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Groundfish Food Habits and Predation on Commercially Important Prey Species in the Eastern Bering Sea From 1997 Through 2001

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U.S. DEPARTMENT OF COMMERCE
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EXECUTIVE SUMMARY

This document summarizes groundfish predation on commercially important stocks of fish and crab on the eastern Bering Sea continental shelf from 1997 through 2001. The amount of predation is calculated using estimates of predator biomass, daily ration, and the proportion of various prey categories in the stomach contents. Estimates are presented in terms of number and biomass of prey consumed during the main sampling period of May through September of each year.

Predator and Prey Species

The following groundfish predators are included in this report because they are dominant members of the eastern Bering Sea shelf fish fauna that consume the following prey:

Groundfish predators	Commercially important prey
Walleye pollock	Walleye pollock
Pacific cod	Pacific cod
Yellowfin sole	Yellowfin sole
Greenland turbot	Greenland turbot
Arrowtooth flounder	Arrowtooth flounder
Flathead sole	Flathead sole
Pacific halibut	Northern rock sole
Alaska plaice	Pacific halibut
Northern rock sole	Pacific herring
Skates	King crabs
	Snow crab
	Tanner crab
	Capelin

Total Groundfish Consumption Estimates

The total amount (metric tons) of each prey estimated to have been consumed from May through September for 1984 through 2001 is presented in Tables 1 and 2. These estimates are the sum of the consumption by each predator species. Unlike some previous reports, the estimated consumption of walleye pollock (*Theragra*

chalcogramma) does not include cannibalism for the period October through December due to low sample sizes. Biomass consumed was converted to the number consumed using available prey size information. When prey size information was lacking (e.g., Alaska plaice; Table 2) or incomplete for a predator, the number consumed is an underestimate and is shown in parentheses.

Estimated numbers-at-age of snow crab (*Chionoecetes opilio*), Tanner crab (*C. bairdi*), and walleye pollock consumed by groundfish predators are presented in Tables 3-5 and Figures 1-3. Relative to the 1993-1996 reporting period, total numbers of age-0 snow crab consumed were generally greater from 1997 through 2001; however, age-1 consumption was less than previous years. Consumption of age-0 Tanner crab was somewhat larger while consumption of older age-groups was smaller than in the 1993-1996 report. Age-0 walleye pollock consumption was low relative to the 1993-1996 period, possibly indicating low recruitment. Consumption of age-0 walleye pollock was highest in 2001.

Table 1.--Estimated total biomass (metric tons) by year of commercially important prey consumed by groundfish from May through September in the eastern Bering Sea. Consumption of walleye pollock includes cannibalism estimates for 1985-96.

	Year								
Prey	1984	1985	1986	1987	1988	1989	1990	1991	1992
King crabs	2,684	1,136	2,867	845	568	1,935	348	8	1,035
Snow crab (*Chionoecetes opilio*)	98,818	132,467	149,078	151,242	62,173	129,343	149,049	139,349	102,086
Tanner crab (*Chionoecetes bairdi*)	63,189	89,991	48,822	107,134	55,825	88,520	63,432	40,179	36,516
Pacific cod	13,430	9,978	9,302	8,881	1,330	7,762	42,534	3,075	4,123
Walleye pollock	314,783*	1,443,121	1,158,022	697,131	706,000	745,825	1,813,469	852,814	926,936
Pacific herring	0	19,322	44,440	12,286	5,440	79	16,410	10,674	3,600
Atka mackerel	0	0	0	1,650	0	0	3,187	0	0
Arrowtooth flounder	4,327	15,436	781	13,761	0	464	832	1,164	10,551
Flathead sole	9,787	5,929	13,993	1,965	1,454	25,718	7,325	3,260	12,312
Rock sole	8,020	20,843	38,804	18,552	5,156	15,283	6,309	10,677	36,038
Yellowfin sole	56,291	28,359	42,330	17,394	9,671	7,190	5,203	5,394	6,391
Greenland turbot	3,919	0	0	0	16	17,635	12,922	635	2,559
Pacific halibut	89	0	0	0	185	0	0	68	1,481
Alaska plaice	0	0	0	0	0	13	0	0	557

* Walleye pollock cannibalism estimate was not available for 1984.

Table 1.--Continued.

Prey	Year 1993	1994	1995	1996	1997	1998	1999	2000	2001
King crabs	2,066	5,126	6,286	5,025	2,111	1,515	3,475	1,588	75
Snow crab (*Chionoecetes opilio*)	170,588	268,499	243,405	252,082	166,404	81,253	69,433	144,612	172,338
Tanner crab (*Chionoecetes bairdi*)	257,256	62,987	84,696	78,773	79,500	91,664	75,040	33,436	48,657
Pacific cod	9,835	30,190	15,319	7,563	6,142	4,522	4,894	1,337	13,463
Walleye pollock	1,315,784	1,745,306	2,293,032	2,087,906	1,048,302	516,284	711,000	512,646	586,279
Pacific herring	124	2,353	8,369	3,248	29	4,5810	51,046	19,309	15,319
Atka mackerel	0	0	0	0	0	0	0	0	38
Arrowtooth flounder	5,837	1,601	7,682	8,508	2,248	0	729	1,647	3,740
Flathead sole	18,542	26,428	4,795	37,492	9,039	2,171	2,747	4,716	14,719
Rock sole	74,572	40,289	38,340	37,293	14,476	4,418	13,363	26,764	9,820
Yellowfin sole	15,871	23,538	28,979	3,236	21,323	6,109	4,906	5,798	12,033
Greenland turbot	15,360	286	5	1,442	9,468	13	462		
Pacific halibut	1,126	2,189	14	59	105			1,303	39
Alaska plaice	45	574	0	0					3

Table 2.--Estimated number (millions) by year of commercially important prey consumed by groundfish from May through September in the eastern Bering Sea. Values in parentheses indicate underestimates due to missing prey size data. Consumption of walleye pollock includes cannibalism estimates for 1985-2001.

	Year								
Prey	1984	1985	1986	1987	1988	1989	1990	1991	1992
King crabs	(35,566)[a]	(2)	(5)	(1)	8	(3)	(0)	(1)	1
Snow crab (*Chionoecetes opilio*)	(30,921)	12,235	13,042	(10,666)	11,870	(20,805)	67,938	(34,941)	(38,042)
Tanner crab (*Chionoecetes bairdi*)	(152,850)	(13,926)	9,898	42,632	14,659	(27,244)	20,514	18,512	(6,614)
Pacific cod	(1,124)	3,263	(76)	8,194	2	(75)	(6,772)	(61)	(29)
Walleye pollock	(47,832)[b]	(664,467)	(160,511)	91,049	56,858	554,766	(228,351)	(31,119)	(48,062)
Pacific herring	0	(303)	(554)	(23)	140	(1)	(909)	71	(0)
Atka mackerel	0	0	0	8	0	0	(0)	0	0
Arrowtooth flounder	1,920	(3)	(40)	3,791	0	(101)	174	13	(25,874)
Flathead sole	363	2,128	381	210	761	(4,292)	(4,623)	146	(261)
Rock sole	23,611	5,514	1,688	1,531	(5,809)	1,694	975	(1,035)	(709)
Yellowfin sole	480	313	651	63,767	(87)	16,909	78	48	(118)
Greenland turbot	81,721	0	0	0	17	(30,328)	34,128	1,278	17,215
Pacific halibut	728	0	0	0	665	0	0	507	(2,093)
Alaska plaice	0	0	0	0	0	9	0	0	(0)

Table 2.--Continued.

	Year								
Prey	1993	1994	1995	1996	1997	1998	1999	2000	2001
King crabs	(0)	(513)	(1)	(0)	(2)	(0)	(0)	(0)	
Snow crab (*Chionoecetes opilio*)	(21,085)	20,169	(99,400)	(17595)	38,779	27,027	11,993	10,963	4,180
Tanner crab (*Chionoecetes bairdi*)	18,842	9,680	(6,495)	6,563	55,107	(8,498)	12,708	30,764	12,669
Pacific cod	6,516	(1,327)	(27)	(270)	45	167	6	(29)	(63)
Walleye pollock	284,406	770,195	386,085	650,679	(259,764)	28,227	(75,629)	65,590	95,210
Pacific herring	8	74	(271)	25	(0)	(1)	(1,123)	(339)	(219)
Atka mackerel	0	0	0	0					(0)
Arrowtooth flounder	(90)	25	84	2,768	41		57	(24)	57
Flathead sole	2,452	542	454	194,859	1,166	143	116	132	78
Rock sole	17,117	256,594	816	20,343	1,756	81,044	175	136,785	393
Yellowfin sole	172	513	428	302	217	83	46	64	181
Greenland turbot	88,186	1,075	11	9,138	(14,176)	30	2,341		
Pacific halibut	1,695	(0)	30	1,585	1,421			42	105
Alaska plaice	(0)	(7,146)	(0)	0					2

[a] Most king crab consumed in 1984 were blue king crab megalops larvae. [b]Walleye pollock cannibalism estimate was not available for 1984.

Table 3.--Estimated number (millions) of snow crab, *Chionoecetes opilio*, consumed by age by groundfish from May through September in the eastern Bering Sea.

	Year											
Age	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
-	-	-	-	-	312.07	-	2,386.71	12,414.24	3,474.40	21.00	-	777.00
1	28,596.70	7,001.20	5,880.00	5,293.27	10,016.68	17,238.94	7,486.98	5,843.12	2,980.90	17,026.00	13,746.00	94,862.00
2	1,700.50	4,385.50	6,464.40	2,808.65	920.02	2,530.76	499.14	151.02	63.38	2,520.00	3,388.00	1,191.00
3	559.10	792.00	655.90	1,513.75	530.21	925.31	90.36	96.84	33.56	1,322.00	2,810.00	2,292.00
4	64.60	56.20	41.50	16.23	68.96	102.14	47.76	6.46	42.83	137.00	181.00	239.00
5	-	-	-	9.02	-	4.14	3.54	-	19.23	50.00	63.00	38.00
6	-	-	-	13.20	-	4.14	-	-	-	10.00	-	24.00

	Year					
Age	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
-	-	14,902	378	8,460	19,579	126
1	11,816.00	35,847	5,281	1,715	6,718	6,950
2	2,653.00	3,036	2,235	1,849	3,571	6,009
3	3,008.00	1,294	574	664	746	2,451
4	75.00	28	30	20	116	95
5	43.00	-	-	-	10	-
6	-	-	-	-	23	-

Table 4.--Estimated number (millions) of Tanner crab, *Chionoecetes bairdi*, consumed by age by groundfish from May through September in the eastern Bering Sea.

	Year											
Age	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
-	139,312.90	5,371.70	3,370.70	27,883.16	1,074.11	18,646.08	6.83	730.54	-	744.00	4,143.00	141.00
1	13,161.40	7,693.00	6,644.70	10,637.84	13,204.82	7,925.99	62,464.29	29,376.67	34,918.99	15,413.00	4,979.00	5,476.00
2	296.30	650.50	191.10	576.12	361.90	549.16	4,737.75	4,319.00	2,596.80	2,074.00	391.00	689.00
3	87.60	197.60	6.50	98.75	11.84	82.06	637.84	457.88	432.76	474.00	138.00	167.00
4	-	12.90	-	-	2.76	32.45	91.31	52.94	78.21	64.00	26.00	22.00
5	-	-	-	-	2.76	8.05	-	3.49	13.94	54.00	4.00	-
6	-	-	-	-	-	-	-	-	1.26	18.00	-	-

	Year					
Age	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
-	469.00	16,608	4,082	2,423	4,809	80
1	5,240.00	21,915	22,236	9,309	5,816	4,184
2	591.00	240	562	230	294	673
3	263.00	16	123	19	37	42
4	-	-	24	12	6	9
5	-	0	0	0	0	0
6	-	0	0	0	0	0

Table 5.--Estimated number (millions) of walleye pollock, *Theragra chalcogramma*, consumed by age by groundfish from May through September in the eastern Bering Sea.

	Year											
Age	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
-	43,819.42	642,951.50	121,822.70	80,252.80	43,635.30	544,371.20	177,071.06	8,962.40	31,857.13	258,642.00	756,387.00	360,794.00
1	4,042.00	26,667.90	37,203.10	9,220.75	11,826.20	9,193.03	48,480.70	20,871.53	13,966.42	22,985.00	10,873.00	18,234.00
2	188.10	546.60	1,092.10	1,627.61	673.74	486.78	1,981.31	823.98	1,019.12	1,423.00	1,137.00	5,879.00
3	152.50	210.00	347.90	205.46	187.25	156.48	344.22	151.73	705.12	632.00	830.00	304.00
4	77.30	97.00	59.20	33.13	230.55	164.29	187.53	98.44	201.42	238.00	372.00	262.00
5	50.50	48.90	67.00	13.04	126.82	154.44	124.37	54.12	80.51	245.00	274.00	213.00
6+	39.70	32.00	87.10	9.50	135.65	216.17	161.53	157.27	232.43	241.00	321.00	399.00

	Year					
Age	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
-	634,703.00	233,607	22,999	60,947	58,974	160,227
1	14,153.00	24,510	4,189	13,551	5,491	26,164
2	1,005.00	738	462	351	593	1,378
3	132.00	318	105	363	344	435
4	279.00	225	146	115	105	135
5	153.00	221	161	85	17	110
6+	254.00	145	165	217	64	167

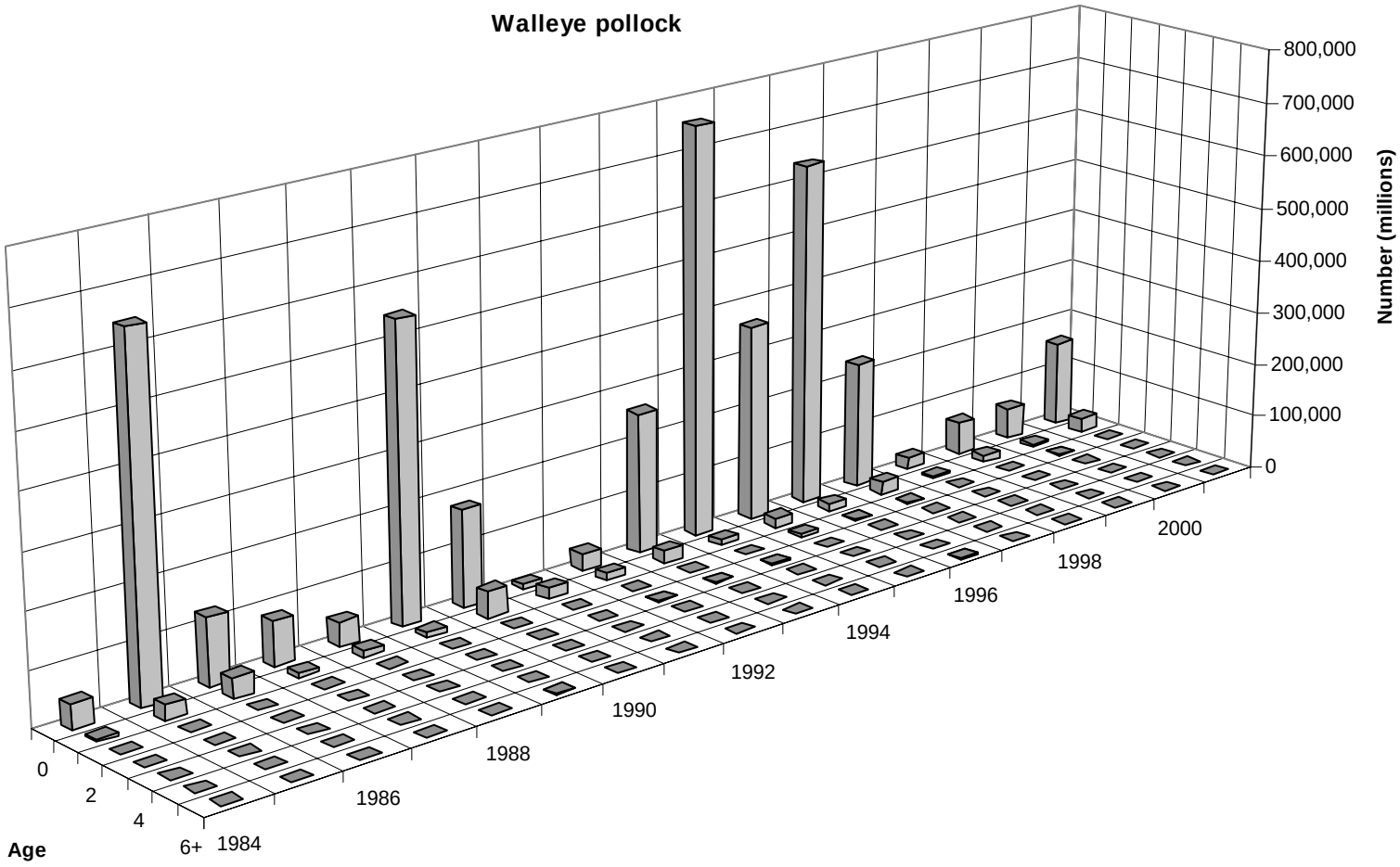

Figure 1.--Estimated number at-age of walleye pollock (*Theragra chalcogramma*) consumed by groundfish during months 5 through 9 from 1984 to 2001 in the eastern Bering Sea. (There was no cannibalism estimate for walleye pollock in 1984).

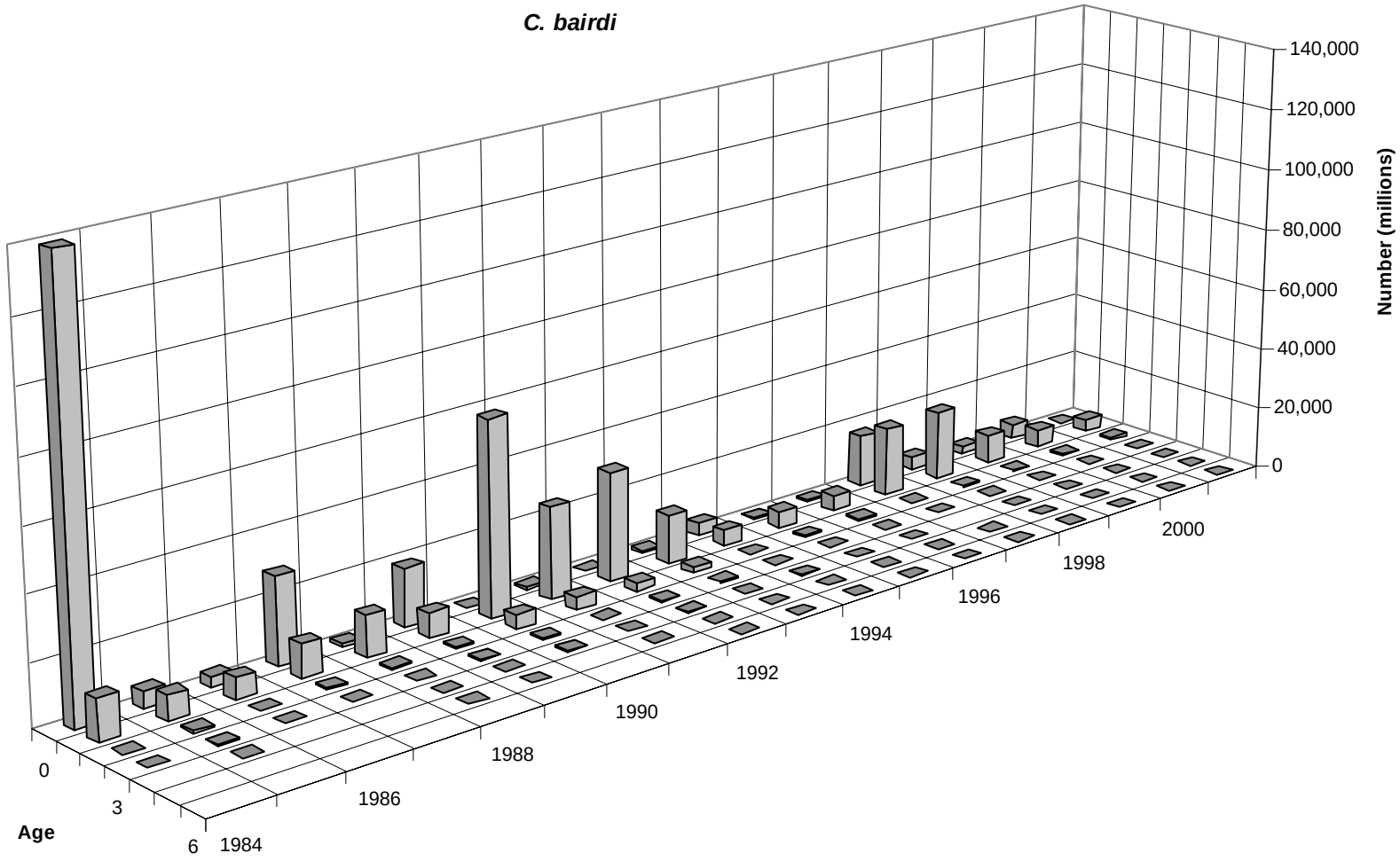

Figure 2.--Estimated number at-age of Tanner crabs (*C. bairdi*) consumed by groundfish during months 5 through 9 from 1984 to 2001 in the eastern Bering Sea.

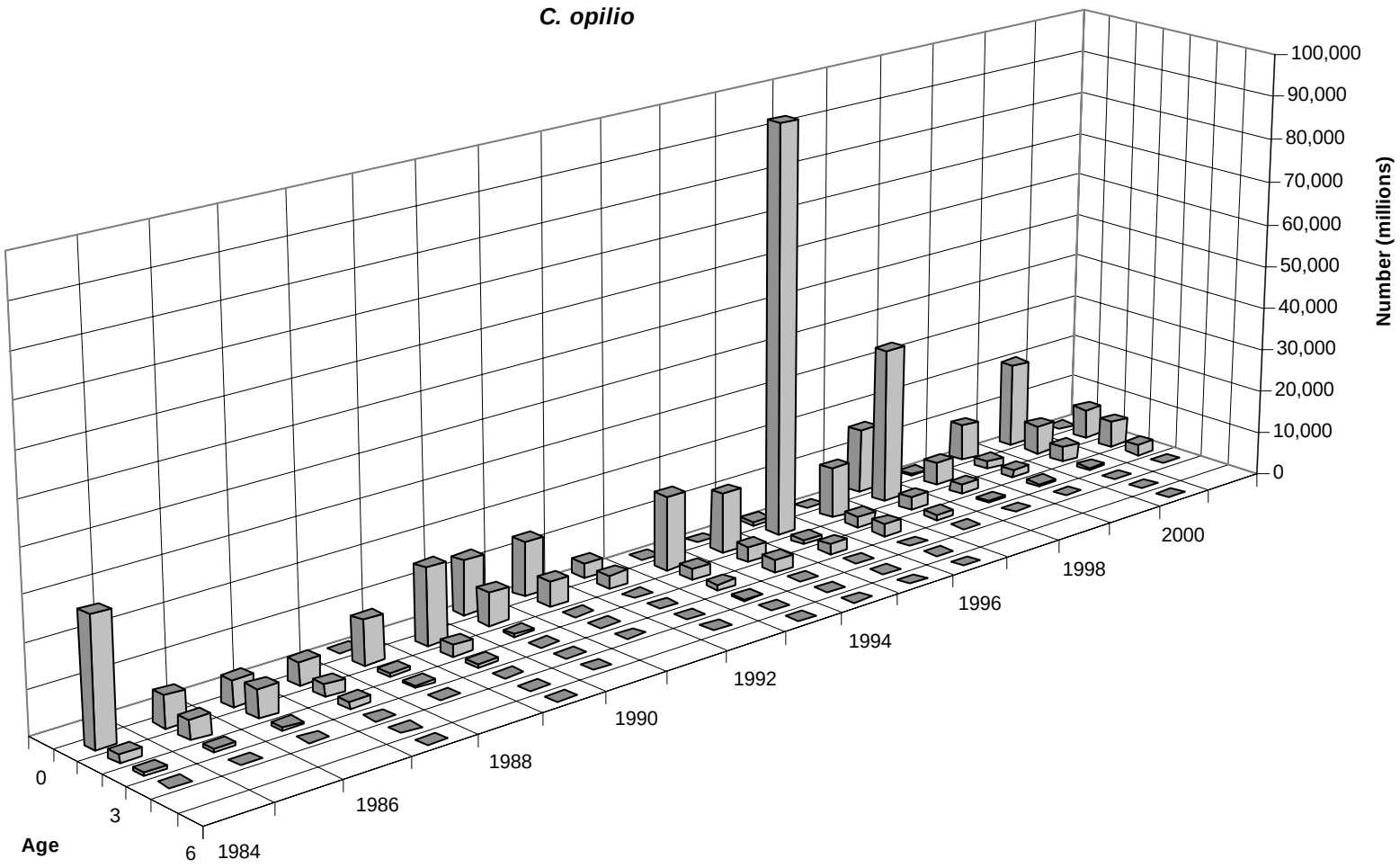

Figure 3.--Estimated number at-age of snow crabs (*C. opilio*) consumed by groundfish during months 5 through 9 from 1984 to 2001 in the eastern Bering Sea.

CONTENTS

INTRODUCTION

Many large marine fish are predators of either juvenile or small adult fish and crab. Because predation forms the largest part of natural mortality of young fish and crab, it is important to estimate the magnitude of predation loss on commercially important populations. Population models that assume constant natural mortality rates due to a lack of information on actual rates can be improved by providing more accurate estimates of predation losses. The move toward multispecies management of stocks can be helped through studying the food web connections between components of marine ecosystems, which include fish, crabs, marine mammals, and seabirds.

The primary purpose of the Resource Ecology and Ecosystem Modeling Program (REEM) of the Resource Ecology and Fisheries Management Division (REFM) at the Alaska Fisheries Science Center (AFSC) is to study the consumption of commercially important fish or crab by key fish predators in the eastern Bering Sea. These fish and the prey they consume are commercially important species that form a major part of the biomass in the eastern Bering Sea. Program objectives include providing impact assessments relating to fish predation effects on prey species populations, improving population model estimates of predation mortality by marine fish, and detecting possible changes in abundance and distribution of juvenile fish and crab populations.

This report presents the progress of the REEM Program in analyzing available data from 1997 through 2001 on the predation of commercially important fish and crab species. The first section details the methods used to estimate the total biomass and numbers of prey consumed by the major groundfish species in the area. The second section summarizes the consumption of commercially important prey by all the major predators. Appendices summarize the diet and total prey consumption by the following predators: walleye pollock, Pacific cod (*Gadus macrocephalus*), yellowfin sole (*Limanda aspera*), flathead sole (*Hippoglossoides elassodon*), northern rock sole (*Lepidopsetta polyxystra)*, Alaska plaice (*Pleuronectes quadrituberculatus*), Greenland turbot (*Reinhardtius hippoglossoides*), arrowtooth flounder (*Atheresthes stomias*), Pacific halibut (*Hippoglossus stenolepis*), and skates (Rajidae). This is the fifth in a series of reports (Livingston 1991; Livingston et al. 1993; Livingston and deReynier 1996, Lang et al. 2003) detailing the diets and consumption estimates of commercially important groundfish in the eastern Bering Sea.

METHODS

Sample Collection and Laboratory Analysis

Stomachs were collected from major groundfish species during 1997, 1998, 1999, 2000, and 2001 in the eastern Bering Sea (Fig. 4). Samples were collected from fish taken primarily during May through September using bottom and pelagic trawl gear on research and commercial fishing vessels. Sampling occurred throughout the day, although most sampling occurred between 0600 and 2000 ADT. For all species, stomachs were removed at sea and placed in cloth bags labeled with information regarding the location of capture, fork length, sex, and spawning condition of the fish. Fish showing evidence of regurgitation (i.e., food in the mouth or throat or a flaccid stomach) were not included in the sample. Stomachs were preserved in 10% buffered formalin and later transferred to 70% ethyl alcohol. Prey fish and crab were identified to the lowest taxonomic level possible and enumerated. Wet weights were recorded after the contents were blotted with paper towels. Standard length (SL) measurements of prey fish and carapace width (CW) or length (CL) of crab prey were determined when possible.

The prey category "offal" was used if the ingested item had obviously been discarded from a fish processor (i.e., a consumed fish head sliced off with a clean diagonal cut).

Data Analysis

Prey Consumption by Predator Populations

Estimates of the total biomass of each prey species consumed by the continental shelf portion of each groundfish population were calculated according to

$$C_i = DR_i \times D \times B_i \times P_i \,, \qquad \text{Eq. (1)}$$

where C_i is the consumption (by weight) of a prey species by size group i of a predator species, DR_i is the daily ration (as a proportion of body weight daily) of predator size group i, D is the number of days in the sampling period when the prey species was vulnerable to predation, B_i is the biomass of the predator size group i, and P_i is the proportion by weight of the prey species in the diet of predator size group i.

Total consumption estimates (Equation 1) were computed for each major eastern Bering Sea stratum (Fig. 4). These strata were devised by the Resource Assessment and Conservation Engineering (RACE) Division of the AFSC to reflect, in general, natural boundaries based on bottom depth. Strata 1 and 2 are considered the inner continental shelf (< 50 m), strata 3 and 4 are the middle shelf (50-100 m), and strata 5 and 6 are the outer shelf zones (100-200 m).

