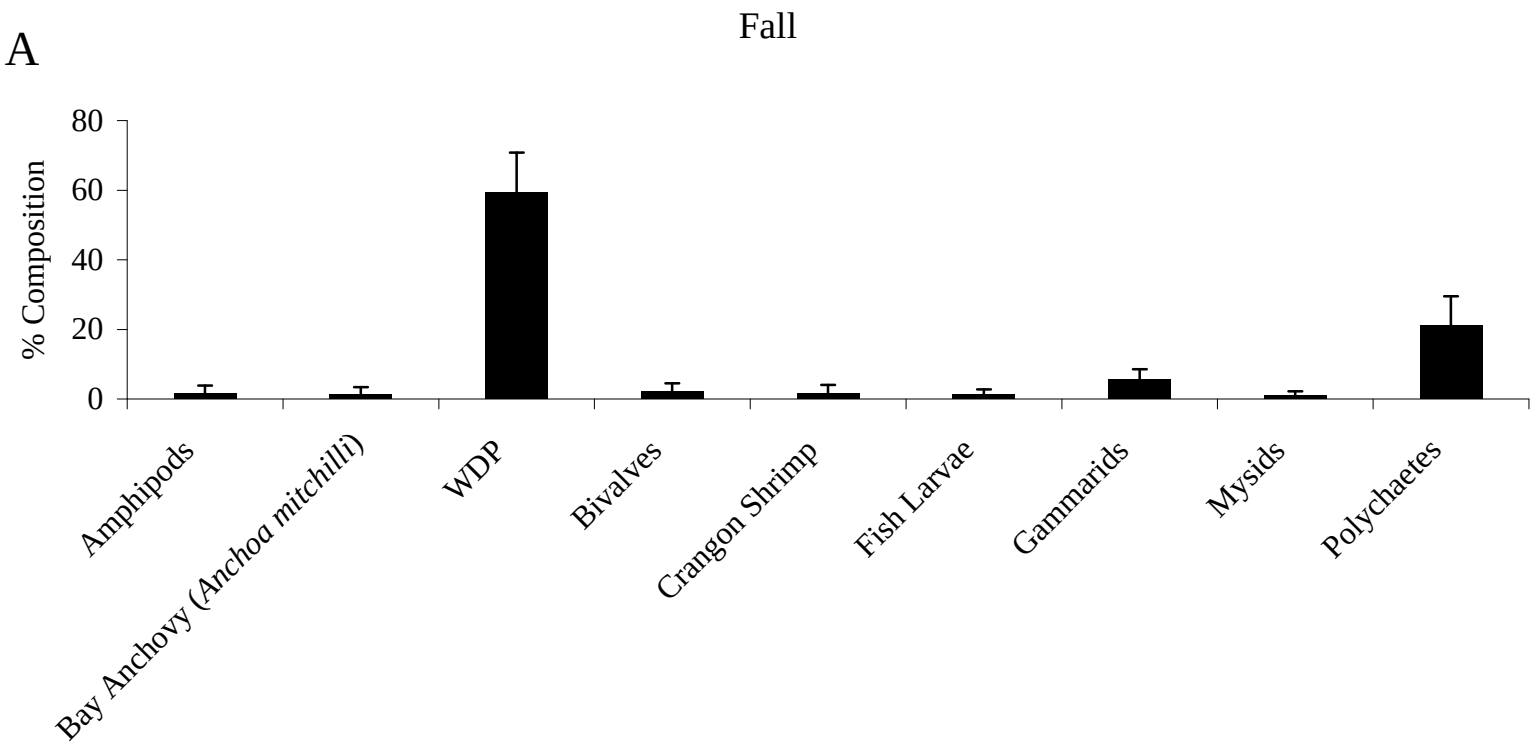

Figure 160A. Percent diet composition by weight of major prey taxa for spot (*Leiostomus xanthurus*) collected in the fall (n = 790). WDP = well-digested prey.

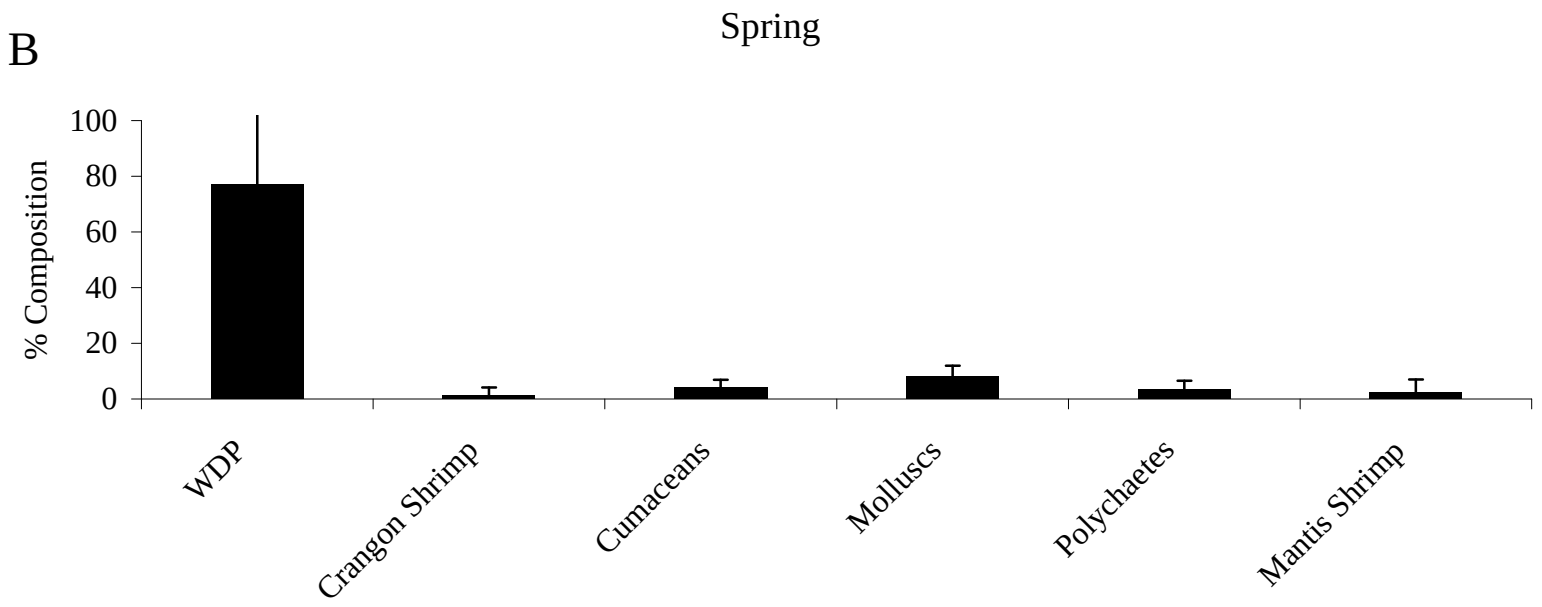

Figure 160B. Percent diet composition by weight of major prey taxa for spot (*Leiostomus xanthurus*) collected in the spring (n = 205). WDP = well-digested prey.

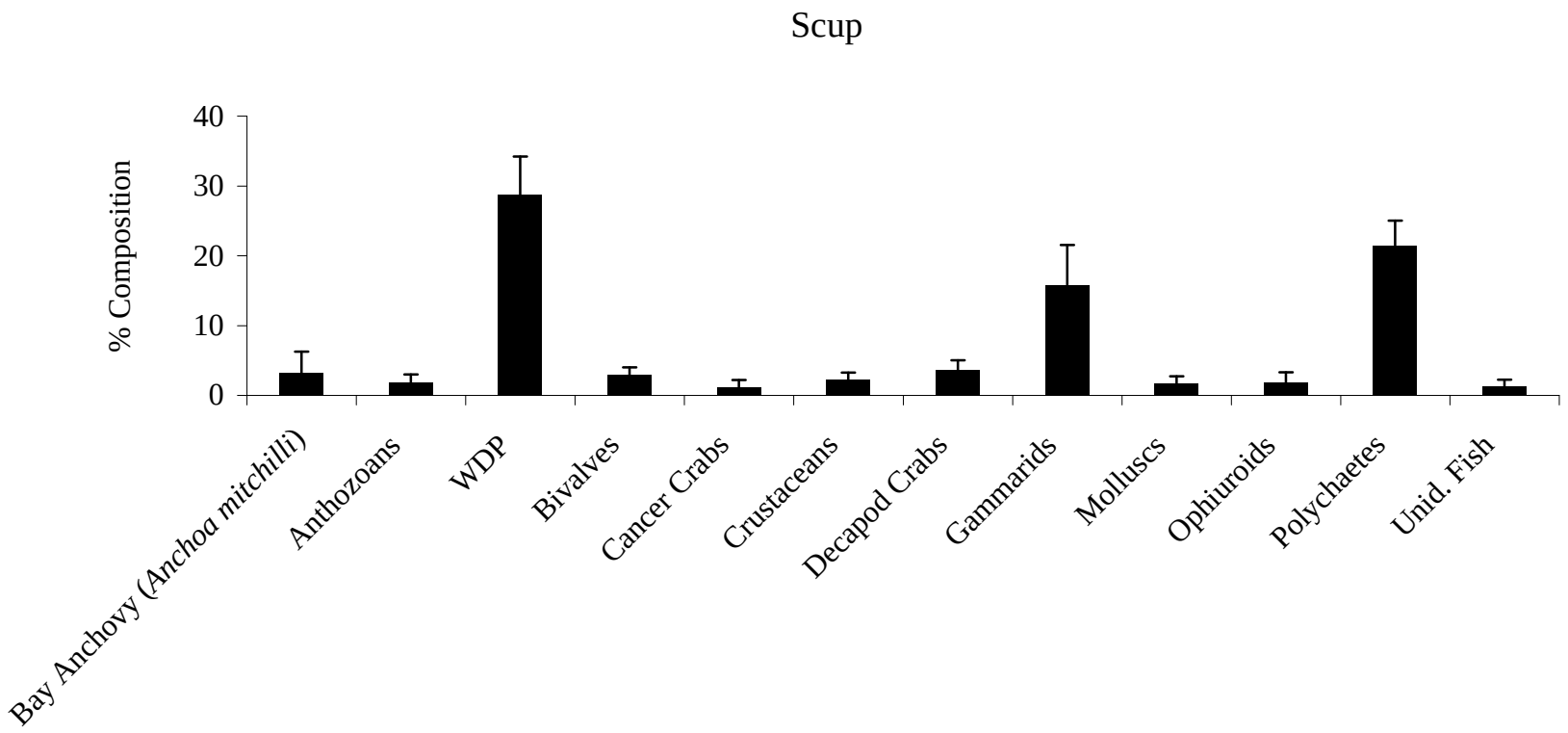

Figure 161. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*; n = 3,886). WDP = well-digested prey; Unid. Fish = unidentified fish.

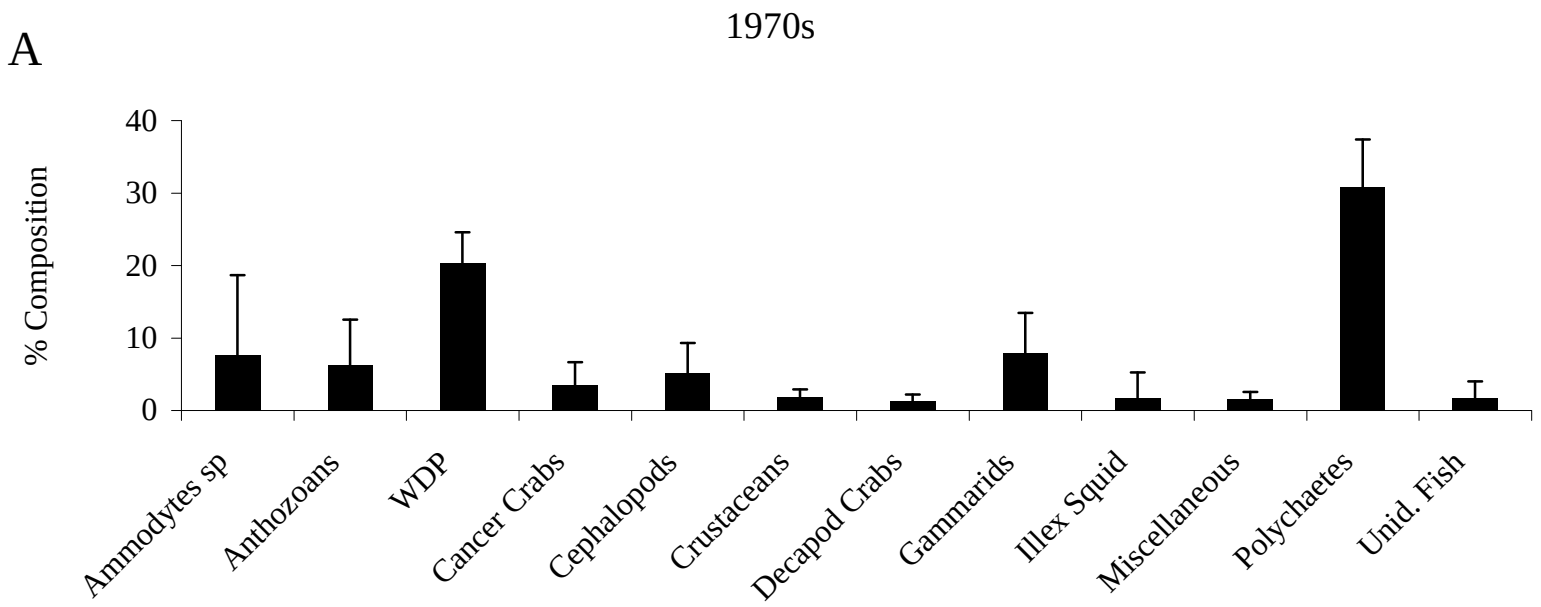

Figure 162A. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) collected in the 1970s (n = 1,078). WDP = well-digested prey; Unid. Fish = unidentified fish.

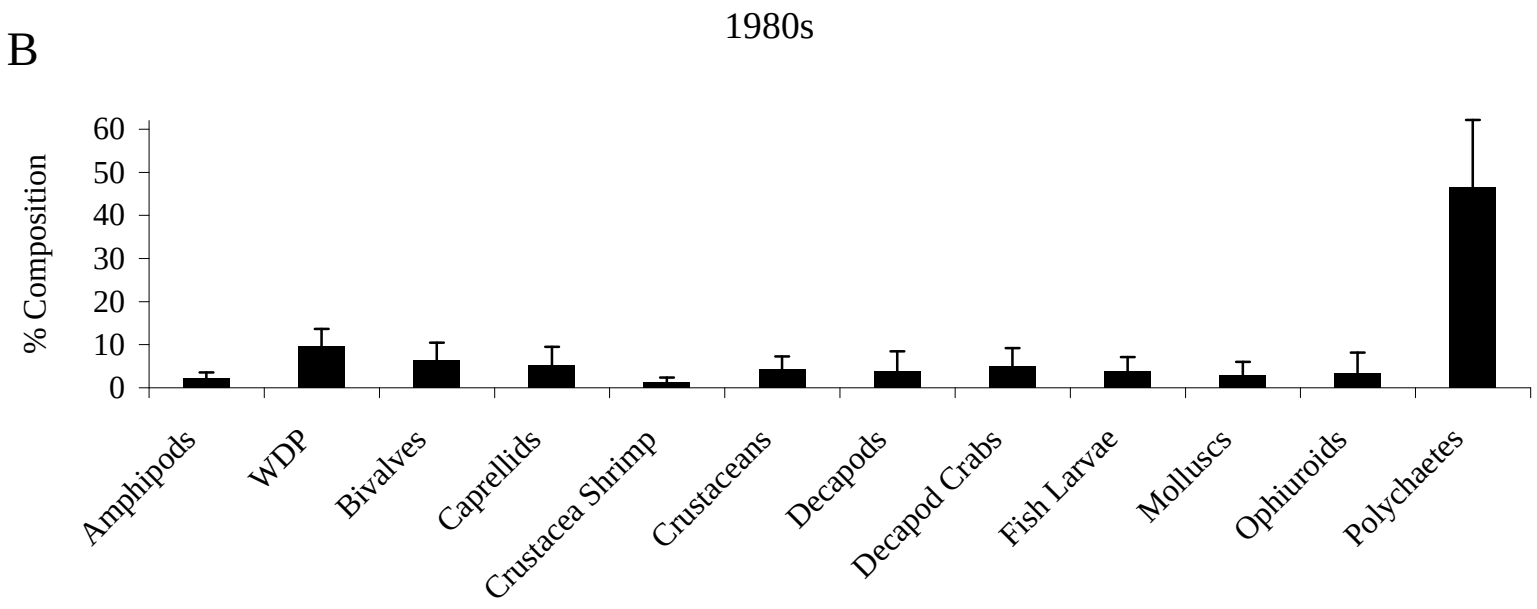

Figure 162B. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) collected in the 1980s (n = 429). WDP = well-digested prey.

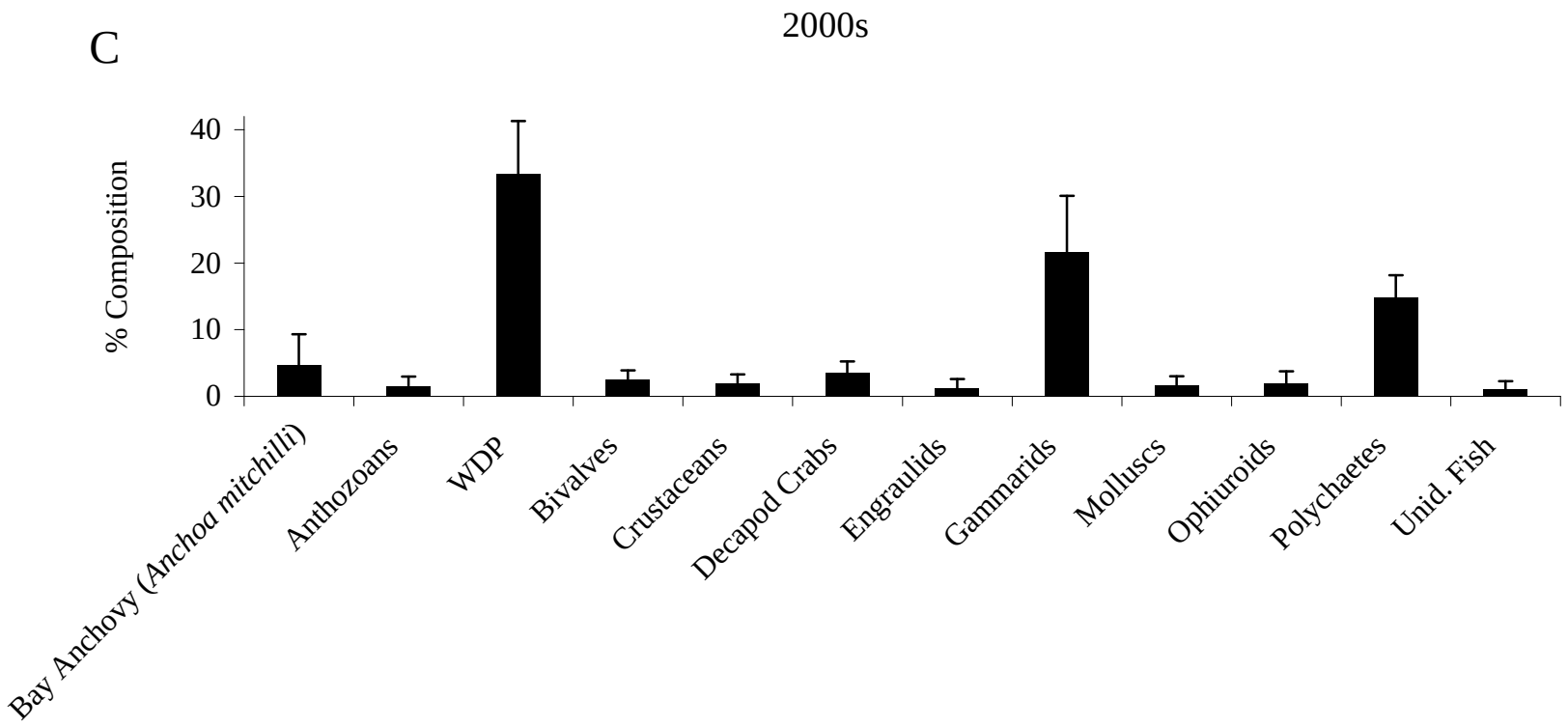

Figure 162C. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) collected in the 2000s (n = 2,207). WDP = well-digested prey; Unid. Fish = unidentified fish.

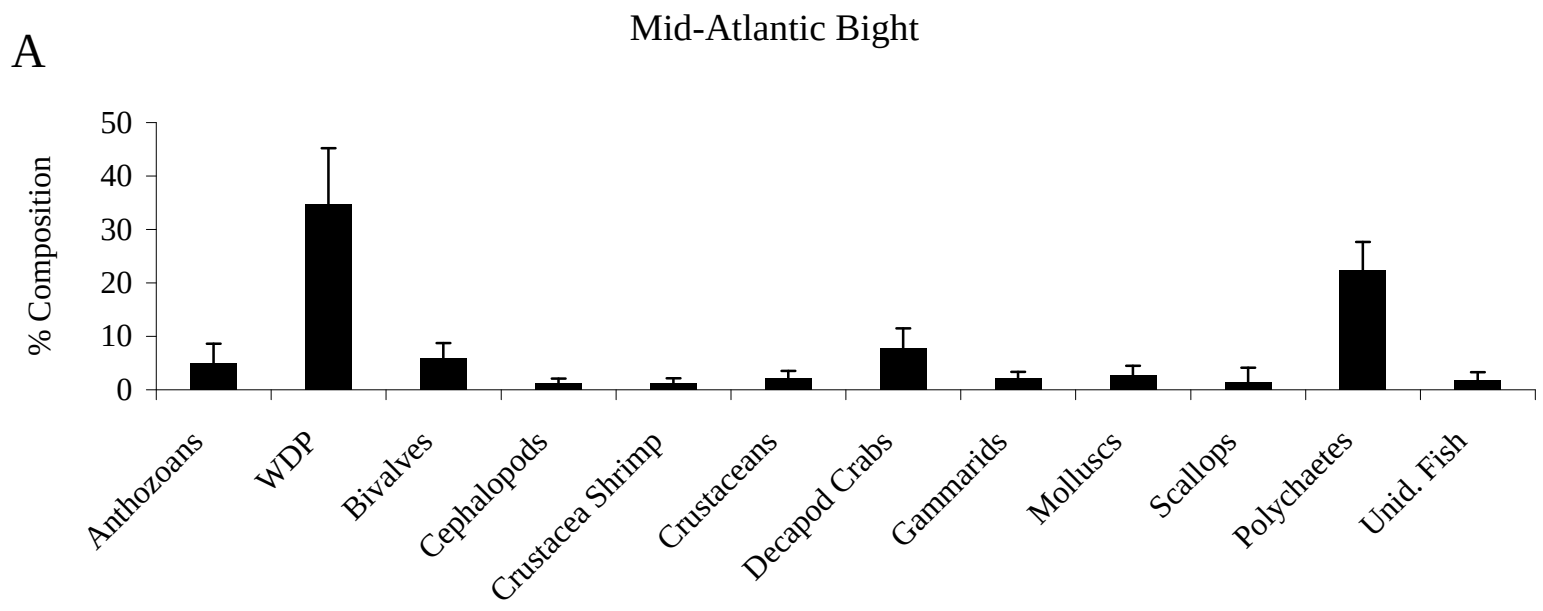

Figure 163A. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) collected in the Mid-Atlantic Bight (n = 2,039). WDP = well-digested prey; Unid. Fish = unidentified fish.

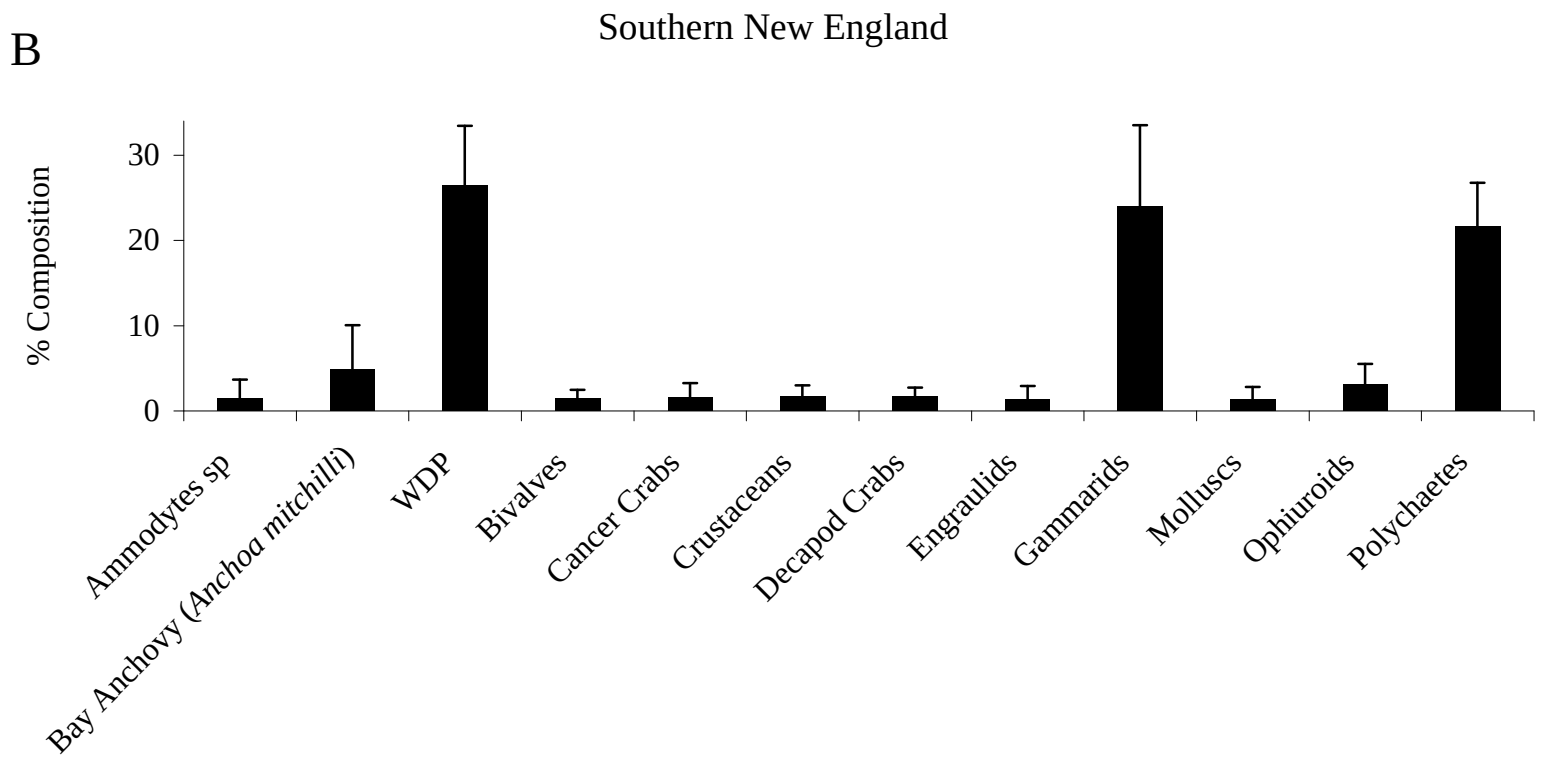

Figure 163B. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) collected in Southern New England (n = 1,499). WDP = well-digested prey.

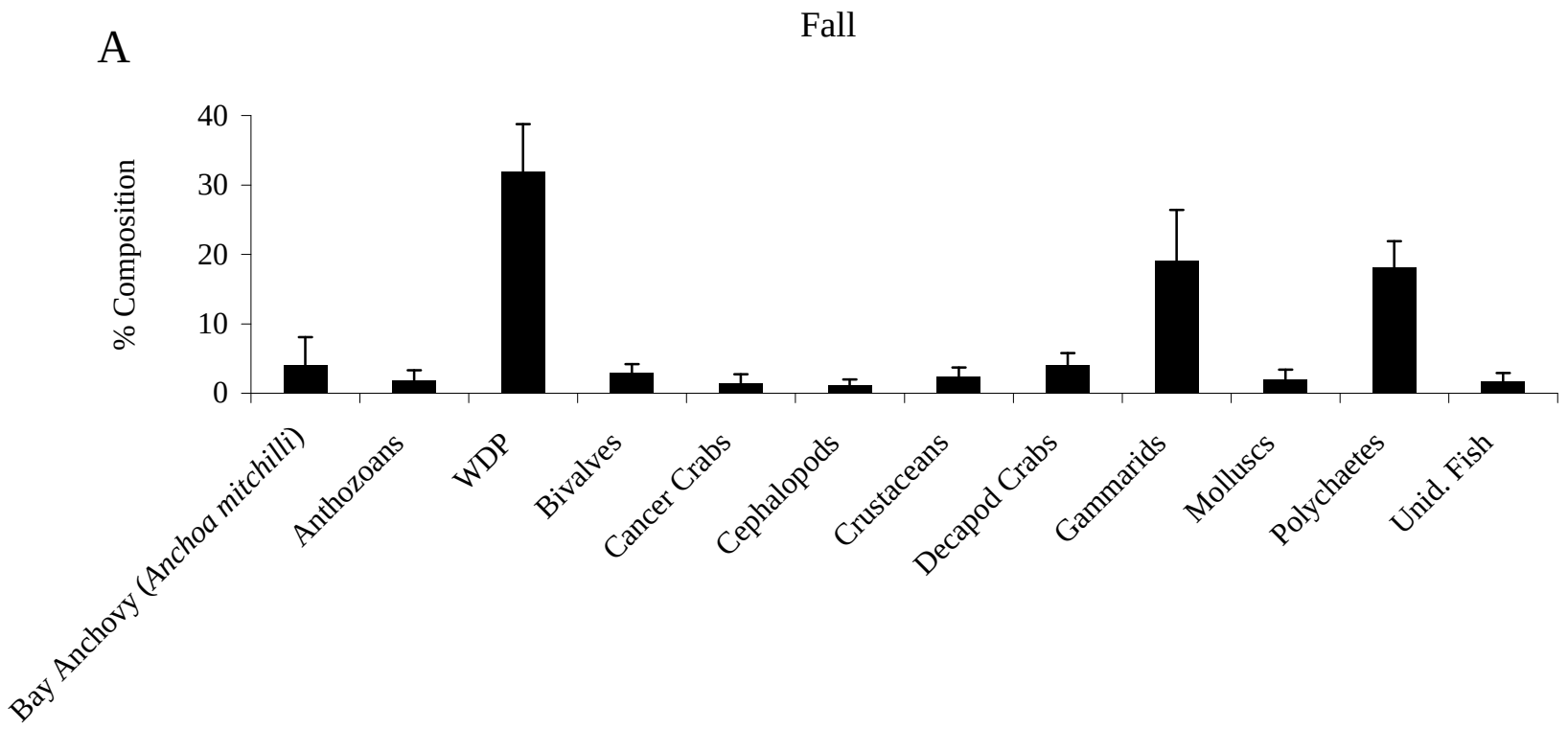

Figure 164A. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) collected in the fall (n = 2,575). WDP = well-digested prey; Unid. Fish = unidentified fish.

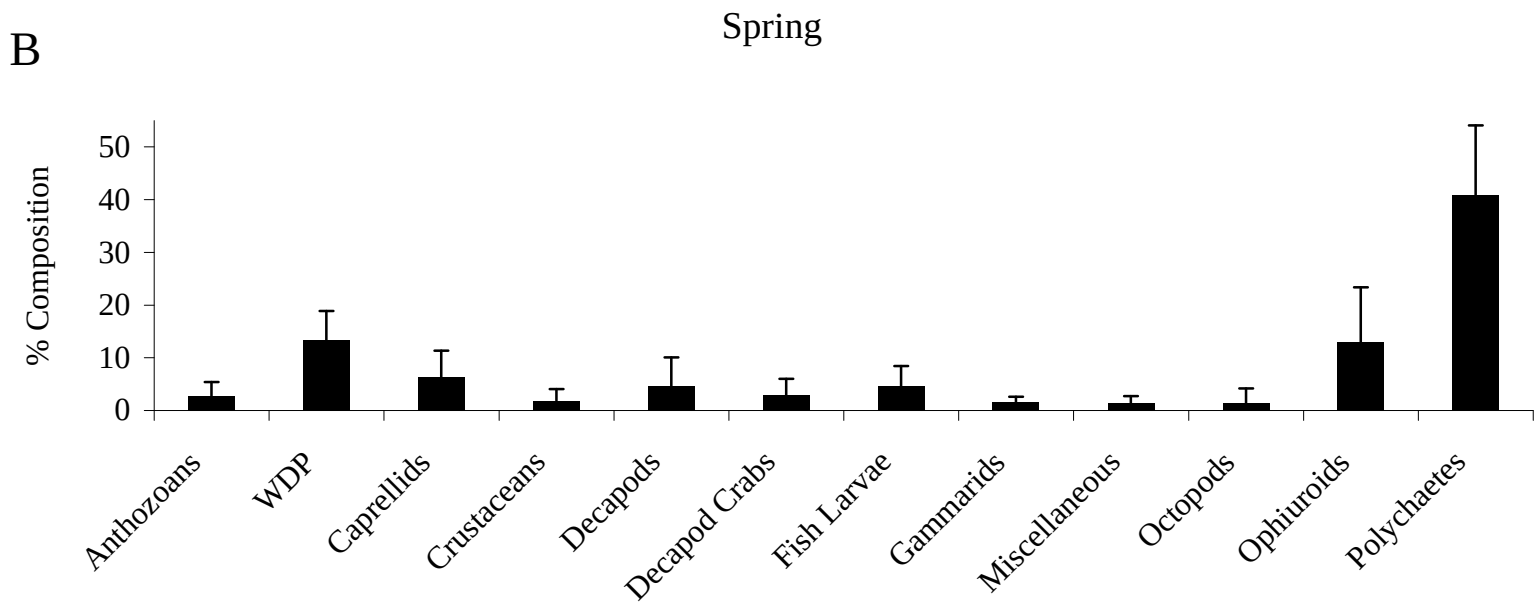

Figure 164B. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) collected in the spring (n = 707). WDP = well-digested prey.

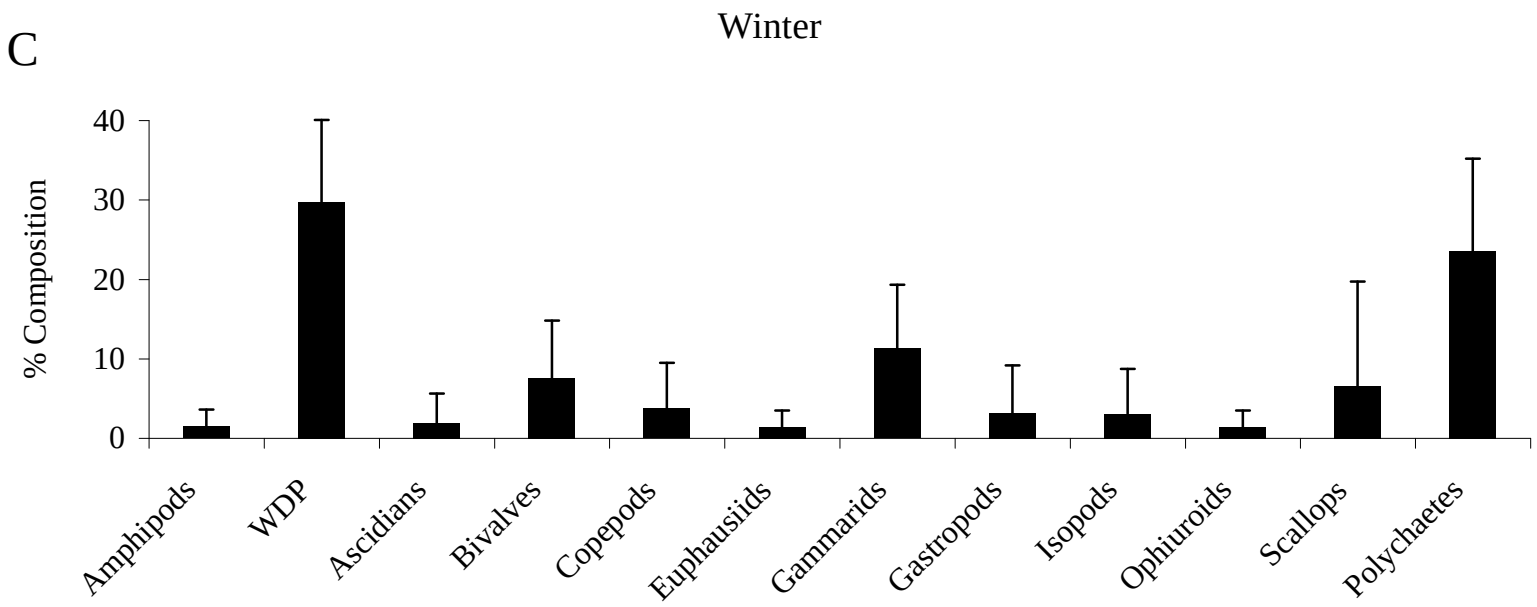

Figure 164C. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) collected in the winter (n = 521). WDP = well-digested prey.

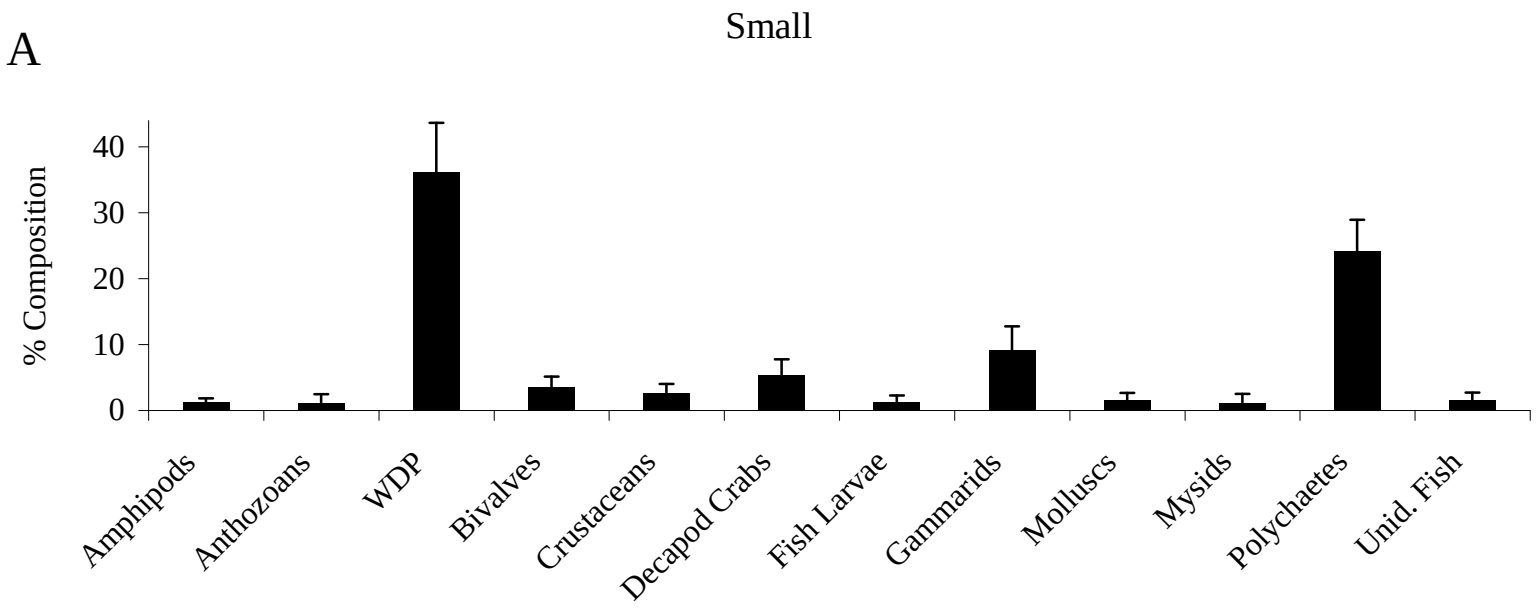

Figure 165A. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) in the small size class (n = 3,159). WDP = well-digested prey; Unid. Fish = unidentified fish.

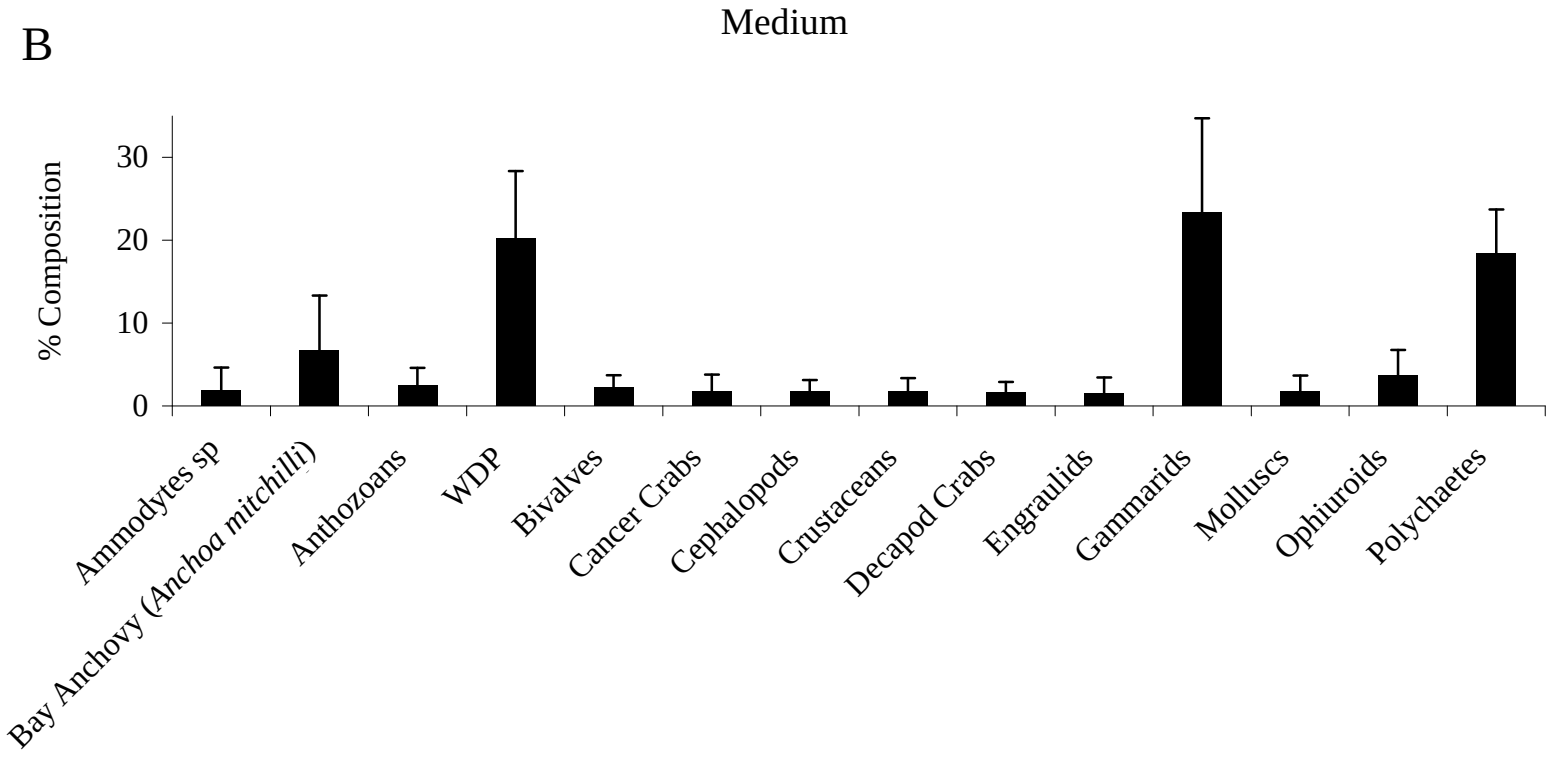

Figure 165B. Percent diet composition by weight of major prey taxa for scup (*Stenotomus chrysops*) in the medium size class (n = 727). WDP = well-digested prey.

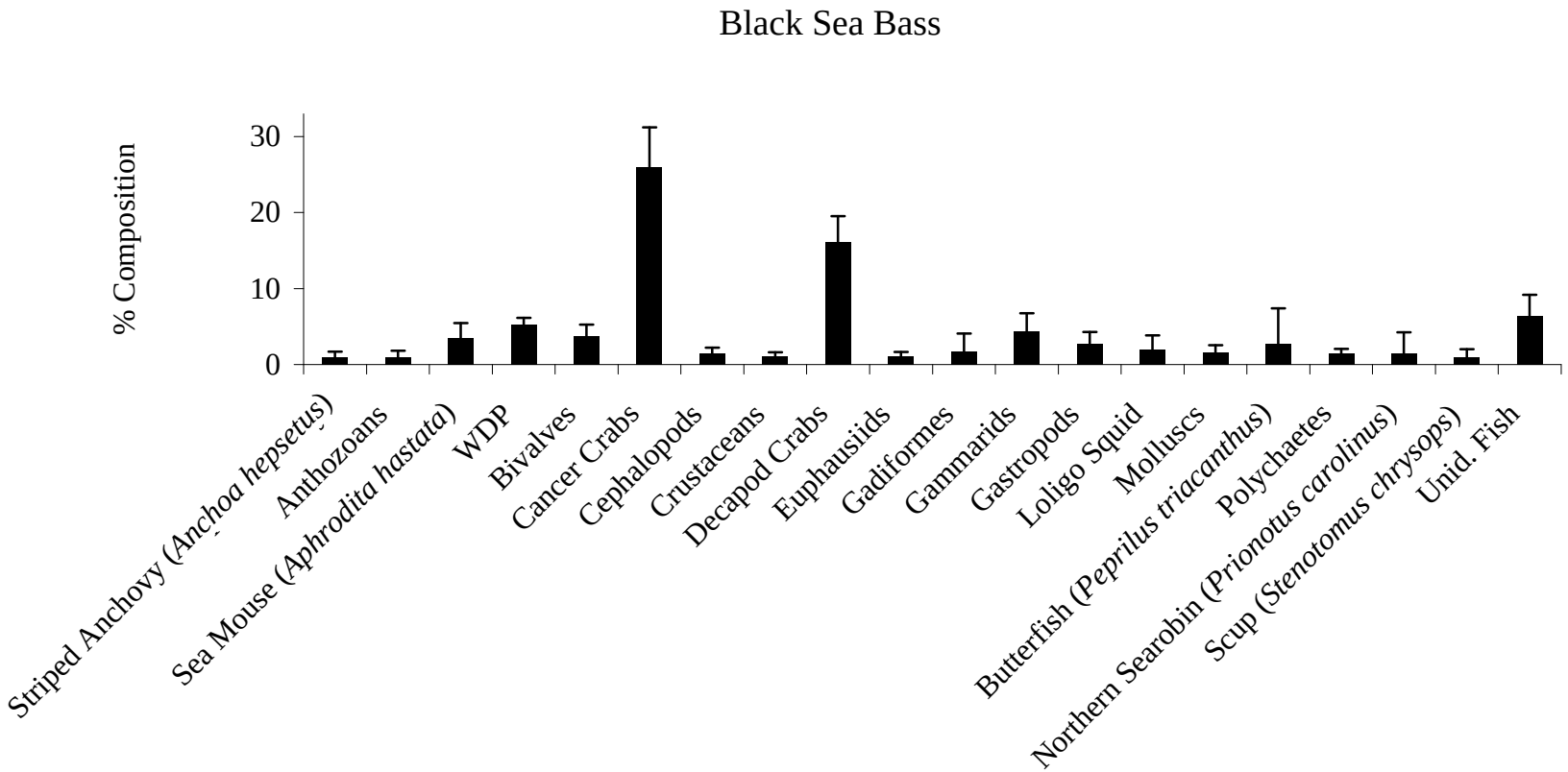

Figure 166. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*; n = 2,400). WDP = well-digested prey; Unid. Fish = unidentified fish.

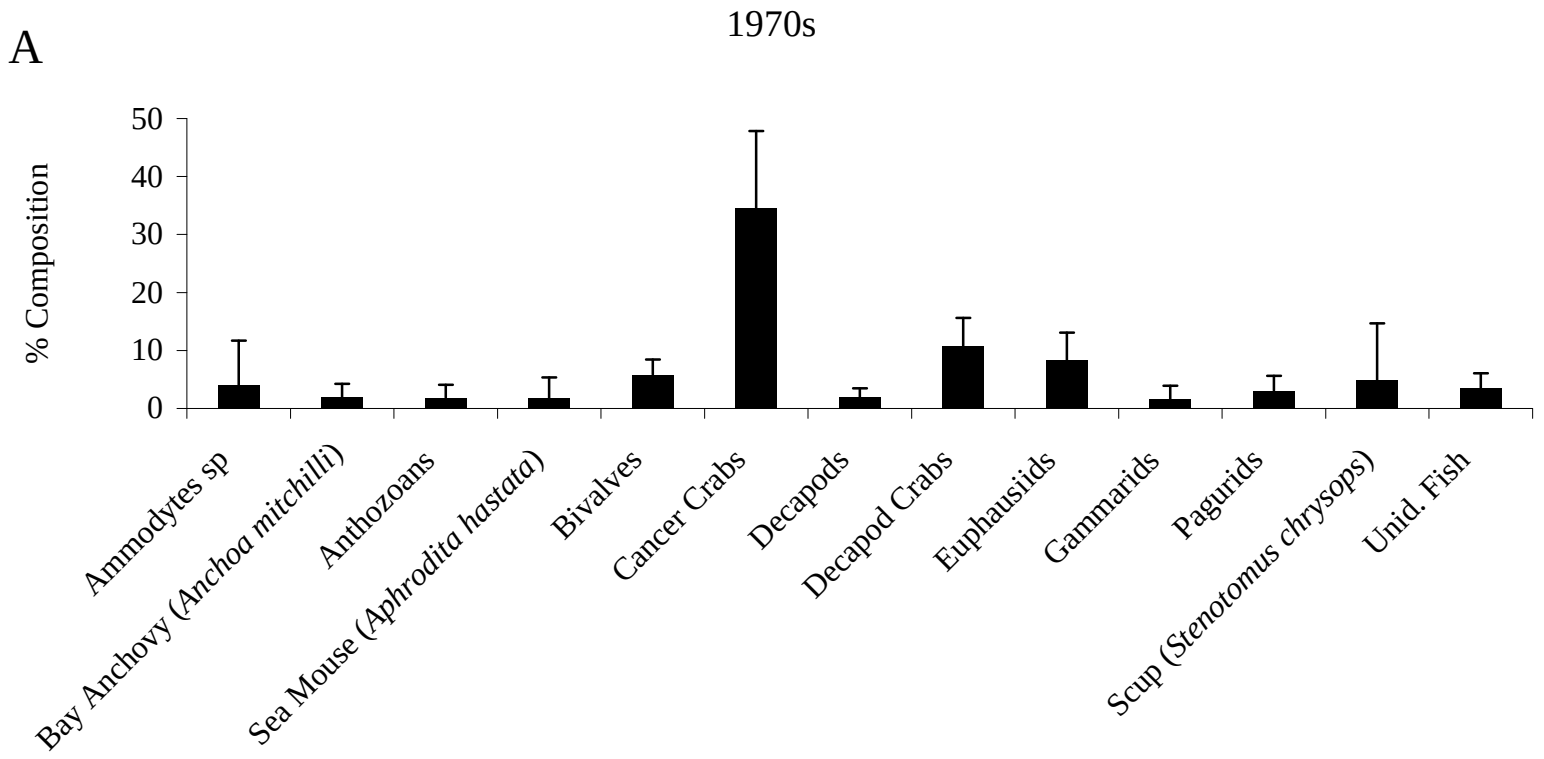

Figure 167A. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) collected in the 1970s (n = 478). Unid. Fish = unidentified fish.

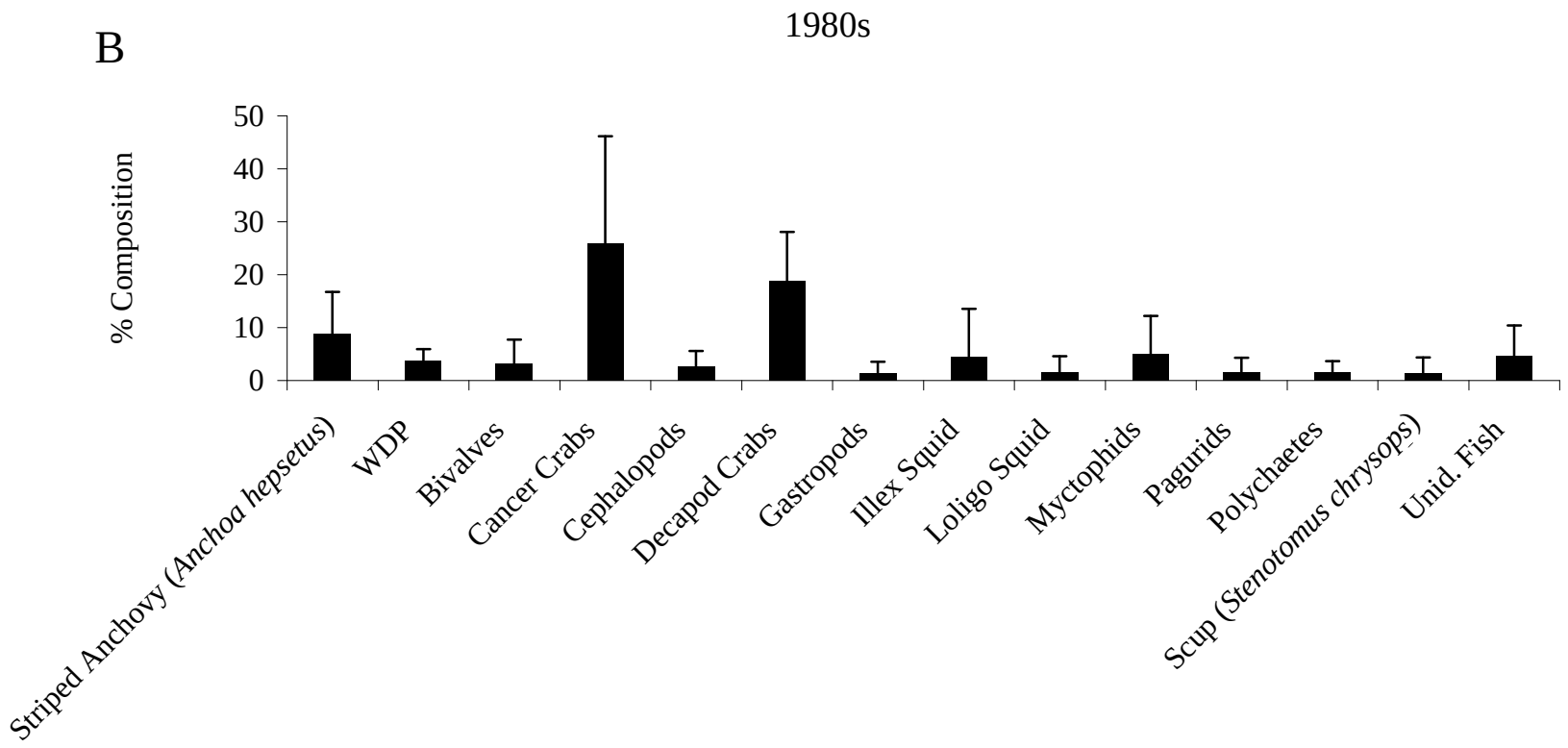

Figure 167B. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) collected in the 1980s (n = 347). WDP = well-digested prey; Unid. Fish = unidentified fish.

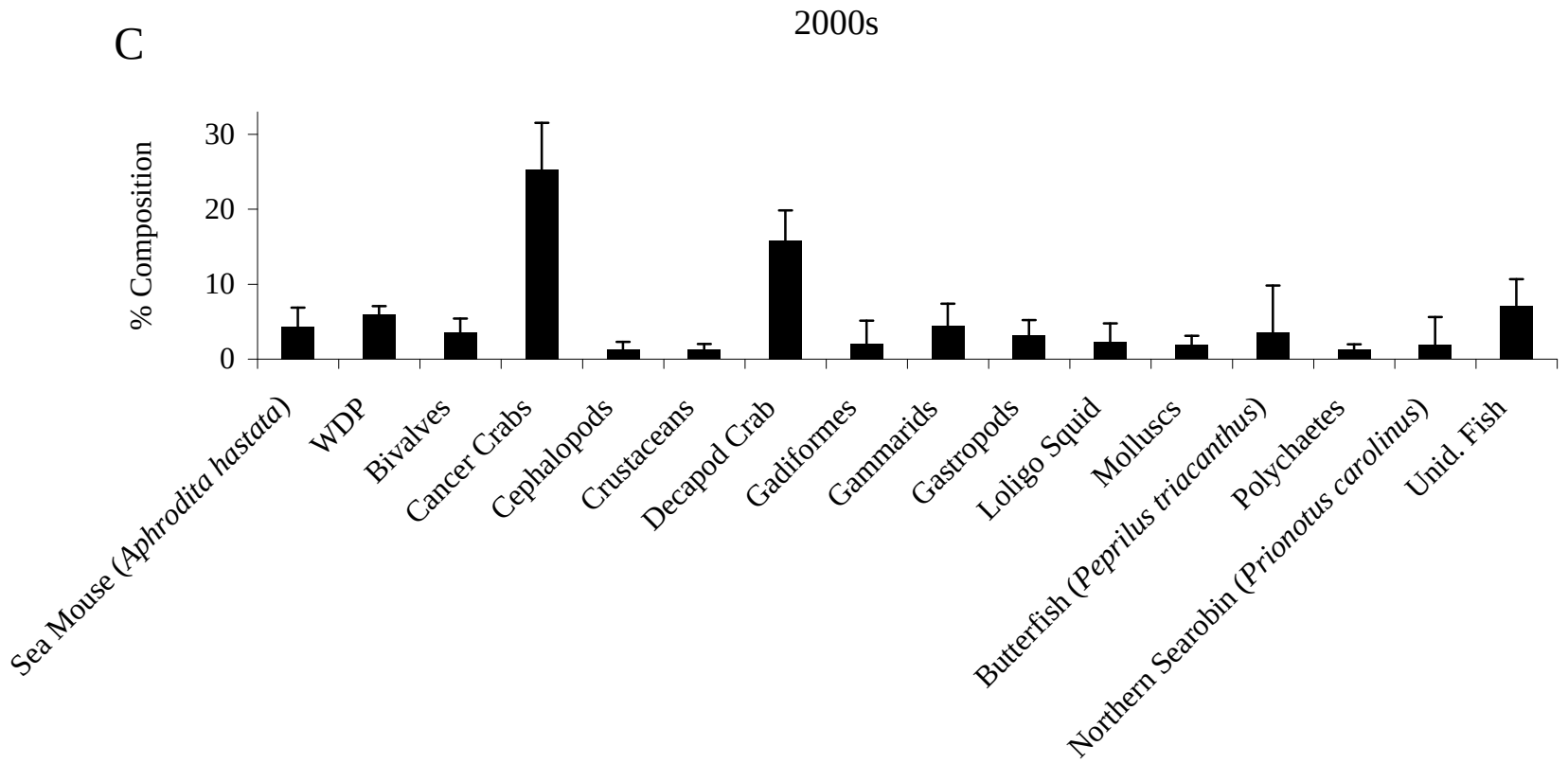

Figure 167C. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) collected in the 2000s (n = 1,481). WDP = well-digested prey; Unid. Fish = unidentified fish.

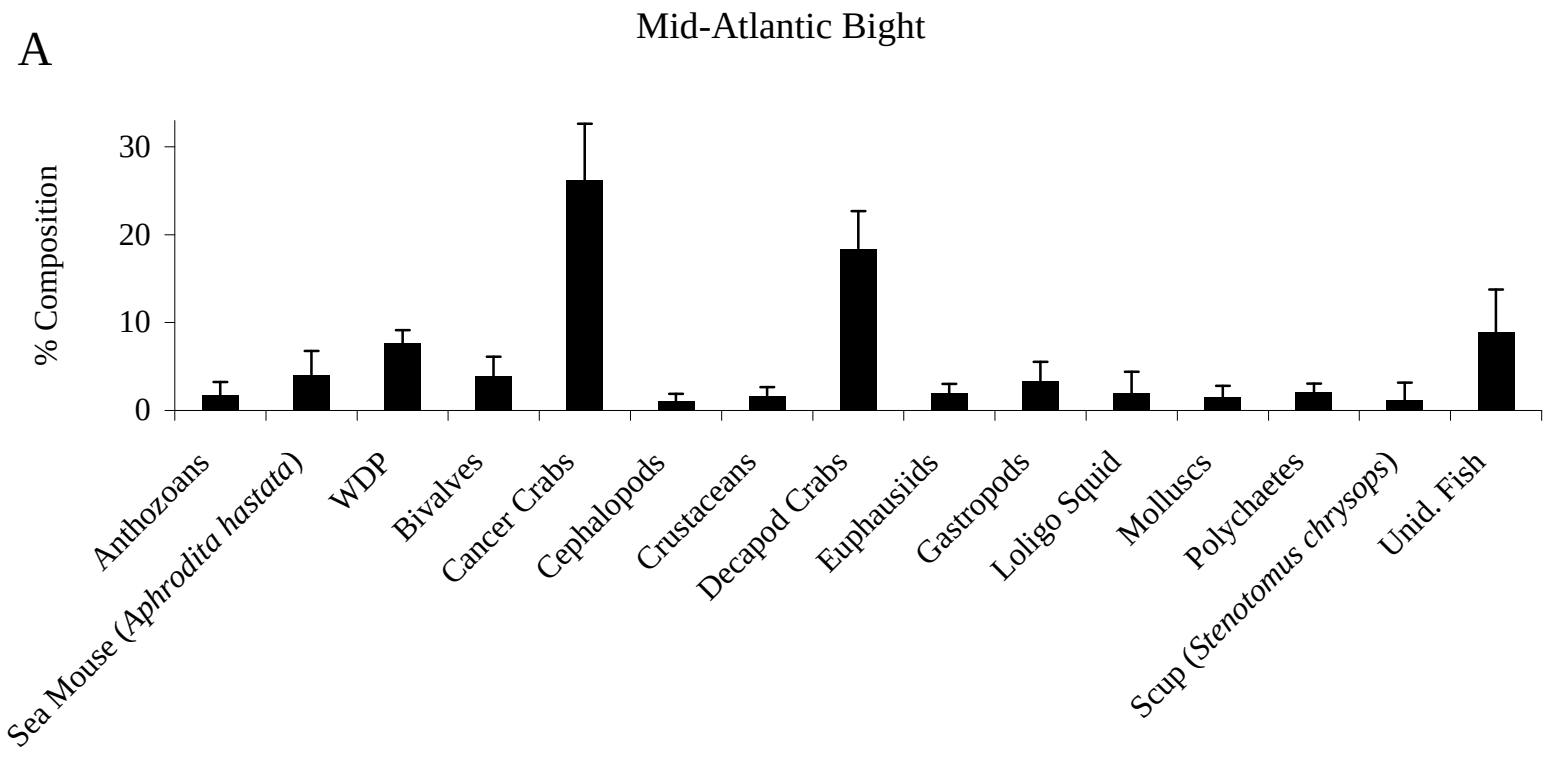

Figure 168A. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) collected in the Mid-Atlantic Bight (n = 1,704). WDP = well-digested prey; Unid. Fish = unidentified fish.

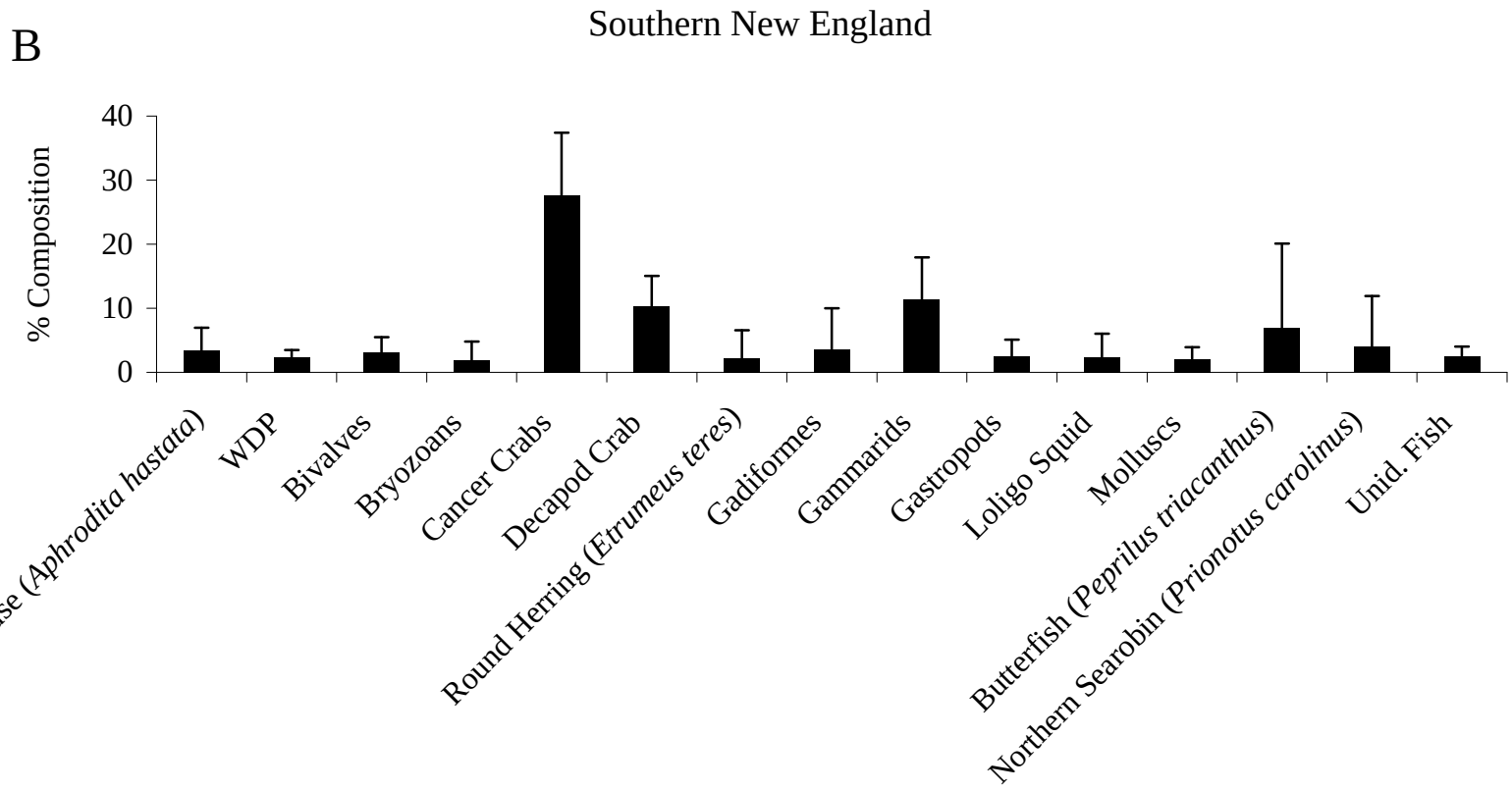

Figure 168B. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) collected in Southern New England (n = 448). WDP = well-digested prey; Unid. Fish = unidentified fish.

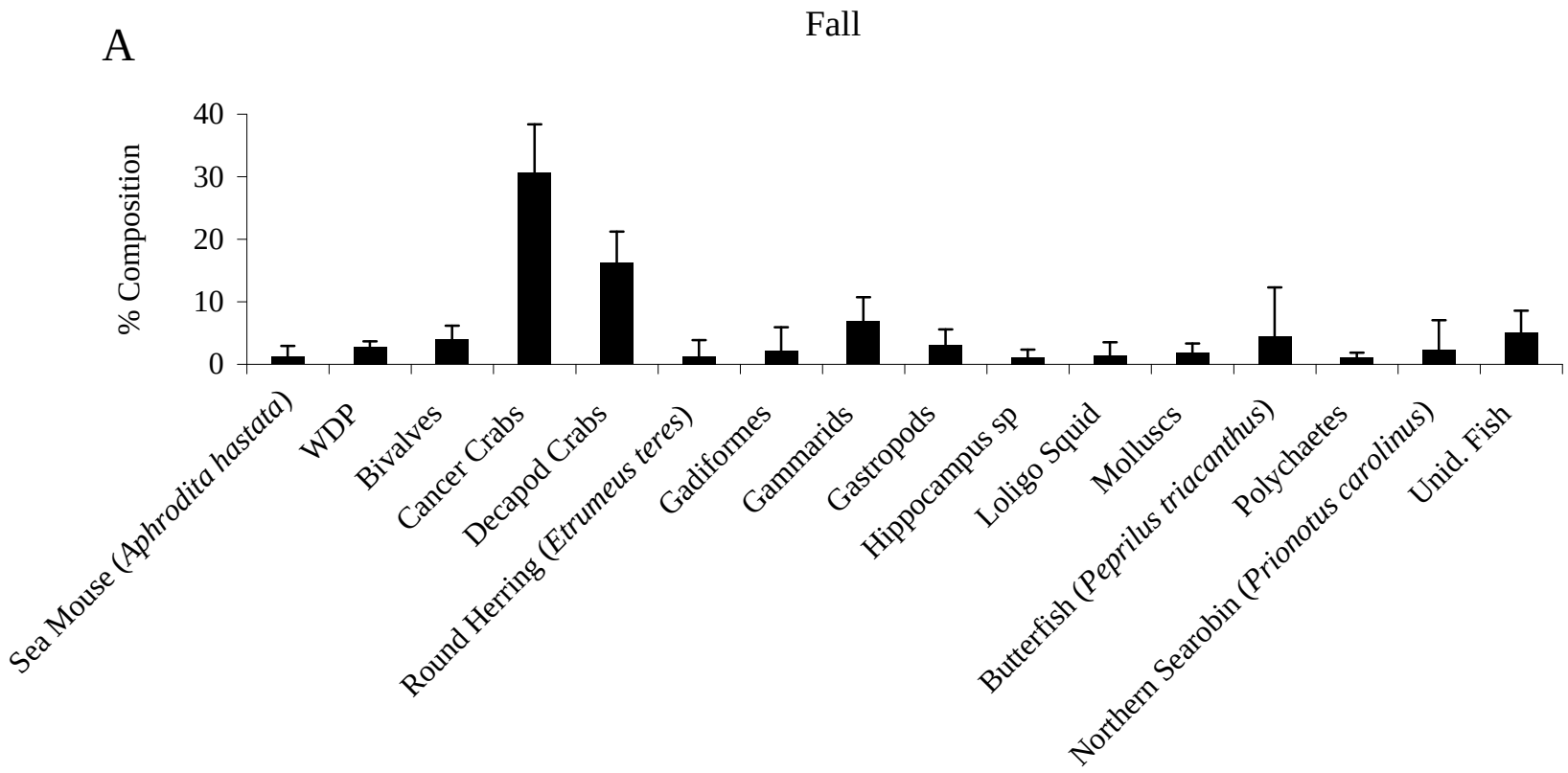

Figure 169A. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) collected in the fall (n = 926). WDP = well-digested prey; Unid. Fish = unidentified fish.

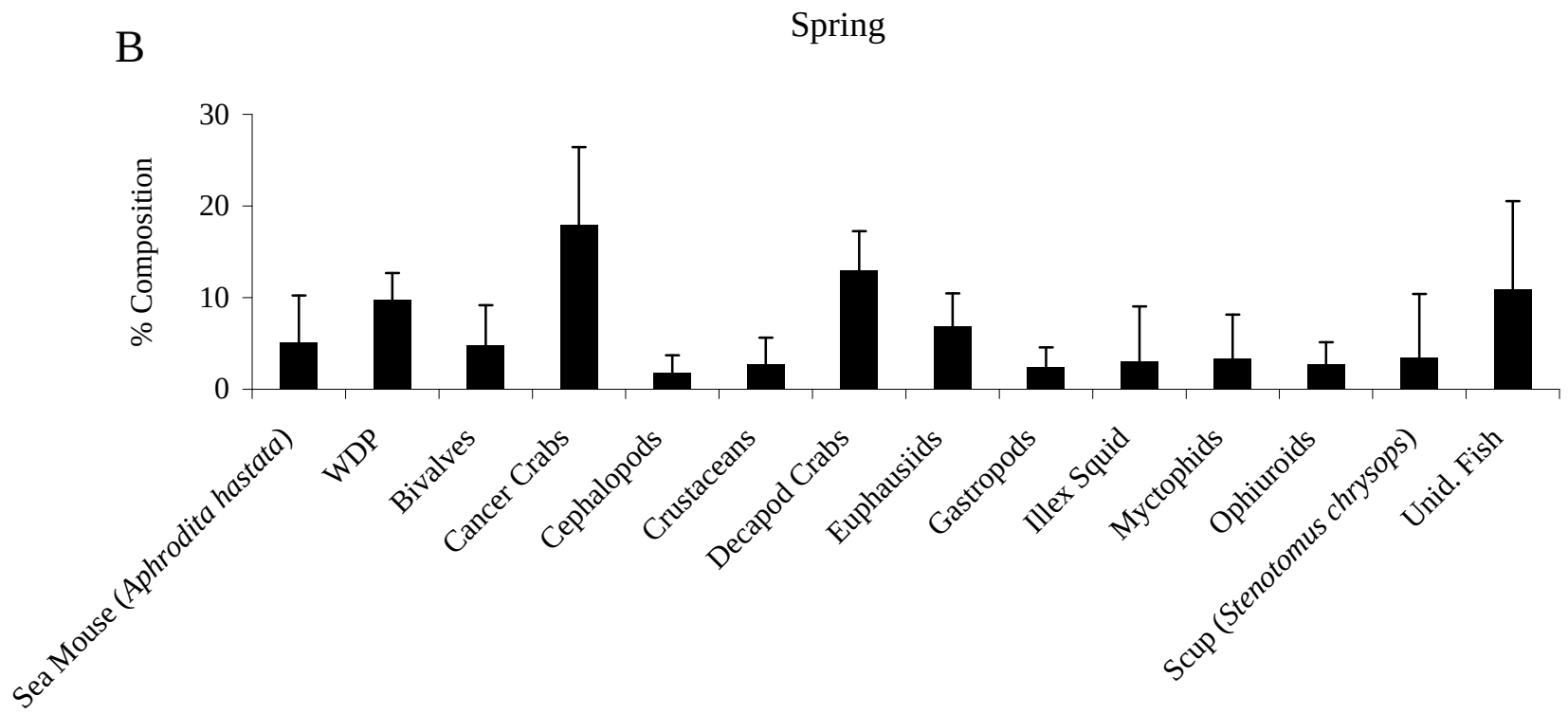

Figure 169B. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) collected in the spring (n = 657). WDP = well-digested prey; Unid. Fish = unidentified fish.

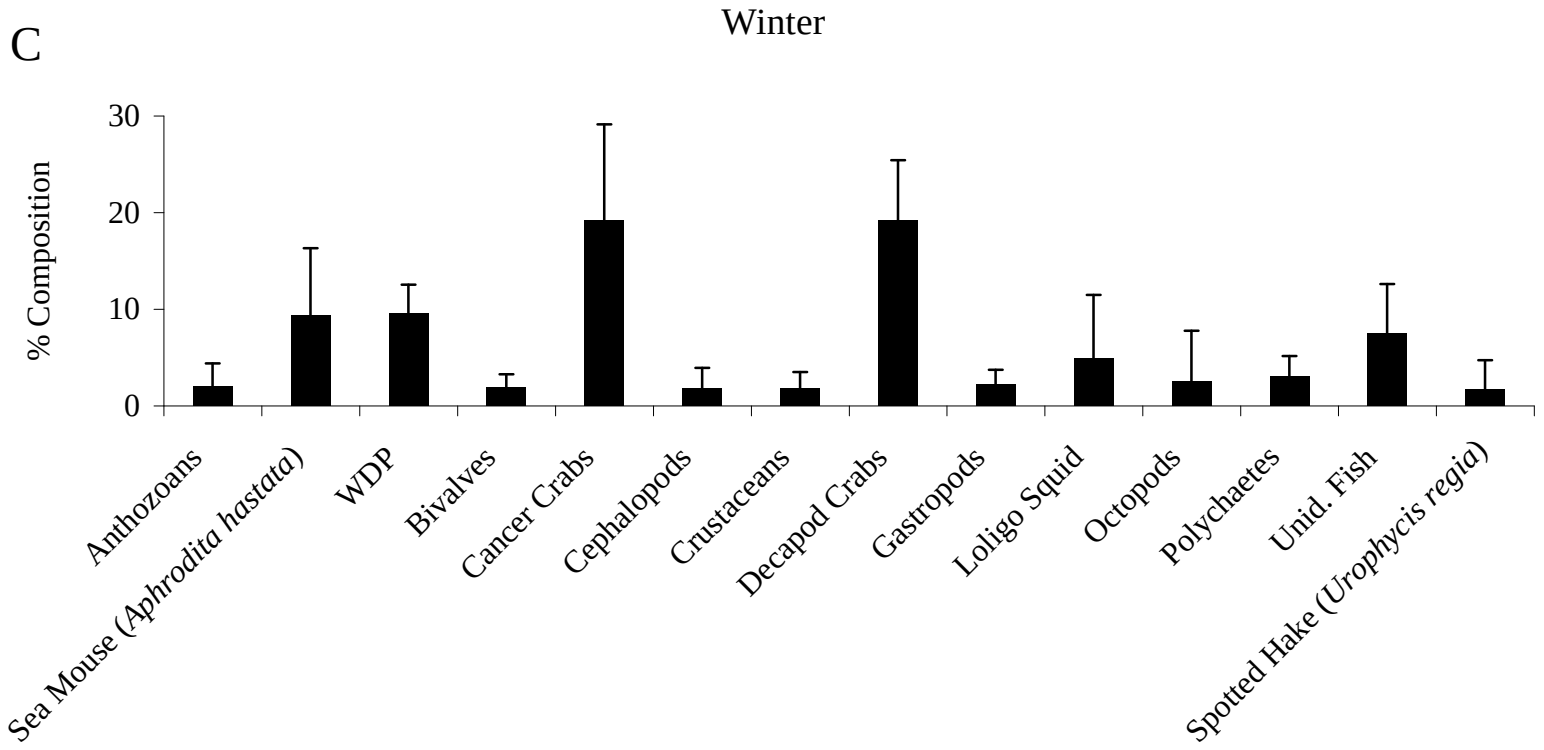

Figure 169C. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) collected in the winter (n = 666). WDP = well-digested prey; Unid. Fish = unidentified fish.