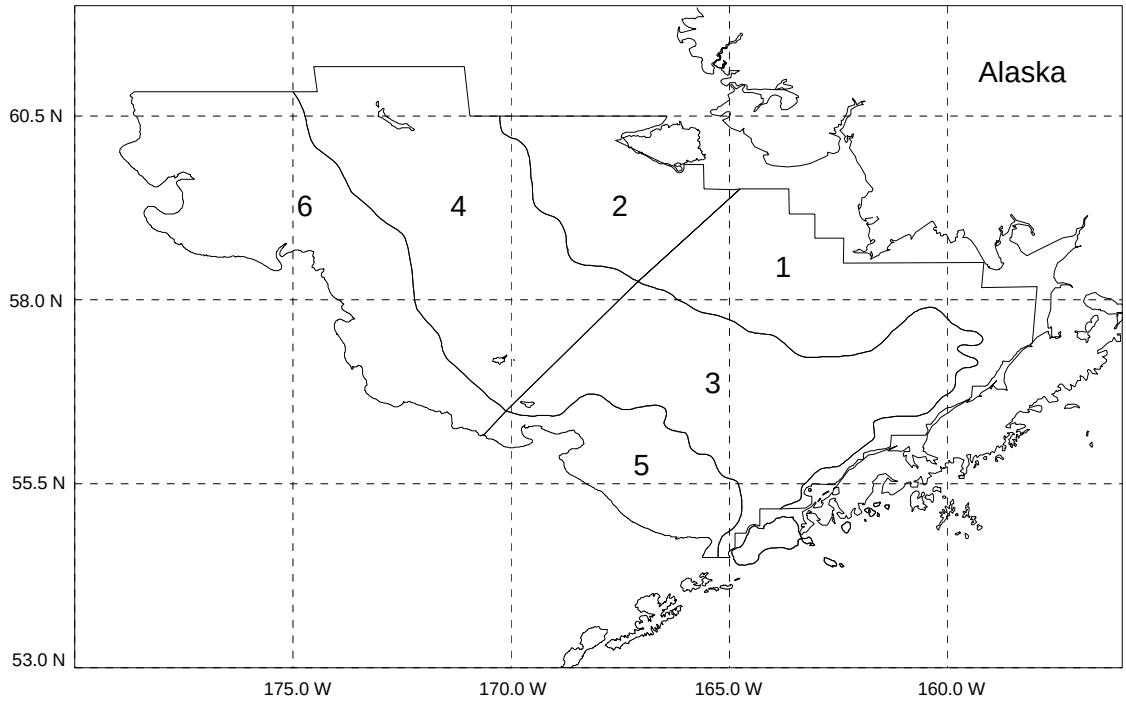

Figure 4.--Map of the eastern Bering Sea showing strata used in this report.

Predator size groupings used for total consumption estimates were based on size groupings used previously (Livingston et al. 1986, Livingston 1991, Livingston et al. 1993, Lang et al. 2003) and on knowledge of each predator's diet. If consumption of commercially important prey groups differed among predator sizes, then predator size groups were chosen to minimize such consumption differences within a size group.

Daily ration (DR) estimates were derived using some basic bioenergetic considerations as an alternative to using rations estimated from gastric evacuation rate models and field-estimated stomach content weights. As Livingston et al. (1986) found, estimates derived from gastric evacuation rate models tend to be lower than expected based on known annual growth patterns of eastern Bering Sea species. Part of the

problem with rations estimated in this fashion may be due to undetected regurgitation of stomach contents from field collections. It is believed that more realistic rations can be derived using bioenergetic variables such as annual growth increments and food conversion efficiency estimates; thus, that is the approach used here. Daily growth in weight of each species size group was estimated from annual growth increments by length and length-weight relationships for each species. A gross conversion efficiency rate of food to somatic tissue for juvenile fish was assumed to be 25% and for adult fish was assumed to be 10% based on estimates presented by Brett and Groves (1979). Daily growth increments could thus be converted to the amount of food required to produce that growth. When the daily food requirements are divided by mean fish weight, the result is daily ration expressed as a fraction of body weight. Daily rations of each species by size group used were:

Predator	Predator size (cm)	Daily ration
Pacific cod	<30	0.012
	30-59	0.009
	≥60	0.007
Walleye pollock	<30	0.011
	30-39	0.011
	40-49	0.008
	≥50	0.004
Greenland turbot	<30	0.011
	30-49	0.013
	≥50	0.005
Arrowtooth flounder	<20	0.009
	20-39	0.009
	≥40	0.007
Pacific halibut	<30	0.014
	30-59	0.010
	≥60	0.004
Flathead sole	all sizes	0.007
Yellowfin sole	all sizes	0.004
Alaska plaice	all sizes	0.005
Northern rock sole	all sizes	0.007
Skates	all sizes	0.007

The time period of analysis (D) for total consumption estimates by all predator species was May through September, or 153 days. The analysis was restricted to this time period because most stomach samples were collected during this period and survey estimates of groundfish biomass were obtained at this time. Insufficient numbers of stomach samples were taken in each stratum and unquantified migrations of fish into different strata occur outside of this time period. Thus, total consumption estimates made outside of this time period would not be reliable. Since May through September probably represent most of the main feeding and growth period for groundfish in the eastern Bering Sea, these total consumption estimates can be considered conservative estimates of total annual predation removals by these groundfish populations.

Total consumption estimates of king crabs (family Lithodidae) by Pacific cod were restricted to a 31-day period during May through September when it is most likely that soft-shell (newly molted) king crabs were available.Total consumption estimates for walleye pollock cannibalism were restricted to the period between May and September for 1997 through 2001.

Predator biomass estimates (B) (listed in Appendix F) for flathead sole, rock sole, Alaska plaice, Greenland turbot, arrowtooth flounder, yellowfin sole, Pacific halibut, and skates were obtained from RACE Division bottom trawl survey data[1]. These trawl surveys are conducted in the eastern Bering Sea during May to August of each year. Biomass estimates of arrowtooth flounder and Greenland turbot include only the shelf portion of the populations. Biomass estimates of walleye pollock, a semipelagic fish, were obtained from age-structured model results[2]. Biomass estimates of Pacific cod were obtained from length-structured model results[3]. Biomasses of species obtained from model outputs were apportioned into each stratum by using the proportion of the trawl survey biomass found in each stratum.

The proportion by weight of each prey item in the diet of each predator size group was calculated for each stratum in the following fashion. First, all stomach content data for a particular predator size group that were collected in a stratum during May through September in a given year were used. Estimates of the percentage by weight of a given prey item in the stomach contents were then calculated for each 20 nautical mile square in the stratum where stomachs were collected. The estimated percent by

1 Gary Walters, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA, 98115, Pers. Commun., 2002.
2 James Ianelli, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA, 98115, Pers. Commun., 2002.
3 Grant Thompson, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA, 98115, Pers. Commun., 2002.

weight of the prey item in the whole stratum was then calculated as the average of the percentages from each 20 nautical mile square. Standard errors of the stratum percentages were derived from the variance between squares.

For strata where prey size information was available, total consumption estimates in terms of biomass were converted to number of prey. The size frequency of a particular prey in the stomach contents of a given predator size group from a stratum in a particular year during May through September was used along with the length-weight relationship for the prey to convert biomass consumed within a particular prey size interval to number consumed. If prey size information for a given predator size group was not available for a given stratum, the size frequency of that prey in all strata combined for the predator size group was used. Finally, when no prey size information was available, the number consumed could not be estimated.

Snow and Tanner crabs and walleye pollock were assigned to approximate age groups based on the following age-length conversions:

Age	Carapace width (mm)		Standard length (cm)
(years)	Snow crab	Tanner crab	Walleye pollock
0	<5	<9	<10
1	5-24	9-34	10-19
2	25-39	35-49	20-27
3	40-59	50-69	28-33
4	60-74	70-84	34-37
5	75-94	85-104	38-40
6+	≥95	≥105	≥41

RESULTS AND DISCUSSION

Groundfish Predation on Commercially Important Prey

The total impact of groundfish predation on a particular prey species was estimated by summing the individual predator species' removals described in the appendices. Comparison of total fish predation with each predator species' removals provides an indication of which predator population tends to be the most important source of mortality for a prey population. Also, comparison of total predation removals with prey population size demonstrates the relative importance of predation as a source of mortality. Finally, interannual fluctuations in predation on a particular age group of prey may give early indications of year-class strength before the year class is vulnerable to assessment by trawl survey. The total consumption of each important prey group is summarized in terms of estimated biomass and numbers removed by groundfish predation in the eastern Bering Sea for segments of the years 1997 through 2001.

King Crabs

Tables 6-7 present the estimated total biomass and number of king crabs consumed by all groundfish predators during May through September for 1997 through 2001.

Red king crab--Pacific cod was the main predator of red king crabs (*Paralithodes camtschatica*) and king crabs that could not be identified to the species level (*Paralithodes* spp., Lithodidae*)*. Most of the unidentified king crabs consumed by Pacific cod were assumed to be red king crabs based on the locations where the unidentified king crabs were consumed. These crabs were assumed to be soft-shell females based on the location and timing of consumption by Pacific cod. Walleye pollock were minor predators on unidentified king crabs and probably consumed pelagic larvae. Pacific halibut and skates also consumed small amounts of unidentified king crab. The largest amounts of king crab consumed were by Pacific cod consuming king crab legs in all years except 2000 and 2001. Pacific cod consumption of red king crab and unidentified king crab (not including legs only consumption) was 1,988, 1,086, 2,941, 1,489, and 75 metric tons (t) in 1997, 1998, 1999, 2000, and 2001, respectively.

Groundfish predation on king crab in terms of biomass during these 5 years was somewhat lower than the estimated predation for the 1993-96 period, which ranged from 2,066 t to 6,286 t (Lang et al., 2003). Abundance of female red king crab (Rugolo et al. 2003) during 1997 through 2001 was about the same as the abundance during 1990 through 1992 and 1993 through 1996 although there was a spike in abundance estimates in 1996 through 1998. However, there was no corresponding spike in

groundfish predation. Consumption of king crab legs was higher in 1998 and 1999 than the consumption of whole crabs while the converse was true in 1997, 2000, and 2001. Consumption by size figures for red king crab are not presented in this report due to low numbers of measurable individuals.

Table 6.--Estimated biomass (metric tons) of king crabs consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea.

Prey	Predator	1997	1998	1999	2000	2001
King crab legs	Pacific cod	1,052	7,917	9,553	443	
	Total	1,052	7,917	9,553	443	
Lithodidae	Pacific cod	938	1,086	1,667	1,064	75
	Pacific halibut	117		49		
	Skates			1,208		
	Walleye pollock	2				
	Total	1,057	1,086	2,925	1,064	75
Paralithodes spp.	Pacific cod	1,050		188	425	
	Skates			25		
	Walleye pollock	4	<1			
	Total	1054	<1	213	425	
Red king crab	Pacific cod		429	337	99	
	Total		429	337	99	

Table 7.--Estimated numbers (millions) of king crabs consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea. Values in parentheses indicate cells with some missing prey size information and therefore are underestimates of the total number consumed.

Prey	Predator	1997	1998	1999	2000	2001
King crab legs	Pacific cod					
	Total					
Lithodidae	Pacific cod	(0)	(0)	(0)	(0)	(0)
	Pacific halibut	(0)		(0)		
	Skates			(0)		
	Walleye pollock	(0)				
	Total	(0)	(0)	(0)	(0)	(0)
Paralithodes spp.	Pacific cod	(0)		(0)	(0)	
	Skates			(0)		
	Walleye pollock	(2)	(0)			
	Total	(2)	(0)	(0)	(0)	
Red king crab	Pacific cod		(0)	(0)	(<1)	
	Total		(0)	(0)	(<1)	

Snow and Tanner Crabs

The estimated total biomass of snow and Tanner crabs consumed by groundfish predators is presented in Table 8. Table 9 presents data on the estimated number of snow and Tanner crabs consumed in areas where prey size information was available. Because this information was limited the reported values should be considered the minimum number consumed by groundfish predators. The biomass and number of snow and Tanner crab removed by prey size are shown in Figures 5-7.

Snow crabs--The main predator of snow crabs, in terms of estimated biomass removed, was Pacific cod, consuming at least 75% of the total biomass removals of snow crabs in all 5 years. The remaining predators were flathead sole, walleye pollock, Pacific halibut, northern rock sole, skates, Alaska plaice, and yellowfin sole. Biomass of snow crabs consumed by Pacific cod was highest in 2001 (160,353 t) and lowest in 1999 (62,848 t), and numbers consumed by Pacific cod showed a similar trend during the time period. Similar to the 1993 through 1996 period, consumption of snow crab by groundfish predators other than Pacific cod did not occur every year, particularly in 1998 and 2001, and was least prevalent in the small-mouthed flatfish. This could indicate the availability of fewer small snow crab in the 1993 through 2001 period compared to the 1990 through 1992 where consumption was more widespread across all predators.

Most of the snow crab consumed in 1997 through 2000 were less than 25 mm CW or approximately age 0 to age 1. Rugolo et al. (2003) show a steady decline in the numbers of snow crab through 1999 with a slight increase in population size in 2000 and 2001. Declines in predation consistent with populaton declines indicate that monitoring the amount of predation on small crabs by these predators may provide early indications of the presence of abundant year classes of crabs.

Tanner crabs--Estimated total biomass of Tanner crabs consumed by all predators was highest in 1998 (91,664 t) and lowest in 2000 (33,435 t). Like snow crabs, most of the biomass removed was due to Pacific cod predation except in 1997 when flathead sole was the largest consumer. Pacific cod (1999-2001) and flathead sole (1997,1998) also consumed the largest number of mostly small (< 25 mm CW) Tanner crab. Total number consumed was highest in 1997 (38,779 million) but was much lower than the estimate of total number consumed in 1984, which was 152,850 million (Livingston 1991). This may be an indication that there has not been any significant recruitment of Tanner crab since 1984. Rugolo et al. (2003) show increased population estimates in the 1999-2004 time period. The occurrence of greater consumption estimates of small Tanner crabs by groundfish predators in 1997 and 1998 may be an early indication of the stronger recruitment in subsequent years.

Unidentified *Chionoecetes*—Estimated total biomass and numbers consumed of unidentified *Chionoecetes* were lower in all years than in the previous reporting period, 1993-1996 (Lang et al. 2003). Given the increase in estimates of Tanner and snow crabs, this is likely a result of improved identification to the species level of small crab.

Table 8.--Estimated biomass (metric tons) of snow crabs (*Chionoecetes opilio*), Tanner crabs (*C. bairdi*), and unidentified *Chionoecetes* consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea (n.s.= not sampled).

Prey	Predator	1997	1998	1999	2000	2001
Tanner crab	Arrowtooth flounder				11	
	Flathead sole	31,235	40,080	19,114	8,041	
	Greenland turbot		n.s	6		n.s
	Northern rock sole	1513	213			
	Pacific cod	23,172	44,515	36,475	19,043	44,816
	Pacific halibut	2,764	6,816	4,357		
	Skates	14,292		15,089	6,340	3,842
	Yellowfin sole	6,525	40			
	Total	79,500	91,664	75,040	33,435	48,657
Snow crab	Alaska plaice	6,089	94			n.s
	Flathead sole	3,282		224		
	Northern rock sole	3,725		1,506	3,695	
	Pacific cod	126,788	77,024	62,848	108,811	160,353
	Pacific halibut	4,192	4,135	3,309		
	Skates	12,955		1,547	26,794	11,984
	Walleye pollock				3,074	
	Yellowfin sole	9374			2,238	
	Total	166,404	81,253	69,434	144,612	172,338
Unid. *Chionoecetes*	Alaska plaice	1,064				n.s
	Flathead sole	361	8,467	4,990	124	
	Northern rock sole	5,443				
	Pacific cod	8,885	17,901	38,496	53,041	32,167
	Pacific halibut	2,611	853	474		
	Skates	11,838	1,828	21,978	46,437	41,872
	Walleye pollock	1		2	20	
	Yellowfin sole	3,023	197			
	Total	33,226	29,245	65,941	99,621	74,038

Table 9.--Estimated numbers (millions) of snow crabs (*Chionoecetes opilio*), Tanner crabs (*C. bairdi*), and unidentified *Chionoecetes* consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea. Values in parentheses indicate cells with some missing prey size information and therefore are underestimates of the total number consumed (n.s.= not sampled).

Prey	Predator	1997	1998	1999	2000	2001
Tanner crab	Arrowtooth flounder				31	
	Flathead sole	21,690	22,172	6,976	9,070	
	Greenland turbot		n.s.	2		n.s.
	Northern rock sole	4,092	576			
	Pacific cod	2,285	3,784	3,053	1,211	3,846
	Pacific halibut	215	386	230		
	Skates	3,723		1,733	650	335
	Yellowfin sole	6,775	109			
	Total	38,779	27,027	11,993	10,963	4,180
Snow crab	Alaska plaice	8,295	(0)			n.s.
	Flathead sole	3,717		615		
	Northern rock sole	12,996		7,928	19,446	
	Pacific cod	25,747	8,123	3,940	8,355	10,742
	Pacific halibut	139	374	64		
	Skates	1,293		160	2,444	1,926
	Walleye pollock				87	
	Yellowfin sole	2,920			432	
	Total	55,107	(8,498)	12,708	30,764	12,669
Unid. *Chionoecetes*	Alaska plaice	(0)				n.s.
	Flathead sole	724	39,938	12,327	(0)	
	Northern rock sole	319				
	Pacific cod	1,461	10,315	8,802	(6,589)	3,422
	Pacific halibut	(298)	(68)	63		
	Skates	1,610	1,583	4,763	3,629	3,565
	Walleye pollock			(0)		
	Yellowfin sole	10,803				
	Total	(15,216)	(51,904)	(25,955)	(10,218)	6,987

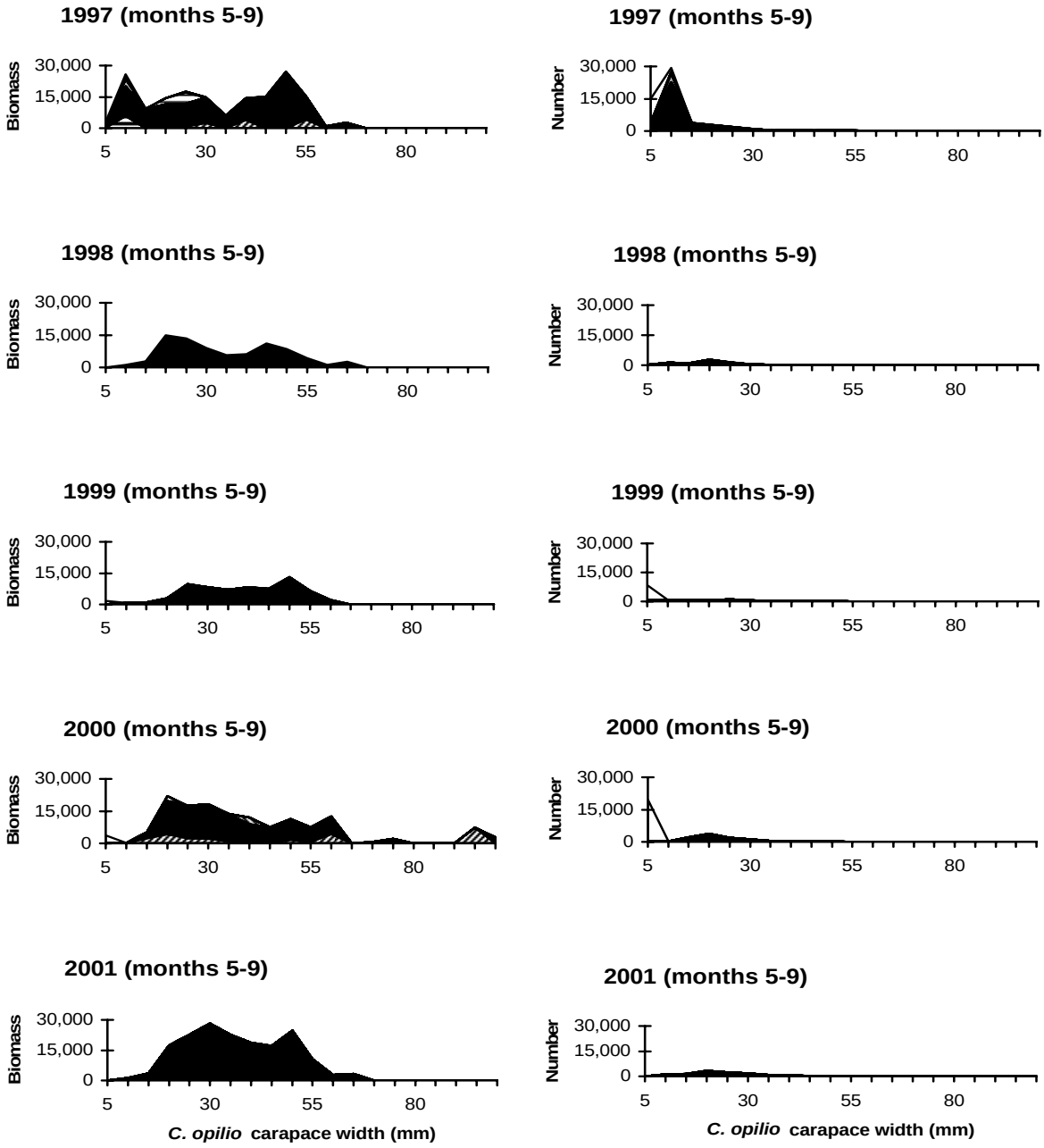

Figure 5.--Estimated biomass (metric tons) and numbers (millions) of snow crab (*C. opilio*) consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

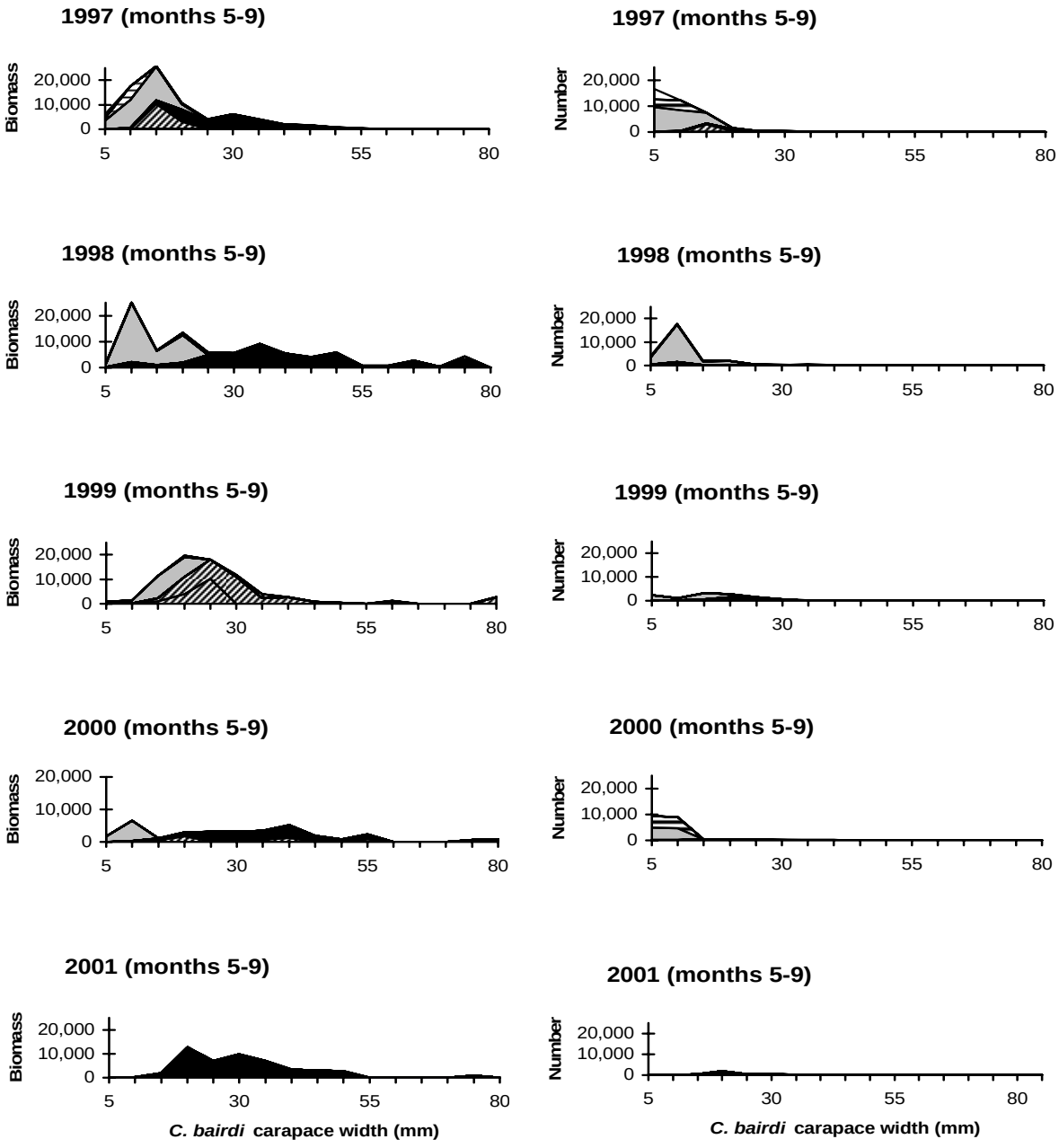

Figure 6.--Estimated biomass (metric tons) and numbers (millions) of Tanner crab (*C. bairdi*) consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

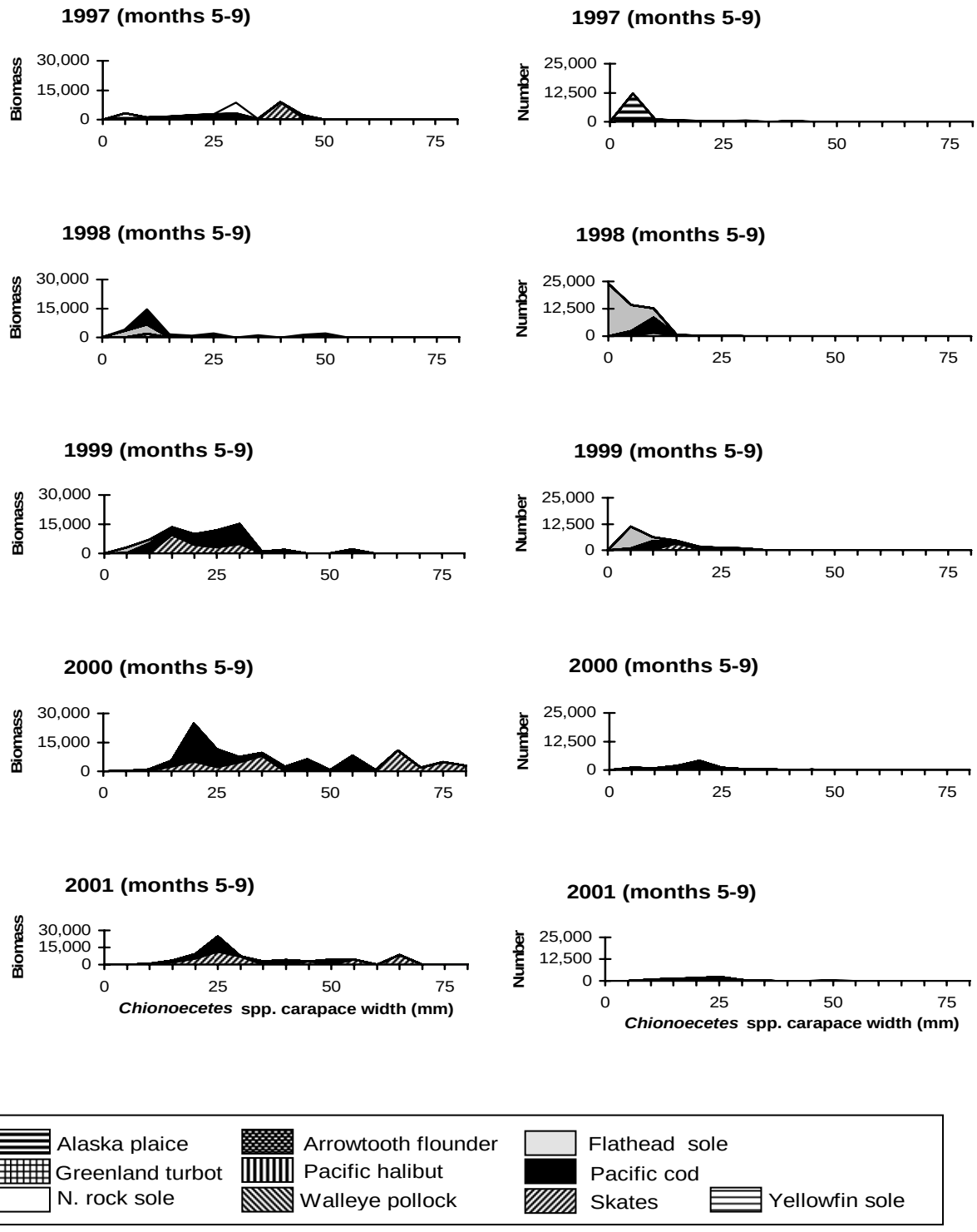

Figure 7.--Estimated biomass (metric tons) and numbers (millions) of unidentified *Chionoecetes* consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

Roundfish

Roundfish, for the purposes of this report, is defined as any groundfish species that is not a flatfish. Total estimated biomass and minimum numbers of Pacific cod, walleye pollock, Pacific herring (*Clupea pallasi*), and capelin (*Mallotus villosus*) consumed by all groundfish predators are summarized in Tables 10-11 and Figures 8-11.

Pacific cod--Total estimated biomass of Pacific cod consumed by groundfish predators (Table 10) was highest in 2001 (13,464 t) and lowest in 2000 (1,337 t). Predators on Pacific cod include Pacific cod, walleye pollock, skates, Pacific halibut, and arrowtooth flounder. Unlike the 1993-1996 period, yellowfin sole, Alaska plaice, and Greenland turbot were not seen consuming Pacific cod (Lang et al. 2003). Pacific cod cannibalism was the largest source of predation mortality in 1999 and 2000. The number consumed was highest in 1998 (167 million) and was primarily due to Pacific halibut predation of age-1 prey (Fig 8.). There does not seem to be any relationship between the number of age-0 Pacific cod consumed in a year and the strength of that Pacific cod year class. For example, Thompson and Dorn (2004) reported that the 1997, 1998 and 2001 year classes were below average while the 2000 year class was average and the 1999 year class as above average. Our data show the opposite trend in terms of biomass and numbers of age-0 and age-1 Pacific cod consumed. It appears that Pacific cod is not a major dietary component of any groundfish species. Therefore, consumption of Pacific cod tends to be a sporadic occurrence that may not necessarily be related to its abundance.

Walleye pollock--Walleye pollock was consumed by most of the major groundfish predators considered here. Walleye pollock cannibalism dominated walleye pollock removals in terms of numbers in all years and was also the largest in terms of biomass in 1997 and 1999. Arrowtooth flounder was the first or second largest consumer of walleye pollock in terms of biomass removals in all years. Pacific cod and skates also consumed large amounts of walleye pollock in terms of biomass.

Sizes of walleye pollock consumed by predators indicate most were age-0 (less than 10 cm SL) in all years (Fig. 9). Pacific cod tended to consume a wide range of walleye pollock sizes, mainly from 5 to 50 cm SL. The largest number of age-0 walleye pollock were consumed during 1997, and overall numbers consumed were lower than in the 1993-1996 period (Lang et al. 2003). Generally, the numbers of age-0 consumed corresponds well with the age-1 model estimates of Ianelli et al. (2004) for the following year. The number of age-1 walleye pollock consumed also corresponds well with the model estimates for a given year.

Pacific herring--Pacific cod, Pacific halibut, walleye pollock, and skates consumed Pacific herring. Walleye pollock consumed the most herring in 1997, 1999, and 2000 while Pacific cod were the dominant predator in 1999 and 2001. No groundfish predator

Table 10.--Estimated biomass (metric tons) of roundfish consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea (n.s. = not sampled).

Prey	Predator	1997	1998	1999	2000	2001
Capelin	Arrowtooth flounder	97			448	2,337
	Pacific cod	49	278	56		4,064
	Pacific halibut	2371	733	2,006	1,614	
	Walleye pollock			3,905	9,158	9,420
	Total	2,517	1,011	5,967	11,220	15,821
Unid. Osmerids	Alaska plaice			17		
	Arrowtooth flounder			22,644		
	Pacific cod	4,098	444	1,119	368	664
	Pacific halibut	229	655	1,158		
	Skates			12		
	Walleye pollock		140	6,926	1,805	7,964
	Yellowfin sole	33,552				
	Total	37,879	1,239	31,877	2,174	8,628
Pacific cod	Arrowtooth flounder					6,243
	Pacific cod	1,995	944	4,353	759	5,903
	Pacific halibut	4,148	3,578	541		
	Skates					1,318
	Walleye pollock				578	
	Total	6,142	4,522	4,895	1,337	13,464
Pacific herring	Pacific cod		3,764	16,880	1,747	8,483
	Pacific halibut	5	817	502		
	Skates			1,265	3,760	1,671
	Walleye pollock	24		32,399	13,803	5,165
	Total	29	4,581	51,046	19,309	15,319
Walleye pollock	Arrowtooth flounder	288,135	194,191	155,127	159,353	187,655
	Flathead sole	30,346	11,432	68,829	12,433	
	Greenland turbot	21,099	n.s.	12,455	11,841	n.s.
	Northern rock sole				10,456	
	Pacific cod	125,037	116,972	124,462	86,155	118,572
	Pacific halibut	43,714	52,054	34,165	7,066	
	Skates	123,403	39,101	111,204	65,965	131,954
	Walleye pollock	401,791	95,625	181,738	159,115	145,885
	Yellowfin sole	14,777	2,649	23,021	263	
	Total	1,048,302	512,023	711,000	512,646	584,066

Table 11.--Estimated numbers (millions) of roundfish consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea (n.s. = not sampled). Values in parentheses indicate cells with some missing prey size information and therefore are underestimates of the total number consumed.

Prey	Predator	1997	1998	1999	2000	2001
Capelin	Arrowtooth flounder	11			143	365
	Pacific cod	24	(0)	2		
	Pacific halibut	290	(39)	187	102	
	Walleye pollock			297	1,563	1,233
	Total	325	(39)	486	1,808	2,008
Pacific cod	Arrowtooth flounder					(0)
	Pacific cod	2	35	6	(0)	62
	Pacific halibut	43	133	1		
	Skate					1
	Walleye pollock				29	
	Total	45	167	6	(29)	(63)
Pacific herring	Pacific cod		(0)	(542)	(40)	(21)
	Pacific halibut	(0)	1	(0)		
	Skates			37	25	18
	Walleye pollock	(0)		544	273	180
	Total	(0)	(1)	(1,123)	(339)	(219)
Walleye pollock	Arrowtooth flounder	(5,583)	1,983	2,521	7,425	5,696
	Flathead sole	2,918	1,016	6,860	4,143	
	Greenland turbot	78	n.s.	(21)	12	n.s.
	Northern rock sole				4,251	
	Yellowfin sole	10,083	1,808	6,006	33	
	Pacific cod	1,897	1,686	1,893	2,664	1,784
	Pacific halibut	431	468	538	121	
	Skates	599	268	253	401	394
	Walleye pollock	238,175	20,989	57,537	46,539	87,325
	Total	(259,764)	28,217	(75,629)	65,590	95,199

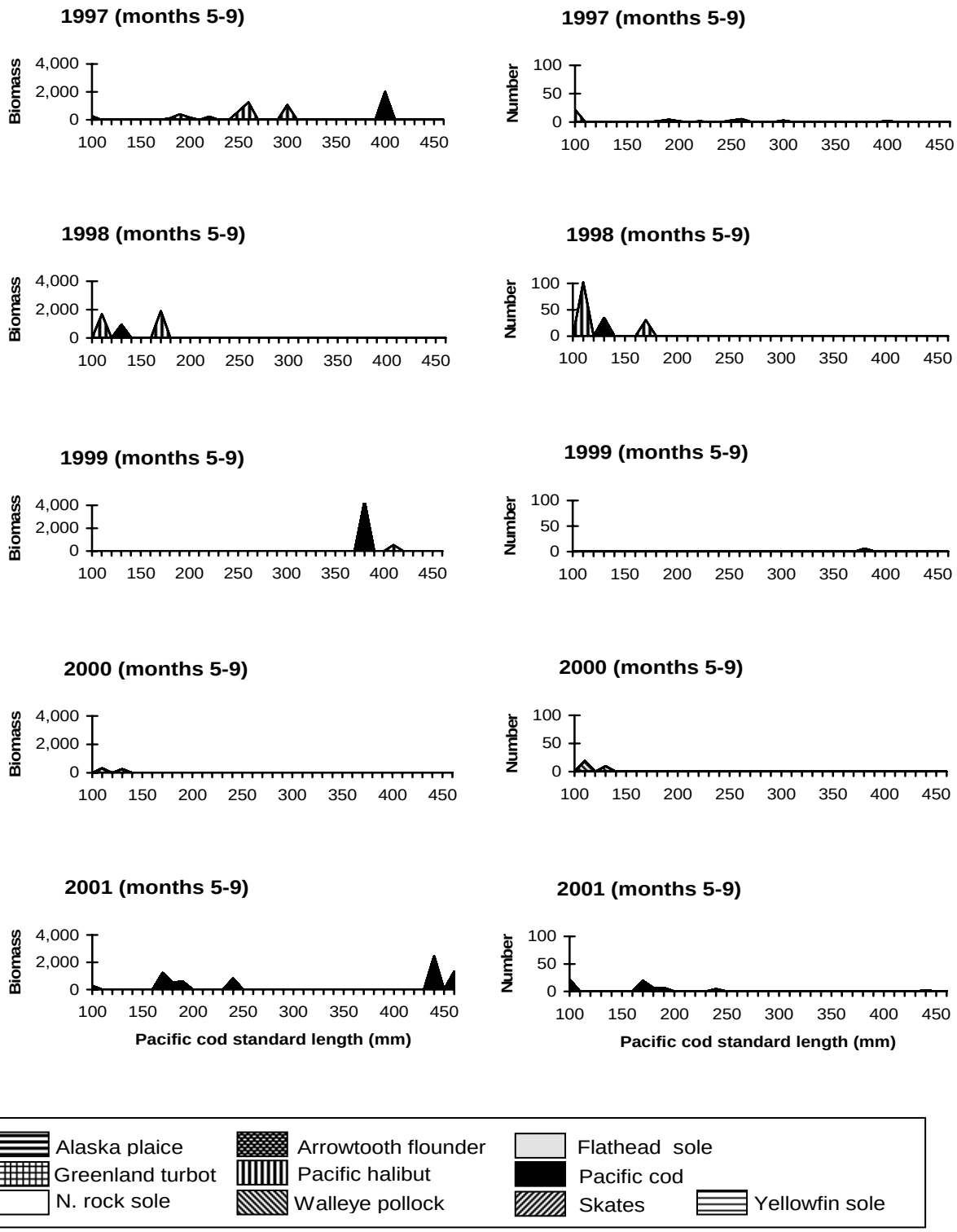

Figure 8.--Estimated biomass (metric tons) and numbers (millions) of Pacific cod consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

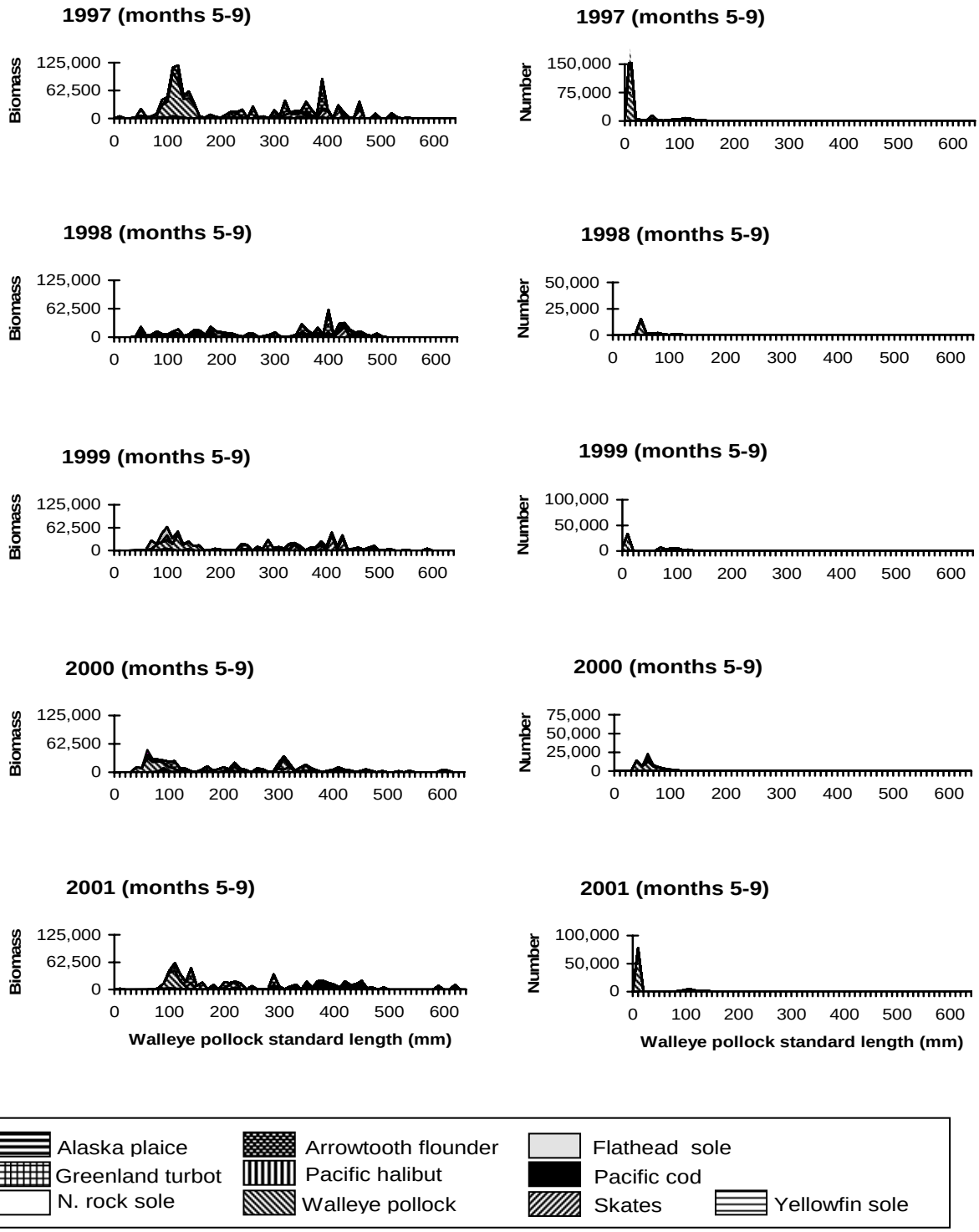

Figure 9.--Estimated biomass (metric tons) and numbers (millions) of walleye pollock consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

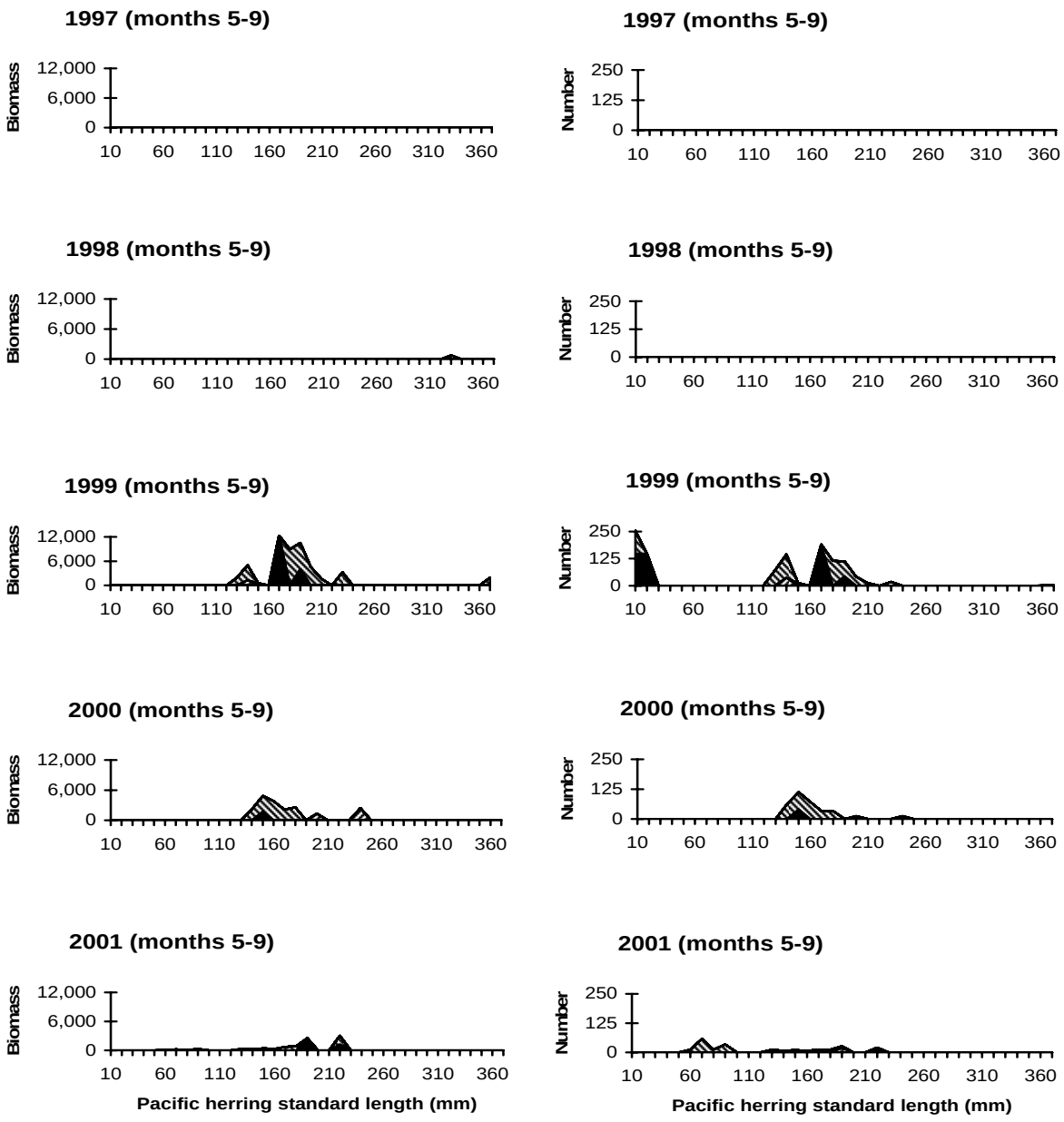

Figure 10.--Estimated biomass (metric tons) and numbers (millions) of Pacific herring consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

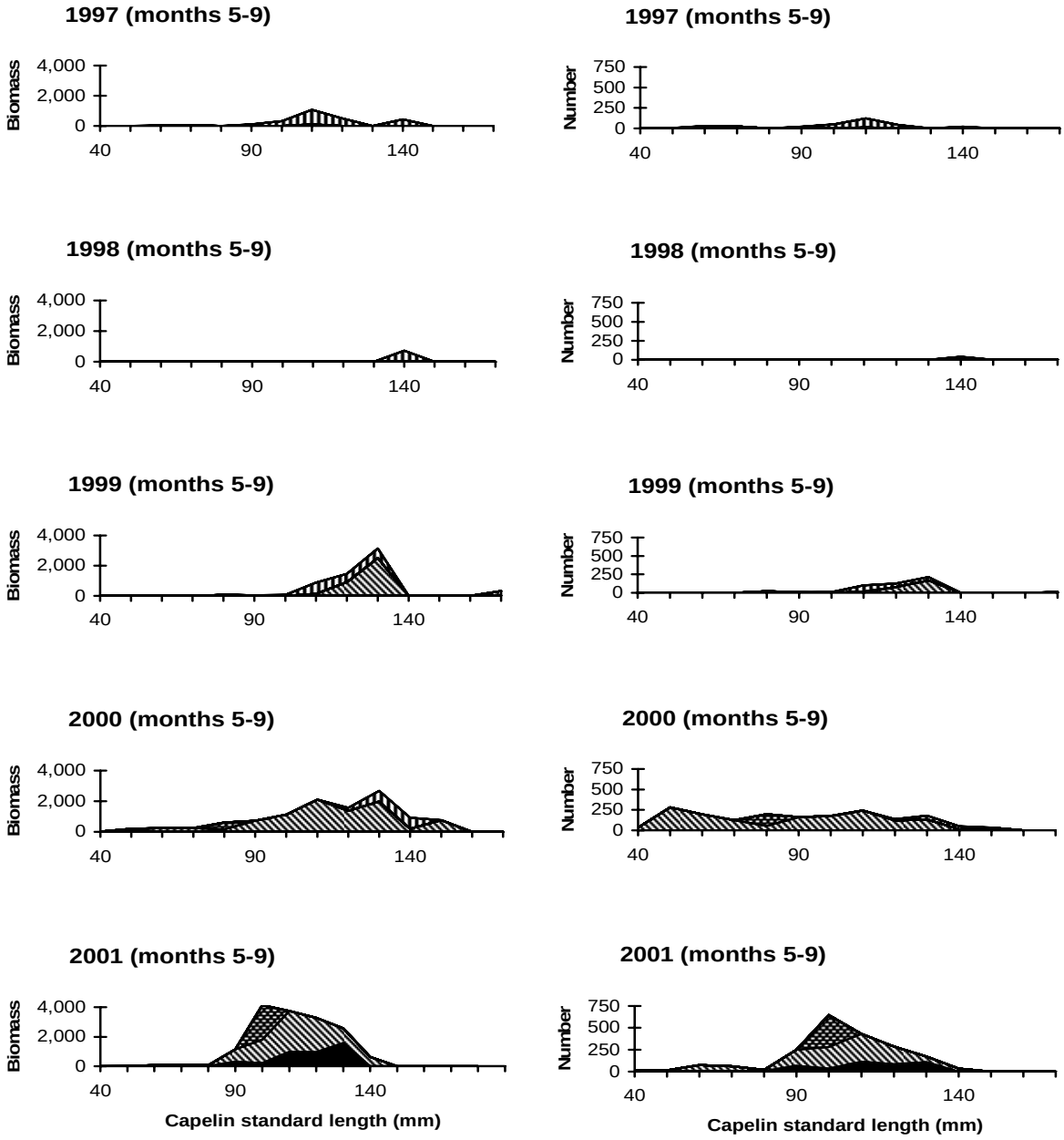

Figure 11.--Estimated biomass (metric tons) and numbers (millions) of capelin consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

consumed Pacific herring in each of the 5 years. The biomass of Pacific herring consumed by predators was highest in 1999 (51,046 t) and was much lower in the other 4 years.

Little size information was available on the Pacific herring consumed by groundfish. However, those consumed in 1999 and 2000 were primarily immature (< 20 cm SL). Pacific herring predation by groundfish tended to be sporadic in time and space and may depend on encounter rates of Pacific herring schools rather than overall biomass. Furthermore, most of the Pacific herring available during the summer feeding period on the shelf are immature because adults have moved inshore to spawn. Pacific herring may constitute a larger fraction of the diet of groundfish predators in other time periods when adult Pacific herring have migrated to outer shelf waters for the winter feeding period. However, we have insufficient samples during autumn and winter to quantify Pacific herring consumption during those periods.

Osmerids (Smelts)--Smelts were consumed by several groundfish species in 1997 through 2001: Alaska plaice, arrowtooth flounder, yellowfin sole, Pacific cod, Pacific halibut, skates, and walleye pollock. Pacific cod and walleye pollock were the primary consumers of Osmerids in most years. Due to improved identification techniques we were able to identify capelin more often during this study period and these results are separate from the unidentified osmerid results. Capelin consumption was small relative to walleye pollock consumption during the 1997-2001 study period; however, capelin consumption was similar to Pacific herring consumption by these predators.

Flatfish

Arrowtooth flounder--Arrowtooth flounder were consumed by arrowtooth flounder, Pacific cod, and walleye pollock (Tables 12-13). Estimated total biomass consumed ranged from 729 t in 1999 to 3,740 t in 2001. No arrowtooth flounder were found in the diets of groundfish during 1998. Pacific cod consumed the most arrowtooth flounder by weight in all years. Estimated numbers of arrowtooth flounder consumed were highest for Pacific cod in all years except 1997, when arrowtooth flounder cannibalism was three times greater.

Total biomass consumed in each year can be compared with the estimated standing stock of arrowtooth flounder to determine the relative importance of predation on the arrowtooth flounder population. Total consumption in each year, expressed as a percentage of trawl-estimated biomass of arrowtooth flounder, is less than 2%. This is a small percentage of the arrowtooth flounder population, suggesting that predation is probably not a major source of mortality. Examination of possible predation impact on arrowtooth flounder too small to be assessed by the trawl survey is not possible given the current state of knowledge about juvenile arrowtooth flounder abundance.

Consumption estimates of arrowtooth flounder were lower in 1997 through 2001 than in 1993 through 1996 (Lang et al. 2003) despite average to above-average recruitment during 1997-1999 and below-average recruitment in 2000 and 2001 (Wilderbuer and Sample 2003).

Flathead sole--Estimated total biomass of flathead sole consumed by groundfish predators was highest in 2001 (14,719 t) while the largest estimated number consumed was in 1997. Most of the biomass consumption was by Pacific cod, skates, and arrowtooth flounder. Other predators of flathead sole included Pacific halibut and walleye pollock.

Most of the flathead sole consumed were less than 20 cm SL or younger than age 3. Walters and Wilderbuer (1990) report that flathead sole do not recruit to trawl fisheries until age 3, and although some age-2 fish are caught in research trawls, they are probably not fully recruited. This precludes a relevant comparison of predator removals of juveniles with the juvenile flathead sole population size. Similar to Pacific cod consumption of large numbers of age-0 flathead sole in 1996, skates consumed large numbers of flathead sole that were possibly age-1 in 1997 (Fig. 13). This might be an indication of an abundant year class produced in 1996.

Northern rock sole--Total estimated biomass of northern rock sole consumed by groundfish predators ranged from 4,418 t in 1998 to 26,764 t in 2000. The number of northern rock sole consumed ranged from 175 million in 1999 to 136,785 million in 2000. Pacific cod was the most important predator in terms of biomass and number of removals in all years except 2000 (walleye pollock). Other predators included Pacific halibut, skates, Greenland turbot, and arrowtooth flounder. Size composition of northern rock sole consumed was predominantly less than 5 cm in all years (Fig. 14). Most of these sizes are probably not fully vulnerable to trawl surveys. However, Wilderbuer and Walters (2003) report the presence of a large 2000 year class that is beginning to show up in the trawl survey. The presence of a strong 2000 year class is consistent with the large consumption estimate of age-0 northern rock sole seen here. Increased predation coincident with strong year classes indicates that monitoring the amount of predation on age-0 northern rock sole by these predators may provide early indications of the presence of abundant year classes.

Yellowfin sole--Pacific cod, walleye pollock, skates, and Pacific halibut were predators of yellowfin sole during the 1997 to 2001 period. Pacific cod predation in terms of biomass and number dominated all years except 1997 and 1999 (skates). Consumption by all groundfish in terms of biomass was somewhat varied across years, ranging from 4,906 t in 1999 to 21,323 t in 1997. Consumption was somewhat lower in this period than in the 1993 to 1996 period. These changes in consumption are consistent with the population estimates according to stock synthesis model results (Wilderbuer and Nichol 2003).

Most predation was on yellowfin sole ranging from 3 to 25 cm SL (ages 3-10) (Fig. 15). When estimates of total yellowfin sole consumption in terms of biomass are compared to the biomass estimated from trawl surveys, it appears that groundfish predation constitutes only a small proportion (~1%) of the standing stock biomass.

Greenland turbot--Walleye pollock was the only groundfish that consumed Greenland turbot (Tables 12-13). The amount consumed was highest in 1997. Sizes of Greenland turbot consumed by walleye pollock (Fig. 16) ranged from 1 to 4 cm SL (probably age 0). It is unclear whether there is a relationship between the number consumed at age 0 and estimates of recruitment at age 1 from Ianelli et al. (2003). Our data show the largest numbers of Greenland turbot, presumably age 0, were consumed in 1997 and Ianelli et al. (2003) show that the 1997 year class was equal to other year classes at age 1 where smaller numbers were consumed.

Pacific halibut--Pacific halibut was consumed by Pacific cod, skates, and walleye pollock (Tables 12-13). Sizes consumed ranged mostly from 1 to 2 cm SL (probably age 0). The size of Pacific halibut consumed suggests they were post-larvae that had not yet settled to the bottom. Deriso (1987) suggests that Pacific halibut may be transported into the Bering Sea from the Gulf of Alaska. It is possible that groundfish consumption of Pacific halibut is a transitory phenomenon, occurring during restricted time periods when postlarvae are swept into shallow waters and start settling to the bottom.

Alaska plaice—Alaska plaice were only consumed in small amounts relative to other flatfish prey by walleye pollock in 2001. The consumption estimates were 3 t and 2 million. Consumption was focused on Alaska plaice of 4 cm SL, likely age-0 fish. Consumption estimates such as these suggest that predation mortality by groundfish has an insignificant impact on the Alaska plaice population.

Table 12.--Estimated biomass (metric tons) of flatfish consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea (n.s. = not sampled).

Prey	Predator	1997	1998	1999	2000	2001
Alaska plaice	Walleye pollock					3
	Total					3
Arrowtooth flounder	Arrowtooth flounder	1,019				
	Pacific cod	1,230		729	1,220	3,740
	Walleye pollock				427	
	Total	2,248		729	1,647	3,740
Flathead sole	Arrowtooth flounder					10,643
	Pacific cod	5,878	1,957	2,747	4,309	2,687
	Pacific halibut	405	145			
	Skates	2,755			407	1,390
	Walleye pollock		70			
	Total	9,039	2,171	2,747	4,716	14,719
Greenland turbot	Walleye pollock	9,468	13	462		
	Total	9,468	13	462		
Pacific halibut	Pacific cod				1,303	
	Pacific halibut					39
	Walleye pollock	105				
	Total	105			1,303	39
Northern rock sole	Greenland turbot		n.s.	874		n.s.
	Pacific cod	7,673	3,684	8,150	4,313	5,040
	Pacific halibut	293	65		497	
	Skates	6,358	624	4,339		3,676
	Walleye pollock	151	45		21,954	1,105
	Total	14,476	4,418	13,363	26,764	9,820
Yellowfin sole	Pacific cod	7,596	4,165	2,368	4,076	10,188
	Pacific halibut	1,732	1,944			
	Skates	11,995		2,486	1,723	1,844
	Walleye pollock			52		
	Total	21,323	6,109	4,906	5,798	12,033

Table 13.--Estimated numbers (millions) of flatfish consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea. Values in parentheses indicate cells with some missing prey size information and therefore are underestimates of the total number consumed.