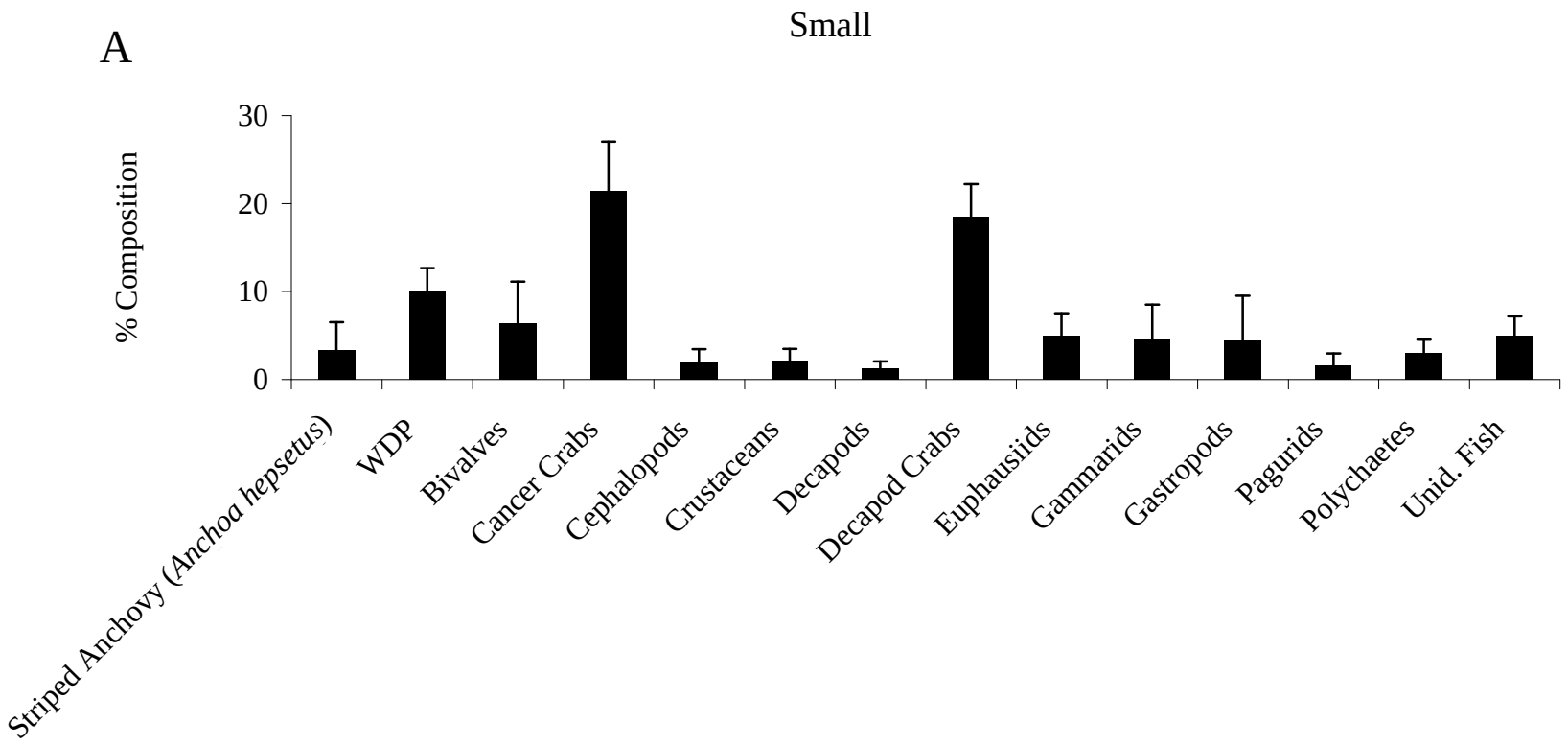

Figure 170A. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) in the small size class (n = 1,372). WDP = well-digested prey; Unid. Fish = unidentified fish.

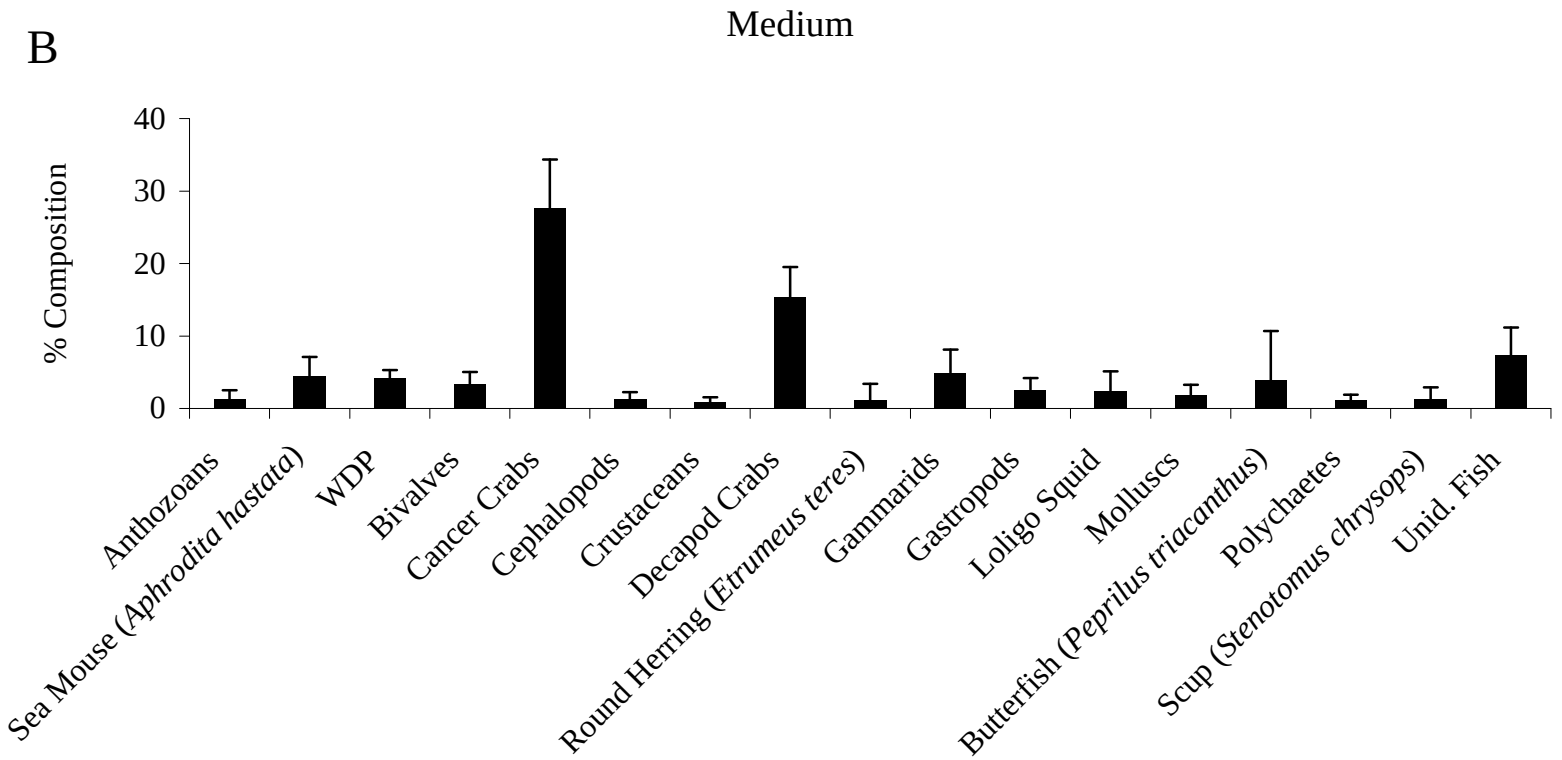

Figure 170B. Percent diet composition by weight of major prey taxa for black sea bass (*Centropristis striata*) in the in the medium size class (n = 1,002). WDP = well-digested prey; Unid. Fish = unidentified fish.

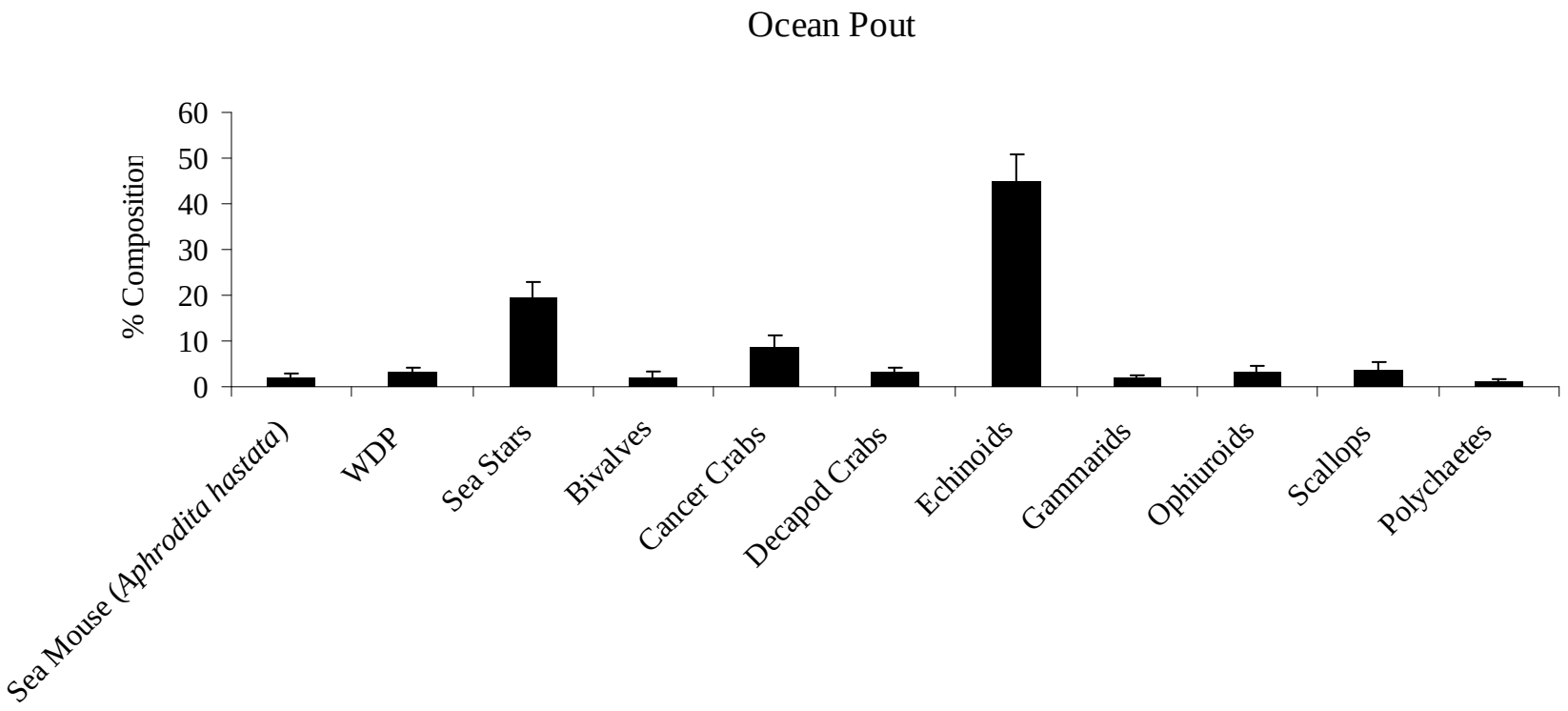

Figure 171. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*; n = 3,478). WDP = well-digested prey.

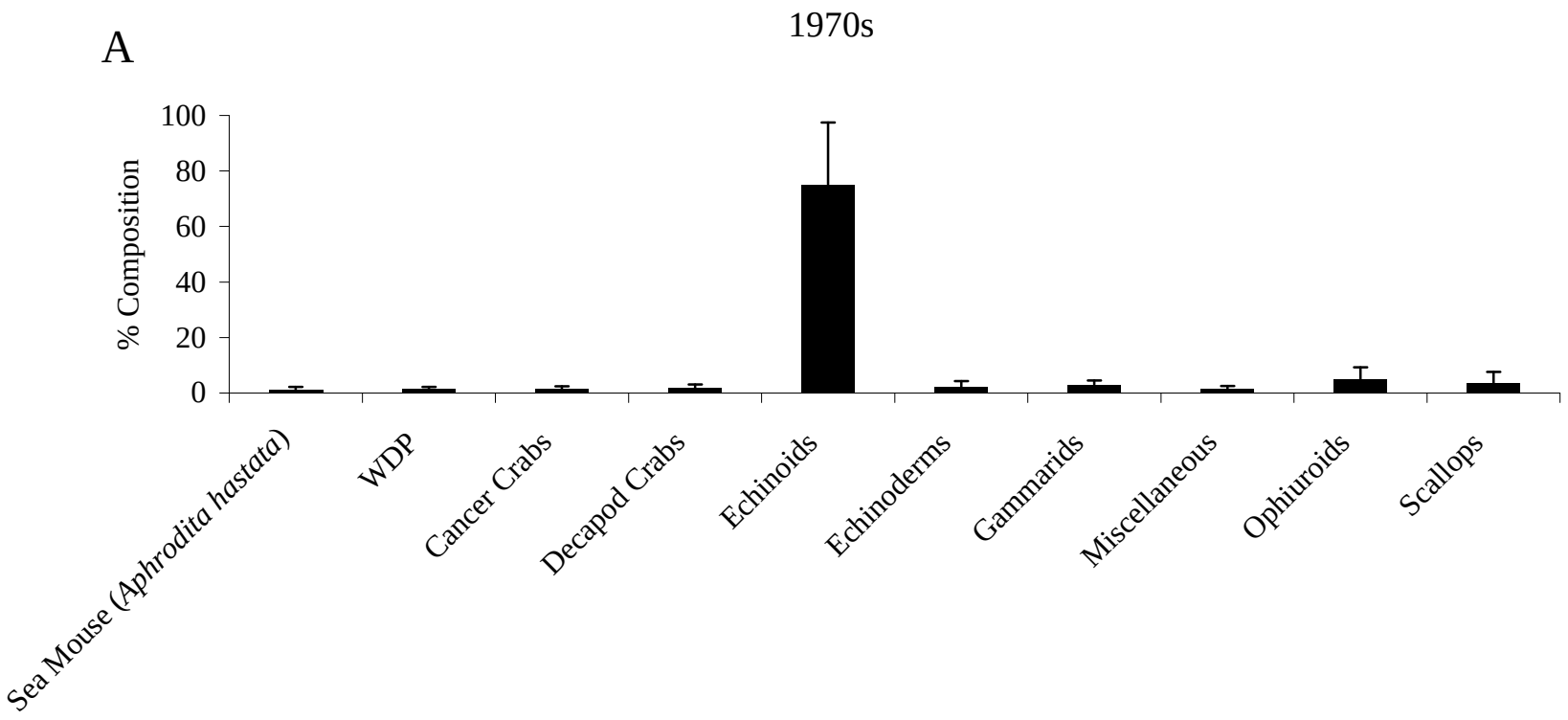

Figure 172A. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in the 1970s (n = 459). WDP = well-digested prey.

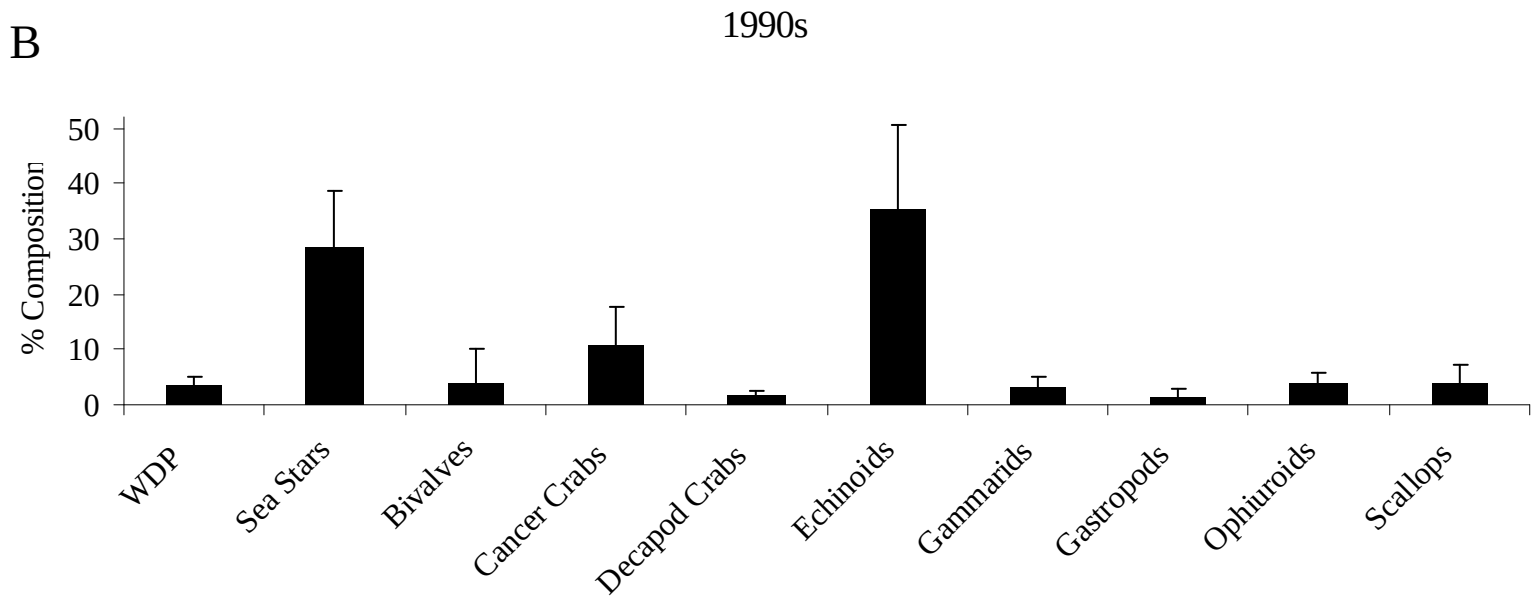

Figure 172B. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in the 1990s (n = 627). WDP = well-digested prey.

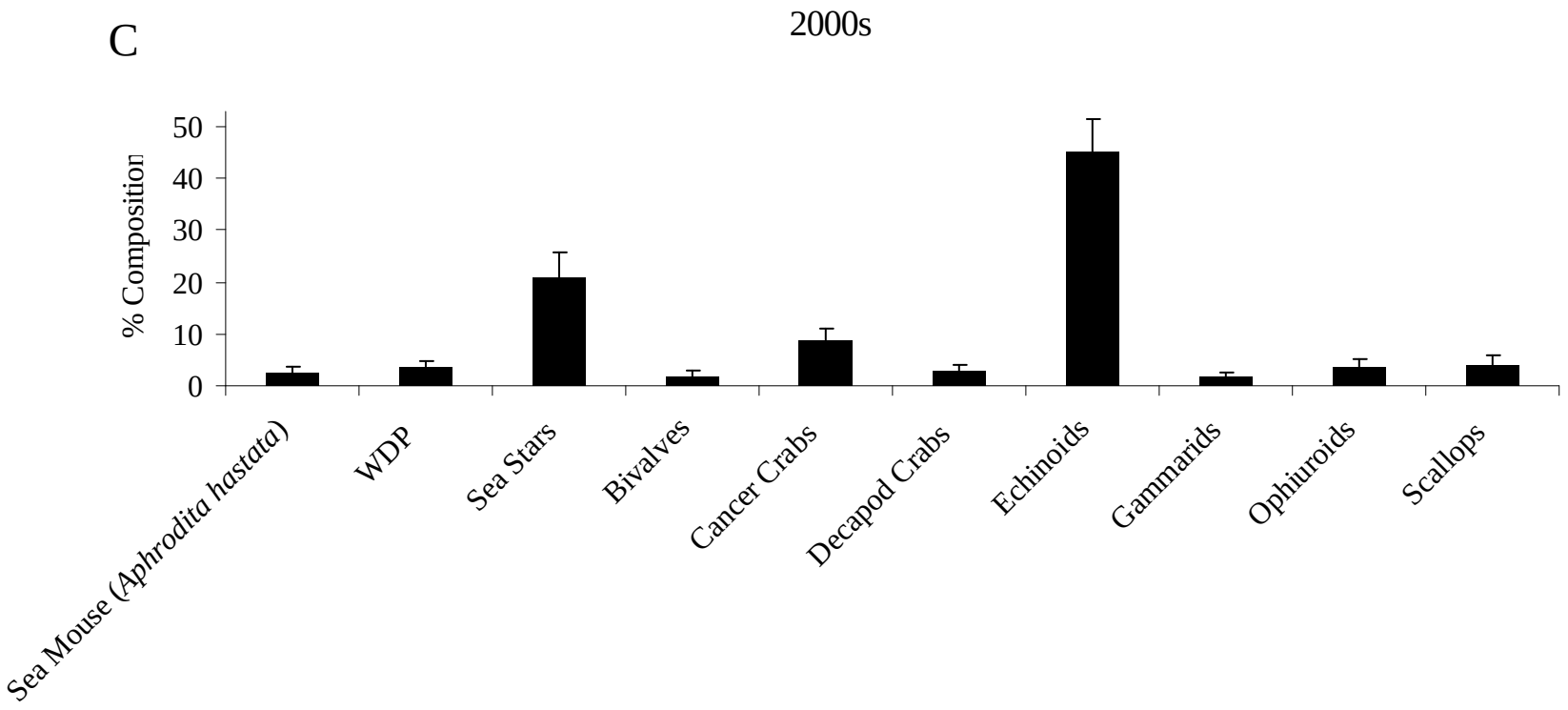

Figure 172C. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in the 2000s (n = 2,222). WDP = well-digested prey.

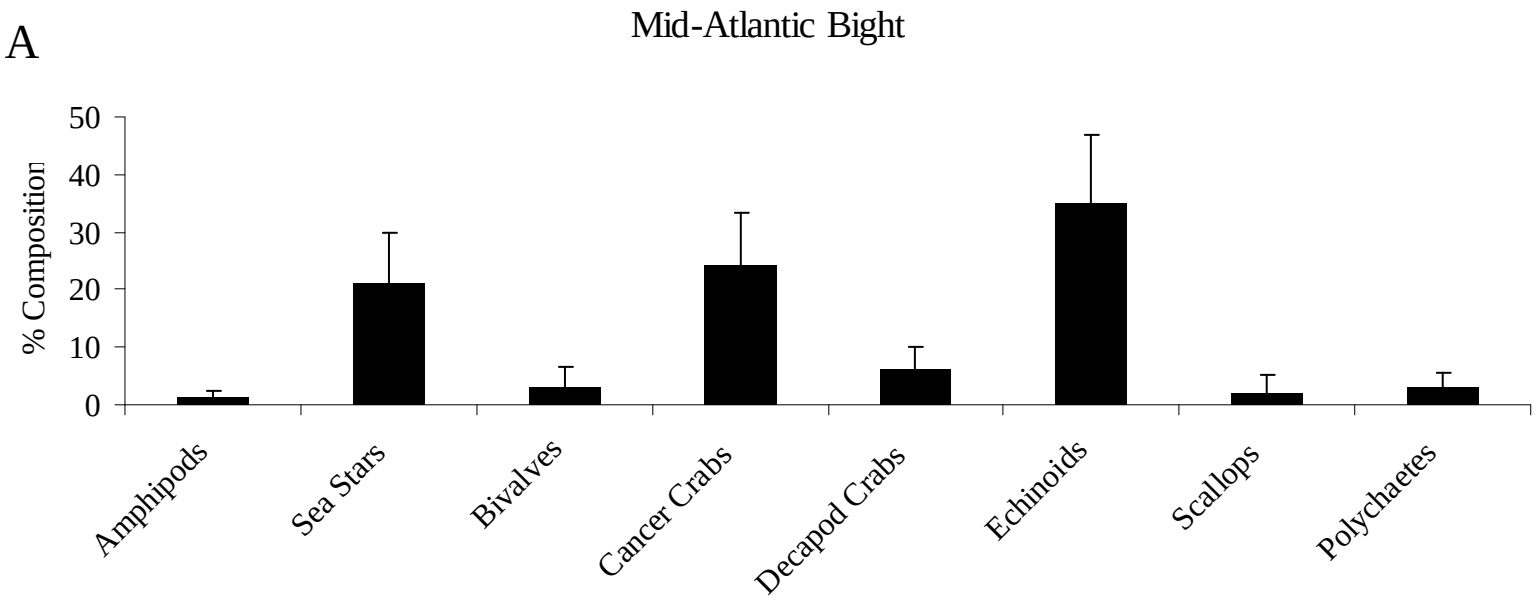

Figure 173A. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in the Mid-Atlantic Bight (n = 238).

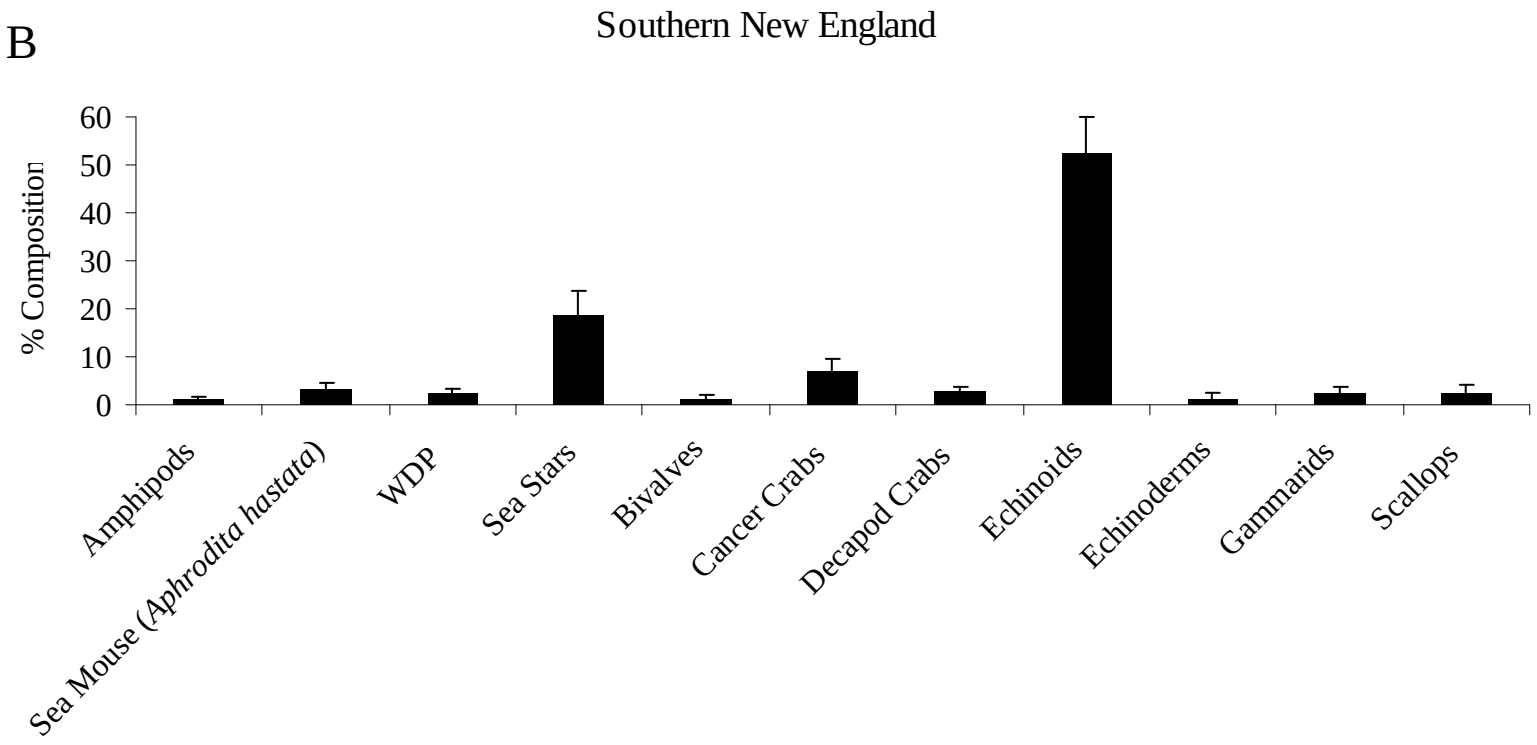

Figure 173B. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in Southern New England (n = 1,652). WDP = well-digested prey.

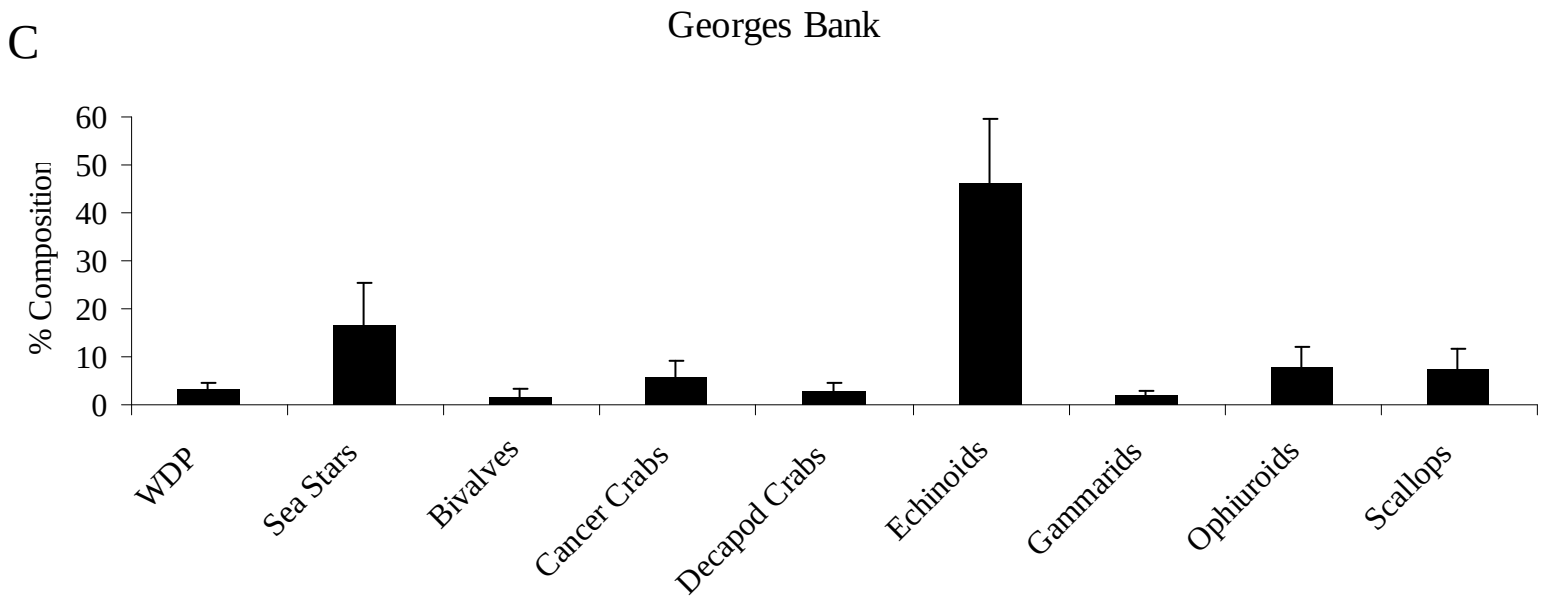

Figure 173C. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected on Georges Bank (n = 972). WDP = well-digested prey.

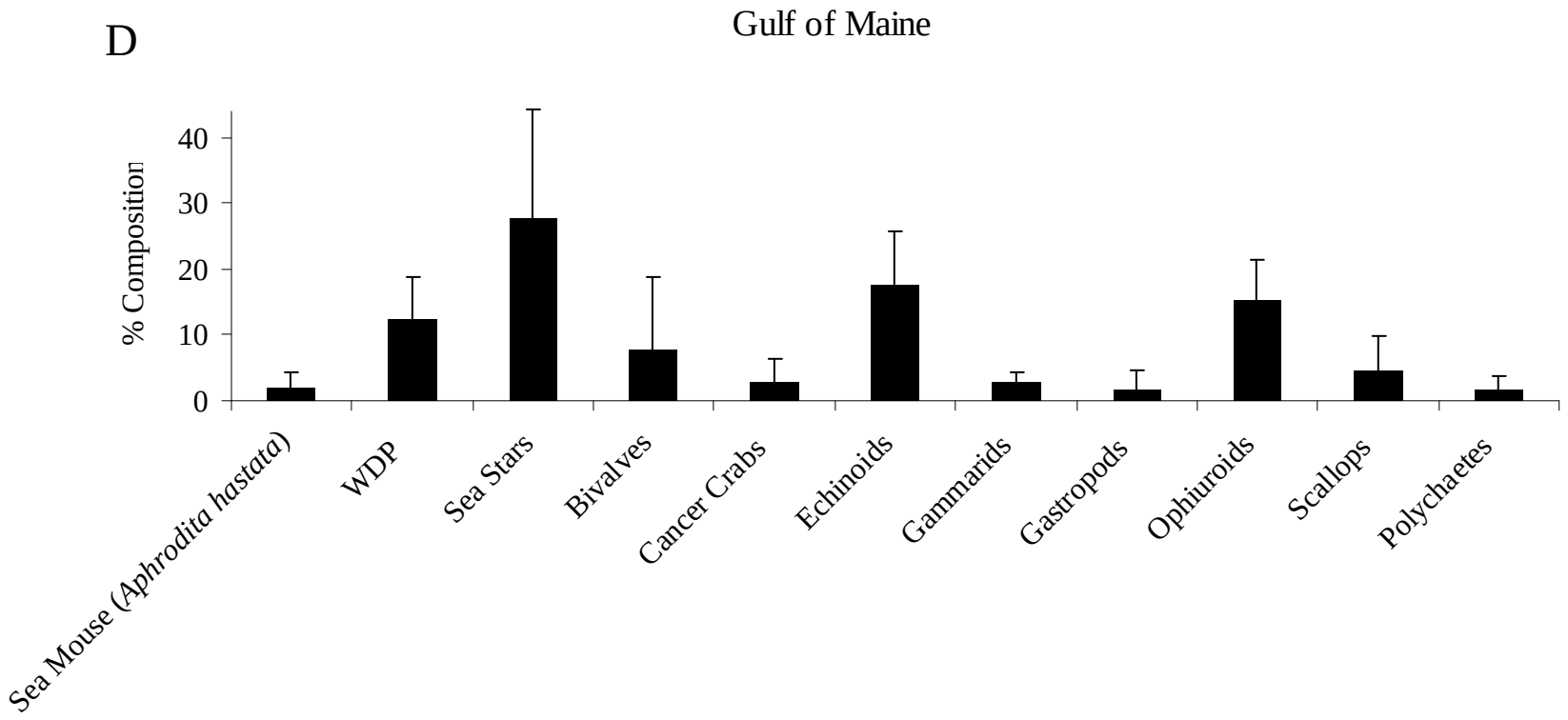

Figure 173D. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in the Gulf of Maine (n = 495). WDP = well-digested prey.

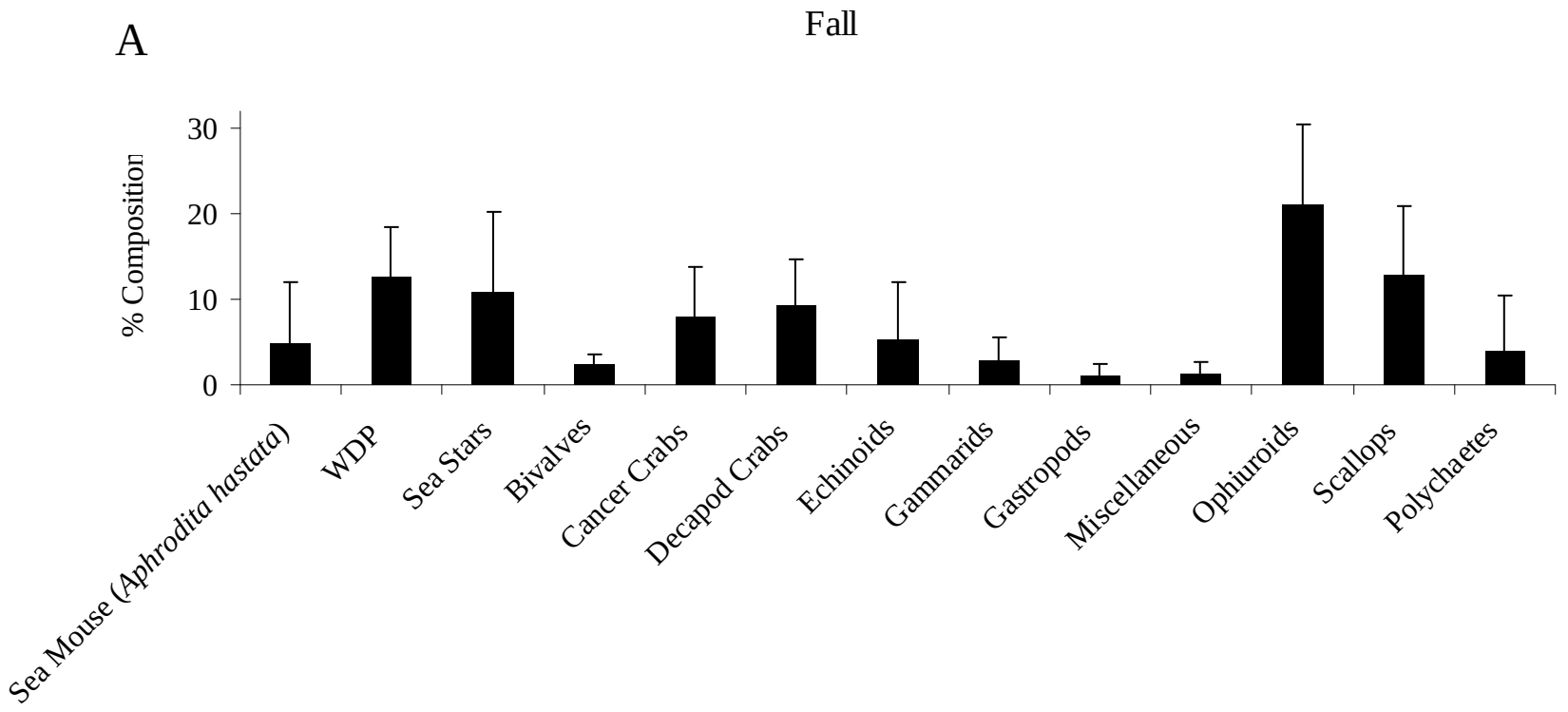

Figure 174A. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in the fall (n = 612). WDP = well-digested prey.

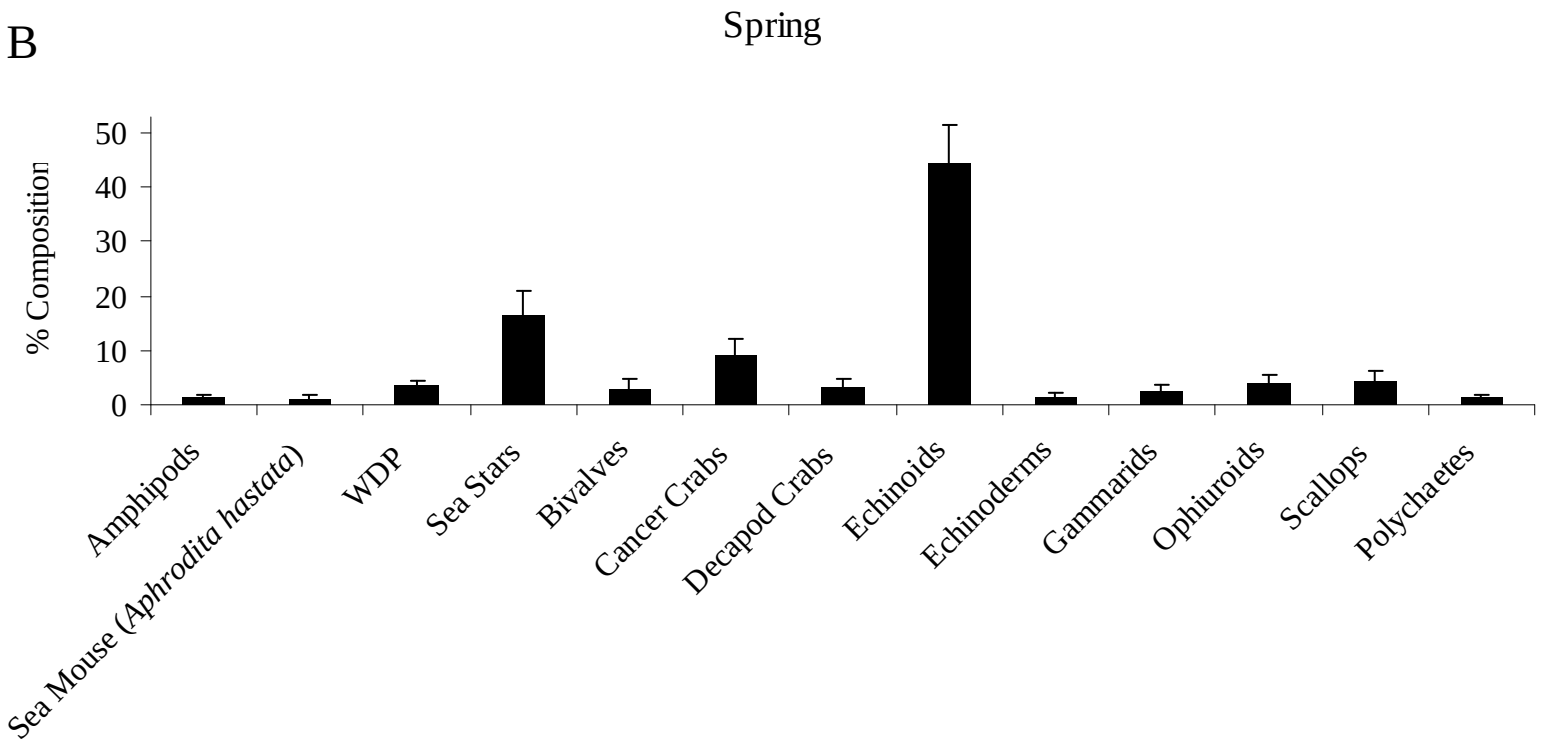

Figure 174B. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in the spring (n = 1,958). WDP = well-digested prey.

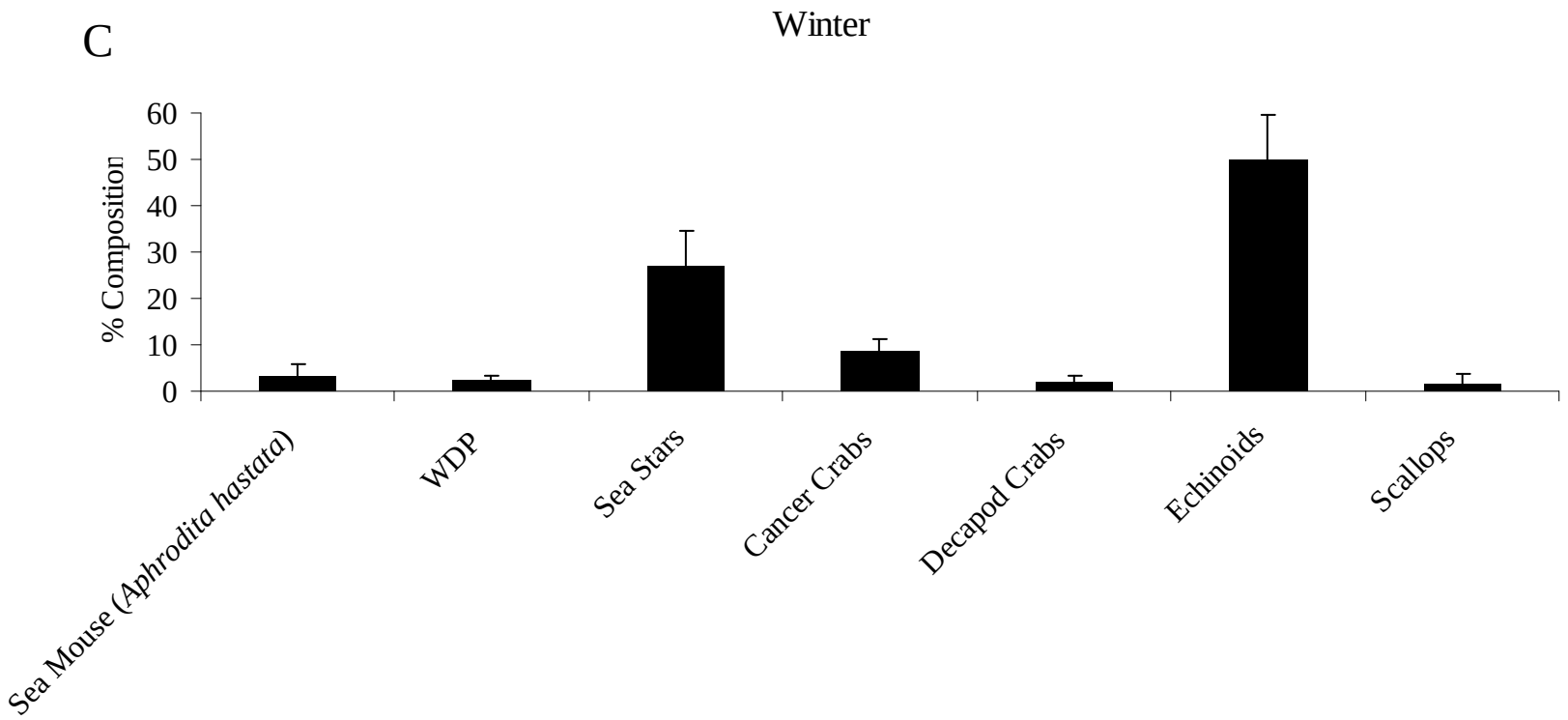

Figure 174C. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) collected in the winter (n = 857). WDP = well-digested prey.

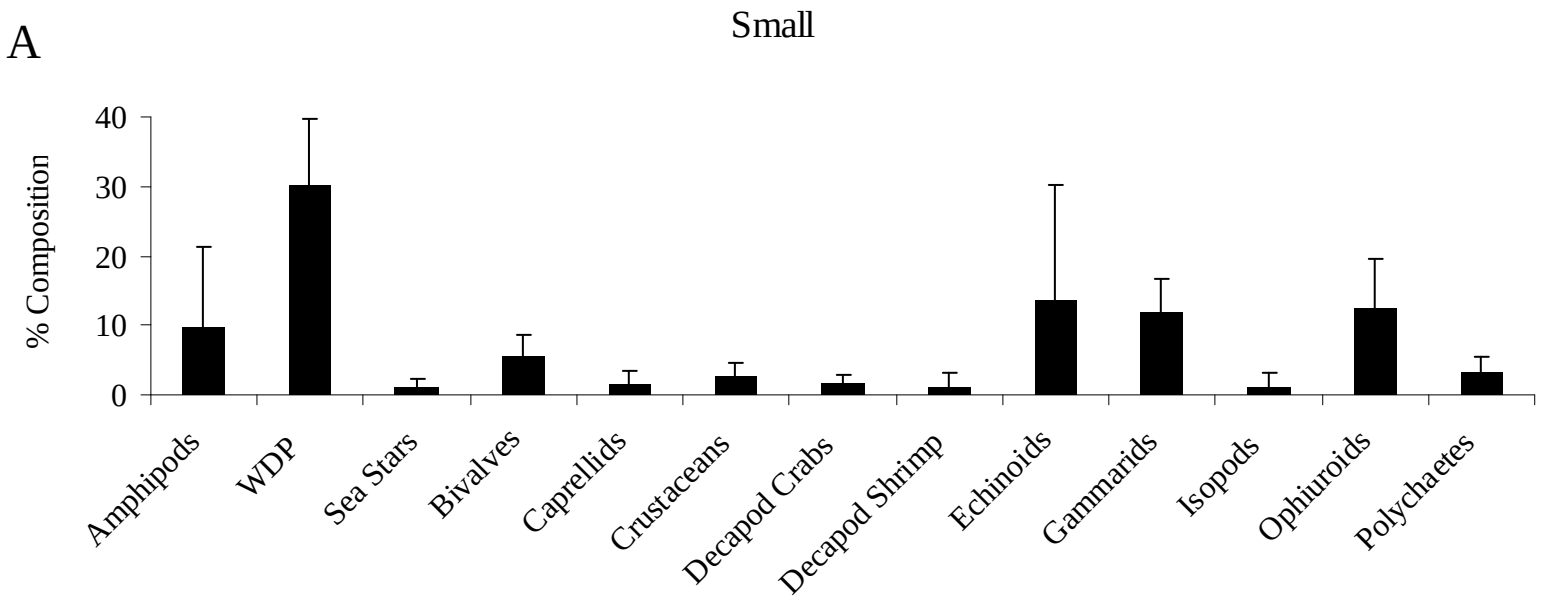

Figure 175A. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) in the small size class (n = 543). WDP = well-digested prey.

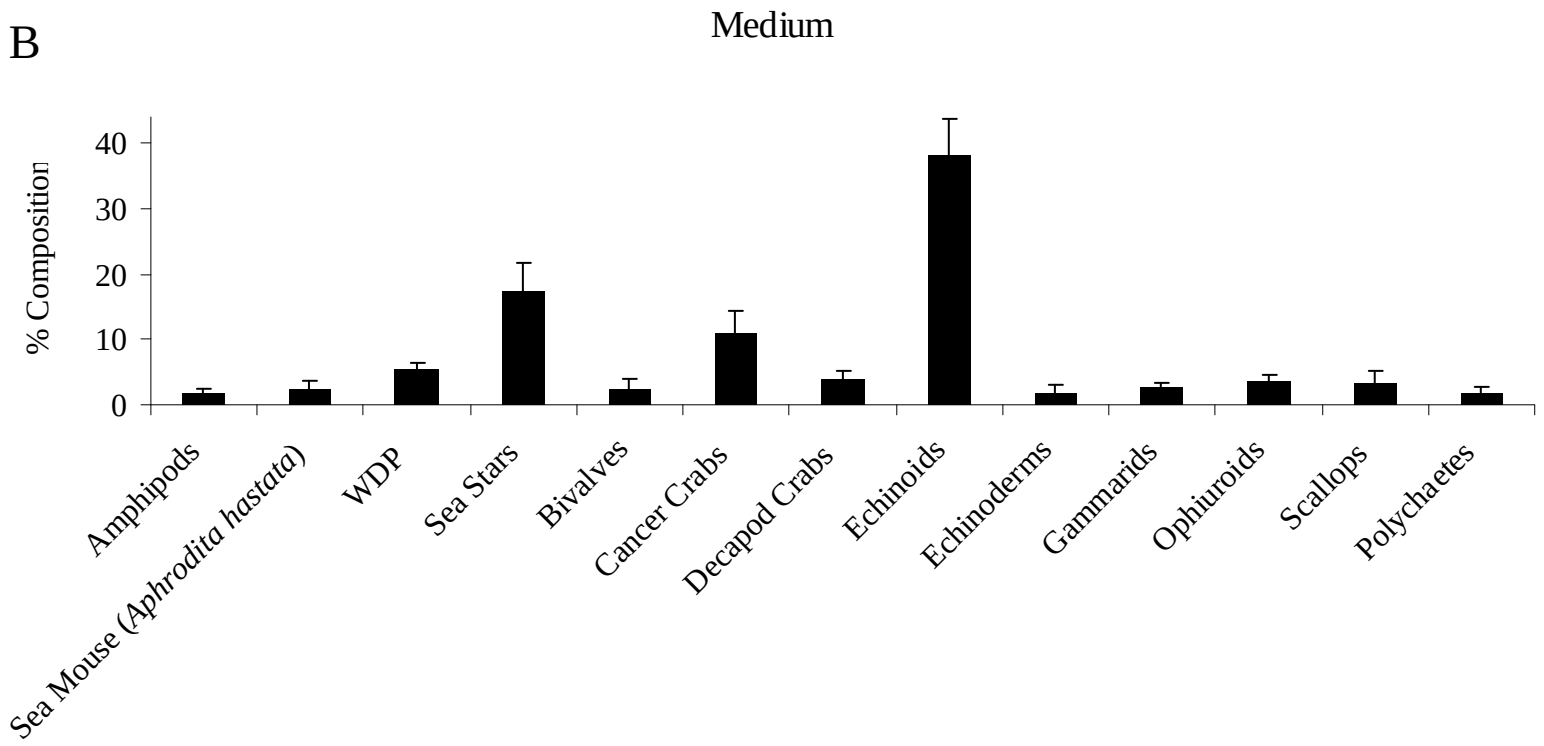

Figure 175B. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) in the medium size class (n = 2,270). WDP = well-digested prey.

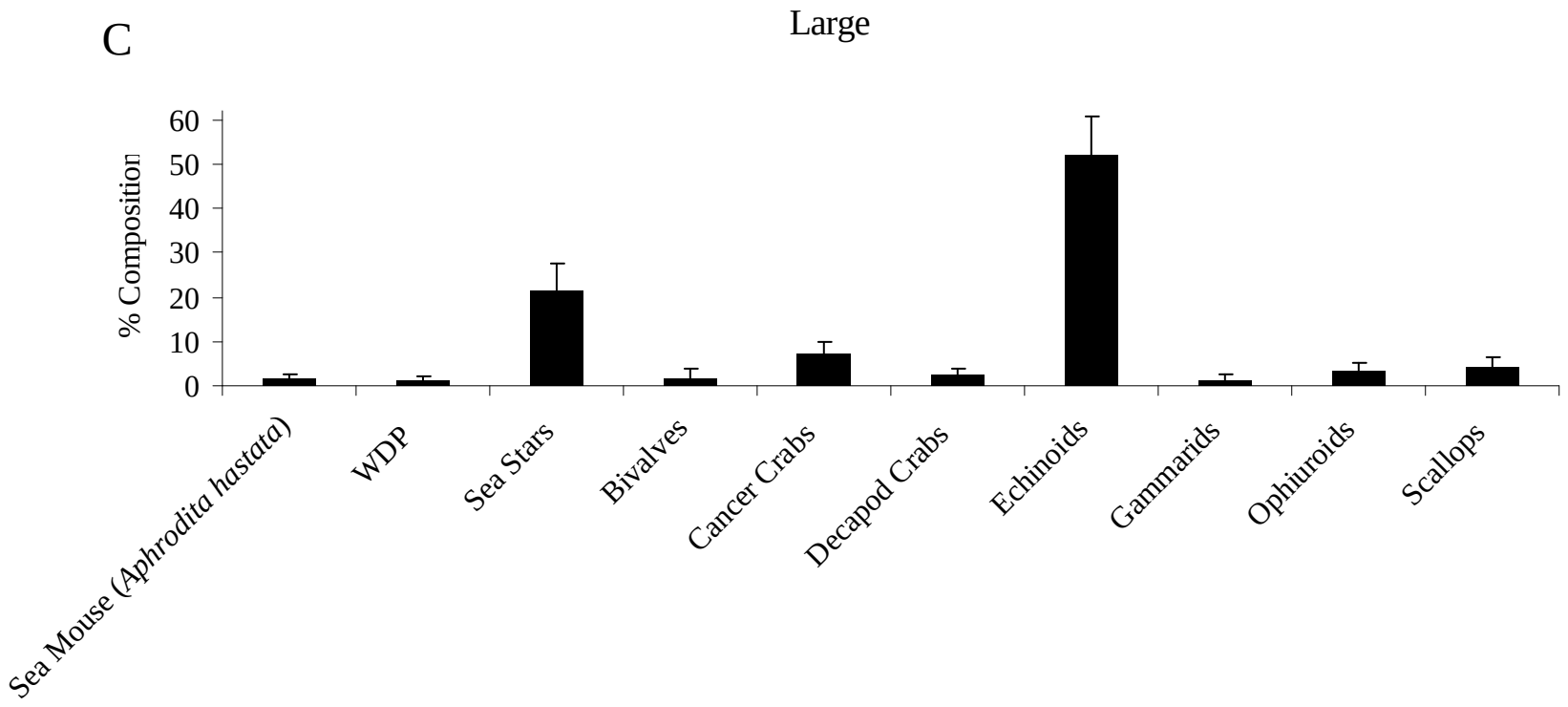

Figure 175C. Percent diet composition by weight of major prey taxa for ocean pout (*Zoarces americanus*) in the large size class (n = 665). WDP = well-digested prey.

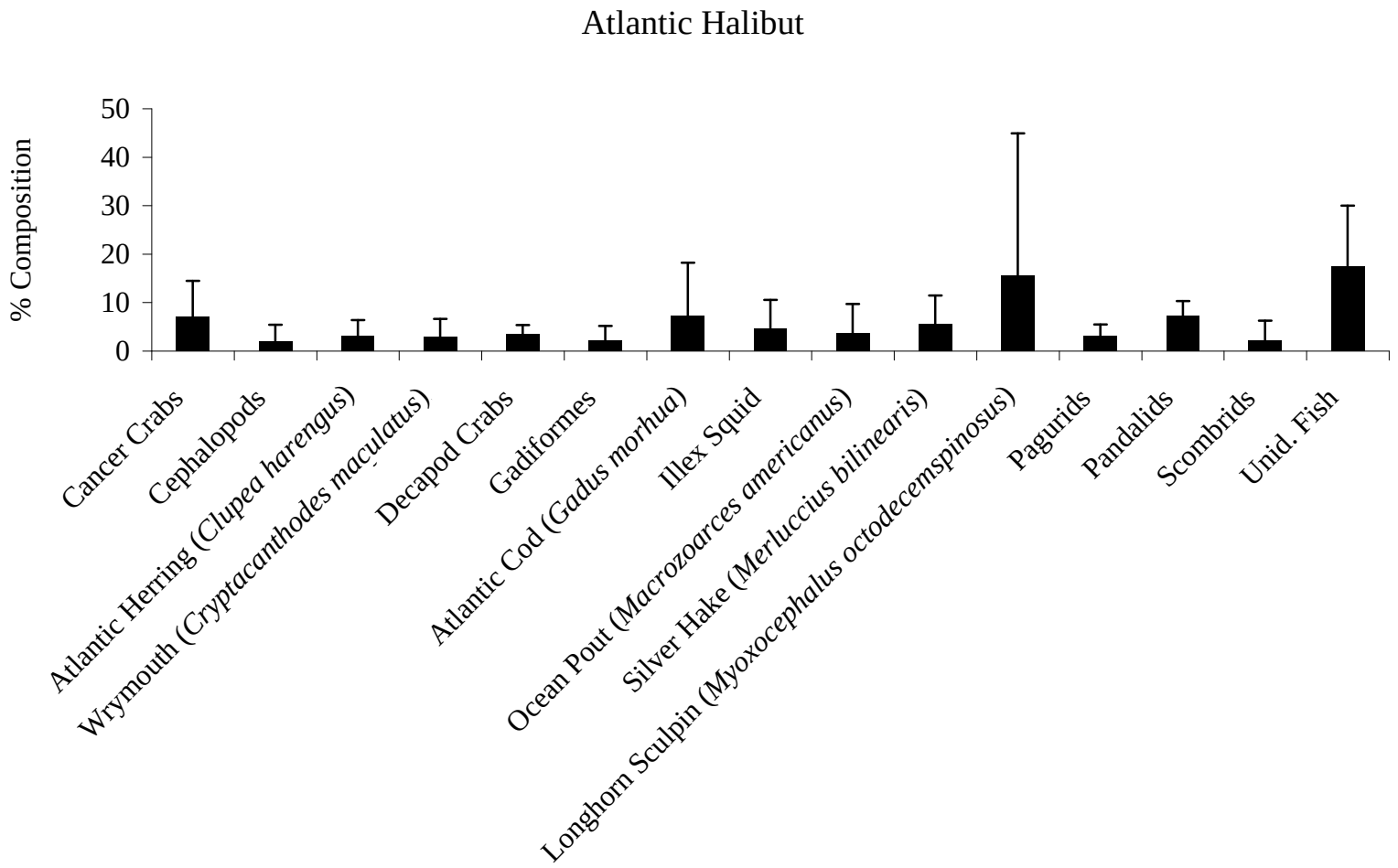

Figure 176. Percent diet composition by weight of major prey taxa for Atlantic halibut (*Hippoglossus hippoglossus*; n = 447). Unid. Fish = unidentified fish.

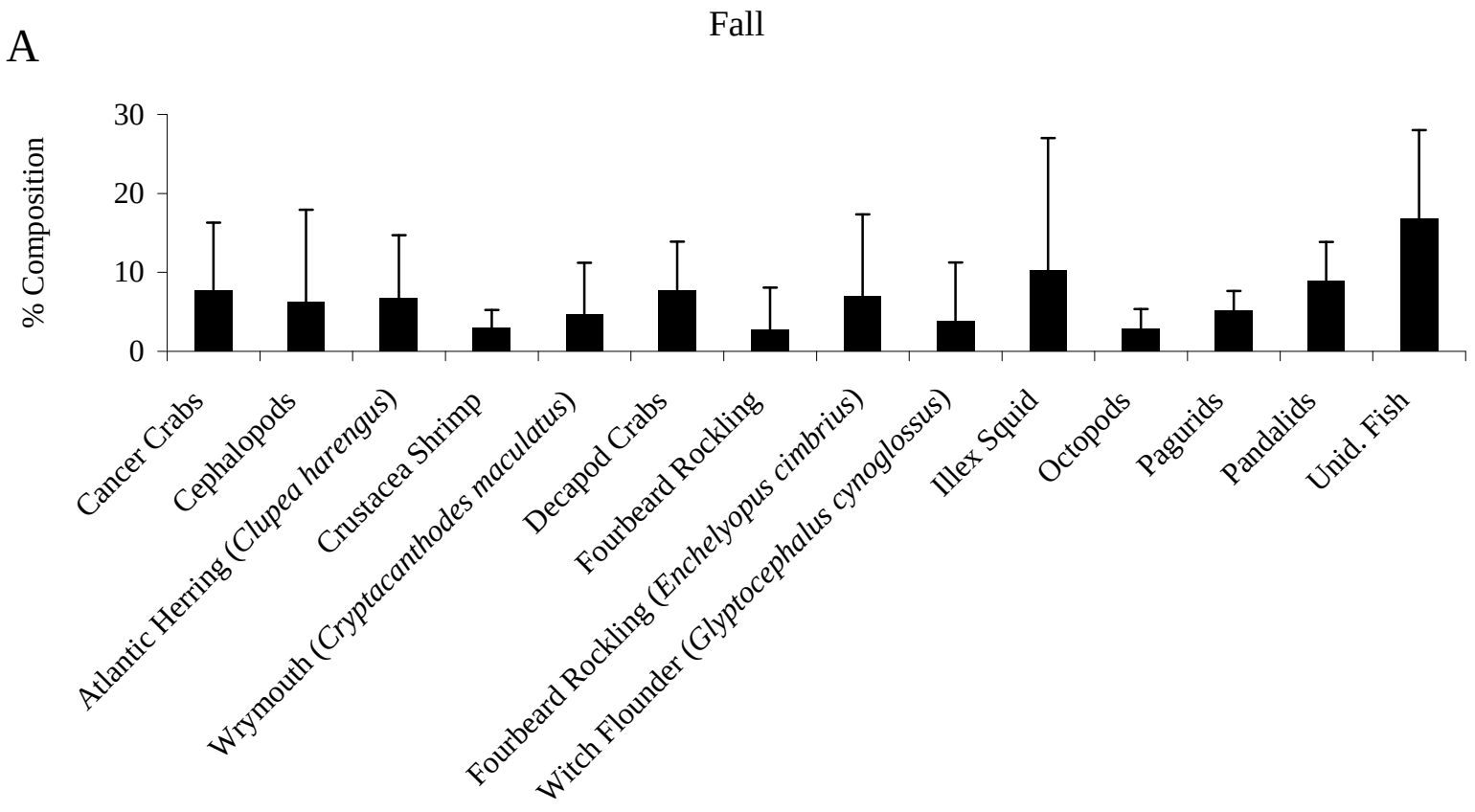

Figure 177A. Percent diet composition by weight of major prey taxa for Atlantic halibut (*Hippoglossus hippoglossus*; collected in the fall (n = 214). Unid. Fish = unidentified fish.

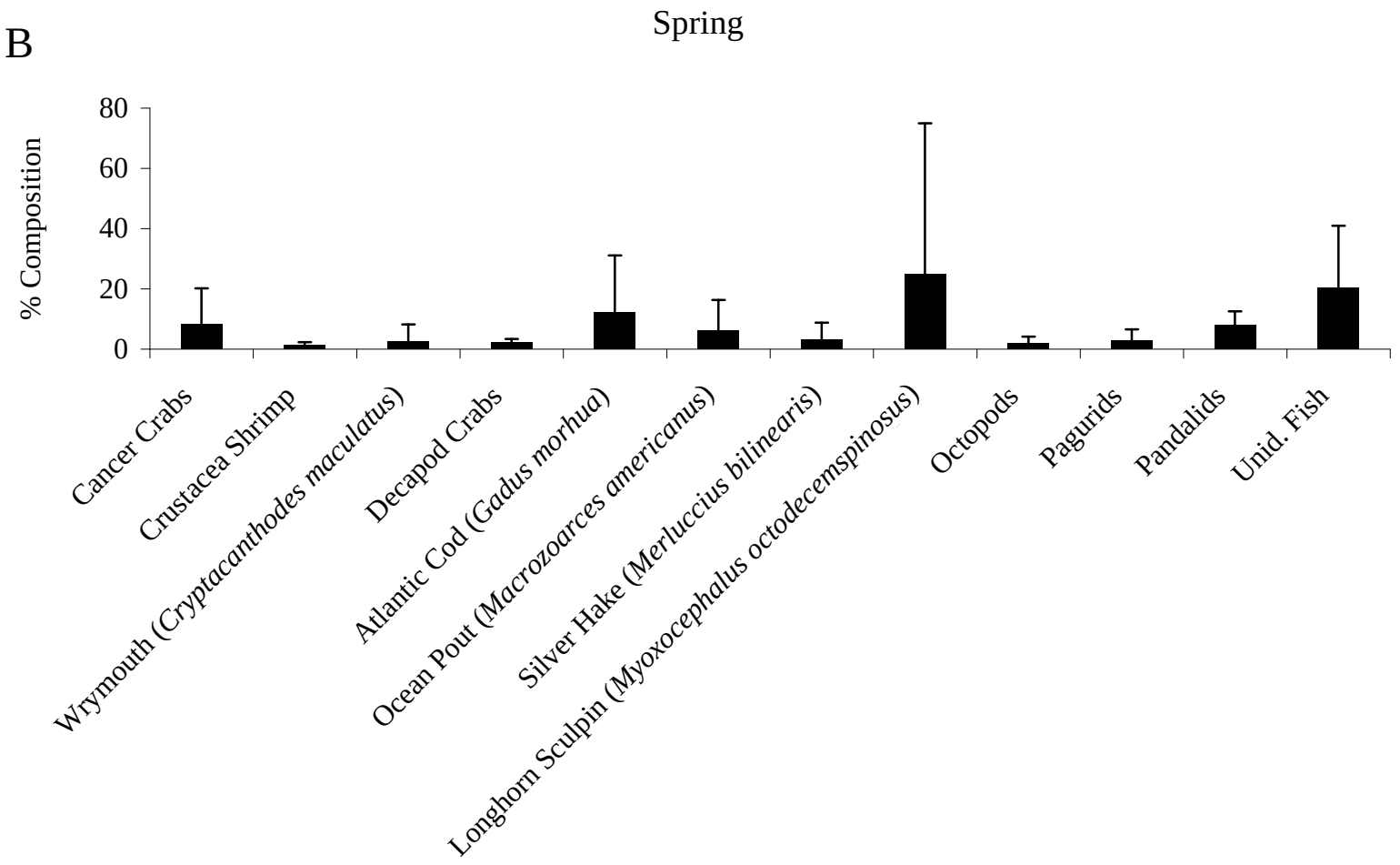

Figure 177B. Percent diet composition by weight of major prey taxa for Atlantic halibut (*Hippoglossus hippoglossus*; collected in the spring (n = 201). Unid. Fish = unidentified fish.

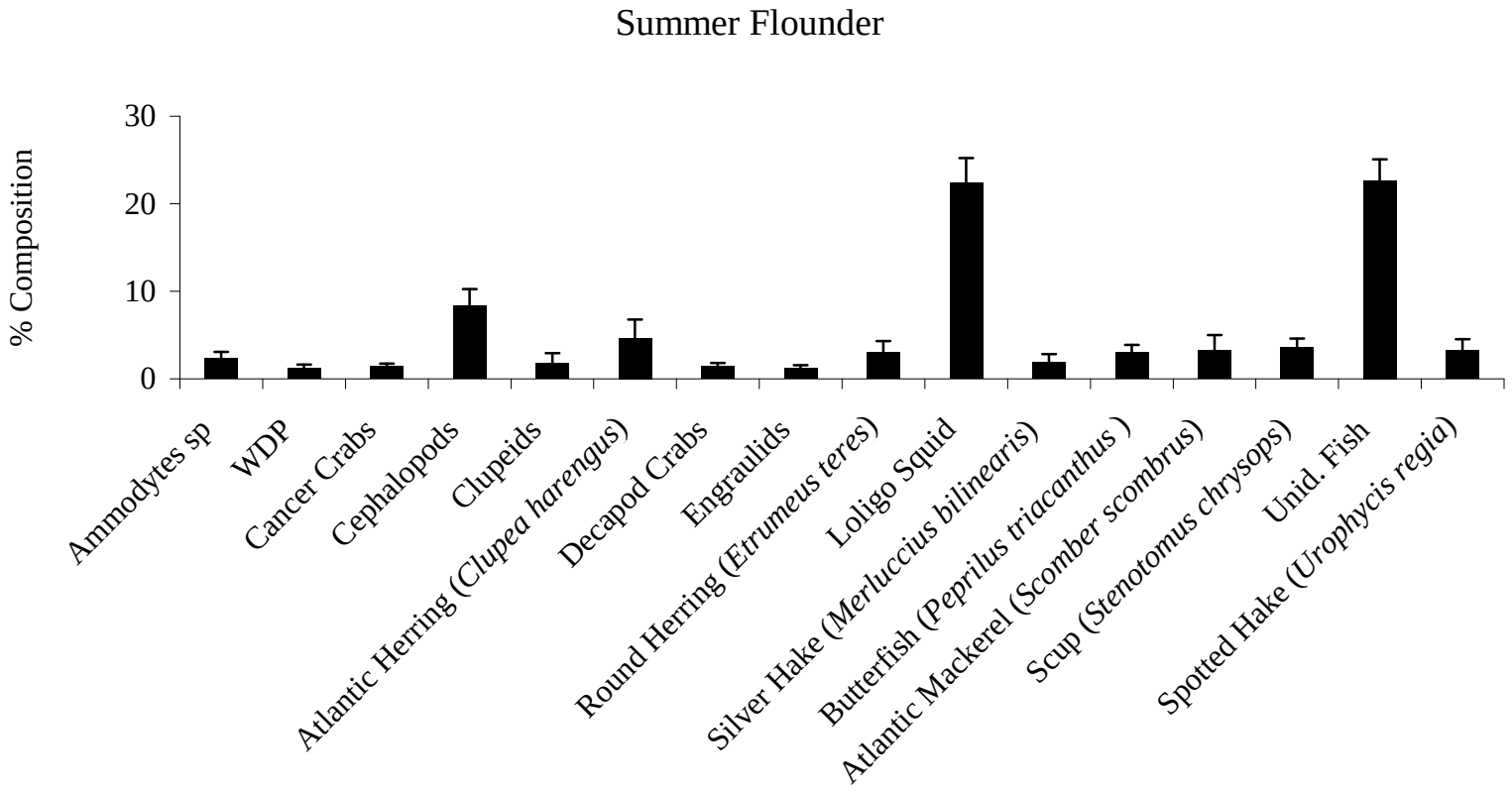

Figure 178. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*; n = 17,387). WDP = well-digested prey; Unid. Fish = unidentified fish.

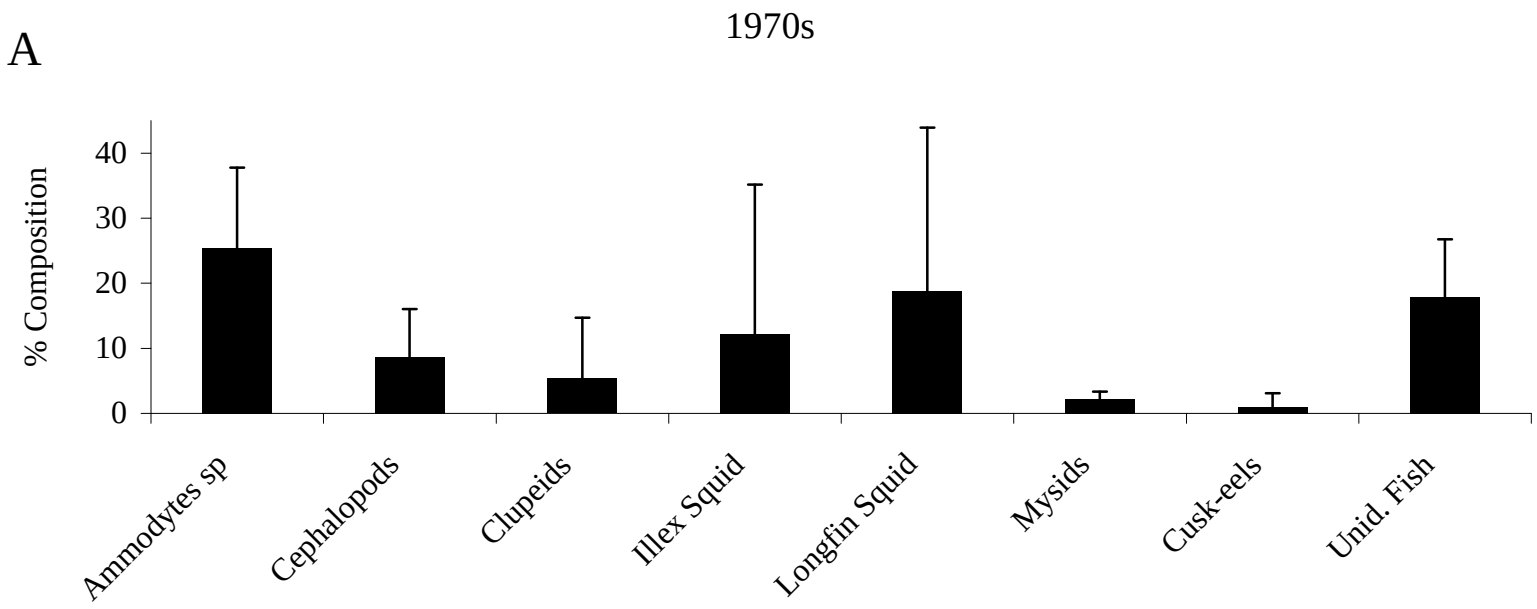

Figure 179A. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected in the 1970s (n = 517). Unid. Fish = unidentified fish.

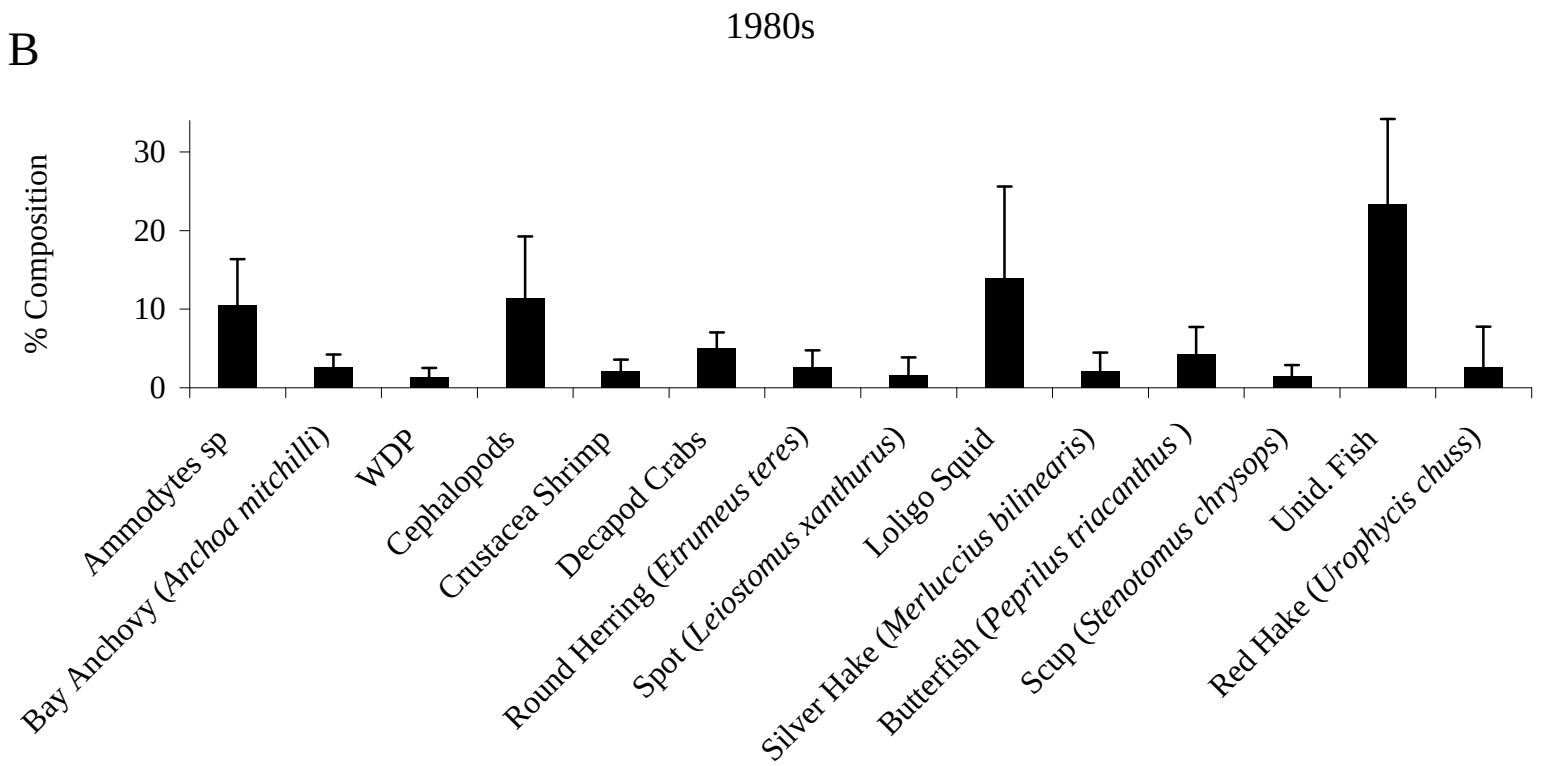

Figure 179B. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected collected in the 1980s (n = 1,334). WDP = well-digested prey; Unid. Fish = unidentified fish.

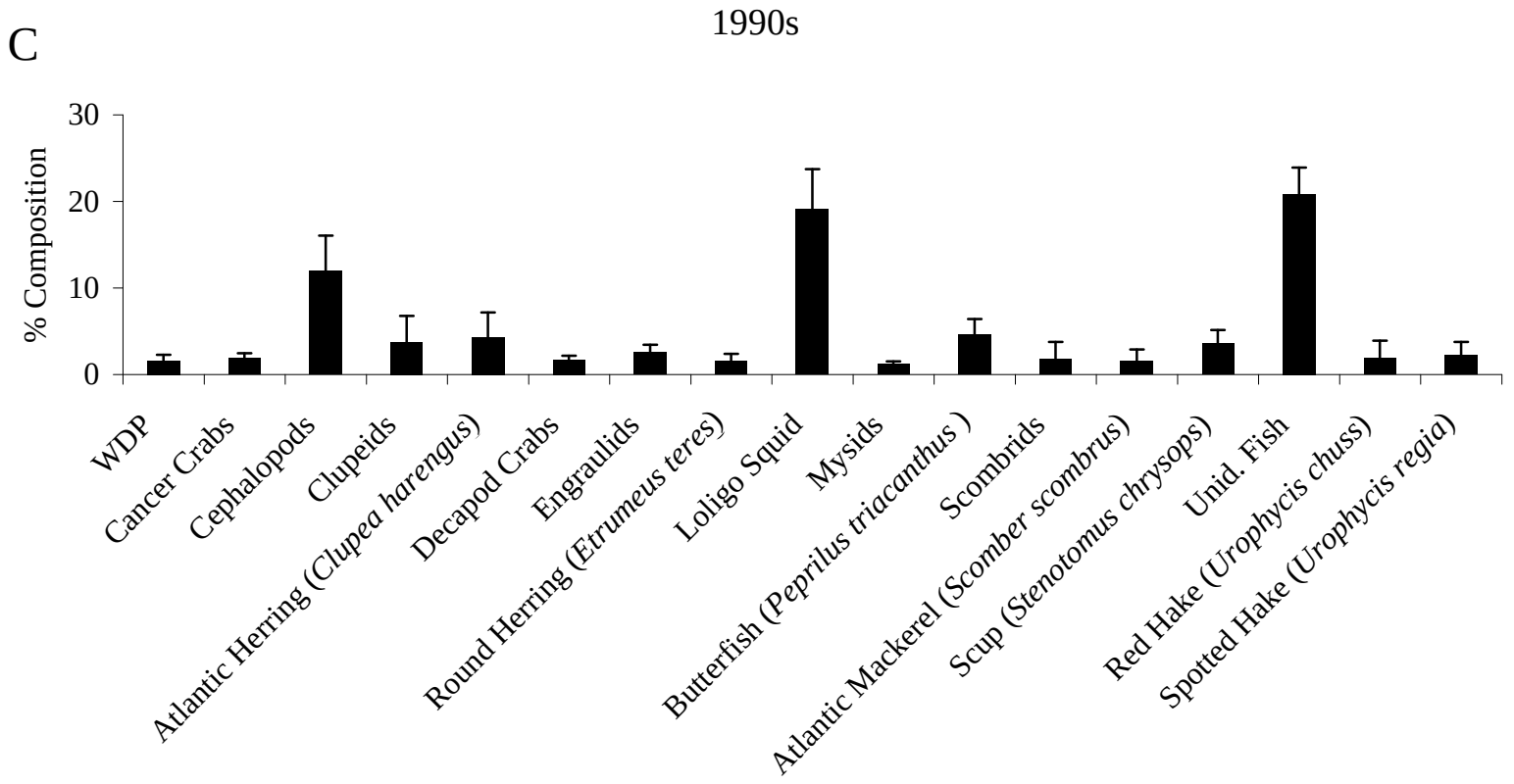

Figure 179C. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected in the 1990s (n = 8,889). WDP = well-digested prey; Unid. Fish = unidentified fish.

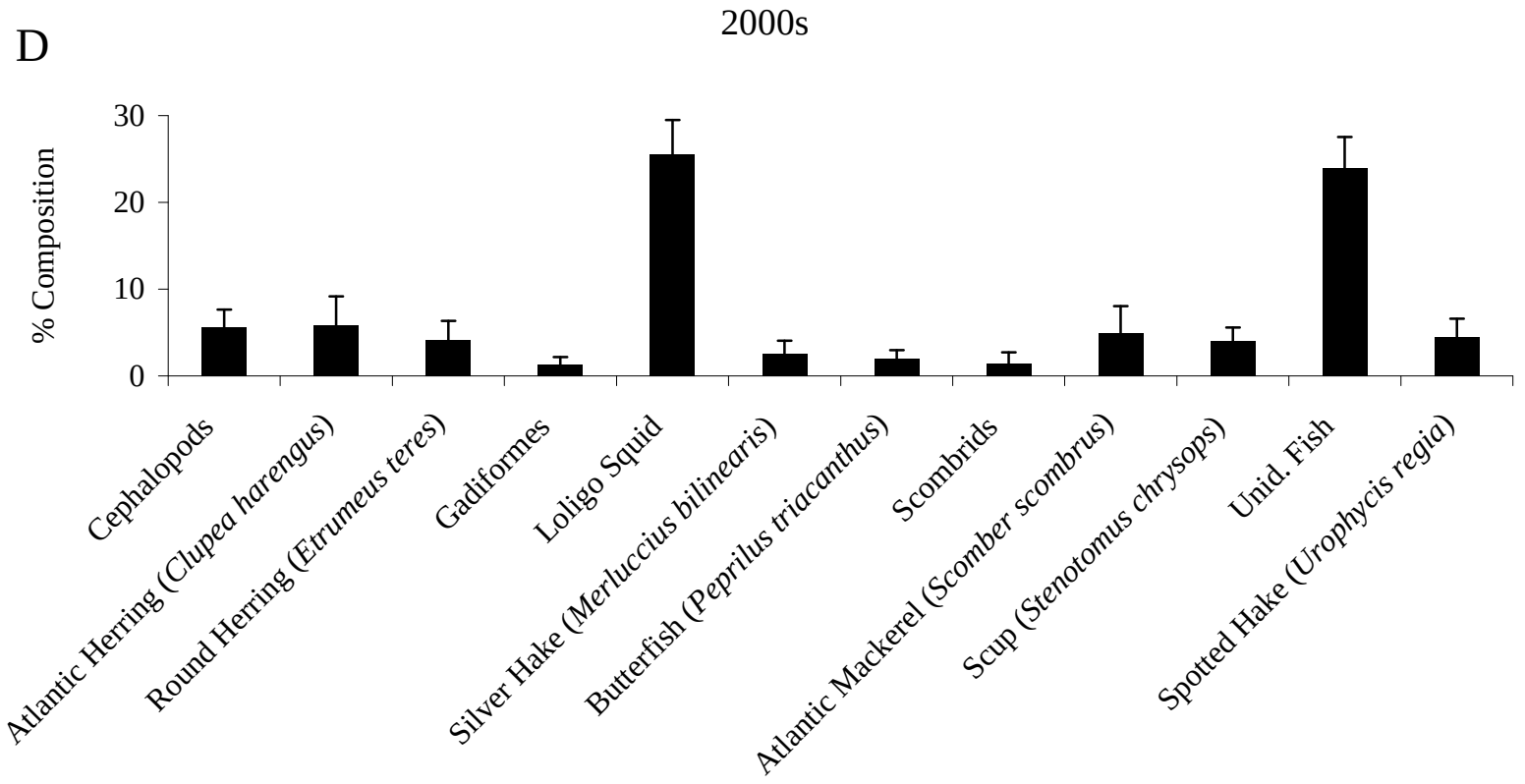

Figure 179D. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected in the 2000s (n = 6,647). Unid. Fish = unidentified fish.

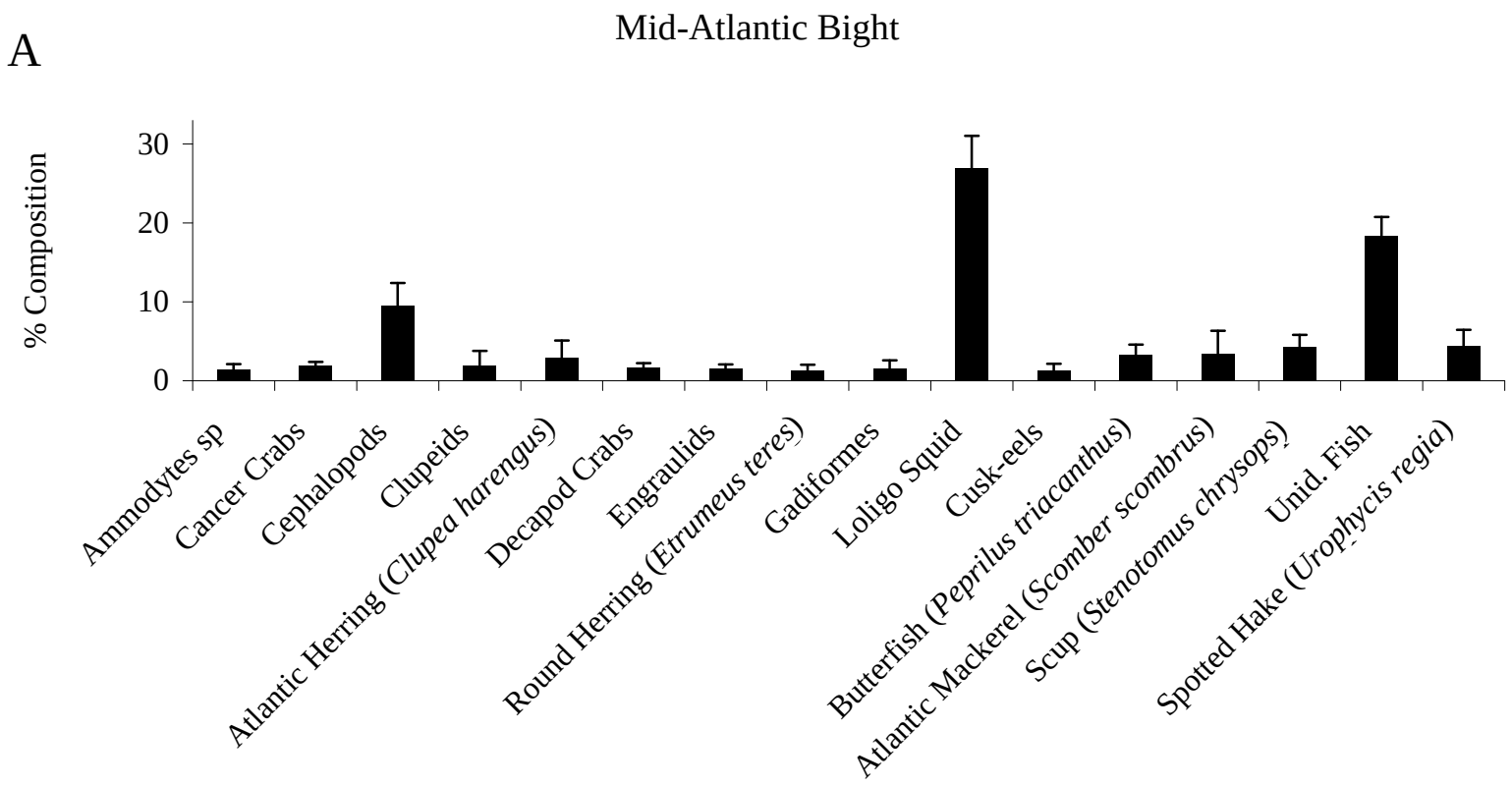

Figure 180A. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected in the Mid-Atlantic Bight (n = 10,377). Unid. Fish = unidentified fish.

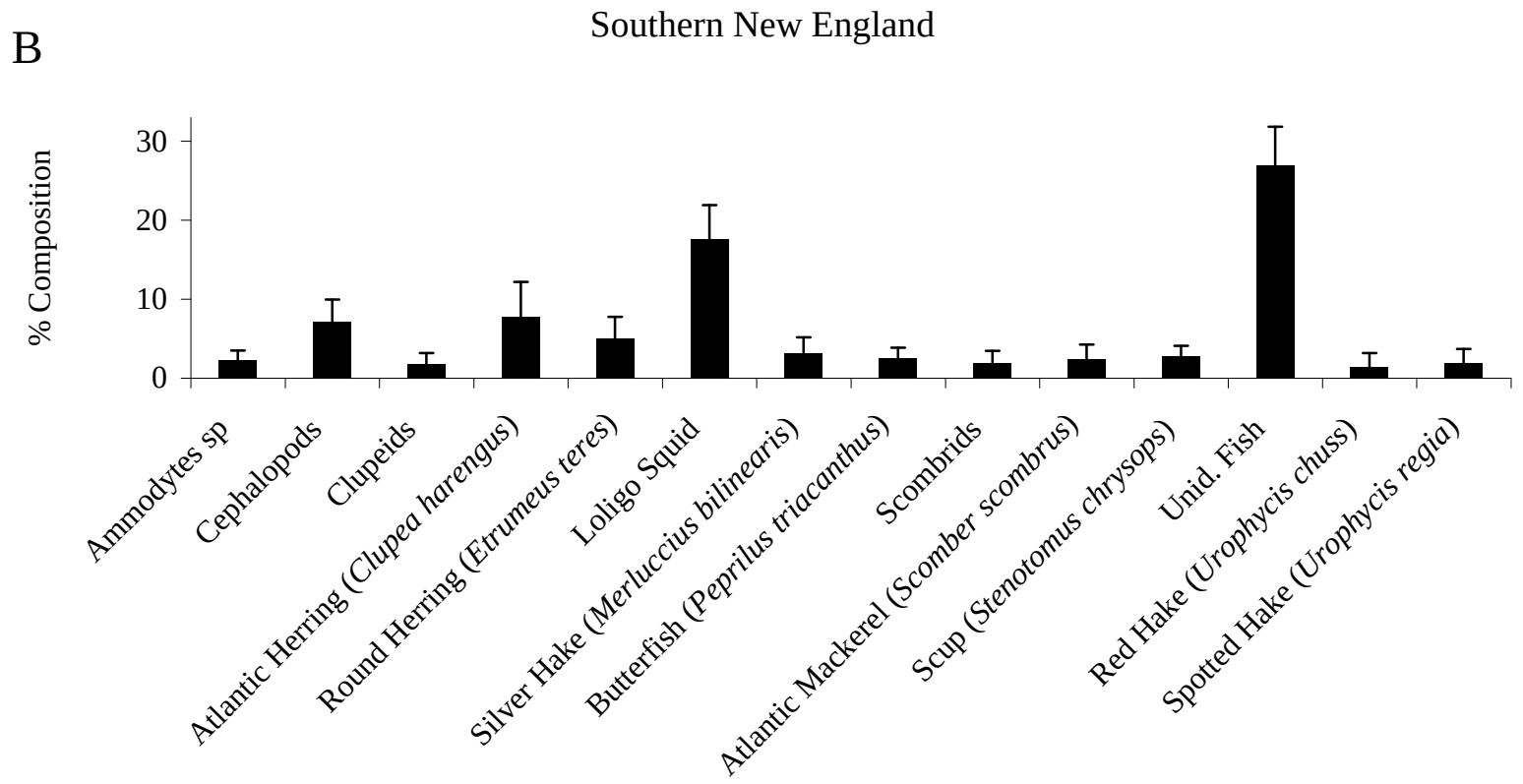

Figure 180B. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected in Southern New England (n = 6,080). Unid. Fish = unidentified fish.

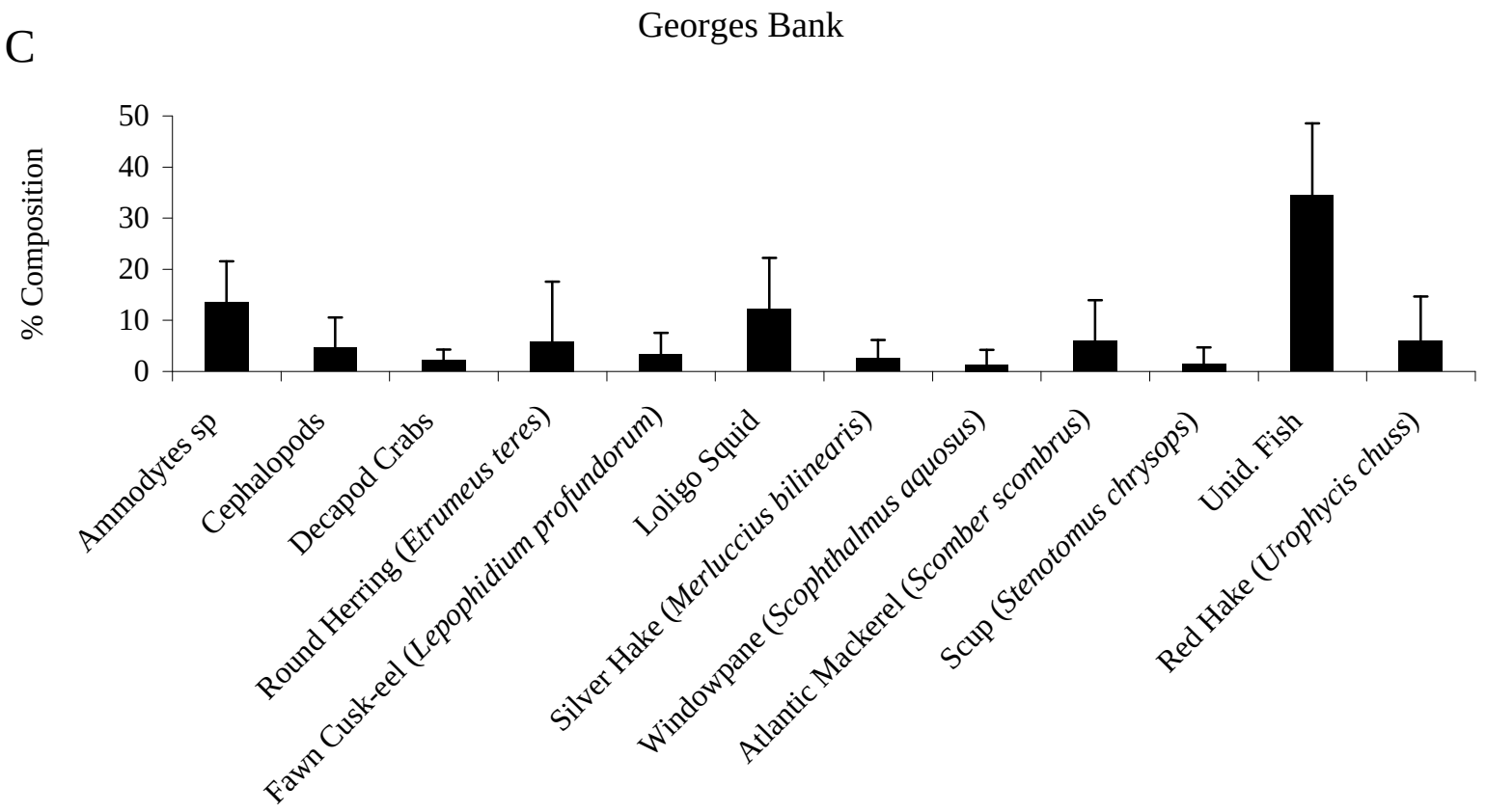

Figure 180C. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected on Georges Bank (n = 664). Unid. Fish = unidentified fish.

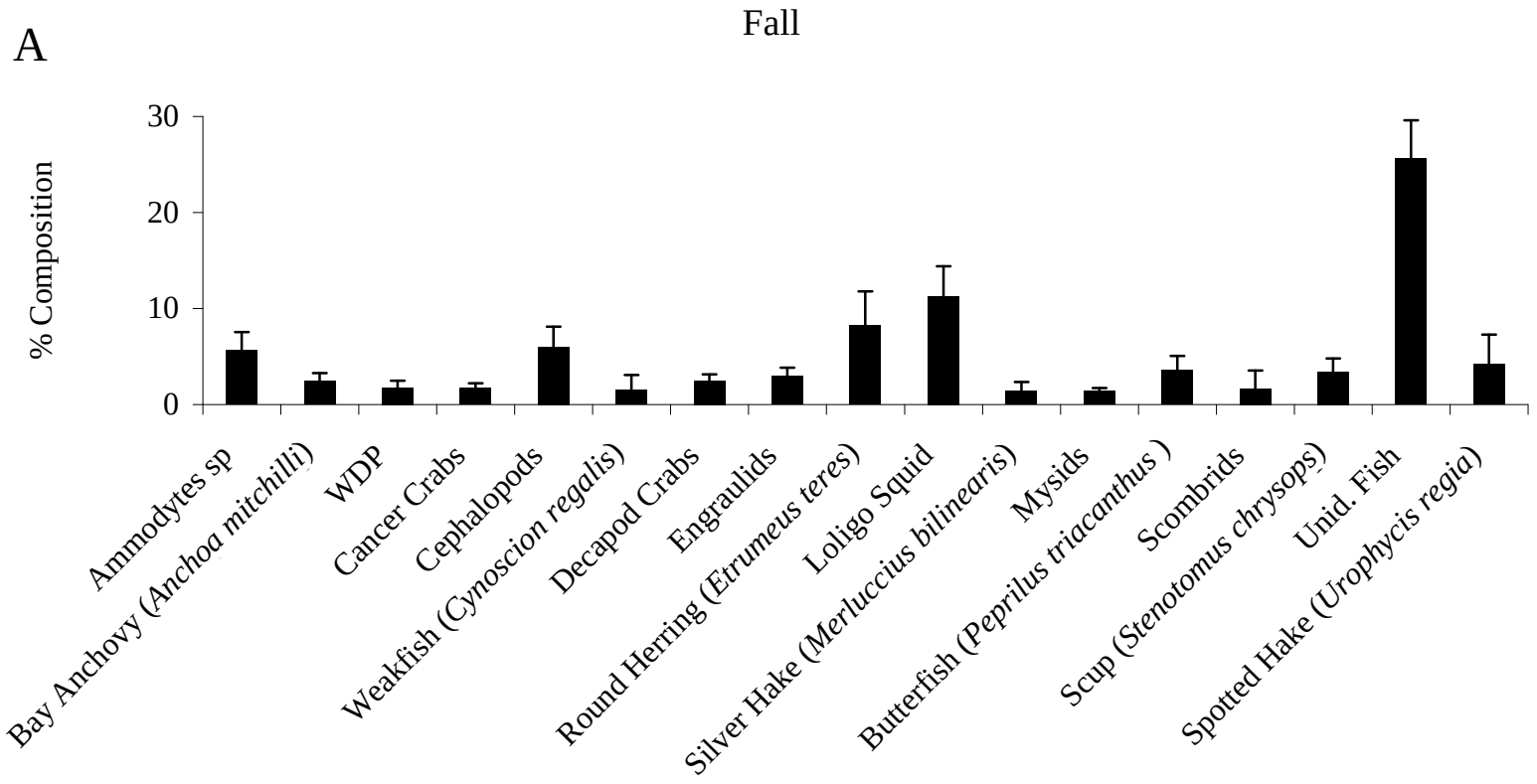

Figure 181A. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected in the fall (n = 5,626). WDP = well-digested prey; Unid. Fish = unidentified fish.

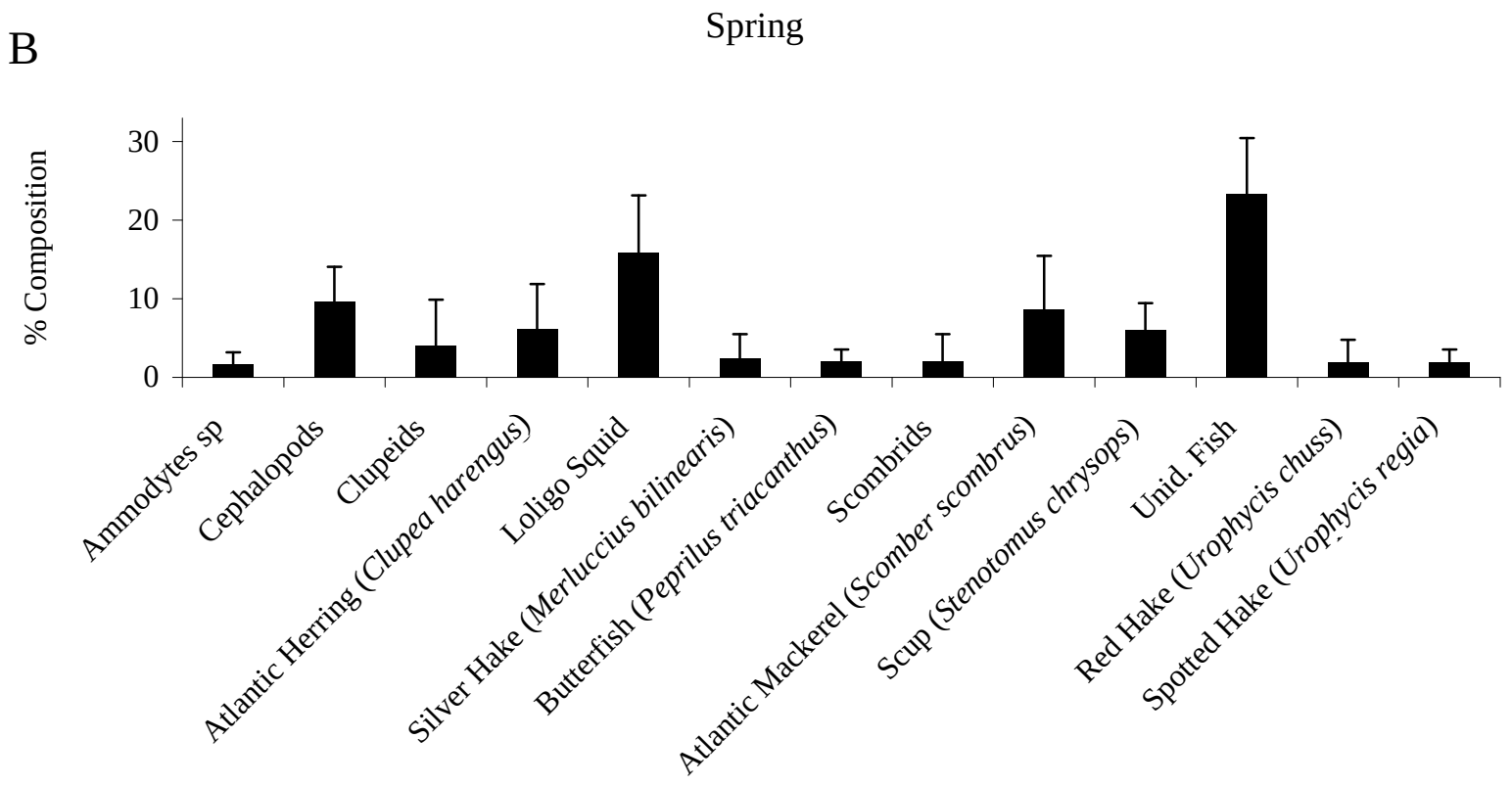

Figure 181B. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected in the spring (n = 3,322). Unid. Fish = unidentified fish.

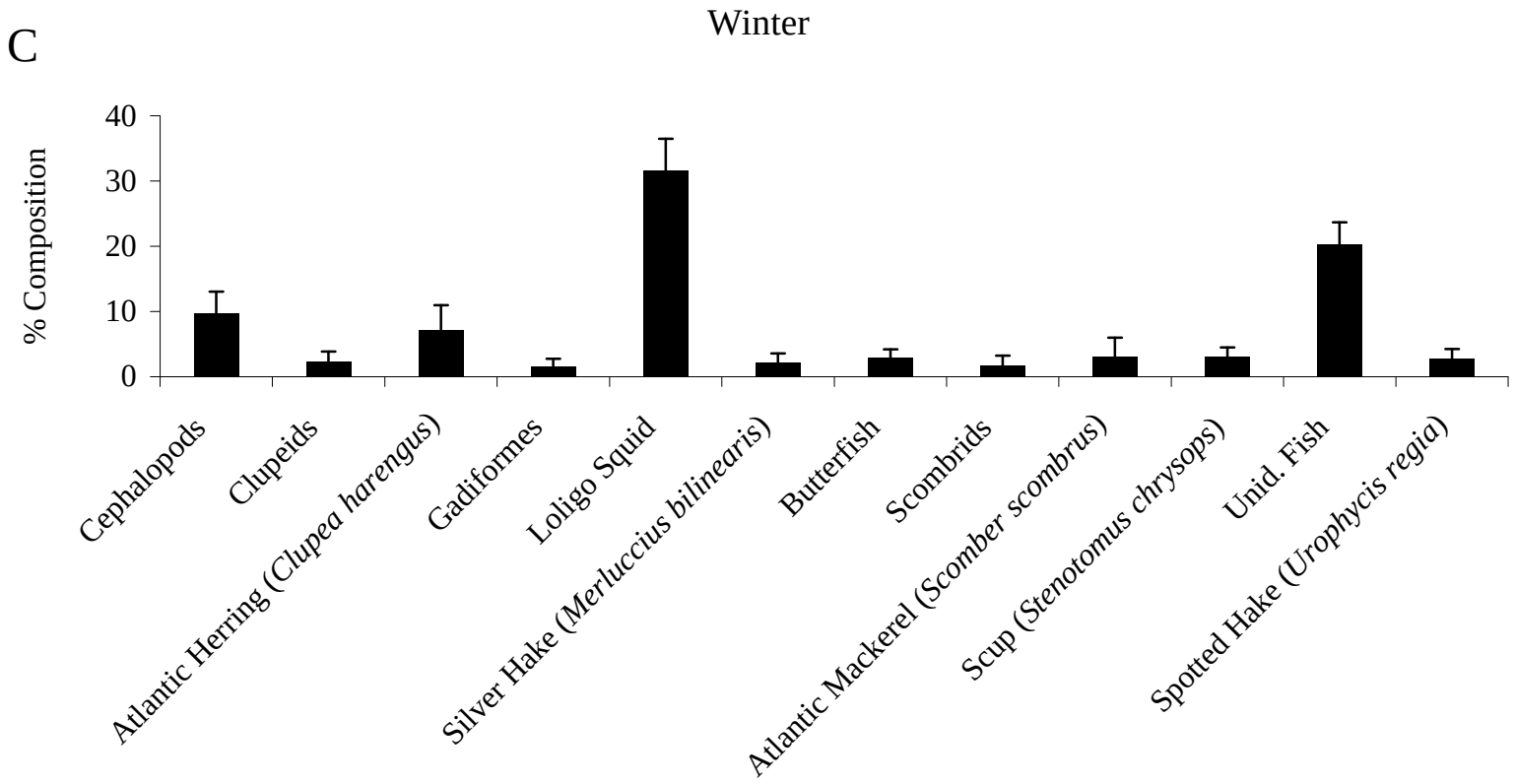

Figure 181C. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) collected in the winter (n = 8,328). Unid. Fish = unidentified fish.

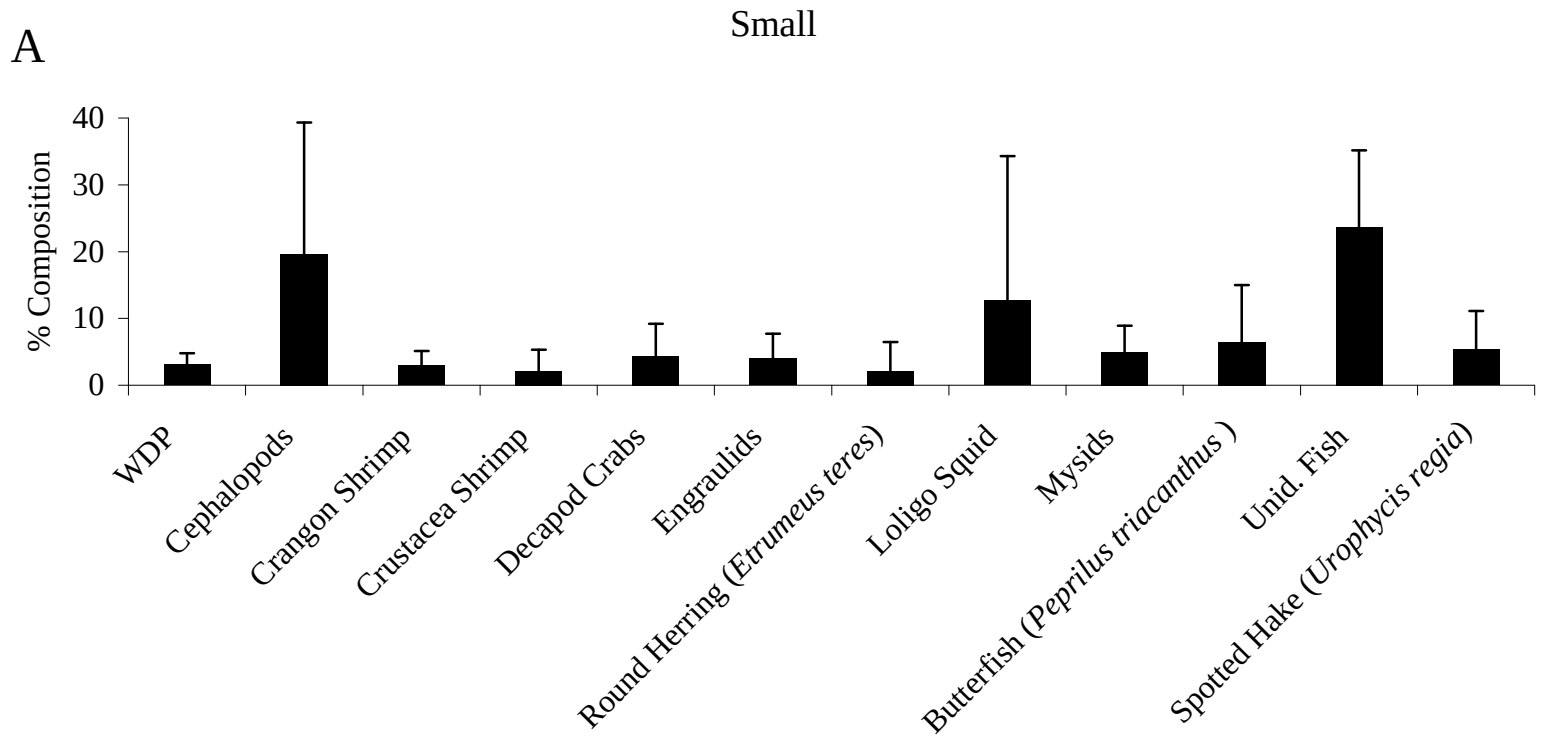

Figure 182A. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) in the small size class (n = 589). Unid. Fish = unidentified fish.

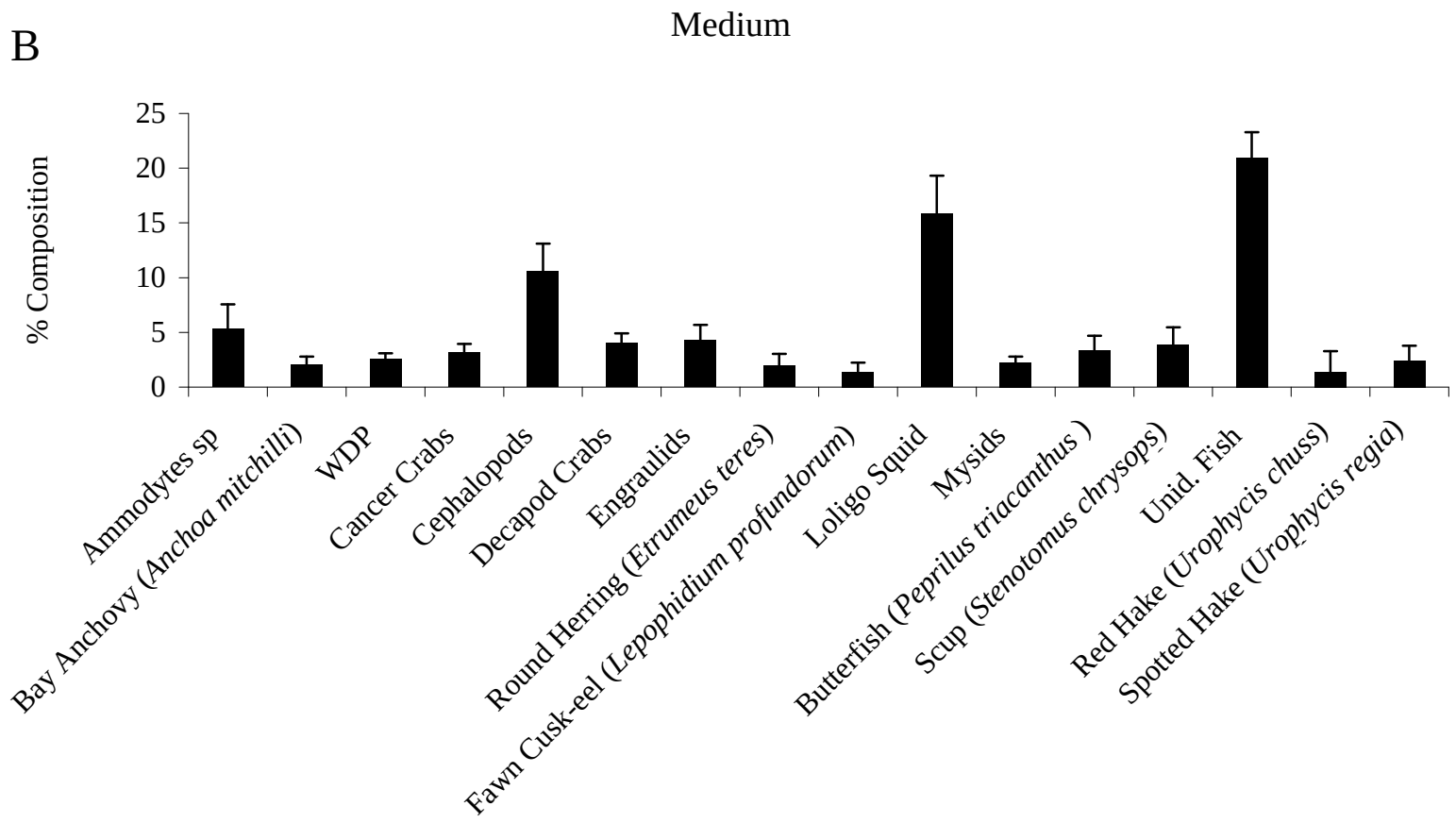

Figure 182B. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) in the medium size class (n = 9,850). WDP = well-digested prey; Unid. Fish = unidentified fish.

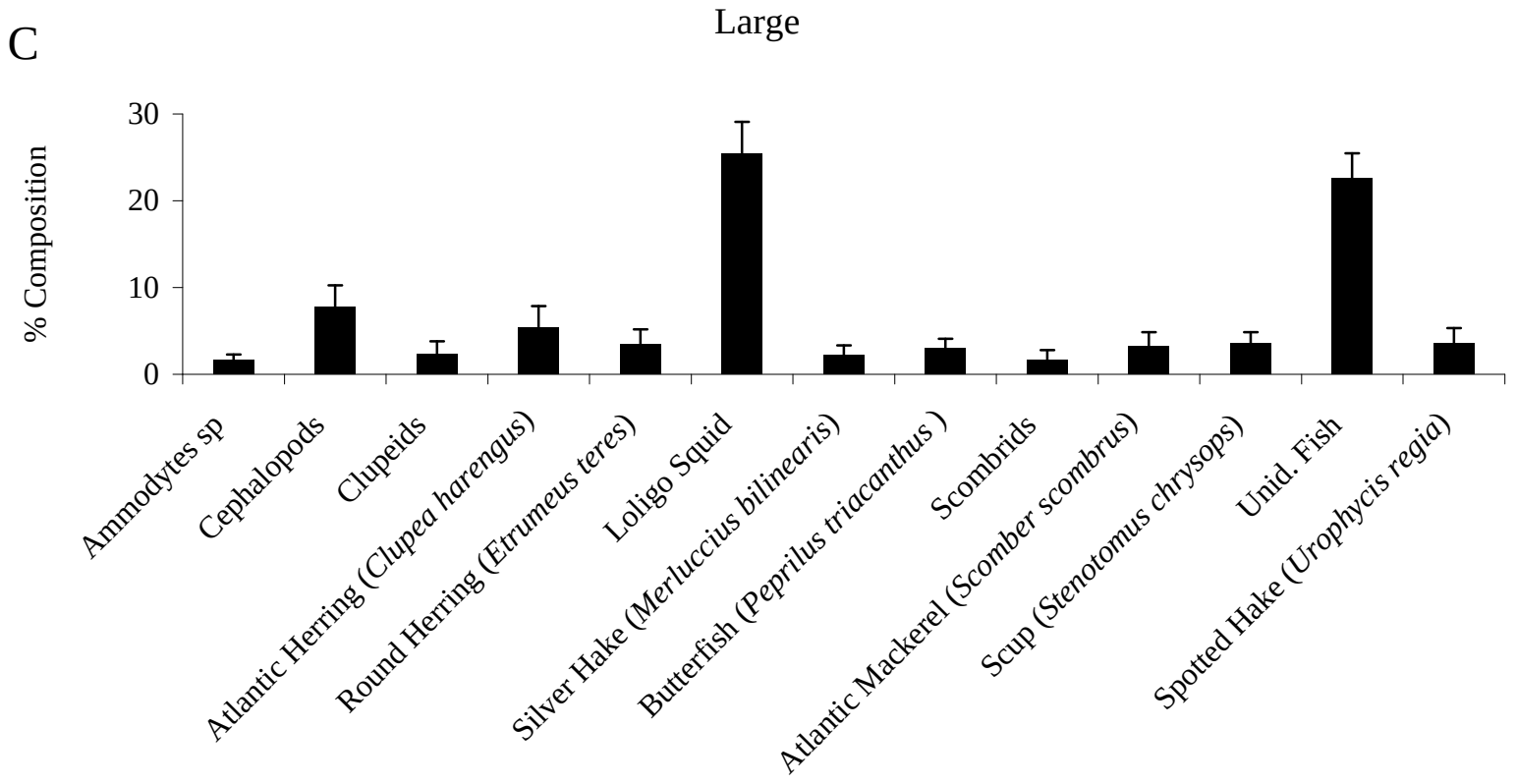

Figure 182C. Percent diet composition by weight of major prey taxa for summer flounder (*Paralichthys dentatus*) in the large size class (n = 6,867). Unid. Fish = unidentified fish.

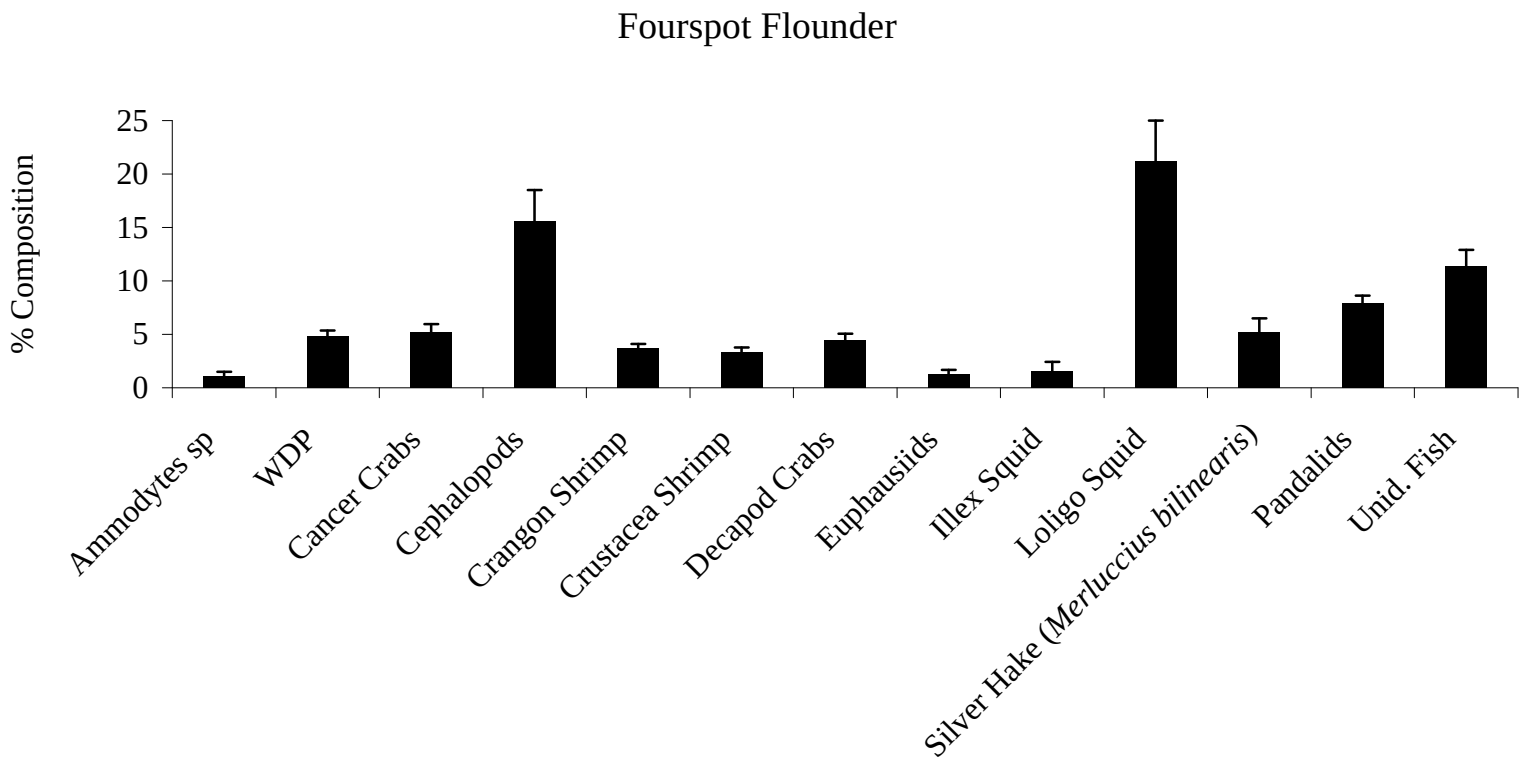

Figure 183. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*; n = 16,689). WDP = well-digested prey; Unid. Fish = unidentified fish.

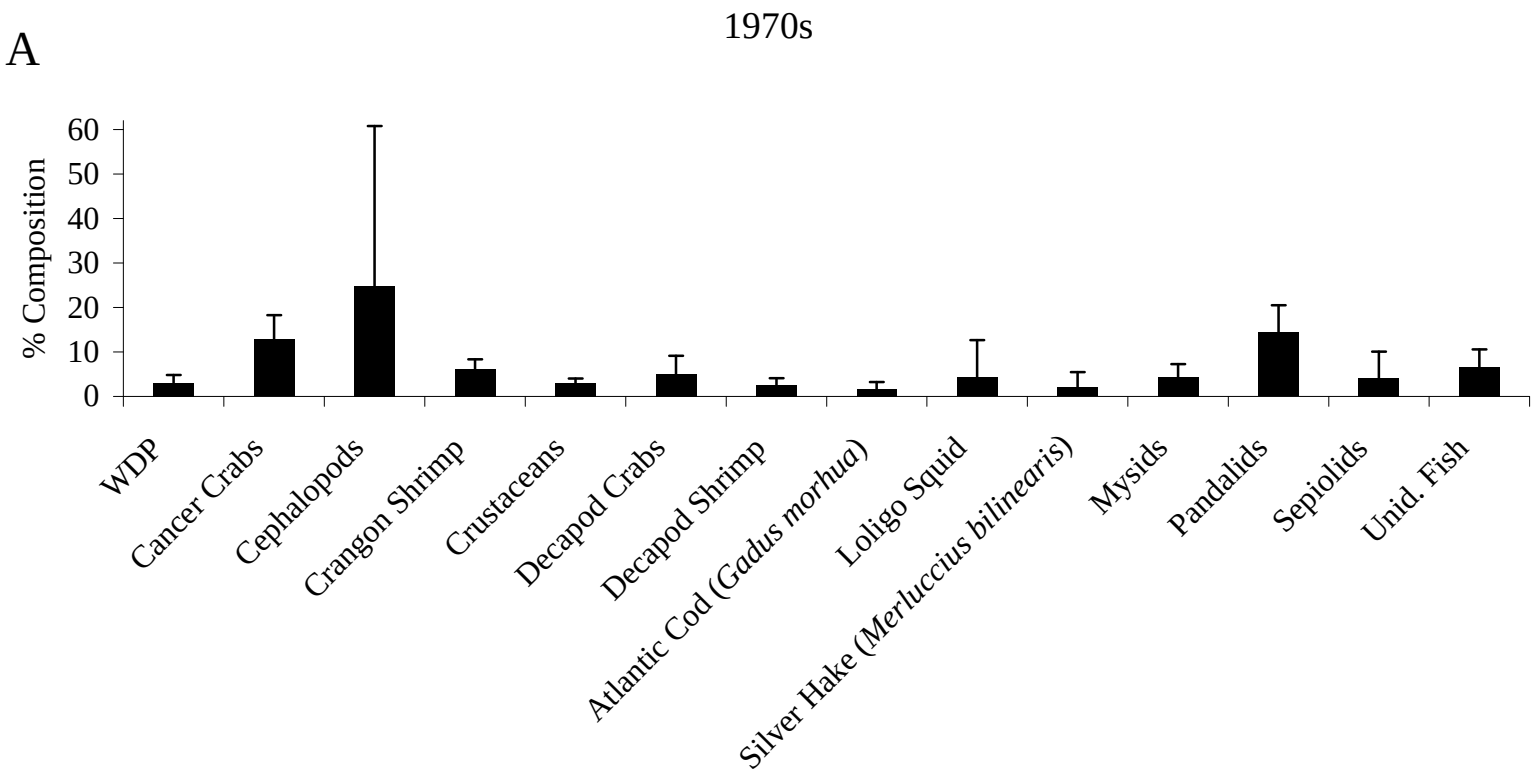

Figure 184A. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the 1970s (n = 489). WDP = well-digested prey; Unid. Fish = unidentified fish.

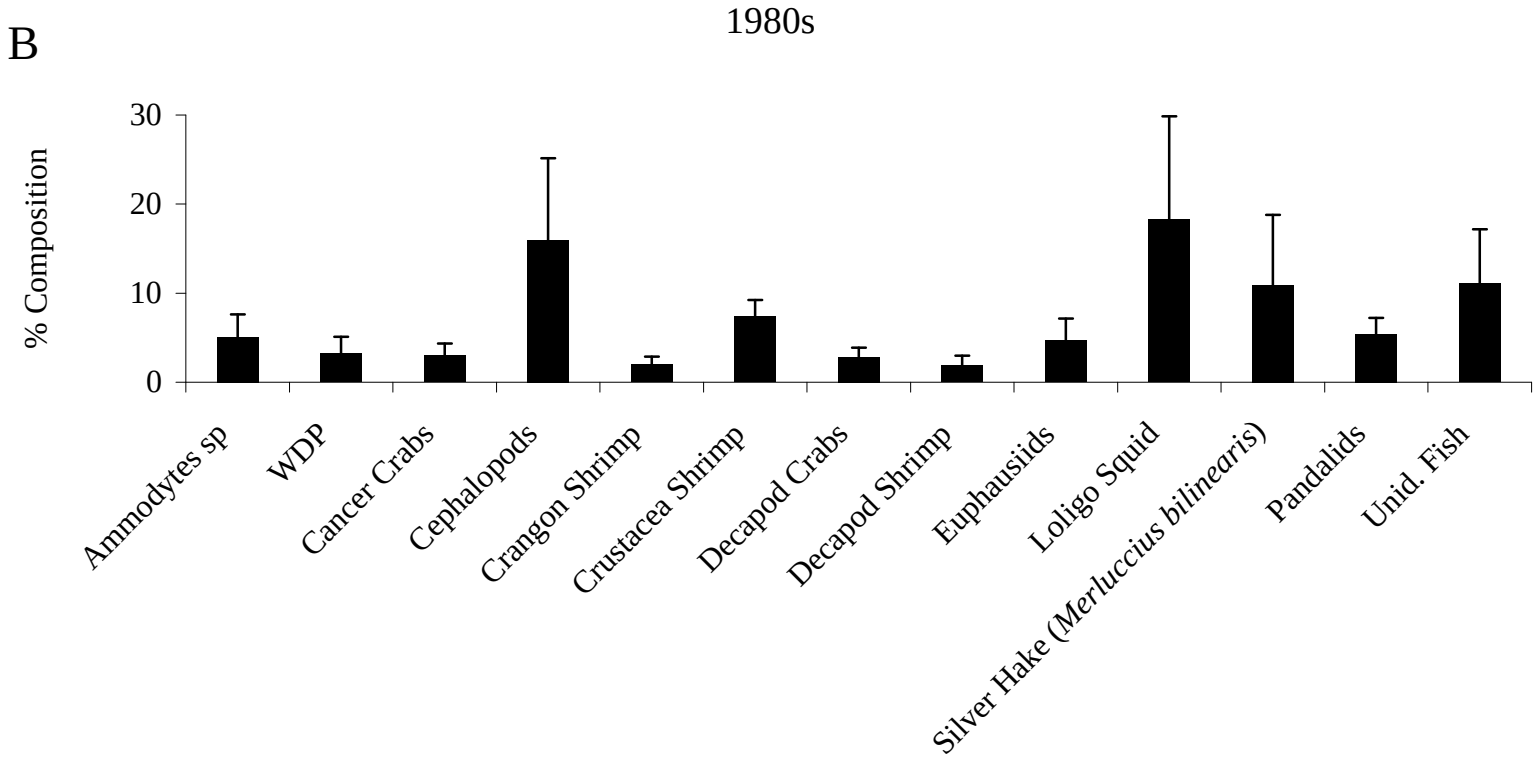

Figure 184B. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the 1980s (n = 1,569). WDP = well-digested prey; Unid. Fish = unidentified fish.

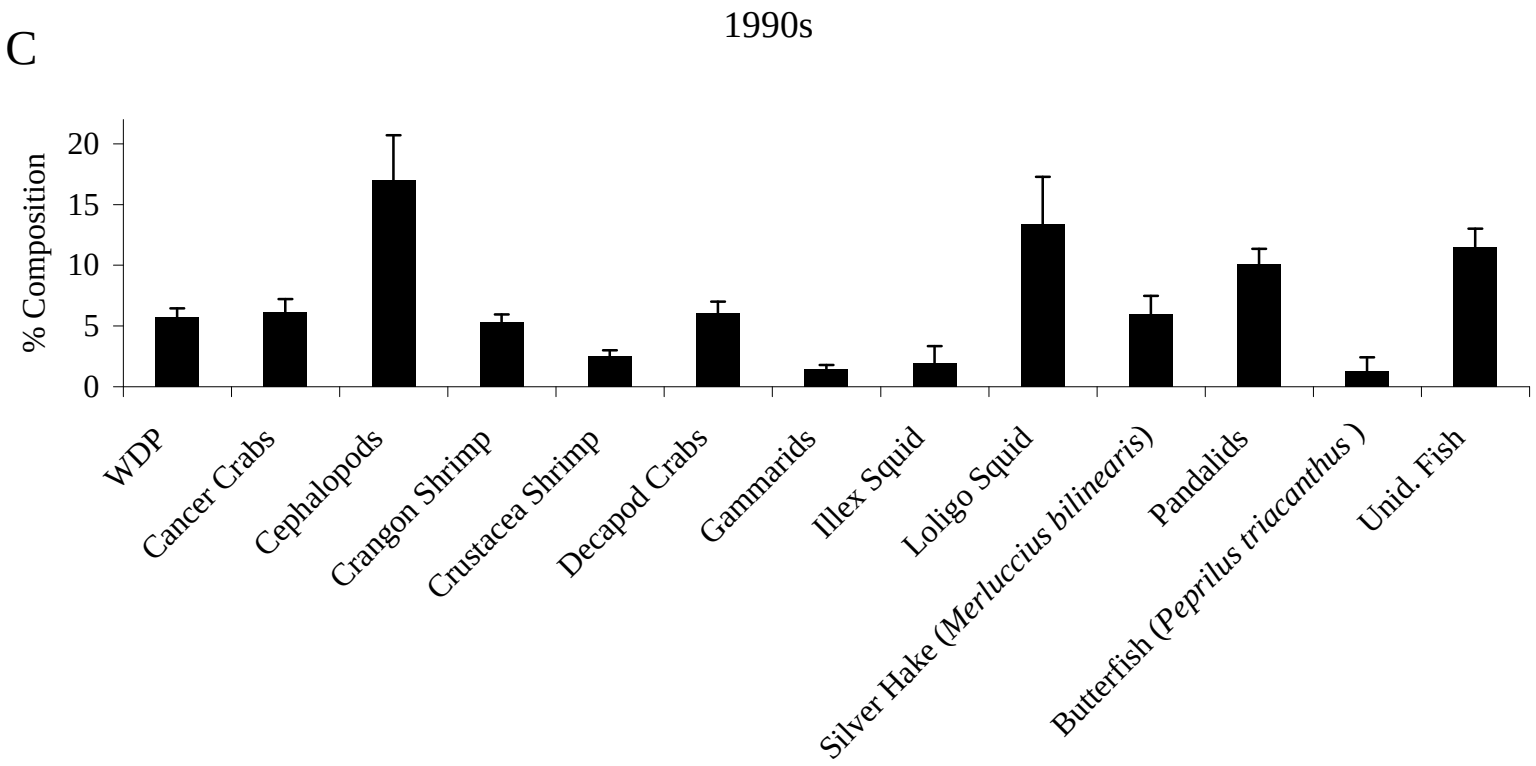

Figure 184C. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the 1990s (n = 9,527). WDP = well-digested prey; Unid. Fish = unidentified fish.

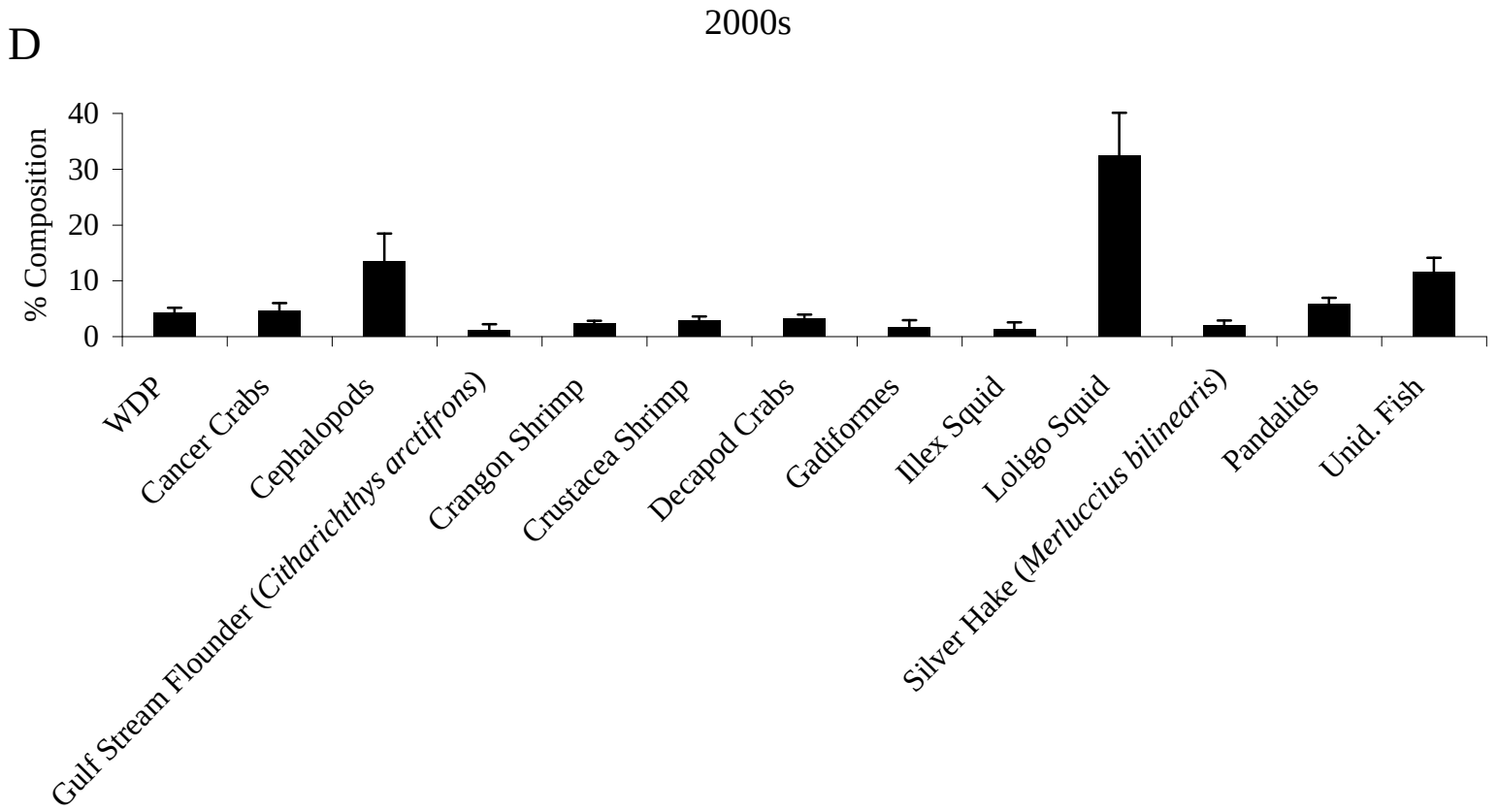

Figure 184D. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the 2000s (n = 5,104). WDP = well-digested prey; Unid. Fish = unidentified fish.

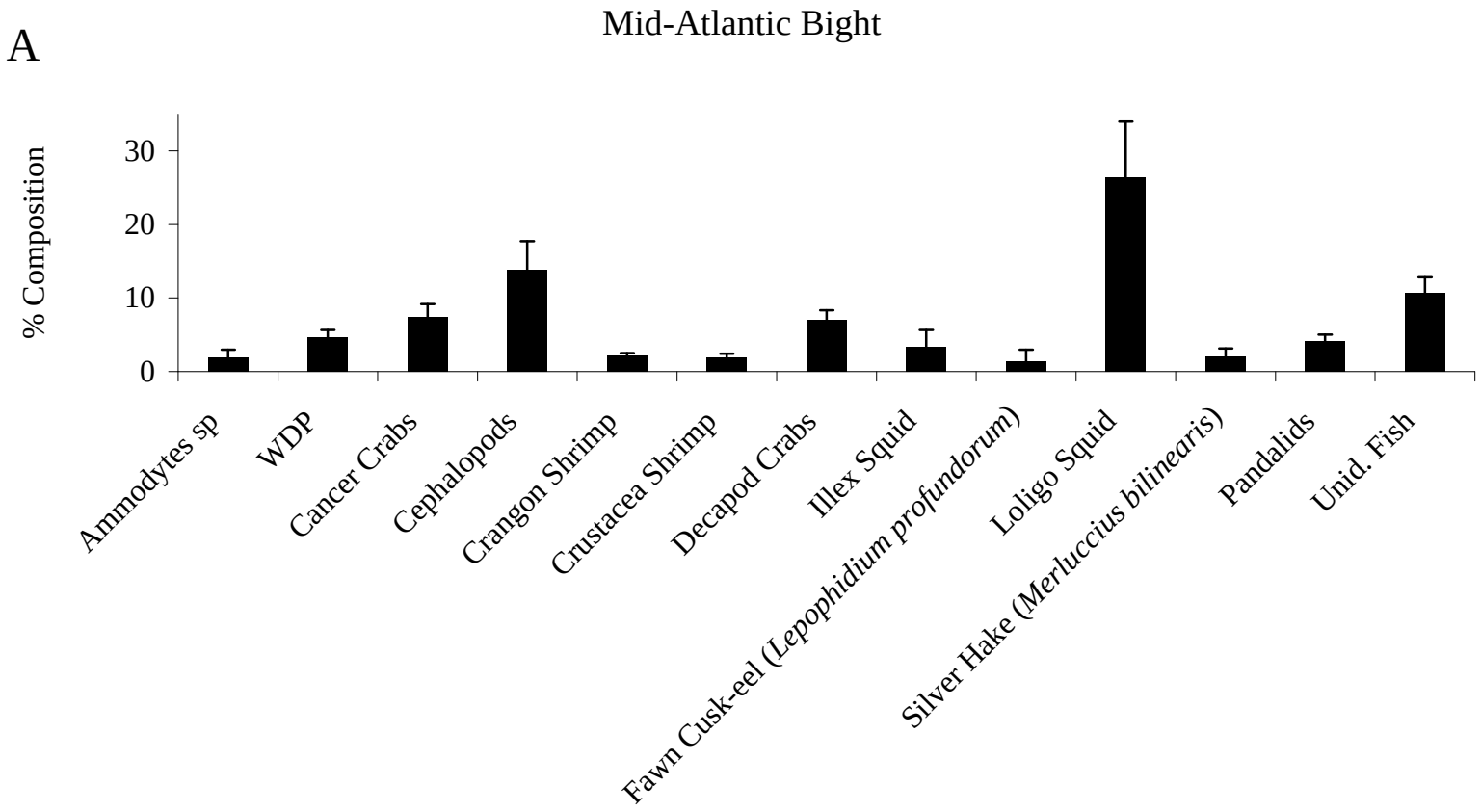

Figure 185A. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the Mid-Atlantic Bight (n = 5,171). WDP = well-digested prey; Unid. Fish = unidentified fish.

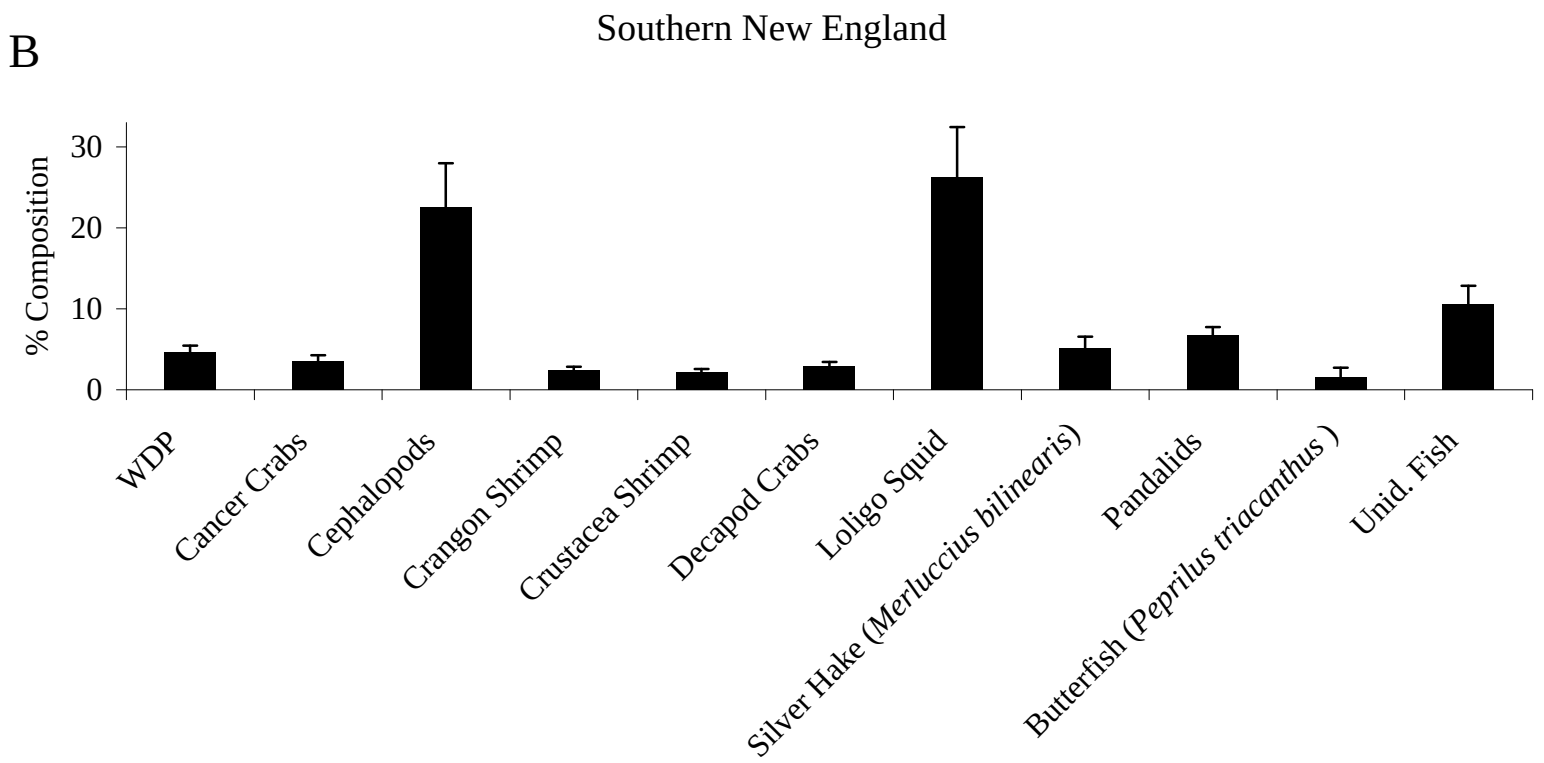

Figure 185B. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in Southern New England (n = 7,493). WDP = well-digested prey; Unid. Fish = unidentified fish.

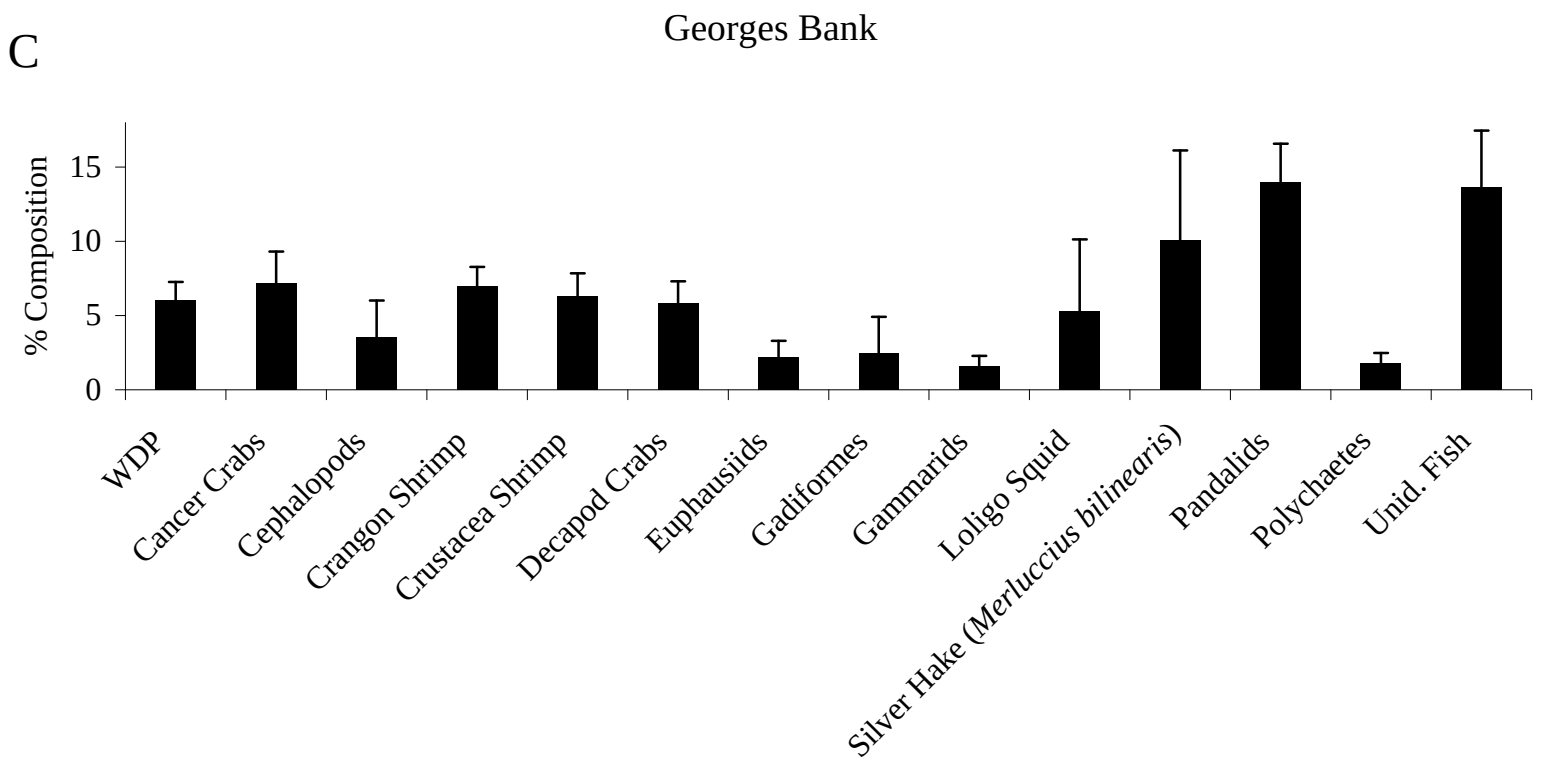

Figure 185C. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected on Georges Bank (n = 3,339). WDP = well-digested prey; Unid. Fish = unidentified fish.

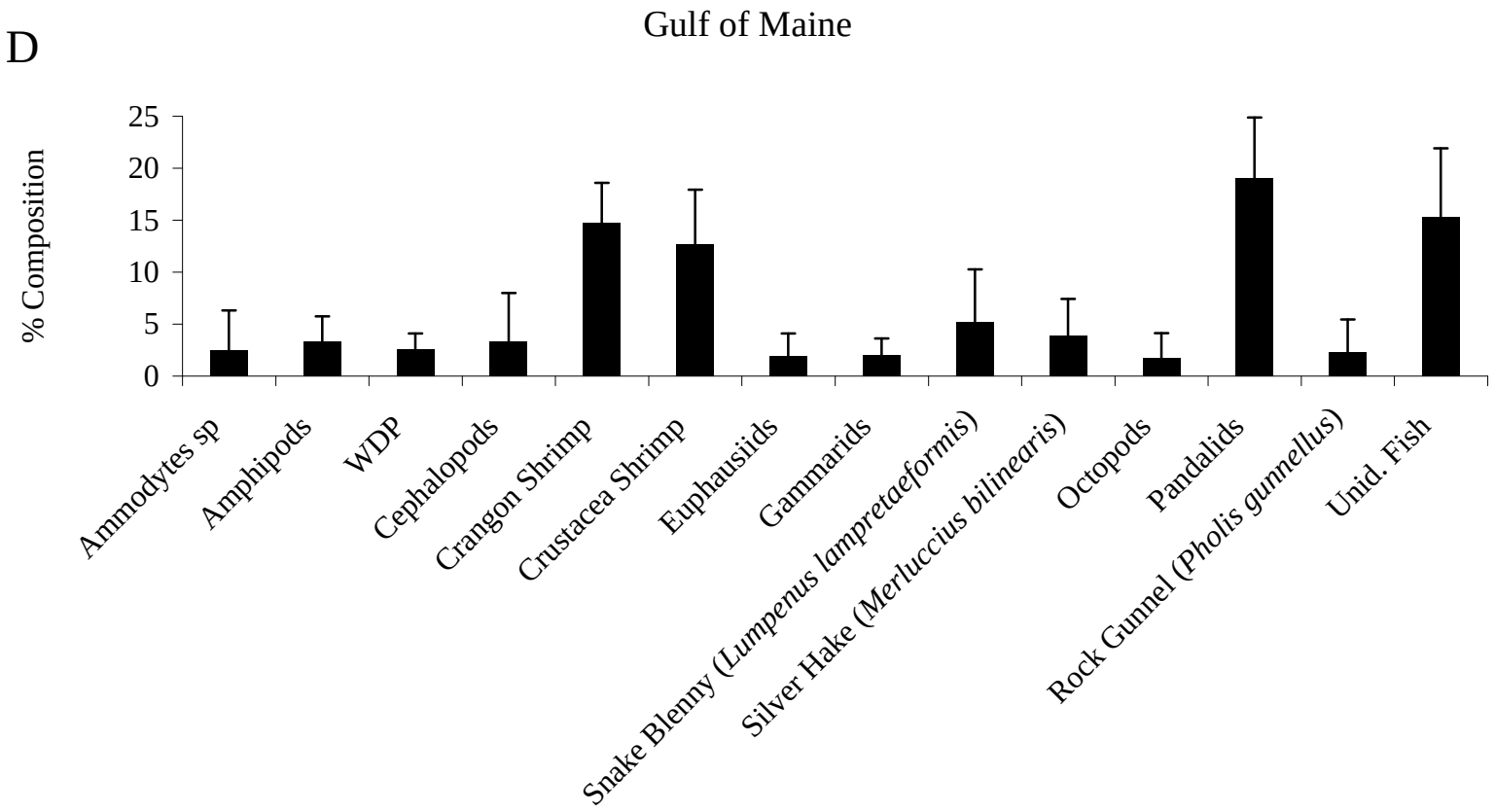

Figure 185D. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the Gulf of Maine (n = 665). WDP = well-digested prey; Unid. Fish = unidentified fish.

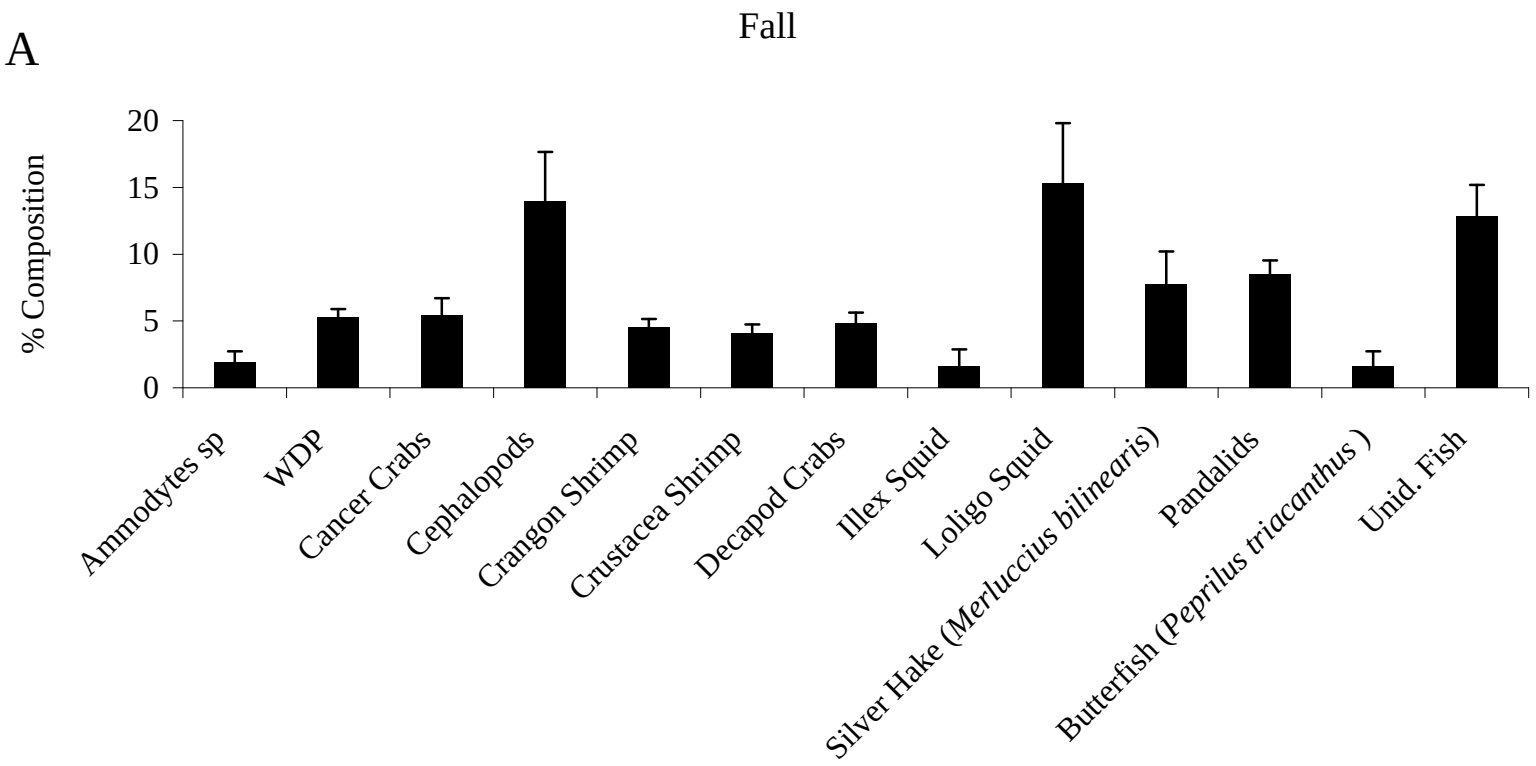

Figure 186A. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the fall (n = 6,302). WDP = well-digested prey; Unid. Fish = unidentified fish.