Prey	Predator	1997	1998	1999	2000	2001
Alaska plaice	Walleye pollock					2
	Total					2
Arrowtooth flounder	Arrowtooth flounder	30				
	Pacific cod	11		57	24	57
	Walleye pollock				(0)	
	Total	41		57	(24)	57
Flathead sole	Arrowtooth flounder					19
	Pacific cod	195	86	116	116	24
	Pacific halibut	2	32			
	Skates	969			16	35
	Walleye pollock		24			
	Total	1,166	143	116	132	78
Greenland turbot	Walleye pollock	(14,176)	30	2,341		
	Total	(14,176)	30	2,341		
Pacific halibut	Pacific cod				42	
	Pacific halibut					105
	Walleye pollock	1,421				
	Total	1,421			42	105
Northern rock sole	Greenland turbot		n.s.			n.s.
	Pacific cod	127	80,960	151	122	250
	Pacific halibut	33	1		51	
	Skates	123	63	24		88
	Walleye pollock	1,474	19		136,613	55
	Total	1,756	81,044	175	136,785	393
Yellowfin sole	Pacific cod	13	59	20	19	138
	Pacific halibut	25	25			
	Skates	179		21	45	43
	Walleye pollock			5		
	Total	217	83	46	64	181

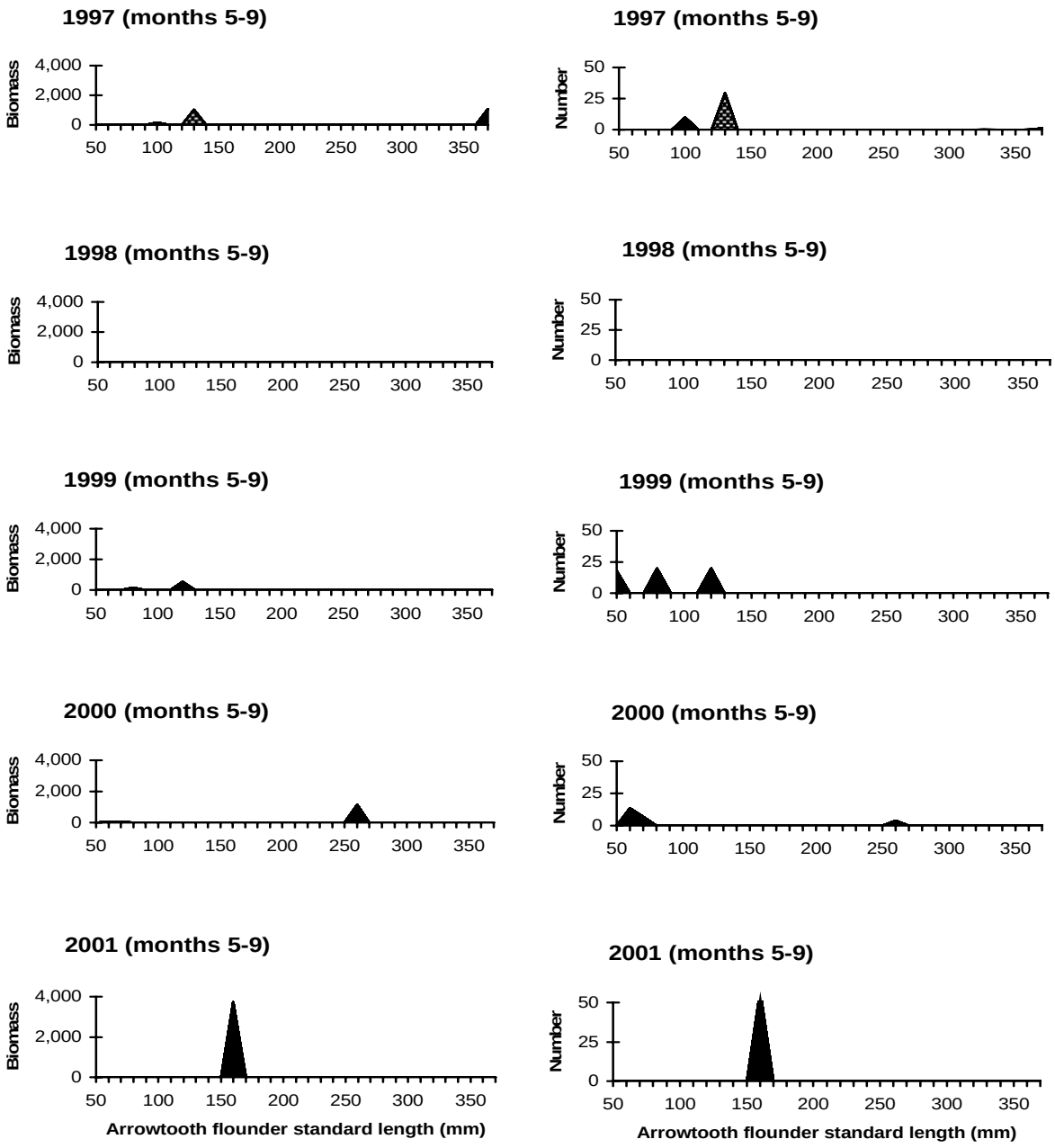

Figure 12.--Estimated biomass (metric tons) and numbers (millions) of arrowtooth flounder consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

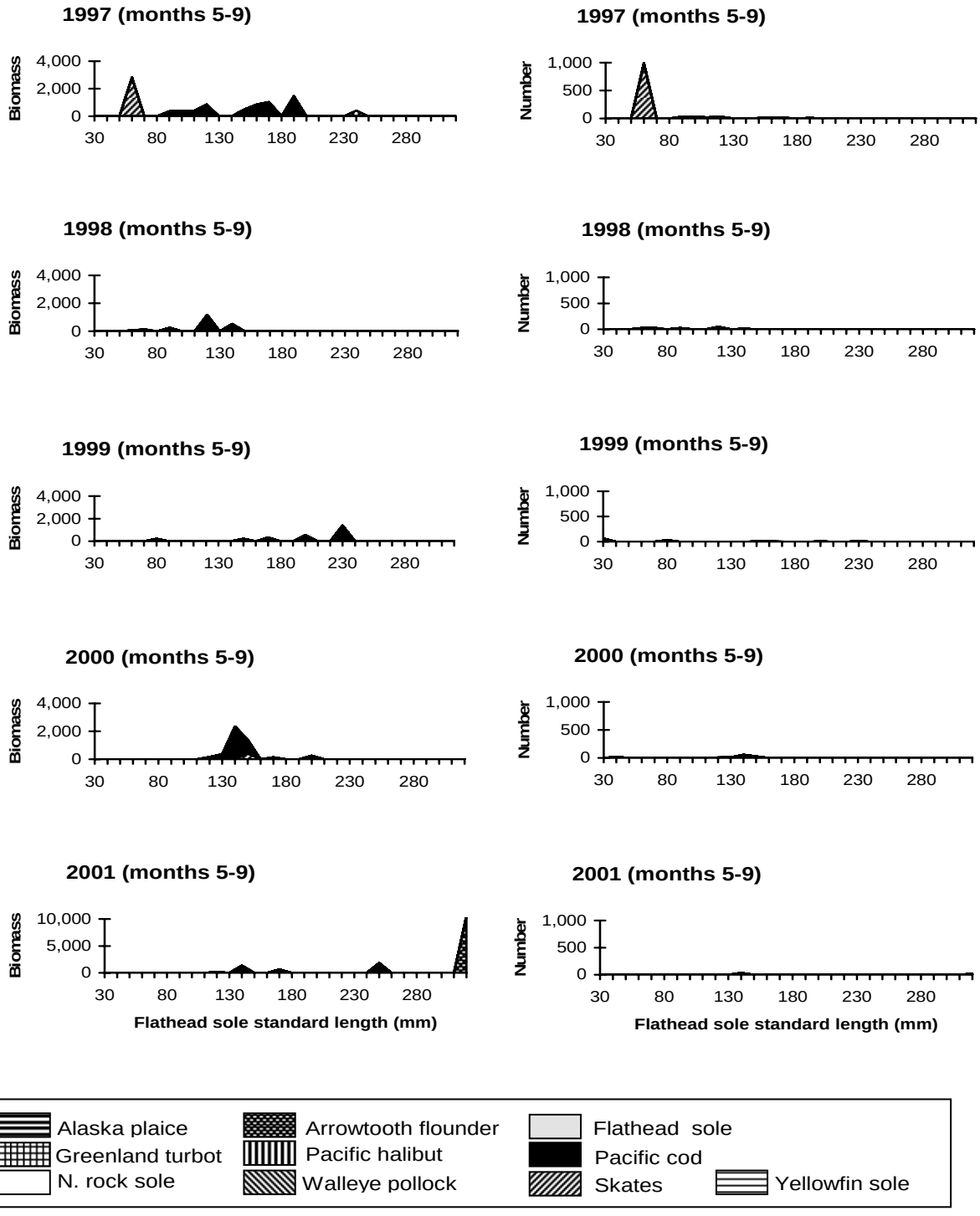

Figure 13.--Estimated biomass (metric tons) and numbers (millions) of flathead sole consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

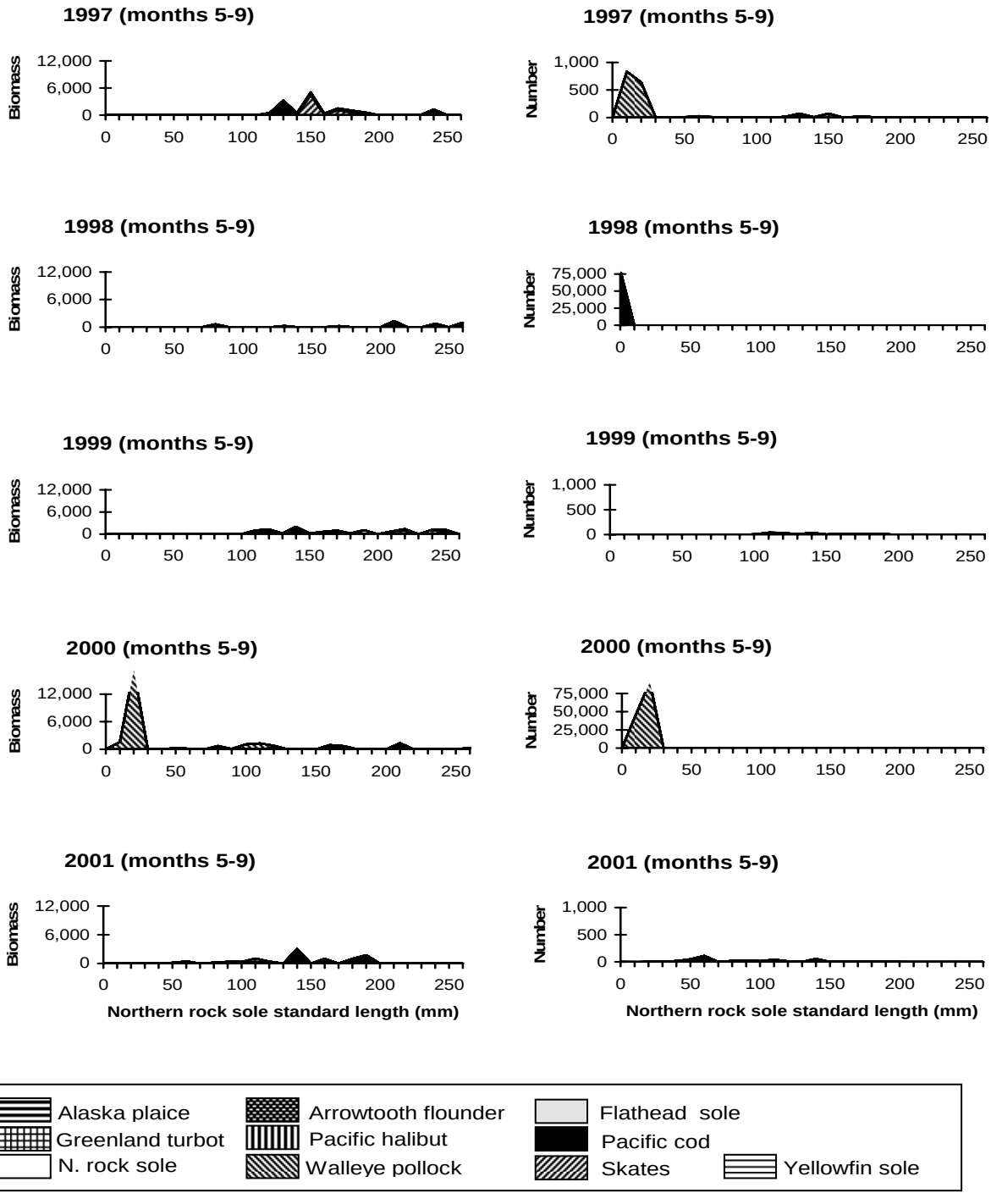

Figure 14.--Estimated biomass (metric tons) and numbers (millions) of northern rock sole consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

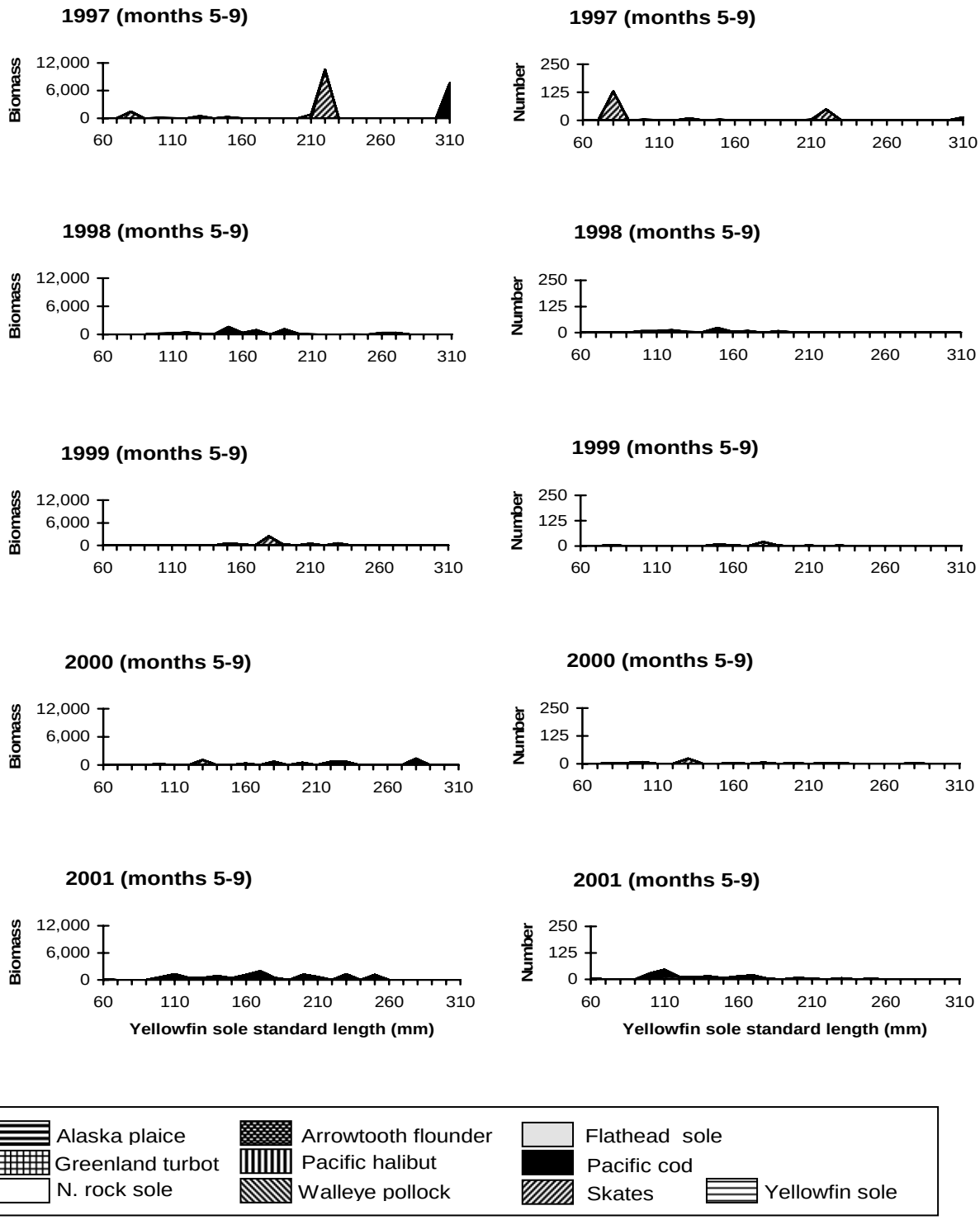

Figure 15.--Estimated biomass (metric tons) and numbers (millions) of yellowfin sole consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

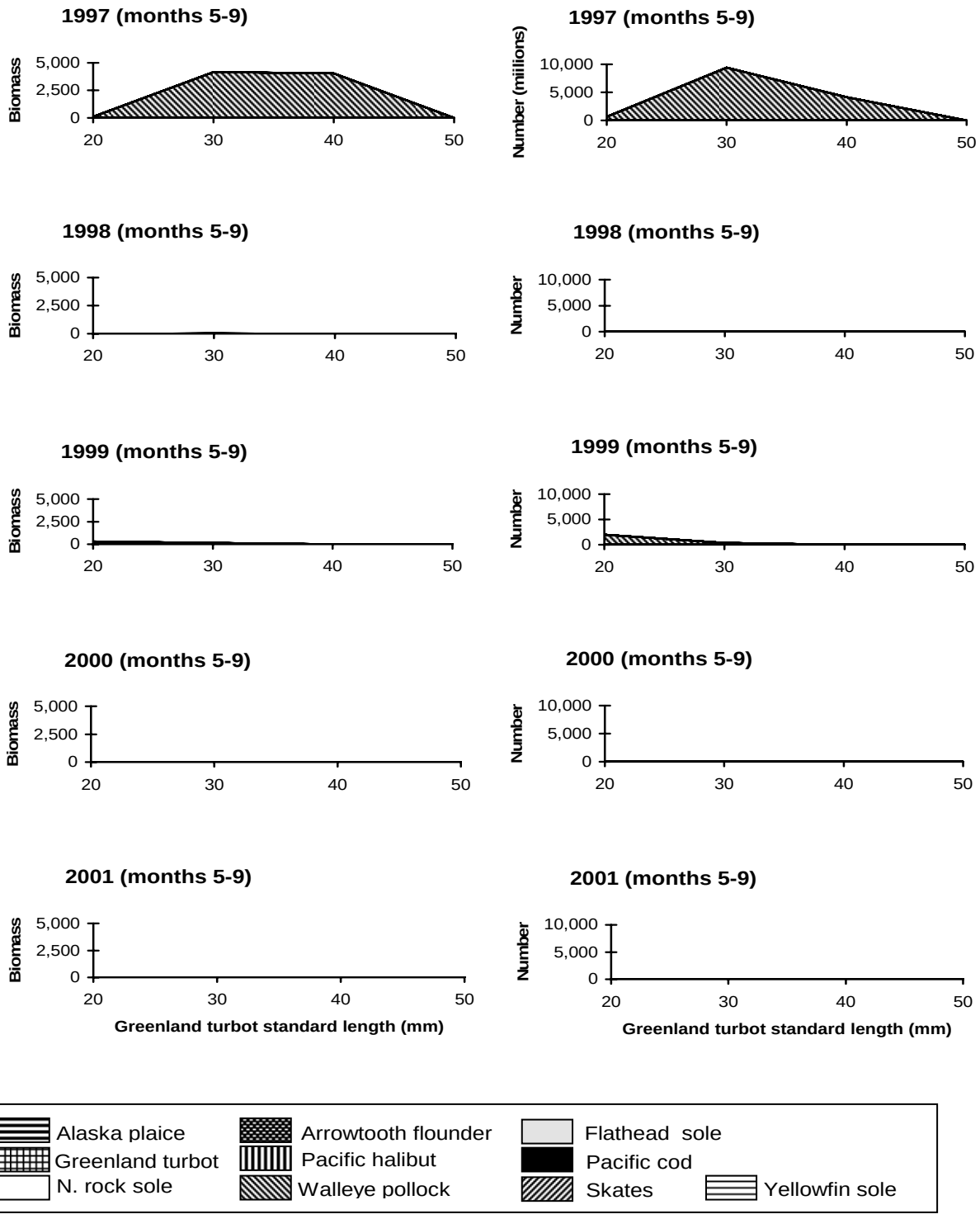

Figure 16.--Estimated biomass (metric tons) and numbers (millions) of Greenland turbot consumed by groundfish predators during May through September in 1997 through 2001 in the eastern Bering Sea by prey size.

Offal

Several groundfish species consumed fish processing offal during the 1997 to 2001 period (Table 14). Pacific cod, walleye pollock, arrowtooth flounder, northern rock sole, yellowfin sole, Pacific halibut, Greenland turbot and skates consumed offal. In general, walleye pollock and skates tended to consume the most offal. Total amounts of offal consumed varied across years, ranging from 45,265 t in 2001 to 105,124 t in 1999, approximately half the amount seen in the 1990-92 period (Livingston and deReynier 1996) and similar to that seen in the 1993-1996 period (Lang et al. 2003). Because most of these groundfish predators are predators of pollock and most of the offal produced is from processing of pollock, there is probably not much disruption of normal energy pathways due to offal consumption.

Table 14.--Estimated biomass (metric tons) of offal consumed by groundfish by year during months 5 through 9 in the eastern Bering Sea.

Prey	Predator	1997	1998	1999	2000	2001
Offal	Arrowtooth flounder	10,393	1,519			10,643
	Greenland turbot	252		405		
	Northern rock sole	18				
	Pacific cod	5,054	20,634	4,263	1,916	16,922
	Pacific halibut	225	2,078	2,908		
	Skates	18,225	22,321	19,793	4,778	17,497
	Walleye pollock	49,053	13,568	63,149	64,119	203
	Yellowfin sole	10,470		14,606		
	Total	93,690	60,119	105,124	70,813	45,265

CONCLUSIONS

Total numbers of age-0 snow crab consumed were generally greater from 1997 through 2001 than in previous years; however, age-1 consumption was less than previous years. Consumption of age-0 Tanner crab was somewhat larger while consumption of older age-groups was smaller than in the 1993-1996 report. Inconsistencies between age-0 and age-1 predation on these species make it difficult to use these data as a means for estimating potential year-class strength. Walleye pollock cannibalism was the most important source of groundfish predation on age-0 walleye pollock. Age-0 walleye pollock consumption was low relative to the 1993-1996 period, possibly indicating low recruitment. Consumption of age-0 walleye pollock was highest in 1997. Fluctuations in the consumption of age-0 and age-1 walleye pollock were consistent with the model estimates of population size at age. A better understanding of Tanner and snow crab size at-age and of the juvenile abundances of both these crabs as well as walleye pollock are needed to determine whether predation is a density-dependent factor controlling population size.

In many cases, groundfish appeared to be an early sampler of Tanner and snow crab abundance, and several flatfish species as these predators are consuming prey that are not yet available to the assessment surveys. Again, more information on juvenile abundance of these prey species may determine whether this predation is an early indicator of the presence of abundant year classes.

Consumption estimates for all prey should be viewed at the present time more as indices of consumption rather than actual consumption for several reasons. First, most of the calculations consider only the time period from May through September in each year. Although this is the main feeding period for most fishes in the eastern Bering Sea, consumption of prey certainly occurs during other parts of the year. Inadequate numbers and spatial distribution of stomach samples during other parts of the year combined with gaps in knowledge about the seasonal migrations of groundfish predators make calculation of predation in other parts of the year difficult without seasonal resource assessment surveys in the area.

Predation estimates during the time period considered here may be underestimates for prey that are consumed year-round, such as Tanner and snow crabs that are consumed by Pacific cod. Estimates for groundfish predation on newly settling stages of crabs and flatfishes may be overestimates if the prey species are not available to the predator during the whole time period. Also, for prey that have a very limited spatial distribution within a stratum, such as red and blue king crabs, inadequate stomach sampling throughout the whole stratum can provide biased estimates of consumption. For these prey, consumption estimates would be biased upwards if sampling were concentrated more in areas where king crabs occur and estimates would be biased downwards if stomach sampling were not performed in king crab areas.

Estimates of total numbers consumed are based upon measurable prey (SL or CW) and as such are underestimates for some prey because prey size could not always be determined due to advanced digestion of the prey. Similarly, total consumption estimates in terms of biomass may be underestimates of total groundfish predation if important groundfish predators of a particular prey have not been sampled.

Skate identification to the species level was not consistent enough for the 1997 through 2001 samples to allow diet analysis by species. However the biomass of skates is increasing in the eastern Bering Sea and consideration of their predation impact is becoming more important. Therefore, future reports should detail skate diet by species.

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Appendix A- Diet of major groundfish species collected from the eastern Bering Sea in 1997

Table A-1.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Alaska plaice (*Pleuronectes quadrituberculatus*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Porifera (sponge)	0.29	0.00
Polychaeta (worm)	85.17	8.53
Euphrosinidae	0.58	0.02
Phyllodocidae (polychaete)	16.57	0.41
Syllidae (polychaete)	0.58	0.00
Nereidae (polychaete)	30.52	1.93
Nephtyidae (polychaete)	26.16	14.68
Glyceridae (polychaete)	0.58	0.00
Goniadidae (polychaete)	15.99	0.09
Onuphidae (polychaete)	0.87	1.69
Lumbrineridae	0.87	0.16
Arabellidae (polychaete)	0.29	0.01
Orbiniidae (polychaete)	14.53	0.41
Spionidae (polychaete)	0.58	0.17
Chaetopteridae (polychaete)	4.36	3.01
Cirratulidae (polychaete)	0.29	0.00
Flabelligeridae (polychaete)	3.49	0.42
Brada sp. (polychaete)	2.62	0.02
Flabelligera affinis (polychaete)	0.58	0.28
Scalibregmidae	0.87	0.13
Scalibregma inflatum	0.58	0.21
Opheliidae (polychaete)	10.47	1.32
Travisia sp. (polychaete)	1.74	0.30
Travisia forbesii (polychaete)	0.29	0.04
Sternaspidae (polychaete)	0.29	0.00
Sternaspis scutata (polychaete)	1.45	0.18
Capitellidae (polychaete)	0.29	0.00
Maldanidae (polychaete)	43.90	7.59
Pectinariidae (polychaete)	1.74	0.31
Ampharetidae (polychaete)	17.73	4.01
Terebellidae (polychaete)	8.72	6.11
Artacama sp. (polychaete)	2.91	1.05
Artacama proboscidea (polychaete)	0.58	0.16
Trichobranchidae (polychaete)	0.87	0.06
Terebellides stroemi (polychaete)	0.29	0.05
Sabellidae (polychaete)	2.03	0.91
Capitellida	0.29	0.00
Phyllodocida (pllychaete)	2.03	0.33
Sabellida (polychaete)	3.49	0.13
Terebellida (polychaete)	2.91	0.63
Hirudinea (leech)	0.87	0.11
Gastropoda (snail)	14.53	0.60
Bivalvia (clam)	44.48	4.15
Yoldia sp. (clam)	0.29	0.13
Yoldia scissurata (clam)	11.34	7.10
Cardiidae (cockles)	0.58	0.01

Table A-1.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Clinocardium sp. (cockle)	0.29	0.00
Clinocardium ciliatum (Iceland cockle)	0.29	0.00
Spisula polynyma (clam)	2.91	0.89
Copepoda	0.29	0.00
Calanoida (copepod)	0.29	0.00
Cumacea (cumacean)	7.27	0.01
Isopoda (isopod)	0.58	0.00
Gammaridea (amphipod)	62.50	2.44
Ampeliscidae (amphipod)	0.58	0.01
Maera loveni (amphipod)	0.58	0.22
Protomedeia sp. (amphipod)	22.38	0.31
Caprellidea (amphipod)	2.62	0.01
Crangonidae (shrimp)	0.29	0.05
Reptantia (crab)	1.74	0.24
Decapoda Reptantia legs (for unident. crabs)	0.29	0.00
Paguridae (hermit crab)	0.29	0.01
Decapoda brachyura (crab)	0.29	0.02
Chionoecetes sp. (snow and Tanner crab)	0.87	0.04
Chionoecetes opilio (snow crab)	1.16	0.80
Pinnotheridae (pea crab)	0.29	0.00
Sipuncula (marine worm)	2.62	7.32
Echiura (marine worm)	14.53	4.68
Echiurus sp. (marine worm)	0.58	0.05
Echiurus echiurus (marine worm)	17.73	8.88
Priapulida (worm)	2.03	2.39
Ophiuroidae Ophiurida (brittle star)	19.19	1.42
Brittle star legs	2.62	0.02
Ophiuridae (brittle star)	0.58	0.01
Sand dollar	6.40	0.08
Holothuroidea (sea cucumber)	1.74	0.93
Urochordata (tunicate)	0.29	0.00
Ammodytes hexapterus (Pacific sand lance)	0.29	0.09
Unidentified organic material	4.65	0.64
Sand	0.29	0.01
Unidentified worm-like organism	2.33	0.86
Unidentified tube	3.20	0.09

Total non-empty stomachs = 344
Total prey number = 8,956
Total prey weight = 1520 g
Total empty stomachs = 16
Number of hauls = 69