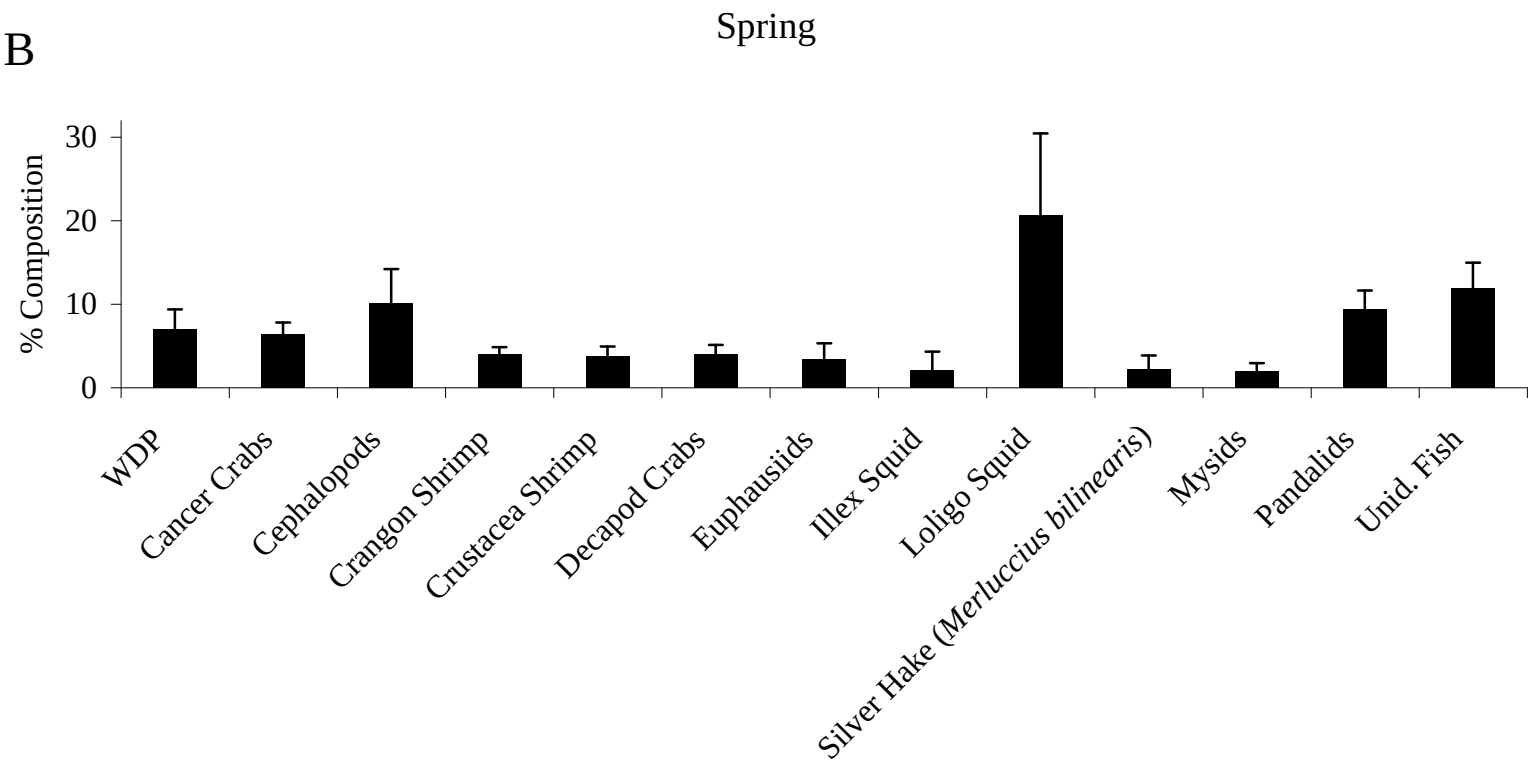

Figure 186B. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the spring (n = 5,065). WDP = well-digested prey; Unid. Fish = unidentified fish.

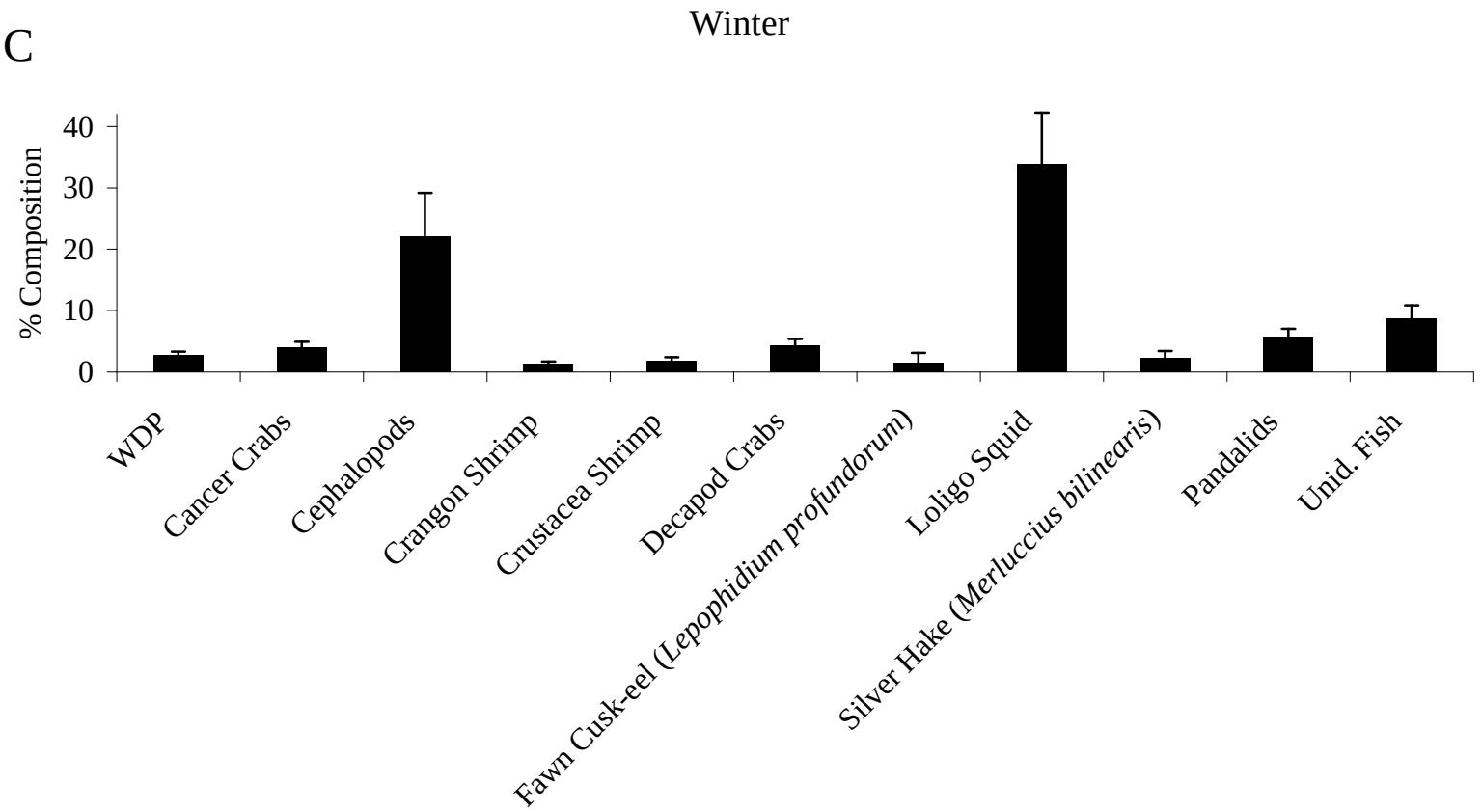

Figure 186C. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the winter (n = 5,095). WDP = well-digested prey; Unid. Fish = unidentified fish.

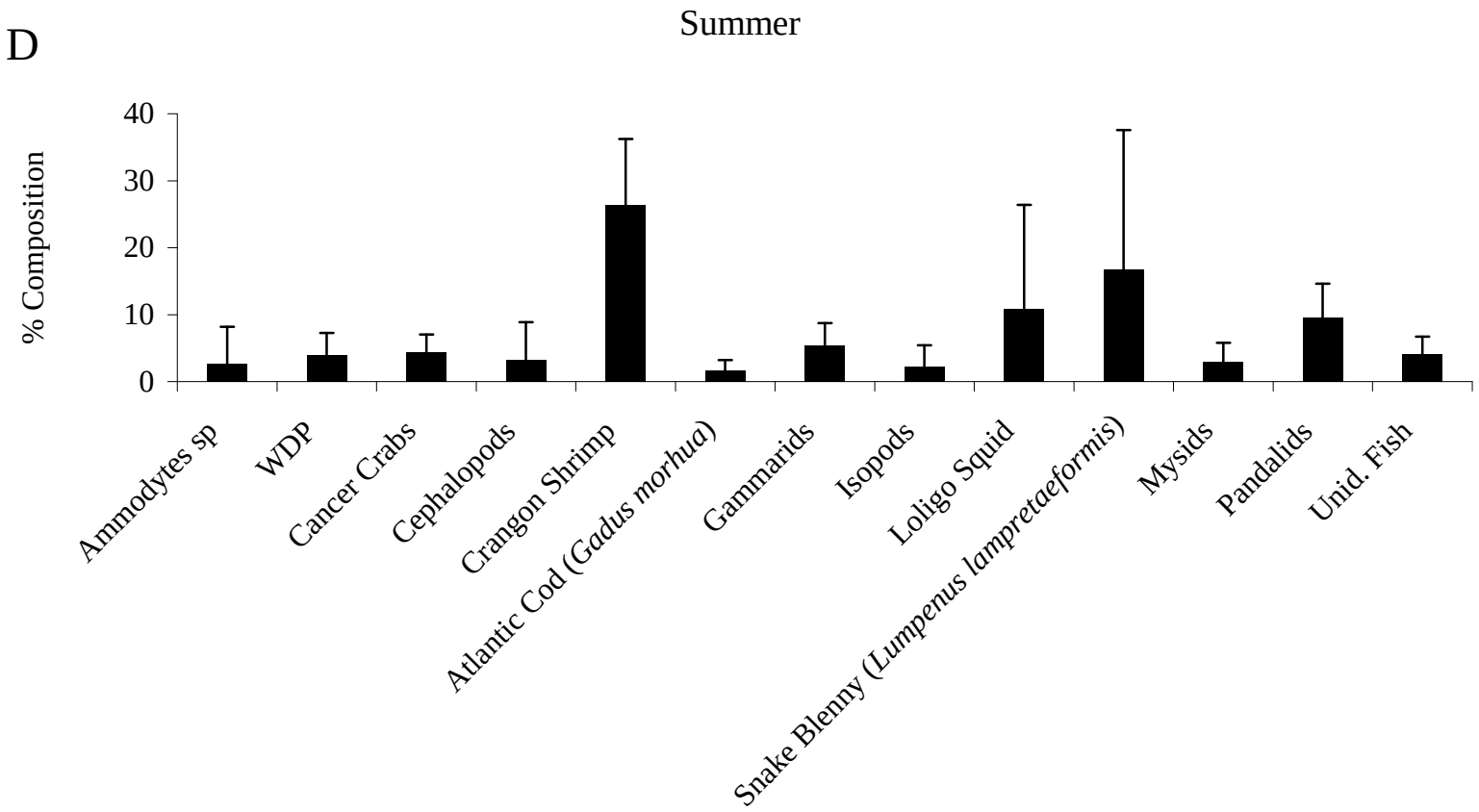

Figure 186D. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the summer (n = 227). WDP = well-digested prey; Unid. Fish = unidentified fish.

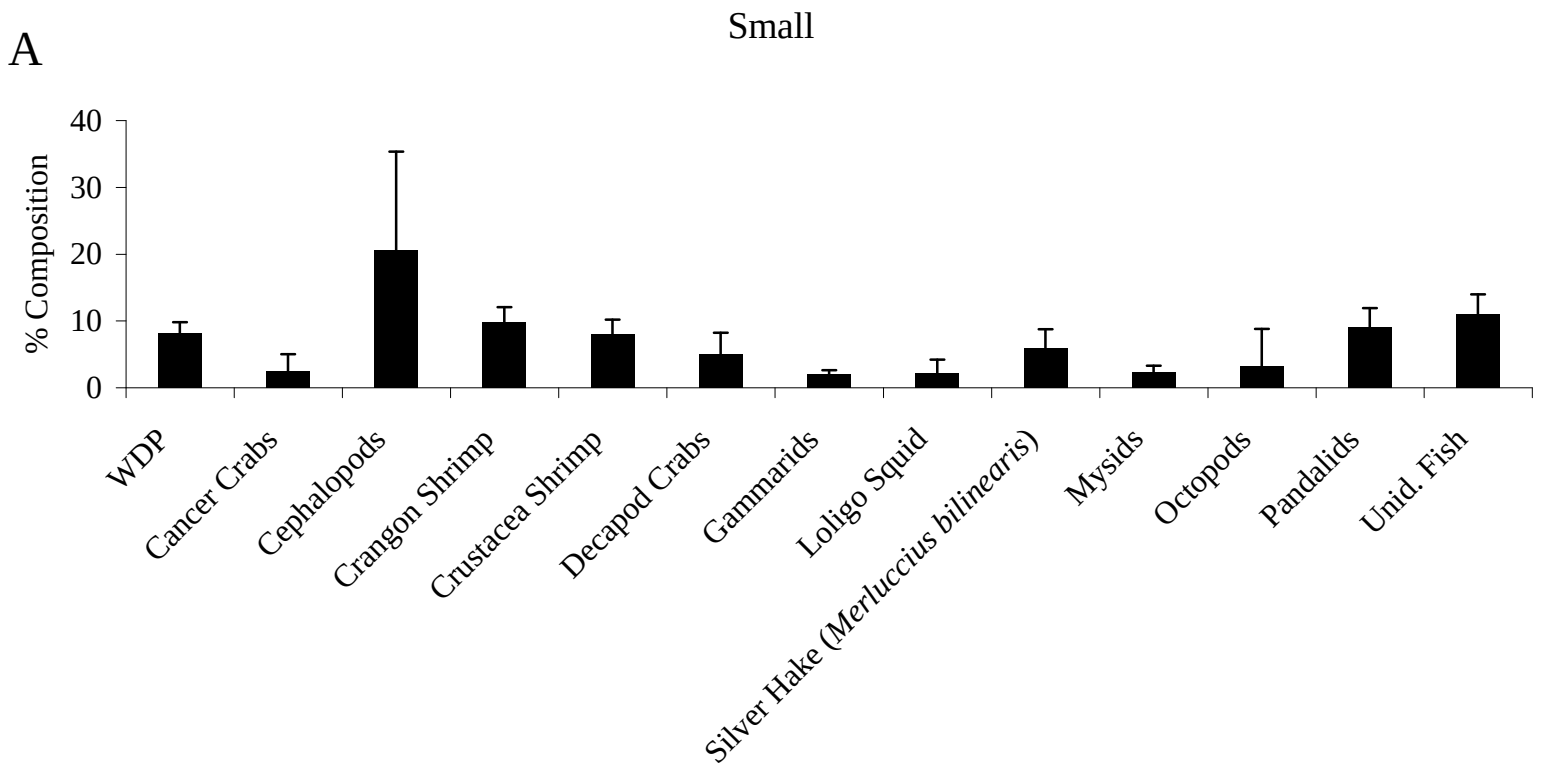

Figure 187A. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the small size class (n = 2,072). WDP = well-digested prey; Unid. Fish = unidentified fish.

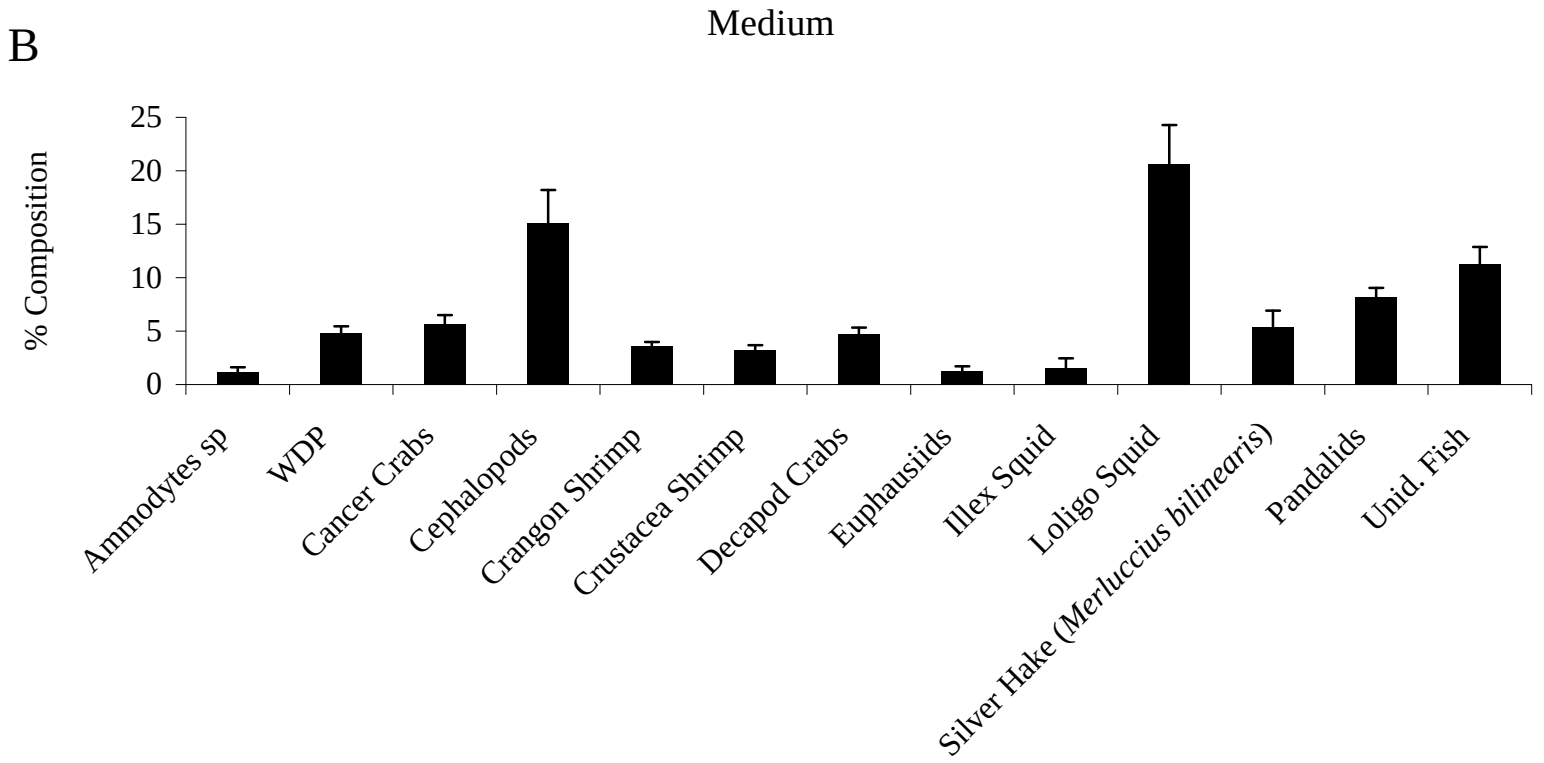

Figure 187B. Percent diet composition by weight of major prey taxa for fourspot flounder (*Hippoglossina oblonga*) collected in the medium size class (n = 14,441). WDP = well-digested prey; Unid. Fish = unidentified fish.

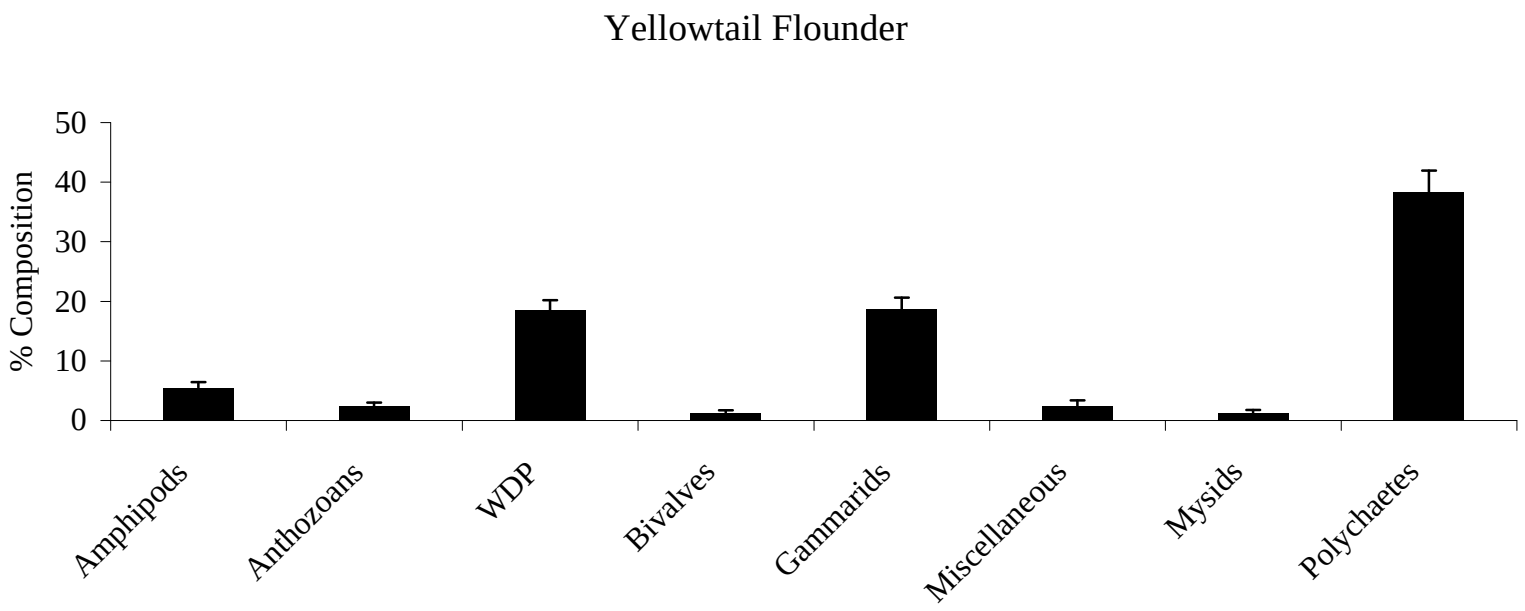

Figure 188. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*; n = 7,052). WDP = well-digested prey.

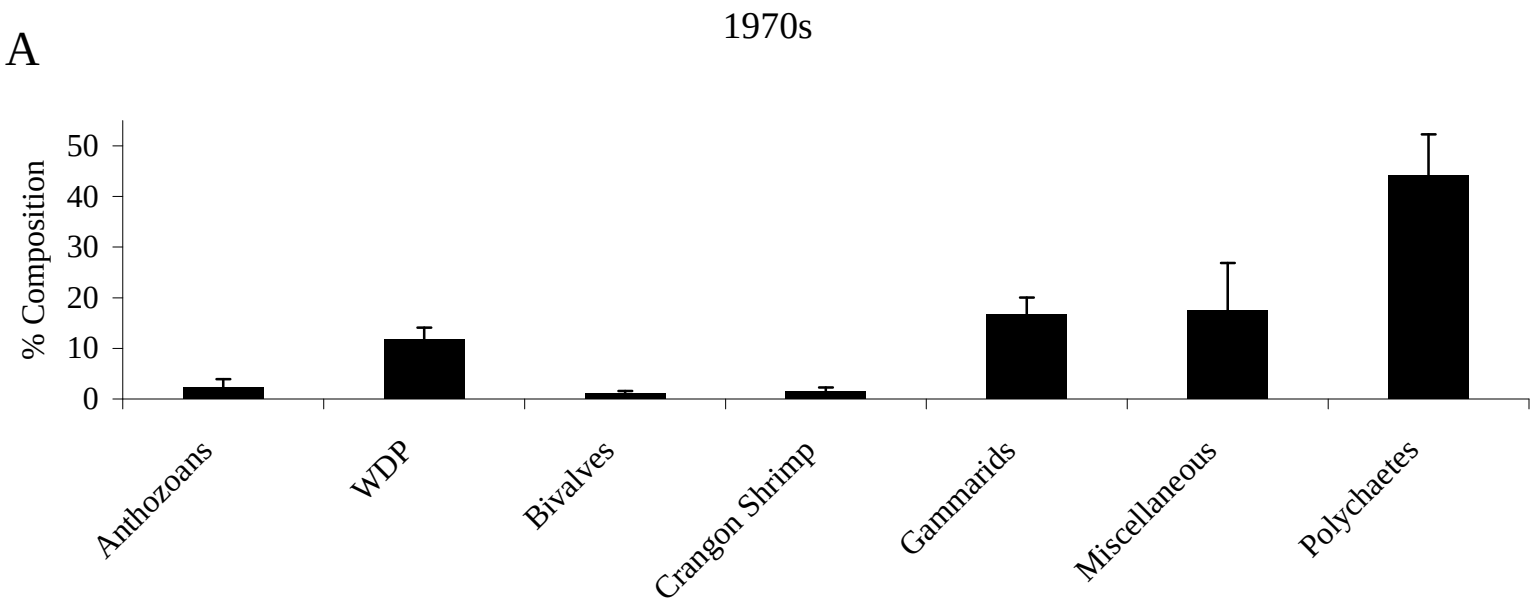

Figure 189A. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the 1970s (n = 1,049). WDP = well-digested prey.

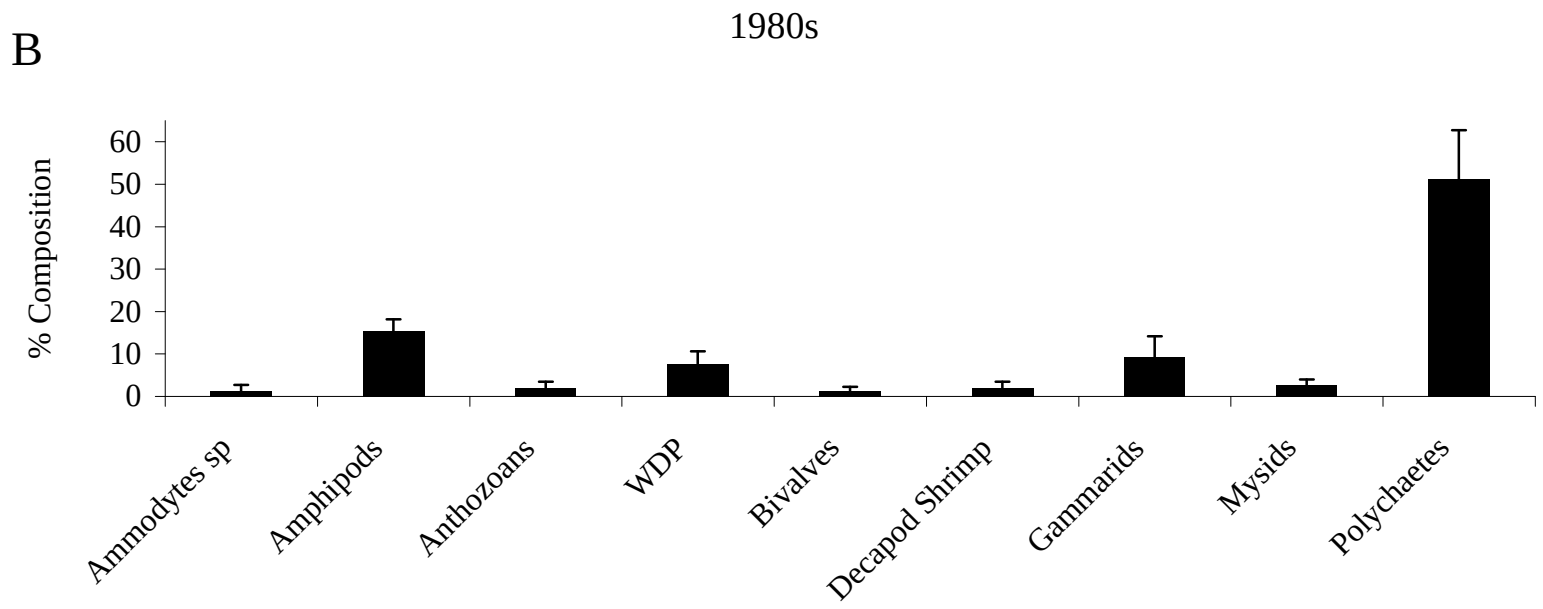

Figure 189B. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the 1980s (n = 864). WDP = well-digested prey.

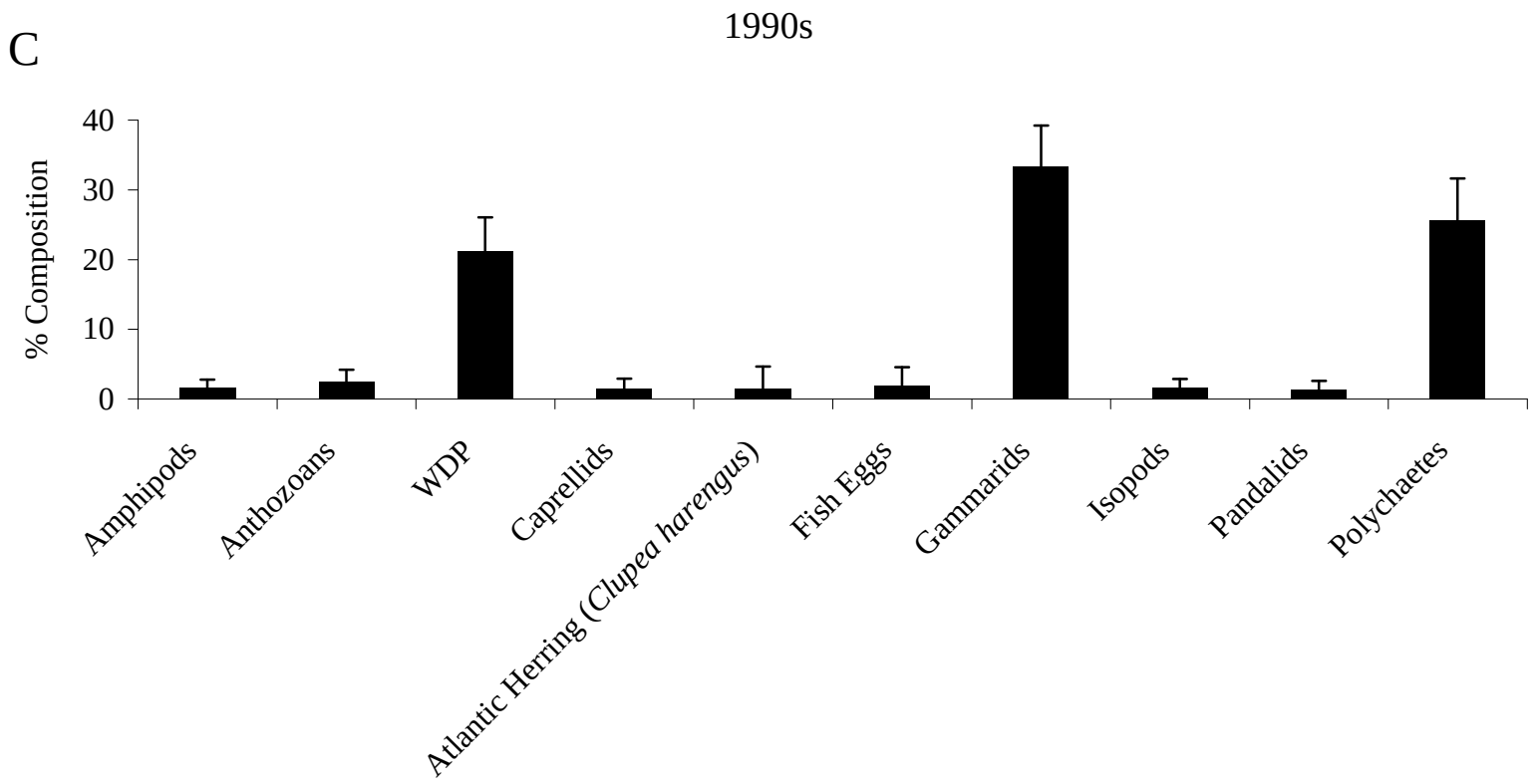

Figure 189C. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the 1990s (n = 952). WDP = well-digested prey.

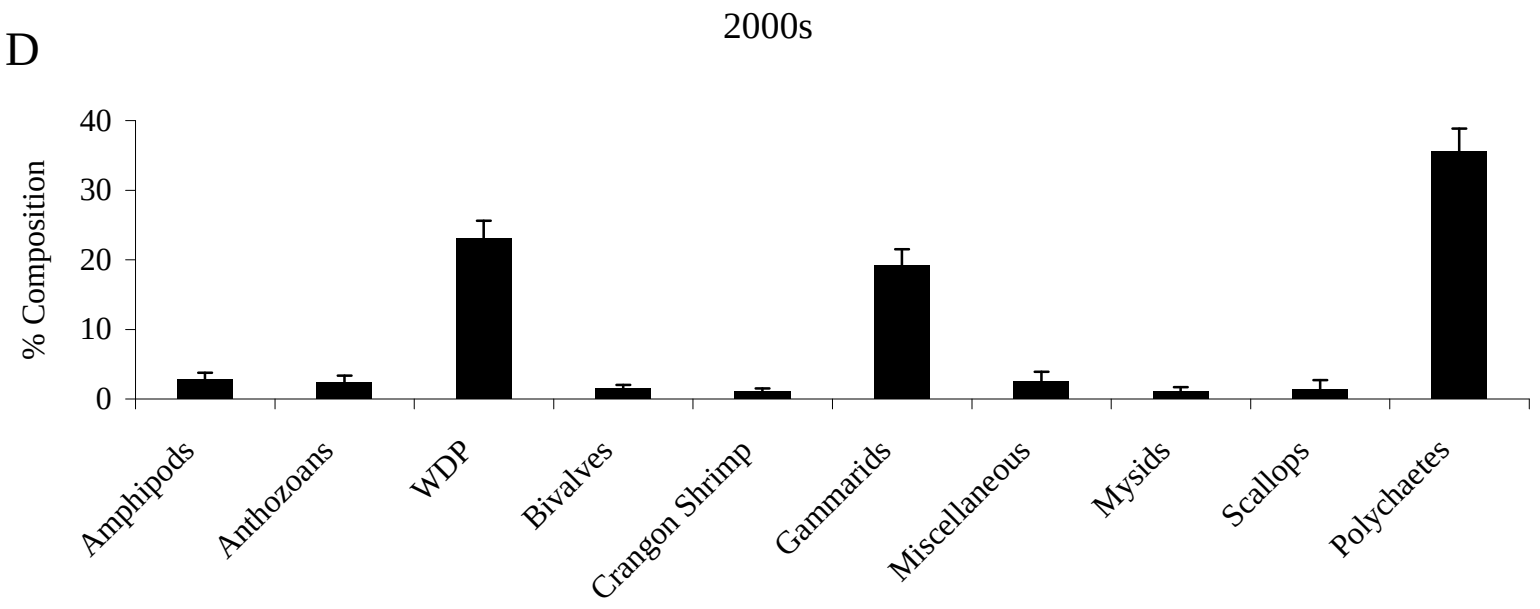

Figure 189D. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the 2000s (n = 4,187). WDP = well-digested prey.

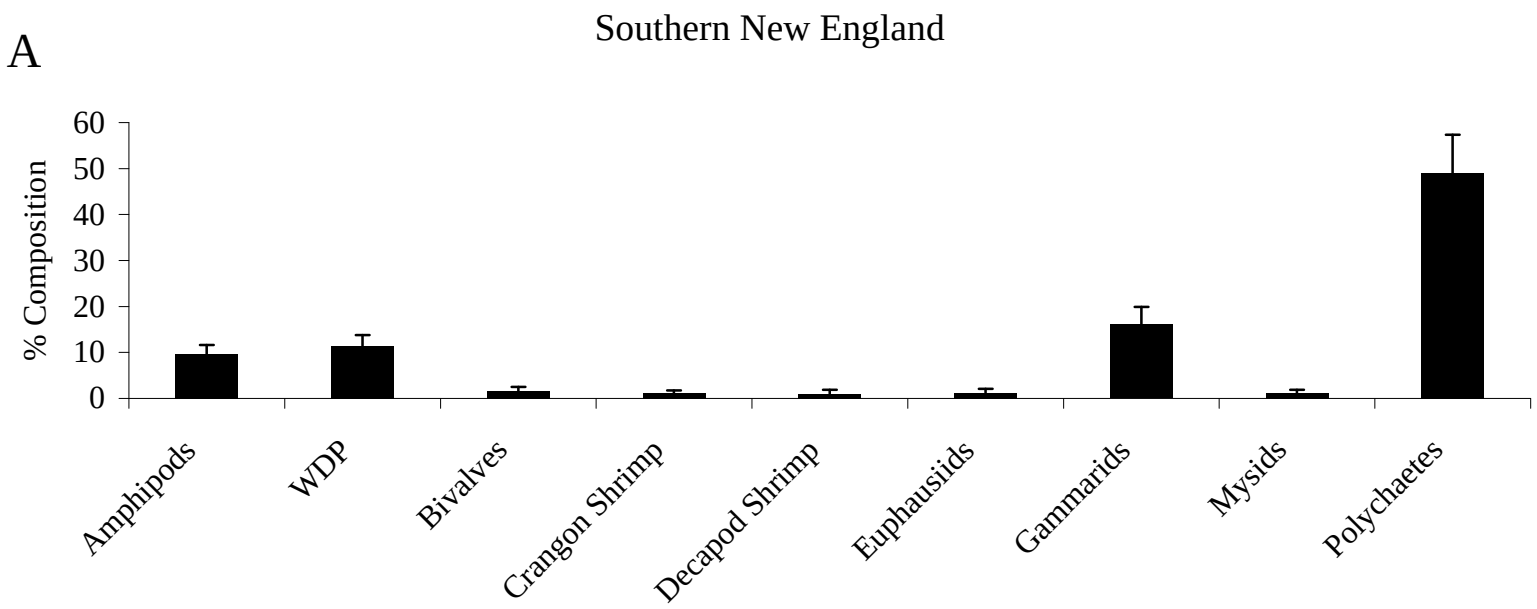

Figure 190A. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in Southern New England (n = 2,421). WDP = well-digested prey.

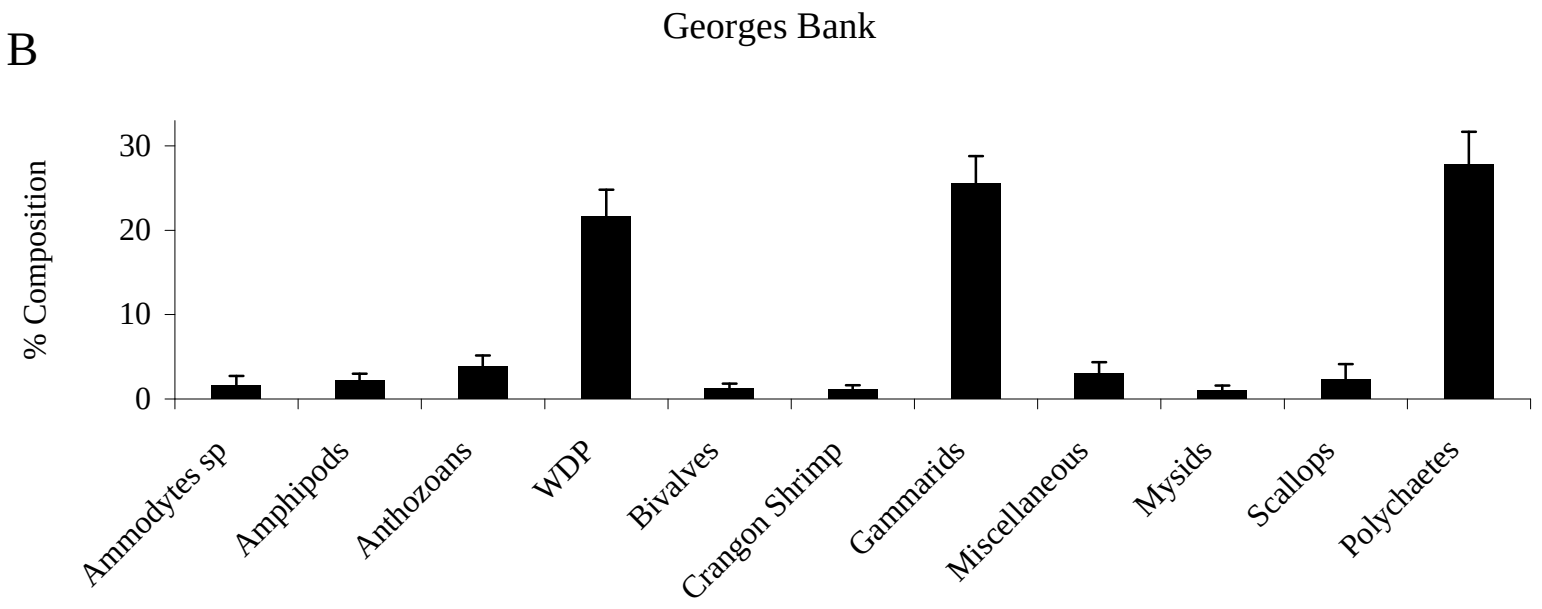

Figure 190B. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected on Georges Bank (n = 3,337). WDP = well-digested prey.

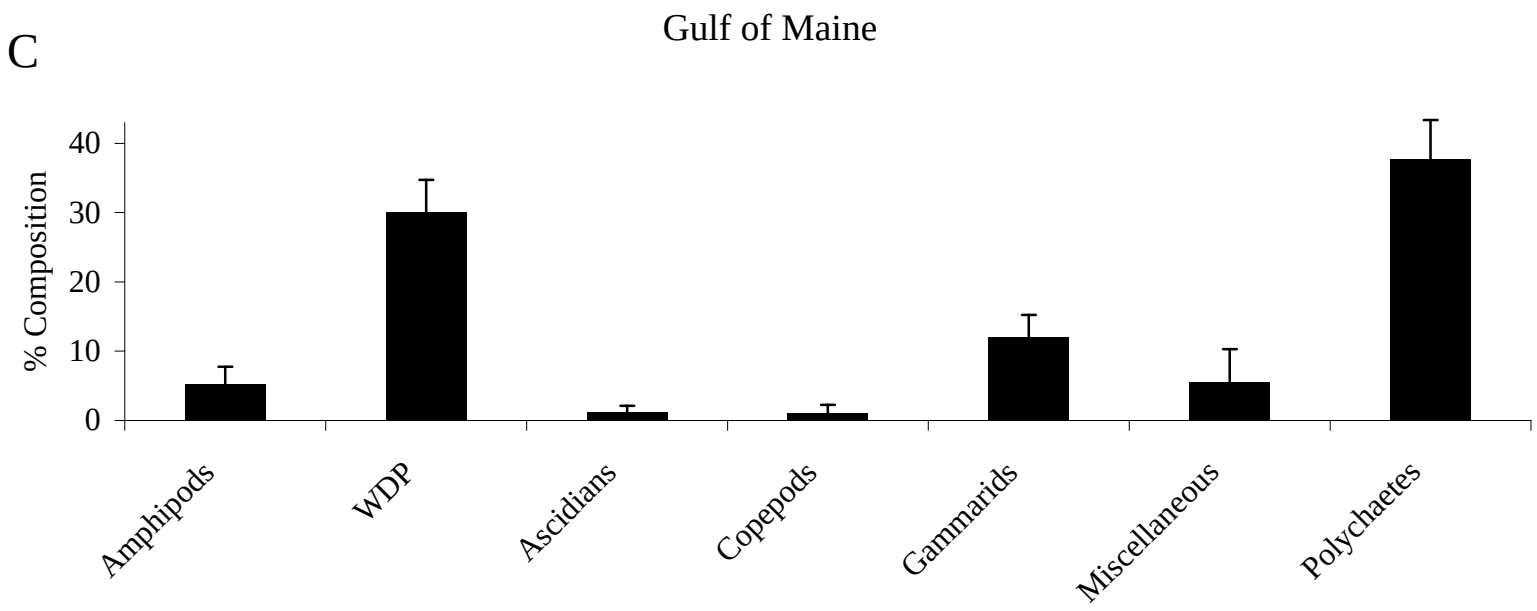

Figure 190C. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the Gulf of Maine (n = 959). WDP = well-digested prey.

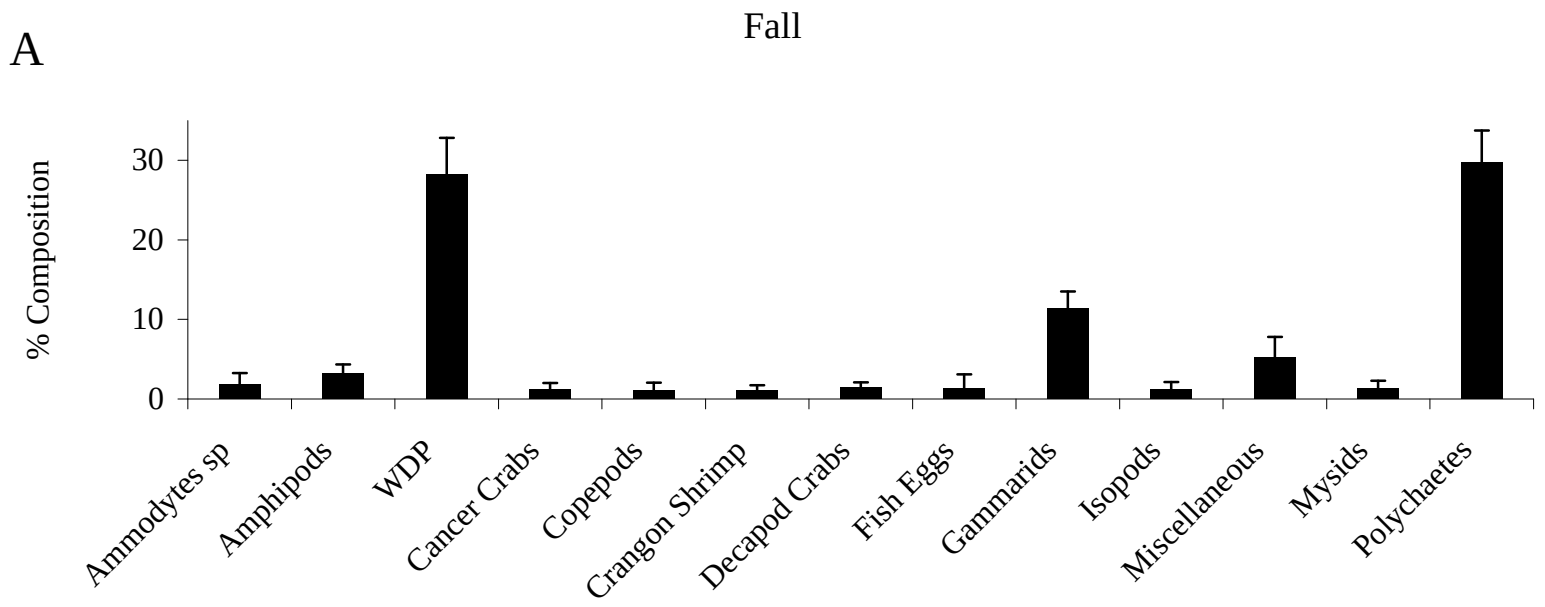

Figure 191A. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the fall (n = 2,339). WDP = well-digested prey.

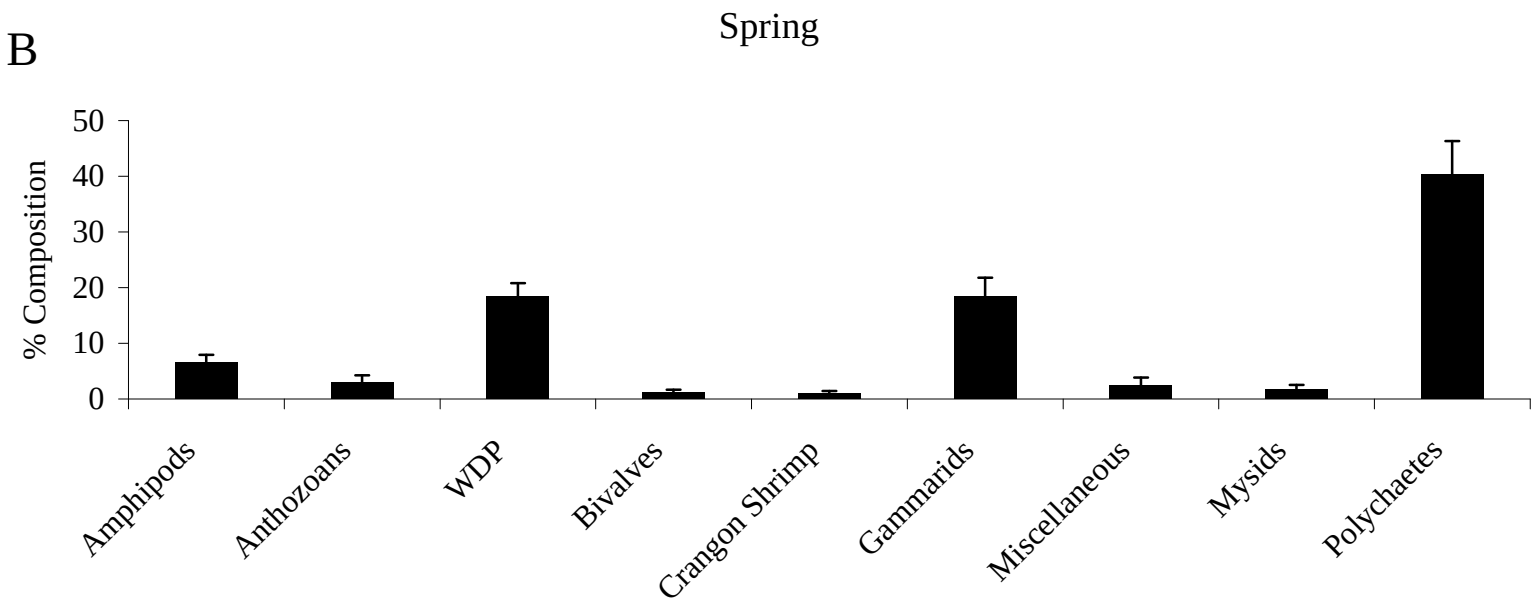

Figure 191B. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the spring (n = 3,202). WDP = well-digested prey.

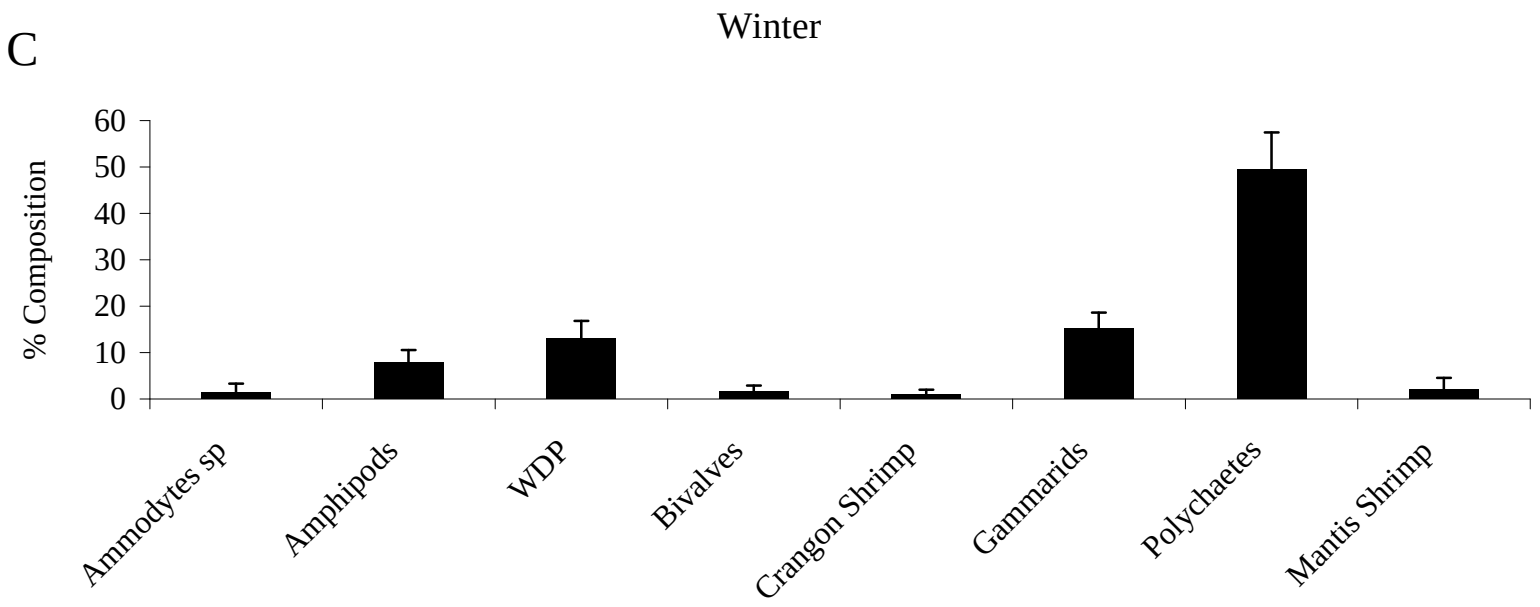

Figure 191C. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the winter (n = 904). WDP = well-digested prey.

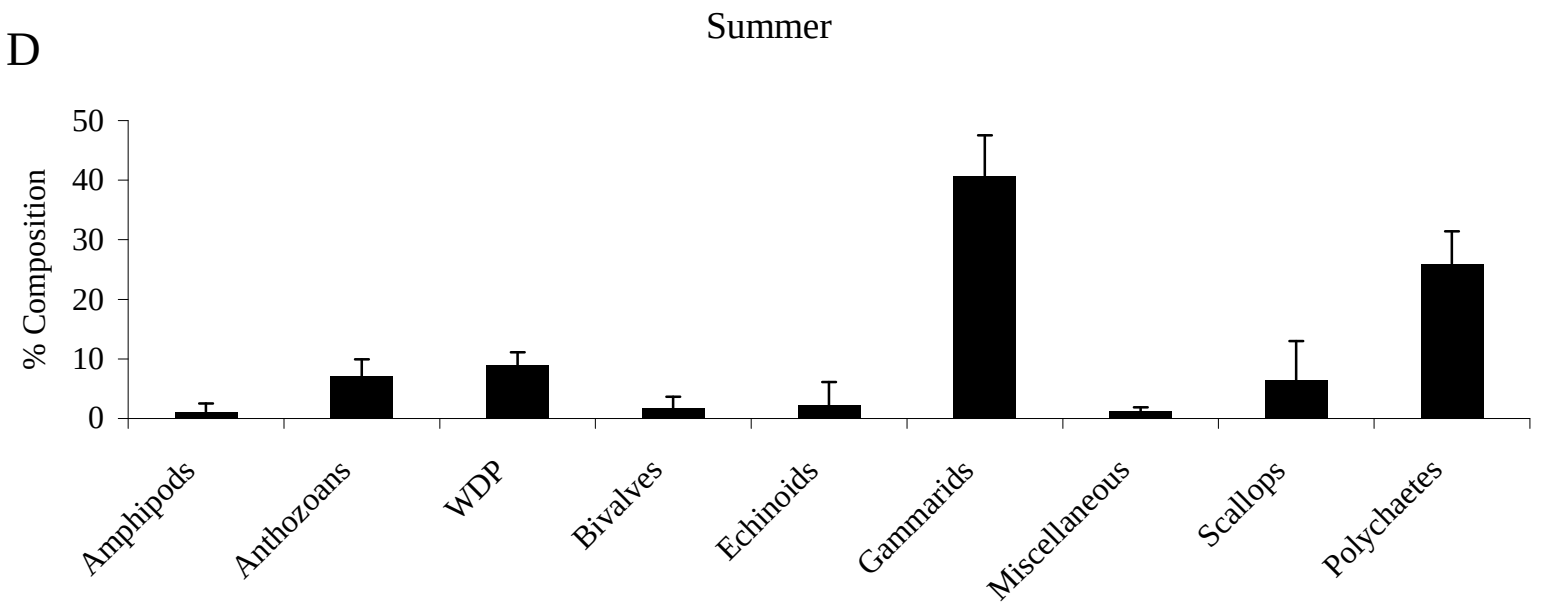

Figure 191D. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) collected in the summer (n = 607). WDP = well-digested prey.

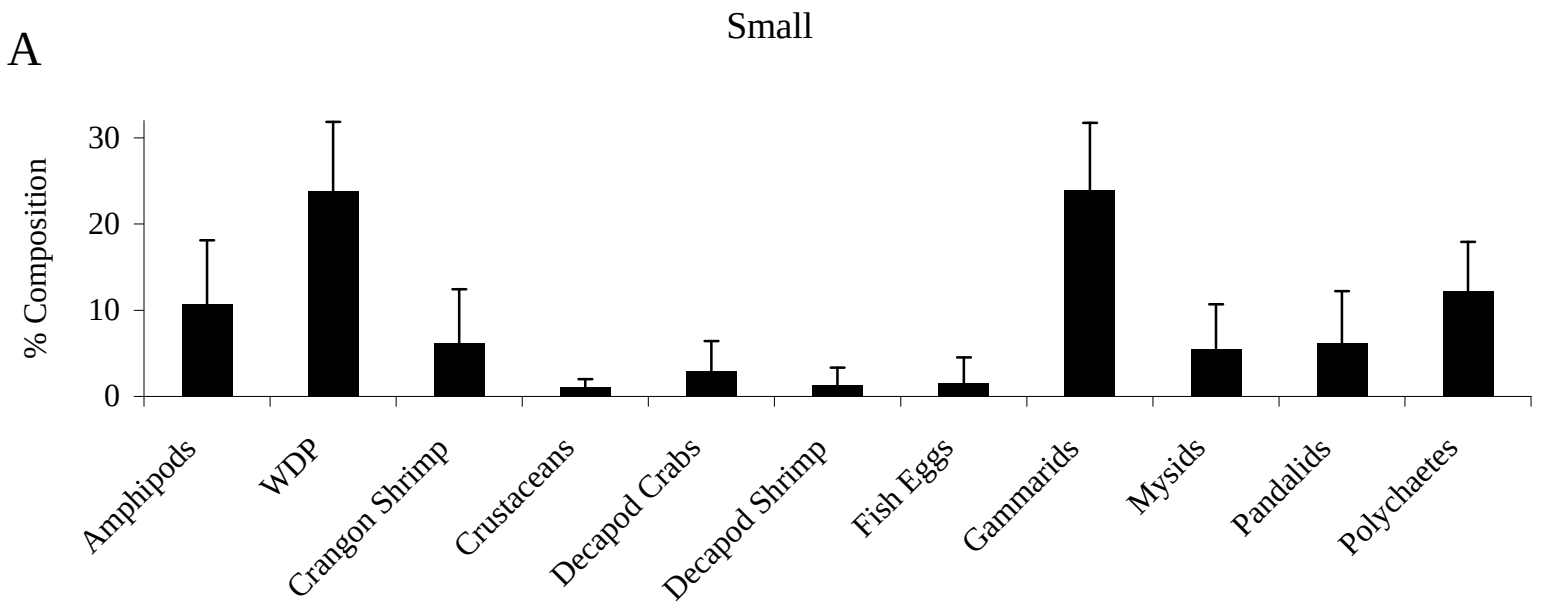

Figure 192A. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*)in the small size class (n = 383). WDP = well-digested prey.

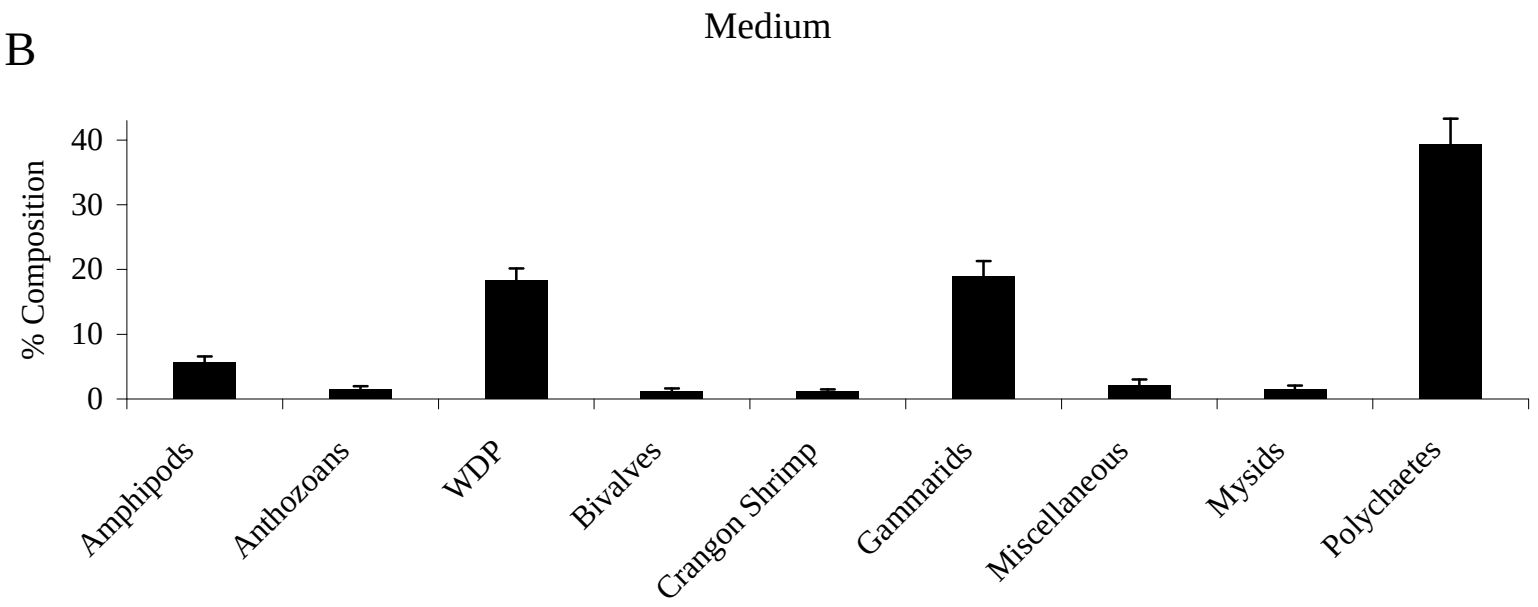

Figure 192B. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) in the medium size class (n = 5,814). WDP = well-digested prey.

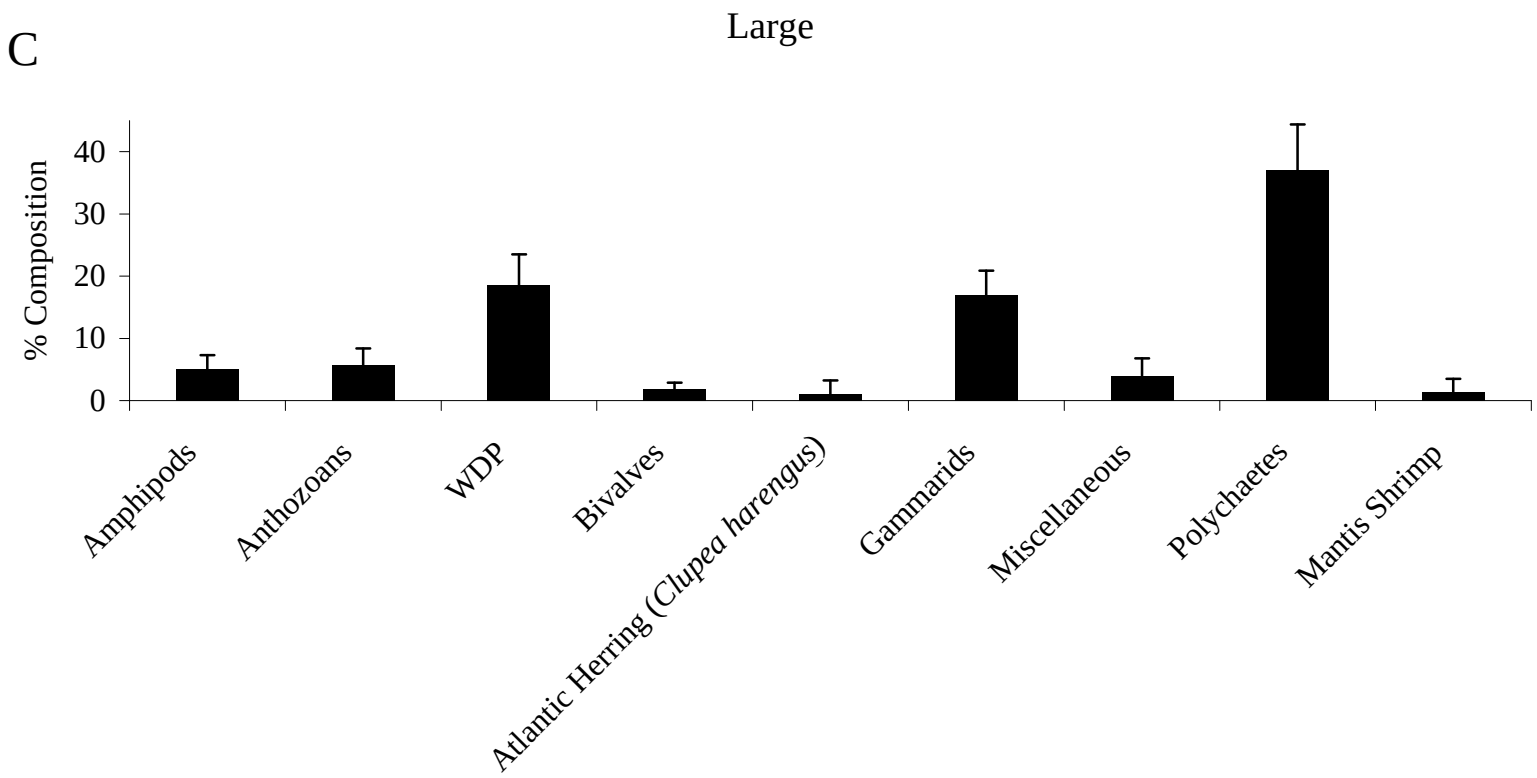

Figure 192C. Percent diet composition by weight of major prey taxa for yellowtail flounder (*Limanda ferruginea*) in the large size class (n = 855). WDP = well-digested prey.

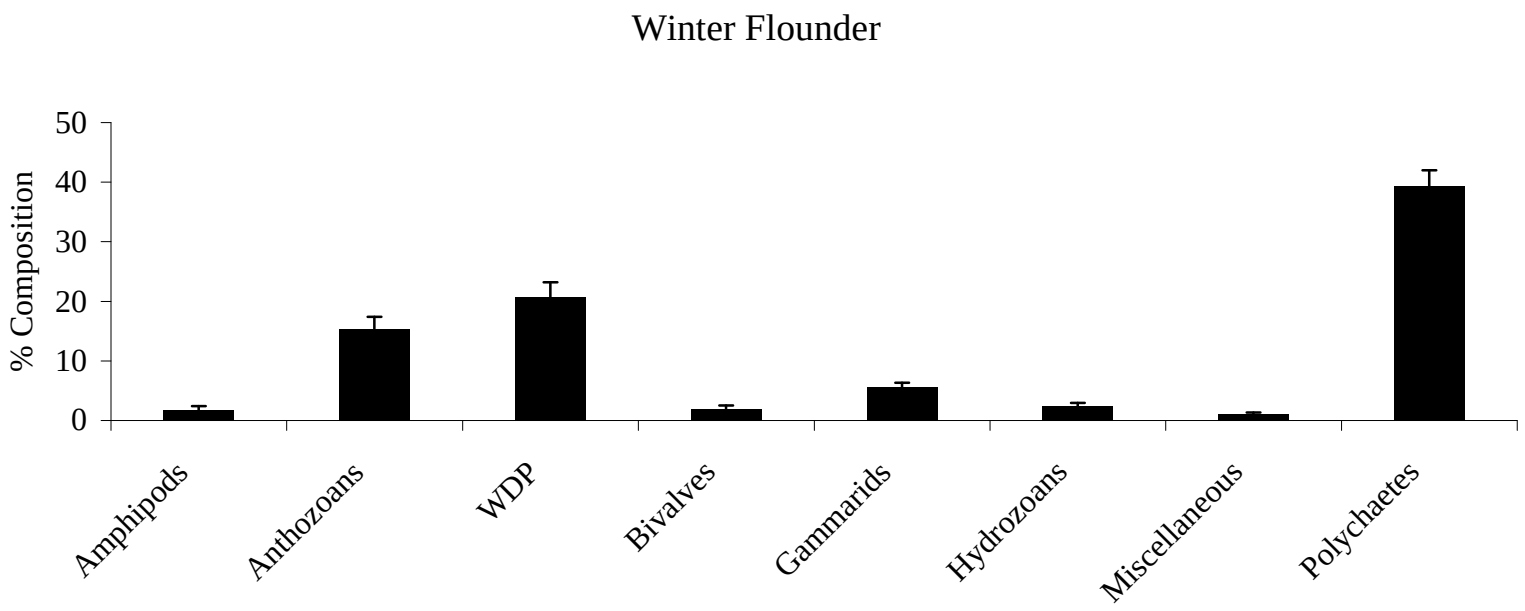

Figure 193. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*; n = 9,278). WDP = well-digested prey.

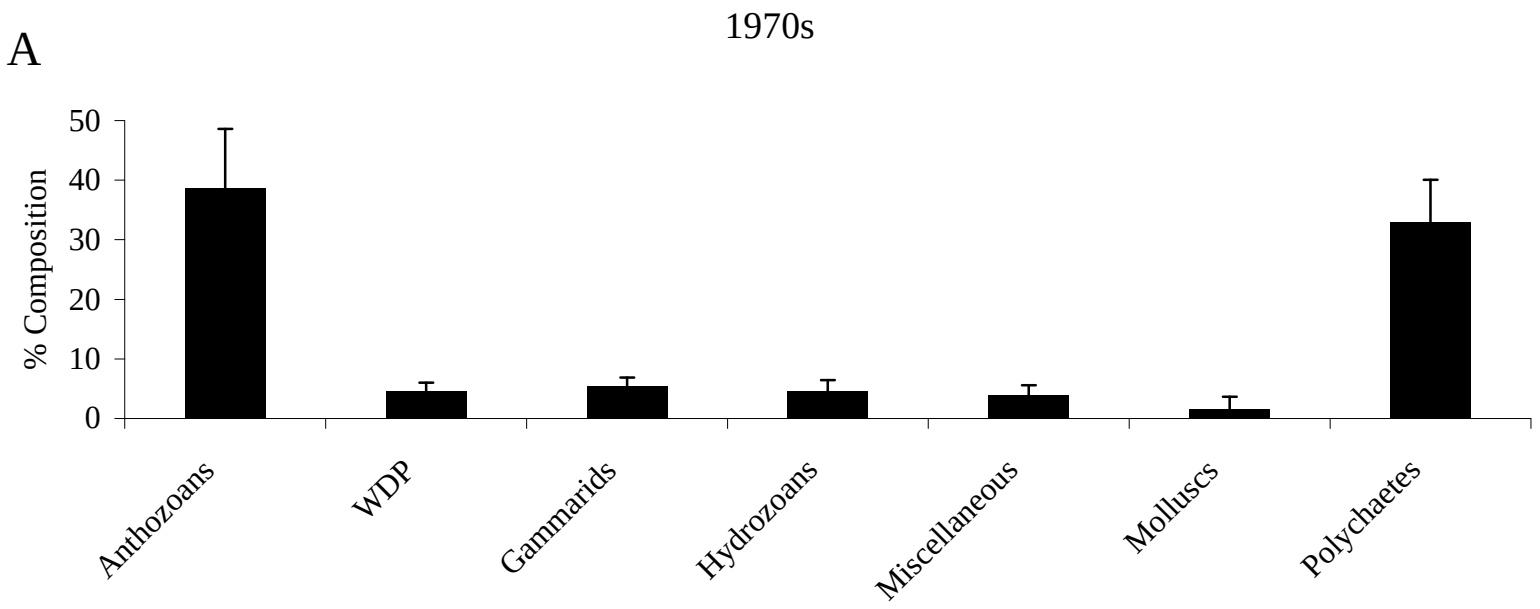

Figure 194A. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the 1970s (n = 1,229). WDP = well-digested prey.

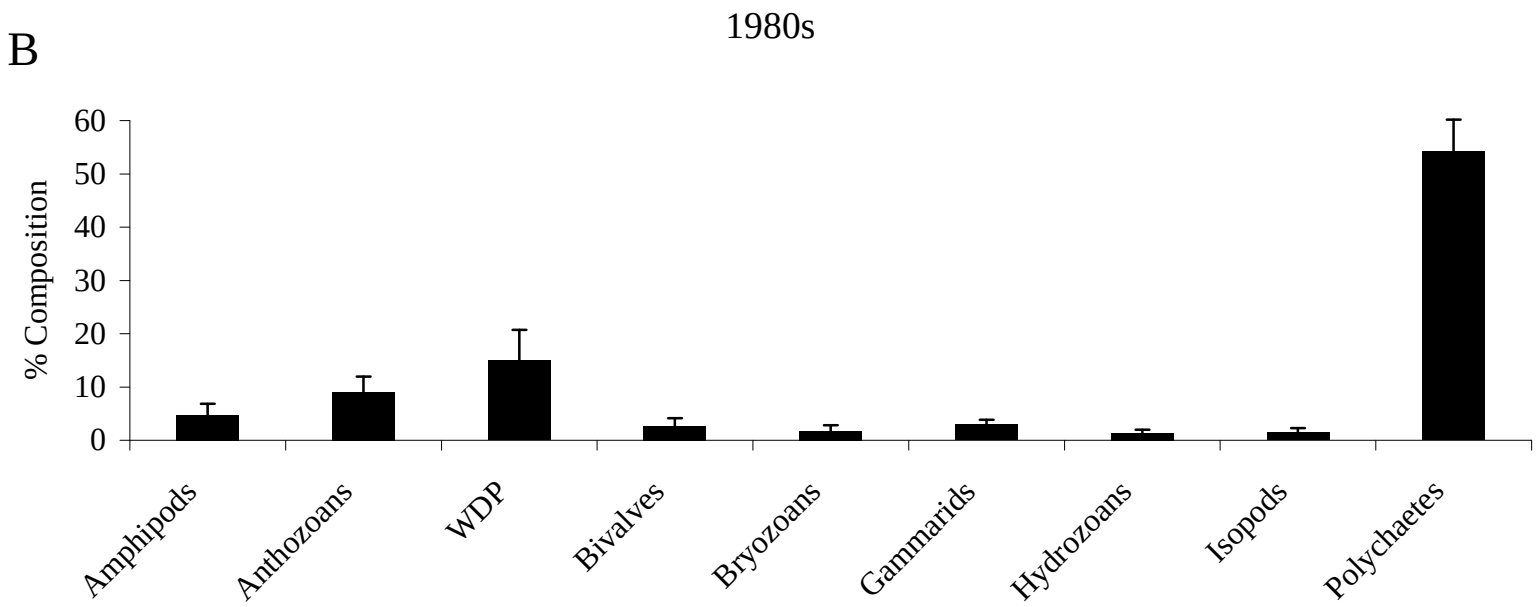

Figure 194B. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the 1980s (n = 1,395). WDP = well-digested prey.

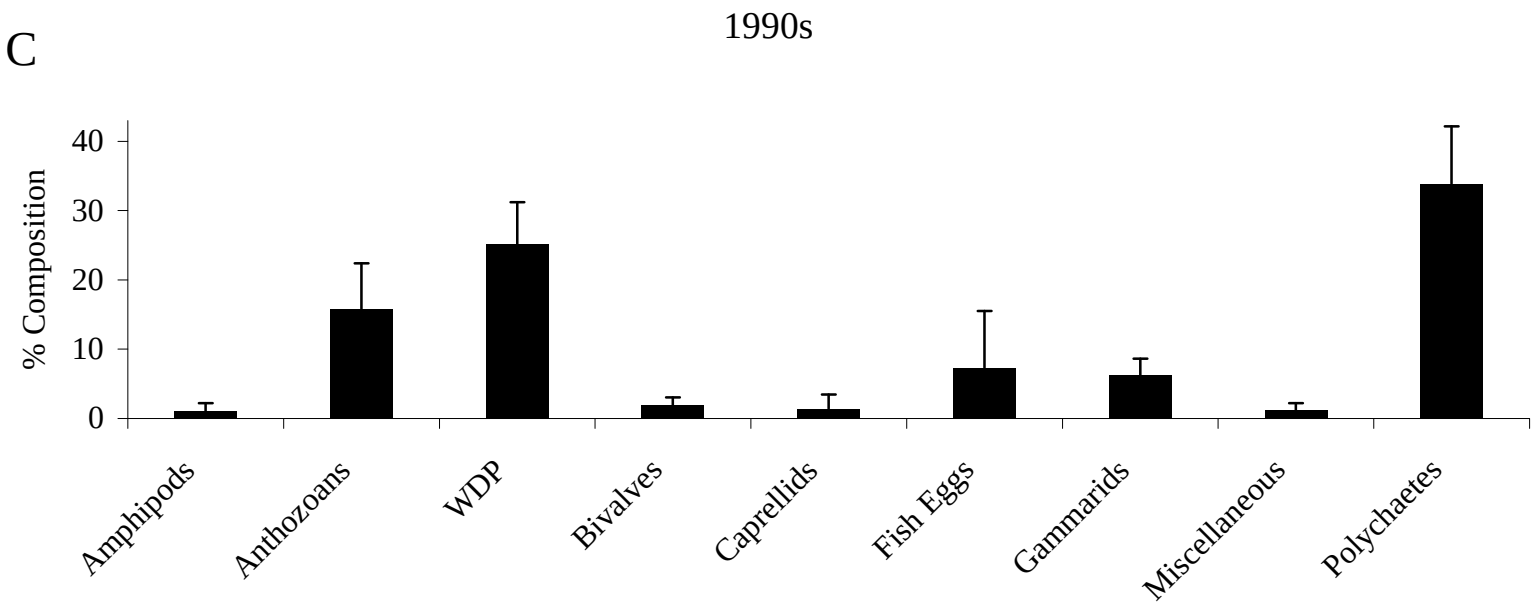

Figure 194C. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the 1990s (n = 848). WDP = well-digested prey.

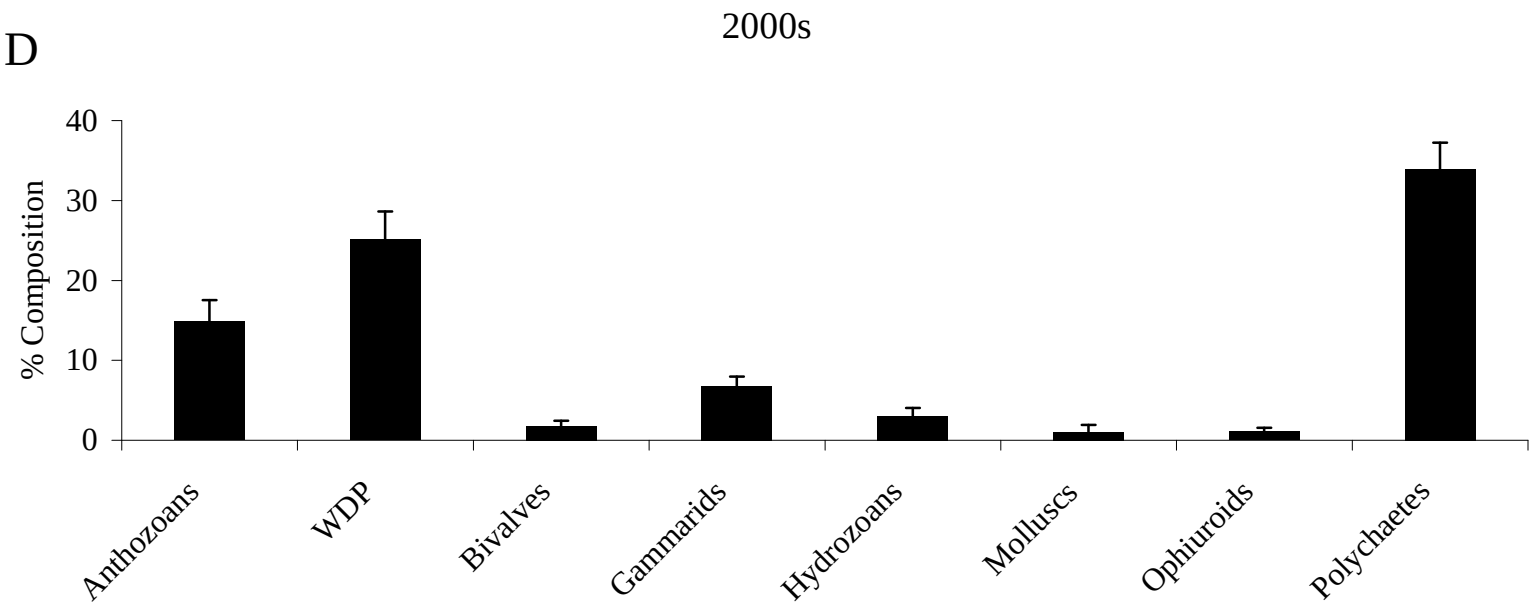

Figure 194D. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the 2000s (n = 5,806). WDP = well-digested prey.