Table A-2.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of arrowtooth flounder (*Atheresthes stomias*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Cnidaria	0.32	0.00
Polychaeta (worm)	4.55	0.01
Nuculana sp. (clam)	0.32	0.01
Crustacea	0.32	0.00
Calanoida (copepod)	0.32	0.00
Mysidacea Mysida (mysid)	0.65	0.01
Gammaridea (amphipod)	2.27	0.01
Euphausiacea (euphausiid)	6.17	0.43
Euphausiidae (euphausiid)	11.69	0.57
Thysanoessa sp. (euphausiid)	0.32	0.01
Thysanoessa inermis (euphausiid)	0.65	0.02
Decapoda (shrimp and crab)	0.97	0.03
Natantia (shrimp)	0.32	0.00
Caridea (shrimp)	1.62	0.04
Oplophoridae (shrimp)	0.32	0.03
Pandalidae (shrimp)	0.65	0.01
Pandalus sp. (shrimp)	0.65	0.04
Pandalus borealis (shrimp)	1.30	0.16
Crangonidae (shrimp)	1.62	0.15
Crangon sp. (shrimp)	0.97	0.03
Crangon communis (shrimp)	0.65	0.03
Argis sp. (shrimp)	0.32	0.04
Ophiuroidea Euryalina (basket star)	0.32	0.01
Ophiuridae (brittle star)	0.32	0.00
Osteichthyes Teleostei (fish)	10.06	0.54
Non-gadoid fish remains	1.62	0.36
Mallotus villosus (capelin)	0.32	0.08
Gadidae (gadid fish)	5.84	1.22
Theragra chalcogramma (walleye pollock)	51.30	92.83
Zoarcidae (eelpout)	0.97	0.26
Cottoidei (sculpin)	0.32	0.46
Triglops scepticus (spectacled sculpin)	0.32	0.27
Stichaeidae (prickleback)	1.95	0.54
Ammodytes hexapterus (Pacific sand lance)	0.32	0.07
Pleuronectidae (flatfish)	0.65	0.12
Atheresthes stomias (arrowtooth flounder)	0.32	0.27
Unidentified organic material	0.32	0.00
Fishery offal	0.32	

Total non-empty stomachs = 308
Total prey number = 504
Total prey weight = 8,280 g
Total empty stomachs = 131
Number of hauls = 48

Table A-3.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific cod (*Gadus macrocephalus*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	24.24	0.83
Aphroditidae (sea mouse)	0.51	0.42
Polynoidae (polychaete)	6.73	0.11
Phyllodocidae (polychaete)	1.94	0.02
Nereidae (polychaete)	0.08	0.00
Nephtyidae (polychaete)	3.96	0.10
Goniadidae (polychaete)	0.42	0.00
Lumbrineridae	0.25	0.01
Brada sp. (polychaete)	0.17	0.00
Opheliidae (polychaete)	0.08	0.00
Maldanidae (polychaete)	0.08	0.00
Ampharetidae (polychaete)	0.42	0.00
Terebellidae (polychaete)	0.08	0.01
Hirudinea (leech)	0.67	0.11
Gastropoda (snail)	2.02	0.63
Natica sp. (moonsnail)	0.08	0.01
Polinices pallida (snail)	0.08	0.01
Buccinidae (snail)	0.08	0.00
Buccinum sp. (snail)	0.25	0.02
Neptuneidae (snail)	0.08	0.01
Neptunea sp. (snail)	0.17	0.06
Bivalvia (clam)	2.53	0.13
Yoldia scissurata (clam)	0.17	0.00
Cyclocardia sp. (cardita clam)	0.08	0.00
Cyclocardia crebricostata (thickribbed cardita)	0.08	0.00
Astarte sp. (clam)	0.08	0.01
Cardiidae (cockles)	0.08	0.01
Cephalopoda (squid and octopus)	0.25	0.03
Octopoda (octopus)	2.36	1.05
Crustacea	1.01	0.01
Copepoda	0.59	<0.01
Mysidacea Mysida (mysid)	10.61	0.09
Mysidae (mysid)	4.29	0.36
Neomysis rayii (mysid)	0.42	0.01
Cumacea (cumacean)	0.59	0.00
Isopoda (isopod)	0.08	0.00
Peracarida Isopoda Valvifera	0.08	0.00
Gammaridea (amphipod)	26.52	0.54
Ampeliscidae (amphipod)	3.87	0.10
Maera loveni (amphipod)	0.08	0.00
Protomedeia sp. (amphipod)	2.53	0.01
Anonyx sp. (amphipod)	2.36	0.02
Caprellidea (amphipod)	2.10	0.01
Euphausiacea (euphausiid)	0.51	0.01
Euphausiidae (euphausiid)	1.26	0.01

Table A-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Thysanoessa sp. (euphausiid)	0.17	0.00
Thysanoessa inermis (euphausiid)	0.08	0.00
Thysanoessa raschii (euphausiid)	0.08	0.04
Decapoda (shrimp and crab)	0.08	0.00
Natantia (shrimp)	0.42	0.02
Caridea (shrimp)	7.58	0.17
Hippolytidae (shrimp)	1.68	0.03
Spirontocaris sp. (shrimp)	0.08	0.00
Spirontocaris lamellicornis (shrimp)	0.08	0.00
Spirontocaris arcuata (shrimp)	0.76	0.02
Lebbeus sp. (shrimp)	0.08	0.00
Eualus sp. (shrimp)	0.08	0.00
Pandalidae (shrimp)	3.20	0.22
Pandalus sp. (shrimp)	0.51	0.01
Pandalus borealis (shrimp)	1.52	0.26
Pandalus goniurus (shrimp)	0.59	0.07
Pandalus montagui tridens (shrimp)	0.17	0.00
Pandalopsis sp. (shrimp)	0.08	0.00
Crangonidae (shrimp)	6.57	0.16
Crangon sp. (shrimp)	0.84	0.01
Crangon dalli (shrimp)	15.57	1.04
Crangon communis (shrimp)	5.98	0.24
Argis sp. (shrimp)	0.84	0.05
Argis lar (shrimp)	1.35	0.13
Argis dentata (shrimp)	0.17	0.01
Argis ovifer (shrimp)	0.08	0.00
Reptantia (crab)	1.77	0.16
Anomura (crab)	0.17	0.00
Paguridae (hermit crab)	26.85	7.23
Pagurus ochotensis (hermit crab)	0.08	0.03
Lithodidae (king crab)	0.84	1.08
Lithodidae (king crab - legs only)	0.17	0.04
Paralithodes sp. (king crab)	0.67	0.74
Decapoda brachyura (crab)	0.34	0.11
Majidae (spider crab)	0.17	0.03
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.34	0.04
Hyas sp. (lyre crab)	0.25	0.09
Hyas lyratus (lyre crab)	0.25	0.06
Hyas coarctatus (lyre crab)	0.42	0.15
Chionoecetes sp. (snow and Tanner crab)	5.47	1.07
Chionoecetes opilio (snow crab)	23.74	15.40
Chionoecetes bairdi (Tanner crab)	9.76	3.39
Atelecyclidae (crab)	0.08	0.34
Telmessus cheiragonus (hair crab)	0.34	0.50
Erimacrus isenbeckii (Korean horse-hair crab)	0.08	0.00
Cancridae (crab)	0.08	0.00
Cancer sp. (crab)	0.08	0.00
Pinnotheridae (pea crab)	0.25	0.01

Table A-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Pinnixa sp. (pea crab)	0.08	0.00
Sipuncula (marine worm)	1.01	0.15
Echiura (marine worm)	7.41	1.36
Echiuroinea (marine worm)	0.08	0.00
Echiurus echiurus (marine worm)	2.53	0.34
Priapulida (worm)	0.08	0.10
Ectoprocta (bryozoan)	0.08	0.00
Asteroidea (starfish)	0.08	0.02
Ctenodiscus crispatus (mud sea star)	0.17	0.03
Ophiuroidea Euryalina (basket star)	0.08	0.00
Ophiuroidae Ophiurida (brittle star)	0.17	0.00
Holothuroidea (sea cucumber)	0.08	0.00
Urochordata (tunicate)	0.08	0.01
Ascidiacea (sea squirt)	0.08	0.00
Rajidae (skate)	0.08	0.03
Osteichthyes Teleostei (fish)	7.83	0.55
Non-gadoid fish remains	7.49	1.57
Fish eggs	0.08	0.01
Osmeridae (smelts)	0.08	0.12
Mallotus villosus (capelin)	0.08	0.00
Thaleichthys pacificus (eulachon)	0.08	0.06
Gadidae (gadid fish)	1.35	0.23
Gadus macrocephalus (Pacific cod)	0.34	1.92
Theragra chalcogramma (walleye pollock)	16.92	38.91
Zoarcidae (eelpout)	8.42	6.03
Cottoidei (sculpin)	0.84	0.20
Artediellus sp. (sculpin)	0.08	0.00
Agonidae (poacher)	0.67	0.08
Occella dodecaedron (Bering poacher)	0.08	0.05
Sarritor frenatus (sawback poacher)	0.17	0.07
Stichaeidae (prickleback)	2.69	0.64
Cryptacanthodes aleutensis (dwarf wrymouth)	0.08	0.02
Ammodytes hexapterus (Pacific sand lance)	1.52	0.69
Pleuronectidae (flatfish)	3.54	1.85
Atheresthes stomias (arrowtooth flounder)	0.17	1.25
Hippoglossoides elassodon (flathead sole)	0.84	0.53
Hippoglossoides robustus (Bering flounder)	0.08	0.13
Lepidopsetta sp. (rock sole type)	0.51	0.95
Lepidopsetta bilineata (southern rock sole)	0.08	0.20
Lepidopsetta polyxystra (northern rock sole)	0.51	0.51
Pleuronectes asper (yellowfin sole)	0.25	2.17
Unidentified organic material	2.19	0.06
Unidentified eggs	0.25	0.01
Unidentified worm-like organism	1.09	0.15
Fishery offal	0.42	1.16
Unidentified tube	0.08	<0.01
Unidentified algae	0.08	0.00
Rocks	0.93	0.08

Table A-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Unidentified material	0.08	0.00

Total non-empty stomachs = 1,188
Total prey number = 8159
Total prey weight = 53,157 g
Total empty stomachs = 6
Number of hauls = 86

Table A-4.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of flathead sole (*Hippoglossoides elassodon*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Annelida (worm)	0.41	0.01
Polychaeta (worm)	18.03	4.99
Polynoidae (polychaete)	0.41	0.27
Nereidae (polychaete)	2.46	0.44
Maldanidae (polychaete)	0.41	0.86
Mollusca	0.82	0.03
Gastropoda (snail)	1.64	0.05
Bivalvia (clam)	3.28	2.72
Nuculana sp. (clam)	2.87	0.41
Yoldia sp. (clam)	1.23	0.70
Pectinidae (scallops)	0.41	0.33
Chlamys sp. (scallop)	0.82	0.24
Cardiidae (cockles)	0.41	0.02
Crustacea	2.05	0.03
Calanoida (copepod)	0.82	0.00
Mysidacea Mysida (mysid)	13.93	1.05
Mysidae (mysid)	16.39	10.61
Cumacea (cumacean)	6.97	0.26
Isopoda (isopod)	0.82	0.03
Amphipoda (amphipod)	1.64	0.01
Gammaridea (amphipod)	26.23	3.70
Ampeliscidae (amphipod)	4.10	0.60
Caprellidea (amphipod)	0.41	0.02
Caprellidae (amphipod)	0.41	0.00
Euphausiacea (euphausiid)	0.82	0.33
Euphausiidae (euphausiid)	6.97	2.36
Decapoda (shrimp and crab)	0.41	0.01
Natantia (shrimp)	0.41	0.01
Caridea (shrimp)	2.87	0.64
Hippolytidae (shrimp)	0.82	0.03
Spirontocaris arcuata (shrimp)	0.41	0.16
Pandalidae (shrimp)	1.23	3.14
Pandalus sp. (shrimp)	0.82	0.50
Crangonidae (shrimp)	3.28	0.84
Crangon sp. (shrimp)	12.70	6.34
Crangon alaskensis (shrimp)	0.41	0.12
Crangon dalli (shrimp)	4.10	3.62
Crangon communis (shrimp)	0.41	0.10
Reptantia (crab)	0.82	0.01
Paguridae (hermit crab)	3.28	1.96
Decapoda brachyura (crab)	1.64	0.20
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.41	0.01
Chionoecetes sp. (snow and Tanner crab)	1.64	0.22
Chionoecetes opilio (snow crab)	0.41	0.10
Chionoecetes bairdi (Tanner crab)	7.79	3.33

Table A-4.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Pinnotheridae (pea crab)	0.41	0.06
Sipuncula (marine worm)	0.41	0.57
Echiura (marine worm)	1.64	2.19
Ophiuroidae Ophiurida (brittle star)	25.82	21.14
Brittle star legs	2.87	0.63
Ophiura sarsi (brittle star)	4.10	8.94
Urochordata (tunicate)	0.82	0.02
Osteichthyes Teleostei (fish)	1.23	0.02
Non-gadoid fish remains	0.82	0.45
Gadidae (gadid fish)	0.82	0.54
Theragra chalcogramma (walleye pollock)	3.69	13.04
Stichaeidae (prickleback)	0.41	0.52
Lumpenus maculatus (daubed shanny)	0.41	0.18
Unidentified organic material	2.46	0.10
Unidentified worm-like organism	0.82	0.10
Unidentified tube	2.05	0.11

Total non-empty stomachs = 244
Total prey number = 900
Total prey weight = 446 g
Total empty stomachs = 34
Number of hauls = 30

Table A-5.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Greenland turbot (*Reinhardtius hippoglossoides*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	2.50	0.00
Mysidacea Mysida (mysid)	2.50	0.00
Isopoda (isopod)	2.50	0.02
Gammaridea (amphipod)	7.50	0.00
Euphausiacea (euphausiid)	15.00	0.00
Osteichthyes Teleostei (fish)	12.50	0.07
Gadidae (gadid fish)	10.00	2.66
Theragra chalcogramma (walleye pollock)	50.00	96.60
Fishery offal	2.50	0.64

Total non-empty stomachs = 40
Total prey number = 42
Total prey weight = 4,673 g
Total empty stomachs = 9
Number of hauls = 15

Table A-6.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific halibut (*Hippoglossus stenolepis*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	1.81	0.02
Mollusca	0.36	0.01
Gastropoda (snail)	2.17	0.03
Cephalopoda (squid and octopus)	2.17	0.34
Teuthoidea (squid)	1.08	0.66
Octopoda (octopus)	5.42	7.14
Mysidacea Mysida (mysid)	4.33	0.04
Mysidae (mysid)	1.08	0.01
Gammaridea (amphipod)	1.08	0.00
Euphausiidae (euphausiid)	2.89	0.01
Natantia (shrimp)	2.17	0.01
Caridea (shrimp)	1.44	0.01
Pandalidae (shrimp)	0.72	0.01
Pandalus sp. (shrimp)	0.36	0.00
Pandalus borealis (shrimp)	0.36	0.03
Pandalus goniurus (shrimp)	0.72	0.01
Crangonidae (shrimp)	7.58	0.13
Crangon sp. (shrimp)	6.50	0.11
Crangon dalli (shrimp)	1.44	0.04
Crangon communis (shrimp)	0.36	0.01
Argis sp. (shrimp)	0.72	0.02
Reptantia (crab)	2.89	0.10
Anomura (crab)	2.89	0.06
Paguridae (hermit crab)	19.49	3.96
Paguridae legs (hermit crabs)	1.08	0.06
Elassachirus tenuimanus	0.36	0.04
Lithodidae (king crab)	0.36	0.07
Decapoda brachyura (crab)	1.44	0.28
Decapoda Reptantia legs (for unident. crabs)	0.36	0.04
Majidae (spider crab)	1.81	0.08
Oregonia gracilis (decorator crab)	0.72	0.01
Hyas sp. (lyre crab)	2.53	0.63
Hyas lyratus (lyre crab)	1.08	0.08
Chionoecetes sp. (snow and Tanner crab)	5.42	1.56
Chionoecetes opilio (snow crab)	11.55	6.28
Chionoecetes bairdi (Tanner crab)	9.39	2.13
Telmessus cheiragonus (hair crab)	0.36	0.02
Cancer oregonensis (pygmy Cancer crab)	2.89	0.50
Echiura (marine worm)	0.36	0.01
Ectoprocta (bryozoan)	0.72	0.00
Ascidiacea (sea squirt)	0.36	0.00
Rajidae (skate)	0.36	0.08
Bathyraja parmifera (Alaska skate)	0.72	0.40
Osteichthyes Teleostei (fish)	9.39	1.07
Non-gadoid fish remains	9.39	1.24

Table A-6.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Clupea pallasi (Pacific herring)	0.36	0.01
Osmeridae (smelts)	2.53	0.14
Mallotus villosus (capelin)	3.97	1.17
Thaleichthys pacificus (eulachon)	0.36	0.24
Gadidae (gadid fish)	10.83	2.09
Eliginus gracilis (saffron cod)	0.72	0.13
Gadus macrocephalus (Pacific cod)	4.33	4.50
Theragra chalcogramma (walleye pollock)	38.63	50.04
Zoarcidae (eelpout)	0.36	0.01
Cottoidei (sculpin)	2.17	0.48
Cottidae (sculpin)	0.72	0.32
Triglops sp. (sculpin)	0.36	0.04
Agonidae (poacher)	1.08	0.20
Sarritor frenatus (sawback poacher)	0.36	0.15
Stichaeidae (prickleback)	1.44	0.18
Lumpenus fabricii (slender eelblenny)	0.36	0.05
Ammodytes sp. (sandlance)	4.33	0.31
Ammodytes hexapterus (Pacificsand lance)	6.50	0.50
Pleuronectiformes Pleuronectoidei (flatfish)	5.05	0.98
Pleuronectidae (flatfish)	6.86	4.77
Hippoglossoides robustus (Bering flounder)	0.36	0.70
Lepidopsetta sp. (rock sole type)	0.36	0.22
Lepidopsetta polyxystra (northern rock sole)	0.36	0.01
Pleuronectes asper (yellowfin sole)	2.17	1.41
Pleuronectes proboscideus (longhead dab)	2.89	3.07
Unidentified organic material	1.08	0.10
Fishery offal	1.08	0.81
Unidentified tube	0.36	

Total non-empty stomachs = 277
Total prey number = 1,489
Total prey weight = 24,442 g
Total empty stomachs = 16
Number of hauls = 66

Table A-7.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of northern rock sole (*Lepidopsetta polyxystra*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Foraminiferida (protozoan)	0.52	0.00
Polychaeta (worm)	61.30	11.02
Polynoidae (polychaete)	0.78	0.33
Phyllodocidae (polychaete)	7.53	0.08
Nereidae (polychaete)	11.17	9.05
Nephtyidae (polychaete)	16.62	19.01
Nephtys sp. (polychaete)	0.52	0.02
Goniadidae (polychaete)	17.40	0.47
Goniada sp. (polychaete)	0.26	0.00
Onuphidae (polychaete)	0.26	0.02
Lumbrineridae	2.08	0.33
Orbiniidae (polychaete)	11.17	0.66
Spionidae (polychaete)	0.26	0.01
Chaetopteridae (polychaete)	0.52	0.08
Flabelligeridae (polychaete)	1.30	0.18
Brada sp. (polychaete)	1.56	0.06
Flabelligera sp. (polychaete)	0.26	0.01
Scalibregmidae	0.26	0.09
Scalibregma inflatum	1.82	0.47
Opheliidae (polychaete)	8.05	2.24
Travisia sp. (polychaete)	4.16	1.68
Travisia forbesii (polychaete)	1.82	0.51
Maldanidae (polychaete)	20.52	9.07
Pectinariidae (polychaete)	1.30	0.07
Cistenides sp. (polychaete)	0.26	0.02
Ampharetidae (polychaete)	5.71	0.48
Terebellidae (polychaete)	2.86	2.12
Trichobranchidae (polychaete)	0.52	0.07
Sabellidae (polychaete)	0.52	0.13
Eunicida (polychaete)	0.26	0.00
Phyllodocida (pllychaete)	0.26	0.00
Sabellida (polychaete)	2.86	0.14
Terebellida (polychaete)	0.26	0.18
Hirudinea (leech)	0.26	0.07
Gastropoda (snail)	1.82	0.09
Nudibranchia (sea slug)	0.26	0.03
Bivalvia (clam)	43.38	2.61
Yoldia sp. (clam)	0.26	0.16
Yoldia scissurata (clam)	5.19	1.87
Cardiidae (cockles)	0.52	0.02
Clinocardium sp. (cockle)	0.26	0.01
Spisula sp. (clam)	0.26	0.01
Spisula polynyma (clam)	0.26	0.15
Crustacea	0.52	0.00
Cirripedia (barnacle)	0.26	0.02
Mysidae (mysid)	2.86	0.15

Table A-7.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Pseudomma truncatum (mysid)	1.30	0.07
Cumacea (cumacean)	16.88	0.10
Isopoda (isopod)	0.52	0.00
Peracarida Isopoda Valvifera	0.26	0.02
Gammaridea (amphipod)	54.03	3.26
Ampeliscidae (amphipod)	17.66	2.99
Ampelisca sp. (amphipod)	1.56	0.47
Ampelisca macrocephala (amphipod)	0.26	0.08
Gammaridae (amphipod)	0.26	0.03
Protomedeia sp. (amphipod)	15.06	0.68
Anonyx sp. (amphipod)	1.56	0.09
Caprellidea (amphipod)	3.12	0.10
Thysanoessa sp. (euphausiid)	0.52	0.00
Caridea (shrimp)	0.26	0.00
Crangon sp. (shrimp)	0.26	0.02
Crangon dalli (shrimp)	0.26	0.07
Reptantia (crab)	1.30	0.08
Decapoda Reptantia legs (for unident. crabs)	0.26	0.00
Paguridae (hermit crab)	1.30	0.49
Chionoecetes sp. (snow and Tanner crab)	1.04	0.45
Chionoecetes opilio (snow crab)	1.04	0.21
Chionoecetes bairdi (Tanner crab)	0.26	0.05
Sipuncula (marine worm)	1.30	1.00
Echiura (marine worm)	5.45	1.74
Echiurus echiurus (marine worm)	20.52	9.32
Priapulida (worm)	2.86	6.23
Ectoprocta (bryozoan)	0.26	0.03
Ophiuroidae Ophiurida (brittle star)	8.57	1.23
Brittle star legs	1.82	0.14
Ophiuridae (brittle star)	1.56	0.32
Sand dollar	2.08	0.04
Clypeasteridae (sand dollar)	0.52	0.04
Holothuroidea (sea cucumber)	3.12	0.95
Urochordata (tunicate)	2.86	0.27
Ascidiacea (sea squirt)	0.52	0.11
Ascidia sp. (tunicate)	3.64	0.31
Larvacea Copelata	0.26	0.03
Osteichthyes Teleostei (fish)	0.52	0.03
Non-gadoid fish remains	0.78	0.07
Scorpaenidae	0.26	0.07
Ammodytes sp. (sand lance)	0.26	0.07
Ammodytes hexapterus (Pacific sand lance)	1.56	4.14
Unidentified organic material	11.43	0.52
Unidentified worm-like organism	2.34	0.23
Fishery offal	0.52	0.00
Unidentified tube	1.82	0.04

Table A-7.--Continued.

Total non-empty stomachs = 385
Total prey number = 10,794
Total prey weight = 689 g
Total empty stomachs = 40
Number of hauls = 80

Table A-8.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of skates collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	18.09	0.31
Polynoidae (polychaete)	0.71	0.02
Opheliidae (polychaete)	0.35	0.02
Bivalvia (clam)	1.06	0.00
Teuthoidea (squid)	0.35	0.00
Crustacea	1.42	0.01
Mysidacea Mysida (mysid)	10.99	0.20
Mysidae (mysid)	4.96	0.03
Cumacea (cumacean)	4.26	0.01
Amphipoda (amphipod)	0.35	0.00
Gammaridea (amphipod)	24.47	0.57
Ampeliscidae (amphipod)	4.96	0.28
Caprellidae (amphipod)	0.35	0.00
Euphausiacea (euphausiid)	1.42	0.01
Euphausiidae (euphausiid)	4.96	0.01
Natantia (shrimp)	2.84	0.05
Caridea (shrimp)	3.19	0.03
Hippolytidae (shrimp)	2.84	0.13
Eualus sp. (shrimp)	2.84	0.13
Pandalidae (shrimp)	1.42	0.03
Pandalus sp. (shrimp)	1.06	0.02
Pandalus borealis (shrimp)	0.35	0.01
Pandalus goniurus (shrimp)	1.06	0.10
Crangonidae (shrimp)	10.28	4.20
Crangon sp. (shrimp)	11.35	1.50
Crangon alaskensis (shrimp)	0.35	0.01
Crangon dalli (shrimp)	2.48	0.32
Crangon communis (shrimp)	1.06	0.03
Argis sp. (shrimp)	14.54	9.10
Argis lar (shrimp)	0.35	0.01
Argis ovifer (shrimp)	0.35	0.03
Reptantia (crab)	9.57	0.44
Decapoda Reptantia legs (for unident. crabs)	0.35	0.00
Anomura (crab)	1.77	0.31
Paguridae (hermit crab)	11.70	1.69
Pagurus sp. (hermit crab)	0.71	0.13
Decapoda brachyura (crab)	0.71	0.03
Decapoda brachyura legs (for unident. crabs)	0.35	0.01
Majidae (spider crab)	4.26	0.36
Majidae legs (*for C. opilio*, *C. bairdi*, etc)	0.35	0.00
Oregonia gracilis (decorator crab)	0.35	0.01
Chionoecetes sp. (snow and Tanner crab)	13.12	1.50
Chionoecetes opilio (snow crab)	5.32	0.96
Chionoecetes bairdi (Tanner crab)	3.55	0.59
Osteichthyes Teleostei (fish)	10.28	0.48
Non-gadoid fish remains	3.55	0.26

Table A-8.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Gadidae (gadid fish)	5.32	3.46
Theragra chalcogramma (walleye pollock)	18.44	39.85
Zoarcidae (eelpout)	3.55	3.69
Cottoidei (sculpin)	2.48	0.06
Cottidae (sculpin)	0.35	1.40
Agonidae (poacher)	3.90	2.36
Stichaeidae (prickleback)	12.41	4.44
Lumpenus maculatus (daubed shanny)	1.06	0.61
Ammodytes sp. (sandlance)	2.48	1.13
Pleuronectiformes Pleuronectoidei (flatfish)	5.67	1.42
Pleuronectidae (flatfish)	9.22	5.65
Hippoglossoides elassodon (flathead sole)	0.71	0.05
Lepidopsetta sp. (rock sole type)	0.35	0.07
Lepidopsetta polyxystra (northern rock sole)	1.42	2.22
Pleuronectes asper (yellowfin sole)	1.42	2.54
Pleuronectes proboscideus (longhead dab)	0.35	0.48
Unidentified organic material	0.35	0.00
Fishery offal	3.19	6.64

Total non-empty stomachs = 282

Total prey number = 1,775

Total prey weight = 10,491 g

Total empty stomachs = 39
Number of hauls = 54

Table A-9.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of walleye pollock (*Theragra chalcogramma*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Annelida (worm)	0.04	0.01
Polychaeta (worm)	2.33	0.17
Polynoidae (polychaete)	0.15	0.00
Phyllodocidae (polychaete)	0.04	0.00
Tomopteridae (polychaete)	0.09	0.00
Nereidae (polychaete)	0.07	0.04
Nephtyidae (polychaete)	0.11	0.01
Goniadidae (polychaete)	0.42	0.01
Orbiniidae (polychaete)	0.02	0.00
Hirudinea (leech)	0.02	0.00
Pteropoda	1.72	0.02
Thecosomata (pteropod)	0.66	0.02
Bivalvia (clam)	0.24	0.00
Cephalopoda (squid and octopus)	0.07	0.00
Teuthoidea (squid)	0.40	0.00
Gonatidae (squid)	0.02	0.00
Octopoda (octopus)	0.02	0.10
Crustacea	3.26	0.12
Ostracoda	0.02	0.00
Copepoda	0.02	<0.01
Calanoida (copepod)	43.02	4.99
Calanidae (copepod)	1.19	0.02
Candacia sp. (copepod)	0.02	0.00
Harpacticoida (copepod)	0.02	<0.01
Peracarida Mysidacea (mysid)	0.04	0.00
Mysidacea Mysida (mysid)	7.22	1.84
Mysidae (mysid)	3.39	0.28
Meterythrops sp. (mysid)	0.02	0.01
Neomysis rayii (mysid)	0.02	0.00
Pseudomma sp. (mysid)	0.07	0.00
Cumacea (cumacean)	3.28	0.15
Diastylopsis sp. (cumacean)	0.02	0.00
Oxyurostylis sp. (cumacean)	0.02	0.00
Leptocuma sp. (cumacean)	0.02	0.00
Isopoda (isopod)	0.09	0.00
Phreatoicidea (Isopod suborder)	0.02	0.00
Amphipoda (amphipod)	0.09	0.00
Gammaridea (amphipod)	8.39	0.61
Ampeliscidae (amphipod)	1.72	0.19
Protomedeia sp. (amphipod)	0.40	0.00
Anonyx sp. (amphipod)	0.22	0.01
Amphipoda Hyperiidea (amphipod)	12.89	1.64
Hyperiidae (amphipod)	0.18	0.00
Caprellidea (amphipod)	0.29	0.00
Caprellidae (amphipod)	0.04	0.00
Euphausiacea (euphausiid)	44.63	40.99