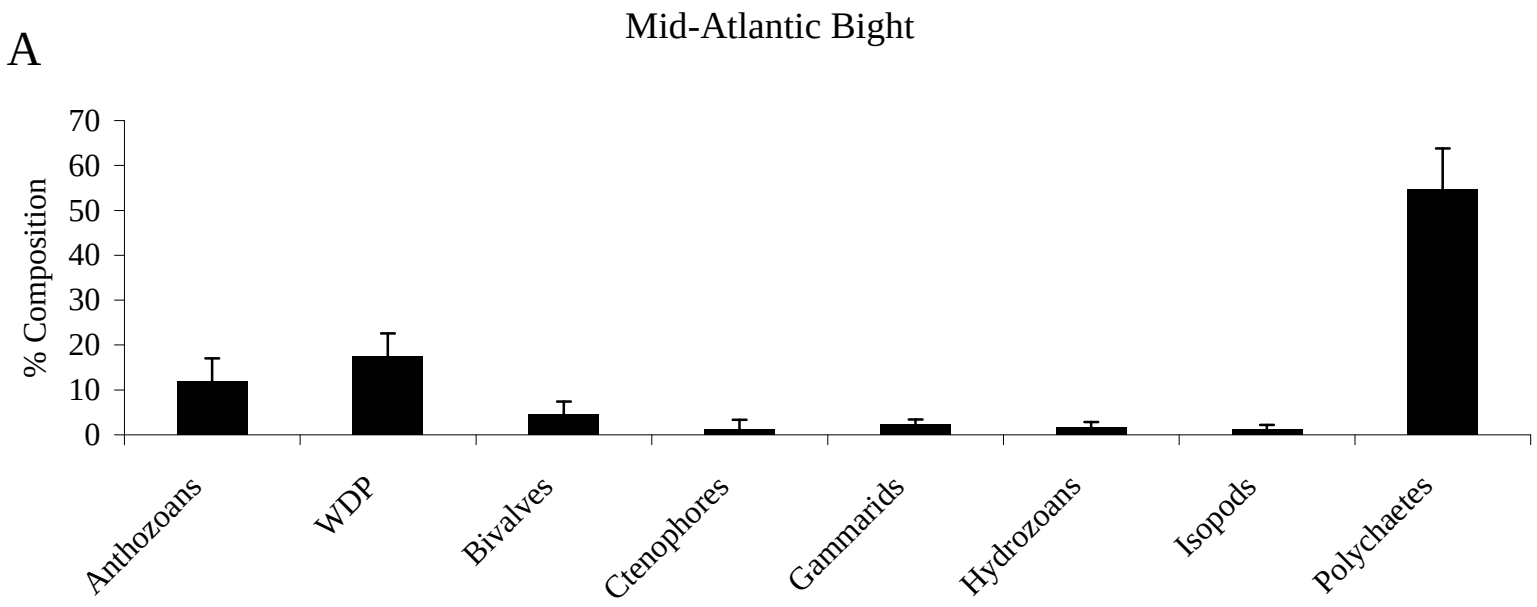

Figure 195A. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the Mid-Atlantic Bight (n = 676). WDP = well-digested prey.

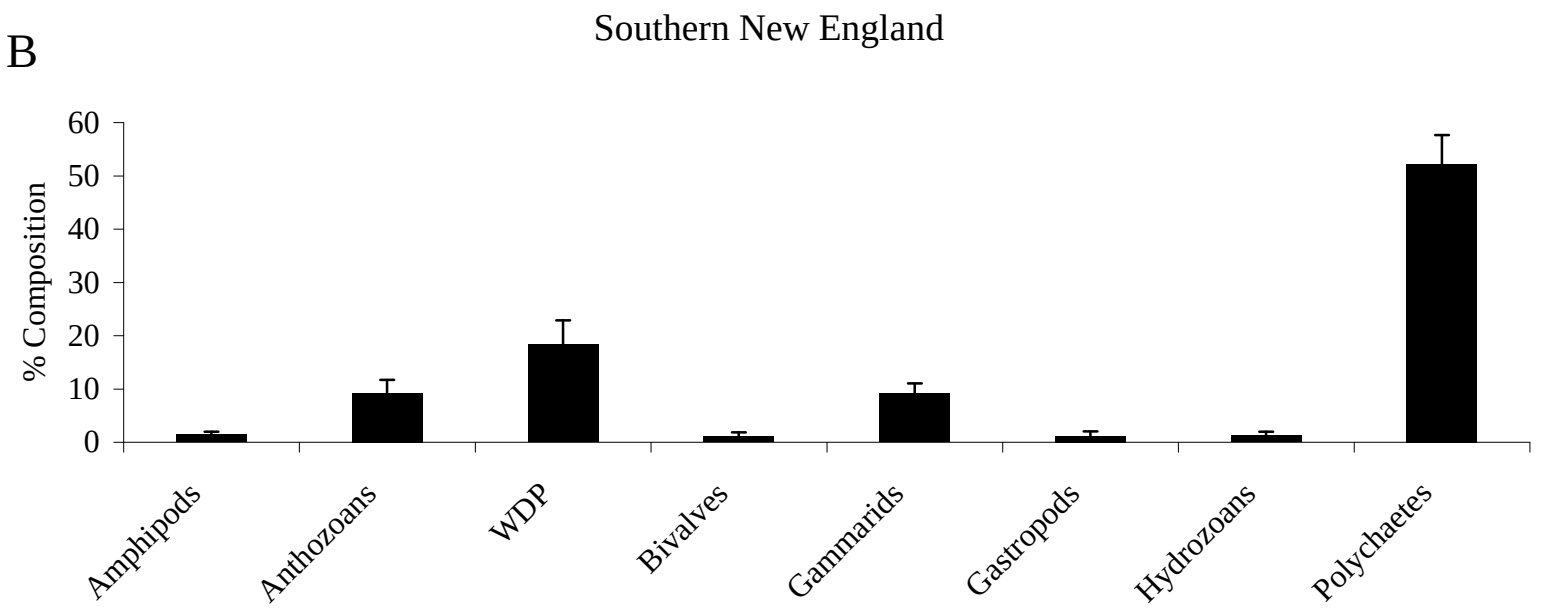

Figure 195B. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in Southern New England (n = 3,568). WDP = well-digested prey.

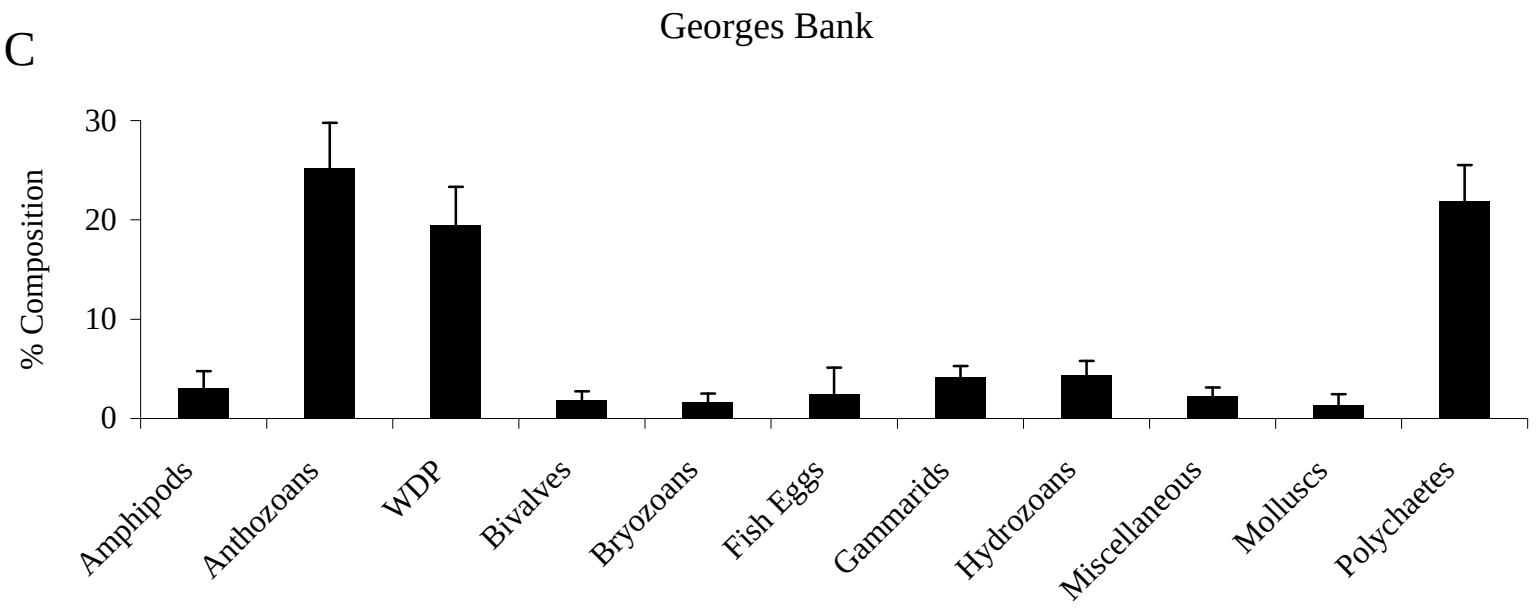

Figure 195C. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected on Georges Bank (n = 2,499). WDP = well-digested prey.

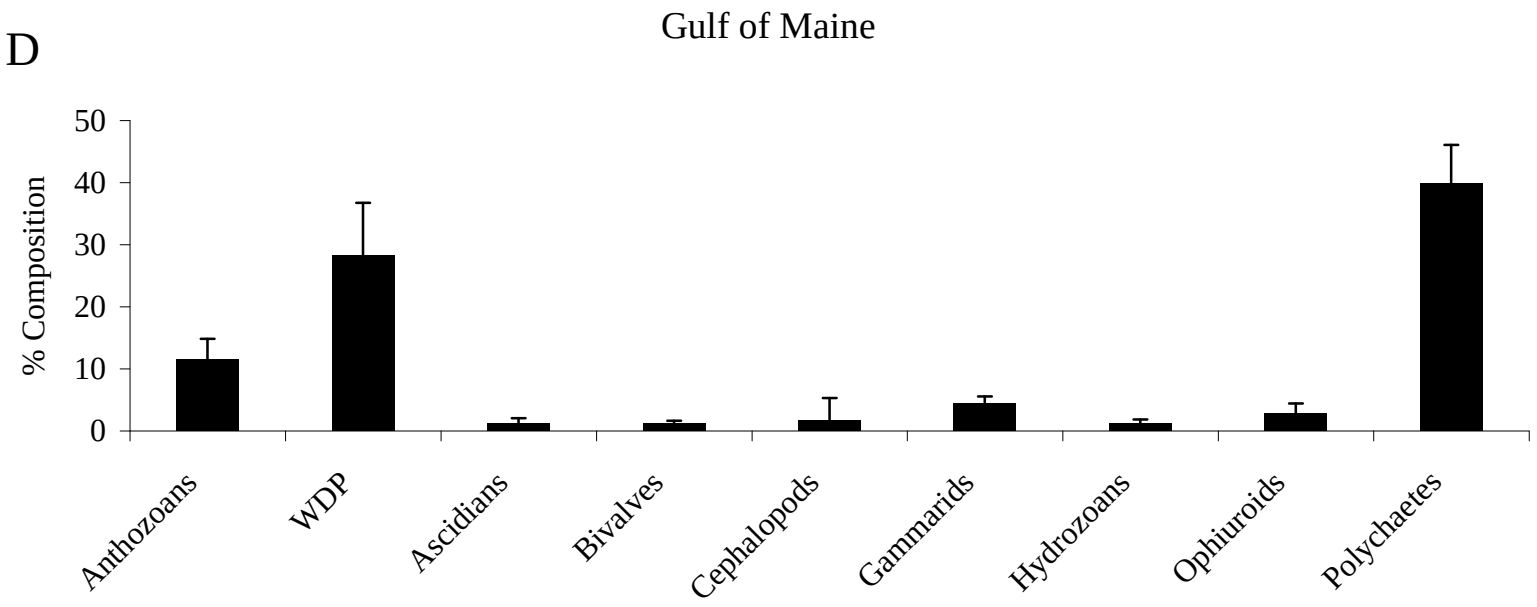

Figure 195D. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the Gulf of Maine (n = 1,805). WDP = well-digested prey.

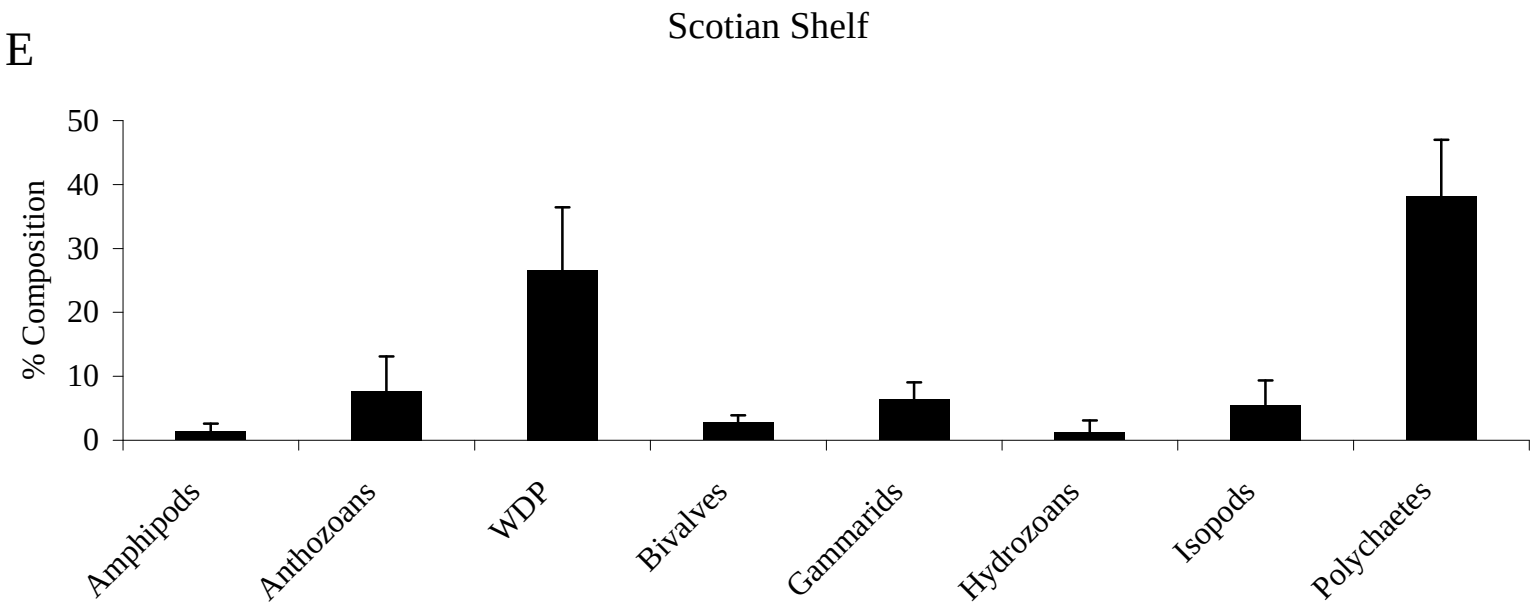

Figure 195E. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected on the Scotian Shelf (n = 730). WDP = well-digested prey.

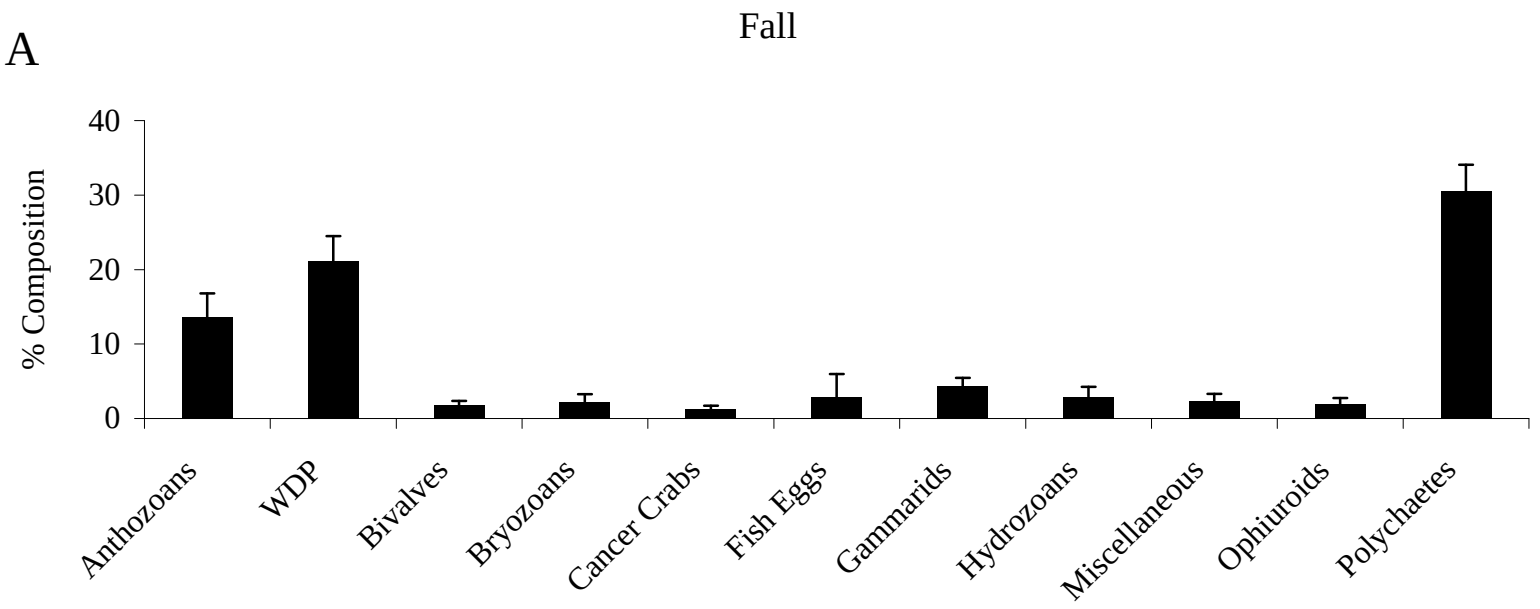

Figure 196A. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the fall (n = 3,308). WDP = well-digested prey.

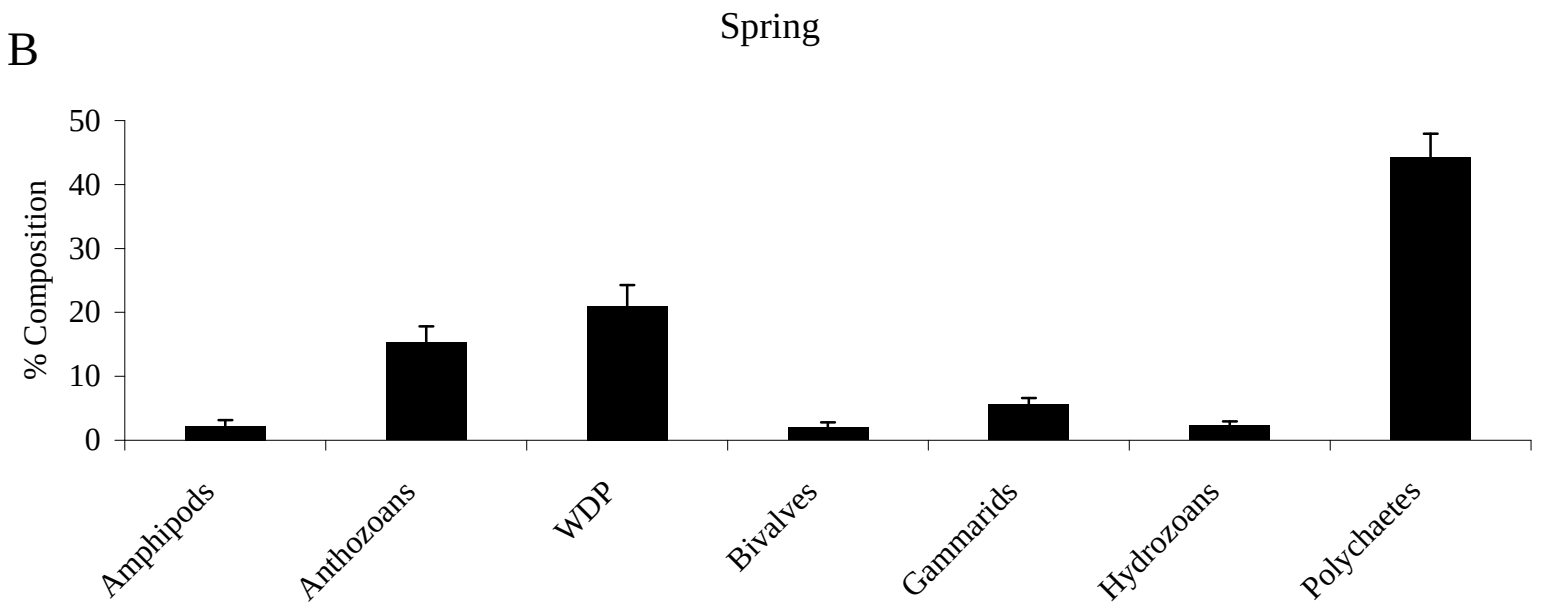

Figure 196B. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the spring (n = 4,919). WDP = well-digested prey.

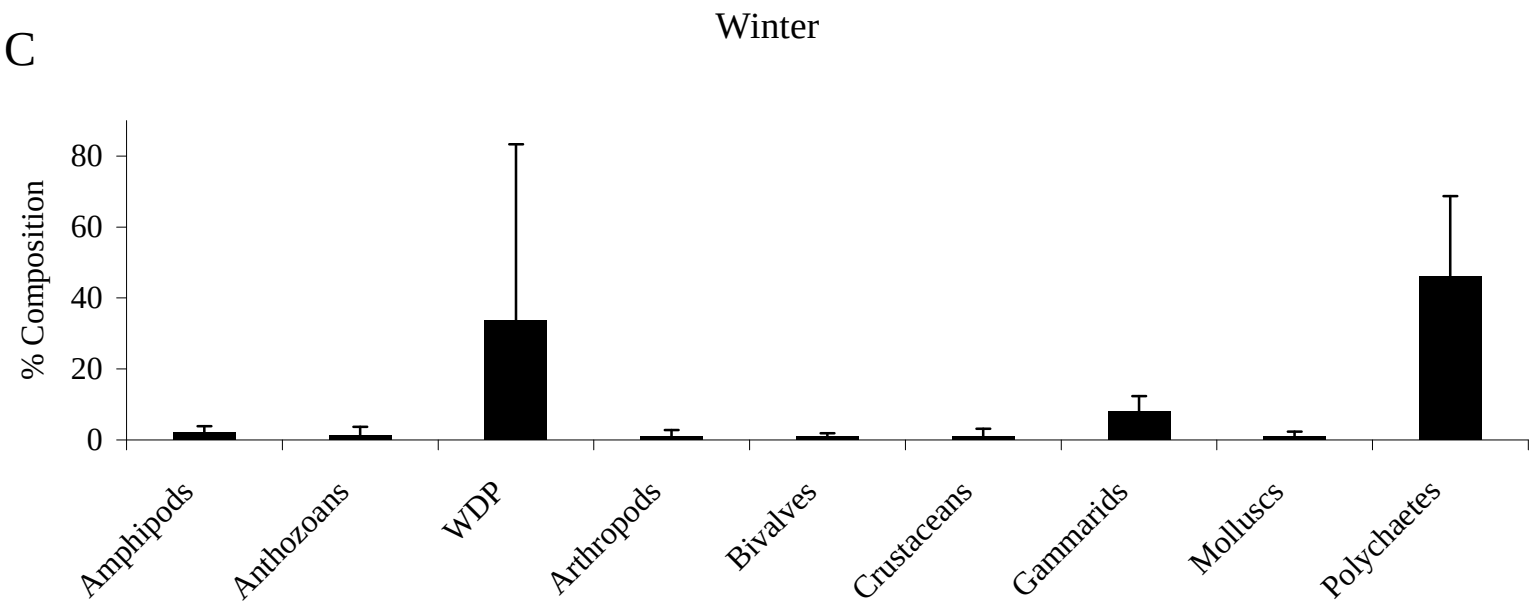

Figure 196C. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the winter (n = 474). WDP = well-digested prey.

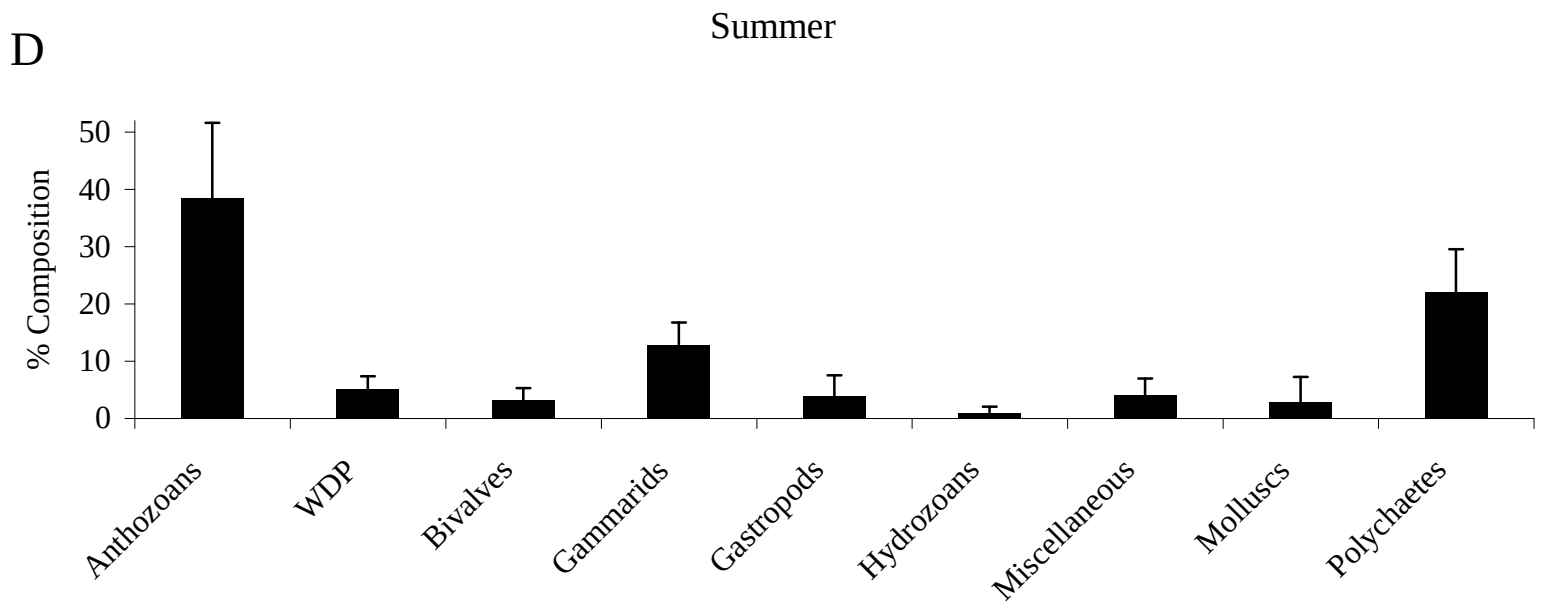

Figure 196D. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) collected in the summer (n = 577). WDP = well-digested prey.

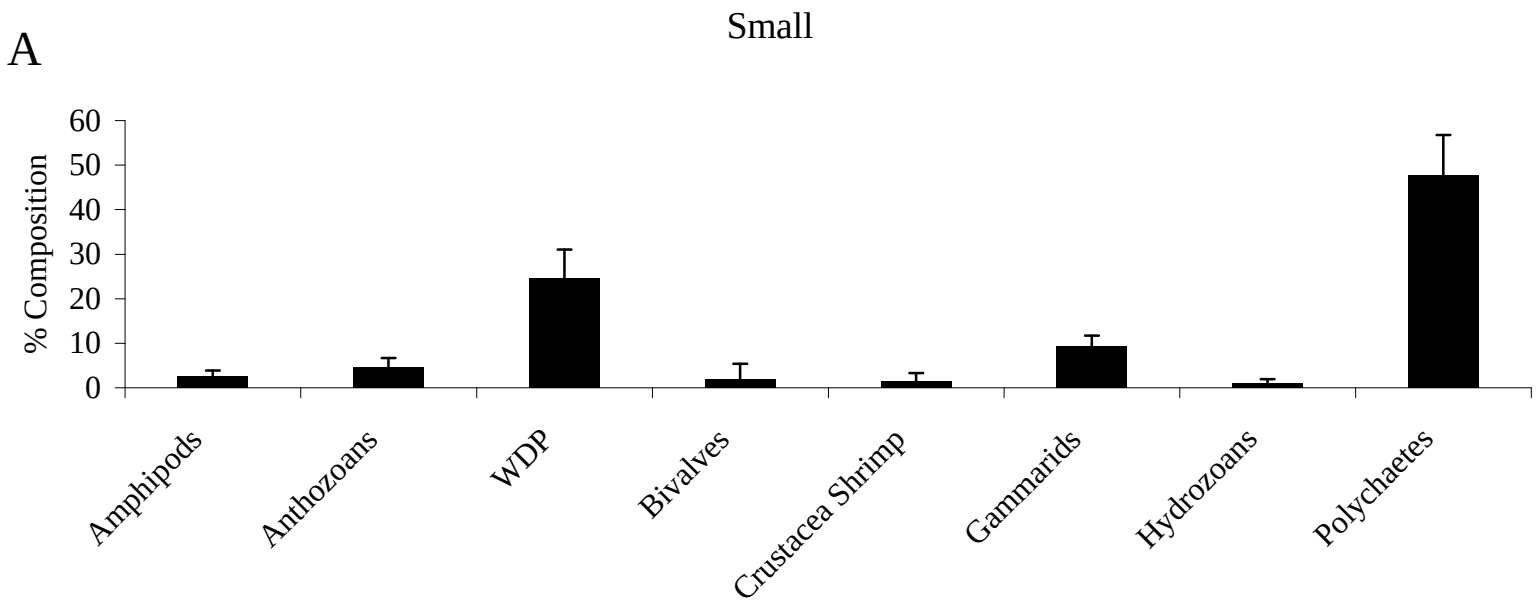

Figure 197A. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) in the small size class (n = 1,011). WDP = well-digested prey.

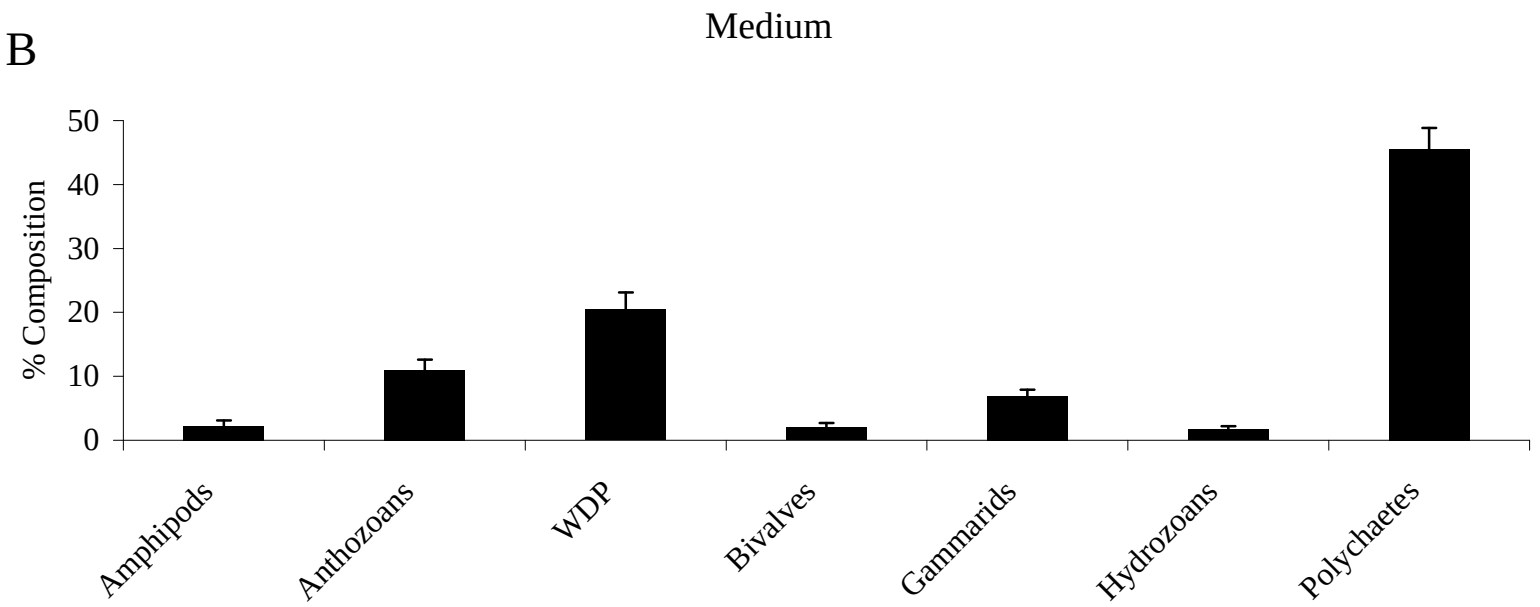

Figure 197B. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) in the medium size class (n = 6,681). WDP = well-digested prey.

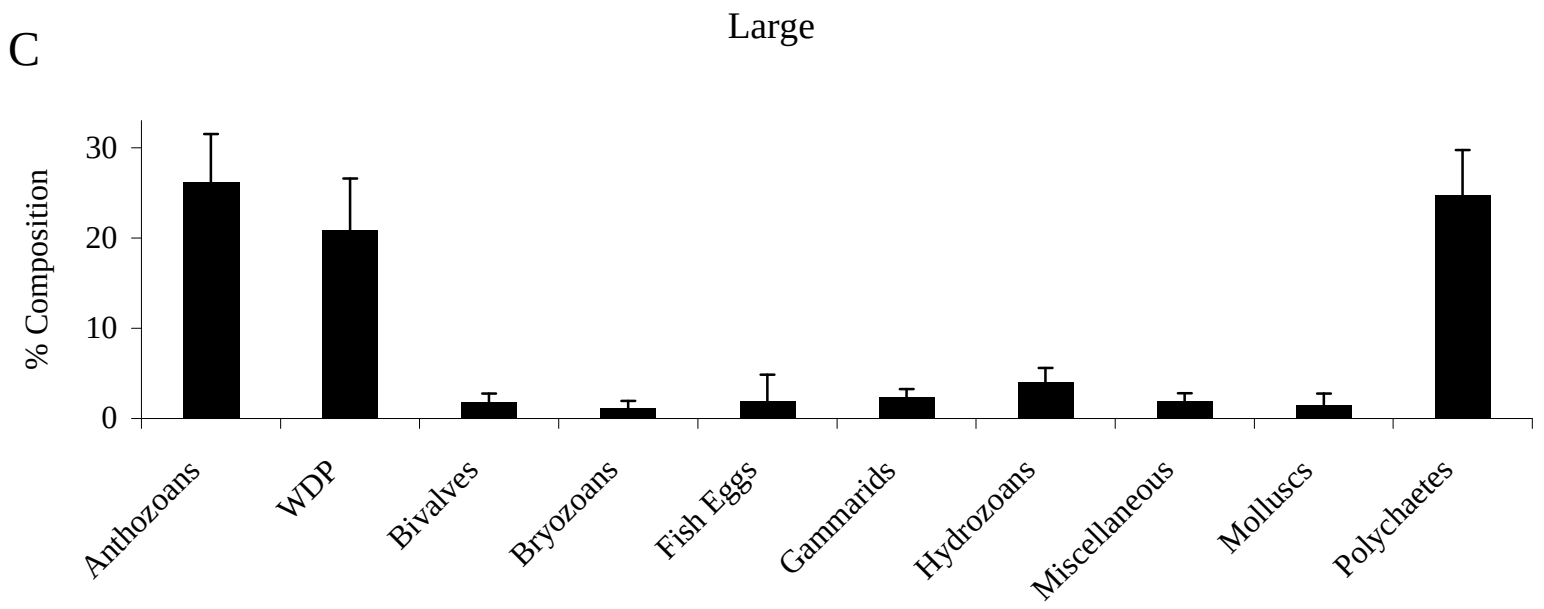

Figure 197C. Percent diet composition by weight of major prey taxa for winter flounder (*Pseudopleuronectes americanus*) in the large size class (n = 1,405). WDP = well-digested prey.

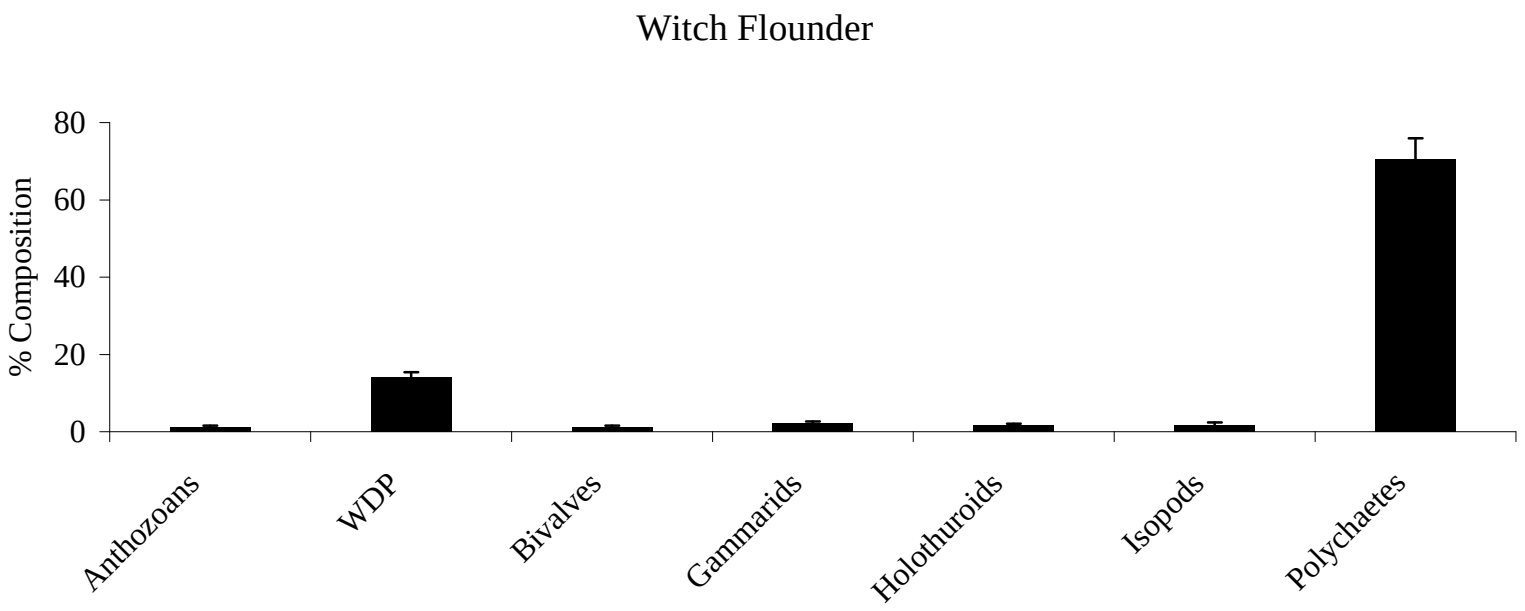

Figure 198. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*; n = 5,031). WDP = well-digested prey.

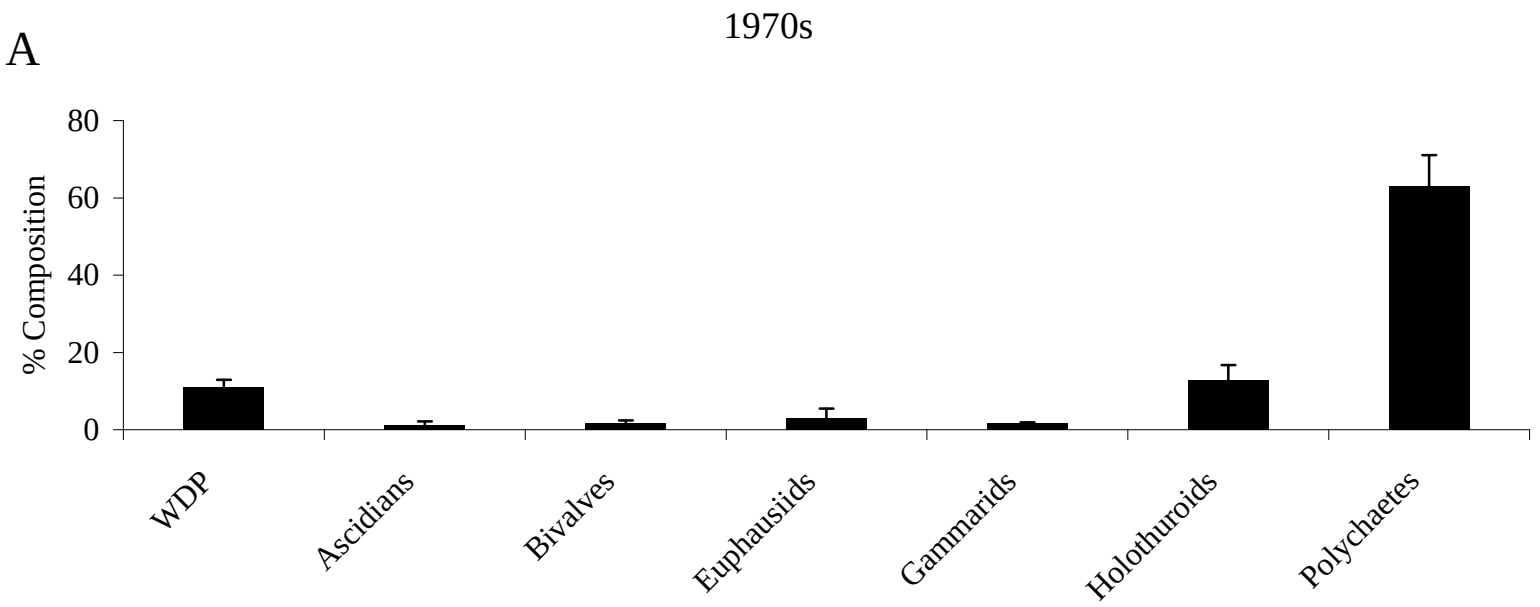

Figure 199A. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the 1970s (n = 829). WDP = well-digested prey.

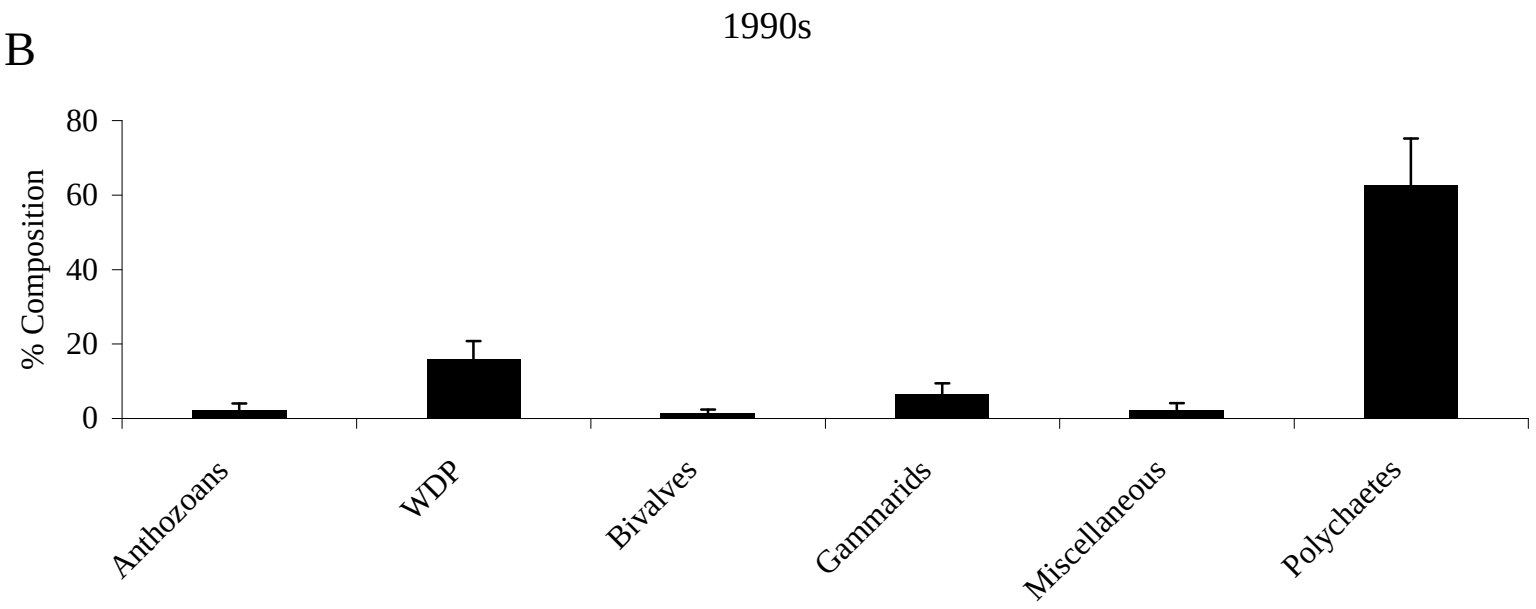

Figure 199B. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the 1990s (n = 411). WDP = well-digested prey.

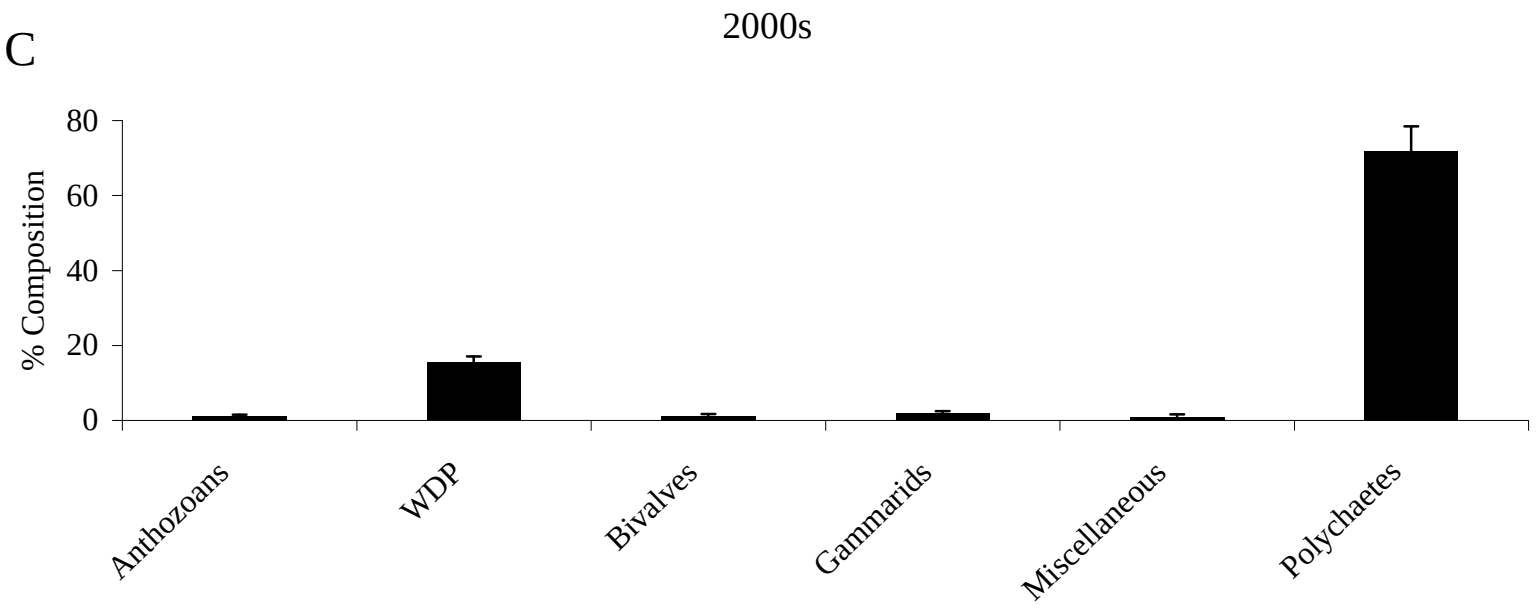

Figure 199C. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the 2000s (n = 3,693). WDP = well-digested prey.

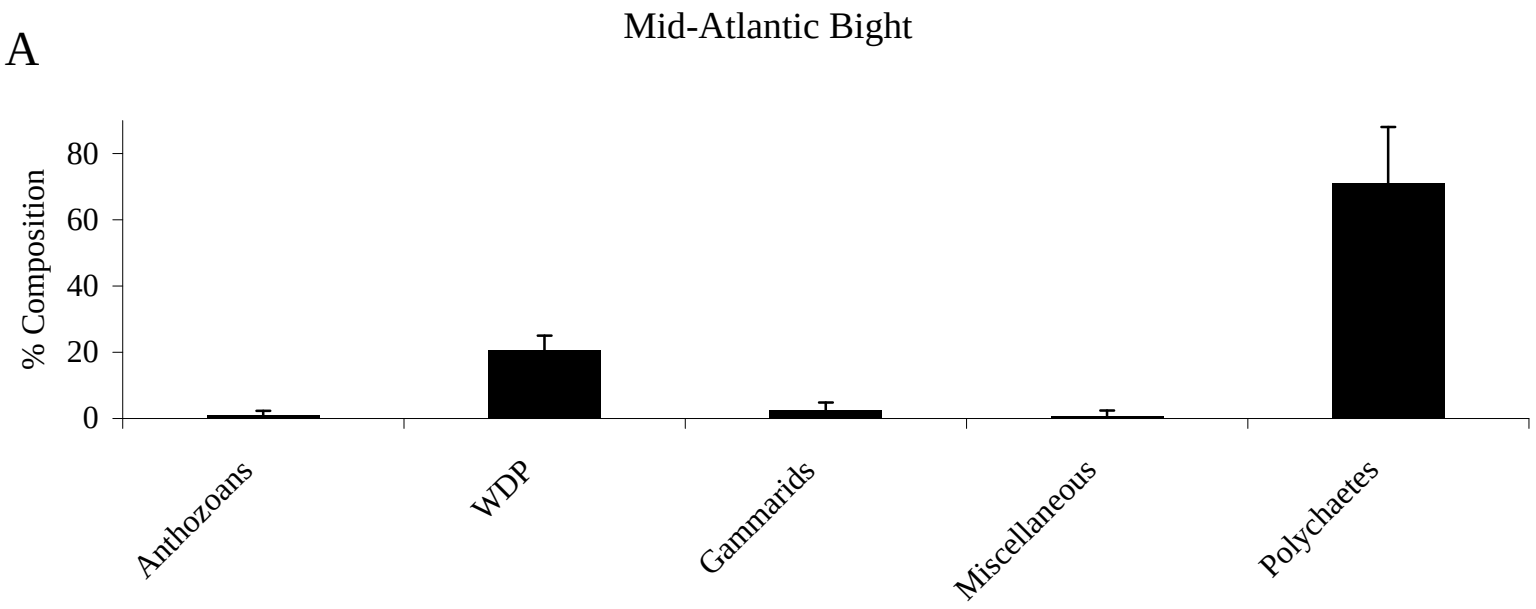

Figure 200A. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the Mid-Atlantic Bight (n = 646). WDP = well-digested prey.

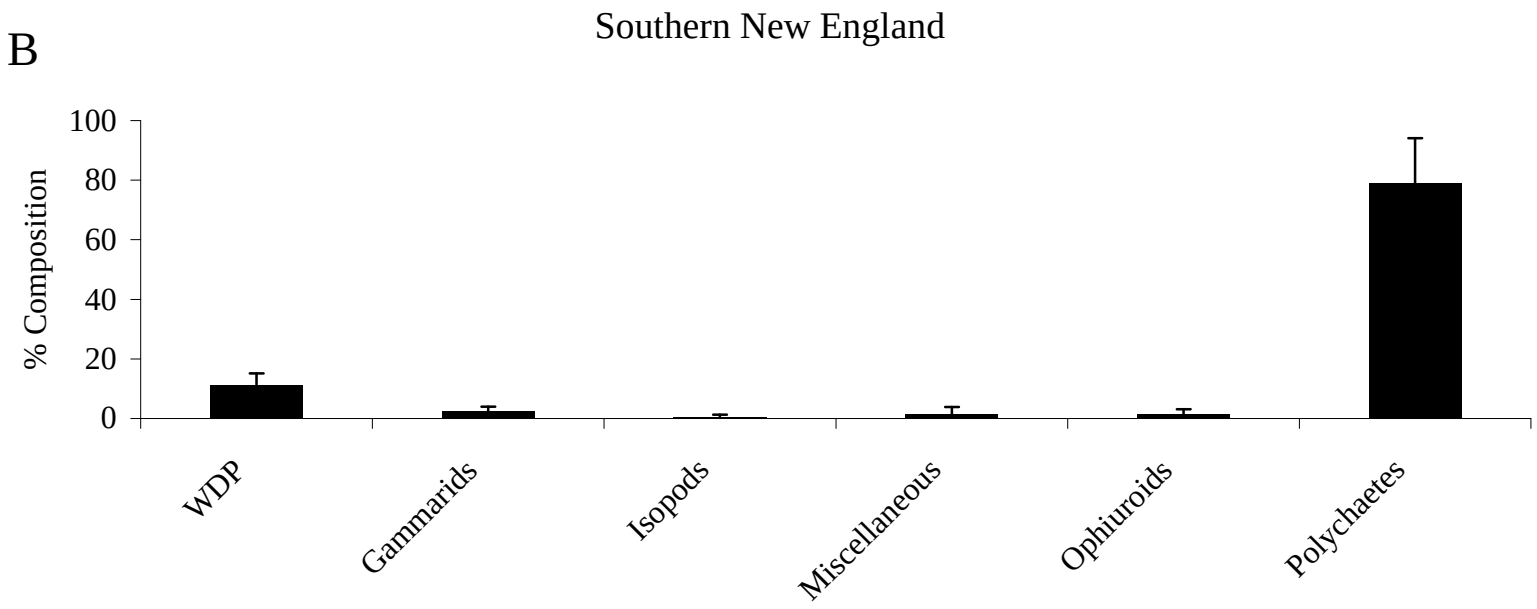

Figure 200B. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in Southern New England (n = 611). WDP = well-digested prey.

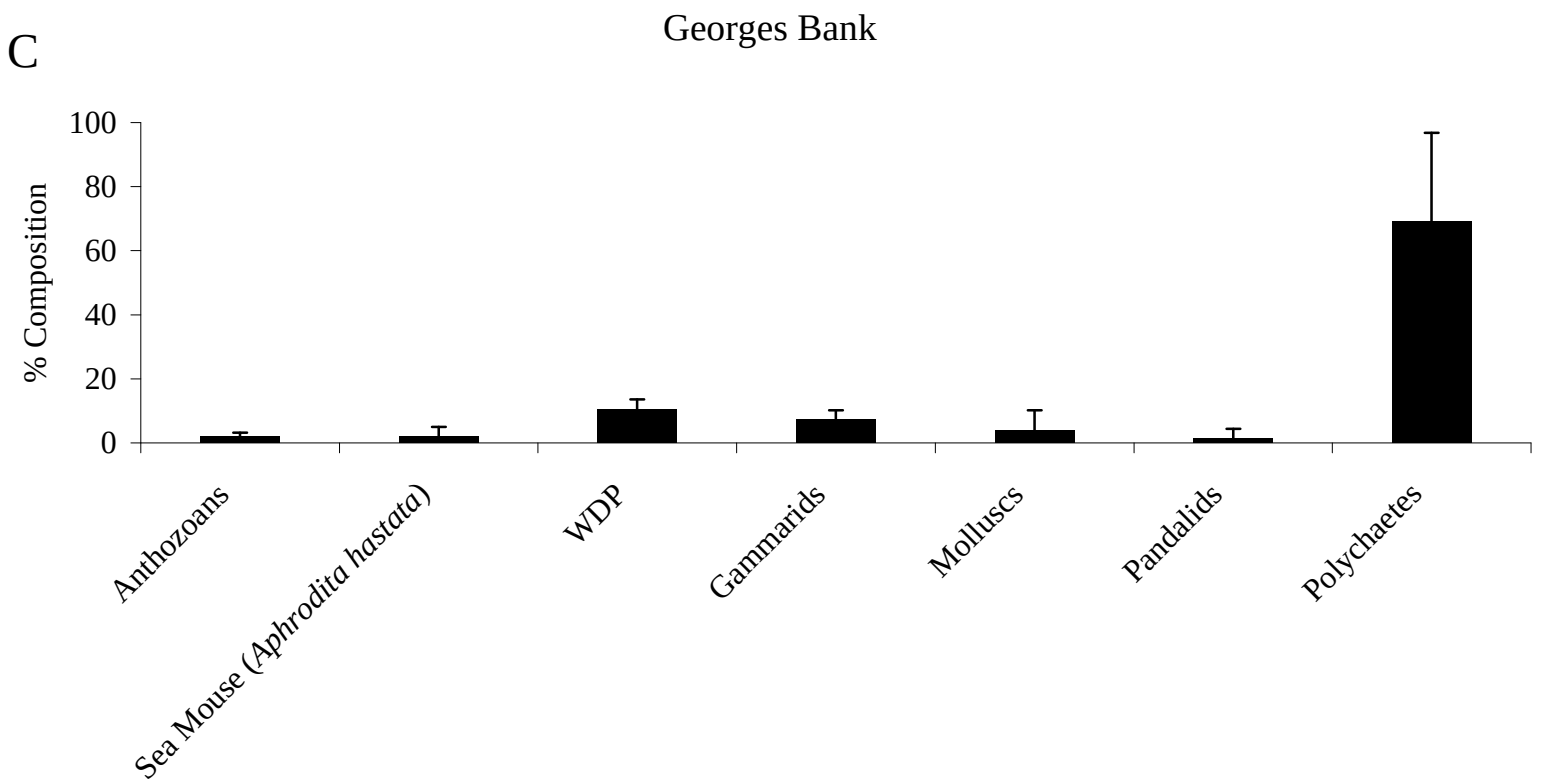

Figure 200C. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected on Georges Bank (n = 422). WDP = well-digested prey.

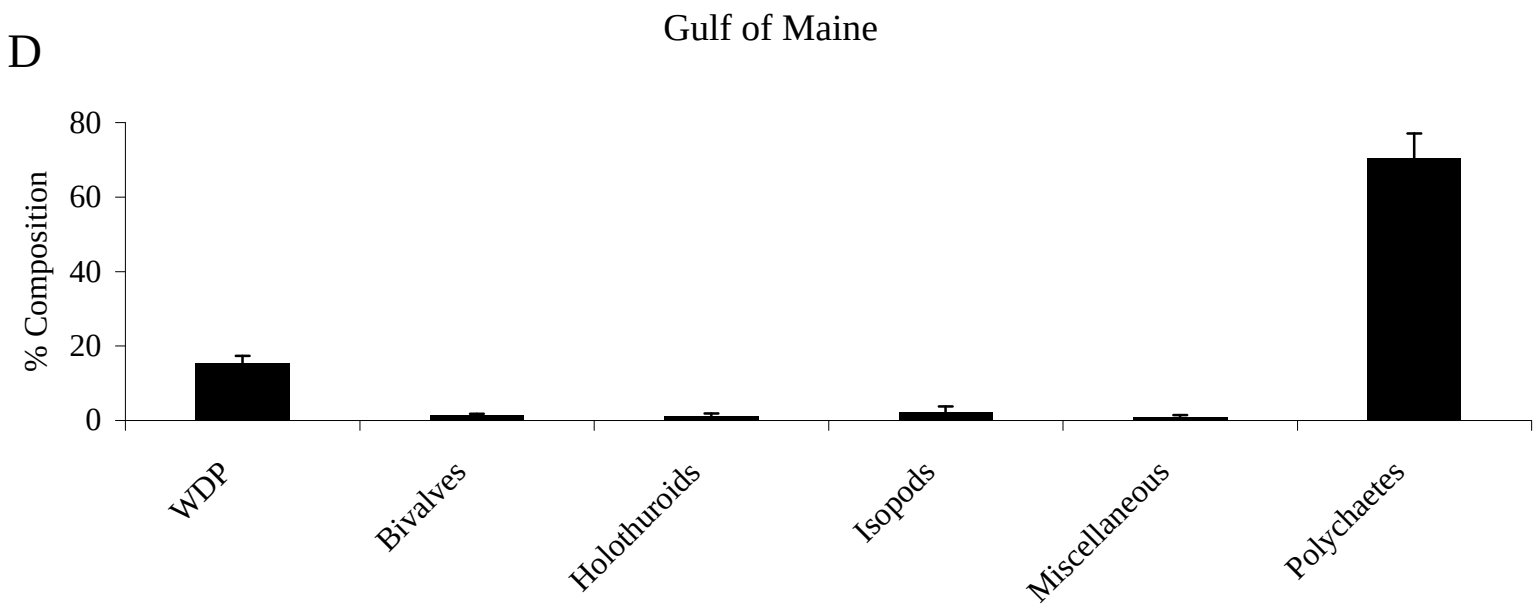

Figure 200D. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the Gulf of Maine (n = 2,671). WDP = well-digested prey.

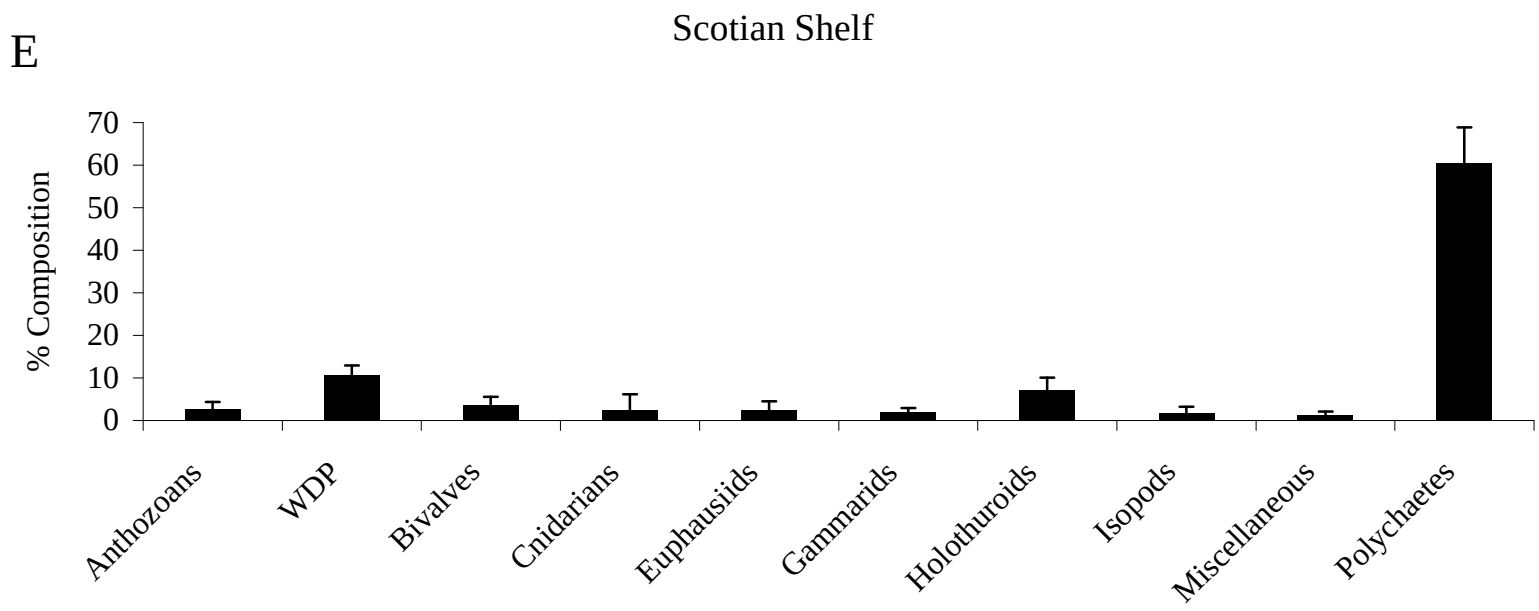

Figure 200E. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected on the Scotian Shelf (n = 668). WDP = well-digested prey.

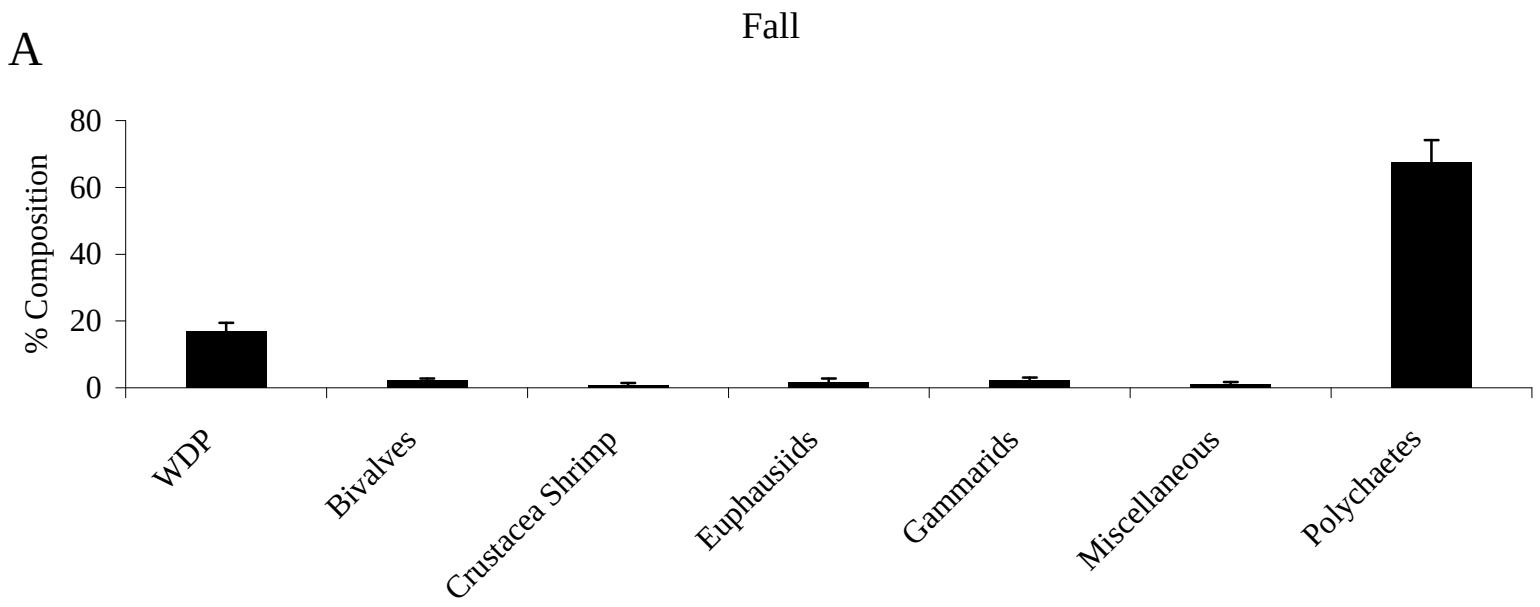

Figure 201A. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the fall (n = 1,628). WDP = well-digested prey.

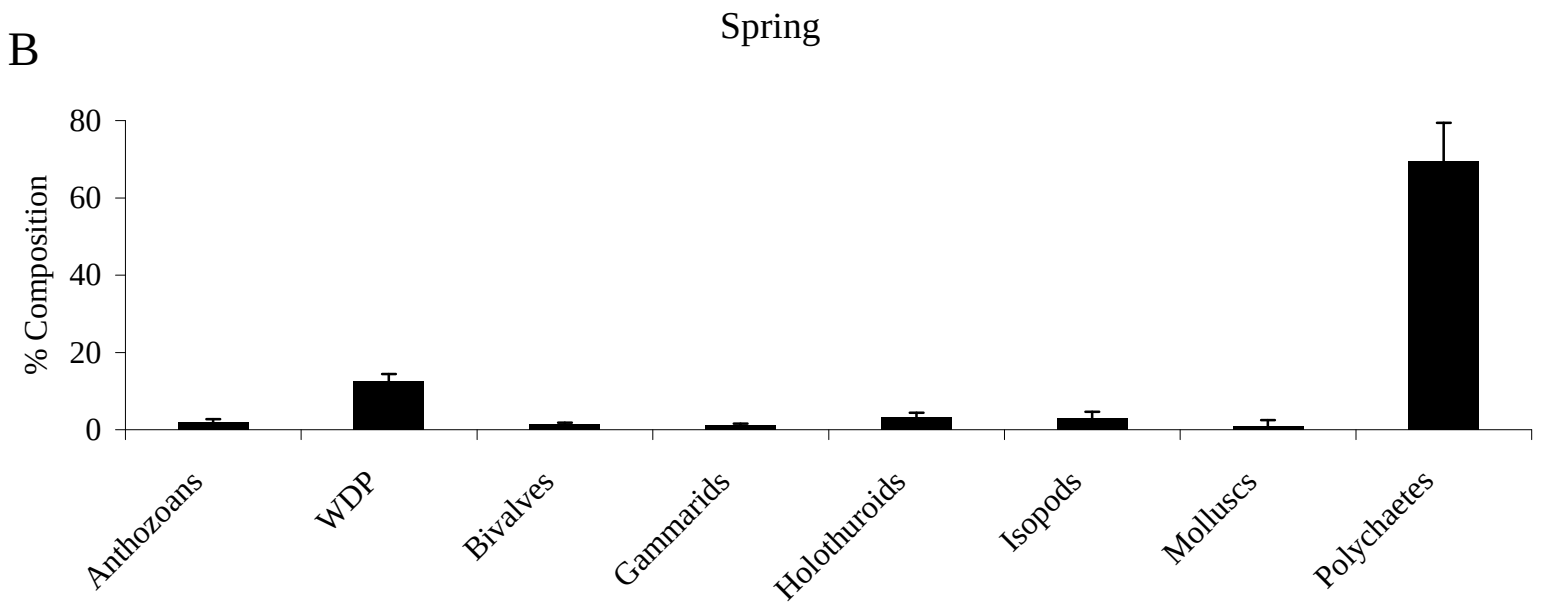

Figure 201B. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the spring (n = 2,126). WDP = well-digested prey.

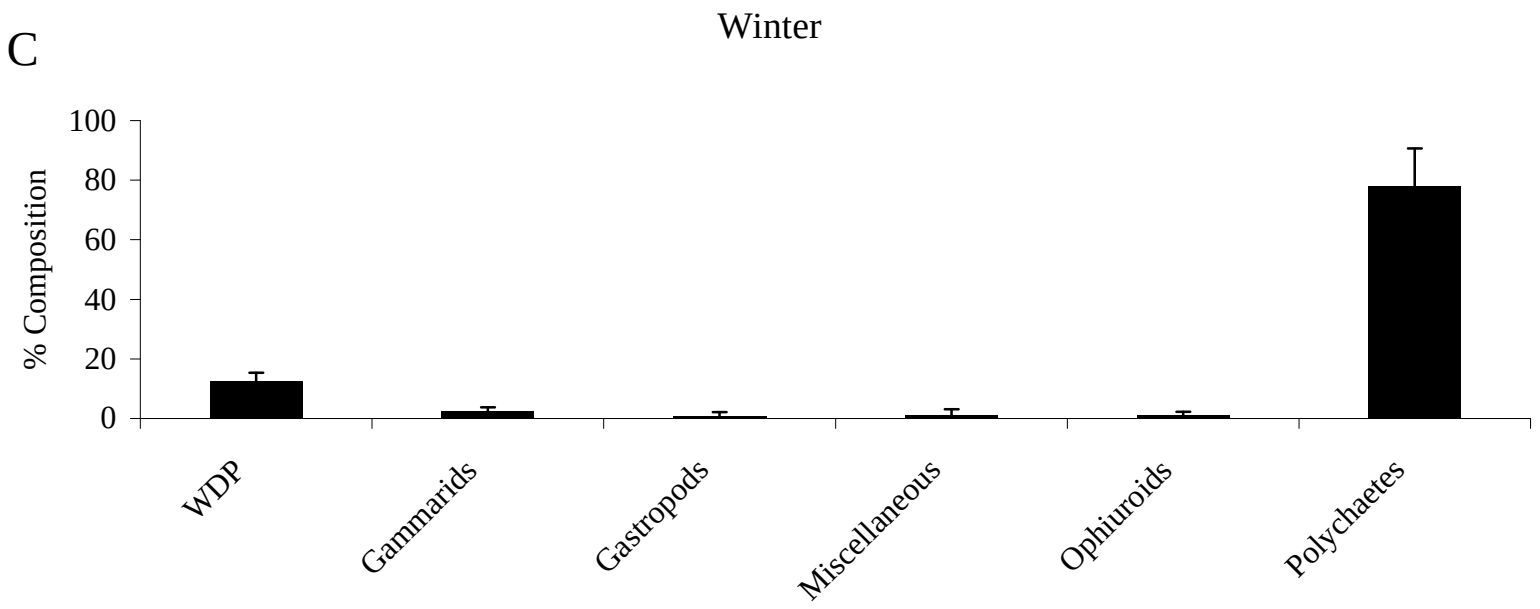

Figure 201C. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the winter (n = 1,077). WDP = well-digested prey.

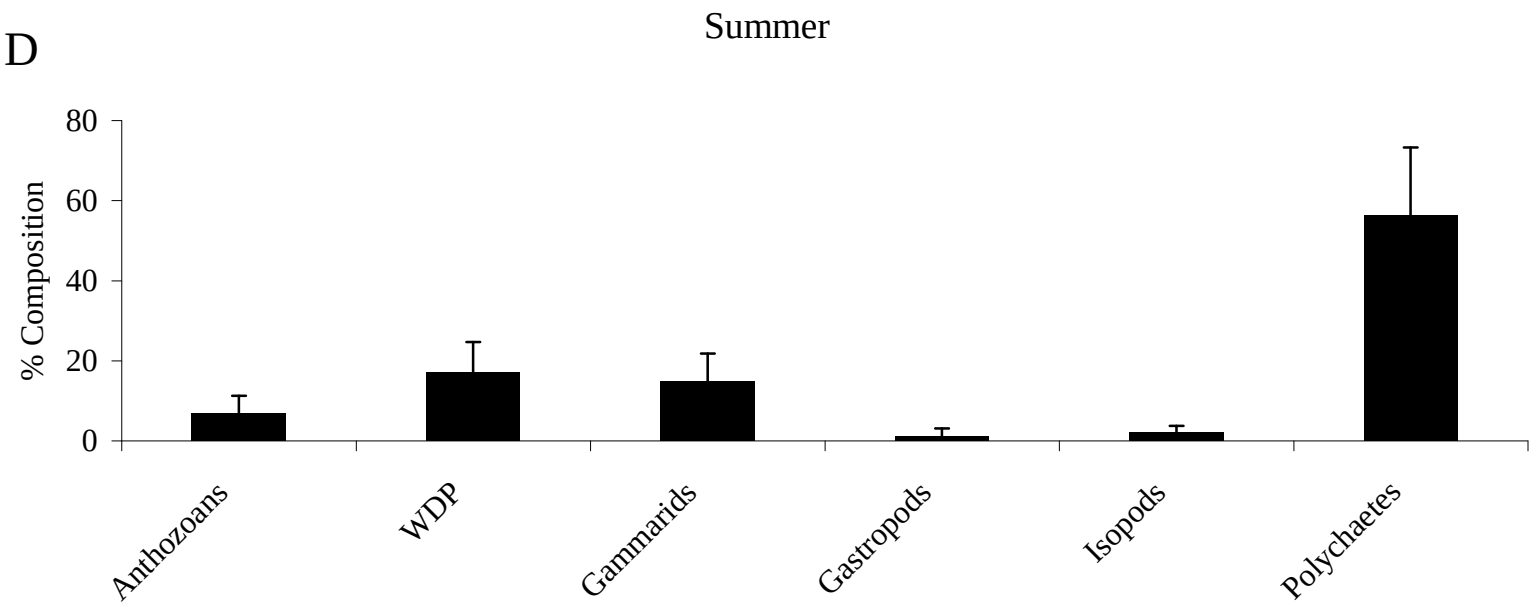

Figure 201D. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) collected in the summer (n = 200). WDP = well-digested prey.

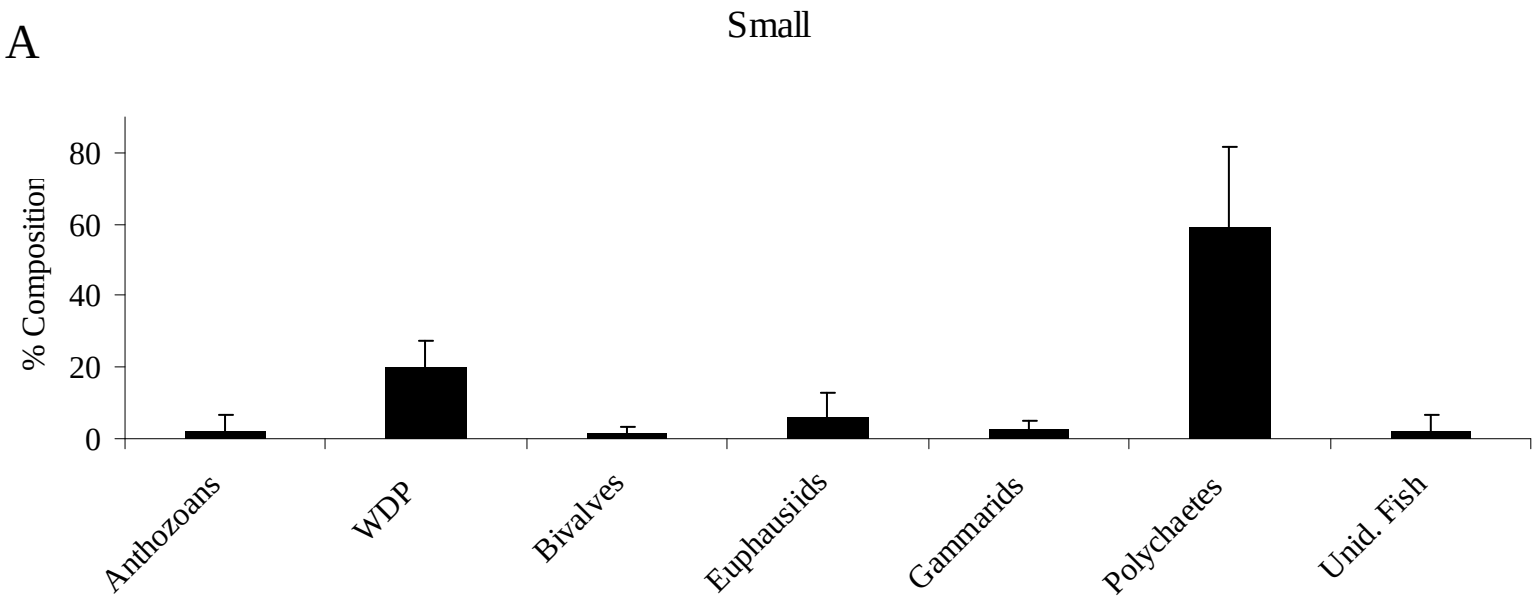

Figure 202A. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) in the small size class (n = 274). WDP = well-digested prey; Unid. Fish = unidentified fish.

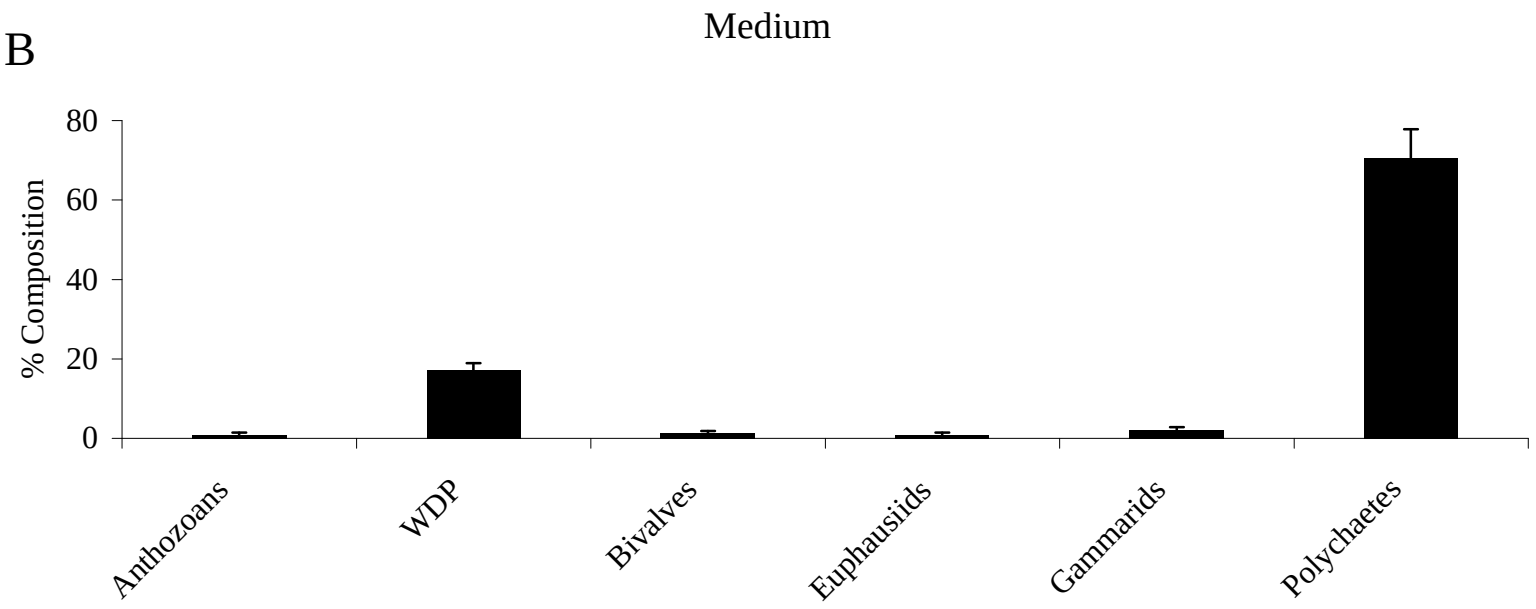

Figure 202B. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) in the medium size class (n = 3,377). WDP = well-digested prey.

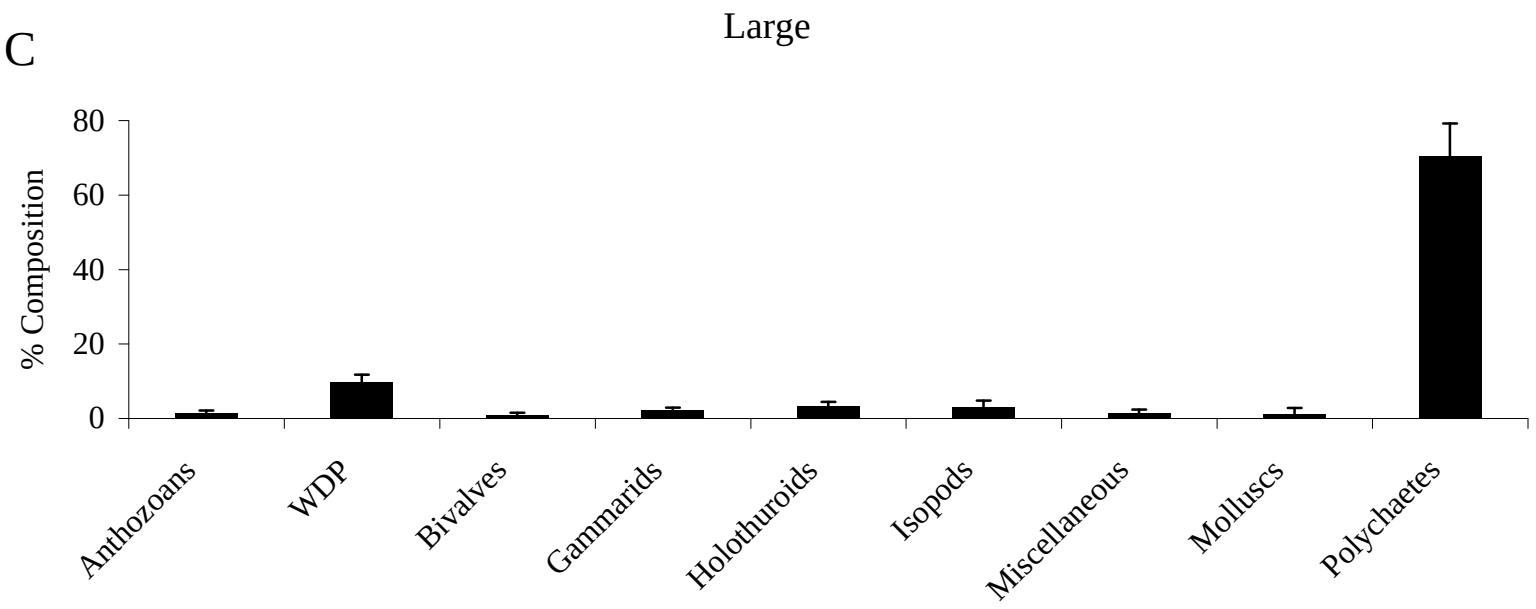

Figure 202C. Percent diet composition by weight of major prey taxa for witch flounder (*Glyptocephalus cynoglossus*) in the large size class (n = 1,380). WDP = well-digested prey.

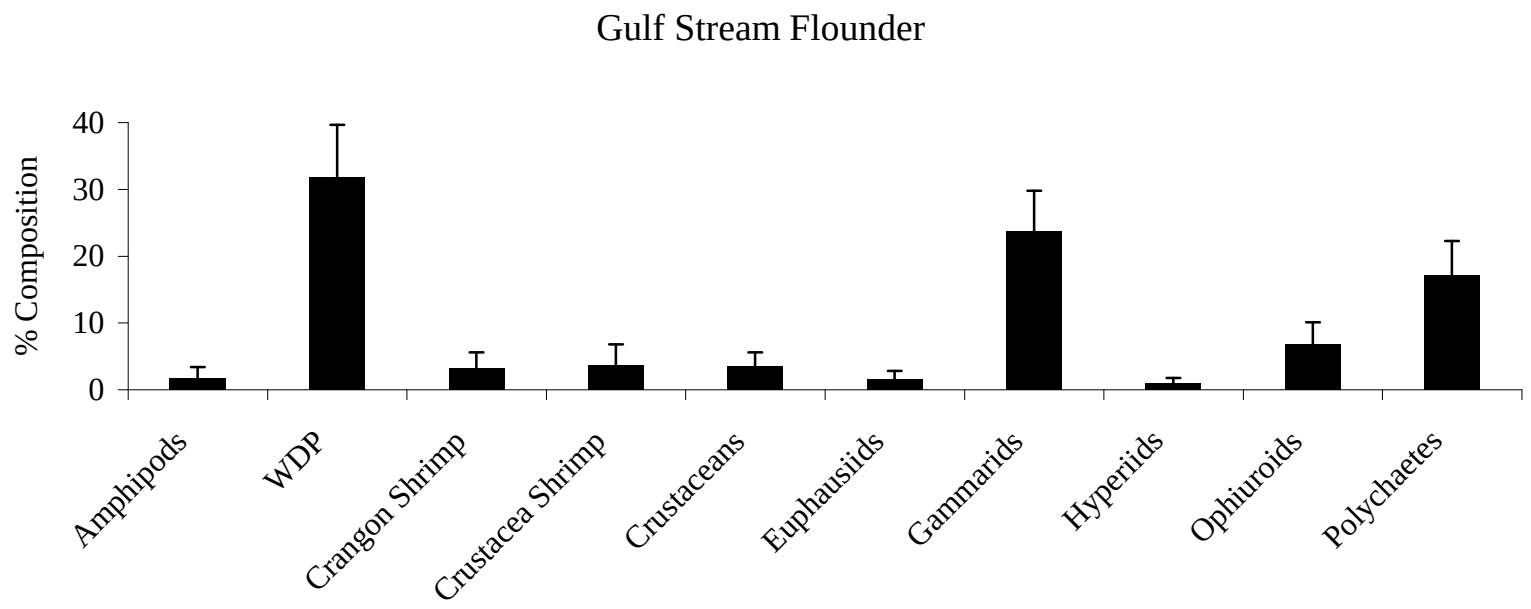

Figure 203. Percent diet composition by weight of major prey taxa for Gulf Stream flounder (*Citharichthys arctifrons*; n = 996). WDP = well-digested prey.

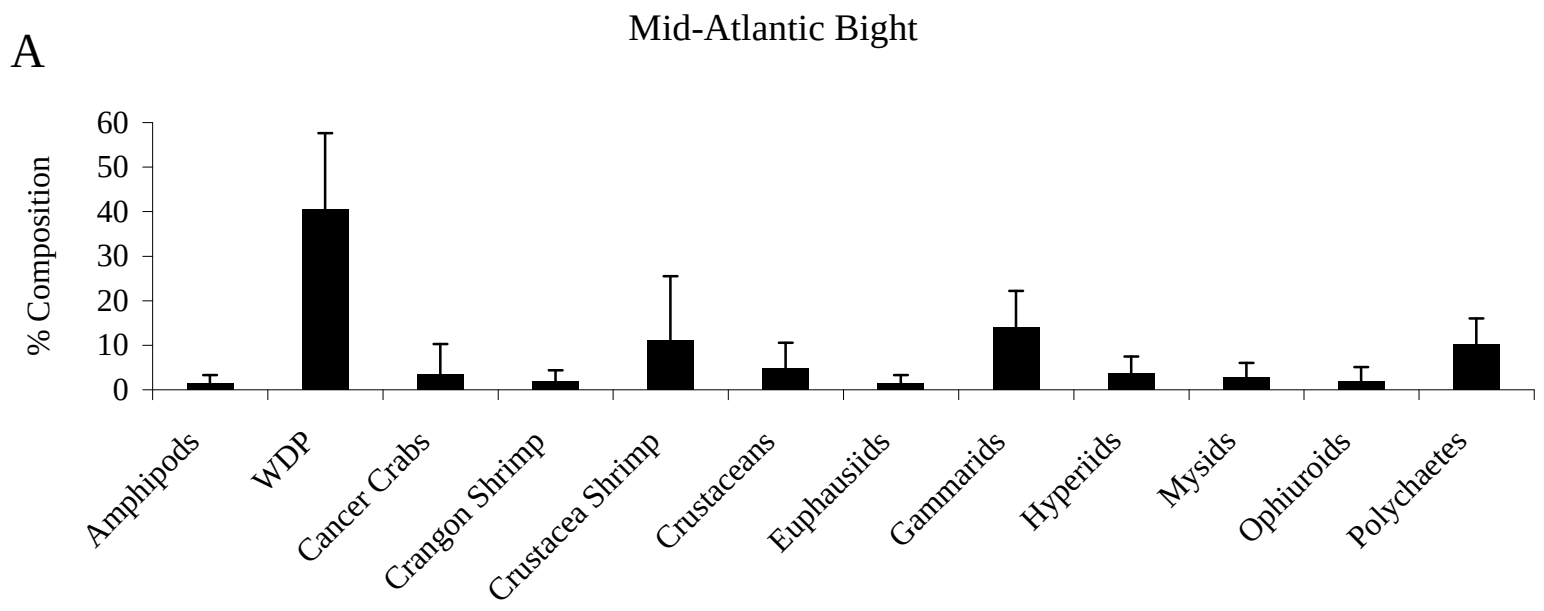

Figure 204A. Percent diet composition by weight of major prey taxa for Gulf Stream flounder (*Citharichthys arctifrons*) collected in the Mid-Atlantic Bight (n = 269). WDP = well-digested prey.

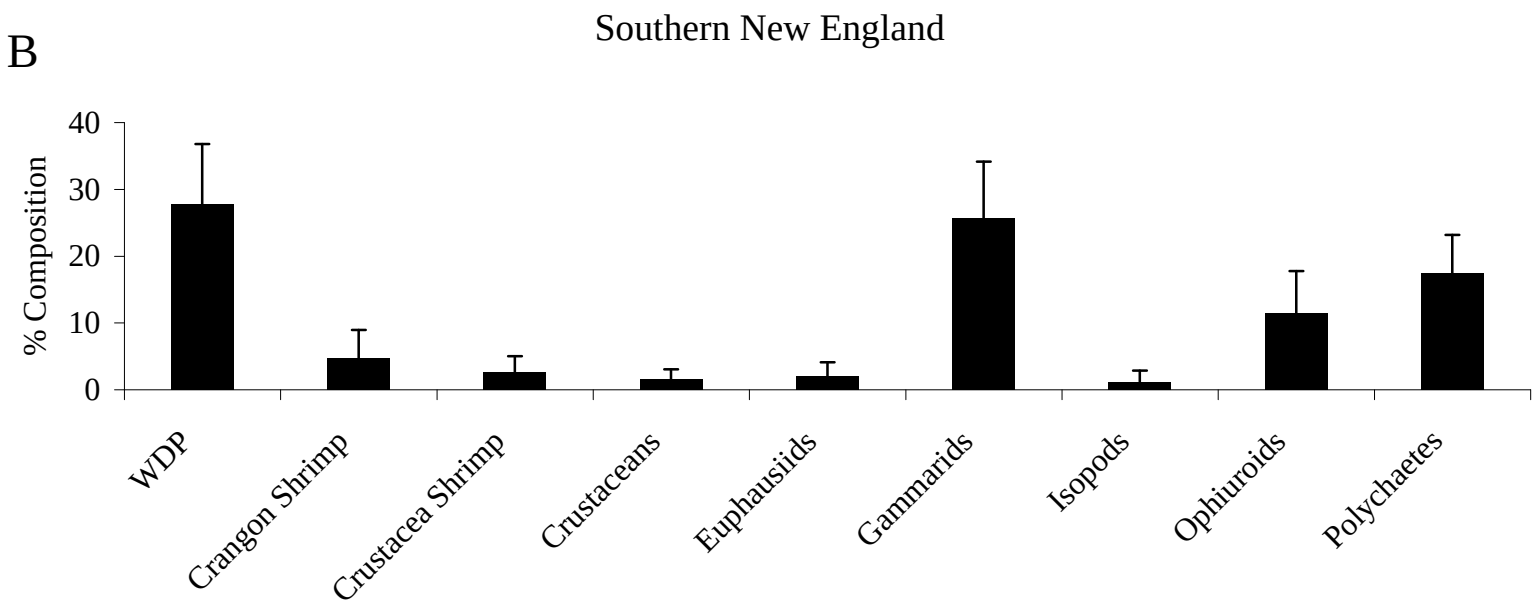

Figure 204B. Percent diet composition by weight of major prey taxa for Gulf Stream flounder (*Citharichthys arctifrons*) collected in Southern New England (n = 543). WDP = well-digested prey.

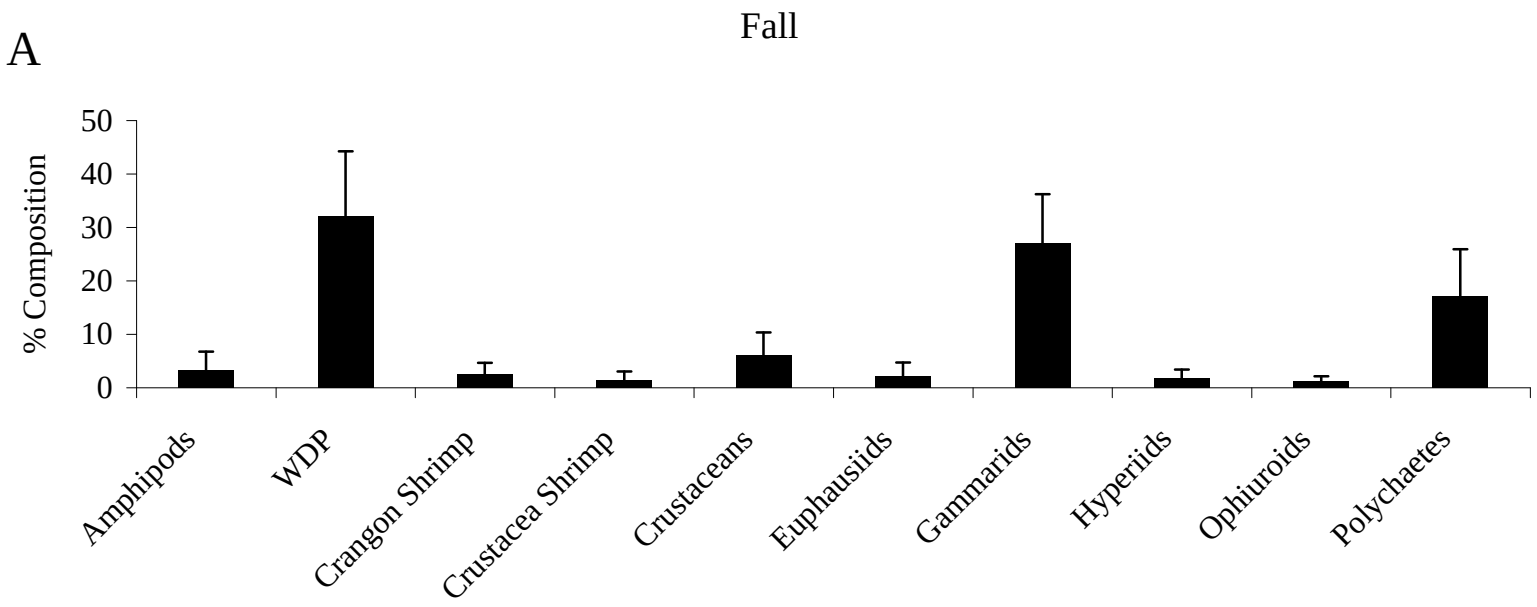

Figure 205A. Percent diet composition by weight of major prey taxa for Gulf Stream flounder (*Citharichthys arctifrons*) collected in the fall (n = 450). WDP = well-digested prey.

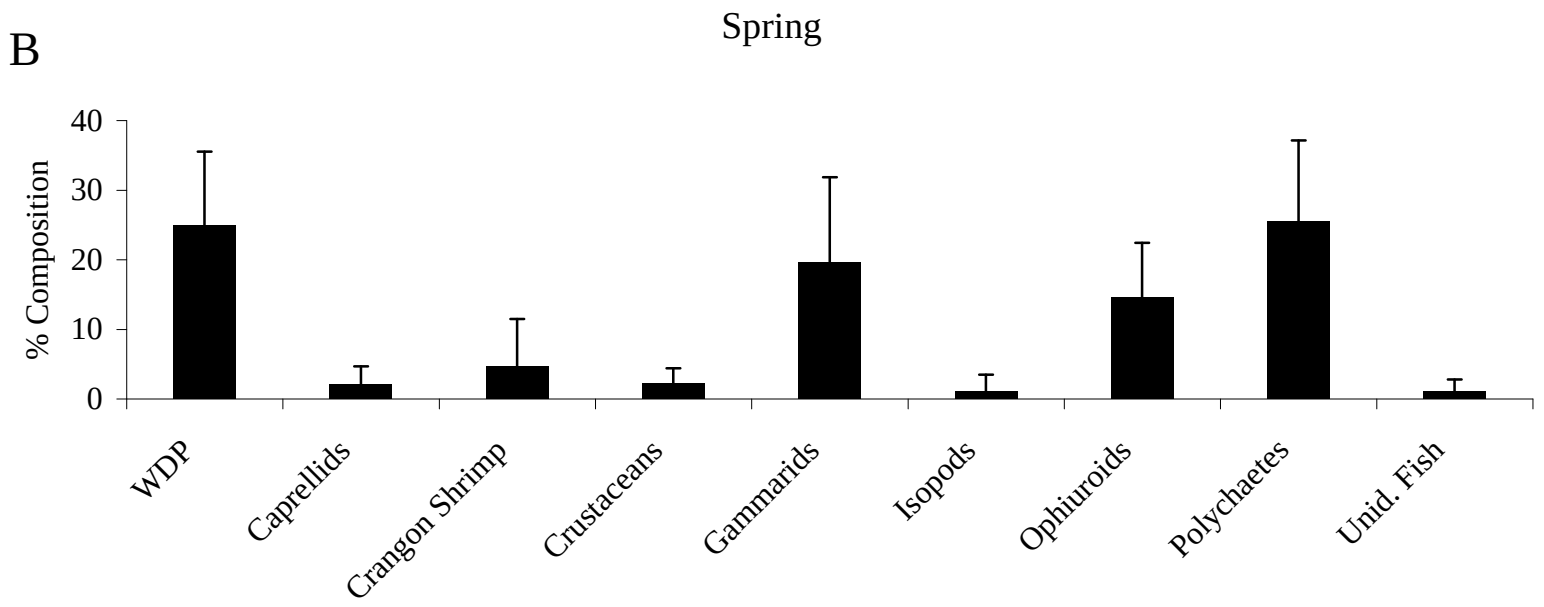

Figure 205B. Percent diet composition by weight of major prey taxa for Gulf Stream flounder (*Citharichthys arctifrons*) collected in the spring (n = 265). WDP = well-digested prey; Unid. Fish = unidentified fish.

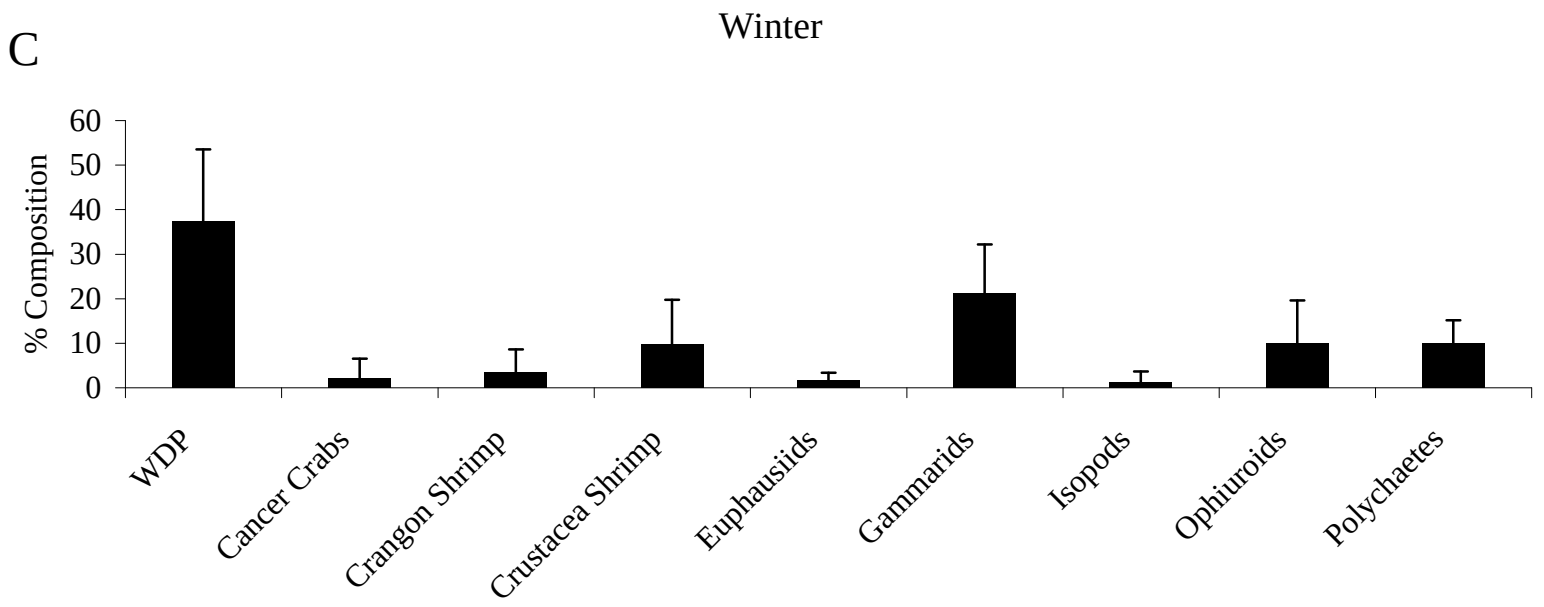

Figure 205C. Percent diet composition by weight of major prey taxa for Gulf Stream flounder (*Citharichthys arctifrons*) collected in the winter (n = 232). WDP = well-digested prey.

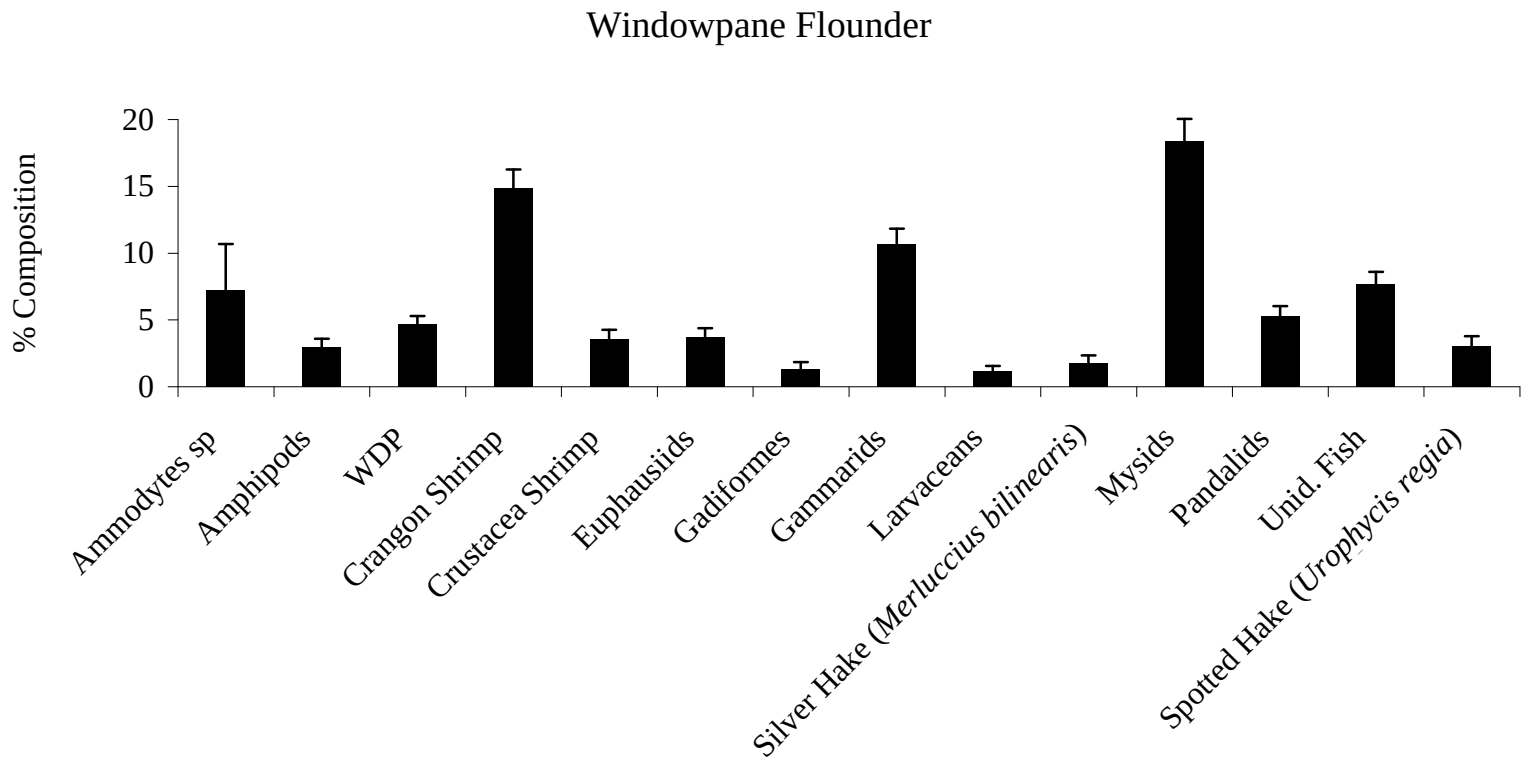

Figure 206. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*; n = 14,599). WDP = well-digested prey; Unid. Fish = unidentified fish.

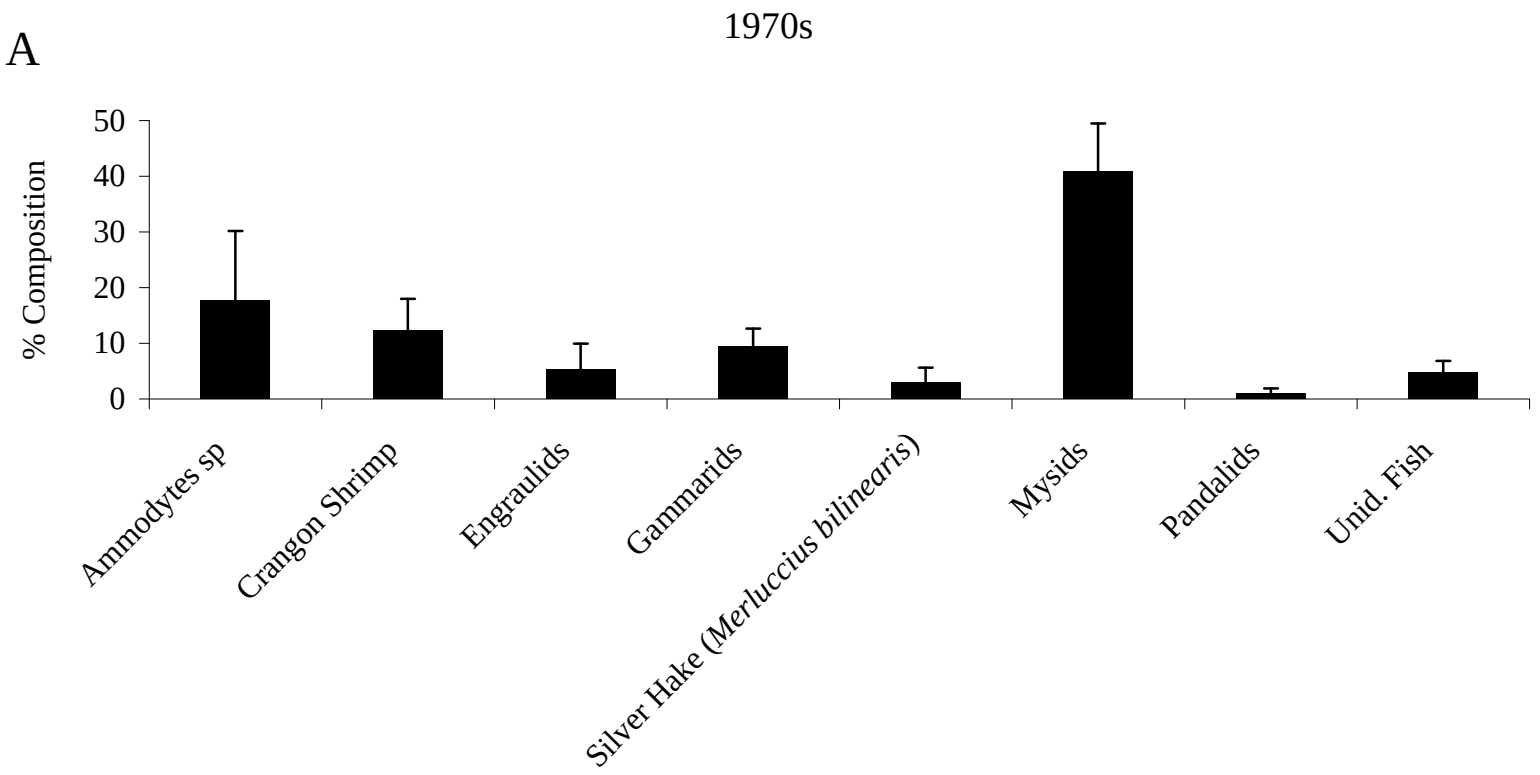

Figure 207A. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the 1970s (n = 830). Unid. Fish = unidentified fish.

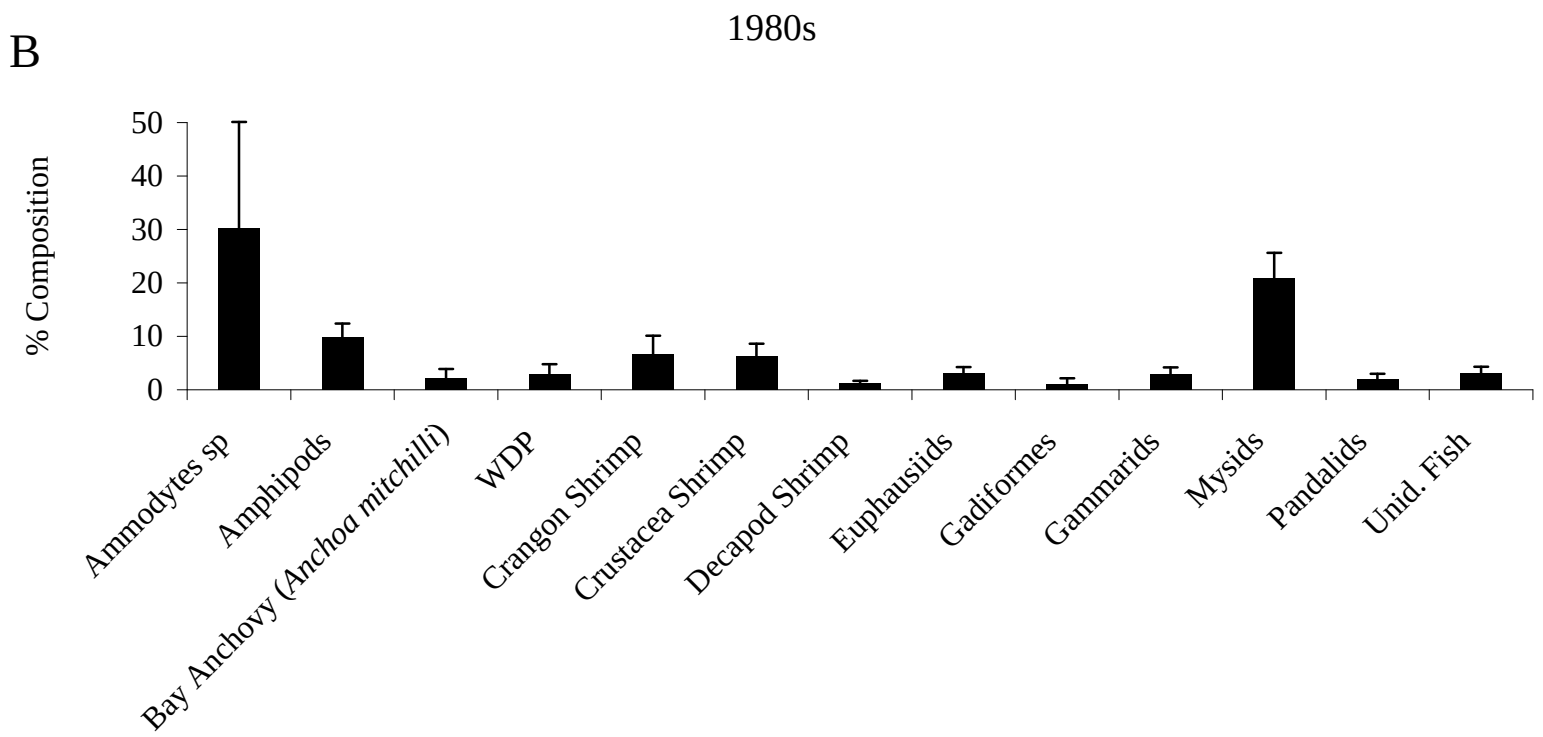

Figure 207B. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the 1980s (n = 1,745). WDP = well-digested prey; Unid. Fish = unidentified fish.

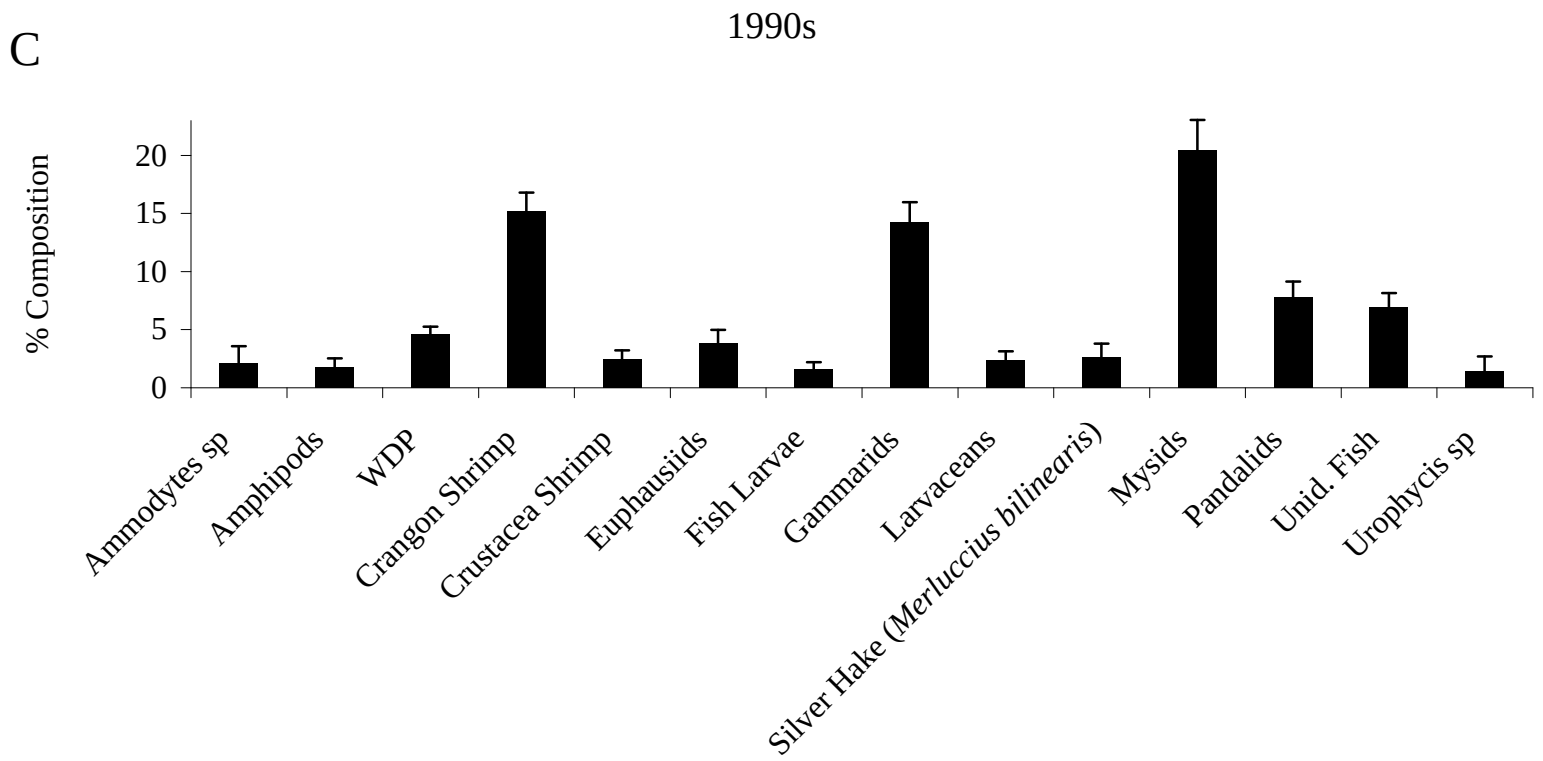

Figure 207C. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the 1990s (n = 7,556). WDP = well-digested prey; Unid. Fish = unidentified fish.

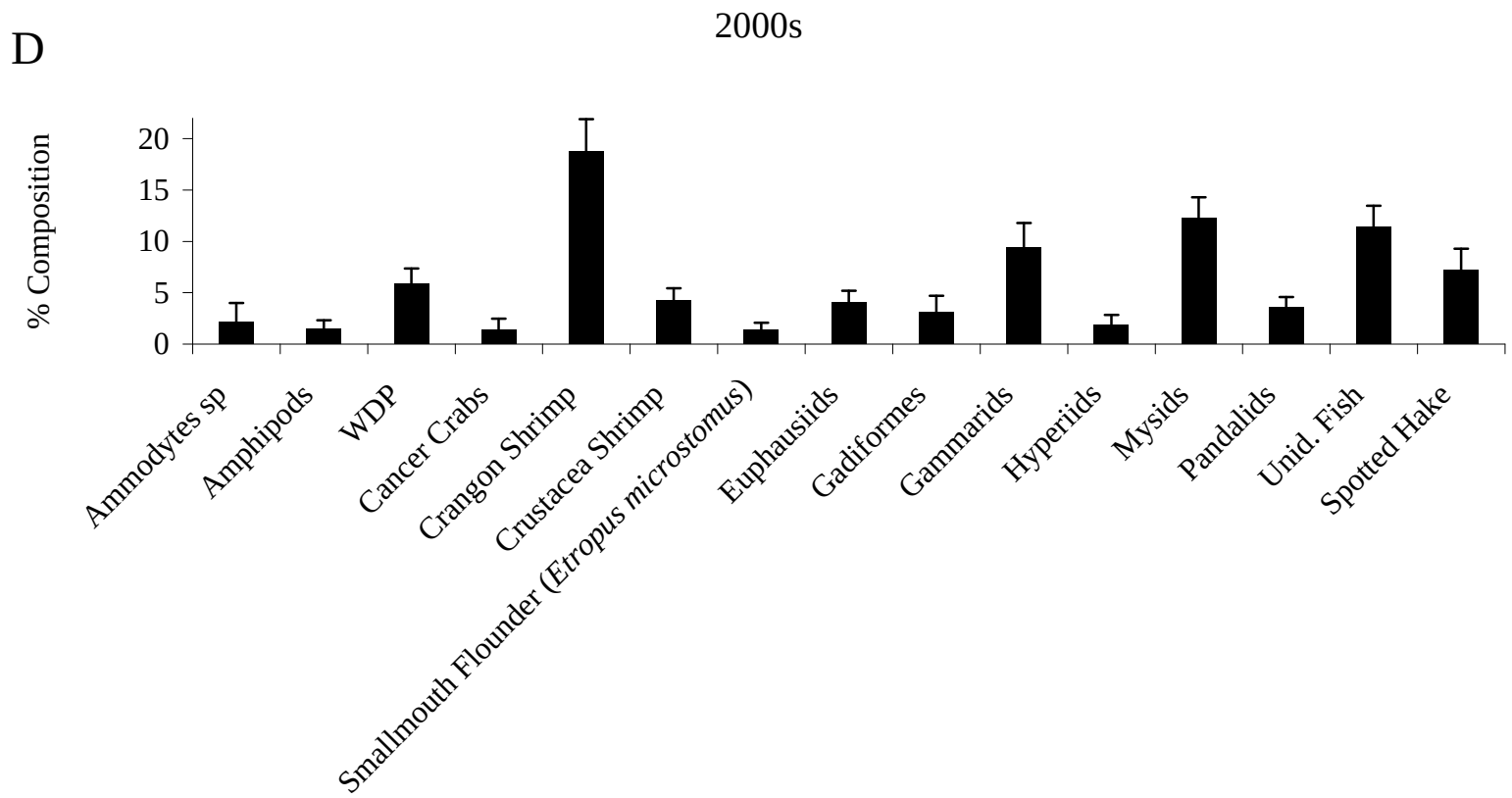

Figure 207D. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the 2000s (n = 4,468). WDP = well-digested prey; Unid. Fish = unidentified fish.

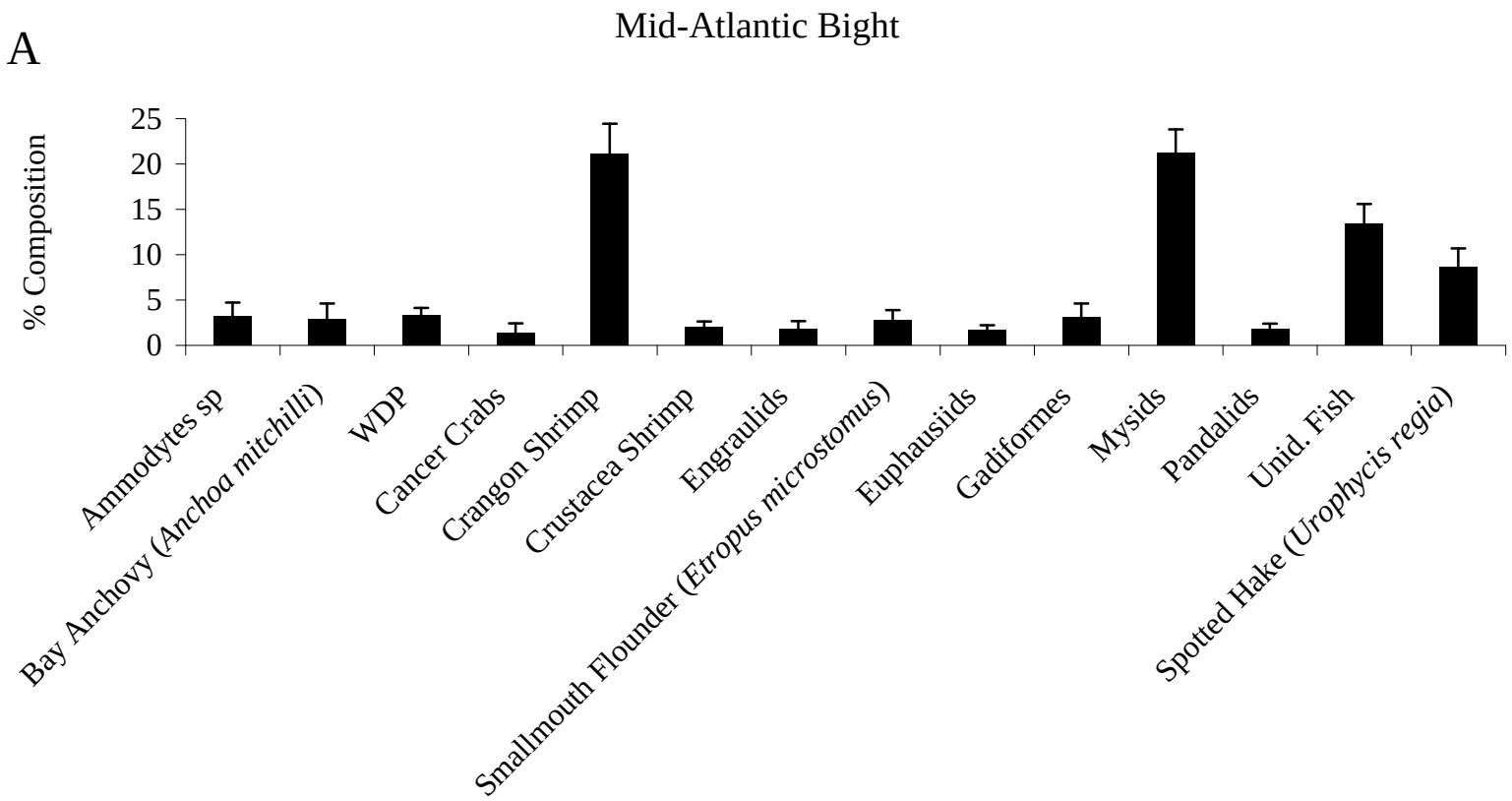

Figure 208A. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the Mid-Atlantic Bight (n = 4,814). WDP = well-digested prey; Unid. Fish = unidentified fish.

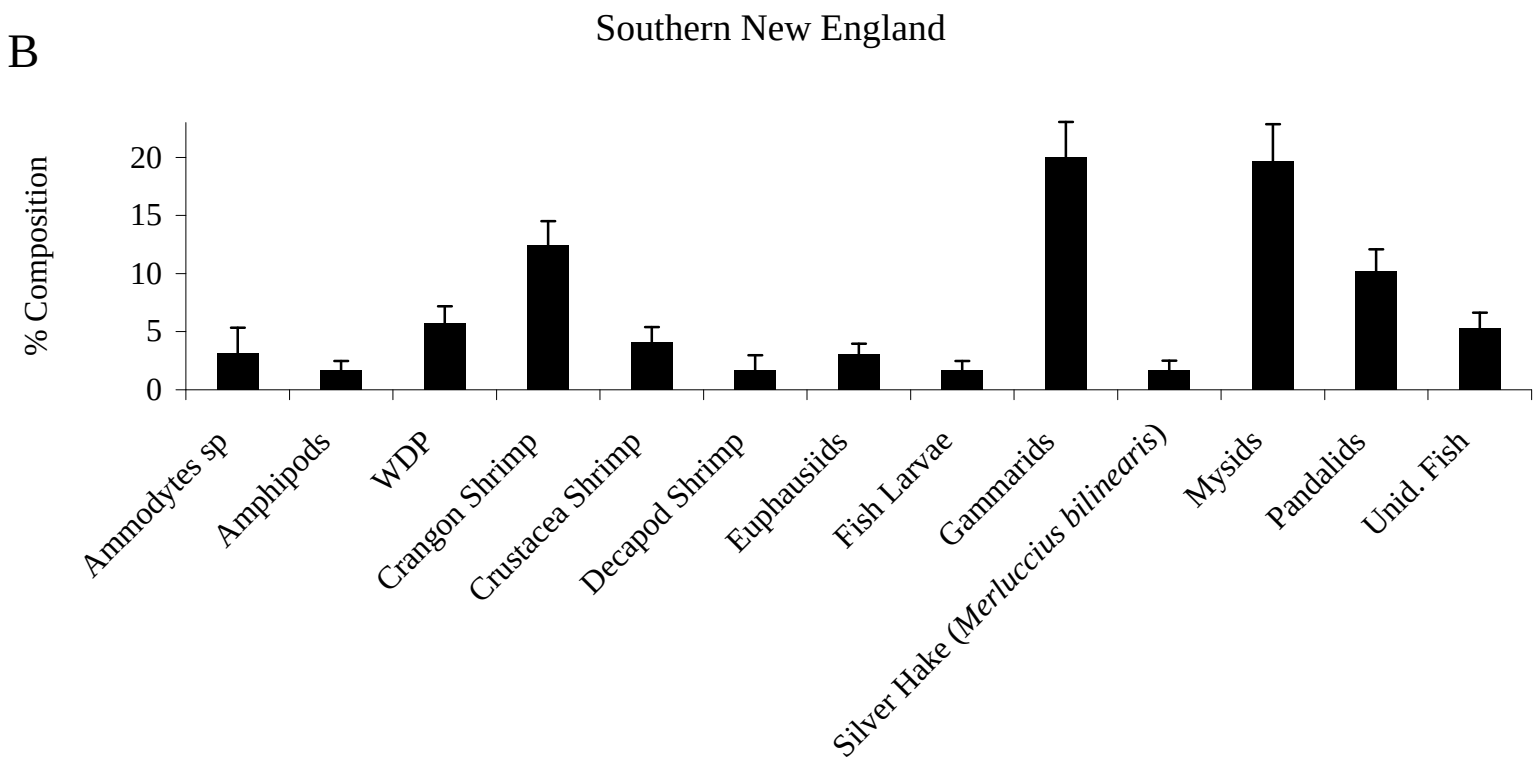

Figure 208B. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in Southern New England (n = 4,820). WDP = well-digested prey; Unid. Fish = unidentified fish.

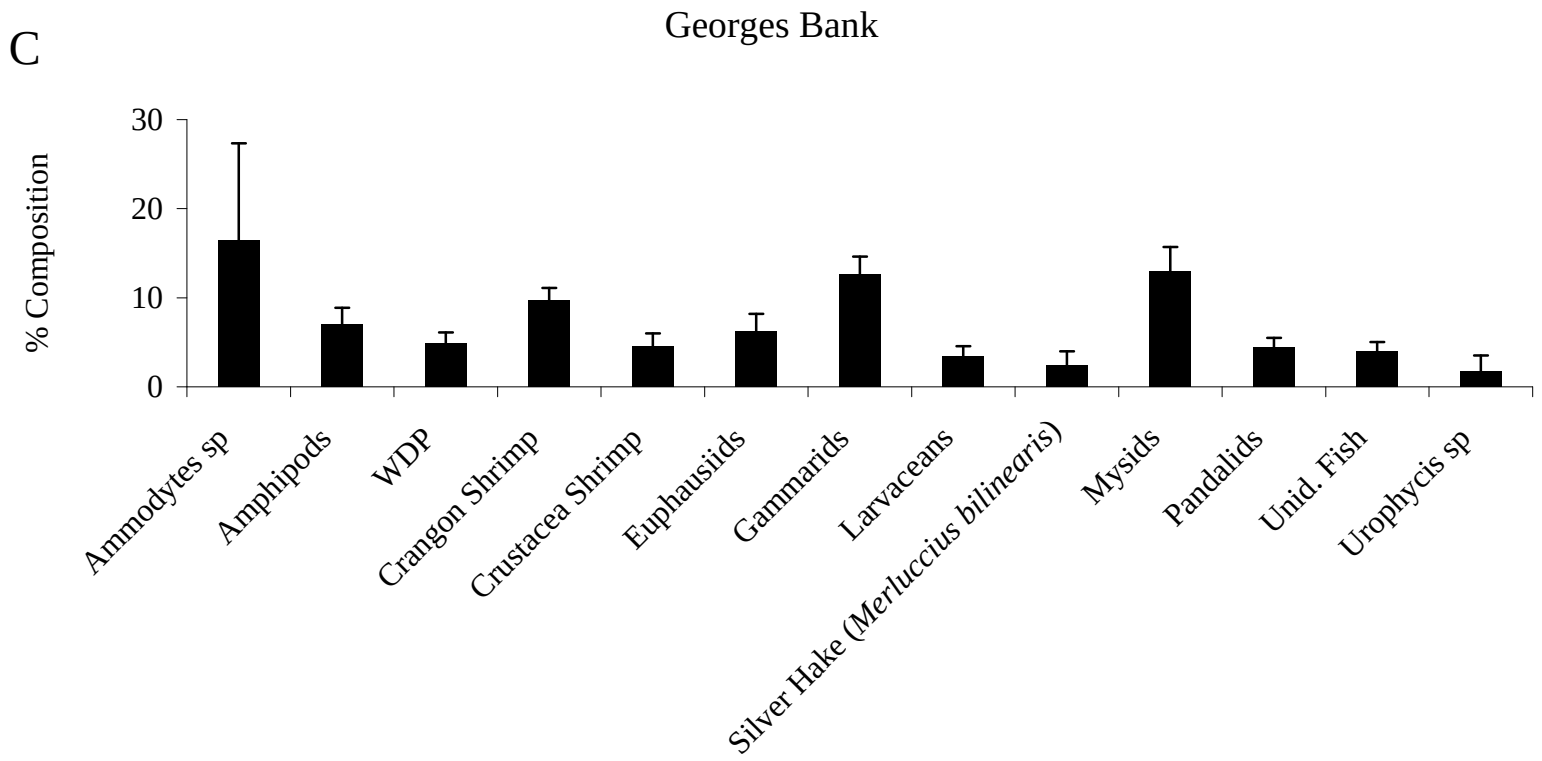

Figure 208C. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected on Georges Bank (n = 4,416). WDP = well-digested prey; Unid. Fish = unidentified fish.

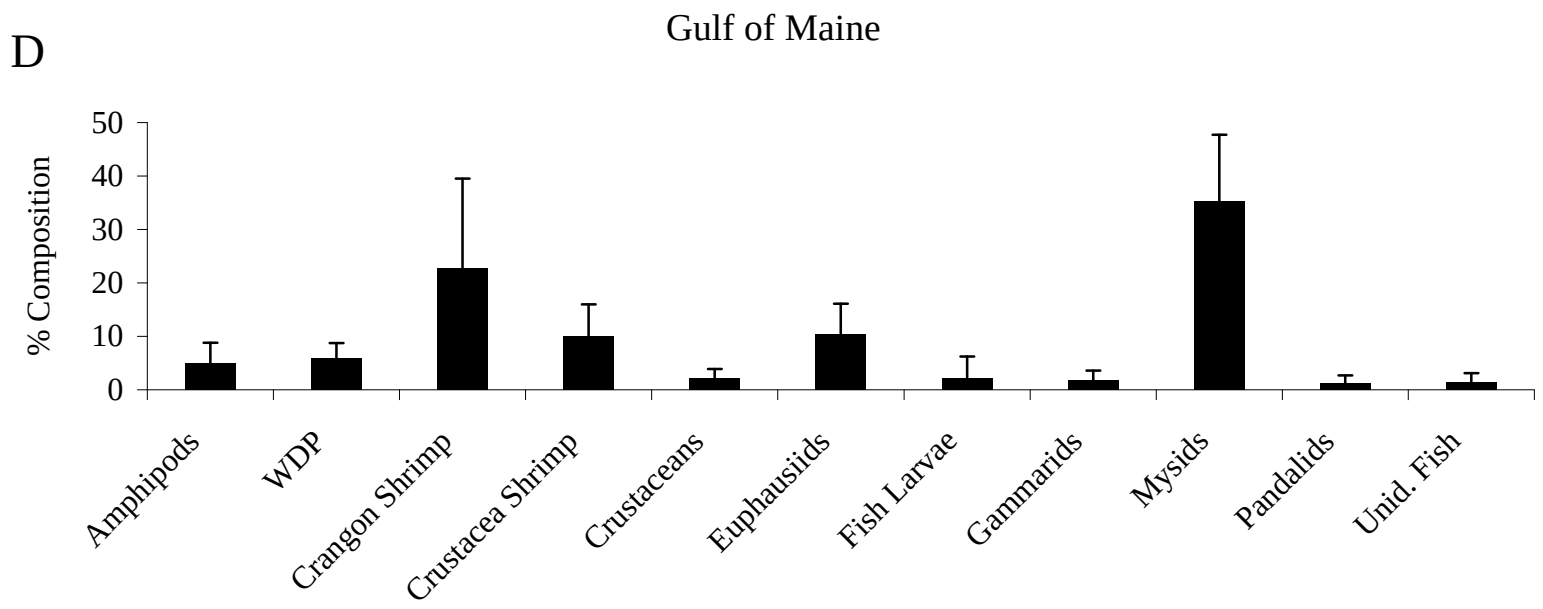

Figure 208D. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the Gulf of Maine (n = 533). WDP = well-digested prey; Unid. Fish = unidentified fish.

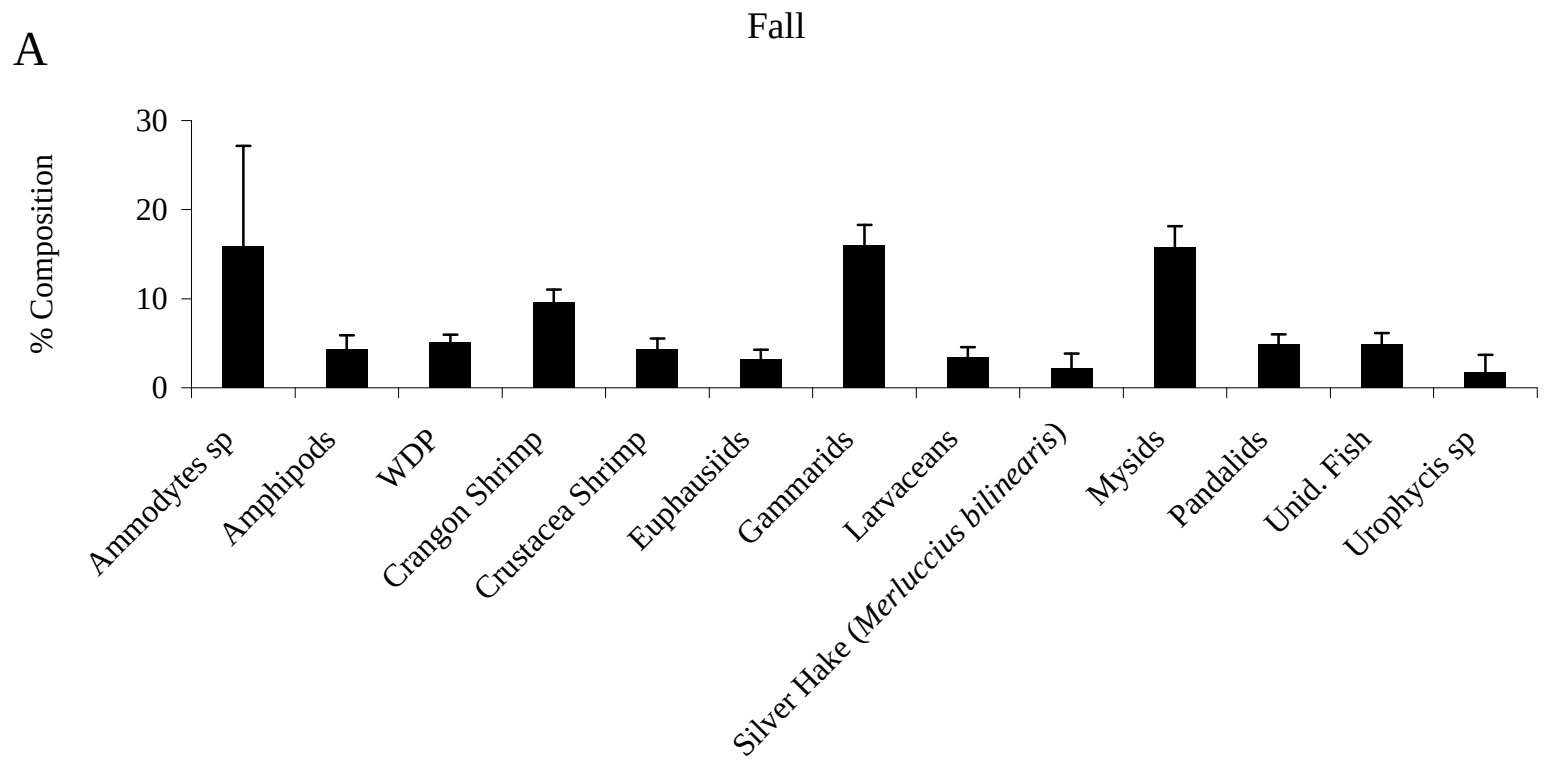

Figure 209A. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the fall (n = 5,244). WDP = well-digested prey; Unid. Fish = unidentified fish.

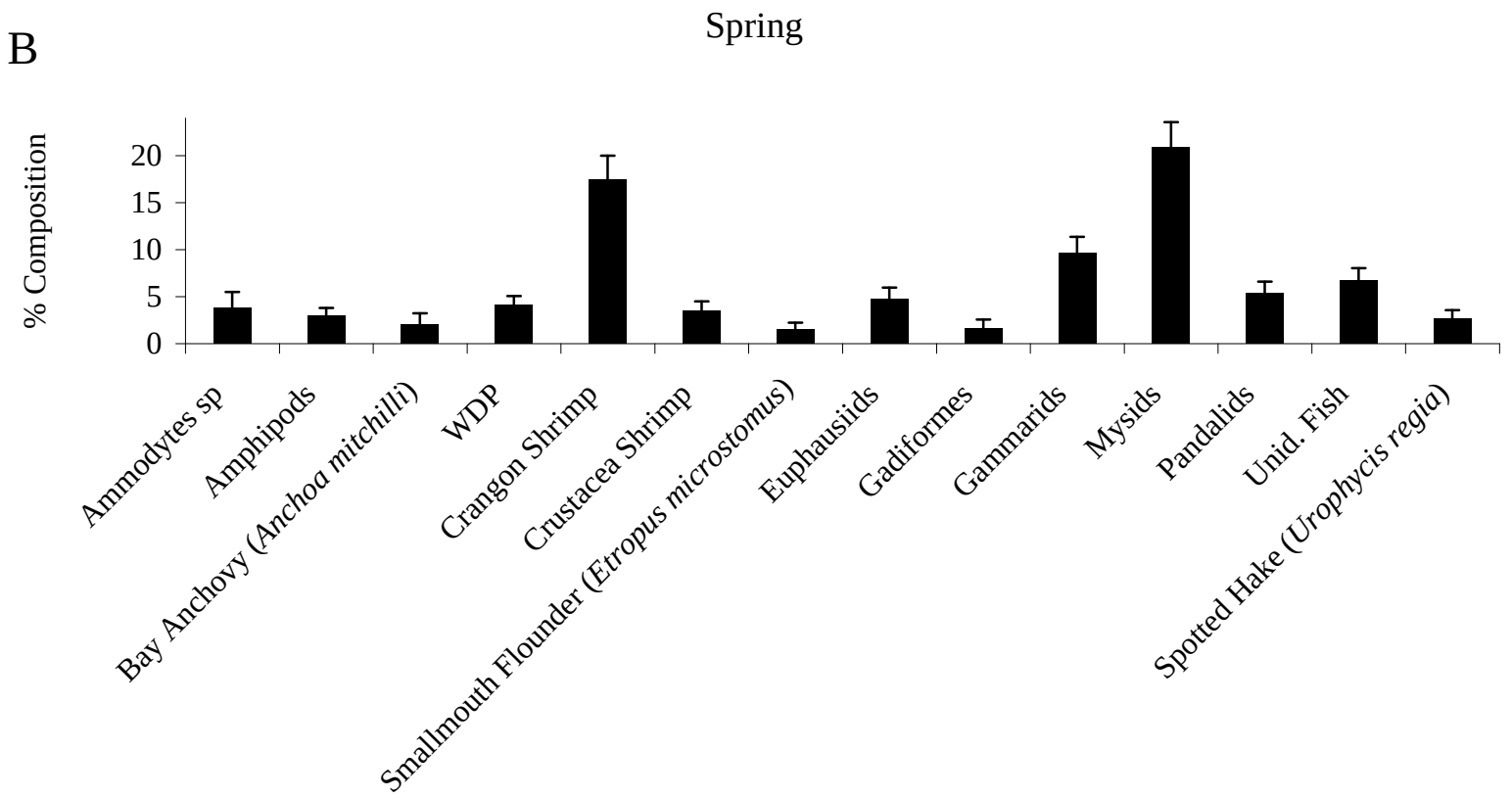

Figure 209B. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the spring (n = 5,361). WDP = well-digested prey; Unid. Fish = unidentified fish.

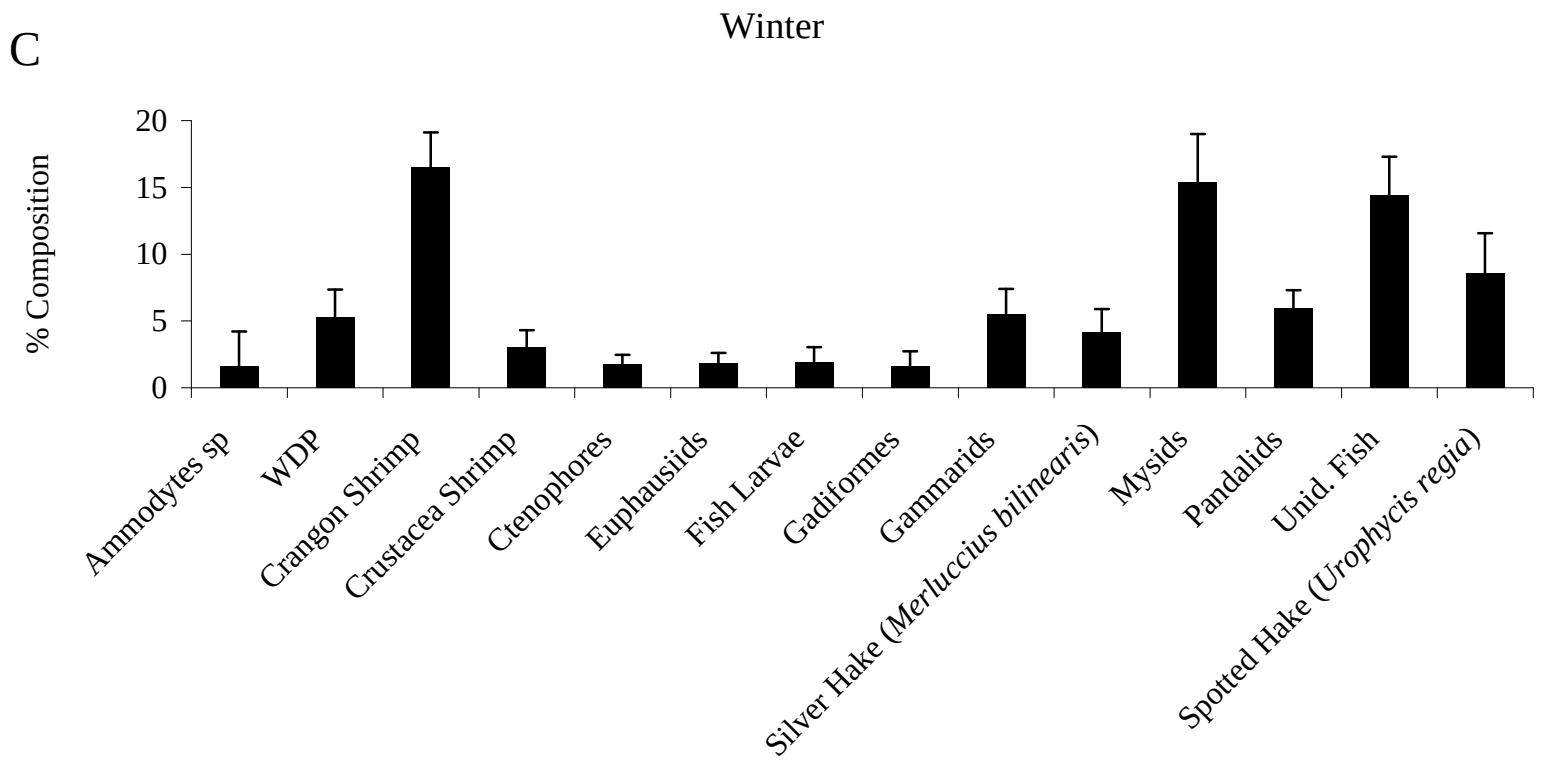

Figure 209C. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the winter (n = 3,635). WDP = well-digested prey; Unid. Fish = unidentified fish.

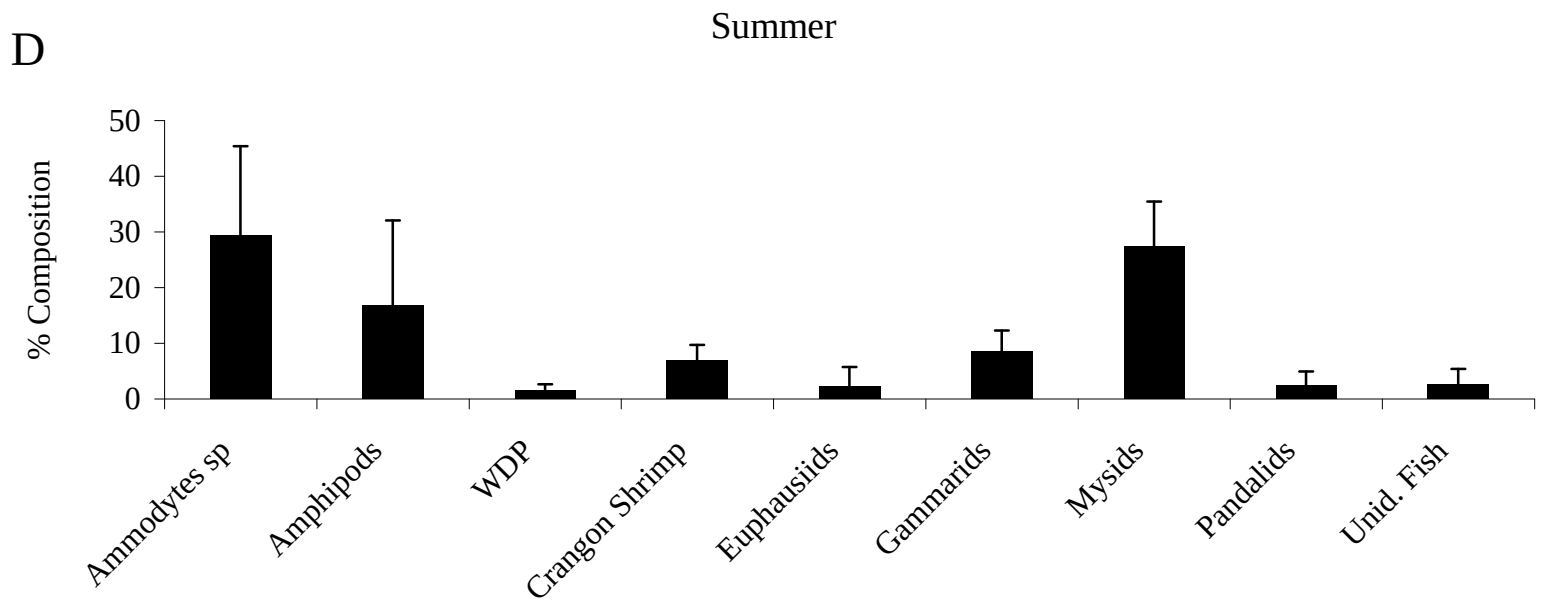

Figure 209D. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) collected in the summer (n = 359). WDP = well-digested prey; Unid. Fish = unidentified fish.

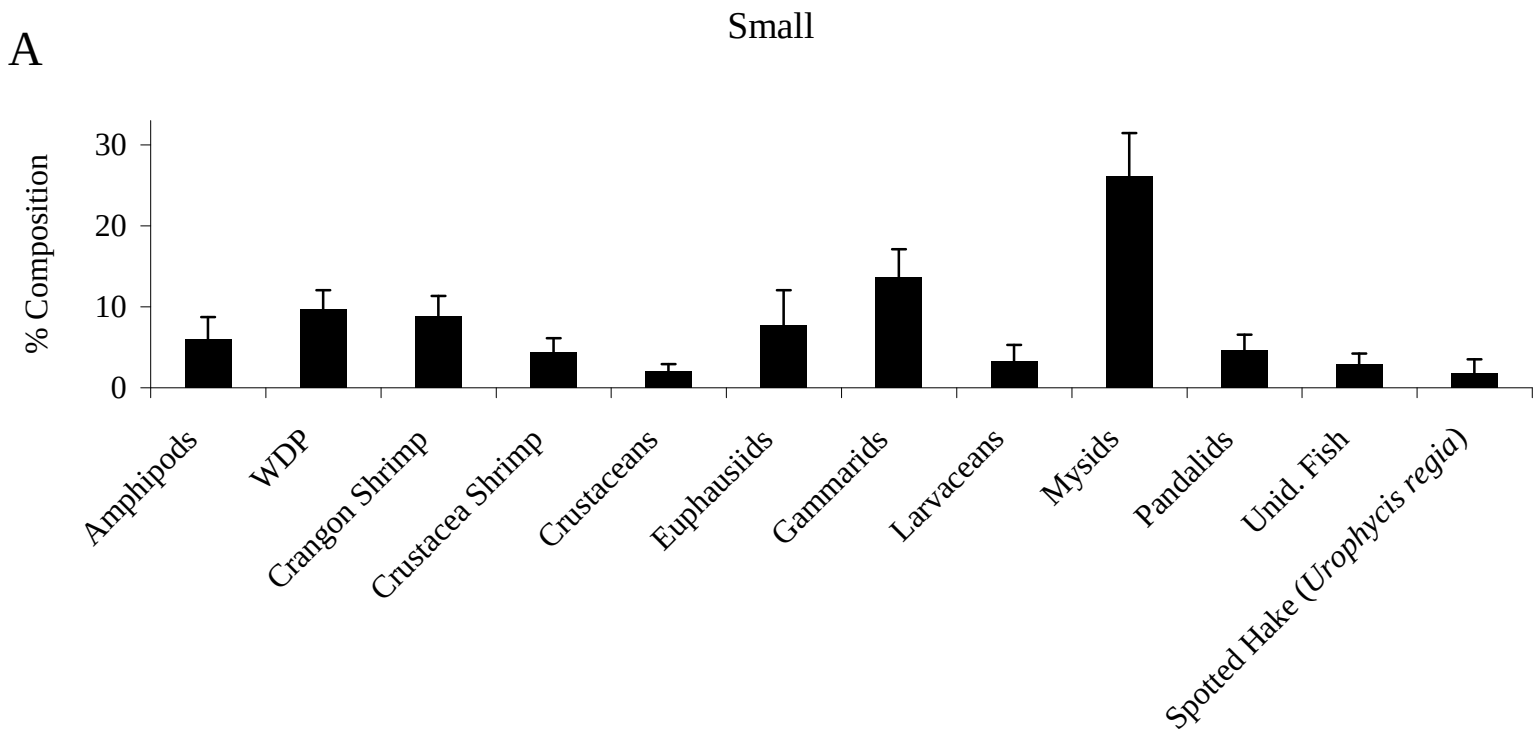

Figure 210A. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) in the small size class (n = 2,267). WDP = well-digested prey; Unid. Fish = unidentified fish.