Table A-9.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Euphausiidae (euphausiid)	17.69	8.50
Thysanoessa sp. (euphausiid)	8.81	7.78
Thysanoessa inermis (euphausiid)	2.00	1.24
Thysanoessa raschii (euphausiid)	2.93	3.07
Thysanoessa spinifera (euphausiid)	0.70	0.68
Decapoda (shrimp and crab)	0.93	0.05
Penaeidae	0.02	0.00
Natantia (shrimp)	0.88	0.02
Caridea (shrimp)	2.38	0.45
Hippolytidae (shrimp)	0.40	0.15
Spirontocaris arcuata (shrimp)	0.04	0.01
Lebbeus groenlandicus (shrimp)	0.04	0.01
Eualus sp. (shrimp)	0.07	0.01
Eualus townsendi (shrimp)	0.02	0.01
Pandalidae (shrimp)	1.39	0.52
Pandalus sp. (shrimp)	0.11	0.02
Pandalus borealis (shrimp)	0.33	0.23
Pandalus goniurus (shrimp)	0.35	0.18
Pandalus jordani (shrimp)	0.02	0.00
Crangonidae (shrimp)	0.79	0.08
Crangon sp. (shrimp)	0.09	0.02
Crangon alaskensis (shrimp)	0.02	0.00
Crangon dalli (shrimp)	2.53	3.36
Crangon communis (shrimp)	0.33	0.06
Argis sp. (shrimp)	0.15	0.04
Argis lar (shrimp)	0.11	0.03
Argis crassa (shrimp)	0.02	0.00
Reptantia (crab)	0.70	0.01
Anomura (crab)	1.08	0.01
Paguridae (hermit crab)	1.28	0.01
Lithodidae (king crab)	0.07	0.00
Paralithodes sp. (king crab)	0.11	0.00
Paralithodes platypus (blue king crab)	0.51	0.01
Decapoda brachyura (crab)	0.26	0.02
Chionoecetes sp. (snow and Tanner crab)	0.02	0.00
Echiura (marine worm)	0.35	0.13
Echiuridae (marine worm)	0.09	0.04
Echiurus echiurus (marine worm)	0.11	0.07
Ophiuroidae Ophiurida (brittle star)	0.04	0.00
Holothuroidea (sea cucumber)	0.02	0.00
Chaetognatha (arrow worm)	5.77	0.17
Sagitta sp. (arrow worm)	2.93	0.15
Urochordata (tunicate)	0.02	0.00
Ascidia sp. (tunicate)	0.13	<0.01
Thaliacea (pelagic salp)	0.07	0.01
Larvacea Copelata	11.61	2.70
Oikopleura sp.	1.06	0.50
Misc. fish	0.44	0.01

Table A-9.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Osteichthyes Teleostei (fish)	5.86	0.80
Non-gadoid fish remains	0.51	0.30
Fish eggs	0.02	<0.01
Clupea pallasi (Pacific herring)	0.04	0.00
Gadidae (gadid fish)	0.93	0.79
Theragra chalcogramma (walleye pollock)	5.37	13.39
Zoarcidae (eelpout)	0.02	0.01
Scorpaenidae	0.02	0.00
Cottoidei (sculpin)	0.44	0.05
Hemilepidotus hemilepidotus (red Irish lord)	0.02	0.00
Myoxocephalus sp. (sculpin)	0.02	0.00
Agonidae (poacher)	0.04	0.02
Liparis sp. (snailfish)	0.02	0.00
Ptilichthys goodei (quillfish)	0.02	0.00
Stichaeidae (prickleback)	0.09	0.06
Lumpenus maculatus (daubed shanny)	0.02	0.00
Poroclinus rothrocki (whitebarred pricklback)	0.02	0.01
Ammodytes sp. (sandlance)	0.09	0.13
Ammodytes hexapterus (Pacificsand lance)	0.20	0.37
Pleuronectidae (flatfish)	0.29	0.06
Lepidopsetta sp. (rock sole type)	0.07	0.00
Reinhardtius hippoglossoides (Greenland turbot)	0.33	0.24
Hippoglossus stenolepis (Pacific halibut)	0.11	0.00
Aves (bird part)	0.02	0.00
Unidentified organic material	2.97	0.19
Sand	0.02	<0.01
Unidentified eggs	0.02	<0.01
Unidentified worm-like organism	0.18	0.01
Fishery offal	0.62	1.91
Unidentified tube	0.09	0.00
Wood	0.02	0.00
Rocks	0.04	0.00

Total non-empty stomachs = 4,540
Total prey number = 22,245
Total prey weight = 23,687 g
Total empty stomachs = 91
Number of hauls = 264

Table A-10.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of yellowfin sole (*Limanda aspera*) collected in the eastern Bering Sea in 1997, May through September.

Prey Name	Mean % F.O	Mean % Weight
Annelida (worm)	0.86	0.06
Polychaeta (worm)	25.29	8.23
Nephtyidae (polychaete)	0.29	0.27
Maldanidae (polychaete)	0.29	0.25
Pectinariidae (polychaete)	0.29	0.01
Gastropoda (snail)	2.01	0.37
Bivalvia (clam)	23.56	16.88
Nuculana sp. (clam)	1.44	1.08
Yoldia sp. (clam)	0.57	0.45
Cyclocardia sp. (cardita clam)	0.29	0.02
Cardiidae (cockles)	0.57	0.04
Clinocardium ciliatum (Iceland cockle)	0.57	1.48
Serripes groenlandicus (Greenland cockle)	0.29	0.48
Crustacea	1.15	0.08
Calanoida (copepod)	0.29	0.00
Cirripedia (barnacle)	0.29	0.00
Mysidacea Mysida (mysid)	1.15	0.09
Mysidae (mysid)	0.57	0.04
Cumacea (cumacean)	15.52	0.57
Isopoda (isopod)	0.57	0.51
Amphipoda (amphipod)	3.45	0.33
Gammaridea (amphipod)	38.51	5.68
Caprellidea (amphipod)	0.29	0.02
Caprellidae (amphipod)	0.29	0.01
Euphausiidae (euphausiid)	4.60	3.85
Caridea (shrimp)	1.15	0.24
Crangonidae (shrimp)	2.01	0.57
Crangon sp. (shrimp)	0.29	0.08
Crangon dalli (shrimp)	0.57	0.87
Reptantia (crab)	2.87	0.40
Paguridae (hermit crab)	3.16	3.08
Decapoda brachyura (crab)	1.15	0.53
Majidae (spider crab)	0.57	0.16
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.29	<0.01
Oregonia sp. (decorator crab)	0.29	0.98
Chionoecetes sp. (snow and Tanner crab)	0.86	0.77
Chionoecetes opilio (snow crab)	1.44	1.08
Chionoecetes bairdi (Tanner crab)	0.86	0.56
Sipuncula (marine worm)	0.29	<0.01
Echiura (marine worm)	8.05	21.36
Echiuridae (marine worm)	1.15	5.49
Priapulida (worm)	0.29	1.43
Ectoprocta (bryozoan)	1.72	0.20
Ophiuroidae Ophiurida (brittle star)	22.70	7.90

Table A-10.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Brittle star legs	0.29	0.17
Echinacea sp. (sea urchin)	1.15	0.06
Clypeasteridae (sand dollar)	2.87	0.21
Sand dollar	0.29	0.00
Holothuroidea (sea cucumber)	3.16	2.56
Chaetognatha (arrow worm)	0.29	0.00
Urochordata (tunicate)	0.29	0.02
Larvacea Copelata	2.59	1.03
Osteichthyes Teleostei (fish)	2.01	0.37
Osmeridae (smelts)	0.29	2.66
Theragra chalcogramma (walleye pollock)	0.29	0.16
Ammodytes sp. (sand lance)	0.57	0.64
Pleuronectidae (flatfish)	0.29	0.44
Unidentified organic material	4.60	1.54
Sand	0.57	0.11
Unidentified worm-like organism	1.72	2.86
Fishery offal	0.29	<0.01
Unidentified tube	2.59	0.25

Total non-empty stomachs = 348
Total prey number = 983
Total prey weight = 530 g
Total empty stomachs = 153
Number of hauls = 55

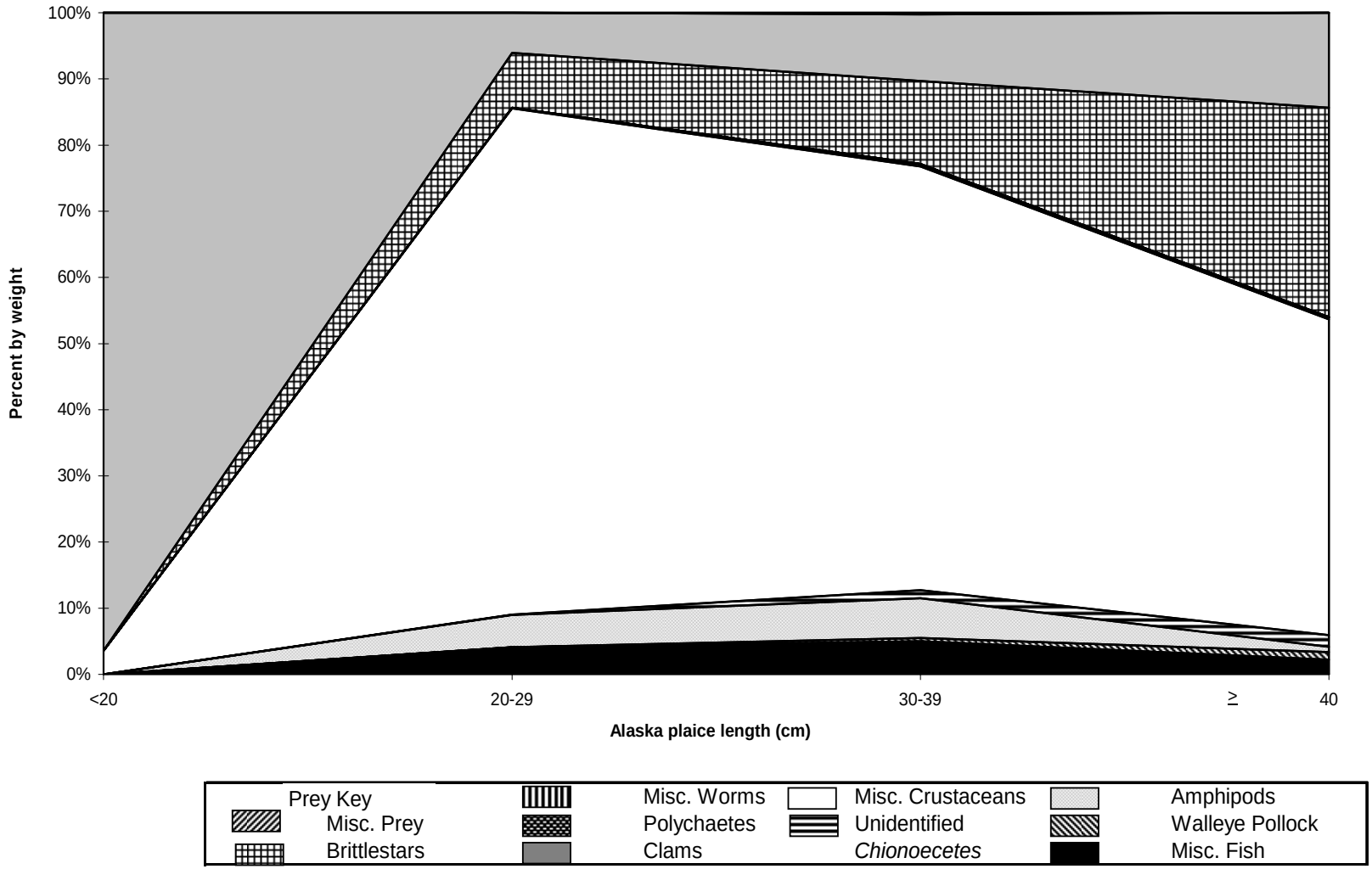

Figure A-1.--Diet composition of Alaska plaice, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

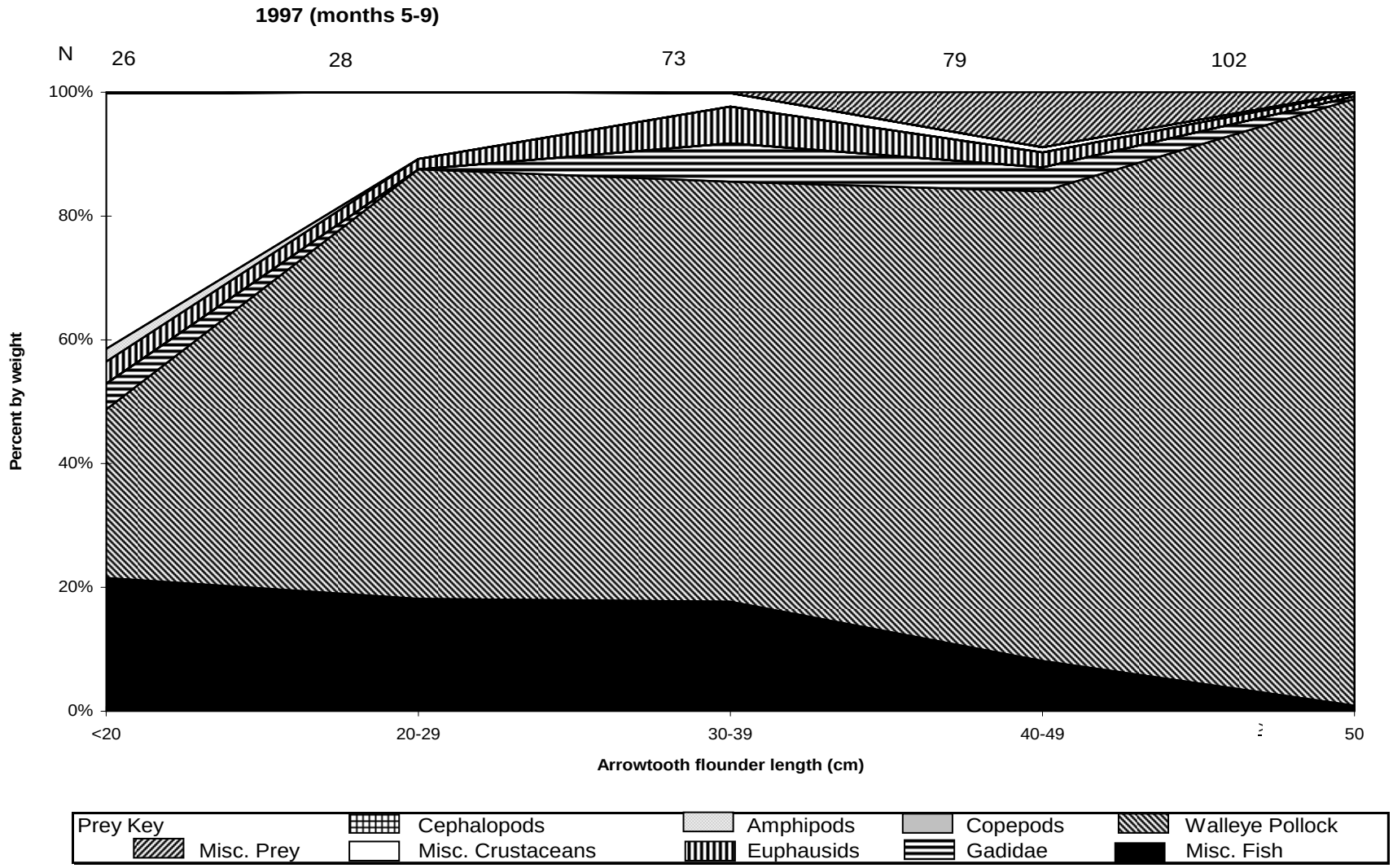

Figure A-2.--Diet composition of arrowtooth flounder, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

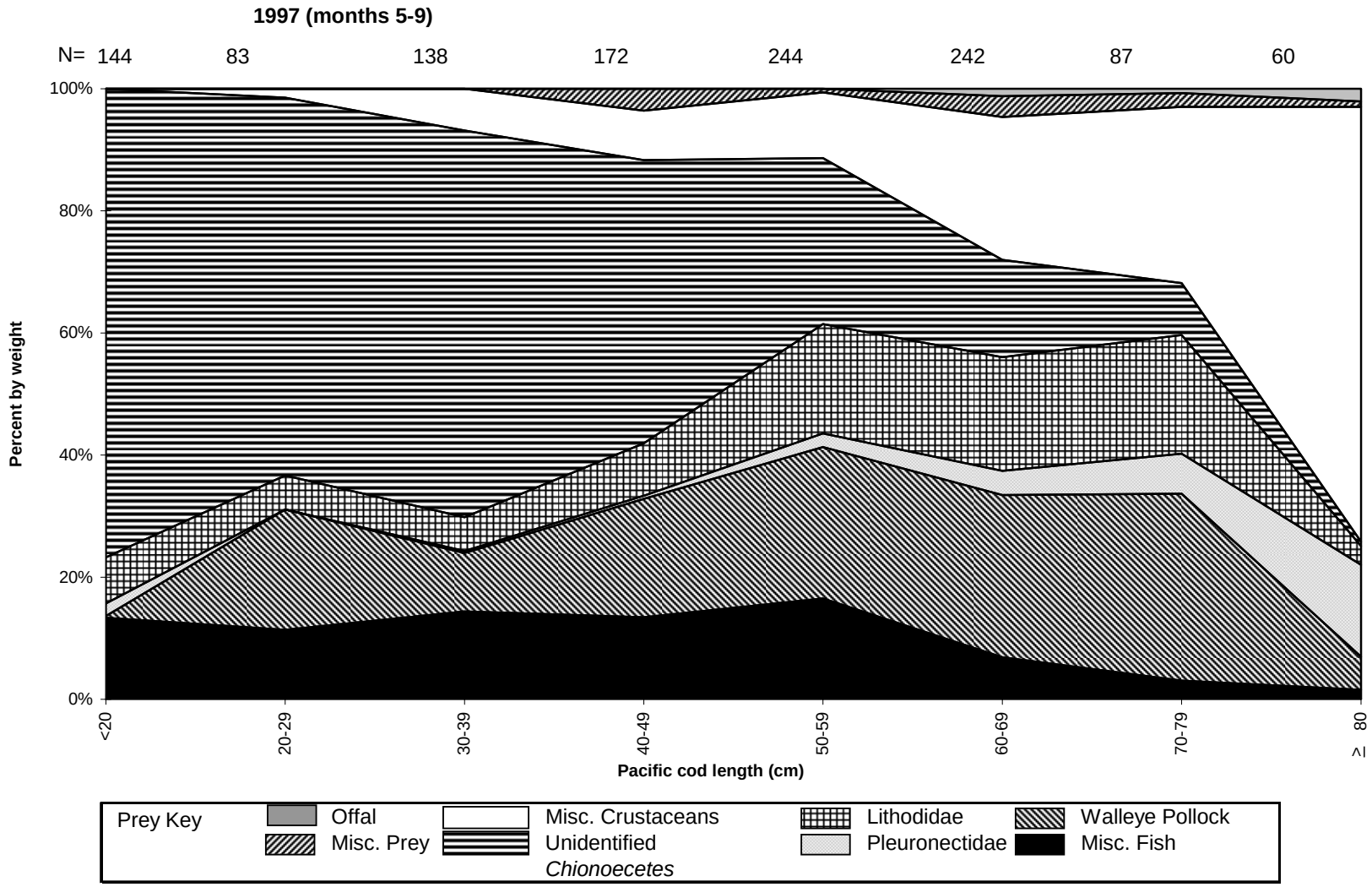

Figure A-3.--Diet composition of Pacific cod, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

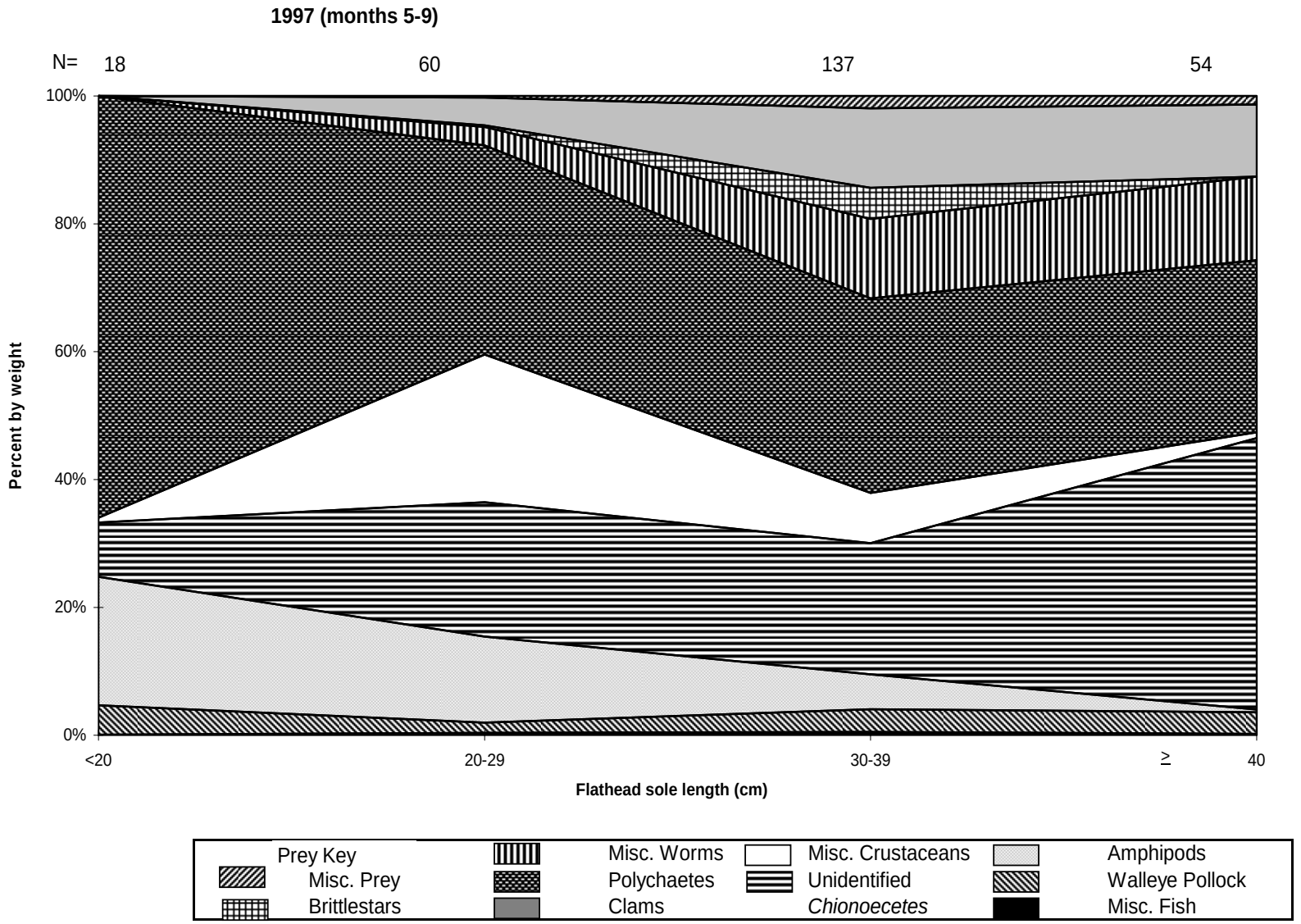

Figure A-4.--Diet composition of flathead sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

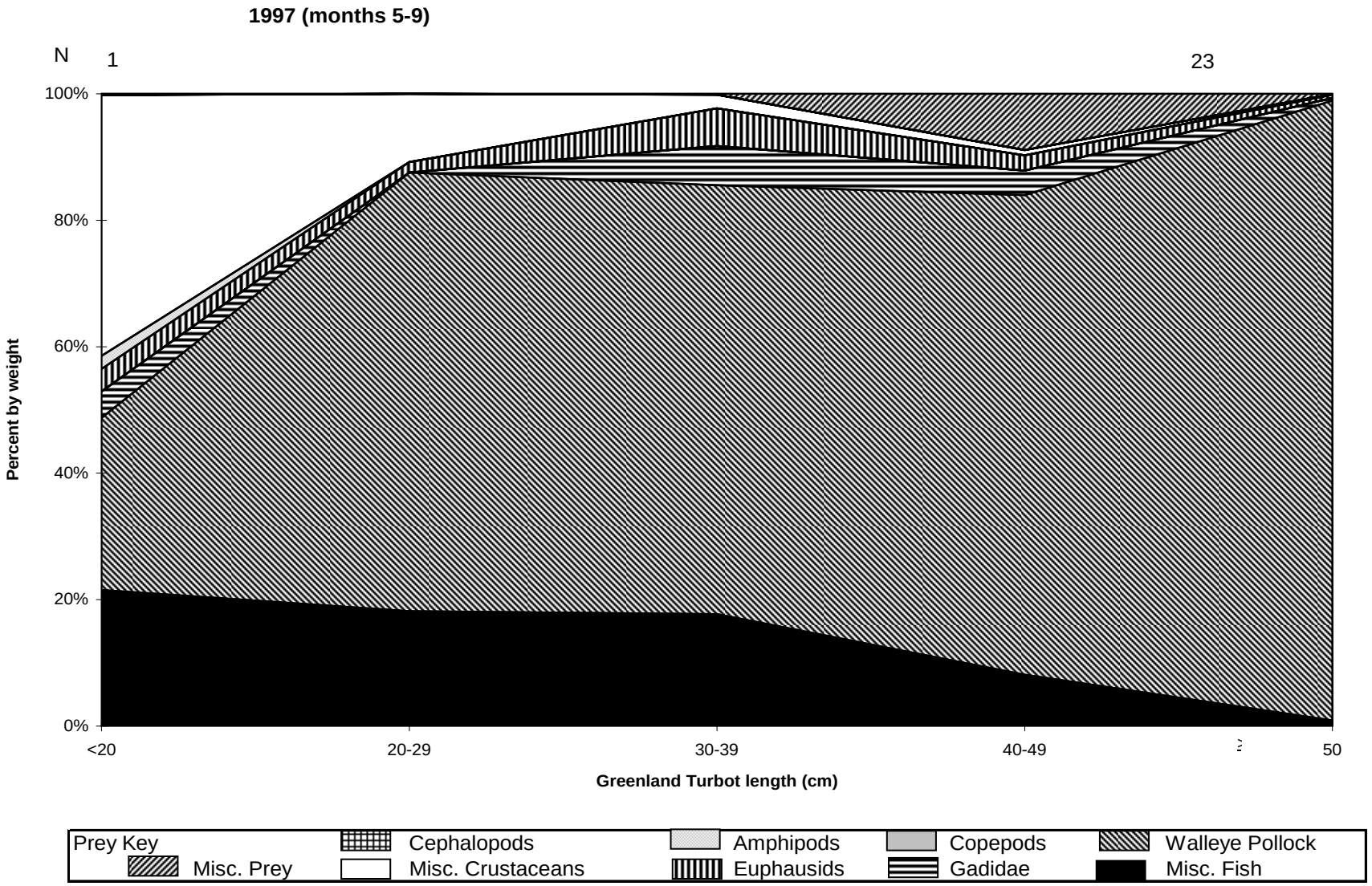

Figure A-5.--Diet composition of Greenland turbot, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

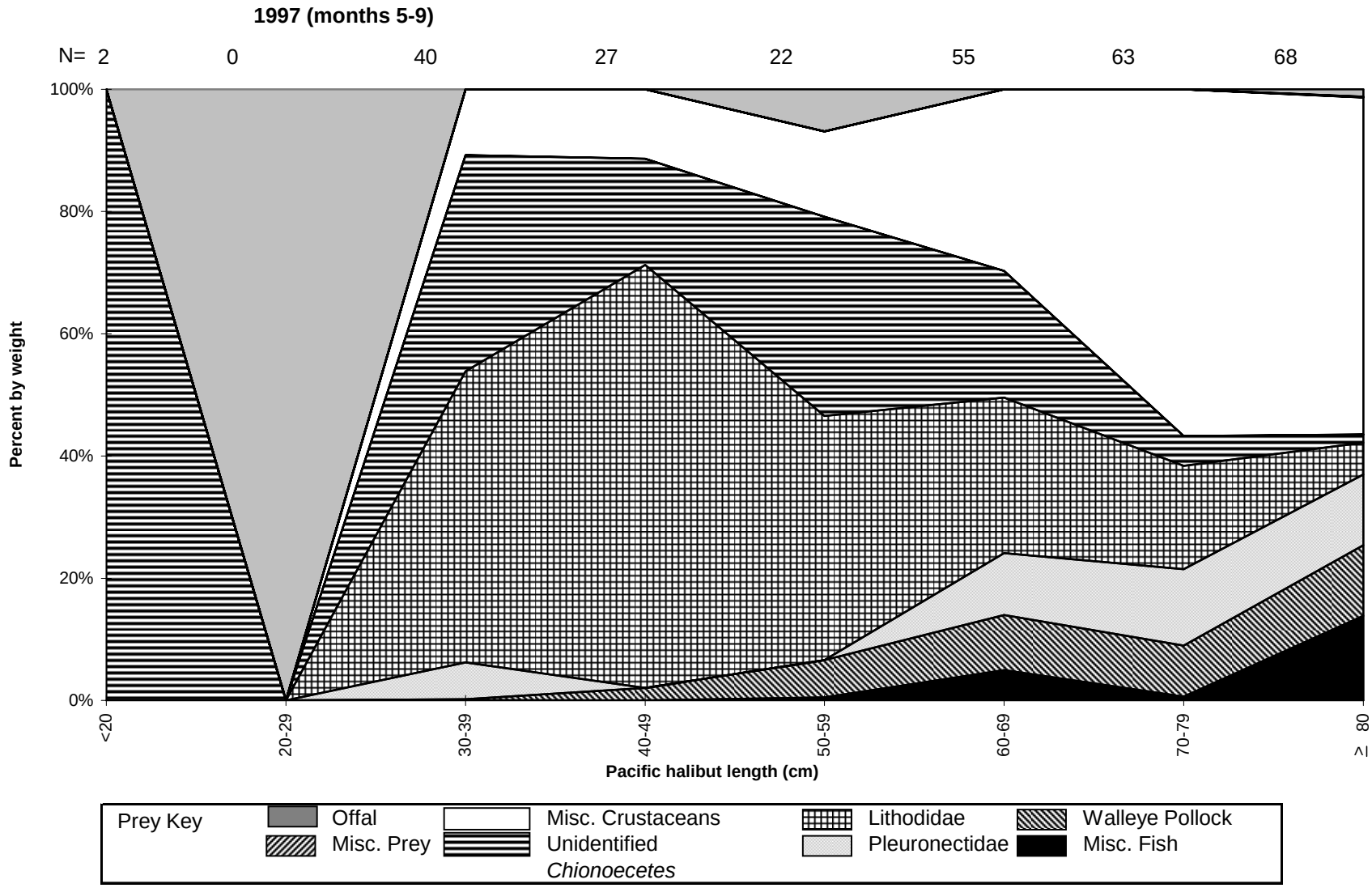

Figure A-6.--Diet composition of Pacific halibut, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

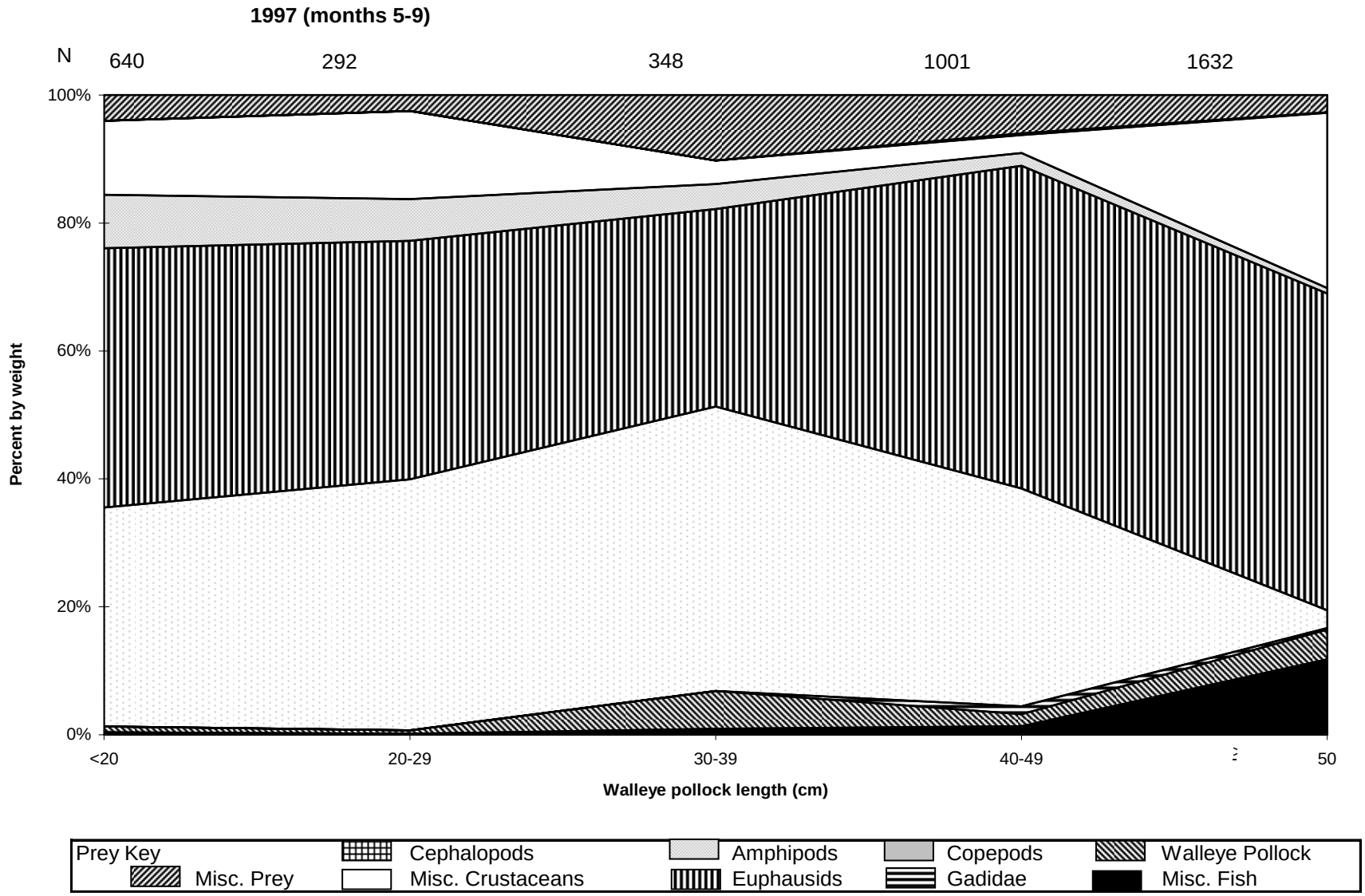

Figure A-7.--Diet composition of walleye pollock, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

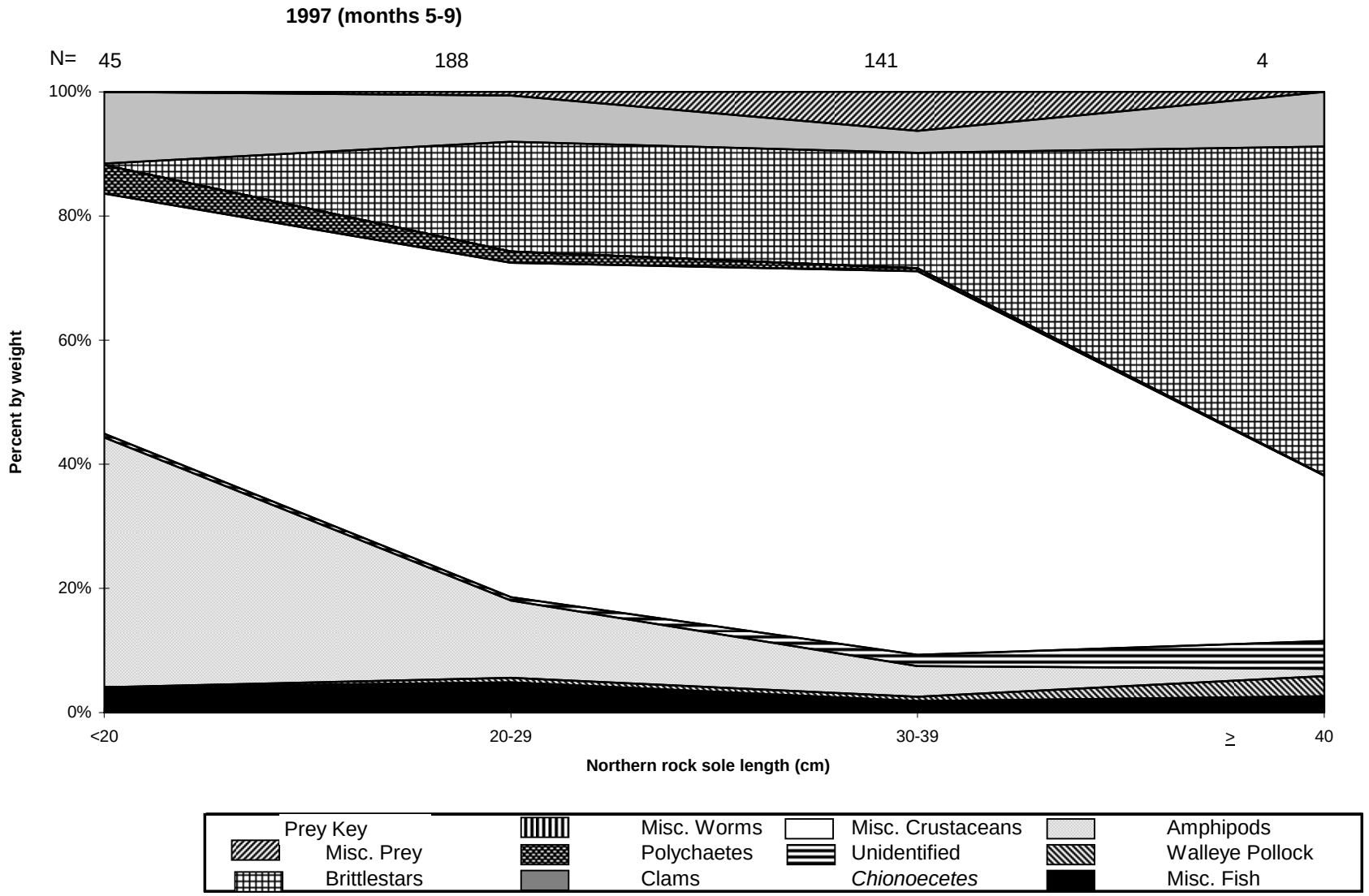

Figure A-8.--Diet composition of northern rock sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

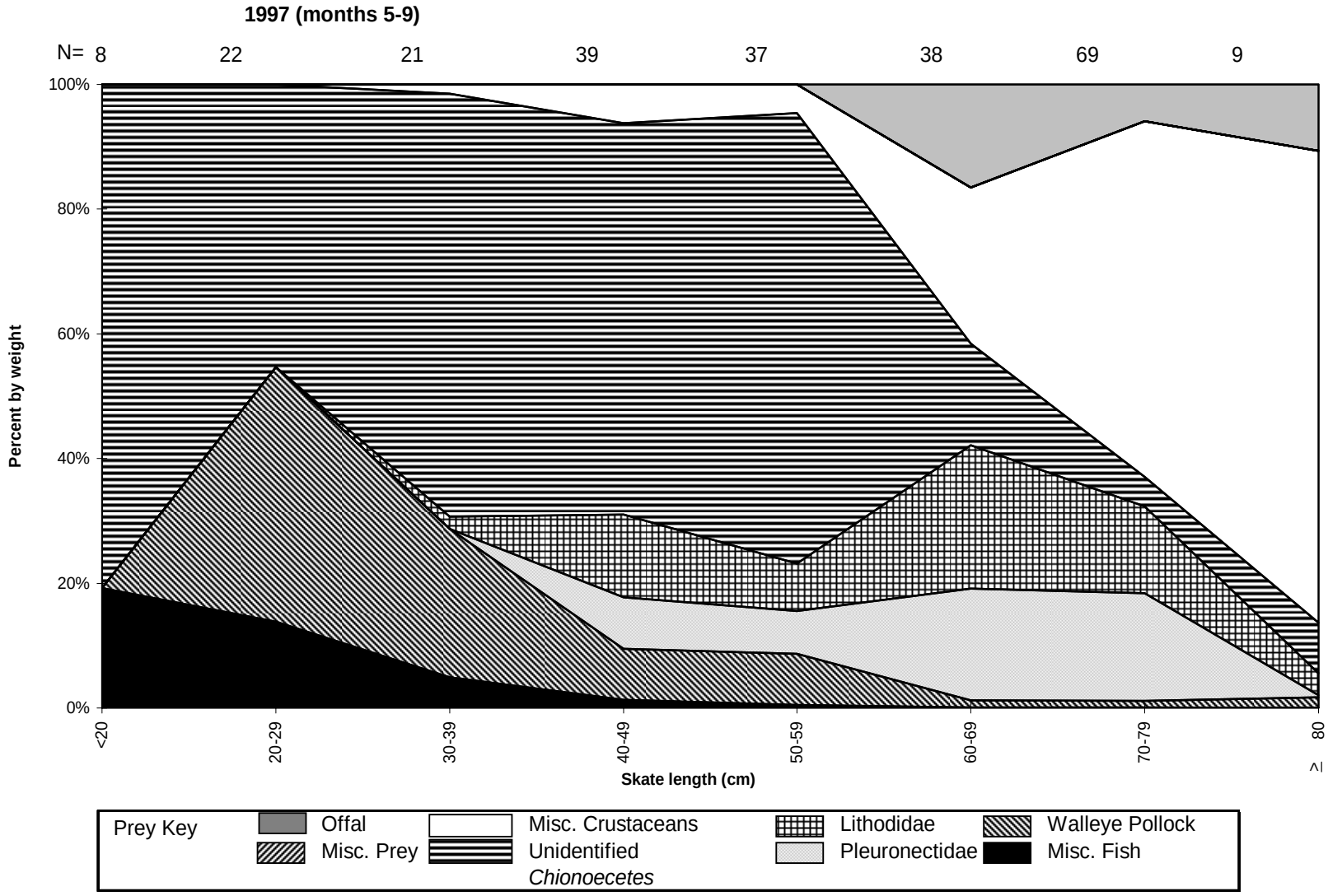

Figure A-9.--Diet composition of skates, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

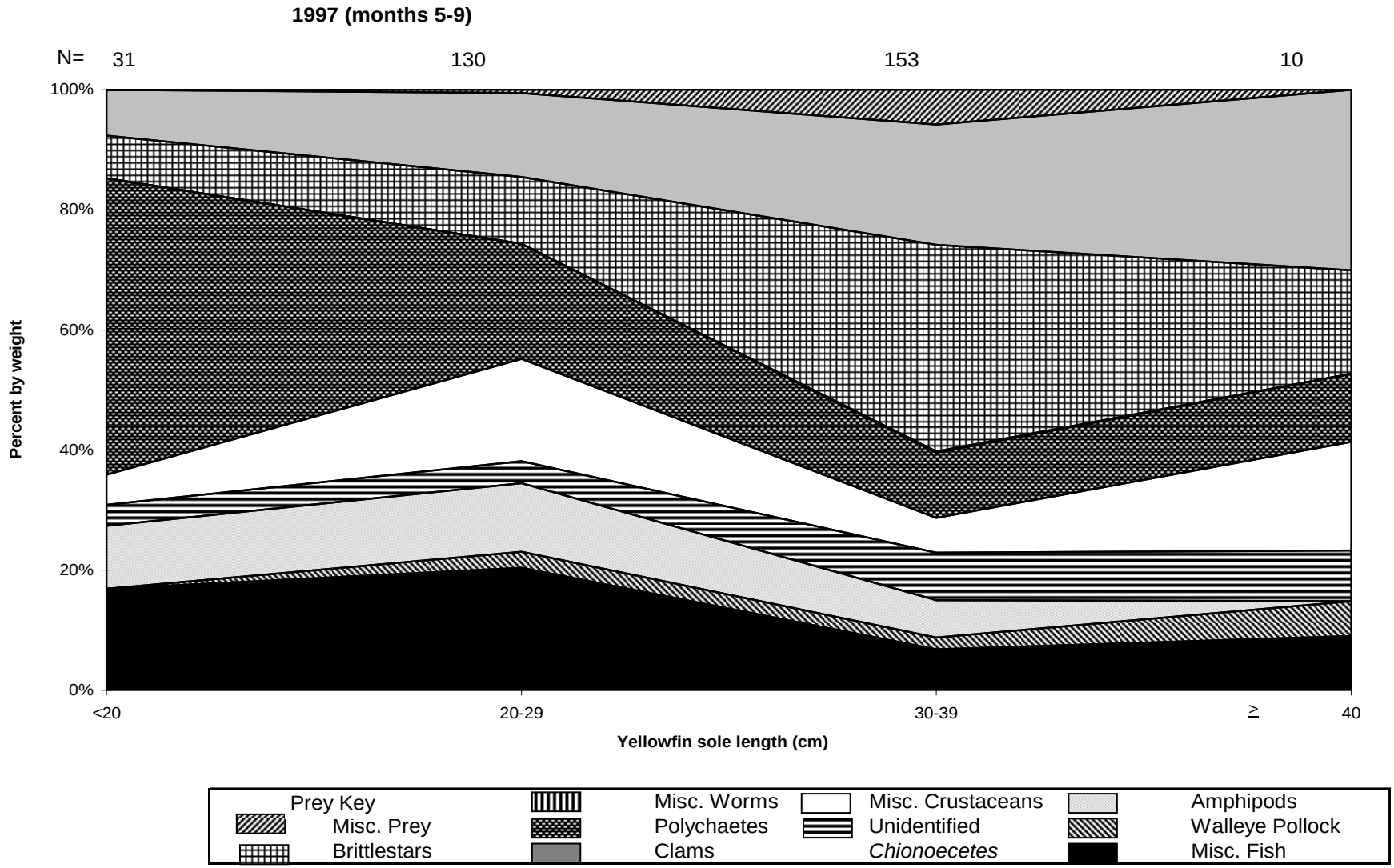

Figure A-10.--Diet composition of Pacific halibut, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

Appendix B- Diet of major groundfish species collected from the eastern Bering Sea in 1998

Table B-1.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Alaska plaice (*Pleuronectes quadrituberculatus*) collected in the eastern Bering Sea in 1998, May through September.

Prey Name	Mean % F.O	Mean % Weight
Foraminiferida Textulariina (foram)	0.52	0.00
Polychaeta (worm)	68.04	4.45
Polynoidae (polychaete)	28.35	0.80
Phyllodocidae (polychaete)	2.06	0.10
Nereidae (polychaete)	3.09	0.07
Nephtyidae (polychaete)	22.16	6.36
Glyceridae (polychaete)	0.52	0.01
Goniadidae (polychaete)	10.31	0.07
Onuphidae (polychaete)	1.55	0.04
Lumbrineridae	3.61	1.08
Orbiniidae (polychaete)	22.16	0.10
Spionidae (polychaete)	1.03	0.01
Chaetopteridae (polychaete)	2.58	2.02
Flabelligeridae (polychaete)	2.06	0.44
Brada sp. (polychaete)	6.70	0.31
Scalibregma inflatum	1.55	0.37
Opheliidae (polychaete)	6.70	0.40
Travisia sp. (polychaete)	1.55	0.13
Travisia forbesii (polychaete)	0.52	0.41
Sternaspis scutata (polychaete)	4.64	0.46
Capitellidae (polychaete)	1.55	0.29
Maldanidae (polychaete)	42.78	7.59
Pectinariidae (polychaete)	0.52	0.18
Ampharetidae (polychaete)	14.95	3.24
Terebellidae (polychaete)	6.70	8.45
Artacama sp. (polychaete)	1.03	0.15
Trichobranchidae (polychaete)	5.67	0.29
Terebellides stroemi (polychaete)	1.03	0.18
Sabellida (polychaete)	2.06	0.04
Terebellida (polychaete)	2.06	0.09
Mollusca	0.52	0.00
Gastropoda (snail)	17.01	0.42
Bivalvia (clam)	46.39	3.37
Yoldia scissurata (clam)	13.92	12.55
Clinocardium ciliatum (Iceland cockle)	0.52	0.01
Crustacea	0.52	0.01
Cumacea (cumacean)	6.70	0.02
Isopoda (isopod)	3.61	0.00
Gammaridea (amphipod)	51.55	1.51
Ampeliscidae (amphipod)	13.92	0.28
Maera sp. (amphipod)	0.52	0.01
Maera loveni (amphipod)	1.03	0.03
Protomedeia sp. (amphipod)	2.58	0.03
Anonyx sp. (amphipod)	3.09	0.03
Crangon sp. (shrimp)	0.52	0.01
Paguridae (hermit crab)	0.52	0.05

Table B-1.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Chionoecetes opilio (snow crab)	0.52	0.03
Sipuncula (marine worm)	4.12	6.86
Echiura (marine worm)	18.04	6.55
Echiurus echiurus (marine worm)	11.86	22.11
Priapulida (worm)	1.55	0.97
Ectoprocta (bryozoan)	1.55	0.01
Ophiuroidae Ophiurida (brittle star)	18.04	1.23
Brittle star legs	2.06	0.00
Sand dollar	0.52	0.02
Holothuroidea (sea cucumber)	5.67	3.96
Pentamera sp.	0.52	0.62
Ascidiacea (sea squirt)	0.52	0.03
Larvacea Copelata	1.55	0.00
Non-gadoid fish remains	0.52	0.15
Unidentified organic material	22.68	0.60
Unidentified worm-like organism	3.61	0.35
Unidentified tube	3.61	0.03
Rocks	1.55	0.03

Total non-empty stomachs = 194
Total prey number = 2,986
Total prey weight = 930 g
Total empty stomachs = 9
Number of hauls = 41

Table B-2.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of arrowtooth flounder (*Atheresthes stomias*) collected in the eastern Bering Sea in 1998, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	0.85	0.00
Bivalvia (clam)	0.43	0.00
Nuculana sp. (clam)	0.43	0.00
Mysidacea Mysida (mysid)	1.28	0.01
Gammaridea (amphipod)	2.56	0.01
Euphausiacea (euphausiid)	6.84	1.08
Euphausiidae (euphausiid)	18.80	0.71
Natantia (shrimp)	1.28	0.02
Caridea (shrimp)	1.71	0.06
Hippolytidae (shrimp)	0.85	0.02
Pandalidae (shrimp)	2.14	0.06
Pandalus sp. (shrimp)	2.14	0.12
Pandalus borealis (shrimp)	0.85	0.15
Crangonidae (shrimp)	3.85	0.04
Crangon sp. (shrimp)	5.56	0.12
Crangon dalli (shrimp)	0.43	0.01
Argis sp. (shrimp)	0.43	0.01
Paguridae (hermit crab)	0.43	0.02
Misc. fish	0.43	0.00
Osteichthyes Teleostei (fish)	8.97	0.22
Non-gadoid fish remains	3.85	0.27
Gadidae (gadid fish)	10.26	2.28
Theragra chalcogramma (walleye pollock)	42.74	92.14
Zoarcidae (eelpout)	2.56	0.92
Cottoidei (sculpin)	1.71	0.22
Cottidae (sculpin)	0.43	0.09
Stichaeidae (prickleback)	1.28	0.32
Ammodytes hexapterus (Pacific sand lance)	0.43	0.10
Unidentified organic material	0.43	<0.01
Fishery offal	0.43	1.00

Total non-empty stomachs = 234
Total prey number = 312
Total prey weight = 5,808 g
Total empty stomachs = 185
Number of hauls = 45

Table B-3.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific cod (*Gadus macrocephalus*) collected in the eastern Bering Sea in 1998, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	34.73	0.88
Aphroditidae (sea mouse)	0.25	0.14
Polynoidae (polychaete)	0.19	0.01
Phyllodocidae (polychaete)	0.68	0.00
Nephtyidae (polychaete)	0.12	0.00
Scalibregmidae	0.06	0.01
Maldanidae (polychaete)	0.12	0.00
Sabellaridae	0.06	0.00
Hirudinea (leech)	0.06	0.04
Mollusca	0.25	0.02
Gastropoda (snail)	5.37	0.56
Naticidae (snail)	0.06	0.00
Buccinum sp. (snail)	0.06	0.00
Neptuneidae (snail)	0.12	0.03
Neptunea sp. (snail)	0.06	<0.01
Pteropoda	0.12	0.00
Bivalvia (clam)	2.65	0.08
Nuculana sp. (clam)	0.19	0.00
Nuculana fossa (clam)	0.37	0.00
Yoldia sp. (clam)	0.06	0.00
Pectinidae (scallops)	0.06	0.00
Cardiidae (cockles)	0.06	0.00
Cephalopoda (squid and octopus)	0.62	0.06
Teuthoidea (squid)	1.05	0.22
Octopoda (octopus)	2.34	1.72
Crustacea	2.47	0.02
Calanoida (copepod)	1.42	0.00
Cirripedia (barnacle)	0.19	0.00
Mysidacea Mysida (mysid)	5.61	0.06
Mysidae (mysid)	5.92	0.05
Cumacea (cumacean)	1.54	0.00
Isopoda (isopod)	0.31	0.00
Amphipoda (amphipod)	0.37	0.00
Gammaridea (amphipod)	31.34	0.28
Ampeliscidae (amphipod)	0.19	0.00
Amphipoda Hyperiidea (amphipod)	0.56	0.00
Caprellidea (amphipod)	0.12	0.00
Caprellidae (amphipod)	0.25	0.00
Euphausiacea (euphausiid)	2.04	0.17
Bentheuphausiidae	0.06	0.02
Euphausiidae (euphausiid)	10.61	0.35
Thysanoessa sp. (euphausiid)	0.06	0.00
Thysanoessa raschii (euphausiid)	0.06	0.01
Natantia (shrimp)	3.27	0.03
Caridea (shrimp)	4.57	0.09
Hippolytidae (shrimp)	2.10	0.11

Table B-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Spirontocaris sp. (shrimp)	0.62	0.01
Lebbeus sp. (shrimp)	0.06	0.00
Lebbeus groenlandicus (shrimp)	0.06	0.01
Eualus sp. (shrimp)	0.37	0.01
Pandalidae (shrimp)	4.81	0.28
Pandalus sp. (shrimp)	1.67	0.10
Pandalus borealis (shrimp)	1.23	0.25
Pandalus goniurus (shrimp)	1.11	0.13
Crangonidae (shrimp)	17.09	0.41
Crangon sp. (shrimp)	9.19	0.23
Crangon alaskensis (shrimp)	0.49	0.01
Crangon dalli (shrimp)	8.45	0.70
Crangon communis (shrimp)	1.17	0.11
Argis sp. (shrimp)	1.85	0.09
Argis lar (shrimp)	0.74	0.08
Argis dentata (shrimp)	0.12	0.00
Argis ovifer (shrimp)	0.12	0.01
Reptantia (crab)	6.11	0.43
Decapoda Reptantia legs (for unident. crabs)	0.37	0.01
Anomura (crab)	0.31	0.05
Paguridae (hermit crab)	16.59	3.16
Paguridae legs (hermit crabs)	0.19	0.01
Pagurus sp. (hermit crab)	0.12	0.04
Lithodidae (king crab)	0.25	0.10
Lithodidae (king crab - legs only)	0.19	0.10
Paralithodes sp. (king crab)	0.06	0.03
Paralithodes camtschatica (red king crab)	0.06	0.43
Decapoda brachyura (crab)	0.74	0.03
Decapoda brachyura legs (for unident. crabs)	0.31	0.03
Majidae (spider crab)	0.12	0.02
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.31	0.06
Hyas sp. (lyre crab)	0.62	0.13
Hyas coarctatus (lyre crab)	0.19	0.08
Chionoecetes sp. (snow and Tanner crab)	8.14	1.34
Chionoecetes opilio (snow crab)	14.99	6.43
Chionoecetes bairdi (Tanner crab)	15.42	5.26
Telmessus cheiragonus (hair crab)	0.80	0.35
Erimacrus isenbeckii (Korean horse-hair crab)	0.12	0.03
Cancridae (crab)	0.12	0.00
Cancer oregonensis (pygmy Cancer crab)	0.12	0.00
Pinnotheridae (pea crab)	0.93	0.05
Pinnixa sp. (pea crab)	0.62	0.01
Sipuncula (marine worm)	0.31	0.06
Echiura (marine worm)	8.82	0.65
Echiurus sp. (marine worm)	0.12	0.01
Echiurus echiurus (marine worm)	0.80	0.05
Priapulida (worm)	0.68	0.10
Ectoprocta (bryozoan)	0.25	0.01

Table B-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Ctenodiscus crispatus (mud sea star)	0.06	0.01
Ophiuroidae Ophiurida (brittle star)	0.31	0.04
Brittle star legs	0.06	0.00
Ophiuridae (brittle star)	0.06	0.00
Ophiura sarsi (brittle star)	0.06	0.00
Holothuroidea (sea cucumber)	0.12	0.02
Urochordata (tunicate)	0.19	0.03
Larvacea Copelata	0.06	0.00
Lampetra tridentatus (Pacific lamprey)	0.06	0.24
Bathyraja parmifera (Alaska skate)	0.06	0.13
Bathyraja sp. (skate)	0.06	0.03
Osteichthyes Teleostei (fish)	7.40	0.44
Non-gadoid fish remains	5.37	0.32
Nemichthyidae (snipe eel)	0.06	0.00
Clupeidae	0.12	0.00
Clupea pallasi (Pacific herring)	0.19	0.20
Salmonidae (salmon, whitefish)	0.06	0.02
Osmeridae (smelts)	0.25	0.01
Mallotus villosus (capelin)	0.12	0.01
Gadidae (gadid fish)	2.84	0.84
Gadus macrocephalus (Pacific cod)	0.25	0.10
Theragra chalcogramma (walleye pollock)	21.96	52.93
Zoarcidae (eelpout)	5.00	1.86
Lycodes sp. (eelpout unid)	0.19	0.11
Lycodes brevipes (shortfin eelpout)	0.62	0.44
Scorpaeniformes (rockfish and cottid)	0.06	0.00
Pleurogrammus monopterygius (Atka mackerel)	0.06	0.05
Cottoidei (sculpin)	1.73	0.60
Cottidae (sculpin)	0.62	0.09
Dasycottus setiger (spinyhead sculpin)	0.06	0.03
Icelinus sp.	0.12	0.01
Icelinus borealis (Northern Sculpin)	0.12	0.01
Triglops sp. (sculpin)	0.06	0.01
Agonidae (poacher)	1.05	0.15
Aspidophoroides bartoni (Aleutian alligatorfish)	0.06	0.01
Podothecus acipenserinus (sturgeon poacher)	0.12	0.03
Occella dodecaedron (Bering poacher)	0.06	0.02
Sarritor frenatus (sawback poacher)	0.06	0.01
Trichodon trichodon (Pacific sandfish)	0.12	0.24
Stichaeidae (prickleback)	2.71	0.34
Lumpenus fabricii (slender eelblenny)	0.06	0.00
Lumpenus sagitta (snake prickleback)	0.06	0.00
Lumpenus maculatus (daubed shanny)	0.19	0.02
Poroclinus rothrocki (whitebarred pricklback)	0.12	0.02
Cryptacanthodes aleutensis (dwarf wrymouth)	0.06	0.01
Ammodytes sp. (sand lance)	1.05	0.31
Ammodytes hexapterus (Pacific sand lance)	0.86	0.27
Pleuronectiformes Pleuronectoidei (flatfish)	1.17	0.26