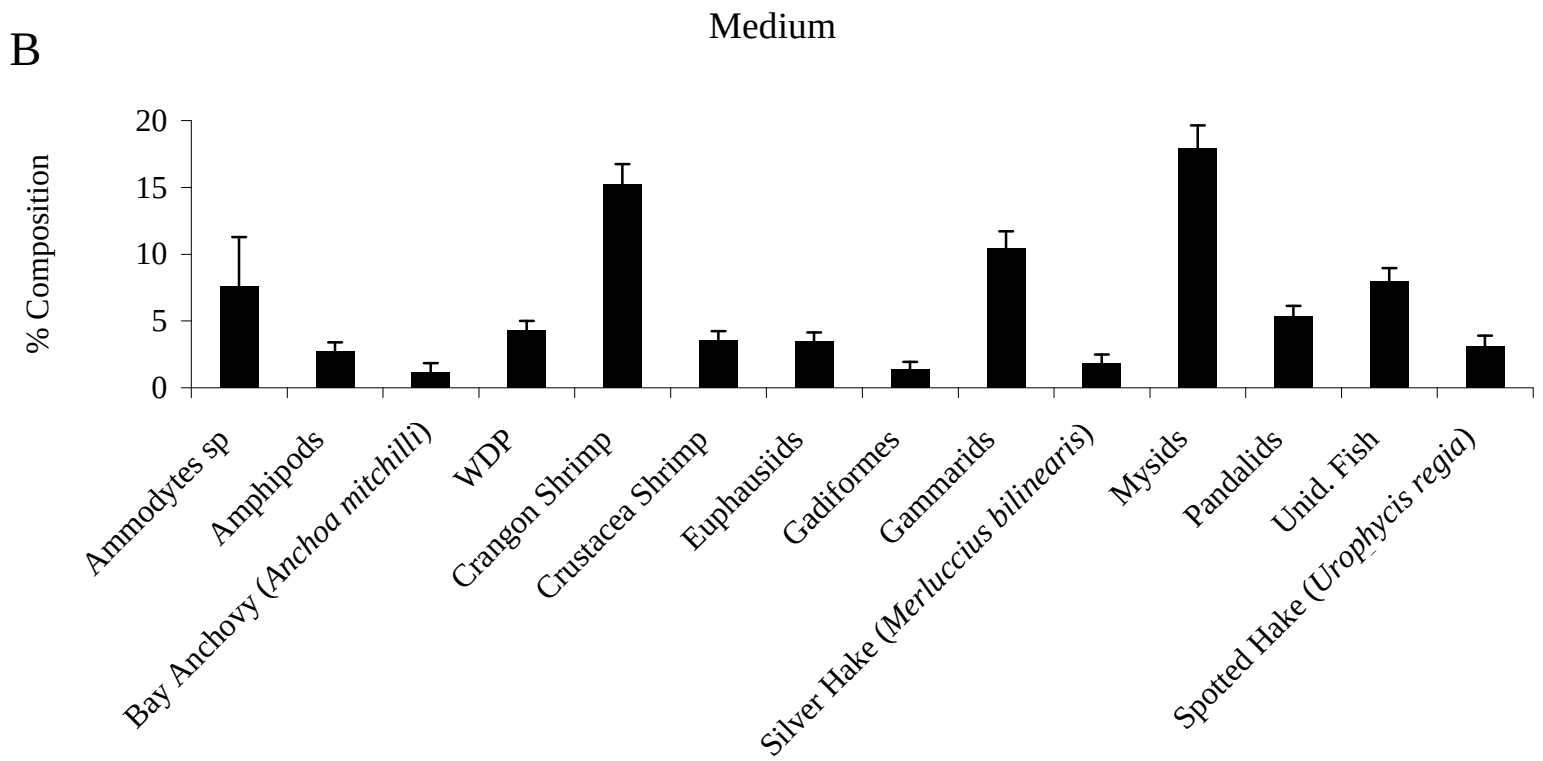

Figure 210B. Percent diet composition by weight of major prey taxa for windowpane flounder (*Scophthalmus aquosus*) in the medium size class (n = 12,320). WDP = well-digested prey; Unid. Fish = unidentified fish.

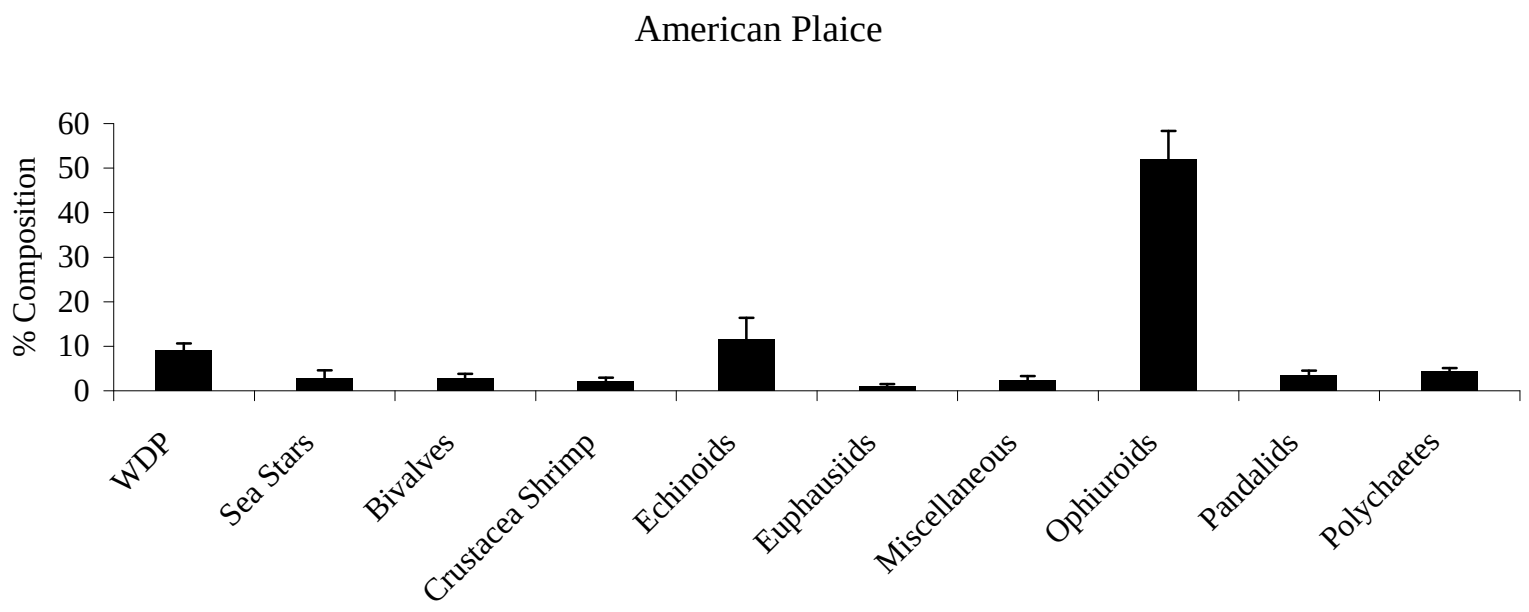

Figure 211. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*; n = 7,199). WDP = well-digested prey.

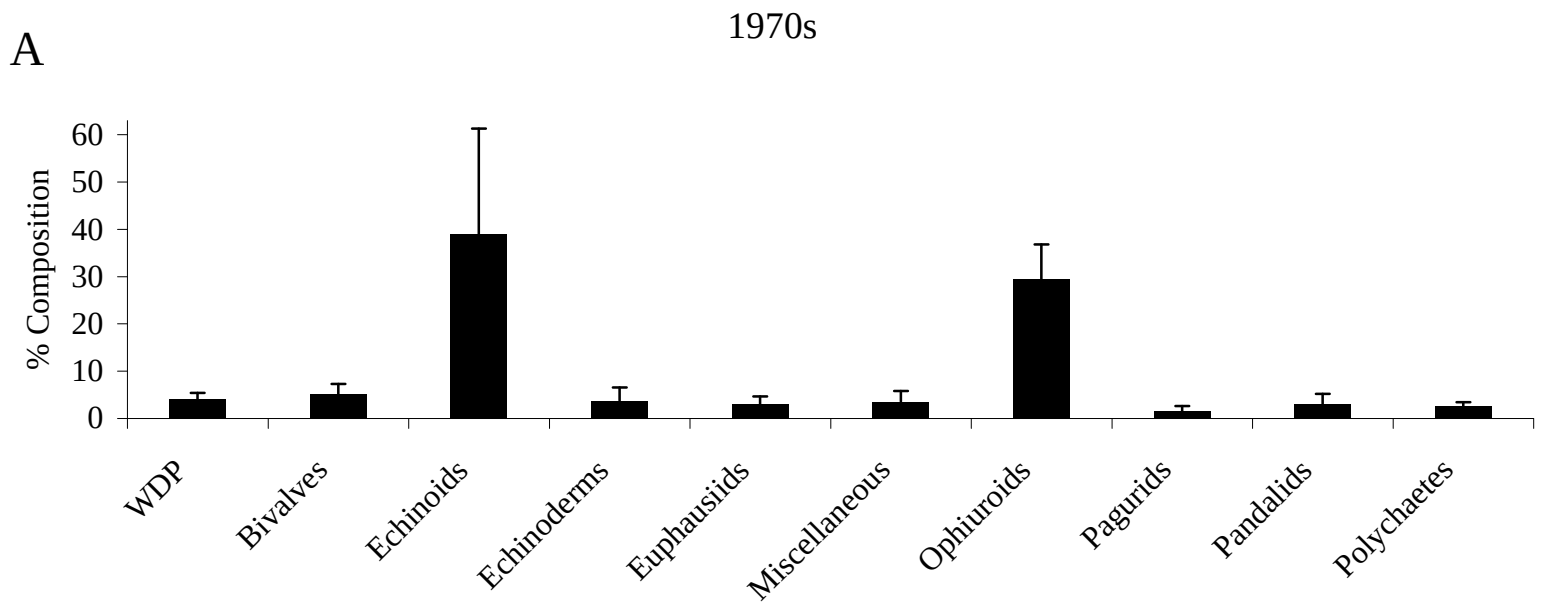

Figure 212A. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected in the 1970s (n = 1,511). WDP = well-digested prey.

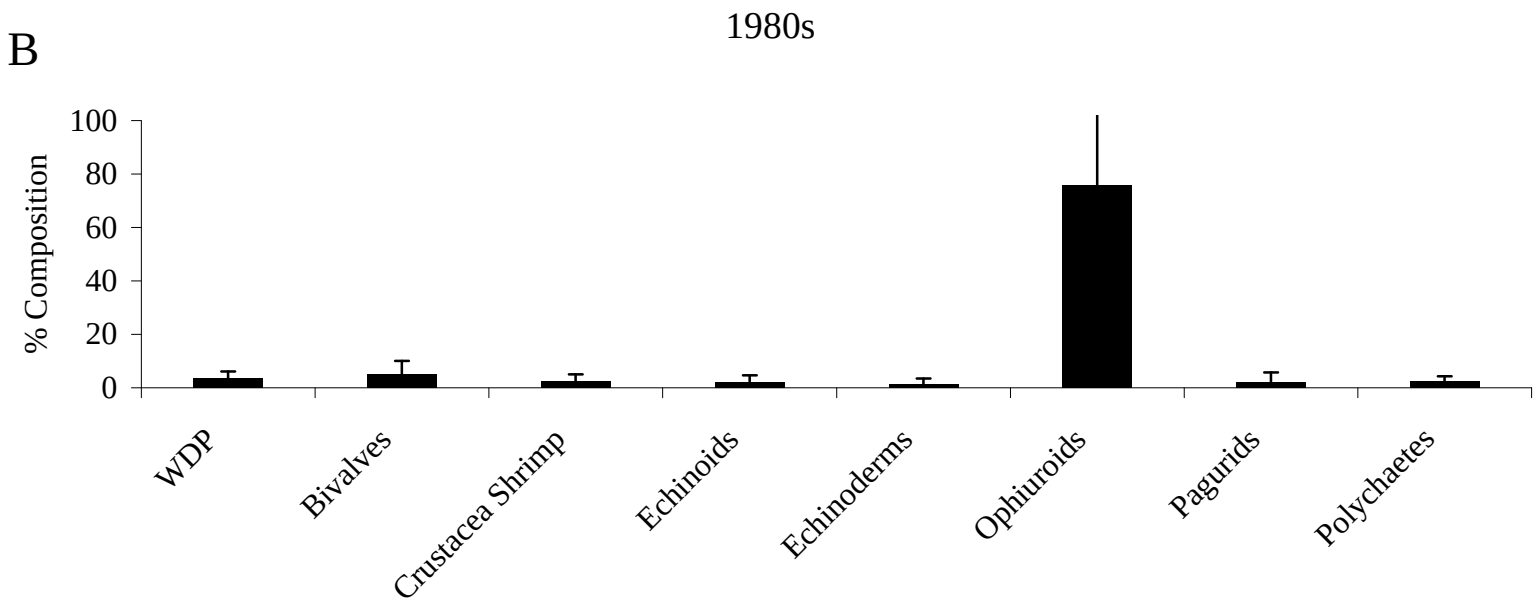

Figure 212B. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected in the 1980s (n = 281). WDP = well-digested prey.

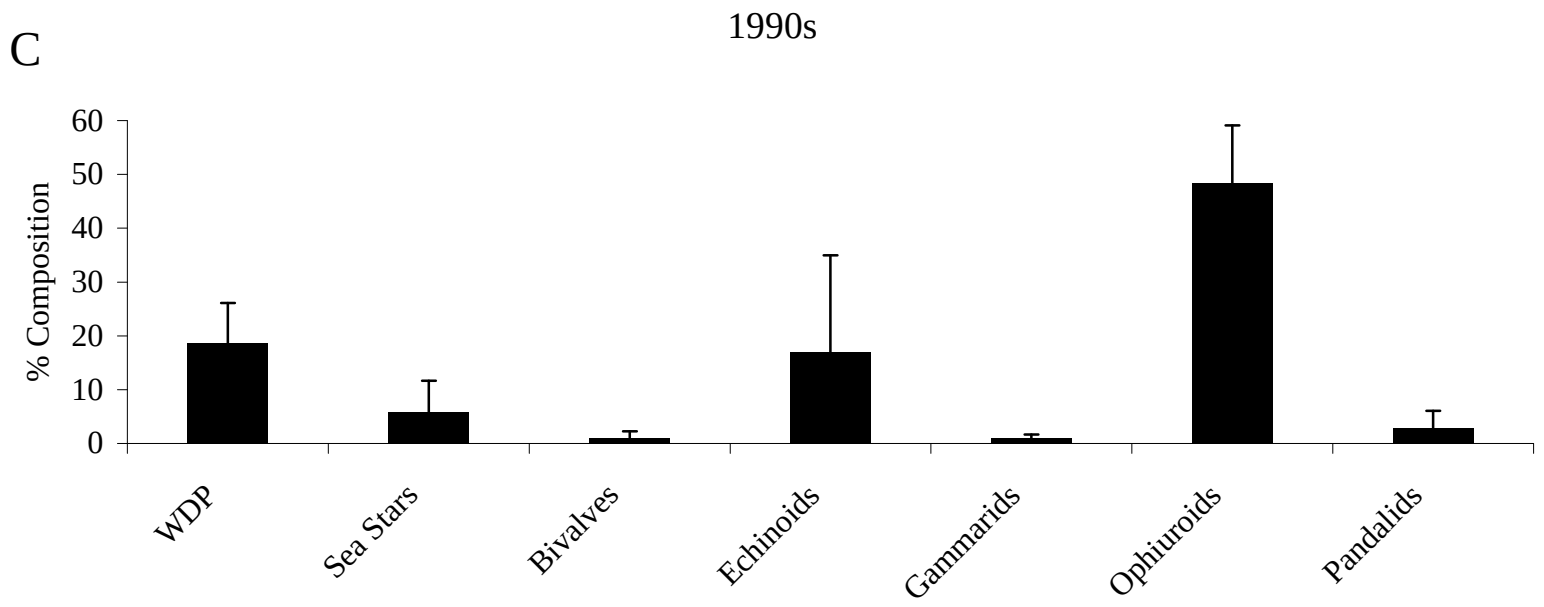

Figure 212C. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected in the 1990s (n = 615). WDP = well-digested prey.

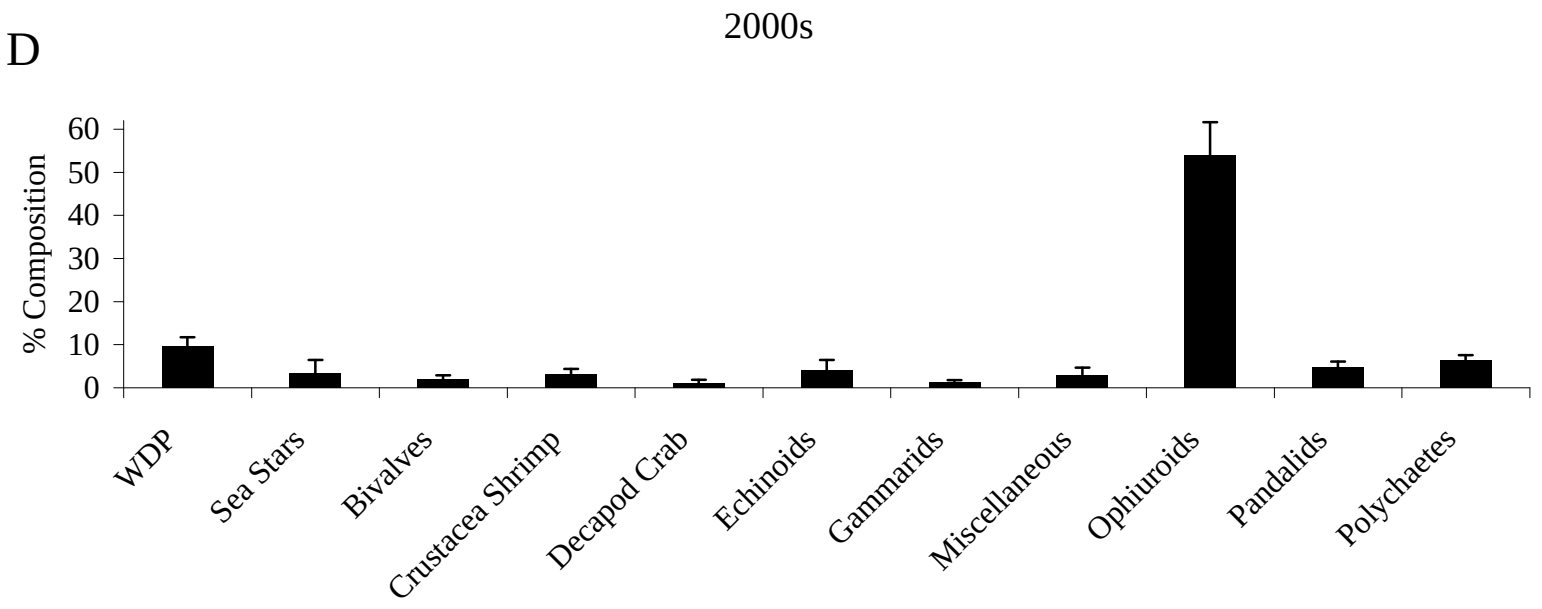

Figure 212D. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected in the 2000s (n = 4,792). WDP = well-digested prey.

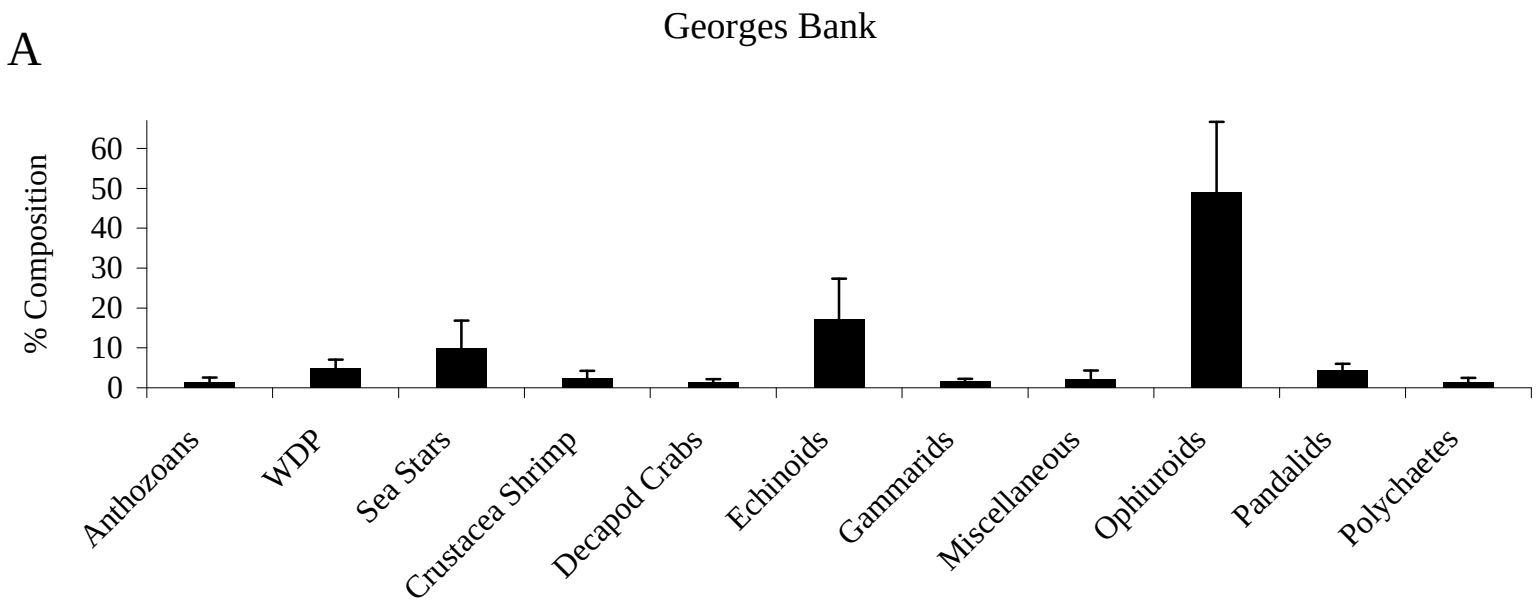

Figure 213A. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected on Georges Bank (n = 1,007). WDP = well-digested prey.

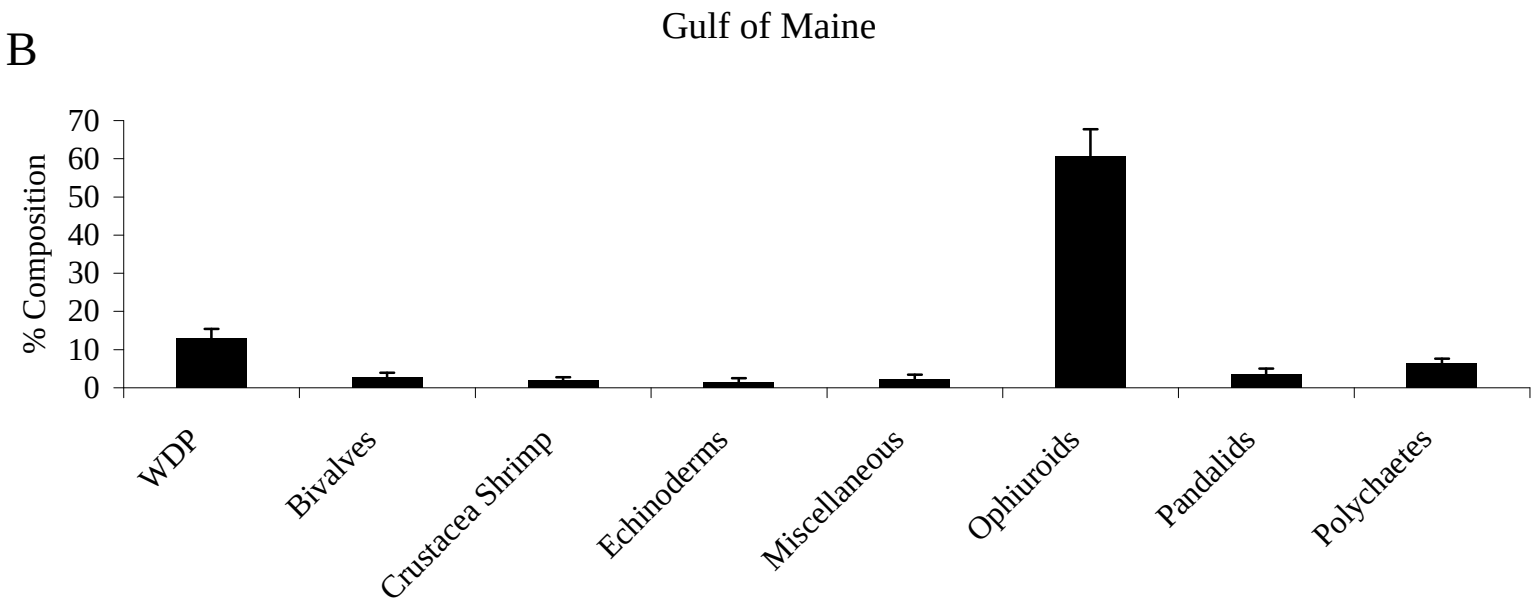

Figure 213B. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected in the Gulf of Maine (n = 5,173). WDP = well-digested prey.

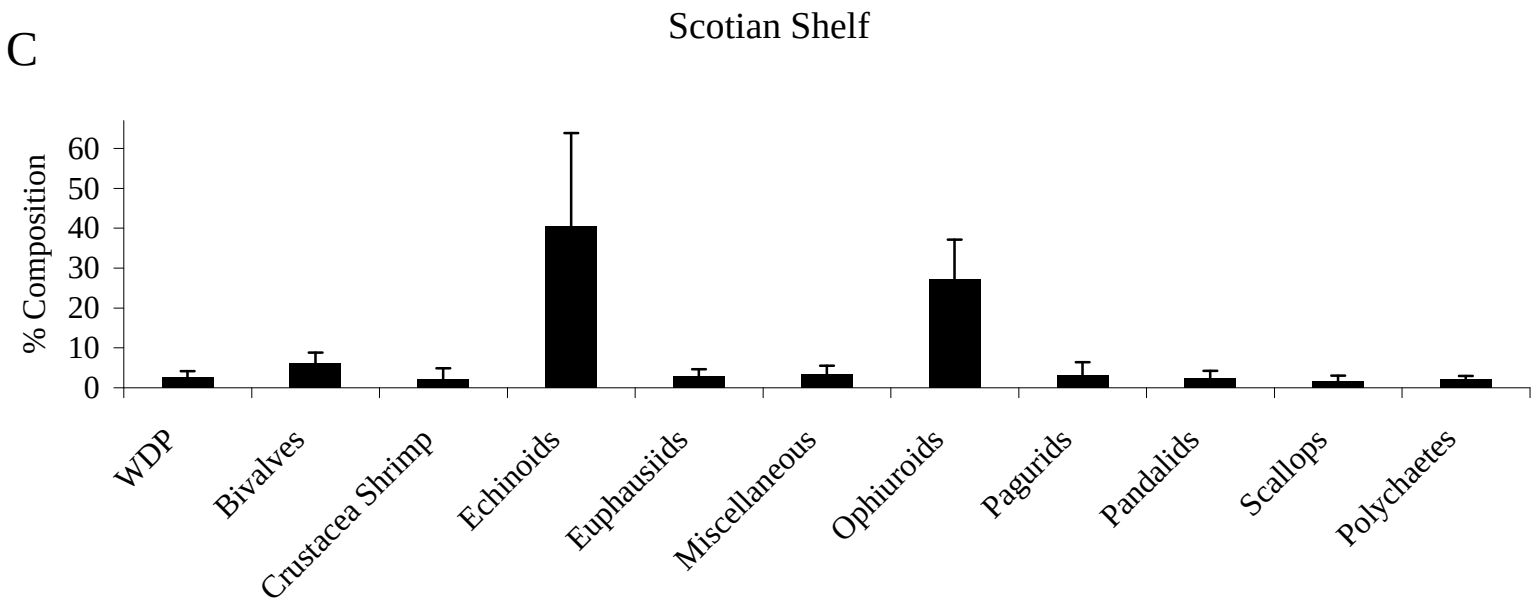

Figure 213C. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected on the Scotian Shelf (n = 1,001). WDP = well-digested prey.

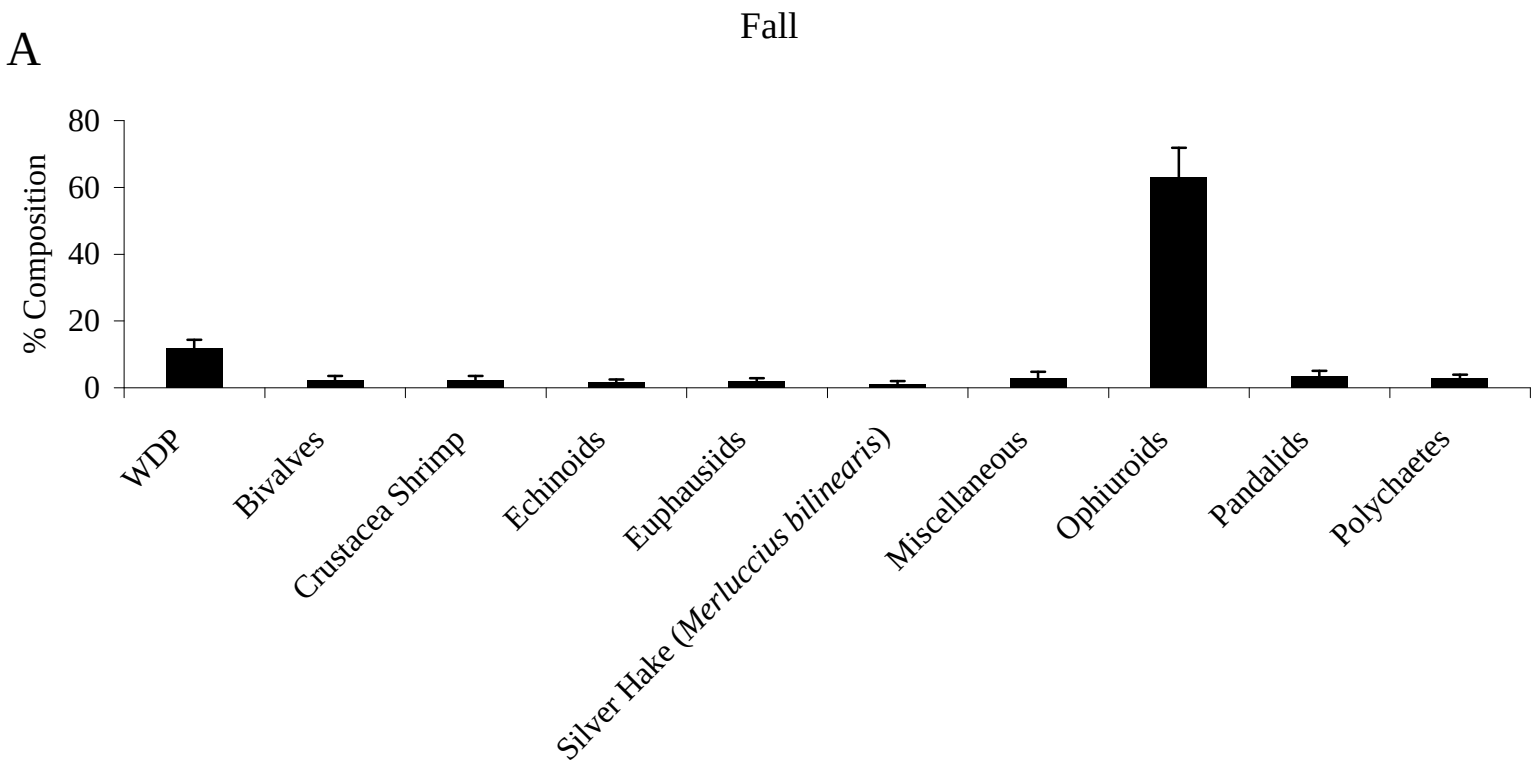

Figure 214A. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected in the fall (n = 3,153). WDP = well-digested prey.

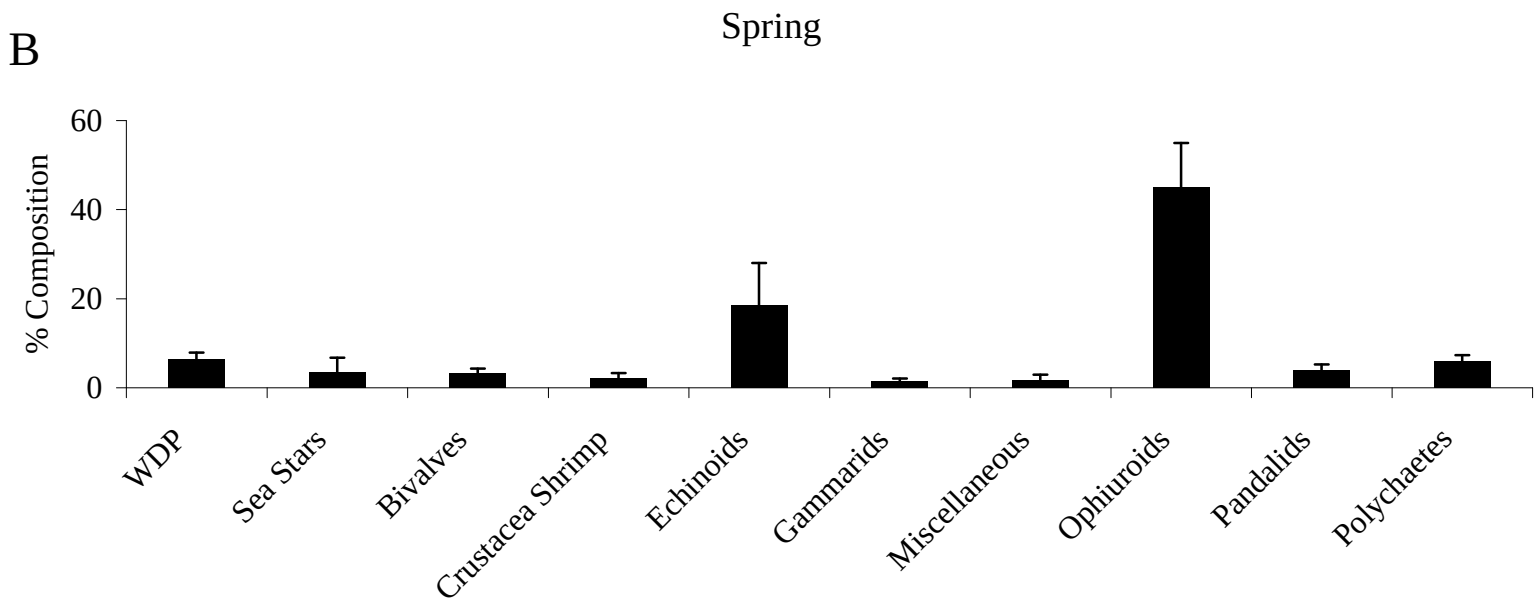

Figure 214B. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected in the spring (n = 3,685). WDP = well-digested prey.

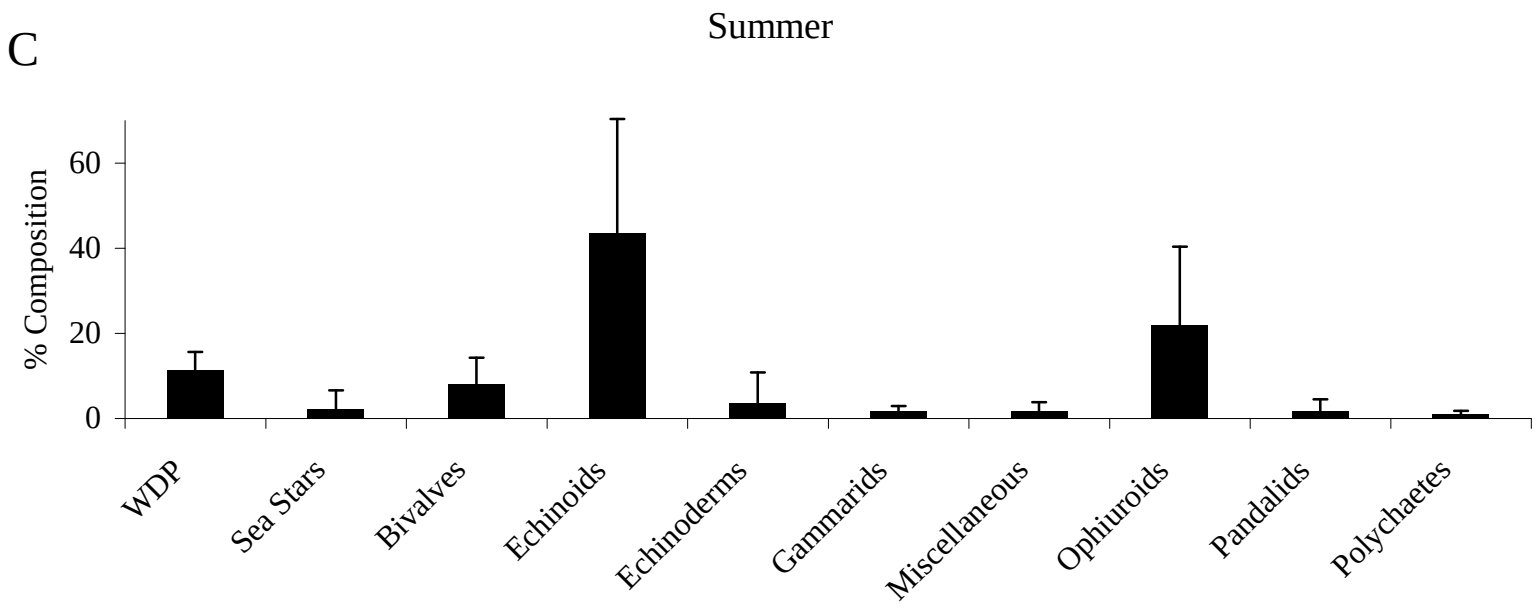

Figure 214C. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) collected in the summer (n = 294). WDP = well-digested prey.

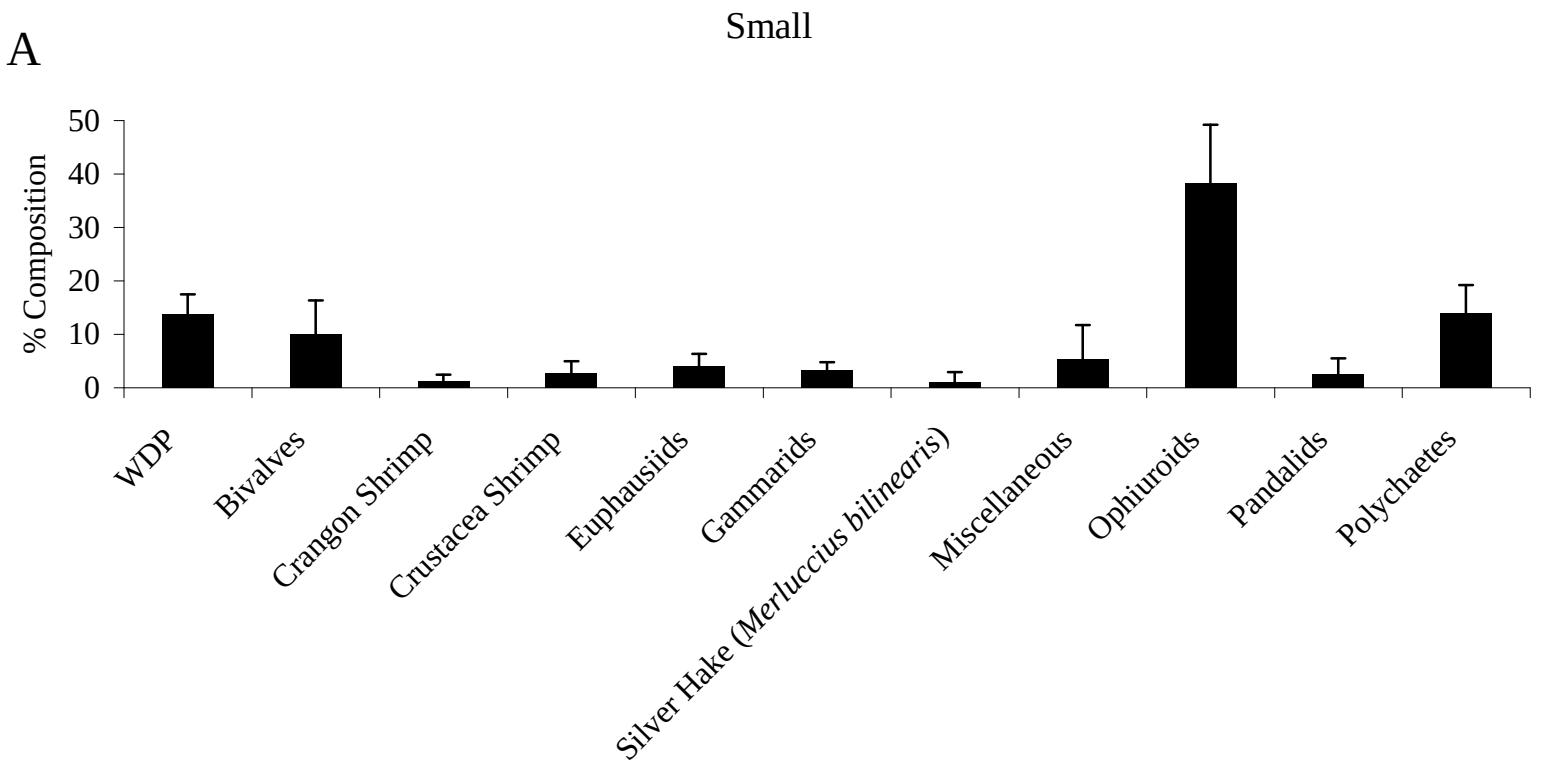

Figure 215A. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) in the small size class (n = 1,362). WDP = well-digested prey.

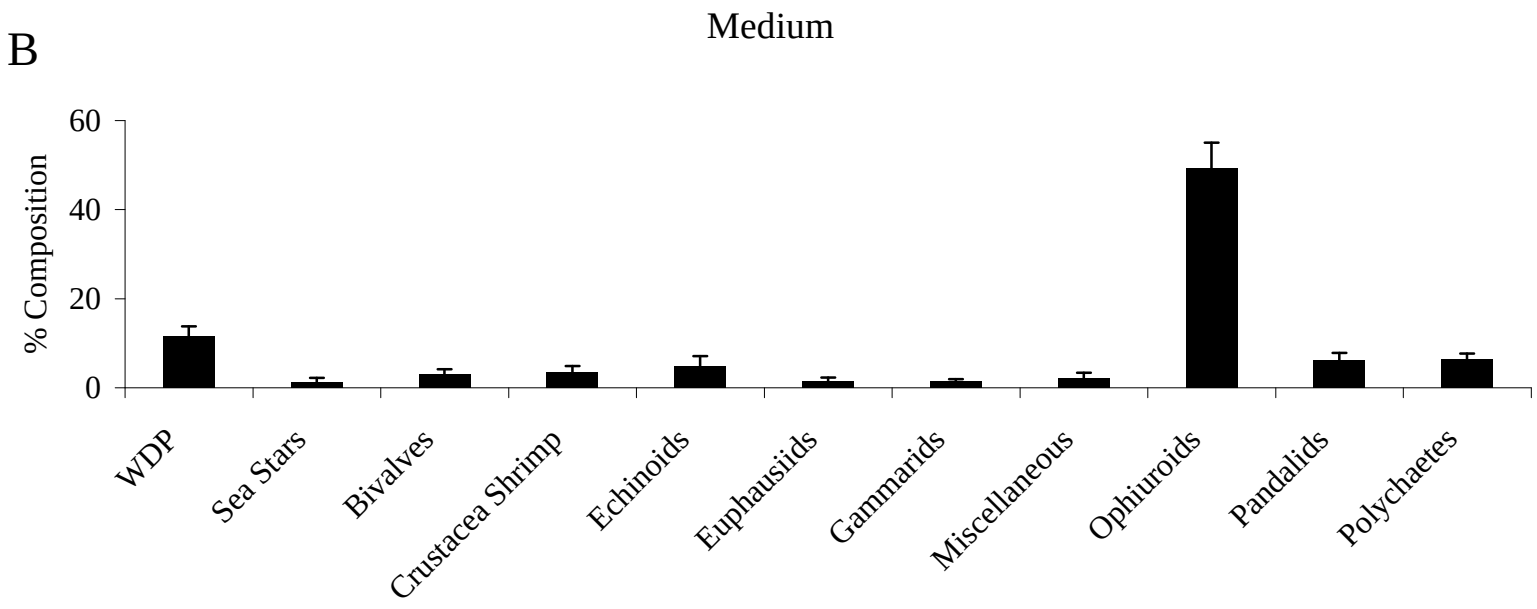

Figure 215B. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) in the medium size class (n = 4,801). WDP = well-digested prey.

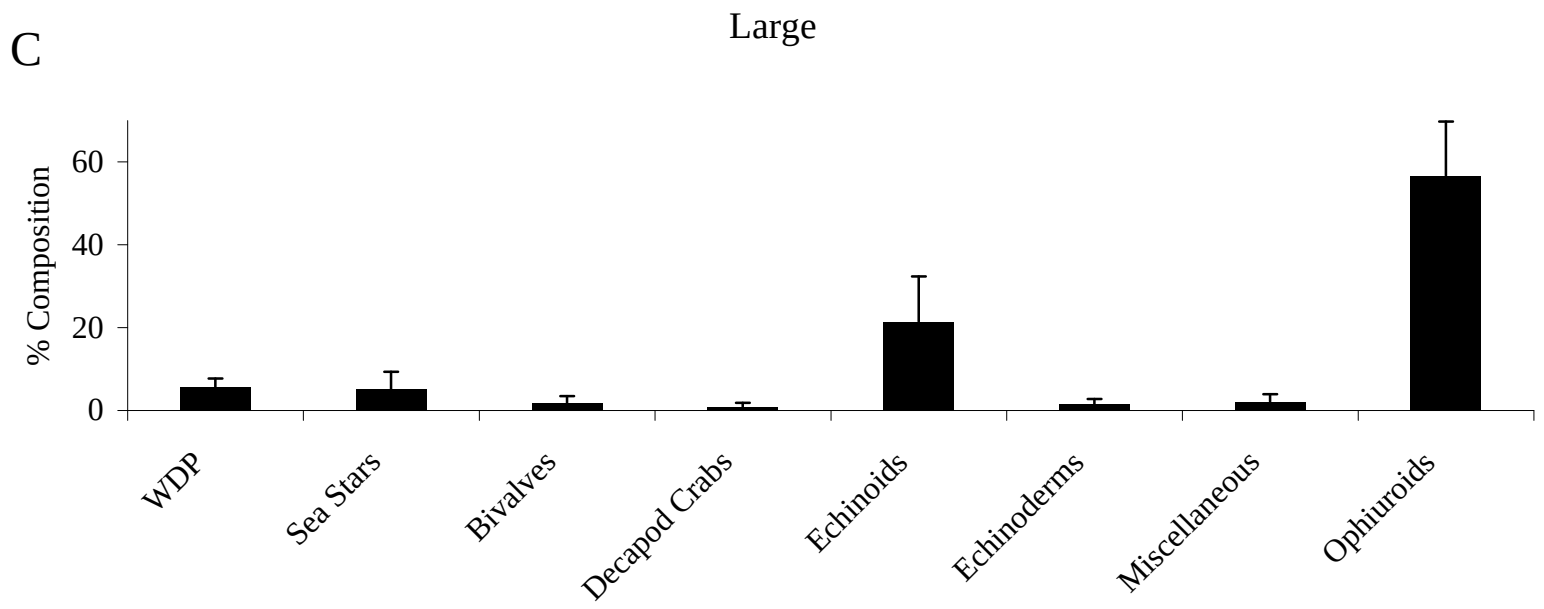

Figure 215C. Percent diet composition by weight of major prey taxa for American plaice (*Hippoglossoides platessoides*) in the large size class (n = 1,037). WDP = well-digested prey.

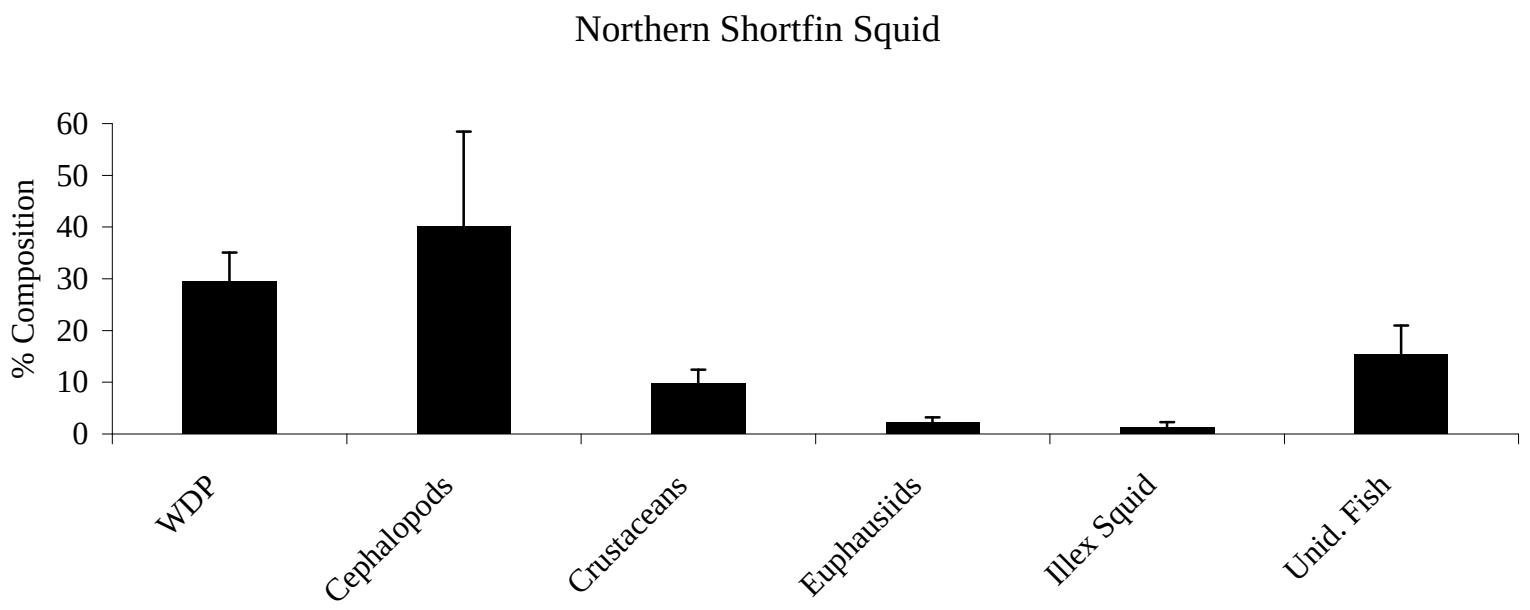

Figure 216. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*; n = 3,072). WDP = well-digested prey; Unid. Fish = unidentified fish.

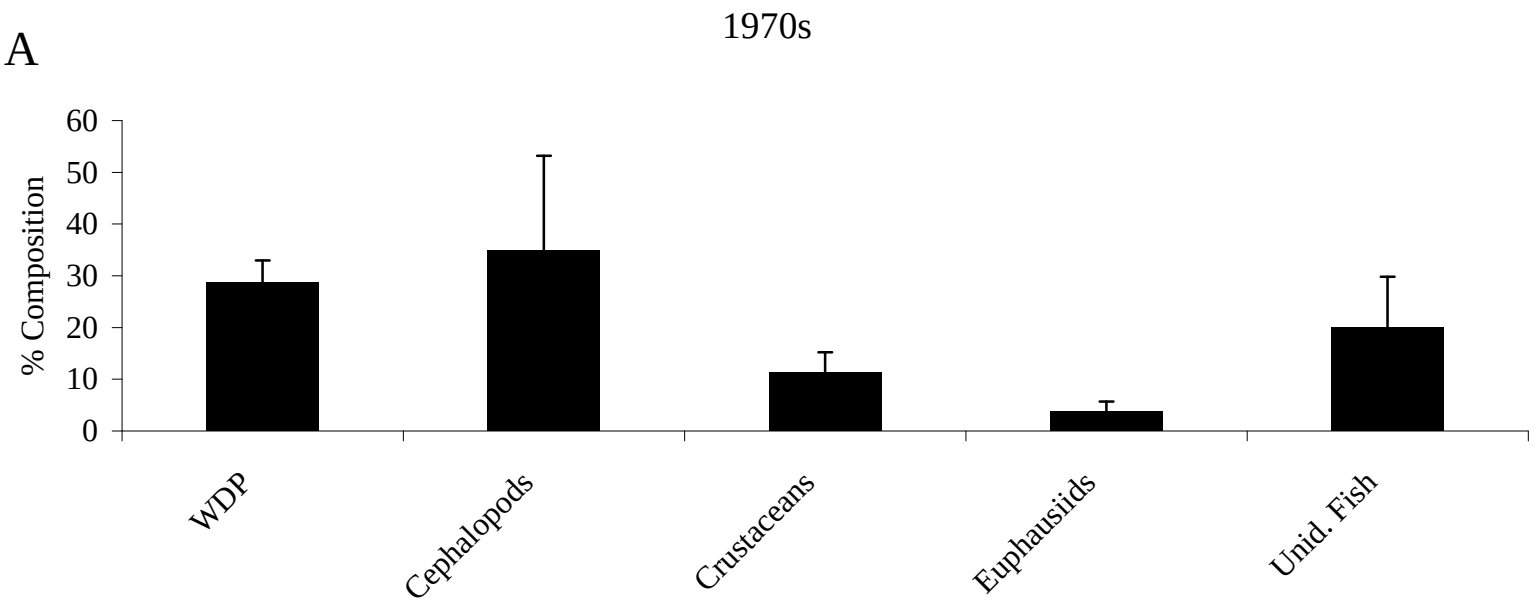

Figure 217A. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*; collected in the 1970s (n = 1,674). WDP = well-digested prey; Unid. Fish = unidentified fish.

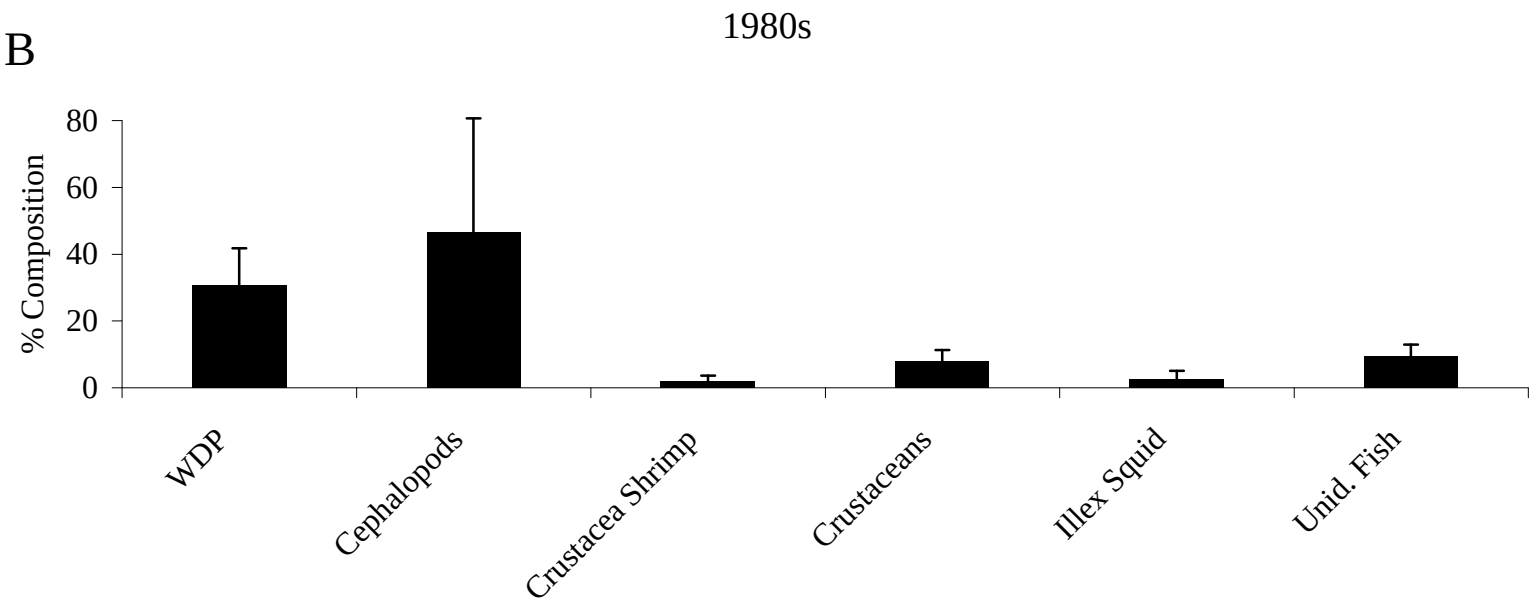

Figure 217B. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected in the 1980s (n = 1,397). WDP = well-digested prey; Unid. Fish = unidentified fish.

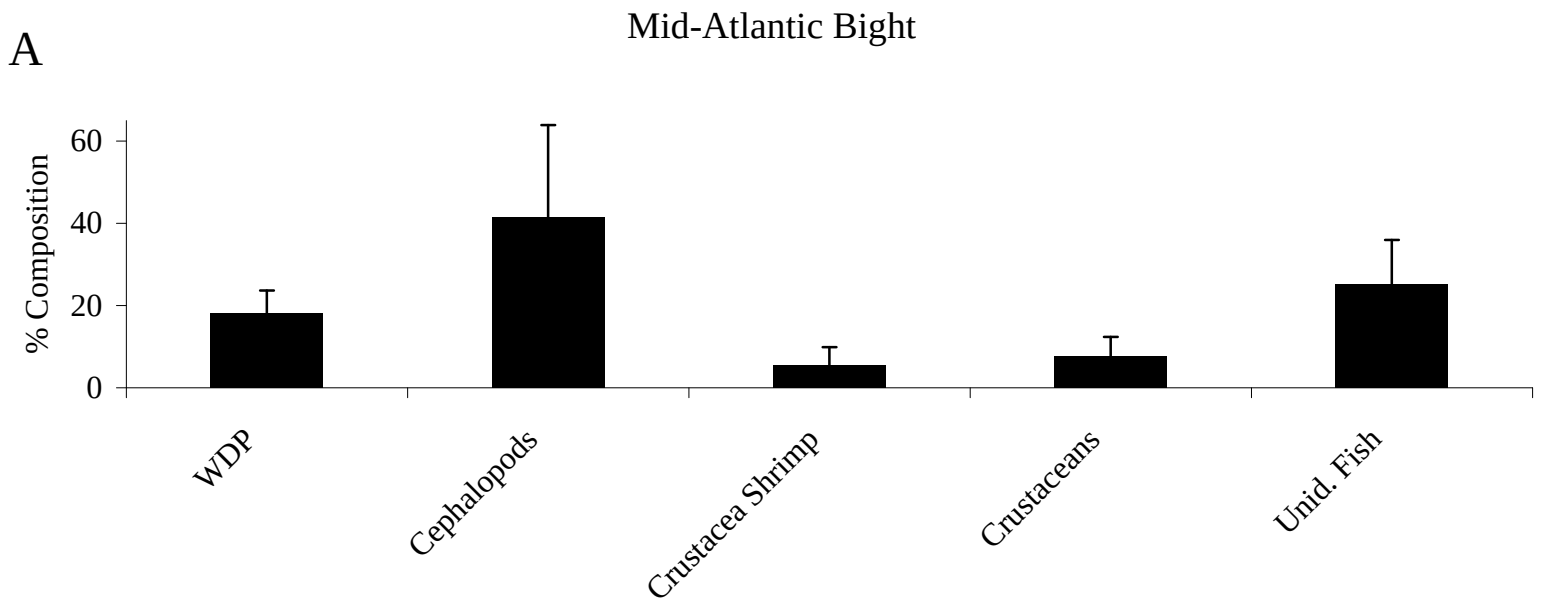

Figure 218A. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected in the Mid-Atlantic Bight (n = 711). WDP = well-digested prey; Unid. Fish = unidentified fish.

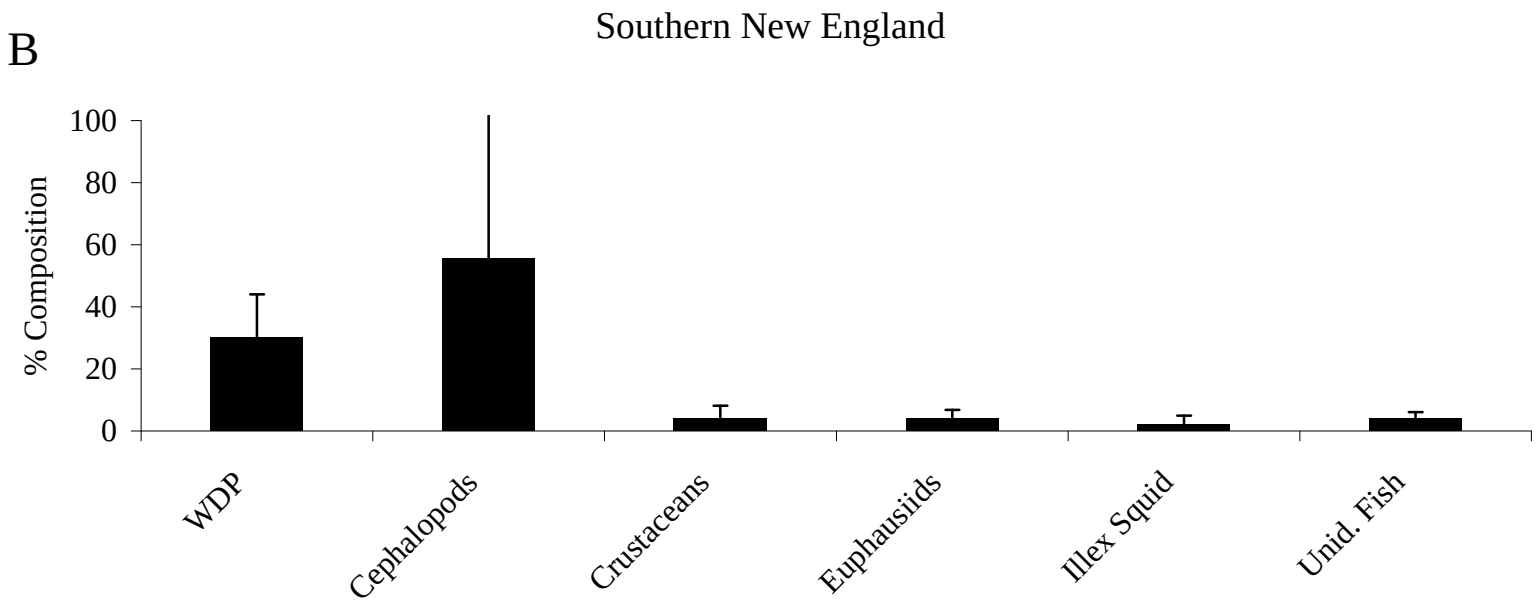

Figure 218B. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected in Southern New England (n = 636). WDP = well-digested prey; Unid. Fish = unidentified fish.

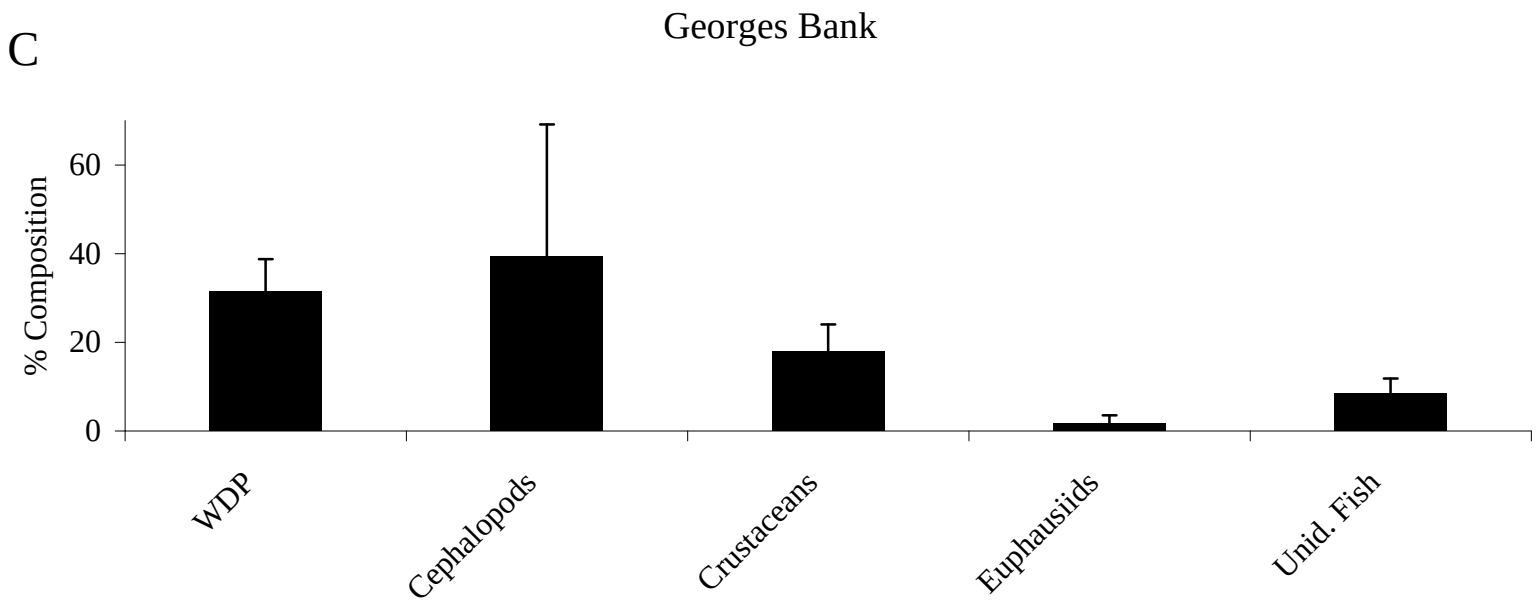

Figure 218C. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected on Georges Bank (n = 916). WDP = well-digested prey; Unid. Fish = unidentified fish.

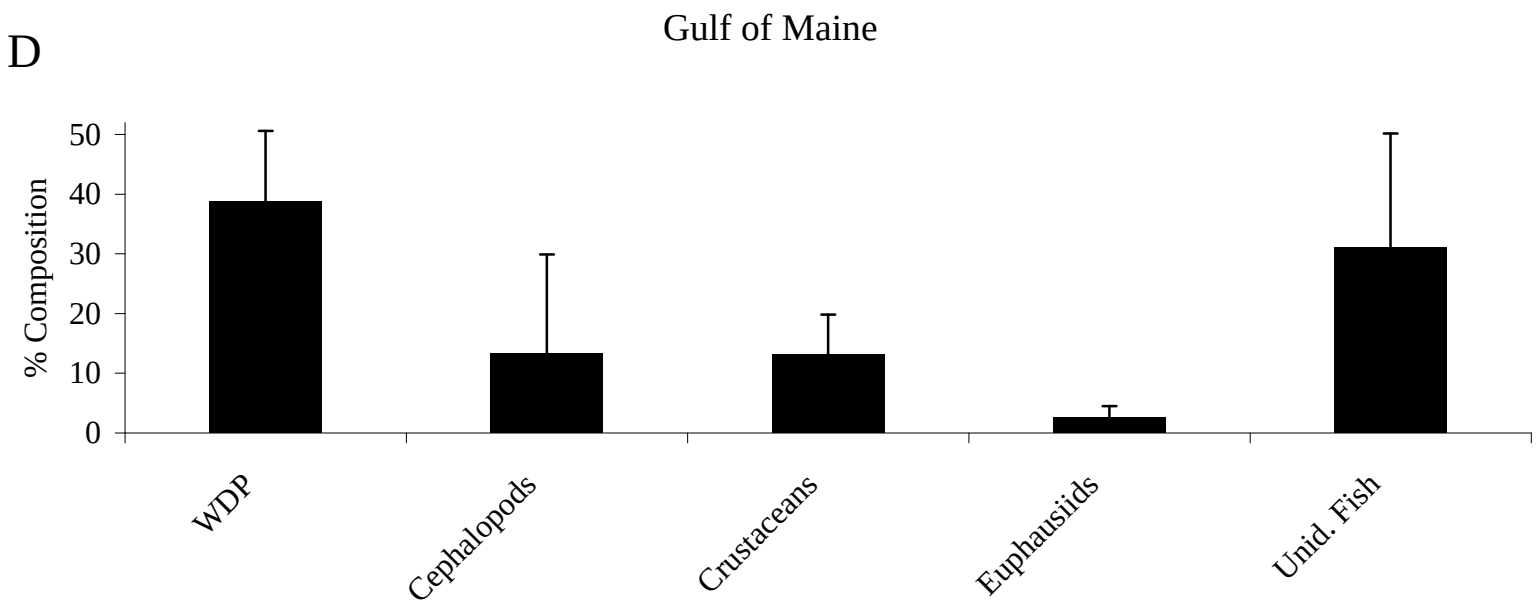

Figure 218D. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected in the Gulf of Maine (n = 518). WDP = well-digested prey; Unid. Fish = unidentified fish.

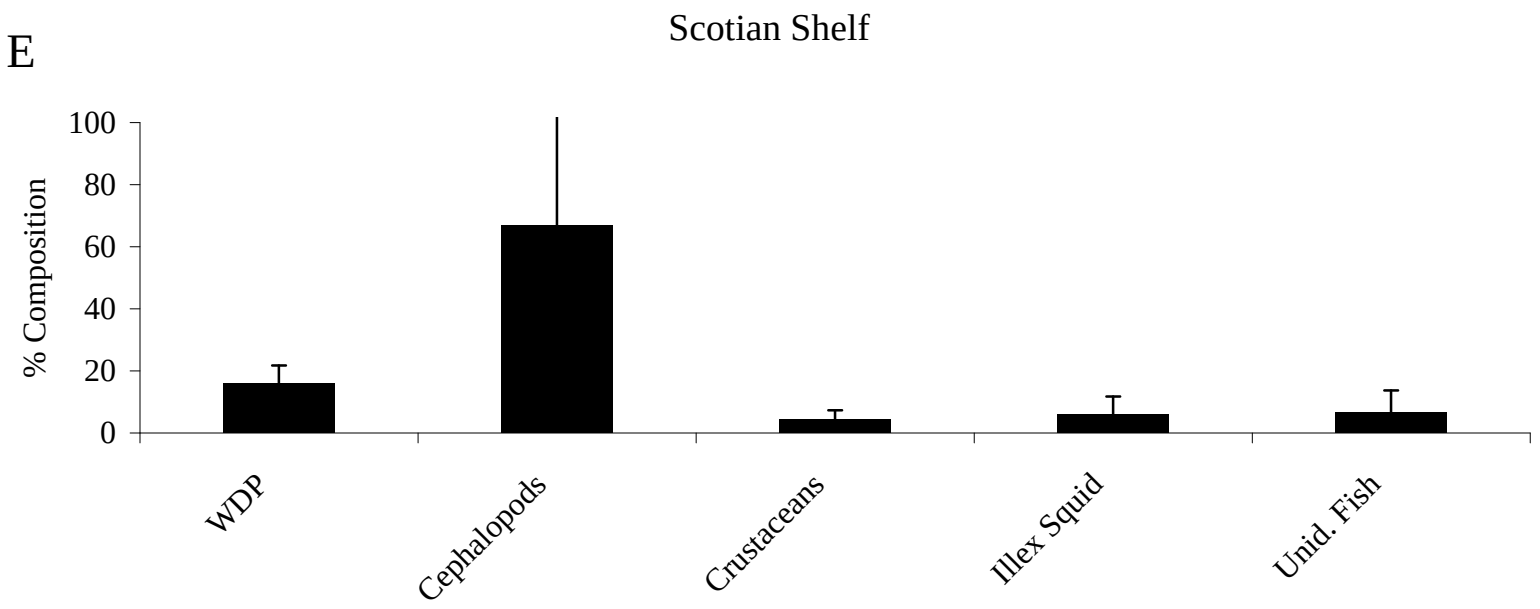

Figure 218E. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected on the Scotian Shelf (n = 256). WDP = well-digested prey; Unid. Fish = unidentified fish.

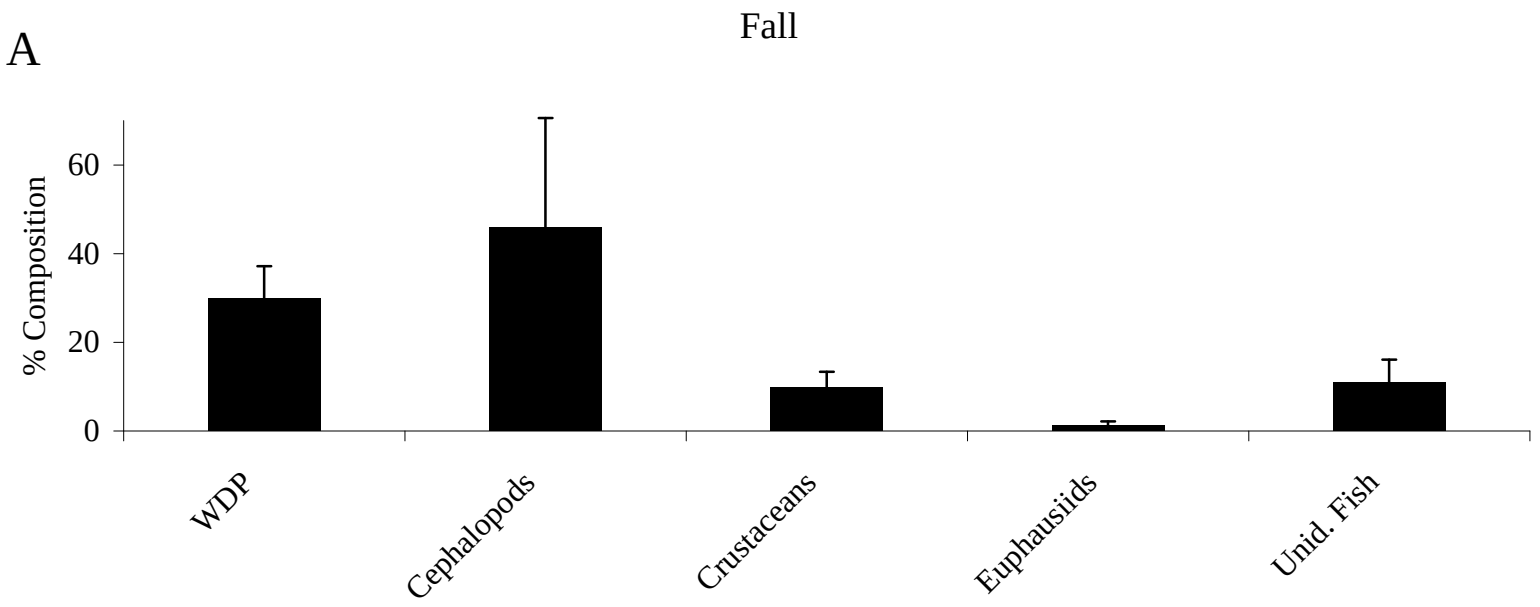

Figure 219A. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected in the fall (n = 1,952). WDP = well-digested prey; Unid. Fish = unidentified fish.

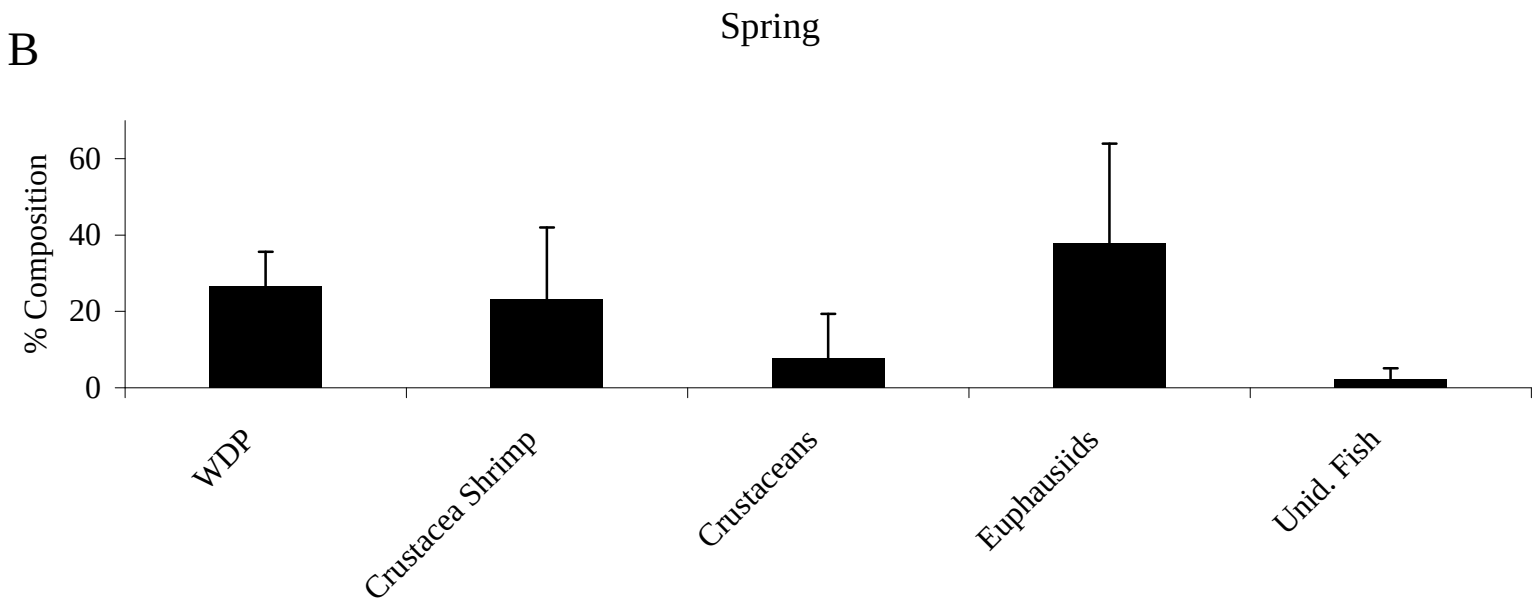

Figure 219B. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected in the spring (n = 215). WDP = well-digested prey; Unid. Fish = unidentified fish.

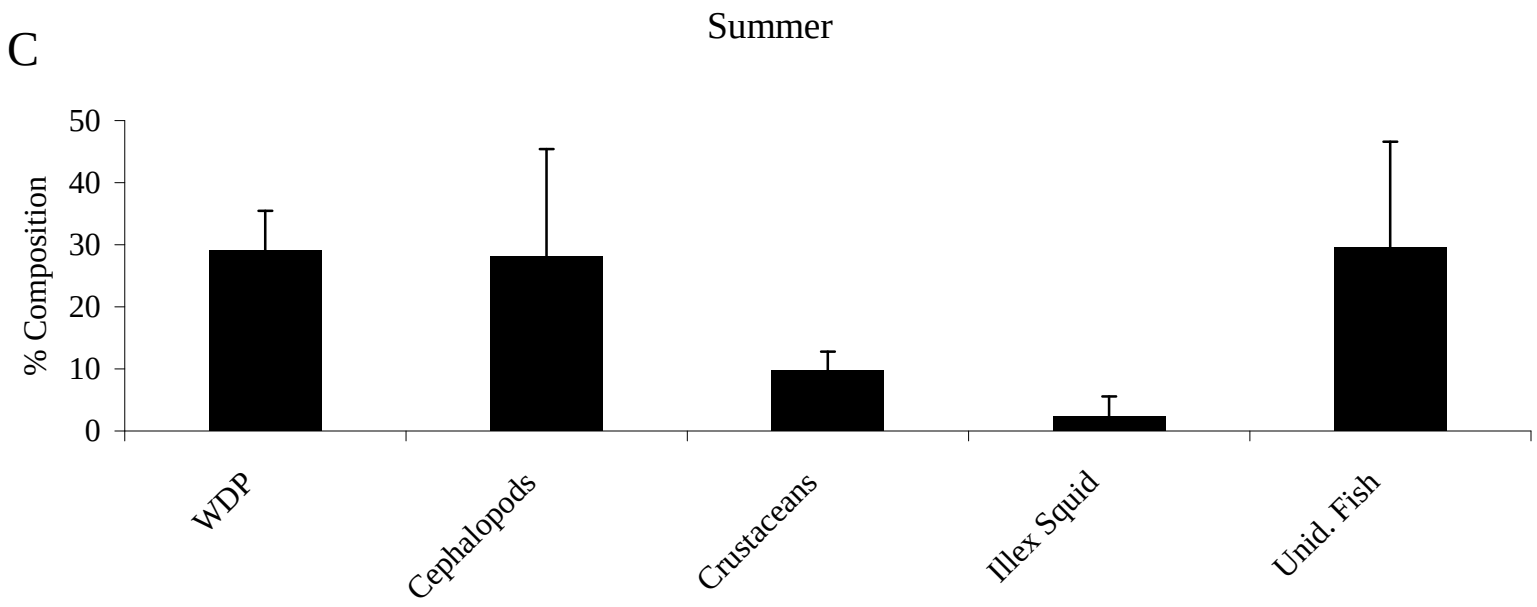

Figure 219C. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) collected in the summer (n = 905). WDP = well-digested prey; Unid. Fish = unidentified fish.

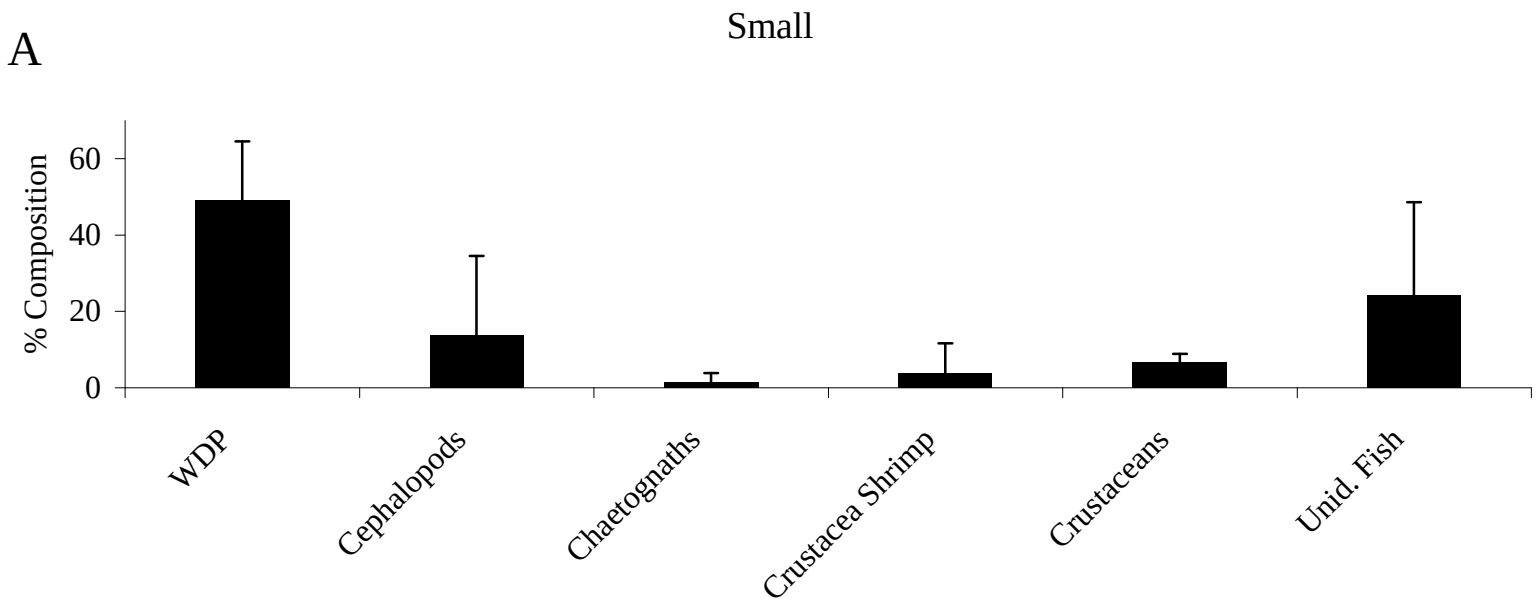

Figure 220A. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) in the small size class (n = 544). WDP = well-digested prey; Unid. Fish = unidentified fish.

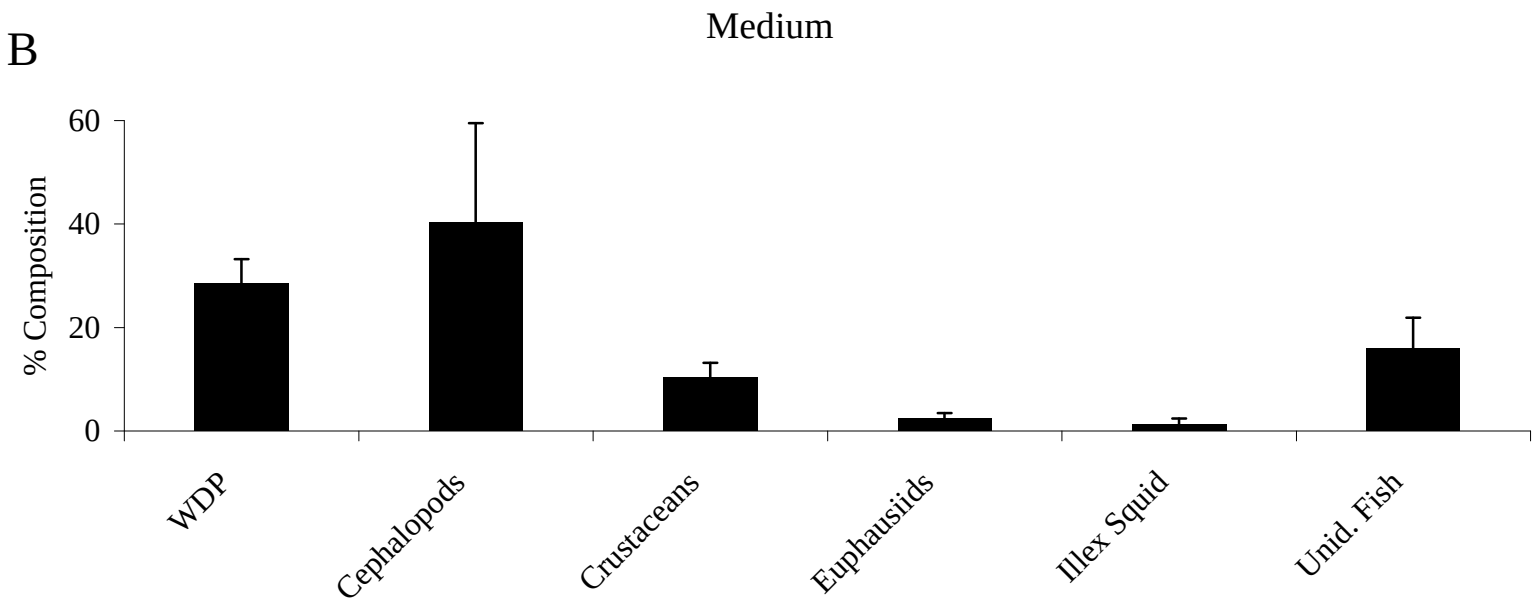

Figure 220B. Percent diet composition by weight of major prey taxa for northern shortfin squid (*Illex illecebrosus*) in the medium size class (n = 2,501). WDP = well-digested prey; Unid. Fish = unidentified fish.

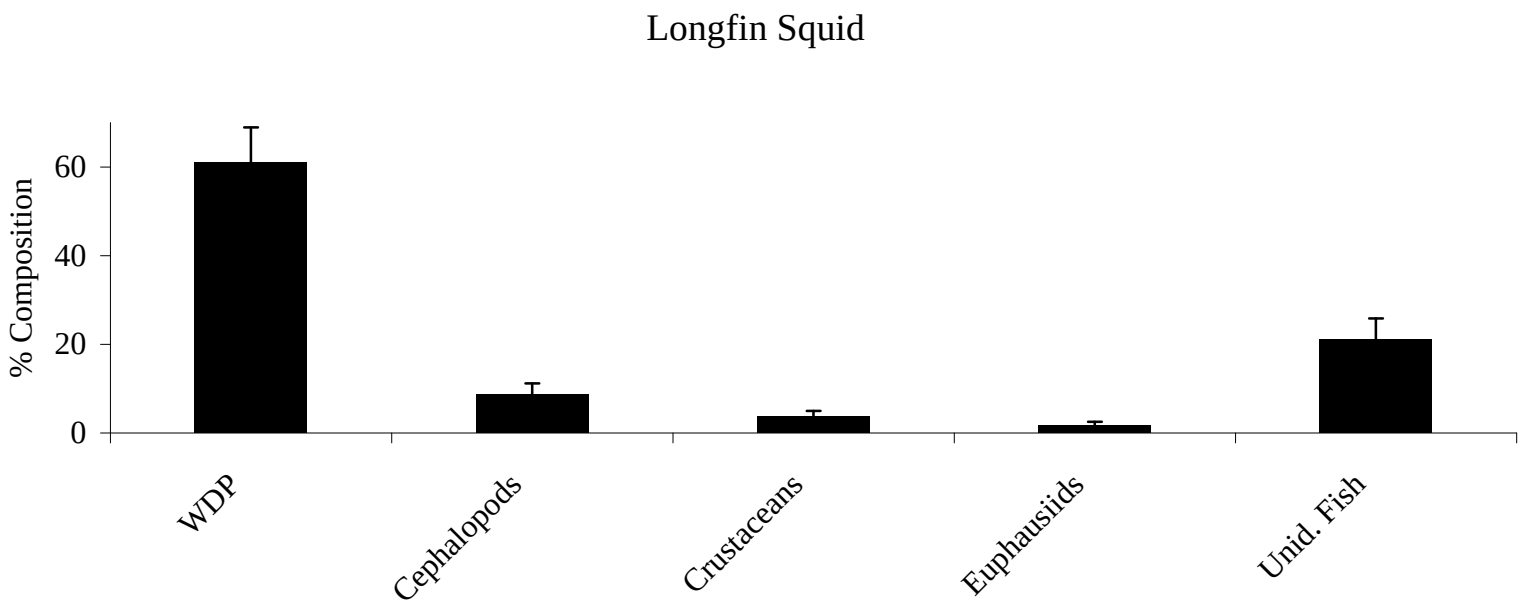

Figure 221. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*; n = 3,080). WDP = well-digested prey; Unid. Fish = unidentified fish.

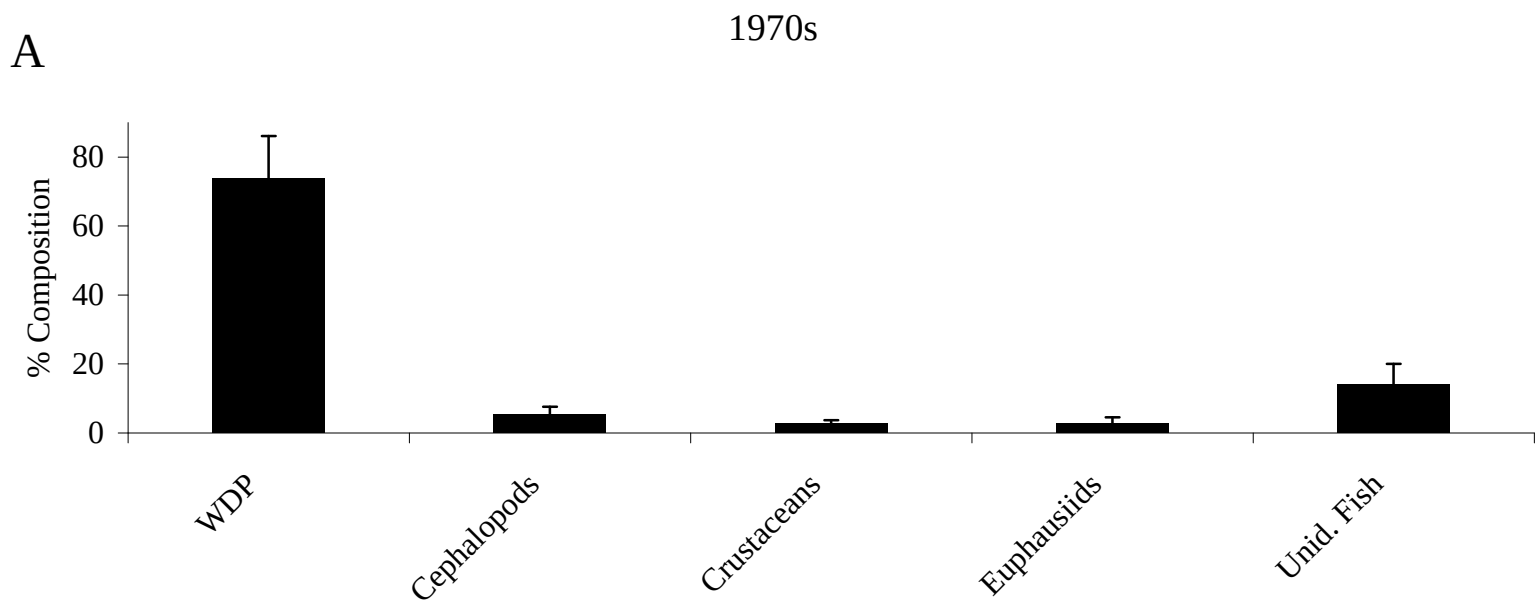

Figure 222A. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in the 1970s (n = 1,654). WDP = well-digested prey; Unid. Fish = unidentified fish.

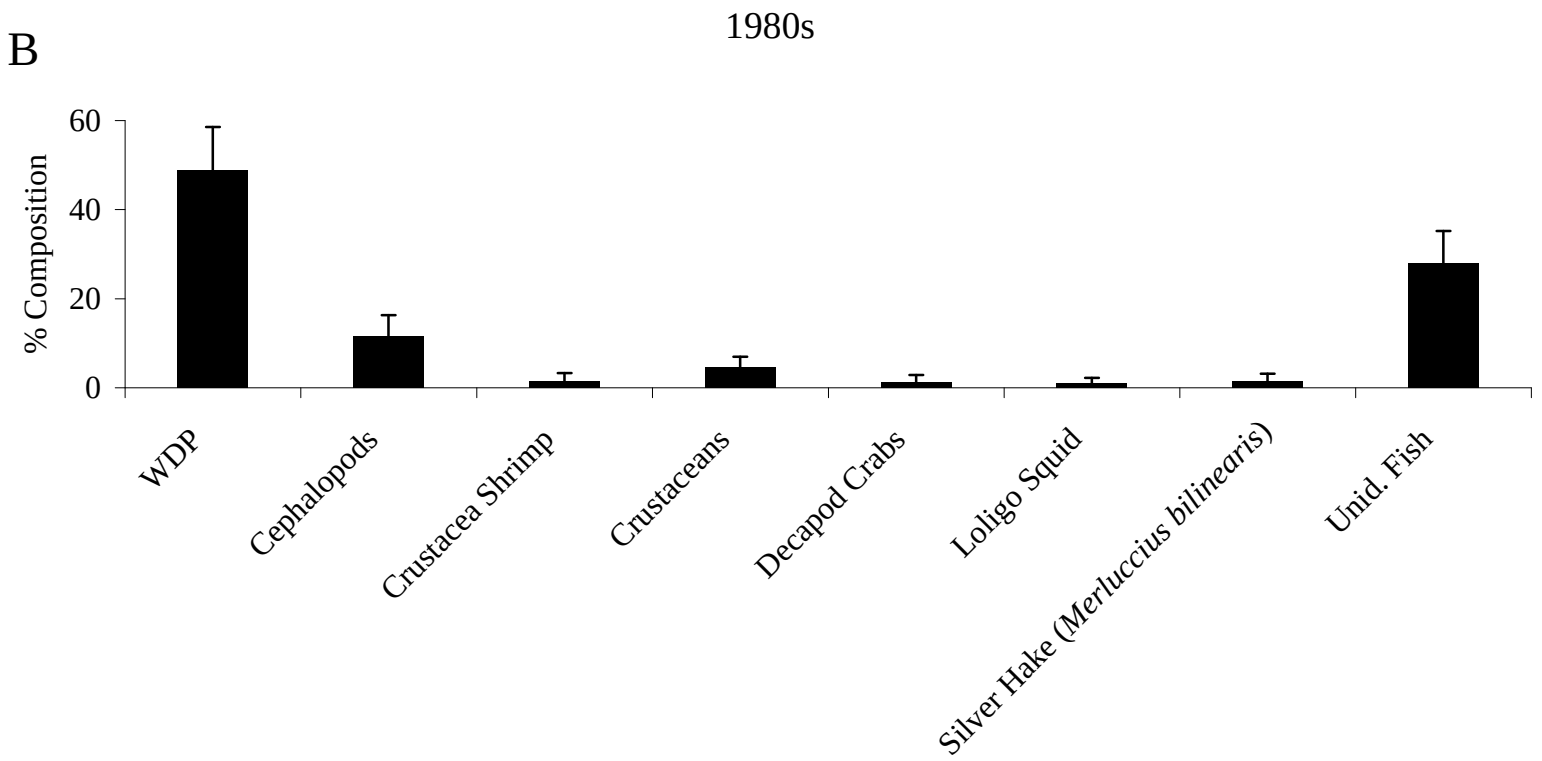

Figure 222B. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in the 1980s (n =1,426). WDP = well-digested prey; Unid. Fish = unidentified fish.

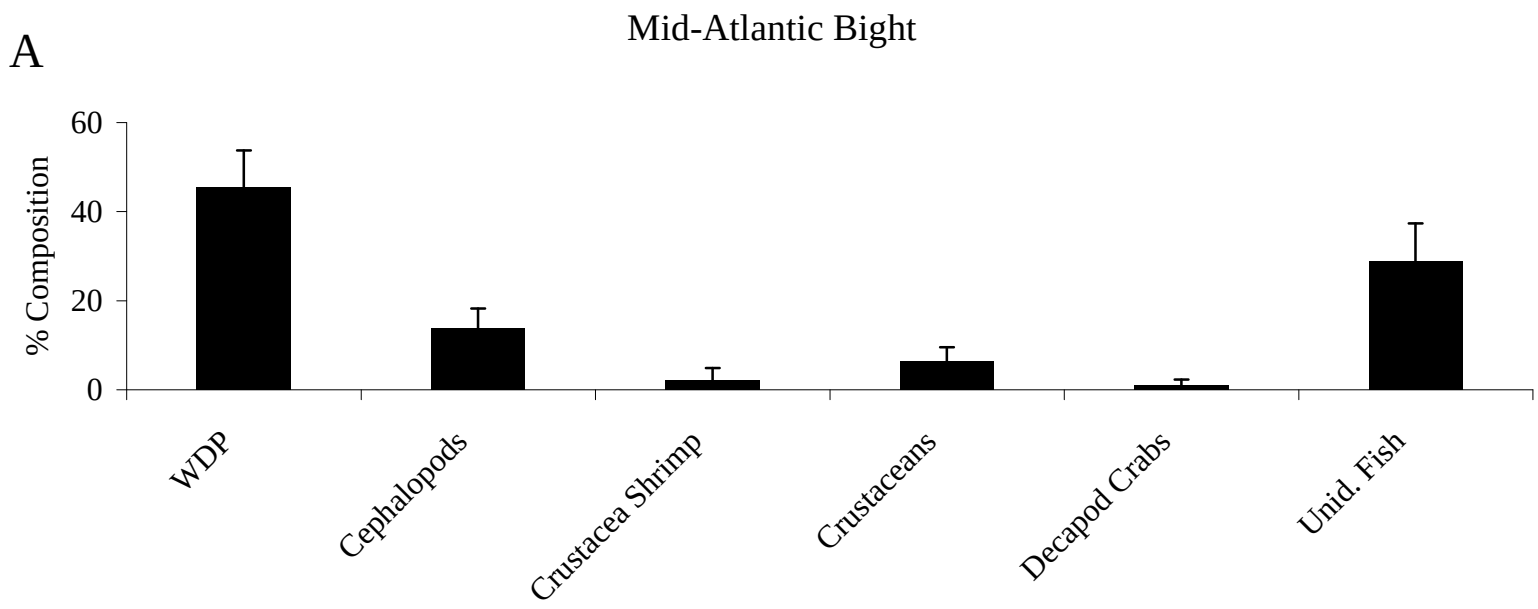

Figure 223A. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in the Mid-Atlantic Bight (n = 1,550). WDP = well-digested prey; Unid. Fish = unidentified fish.

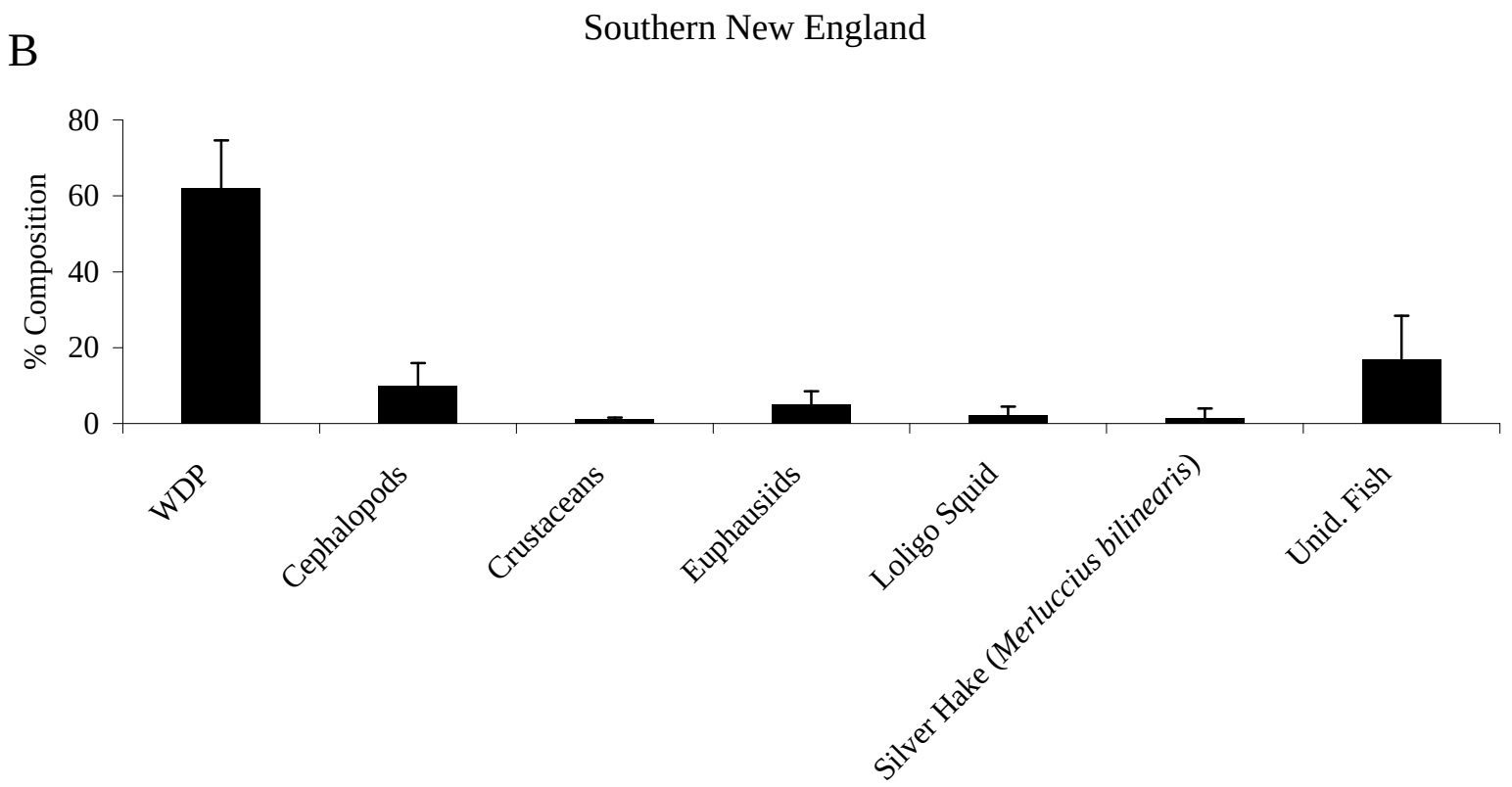

Figure 223B. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in Southern New England (n = 759). WDP = well-digested prey; Unid. Fish = unidentified fish.

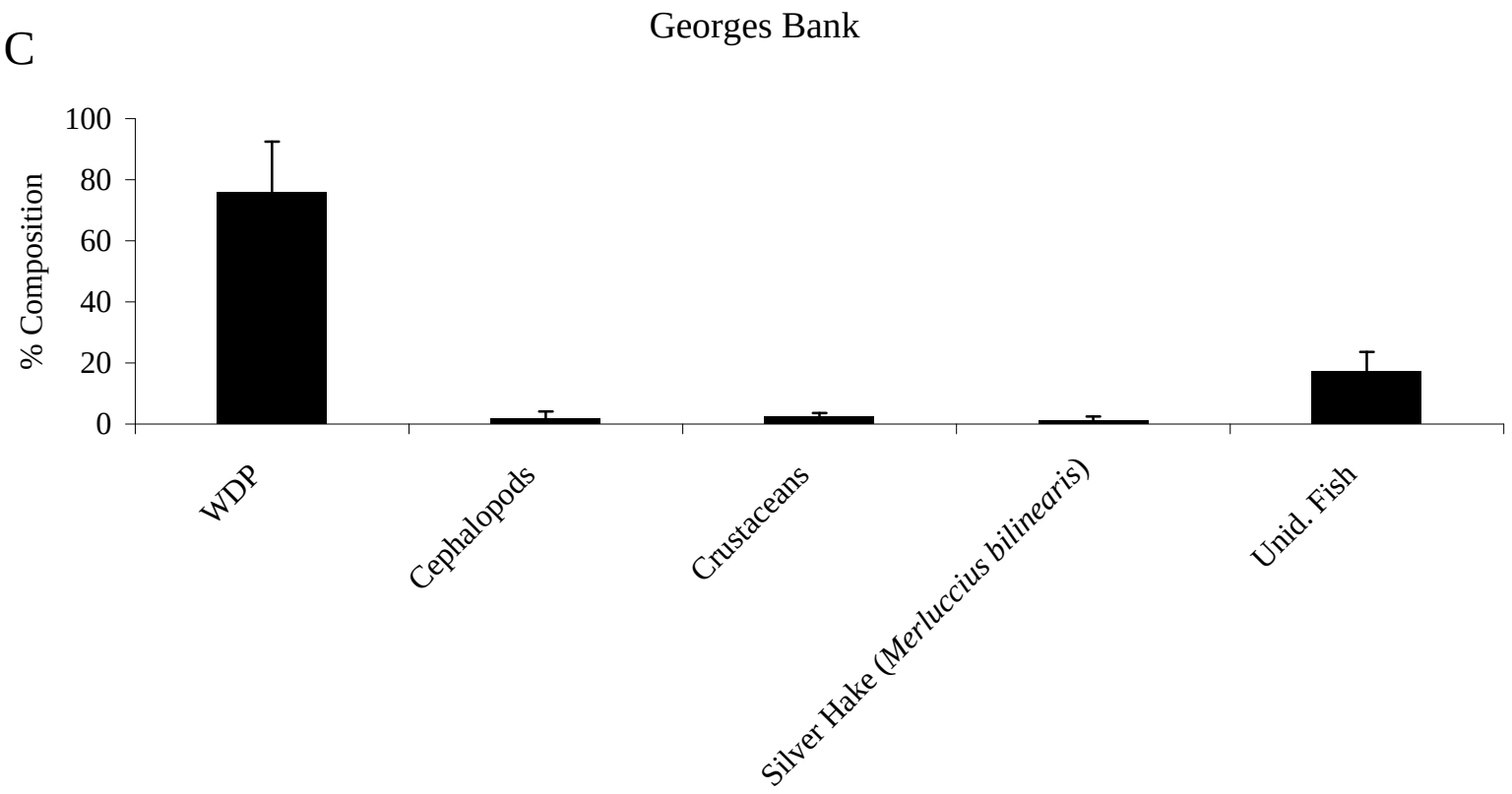

Figure 223C. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected on Georges Bank (n = 672). WDP = well-digested prey; Unid. Fish = unidentified fish.

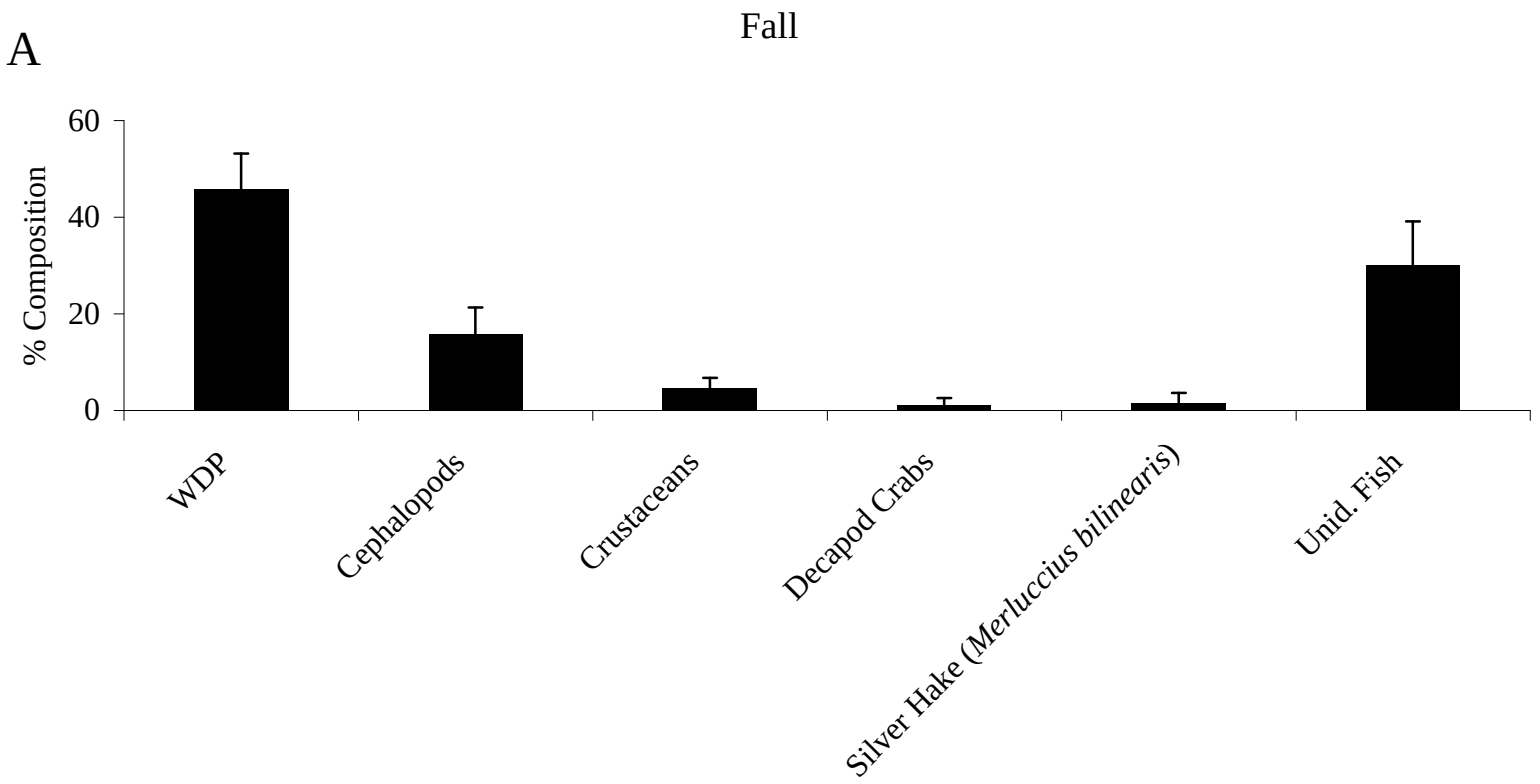

Figure 224A. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in the fall (n = 1,565). WDP = well-digested prey; Unid. Fish = unidentified fish.

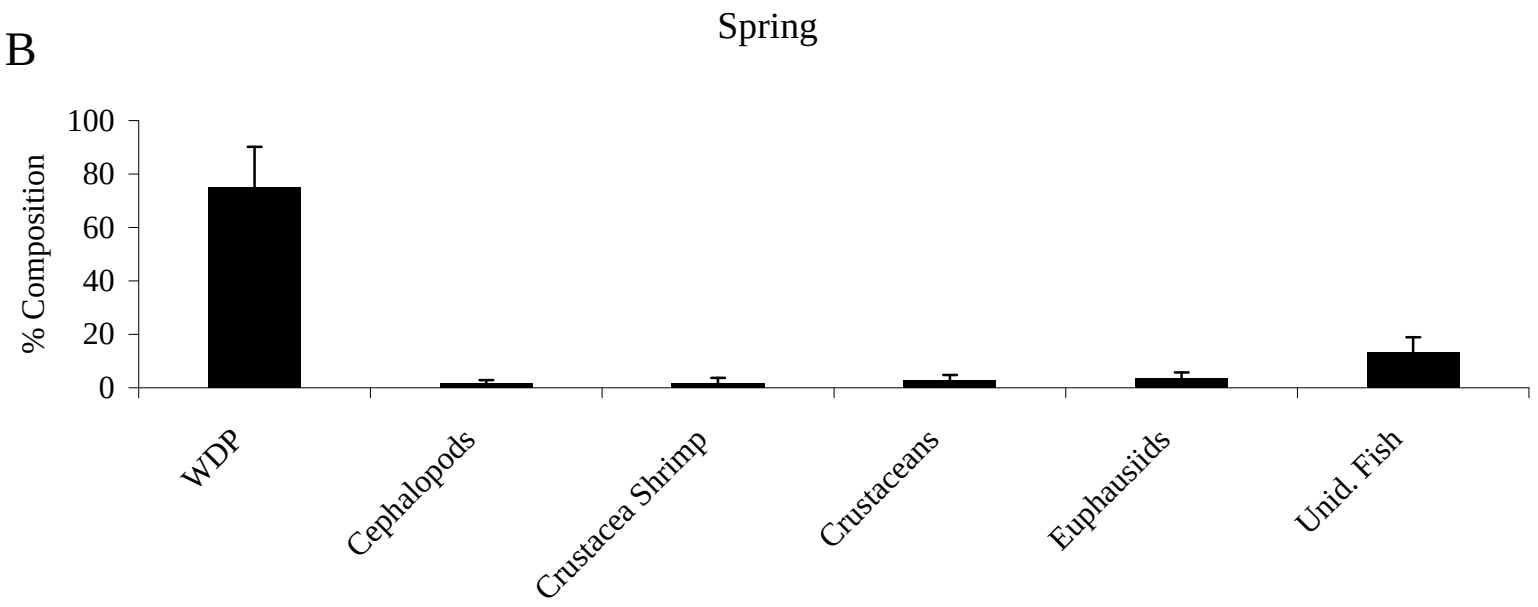

Figure 224B. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in the spring (n = 754). WDP = well-digested prey; Unid. Fish = unidentified fish.

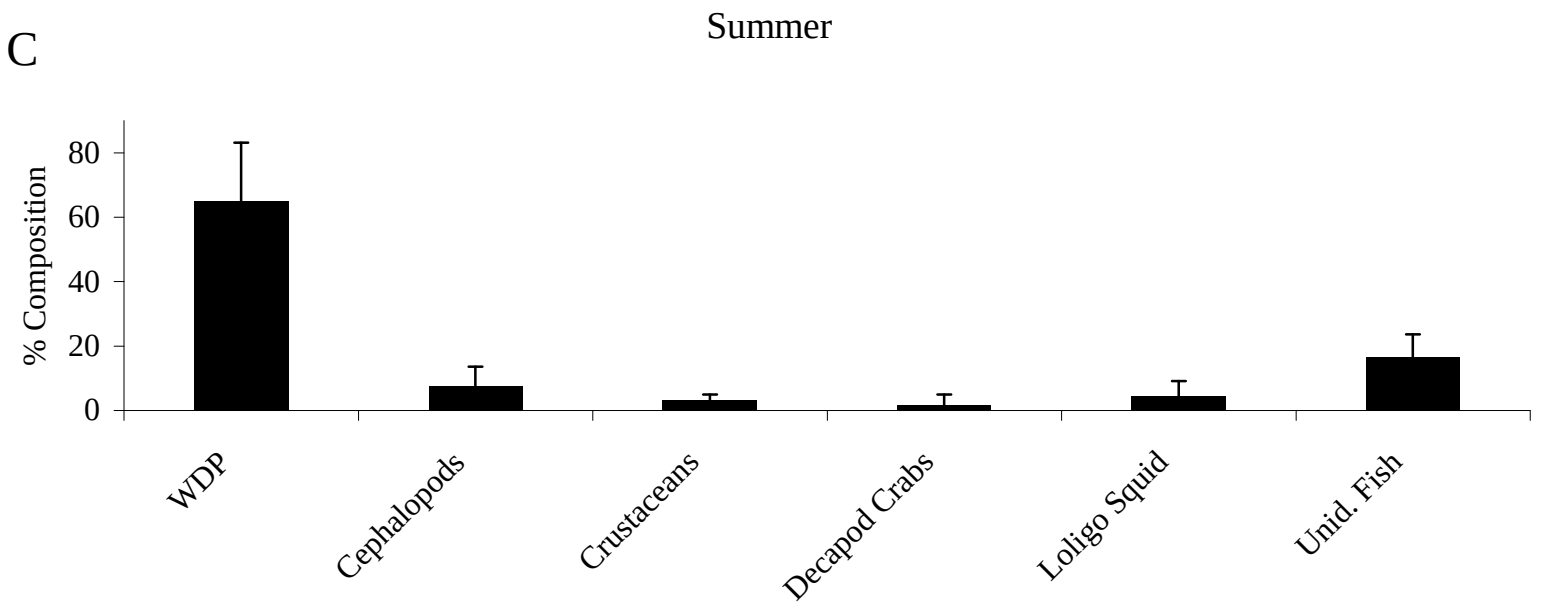

Figure 224C. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in the summer (n = 761). WDP = well-digested prey; Unid. Fish = unidentified fish.

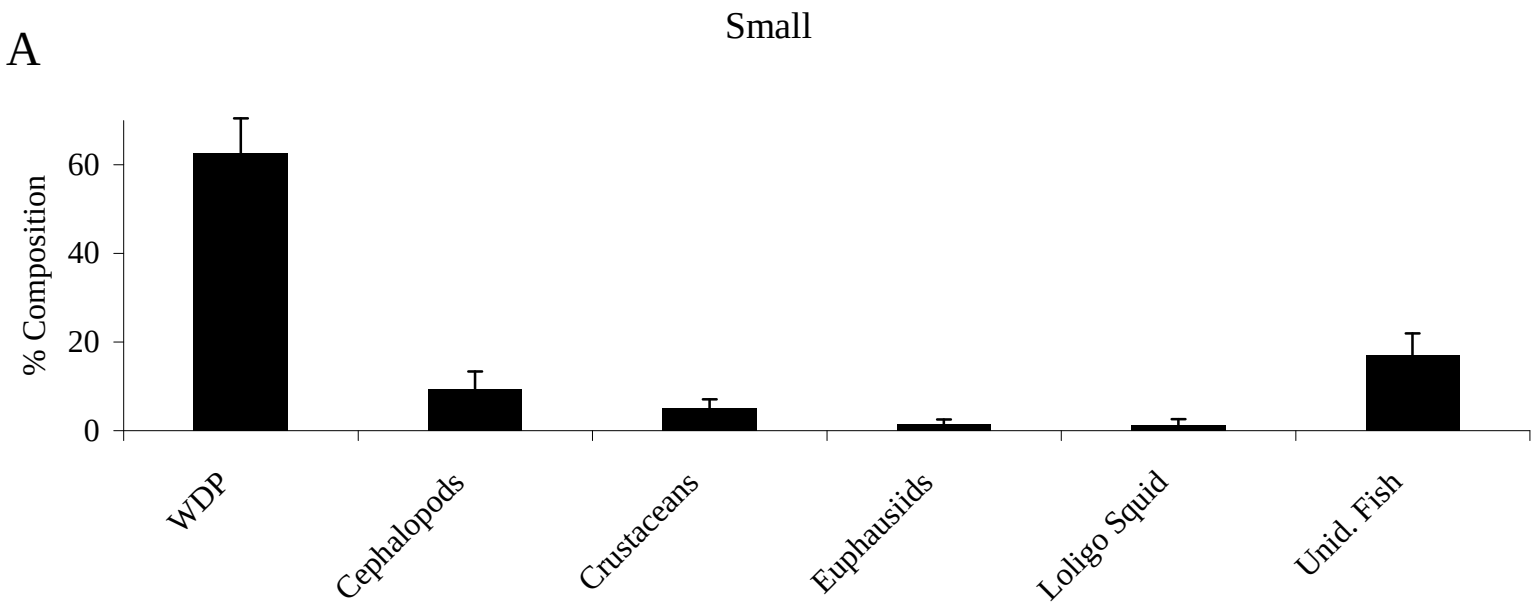

Figure 225A. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in the small size class (n = 2,188). WDP = well-digested prey; Unid. Fish = unidentified fish.

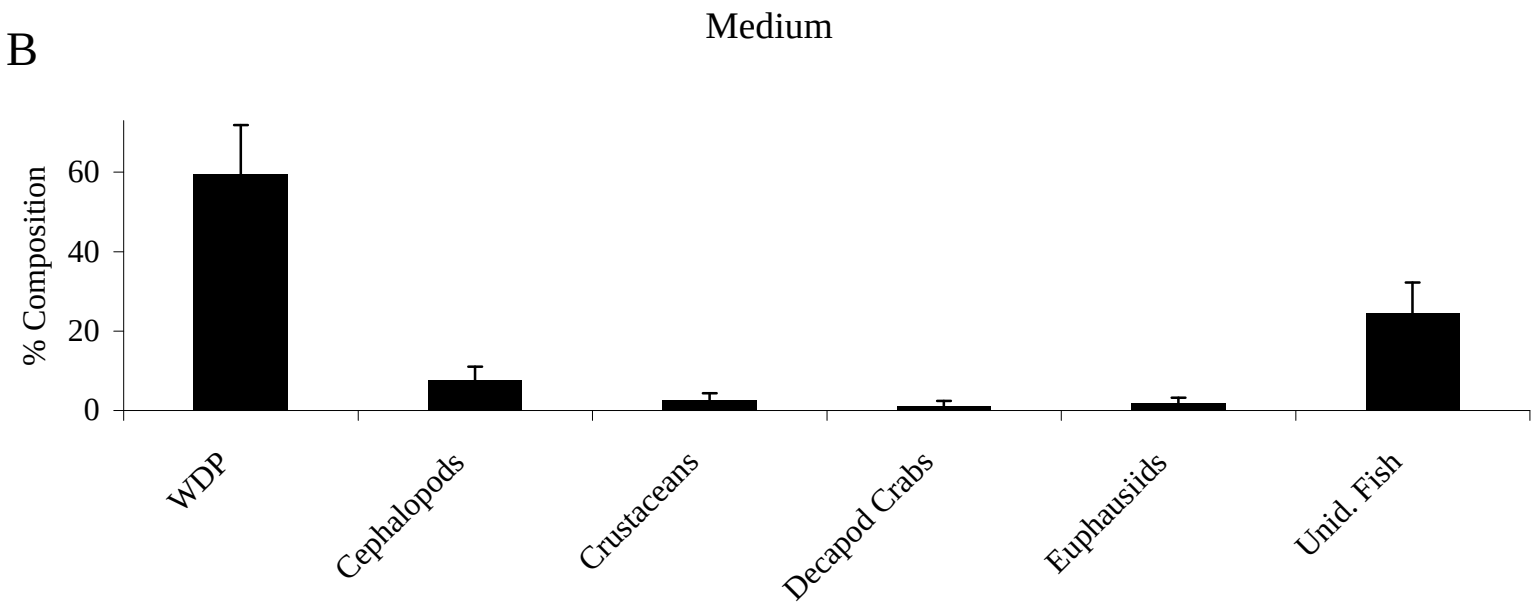

Figure 225B. Percent diet composition by weight of major prey taxa for longfin squid (*Loligo pealeii*) collected in the medium size class (n = 878). WDP = well-digested prey; Unid. Fish = unidentified fish.

Longfin squid
Northern shortfin squid
Atlantic sharpnose shark
Goosefish
Fawn cusk-eel
Ocean pout
Northern sand lance
Striped searobin
Northern searobin
Sea raven
Longhorn sculpin
Blackbelly rosefish
Acadian redfish
Spot
Weakfish
Scup
Black sea bass
Striped bass
Atlantic croaker
Bluefish
Butterfish
Atlantic mackerel
Gulf Stream flounder
Windowpane
Witch flounder
Winter flounder
Yellowtail flounder
Fourspot flounder
Summer flounder
American plaice
Atlantic halibut
Spotted hake
Red hake
White hake
Pollock
Haddock
Atlantic cod
Silver Hake
Offshore hake
American shad
Blueback herring
Alewife
Atlantic herring
Thorny skate
Smooth skate
Little skate
Rosette skate
Clearnose skate
Winter skate
Barndoor skate
Spiny dogfish
Smooth dogfish
Smooth dogfish
Spiny dogfish
Barndoor skate
Winter skate
Clearnose skate
Rosette skate
Little skate
Smooth skate
Thorny skate
Atlantic herring
Alewife
Blueback herring
American shad
Offshore hake
Silver Hake
Atlantic cod
Haddock
Pollock
White hake
Red hake
Spotted hake
Atlantic halibut
American plaice
Summer flounder
Fourspot flounder
Yellowtail flounder
Winter flounder
Witch flounder
Windowpane
Gulf Stream flounder
Atlantic mackerel
Butterfish
Bluefish
Atlantic croaker
Striped bass
Black sea bass
Scup
Weakfish
Spot
Acadian redfish
Blackbelly rosefish
Longhorn sculpin
Sea raven
Northern searobin
Striped searobin
Northern sand lance
Ocean pout
Fawn cusk-eel
Goosefish
Atlantic sharpnose shark
Northern shortfin squid
Longfin squid
Bray-Curtis Percent Similarity
80-100
60-80
40-60
20-40
0-20

Figure 226. Dietary overlap for 52 predators of the NEUS continental shelf community based on the Bray-Curtis index of similarity. Common and scientific names for the species shown include: smooth dogfish (*Mustelus canis*), spiny dogfish (*Squalus acanthias*), barndoor skate (*Dipturus laevis*), winter skate (*Leucoraja ocellata*), clearnose skate (*Raja eglanteria*), rosette skate (*Leucoraja garmani*), little skate (*Leucoraja erinacea*), smooth skate (*Malacoraja senta*), thorny skate (*Amblyraja radiata*), Atlantic herring (*Clupea harengus*), alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), American shad (*Alosa sapidissima*), offshore hake (*Merluccius albidus*), silver hake (*Merluccius bilinearis*), Atlantic cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), pollock (*Pollachius virens*), white hake (*Urophycis tenuis*), red hake (*Urophycis chuss*), spotted hake (*Urophycis regia*), Atlantic halibut (*Hippoglossus hippoglossus*), American plaice (*Hippoglossoides platessoides*), summer flounder (*Paralichthys dentatus*), fourspot flounder (*Hippoglossina oblonga*), yellowtail flounder (*Limanda ferruginea*), winter flounder (*Pseudopleuronectes americanus*), witch flounder (*Glyptocephalus cynoglossus*), windowpane flounder (*Scophthalmus aquosus*), Gulf Stream flounder (*Citharichthys arctifrons*), Atlantic mackerel (*Scomber scombrus*), butterfish (*Peprilus triacanthus*), bluefish (*Pomatomus saltatrix*), Atlantic croaker (*Micropogonias undulatus*), striped bass (*Morone saxatilis*), black sea bass (*Centropristis striata*), scup (*Stenotomus chrysops*), weakfish (*Cynoscion regalis*), spot (*Leiostomus xanthurus*), Acadian redfish (*Sebastes fasciatus*), blackbelly rosefish (*Helicolenus dactylopterus*), longhorn sculpin (*Myoxocephalus octodecemspinosus*), sea raven (*Hemitripterus americanus*), northern searobin (*Prionotus carolinus*), striped searobin (*Prionotus evolans*), northern sand lance (*Ammodytes dubius*), ocean pout (*Zoarces americanus*), fawn cusk-eel (*Lepophidium profundorum*), goosefish (*Lophius americanus*), Atlantic sharpnose shark (*Rhizoprionodon terraenovae*), northern shortfin squid (*Illex illecebrosus*), and longfin squid (*Loligo pealeii*).

APPENDIX

Table A1. Species to be sampled, and maximum lengths (cm) for sampling YOY for the major sampling regions (strata sets) during 1973-76.

Species	Mid-Atlantic Bight (Strata 61-76)	Southern New England Strata (1-12)	Georges Bank (Strata 13-23, 25)	Gulf of Maine (Strata 24, 26-30, 36-40)	Scotian Shelf (Strata 31-35, 41-49)
American plaice (*Hippoglossoides platessoides*)				7	7
Butterfish (*Peprilus triacanthus*)	13	13			
Cod, Atlantic (*Gadus morhua*)			20	20	20
Flounder, Fourspot (*Hippoglossina oblonga*)	7				
Flounder, Witch (*Glyptocephalus cynoglossus*)				7	7
Flounder, Yellowtail (*Limanda ferruginea*)		12	12		
Haddock (*Melanogrammus aeglefinus*)			20	20	20
Hake, Red (*Urophycis chuss*)		20			
Hake, Silver (*Merluccius bilinearis*)	20	20	20		
Hake, Spotted (*Urophycis regia*)	13				
Hake, White (*Urophycis tenuis*)				20	
Ocean Pout (*Zoarces americanus*)		13	13		
Pollock (*Pollachius virens*)				20	20
Redfish, Acadian (*Sebastes fasciatus*)				7	
Sculpin, Longhorn (*Myoxocephalus octodecemspinosus*)			7		
Scup (*Stenotomus chrysops*)	13	13			
Skate, Little (*Leucoraja erinacea*)		20	20		

Table A2. Offshore species to be sampled, and maximum lengths for sampling juveniles for the major sampling regions (strata sets) during 1977-80.

Species	Mid-Atlantic Bight (Strata 61-76)	Southern New England Strata (1-12)	Georges Bank (Strata 13-23, 25)	Gulf of Maine (Strata 24, 26-30, 36-40)	Scotian Shelf (Strata 31-35, 41-49)
Atlantic herring (*Clupea harengus*)				15	
Bass, Black Sea (*Centropristis striata*)	15				
Cod, Atlantic (*Gadus morhua*)		20			
Dogfish, Smooth (*Mustelus canis*)	60	60			
Dogfish, Spiny (*Squalus acanthias*)	60	60	60	60	60
Flounder, Windowpane (*Scophthalmus aquosus*)	10				
Flounder, Winter (*Pseudopleuronectes americanus*)		15	15		
Goosefish (*Lophius americanus*)		40	40	40	40
Haddock (*Melanogrammus aeglefinus*)				20	
Hake, Red (*Urophycis chuss*)			20	20	20
Hake, Silver (*Merluccius bilinearis*)				20	20
Mackerel, Atlantic (*Scomber scombrus*)			25		
Redfish, Acadian (*Sebastes fasciatus*)					7
Skate, Winter (*Leucoraja ocellata*)			50		
Squid, Longfin Inshore (*Loligo pealeii*)	15	15	15		
Squid, Northern Shortfin (*Illex illecebrosus*)	15	15	15	15	15

Table A3. Species to be sampled for inshore strata north and south of Cape Cod during 1977-80.

South of Cape Cod		**North of Cape Cod**	
Common Name	Scientific Name	Common Name	Scientific Name
All sharks, skates, and rays	Elasmobranchii	All sharks, skates, and rays	Elasmobranchii
Smooth dogfish	*Mustelus canis*	Spiny dogfish	*Squalus acanthias*
Summer flounder	*Paralichthys dentatus*	Thorny skate	*Amblyraja radiata*
Winter flounder	*Pseudopleuronectes americanus*	Atlantic wolffish	*Anarhichas lupus*
Windowpane Flounder	*Scophthalmus aquosus*	Winter flounder	*Pseudopleuronectes americanus*
Butterfish	*Peprilus triacanthus*	Witch flounder	*Glyptocephalus cynoglossus*
Scup	*Stenotomus chrysops*	Atlantic halibut	*Hippoglossus hippoglossus*
Bluefish	*Pomatomus saltatrix*	American plaice	*Hippoglossoides platessoides*
Weakfish	*Cynoscion regalis*	Cunner	*Tautogolabrus adspersus*
Black sea bass	*Centropristis striata*	Alewife	*Alosa pseudoharengus*
Spot	*Leiostomus xanthurus*	Atlantic cod	*Gadus morhua*
Atlantic croaker	*Micropogonias undulatus*	Silver hake	*Merluccius bilinearis*
Striped bass	*Morone saxatilis*	Haddock	*Melanogrammus aeglefinus*
Northern kingfish	*Menticirrhus saxatilis*	Red hake	*Urophycis chuss*
Southern kingfish	*Menticirrhus americanus*	White hake	*Urophycis tenuis*
Longfin inshore squid	*Loligo pealeii*	Northern shortfin squid	*Illex illecebrosus*

Table A4. Miscellaneous species to be sampled from specific regions and any region during 1977-1980 (A "✓" indicates that samples were collected).

Species	Mid-Atlantic Bight	Southern New England	Georges Bank	Gulf of Maine	Western Nova Scotia	Any Region
Alewife (*Alosa pseudoharengus*)						✓
All grenadiers (Macrouridae)						✓
Shad, American (*Alosa sapidissima*)						✓
Argentines (Argentinidae)				✓		
Bluefish (*Pomatomus saltatrix*)						✓
Butterfish (*Peprilus triacanthus*)			✓			
Croaker, Atlantic (*Micropogonias undulatus*)						✓
Cusk (*Brosme brosme*)				✓	✓	
Cusk-eel, Fawn (*Lepophidium profundorum*)						✓
Dory, Buckler (*Zenopsis conchifera*)						✓
Eel, American (*Anguilla rostrata*)						✓
Eel, Conger (*Conger oceanicus*)						✓
Flounder, Fourspot (*Hippoglossina oblonga*)		✓	✓			
Flounder, Gulf Stream (*Citharichthys arctifrons*)		✓	✓			
Flounder, Summer (*Paralichthys dentatus*)	✓	✓	✓			
Flounder, Windowpane (*Scophthalmus aquosus*)		✓	✓			
Flounder, Winter (*Pseudopleuronectes americanus*)				✓		
Flounder, Witch (*Glyptocephalus cynoglossus*)			✓			
Hake, Longfin (*Phycis chesteri*)						✓
Hake, Offshore (*Merluccius albidus*)						✓
Hake, White (*Urophycis tenuis*)			✓			
Halibut, Atlantic (*Hippoglossus hippoglossus*)						✓
Herring, Round (*Etrumeus teres*)						✓
Mackerel, Atlantic (*Scomber scombrus*)		✓		✓		
Mackerel, Snake (*Gempylus serpens*)						✓
Needlefish, Atlantic (*Strongylura marina*)						✓
Pollock (*Pollachius virens*)			✓			
Rays (Myliobatiformes)	✓	✓	✓	✓	✓	
Sand Lance, American (*Ammodytes americanus*)						✓
Sand Lance, Northern (*Ammodytes dubius*)			✓			
Sea raven (*Hemitripterus americanus*)			✓	✓		
Sea Robin, Armored (*Peristedion miniatum*)						✓
Sea Robin, Northern (*Prionotus carolinus*)						✓
Sea Robin, Striped (*Prionotus evolans*)						✓
Sharks (Elasmobranchii)	✓	✓	✓	✓	✓	
Skate, Thorny (*Amblyraja radiata*)			✓			
Skates (Rajiformes)	✓	✓	✓	✓	✓	
Spot (*Leiostomus xanthurus*)	✓					
Tilefish (*Lopholatilus chamaeleonticeps*)						✓
Weakfish (*Cynoscion regalis*)	✓					
Wolffish, Atlantic (*Anarhichas lupus*)			✓			
Wrymouth (*Cryptacanthodes maculatus*)						✓
Any other unusual fish obtained						✓

Table A5. Order of sampling priority, length categories, target numbers of stomachs to sample per watch, and sampling methods for species from which stomach contents were collected during 1981-1984.

Species	Length Category (cm)[a]	No. to Sample/ Watch	Sampling Method to Use
Hake, Silver (*Merluccius bilinearis*)	0-10	10	Preserve samples
	11-20	10	
	21-30	20	
	31-35	20	
	>35	20	
Cod, Atlantic (*Gadus morhua*)	0-10	5	Preserve samples
	11-30	20	
	31-50	20	
	51-70	20	
	71-90	30	
	>90	All	
Dogfish, Spiny (*Squalus acanthias*)	0-65	20	Examine at sea
	66-85	20	
	>85	20	
Flounder, Yellowtail (*Limanda ferruginea*)	0-10	5	Preserve samples
	11-20	5	
	21-30	5	
	31-40	5	
	>40	5	
Haddock (*Melanogrammus aeglefinus*)	0-25	5	Preserve samples
	26-50	5	
	>50	5	
Pollock (*Pollachius virens*)	0-15	5	Examine at sea
	16-25	5	
	26-50	5	
	51-80	5	
	>80	5	
Hake, White (*Urophycis tenuis*)	0-20	5	Examine at sea
	21-40	5	
	>40	5	
Hake, Red (*Urophycis chuss*)	0-10	5	Examine at sea
	11-20	5	
	21-30	5	
	31-35	5	
	>35	5	
Goosefish (*Lophius americanus*)	All	5	Examine at sea
Flounder, Winter (*Pseudopleuronectes americanus*)	0-15	5	Preserve samples
	16-30	5	
	31-50	5	
	>50	5	
Mackerel, Atlantic (*Scomber scombrus*)	0-20	5	Preserve samples
	21-25	5	
	26-30	5	
	>30	5	
Herring, Atlantic (*Clupea harengus*)	0-15	5	Preserve samples
	16-25	5	
	26-30	5	
	>30	5	

[a]Length categories are to be consistent with those of the Age and Growth Project.

Table A6. Priority species to have stomach contents collected at sea during 1985-91, and the minimum numbers of stomachs to sample per length category per watch.

Species	Length Category (cm)	Minimum No. to Sample
Hake, Silver (*Merluccius bilinearis*)[a]	1-20	5
	21-25	5
	26-30	10
	31-35	10
	>35	10
Cod, Atlantic (*Gadus morhua*)[a]	1-30	5
	31-50	10
	51-70	15
	71-90	15
	>90	All
Dogfish, Spiny (*Squalus acanthias*)[a]	1-65	20
	66-85	25
	>85	25
Hake, White (*Urophycis tenuis*)	1-20	5
	21-40	5
	>40	5
Pollock (*Pollachius virens*)	1-25	5
	26-50	5
	51-80	5
	>80	5
Hake, Red (*Urophycis chuss*)	1-20	5
	21-25	5
	26-30	5
	31-35	5
	>35	5
Mackerel, Atlantic (*Scomber scombrus*)	1-25	5
	26-30	5
	>30	10
Herring, Atlantic (*Clupea harengus*)	1-25	5
	26-30	5
	>30	10

[a]Highest priority species.

Table A7. Secondary species to have stomach contents collected at sea during 1985-91. of each species should be taken for each watch.).

Common Name	Scientific Name
Acadian redfish	*Sebastes fasciatus*
Little skate	*Leucoraja erinacea*
Striped bass	*Morone saxatilis*
Alewife	*Alosa pseudoharengus*
Longhorn sculpin	*Myoxocephalus octodecemspinosus*
Summer flounder	*Paralichthys dentatus*
Atlantic halibut	*Hippoglossus hippoglossus*
Scup	*Stenotomus chrysops*
Thorny skate	*Amblyraja radiata*
Bluefish	*Pomatomus saltatrix*
Sea raven	*Hemitripterus americanus*
Weakfish	*Cynoscion regalis*
Fourspot flounder	*Hippoglossina oblonga*
Smooth dogfish	*Mustelus canis*
Windowpane	*Scophthalmus aquosus*
Goosefish	*Lophius americanus*
Spotted hake	*Urophycis regia*
Winter skate	*Leucoraja ocellata*

Table A8. Species to be sampled, sampling ranges, and maximum numbers of stomachs to sample per station for 1992-93 bottom trawl surveys.

Species	Sampling Range (cm)	Bottom Trawl Survey			
		1992		1993	
		Spring	Fall	Spring	Fall
Bass, Striped (*Morone saxatilis*)	1 per 1	All	All	All	All
Bluefish (*Pomatomus saltatrix*)	1 per 1	10	10	10	10
Cod, Atlantic (*Gadus morhua*)	3 per 3	25	25	25	25
Dogfish, Smooth (*Mustelus canis*)	1 per 3	10	10	10	10
Dogfish, Spiny (*Squalus acanthias*)	1 per 3	30	30	30	30
Flounder, Fourspot (*Hippoglossina oblonga*)	1 per 1	10	10	10	10
Flounder, Summer (*Paralichthys dentatus*)	1 per 1	10	10	10	10
Flounder, Windowpane (*Scophthalmus aquosus*)	1 per 1	10	10	10	10
Goosefish (*Lophius americanus*)	1 per 1	All	All	All	All
Hake, Red (*Urophycis chuss*)	1 per 1	10	10	10	10
Hake, Silver (*Merluccius bilinearis*)	1 per 1	10	10	10	10
Hake, Spotted (*Urophycis regia*)	1 per 1	10	10	10	10
Hake, White (*Urophycis tenuis*)	3 per 3	10	10	10	10
Halibut, Atlantic (*Hippoglossus hippoglossus*)	1 per 1	All	All	All	All
Herring, Atlantic (*Clupea harengus*)	1 per 1	10	10	10	10
Mackerel, Atlantic (*Scomber scombrus*)	1 per 1	10	10	10	10
Pollock (*Pollachius virens*)	1 per 1	20	20	20	20
Sculpin, Longhorn (*Myoxocephalus octodecemspinosus*)	1 per 1	10	10	10	10
Sea raven (*Hemitripterus americanus*)	1 per 1	10	10	10	10
Skate, Little (*Leucoraja erinacea*)	1 per 2	10	10	10	10
Skate, Thorny (*Amblyraja radiata*)	1 per 2	10	10	10	10
Skate, Winter (*Leucoraja ocellata*)	1 per 2	10	10	10	10
Weakfish (*Cynoscion regalis*)	1 per 1	10	10	10	10

Table A9. Species to be sampled, sampling ranges, and priority designations for stomach sampling per station for 1994-98 bottom trawl surveys. (A "✓" indicates that samples were requested with no particular priority ranking.).

Species	Sampling Range (cm)	Bottom Trawl Survey									
		1994		1995		1996		1997		1998	
		Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Bass, Striped (*Morone saxatilis*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bluefish (*Pomatomus saltatrix*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cod, Atlantic (*Gadus morhua*)	3 per 3	✓	✓	1	1	1	1	1	1	1	5
Dogfish, Smooth (*Mustelus canis*)	1 per 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dogfish, Spiny (*Squalus acanthias*)	1 per 3	✓	✓	2	2	2	2	2	2	2	✓
Flounder, Fourspot (*Hippoglossina oblonga*)	1 per 1	✓	✓	5	5	6	5	6	5	6	4
Flounder, Summer (*Paralichthys dentatus*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Flounder, Windowpane (*Scophthalmus aquosus*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Goosefish (*Lophius americanus*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hake, Red (*Urophycis chuss*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hake, Silver (*Merluccius bilinearis*)	1 per 1	✓	✓	3	3	3	3	3	3	3	1
Hake, Spotted (*Urophycis regia*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hake, White (*Urophycis tenuis*)	3 per 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Halibut, Atlantic (*Hippoglossus hippoglossus*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Herring, Atlantic (*Clupea harengus*)	1 per 1	✓	✓	4	4	✓	4	✓	4	✓	2
Mackerel, Atlantic (*Scomber scombrus*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	3
Pollock (*Pollachius virens*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sculpin, Longhorn (*Myoxocephalus octodecemspinosus*)	1 per 1	✓	✓	✓	✓	8	✓	8	✓	8	✓
Sea raven (*Hemitripterus americanus*)	1 per 1	✓	✓	✓	✓	7	✓	7	✓	7	✓
Skate, Little (*Leucoraja erinacea*)	1 per 2	✓	✓	✓	✓	4	✓	4	✓	4	✓
Skate, Thorny (*Amblyraja radiata*)	1 per 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Skate, Winter (*Leucoraja ocellata*)	1 per 2	✓	✓	✓	✓	5	✓	5	✓	5	✓
Weakfish (*Cynoscion regalis*)	1 per 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table A10. Species to be sampled, sampling ranges, and priority designations for 1999 bottom trawl surveys

Species	Sampling Range (cm)	Priority
Bass, Black Sea (*Centropristis striata*)	1 per 5	-
Bass, Striped (*Morone saxatilis*)	1 per 5	-
Bluefish (*Pomatomus saltatrix*)	1 per 5	-
Butterfish (*Peprilus triacanthus*)	1 per 5	-
Cod, Atlantic (*Gadus morhua*)	1 per 5	-
Cunner (*Tautogolabrus adspersus*)	1 per 5	-
Cusk (*Brosme brosme*)	1 per 5	-
Cusk-eel, Fawn (*Lepophidium profundorum*)	1 per 5	-
Dogfish, Smooth (*Mustelus canis*)	1 per 10 (per sex)	-
Dogfish, Spiny (*Squalus acanthias*)	1 per 10 (per sex)	-
American plaice (*Hippoglossoides platessoides*)	1 per 5	-
Flounder, Fourspot (*Hippoglossina oblonga*)	1 per 5	-
Flounder, Summer (*Paralichthys dentatus*)	1 per 5	3
Flounder, Windowpane (*Scophthalmus aquosus*)	1 per 5	-
Flounder, Winter (*Pseudopleuronectes americanus*)	1 per 5	-
Flounder, Witch (*Glyptocephalus cynoglossus*)	1 per 5	-
Flounder, Yellowtail (*Limanda ferruginea*)[a]	1 per 5	2
Goosefish (*Lophius americanus*)	1 per 5	-
Haddock (*Melanogrammus aeglefinus*)	1 per 5	1
Hake, Offshore (*Merluccius albidus*)	1 per 5	-
Hake, Red (*Urophycis chuss*)	1 per 5	-
Hake, Silver (*Merluccius bilinearis*)	1 per 5	-
Hake, Spotted (*Urophycis regia*)	1 per 5	-
Hake, White (*Urophycis tenuis*)	1 per 5	-
Halibut, Atlantic (*Hippoglossus hippoglossus*)	1 per 5	-
Herring, Atlantic (*Clupea harengus*)	1 per 5	7
Herring, blueback (*Alosa aestivalis*)	1 per 5	-
Mackerel, Atlantic (*Scomber scombrus*)	1 per 5	8
Ocean pout (*Zoarces americanus*)	1 per 5	5
Pollock (*Pollachius virens*)	1 per 5	-
Redfish, Acadian (*Sebastes fasciatus*)	1 per 5	-
Rosefish, blackbelly (*Helicolenus dactylopterus)*	1 per 5	-
Salmon, Atlantic (*Salmo salar*)	1 per 5	-
Sculpin, Longhorn (*Myoxocephalus octodecemspinosus*)	1 per 5	4
Scup (*Stenotomus chrysops*)	1 per 5	-
Sea raven (*Hemitripterus americanus*)	1 per 5	-
Shad, American (*Alosa sapidissima*)	1 per 5	-
Shad, hickory (*Alosa mediocris*)	1 per 5	-
Skate, Little (*Leucoraja erinacea*)	1 per 10	-
Skate, rosette (*Leucoraja garmani*)	1 per 10	-
Skate, smooth (*Malacoraja senta*)	1 per 10	-
Skate, Thorny (*Amblyraja radiata*)	1 per 10	-
Skate, Winter (*Leucoraja ocellata*)	1 per 10	-
Spot (*Leiostomus xanthurus*)	1 per 5	-
Tautog (*Tautoga onitis*)	1 per 5	-
Weakfish (*Cynoscion regalis*)	1 per 5	-
Wolffish, Atlantic (*Anarhichas lupus*)	1 per 5	6

[a]Sample ALL yellowtail flounder from Strata 5, 6, 9, and 10. Continue to sample one fish per 5-cm length interval in all other strata

Table A11. Species to be sampled, sampling ranges, and priority designations for 2000-02 bottom trawl surveys

Species	Sampling Range (cm)	Priority
Bass, Black Sea (*Centropristis striata*)	1 per 5	-
Bass, Striped (*Morone saxatilis*)	1 per 1	-
Bluefish (*Pomatomus saltatrix*)	1 per 5	-
Butterfish (*Peprilus triacanthus*)	1 per 5	-
Cod, Atlantic (*Gadus morhua*)	1 per 10	-
Cunner (*Tautogolabrus adspersus*)	1 per 5	-
Cusk (*Brosme brosme*)	1 per 1	-
Cusk-eel, Fawn (*Lepophidium profundorum*)	1 per 5	-
Dogfish, Smooth (*Mustelus canis*)	1 per 10	-
Dogfish, Spiny (*Squalus acanthias*)	1 per 20	-
American plaice (*Hippoglossoides platessoides*)	1 per 2	-
Flounder, Fourspot (*Hippoglossina oblonga*)	1 per 5	-
Flounder, Summer (*Paralichthys dentatus*)	1 per 5	-
Flounder, Windowpane (*Scophthalmus aquosus*)	1 per 2	-
Flounder, Winter (*Pseudopleuronectes americanus*)	1 per 2	2
Flounder, Witch (*Glyptocephalus cynoglossus*)	1 per 2	-
Flounder, Yellowtail (*Limanda ferruginea*)[a]	1 per 2	1
Goosefish (*Lophius americanus*)	1 per 10	-
Haddock (*Melanogrammus aeglefinus*)	1 per 5	3
Hake, Offshore (*Merluccius albidus*)	1 per 1	-
Hake, Red (*Urophycis chuss*)	1 per 5	-
Hake, Silver (*Merluccius bilinearis*)	1 per 5	-
Hake, Spotted (*Urophycis regia*)	1 per 5	-
Hake, White (*Urophycis tenuis*)	1 per 10	-
Halibut, Atlantic (*Hippoglossus hippoglossus*)	1 per 1	-
Herring, Atlantic (*Clupea harengus*)	1 per 5	7
Herring, blueback (*Alosa aestivalis*)	1 per 5	-
Mackerel, Atlantic (*Scomber scombrus*)	1 per 5	8
Ocean pout (*Zoarces americanus*)	1 per 5	5
Pollock (*Pollachius virens*)	1 per 5	-
Redfish, Acadian (*Sebastes fasciatus*)	1 per 5	-
Rosefish, blackbelly (*Helicolenus dactylopterus)*	1 per 5	-
Salmon, Atlantic (*Salmo salar*)	1 per 1	-
Sculpin, Longhorn (*Myoxocephalus octodecemspinosus*)	1 per 5	4
Scup (*Stenotomus chrysops*)	1 per 5	-
Sea raven (*Hemitripterus americanus*)	1 per 5	-
Shad, American (*Alosa sapidissima*)	1 per 5	-
Shad, hickory (*Alosa mediocris*)	1 per 5	-
Skate, Little (*Leucoraja erinacea*)	1 per 10	-
Skate, rosette (*Leucoraja garmani*)	1 per 5	-
Skate, smooth (*Malacoraja senta*)	1 per 5	-
Skate, Thorny (*Amblyraja radiata*)	1 per 10	-
Skate, Winter (*Leucoraja ocellata*)	1 per 20	-
Spot (*Leiostomus xanthurus*)	1 per 5	-
Tautog (*Tautoga onitis*)	1 per 5	-
Weakfish (*Cynoscion regalis*)	1 per 5	-
Wolffish, Atlantic (*Anarhichas lupus*)	1 per 1	6

Table A12. Species to be sampled, sampling ranges, and priority designations for 2003-05 bottom trawl surveys

Species	Sampling Range (cm)	Priority
Bass, Black Sea (*Centropristis striata*)	1 per 5	-
Bass, Striped (*Morone saxatilis*)	1 per 1	-
Bluefish (*Pomatomus saltatrix*)	1 per 5	-
Butterfish (*Peprilus triacanthus*)	1 per 5	-
Cod, Atlantic (*Gadus morhua*)	1 per 10	3
Croaker, Atlantic (*Micropogonias undulatus*)	1 per 5	-
Cunner (*Tautogolabrus adspersus*)[a]	1 per 5	-
Cusk (*Brosme brosme*)	1 per 1	-
Cusk-eel, Fawn (*Lepophidium profundorum*)[a]	1 per 5	-
Dogfish, Smooth (*Mustelus canis*)	1 per 10 (per sex)	-
Dogfish, Spiny (*Squalus acanthias*)	1 per 20 (per sex)	-
Dory, Buckler (*Zenopsis conchifera*)	1 per 5	-
Eel, Conger (*Conger oceanicus*)	1 per 5	-
American plaice (*Hippoglossoides platessoides*)	1 per 2	-
Flounder, Fourspot (*Hippoglossina oblonga*)	1 per 5	3
Flounder, Gulf Stream (*Citharichthys arctifrons*)	1 per 5	-
Flounder, Summer (*Paralichthys dentatus*)	1 per 5	3
Flounder, Windowpane (*Scophthalmus aquosus*)	1 per 2	-
Flounder, Winter (*Pseudopleuronectes americanus*)	1 per 2	6
Flounder, Witch (*Glyptocephalus cynoglossus*)	1 per 2	-
Flounder, Yellowtail (*Limanda ferruginea*)[a]	1 per 2	6
Goosefish (*Lophius americanus*)	1 per 10	1
Haddock (*Melanogrammus aeglefinus*)	1 per 5	4
Hake, Offshore (*Merluccius albidus*)	1 per 1	3
Hake, Red (*Urophycis chuss*)	1 per 5	-
Hake, Silver (*Merluccius bilinearis*)	1 per 5	2
Hake, Spotted (*Urophycis regia*)	1 per 5	-
Hake, White (*Urophycis tenuis*)	1 per 10	-
Halibut, Atlantic (*Hippoglossus hippoglossus*)	1 per 1	-
Herring, Atlantic (*Clupea harengus*)	1 per 5	7
Herring, blueback (*Alosa aestivalis*)	1 per 5	-
Lanternfish (Myctophidae)[b]	1 per 1	-
Mackerel, Atlantic (*Scomber scombrus*)	1 per 5	7
Ocean pout (*Zoarces americanus*)	1 per 5	-
Pollock (*Pollachius virens*)	1 per 5	2
Redfish, Acadian (*Sebastes fasciatus*)	1 per 5	-
Rosefish, blackbelly (*Helicolenus dactylopterus)*	1 per 5	-
Salmon, Atlantic (*Salmo salar*)	1 per 1	-
Sculpin, Longhorn (*Myoxocephalus octodecemspinosus*)	1 per 5	5
Scup (*Stenotomus chrysops*)	1 per 5	-
Sea raven (*Hemitripterus americanus*)	1 per 5	1
Sea Robin, Armored (*Peristedion miniatum*)	1 per 5	-
Sea Robin, Northern (*Prionotus carolinus*)	1 per 5	-
Sea Robin, Striped (*Prionotus evolans*)	1 per 5	-
Shad, American (*Alosa sapidissima*)	1 per 5	-
Shad, hickory (*Alosa mediocris*)	1 per 5	-
Skate, Little (*Leucoraja erinacea*)	1 per 10	-
Skate, rosette (*Leucoraja garmani*)	1 per 5	-
Skate, smooth (*Malacoraja senta*)	1 per 5	-
Skate, Thorny (*Amblyraja radiata*)	1 per 10	-
Skate, Winter (*Leucoraja ocellata*)	1 per 20	-
Spot (*Leiostomus xanthurus*)	1 per 5	-
Tautog (*Tautoga onitis*)	1 per 5	-
Tilefish (*Lopholatilus chamaeleonticeps*)	1 per 5	-
Weakfish (*Cynoscion regalis*)	1 per 5	-
Wolffish, Atlantic (*Anarhichas lupus*)	1 per 1	-

[a]Preserve stomach.

[b]Preserve entire animal.

Table A13. Species to be sampled, sampling ranges, and priority designations for 2006-08 bottom trawl surveys

Common Name	Sampling Range (cm)	Priority
Bass, Black Sea (*Centropristis striata*)	1 per 5	-
Bass, Striped (*Morone saxatilis*)	1 per 1	-
Bluefish (*Pomatomus saltatrix*)	1 per 5	-
Butterfish (*Peprilus triacanthus*)	1 per 5	-
Cod, Atlantic (*Gadus morhua*)	1 per 10	5
Croaker, Atlantic (*Micropogonias undulatus*)	1 per 5	-
Cunner (*Tautogolabrus adspersus*)[a]	1 per 2	-
Cusk (*Brosme brosme*)	1 per 1	3
Cusk-eel, Fawn (*Lepophidium profundorum*)[a]	1 per 2	-
Dogfish, Smooth (*Mustelus canis*)	1 per 20 (per sex)	-
Dogfish, Spiny (*Squalus acanthias*)	1 per 30 (per sex)	-
Dory, Buckler (*Zenopsis conchifera*)	1 per 5	-
Eel, Conger (*Conger oceanicus*)	1 per 10	-
American plaice (*Hippoglossoides platessoides*)	1 per 5	-
Flounder, Fourspot (*Hippoglossina oblonga*)	1 per 10	6
Flounder, Gulf Stream (*Citharichthys arctifrons*)	1 per 2	-
Flounder, Summer (*Paralichthys dentatus*)	1 per 10	6
Flounder, Windowpane (*Scophthalmus aquosus*)	1 per 2	-
Flounder, Winter (*Pseudopleuronectes americanus*)	1 per 5	4
Flounder, Witch (*Glyptocephalus cynoglossus*)	1 per 2	-
Flounder, Yellowtail (*Limanda ferruginea*)[a]	1 per 5	4
Rockling, Fourbeard (*Enchelyopus cimbrius*)[a]	1 per 2	-
Goosefish (*Lophius americanus*)	1 per 20	-
Haddock (*Melanogrammus aeglefinus*)	1 per 5	1
Hake, Offshore (*Merluccius albidus*)	1 per 1	2
Hake, Red (*Urophycis chuss*)	1 per 5	-
Hake, Silver (*Merluccius bilinearis*)	1 per 5	5
Hake, Spotted (*Urophycis regia*)	1 per 5	-
Hake, White (*Urophycis tenuis*)	1 per 10	-
Halibut, Atlantic (*Hippoglossus hippoglossus*)	1 per 1	-
Herring, Atlantic (*Clupea harengus*)	1 per 5	7
Herring, blueback (*Alosa aestivalis*)	1 per 5	-
Kingfish, northern (*Menticirrhus saxatilis*)	1 per 5	-
Lanternfish (Myctophidae)[b]	1 per 1	-
Mackerel, Atlantic (*Scomber scombrus*)	1 per 5	7
Menhaden (*Brevoortia tyrannus*)	1 per 5	-
Ocean pout (*Zoarces americanus*)	1 per 5	-
Pollock (*Pollachius virens*)	1 per 10	2
Redfish, Acadian (*Sebastes fasciatus*)	1 per 5	-
Rosefish, blackbelly (*Helicolenus dactylopterus)*	1 per 5	-
Salmon, Atlantic (*Salmo salar*)	1 per 1	-
Sculpin, Longhorn (*Myoxocephalus octodecemspinosus*)	1 per 5	-
Scup (*Stenotomus chrysops*)	1 per 5	-
Sea raven (*Hemitripterus americanus*)	1 per 5	-
Sea Robin, Armored (*Peristedion miniatum*)	1 per 5	-
Sea Robin, Northern (*Prionotus carolinus*)	1 per 5	-
Sea Robin, Striped (*Prionotus evolans*)	1 per 5	-
Shad, American (*Alosa sapidissima*)	1 per 5	-
Shad, hickory (*Alosa mediocris*)	1 per 5	-
Skate, barndoor (*Dipturus laevis*)	1 per 10	3
Skate, clearnose (*Raja eglanteria*)	1 per 5	-
Skate, Little (*Leucoraja erinacea*)	1 per 10	-
Skate, rosette (*Leucoraja garmani*)	1 per 5	-
Skate, smooth (*Malacoraja senta*)	1 per 5	-
Skate, Thorny (*Amblyraja radiata*)	1 per 10	-
Skate, Winter (*Leucoraja ocellata*)	1 per 30	-
Spot (*Leiostomus xanthurus*)	1 per 5	-
Tautog (*Tautoga onitis*)[a]	1 per 2	-
Tilefish (*Lopholatilus chamaeleonticeps*)	1 per 2	-
Weakfish (*Cynoscion regalis*)	1 per 5	-
Wolffish, Atlantic (*Anarhichas lupus*)	1 per 1	-

[a]Preserve stomach.

[b]Preserve entire animal.

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