Table B-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Pleuronectidae (flatfish)	4.57	1.65
Hippoglossoides elassodon (flathead sole)	0.19	0.09
Lepidopsetta sp. (rock sole type)	0.19	0.30
Lepidopsetta bilineata (southern rock sole)	0.06	0.01
Lepidopsetta polyxystra (northern rock sole)	0.25	0.43
Pleuronectes asper (yellowfin sole)	0.43	0.54
Pleuronectes proboscideus (longhead dab)	0.06	0.02
Aves (bird part)	0.19	0.00
Unidentified organic material	1.97	0.13
Unidentified eggs	0.12	0.01
Unidentified worm-like organism	0.56	0.03
Fishery offal	4.32	9.91
Unidentified tube	0.19	0.00
Unidentified algae	0.86	0.03
Rocks	0.49	0.02

Total non-empty stomachs = 1,621
Total prey number = 8,330
Total prey weight = 85,451 g
Total empty stomachs = 17
Number of hauls = 156

Table B-4.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of flathead sole (*Hippoglossoides elassodon*) collected in the eastern Bering Sea in 1998, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	10.29	2.39
Sternaspidae (polychaete)	0.74	0.06
Gastropoda (snail)	1.47	0.56
Bivalvia (clam)	7.35	9.40
Nuculana sp. (clam)	2.21	0.10
Crustacea	1.47	0.01
Ostracoda	0.74	0.02
Calanoida (copepod)	2.94	0.01
Mysidacea Mysida (mysid)	9.56	0.90
Mysidae (mysid)	22.79	8.59
Cumacea (cumacean)	2.94	0.02
Gammaridea (amphipod)	16.91	0.56
Euphausiidae (euphausiid)	7.35	1.62
Caridea (shrimp)	2.21	2.13
Pandalidae (shrimp)	5.88	6.22
Pandalus sp. (shrimp)	0.74	0.38
Pandalus borealis (shrimp)	1.47	3.98
Crangonidae (shrimp)	20.59	29.50
Crangon sp. (shrimp)	0.74	0.29
Reptantia (crab)	1.47	0.05
Paguridae (hermit crab)	7.35	15.78
Chionoecetes sp. (snow and Tanner crab)	1.47	0.41
Chionoecetes bairdi (Tanner crab)	4.41	2.96
Echiura (marine worm)	1.47	0.46
Ophiuroidae Ophiurida (brittle star)	30.15	6.27
Brittle star legs	1.47	0.90
Osteichthyes Teleostei (fish)	0.74	0.01
Non-gadoid fish remains	0.74	0.47
Theragra chalcogramma (walleye pollock)	0.74	0.13
Zoarcidae (eelpout)	2.21	1.03
Icelus sp. (sculpin)	0.74	4.48
Unidentified worm-like organism	0.74	0.01
Unidentified tube	6.62	0.31

Total non-empty stomachs = 136
Total prey number = 381
Total prey weight = 173 g
Total empty stomachs = 73
Number of hauls = 23

Table B-5.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific Halibut (*Hippoglossus stenolepis*) collected in the eastern Bering Sea in 1998, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	0.83	0.00
Hirudinea (leech)	0.28	0.03
Mollusca	0.28	0.01
Gastropoda (snail)	3.03	0.05
Bivalvia (clam)	1.10	0.04
Octopoda (octopus)	2.75	1.10
Mysidae (mysid)	3.58	0.01
Gammaridea (amphipod)	0.55	0.00
Euphausiidae (euphausiid)	1.93	0.01
Thysanoessa sp. (euphausiid)	0.28	0.00
Natantia (shrimp)	0.83	0.02
Caridea (shrimp)	1.38	0.01
Eualus sp. (shrimp)	0.55	0.00
Pandalidae (shrimp)	1.38	0.04
Pandalus sp. (shrimp)	2.20	0.03
Pandalus borealis (shrimp)	0.55	0.04
Pandalus goniurus (shrimp)	0.28	0.18
Pandalus montagui tridens (shrimp)	0.28	0.00
Crangonidae (shrimp)	6.06	0.06
Crangon sp. (shrimp)	4.96	0.07
Crangon dalli (shrimp)	2.75	0.03
Argis sp. (shrimp)	0.55	0.02
Reptantia (crab)	2.75	0.01
Anomura (crab)	0.28	0.00
Paguridae (hermit crab)	23.69	3.90
Paguridae legs (hermit crabs)	3.31	0.06
Pagurus ochotensis (hermit crab)	0.28	0.35
Decapoda brachyura (crab)	0.55	0.12
Majidae (spider crab)	0.28	0.01
Oregonia sp. (decorator crab)	0.28	0.03
Oregonia gracilis (decorator crab)	0.28	0.02
Hyas sp. (lyre crab)	1.93	0.07
Hyas lyratus (lyre crab)	0.55	0.29
Chionoecetes sp. (snow and Tanner crab)	3.03	0.46
Chionoecetes opilio (snow crab)	8.54	2.31
Chionoecetes bairdi (Tanner crab)	6.89	2.67
Telmessus cheiragonus (hair crab)	0.83	0.04
Erimacrus isenbeckii (Korean horse-hair crab)	1.93	0.38
Pinnixa sp. (pea crab)	0.28	0.00
Echiura (marine worm)	0.55	0.03
Holothuroidea (sea cucumber)	0.28	0.01
Osteichthyes Teleostei (fish)	4.96	0.51
Non-gadoid fish remains	4.96	0.47
Clupea pallasi (Pacific herring)	0.55	0.85
Osmeridae (smelts)	2.48	0.26
Mallotus villosus (capelin)	1.38	0.08

Table B-5.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Gadidae (gadid fish)	4.96	0.61
Gadus macrocephalus (Pacific cod)	3.03	0.97
Theragra chalcogramma (walleye pollock)	37.19	60.28
Zoarcidae (eelpout)	2.48	1.62
Cottoidei (sculpin)	4.13	0.97
Cottidae (sculpin)	1.65	0.28
Myoxocephalus sp. (sculpin)	0.28	0.40
Agonidae (poacher)	1.65	0.15
Podothecus acipenserinus (sturgeon poacher)	0.28	0.19
Sarritor frenatus (sawback poacher)	0.28	0.01
Stichaeidae (prickleback)	0.55	0.07
Ammodytes sp. (sand lance)	6.06	0.34
Ammodytes hexapterus (Pacific sand lance)	7.44	0.57
Pleuronectiformes Pleuronectoidei (flatfish)	3.58	3.99
Pleuronectidae (flatfish)	14.05	6.66
Hippoglossoides elassodon (flathead sole)	0.28	0.03
Hippoglossoides robustus (Bering flounder)	0.28	0.02
Lepidopsetta polyxystra (northern rock sole)	0.55	0.15
Pleuronectes asper (yellowfin sole)	4.41	3.63
Pleuronectes proboscideus (longhead dab)	1.38	1.48
Aves (bird part)	0.28	0.00
Unidentified organic material	0.28	0.01
Unidentified eggs	0.55	0.00
Fishery offal	1.93	1.38
Unidentified tube	0.28	0.00
Overboard material (non-fishery)	0.28	1.46

Total non-empty stomachs = 363
Total prey number = 1,418
Total prey weight = 31,856 g
Total empty stomachs = 34
Number of hauls = 81

Table B-6.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of northern rock sole (*Lepidopsetta polyxystra*) collected in the eastern Bering Sea in 1998, May through September.

Prey Name	Mean % F.O	Mean % Weight
Porifera (sponge)	0.44	0.00
Annelida (worm)	0.44	0.11
Polychaeta (worm)	71.18	6.62
Polynoidae (polychaete)	20.52	0.70
Phyllodocidae (polychaete)	16.59	0.30
Nereidae (polychaete)	10.92	0.30
Nephtyidae (polychaete)	17.03	7.55
Goniadidae (polychaete)	27.07	0.39
Onuphidae (polychaete)	0.87	0.05
Lumbrineridae	1.31	0.10
Orbiniidae (polychaete)	24.45	0.95
Spionidae (polychaete)	1.31	0.40
Chaetopteridae (polychaete)	0.44	0.01
Cirratulidae (polychaete)	0.44	0.00
Flabelligeridae (polychaete)	3.49	0.60
Brada sp. (polychaete)	3.06	1.19
Scalibregma inflatum	0.44	0.29
Opheliidae (polychaete)	5.24	0.45
Travisia sp. (polychaete)	4.80	2.56
Capitellidae (polychaete)	0.44	0.04
Maldanidae (polychaete)	25.33	3.65
Ampharetidae (polychaete)	17.47	4.30
Terebellidae (polychaete)	3.49	5.38
Trichobranchidae (polychaete)	1.31	0.67
Sabellidae (polychaete)	0.87	0.05
Sabellida (polychaete)	1.31	0.08
Terebellida (polychaete)	0.44	0.00
Mollusca	1.31	0.04
Gastropoda (snail)	9.61	0.10
Bivalvia (clam)	62.88	5.67
Nuculana sp. (clam)	0.44	0.15
Yoldia scissurata (clam)	7.42	1.88
Cardiidae (cockles)	1.75	0.83
Clinocardium ciliatum (Iceland cockle)	3.06	1.53
Crustacea	3.49	0.18
Mysidacea Mysida (mysid)	1.31	0.03
Mysidae (mysid)	7.86	0.32
Cumacea (cumacean)	28.38	0.38
Isopoda (isopod)	3.49	0.04
Anthuridea (Isopod)	0.44	0.00
Peracarida Isopoda Valvifera	1.31	0.18
Gammaridea (amphipod)	74.67	3.73
Ampeliscidae (amphipod)	11.35	1.02
Protomedeia sp. (amphipod)	5.68	0.04
Anonyx sp. (amphipod)	7.42	0.91

Table B-6.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Caprellidea (amphipod)	1.75	0.02
Euphausiacea (euphausiid)	2.18	0.13
Euphausiidae (euphausiid)	1.75	0.08
Euphausia pacifica (euphausiid)	0.44	0.05
Natantia (shrimp)	0.44	0.05
Caridea (shrimp)	1.75	0.54
Reptantia (crab)	1.75	0.05
Paguridae (hermit crab)	1.31	0.37
Chionoecetes bairdi (Tanner crab)	0.44	0.06
Sipuncula (marine worm)	2.18	2.72
Echiura (marine worm)	7.86	1.34
Echiurus echiurus (marine worm)	11.35	13.05
Priapulida (worm)	3.49	14.19
Ectoprocta (bryozoan)	2.18	0.02
Ophiuroidae Ophiurida (brittle star)	19.21	2.84
Brittle star legs	2.62	0.06
Sand dollar	2.18	0.30
Holothuroidea (sea cucumber)	5.68	3.31
Ascidiacea (sea squirt)	0.87	0.02
Ascidia sp. (tunicate)	0.44	0.01
Larvacea Copelata	3.93	0.13
Ammodytes hexapterus (Pacific sand lance)	0.87	4.46
Unidentified organic material	21.40	1.50
Unidentified worm-like organism	5.24	0.86
Unidentified tube	2.62	0.07

Total non-empty stomachs = 229
Total prey number = 5,804
Total prey weight = 297 g
Total empty stomachs = 22
Number of hauls = 43

Table B-7.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of skates collected in the eastern Bering Sea in 1998, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	12.50	0.27
Crustacea	5.00	0.13
Mysidae (mysid)	17.50	0.07
Gammaridea (amphipod)	45.00	1.87
Euphausiidae (euphausiid)	7.50	0.02
Caridea (shrimp)	15.00	0.58
Crangonidae (shrimp)	7.50	0.68
Crangon sp. (shrimp)	5.00	0.25
Crangon dalli (shrimp)	5.00	0.20
Argis sp. (shrimp)	20.00	3.95
Argis lar (shrimp)	7.50	2.79
Reptantia (crab)	17.50	0.75
Decapoda Reptantia legs (for unident. crabs)	2.50	0.00
Paguridae (hermit crab)	27.50	1.69
Paguridae legs (hermit crabs)	2.50	0.31
Decapoda brachyura (crab)	5.00	0.23
Majidae (spider crab)	5.00	0.11
Chionoecetes sp. (snow and Tanner crab)	7.50	0.71
Osteichthyes Teleostei (fish)	2.50	0.10
Non-gadoid fish remains	5.00	0.28
Gadidae (gadid fish)	5.00	0.38
Theragra chalcogramma (walleye pollock)	20.00	52.73
Cottidae (sculpin)	2.50	0.07
Agonidae (poacher)	2.50	1.02
Stichaeidae (prickleback)	5.00	0.04
Pleuronectidae (flatfish)	2.50	1.14
Lepidopsetta polyxystra (northern rock sole)	2.50	1.06
Fishery offal	5.00	28.52

Total non-empty stomachs = 40
Total prey number = 58
Total prey weight = 818 g
Total empty stomachs = 12
Number of hauls = 7

Table B-8.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of walleye pollock (*Theragra chalcogramma*) collected in the eastern Bering Sea in 1998, May through September.

Prey Name	Mean % F.O	Mean % Weight
Hydrozoa	0.07	0.02
Annelida (worm)	0.04	<0.01
Polychaeta (worm)	3.15	0.20
Polynoidae (polychaete)	0.04	0.00
Mollusca	0.07	0.01
Gastropoda (snail)	0.04	0.00
Pteropoda	0.04	0.00
Bivalvia (clam)	0.14	0.00
Cephalopoda (squid and octopus)	0.07	0.00
Teuthoidea (squid)	0.07	0.00
Octopoda (octopus)	0.04	0.00
Crustacea	1.52	0.02
Copepoda	0.04	0.00
Calanoida (copepod)	49.40	12.51
Malacostraca Leptostraca	0.07	0.00
Mysidacea Mysida (mysid)	6.77	0.29
Mysidae (mysid)	0.14	0.00
Cumacea (cumacean)	3.15	0.03
Isopoda (isopod)	0.04	0.00
Amphipoda (amphipod)	0.22	0.00
Gammaridea (amphipod)	6.99	0.09
Amphipoda Hyperiidea (amphipod)	5.90	0.02
Hyperiidae (amphipod)	0.33	0.00
Caprellidea (amphipod)	0.04	0.00
Euphausiacea (euphausiid)	28.12	31.97
Euphausiidae (euphausiid)	39.67	36.49
Thysanoessa inermis (euphausiid)	0.25	0.02
Thysanoessa raschii (euphausiid)	0.18	1.62
Decapoda (shrimp and crab)	0.58	0.02
Natantia (shrimp)	2.64	0.26
Caridea (shrimp)	1.09	0.26
Hippolytidae (shrimp)	0.36	0.11
Pandalidae (shrimp)	0.65	0.16
Pandalus sp. (shrimp)	0.33	0.07
Pandalus borealis (shrimp)	0.43	0.25
Pandalus goniurus (shrimp)	0.18	0.07
Pandalopsis sp. (shrimp)	0.22	0.03
Crangonidae (shrimp)	1.30	0.19
Crangon sp. (shrimp)	2.21	0.68
Crangon dalli (shrimp)	1.09	0.26
Crangon communis (shrimp)	0.11	0.01
Argis sp. (shrimp)	0.22	0.05
Reptantia (crab)	2.86	0.02
Paguridae (hermit crab)	0.54	0.02
Paralithodes sp. (king crab)	0.04	0.00
Decapoda brachyura (crab)	0.04	<0.01

Table B-8.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Majidae (spider crab)	0.11	<0.01
Echiura (marine worm)	0.33	0.15
Ophiuroidae Ophiurida (brittle star)	0.04	0.00
Brittle star legs	0.07	0.00
Chaetognatha (arrow worm)	8.03	0.28
Urochordata (tunicate)	0.04	0.00
Larvacea Copelata	1.27	0.24
Osteichthyes Teleostei (fish)	3.91	1.46
Non-gadoid fish remains	0.54	0.07
Fish eggs	0.04	0.00
Osmeridae (smelts)	0.04	0.02
Bathylagidae (deepsea smelts)	0.04	0.00
Myctophidae (lanternfish)	0.11	0.19
Gadidae (gadid fish)	0.76	0.76
Theragra chalcogramma (walleye pollock)	3.40	4.82
Zoarcidae (eelpout)	0.07	0.02
Scorpaeniformes (rockfish and cottid)	0.07	0.00
Scorpaenidae	0.04	0.00
Hexagrammidae (greenling)	0.04	0.00
Cottoidei (sculpin)	0.07	0.02
Hemilepidotus hemilepidotus (red Irish lord)	0.04	0.00
Icelinus sp.	0.04	0.00
Agonidae (poacher)	0.11	0.04
Stichaeidae (prickleback)	0.07	0.06
Lumpenus sp. (prickleback)	0.04	0.00
Ammodytes sp. (sand lance)	0.18	0.18
Ammodytes hexapterus (Pacific sand lance)	0.14	0.04
Pleuronectiformes Pleuronectoidei (flatfish)	0.18	0.01
Hippoglossoides elassodon (flathead sole)	0.04	0.02
Lepidopsetta sp. (rock sole type)	0.04	0.01
Reinhardtius hippoglossoides (Greenland turbot)	0.04	0.00
Unidentified organic material	6.12	5.02
Sand	0.04	<0.01
Unidentified worm-like organism	0.04	0.00
Fishery offal	0.33	0.74
Unidentified tube	0.04	0.00
Unidentified algae	0.14	0.01
Rocks	0.04	<0.01

Total non-empty stomachs = 2,763
Total prey number = 4,491
Total prey weight = 19,826 g
Total empty stomachs = 227
Number of hauls = 217

Table B-9.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of yellowfin sole (*Limanda aspera*) collected in the eastern Bering Sea in 1998, May through September

Prey Name	Mean % F.O	Mean % Weight
Foraminiferida Textulariina (foram)	0.55	0.00
Hydrozoa	0.55	0.07
Hydrozoa Hydroida (hydroid)	0.28	<0.01
Anthozoa (anemome)	0.55	1.88
Polychaeta (worm)	38.50	15.76
Polynoidae (polychaete)	0.55	0.08
Nereidae (polychaete)	0.28	0.01
Nephtyidae (polychaete)	0.55	0.23
Maldanidae (polychaete)	0.28	0.33
Mollusca	0.55	0.84
Gastropoda (snail)	7.76	2.48
Crepidula grandis (grand slipper shell)	0.28	0.17
Pteropoda	0.28	<0.01
Bivalvia (clam)	25.76	8.04
Nuculana sp. (clam)	0.55	0.18
Yoldia sp. (clam)	1.66	3.71
Cardiidae (cockles)	1.11	0.03
Crustacea	2.49	0.05
Calanoida (copepod)	0.83	0.13
Cirripedia (barnacle)	0.55	0.12
Mysidacea Mysida (mysid)	1.39	0.10
Mysidae (mysid)	0.83	0.04
Cumacea (cumacean)	14.68	0.69
Gammaridea (amphipod)	41.27	3.59
Ampeliscidae (amphipod)	0.83	0.04
Caprellidae (amphipod)	1.94	0.07
Euphausiacea (euphausiid)	2.49	0.25
Euphausiidae (euphausiid)	7.48	2.03
Natantia (shrimp)	0.28	0.00
Caridea (shrimp)	0.28	0.08
Spirontocaris sp. (shrimp)	0.28	0.15
Crangonidae (shrimp)	0.28	0.10
Reptantia (crab)	1.11	0.17
Decapoda Reptantia legs (for unident. crabs)	0.28	0.01
Paguridae (hermit crab)	4.71	4.20
Majidae (spider crab)	0.55	0.98
Hyas sp. (lyre crab)	0.28	0.17
Chionoecetes sp. (snow and Tanner crab)	0.28	0.27
Chionoecetes bairdi (Tanner crab)	0.28	0.02
Pinnotheridae (pea crab)	0.28	0.16
Sipuncula (marine worm)	1.39	6.97
Echiura (marine worm)	3.32	11.38
Echiurus echiurus (marine worm)	0.55	2.23
Priapulida (worm)	1.39	6.18
Asteroidea (starfish)	0.28	0.00

Table B-9.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Ophiuroidae Ophiurida (brittle star)	22.71	6.99
Brittle star legs	2.22	0.18
Echinoidea (sea urchin and sand dollar)	0.28	0.00
Echinacea sp. (sea urchin)	4.43	0.55
Echinoidea Clypeasteroida (sand dollar)	4.71	1.17
Sand dollar	0.28	0.00
Holothuroidea (sea cucumber)	5.54	10.62
Urochordata (tunicate)	3.32	1.80
Ascidiacea (sea squirt)	0.28	0.01
Theragra chalcogramma (walleye pollock)	0.55	0.48
Unidentified organic material	2.22	0.90
Unidentified eggs	0.55	0.21
Unidentified worm-like organism	0.28	0.02
Fishery offal	0.28	0.37
Unidentified tube	0.83	0.15
Unidentified algae	0.83	0.09
Rocks	0.28	1.69

Total non-empty stomachs = 361
Total prey number = 759
Total prey weight = 509 g
Total empty stomachs = 180
Number of hauls = 57

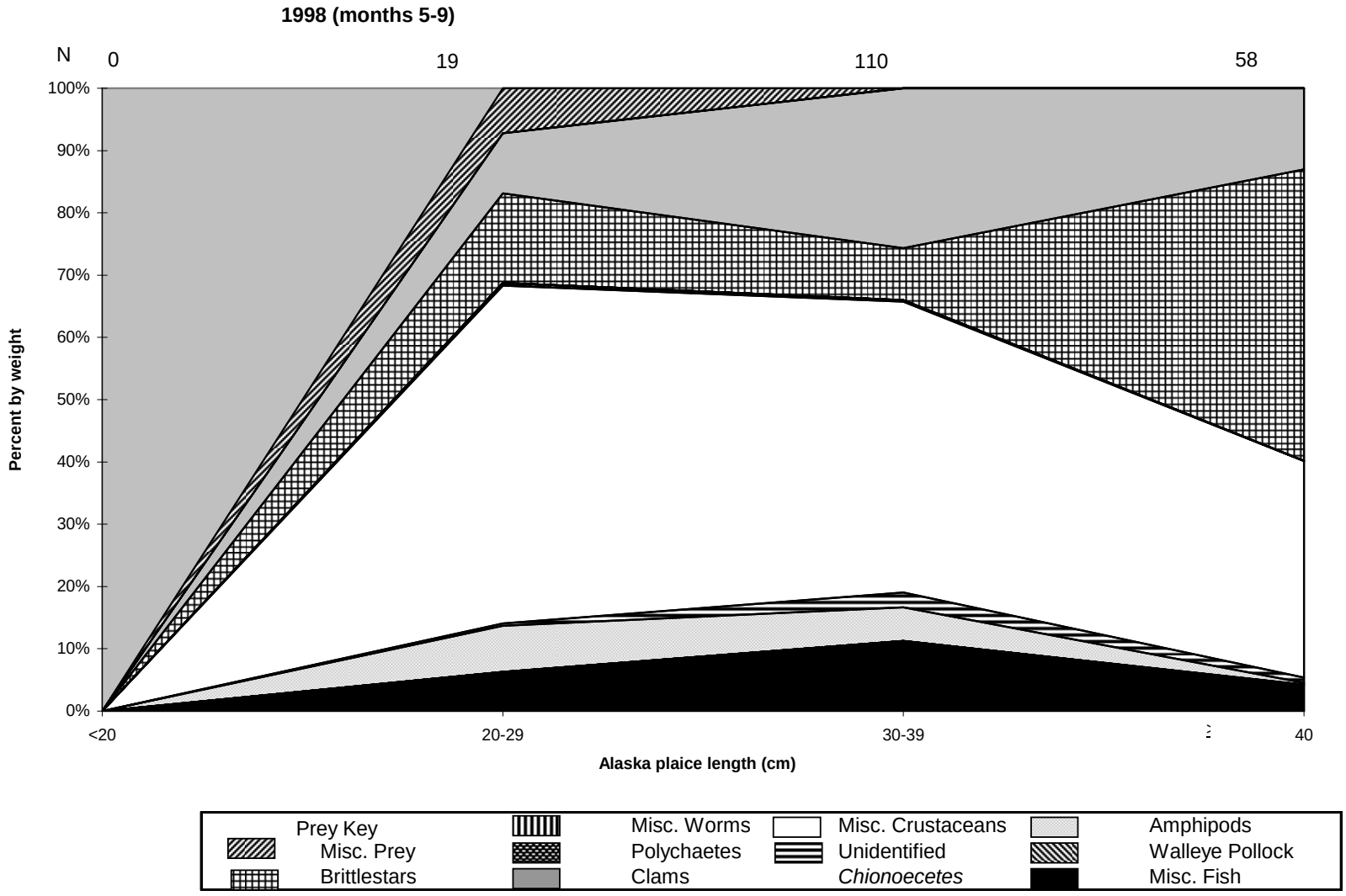

Figure B-1.--Diet composition of Alaska plaice, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

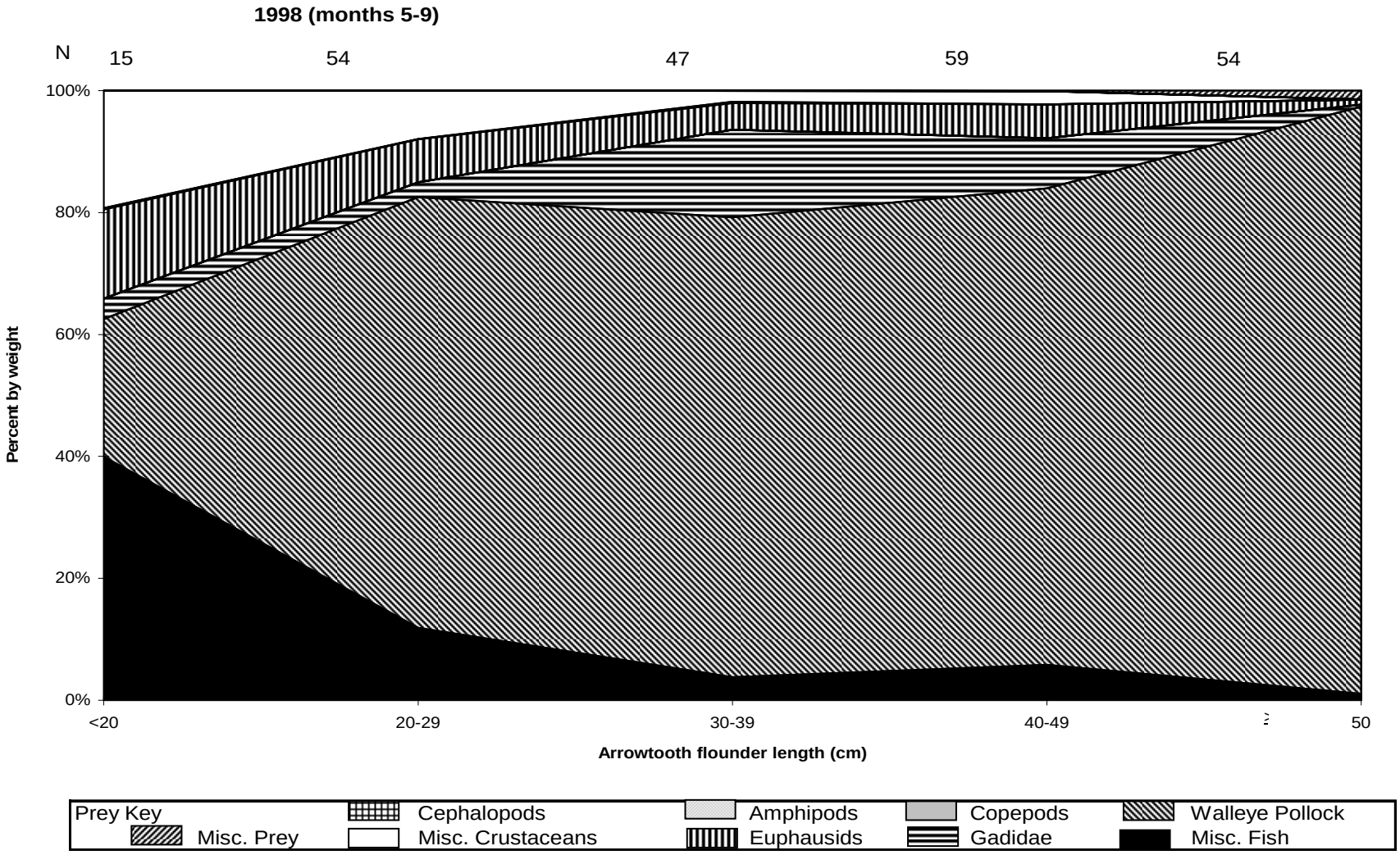

Figure B-2.--Diet composition of arrowtooth flounder, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

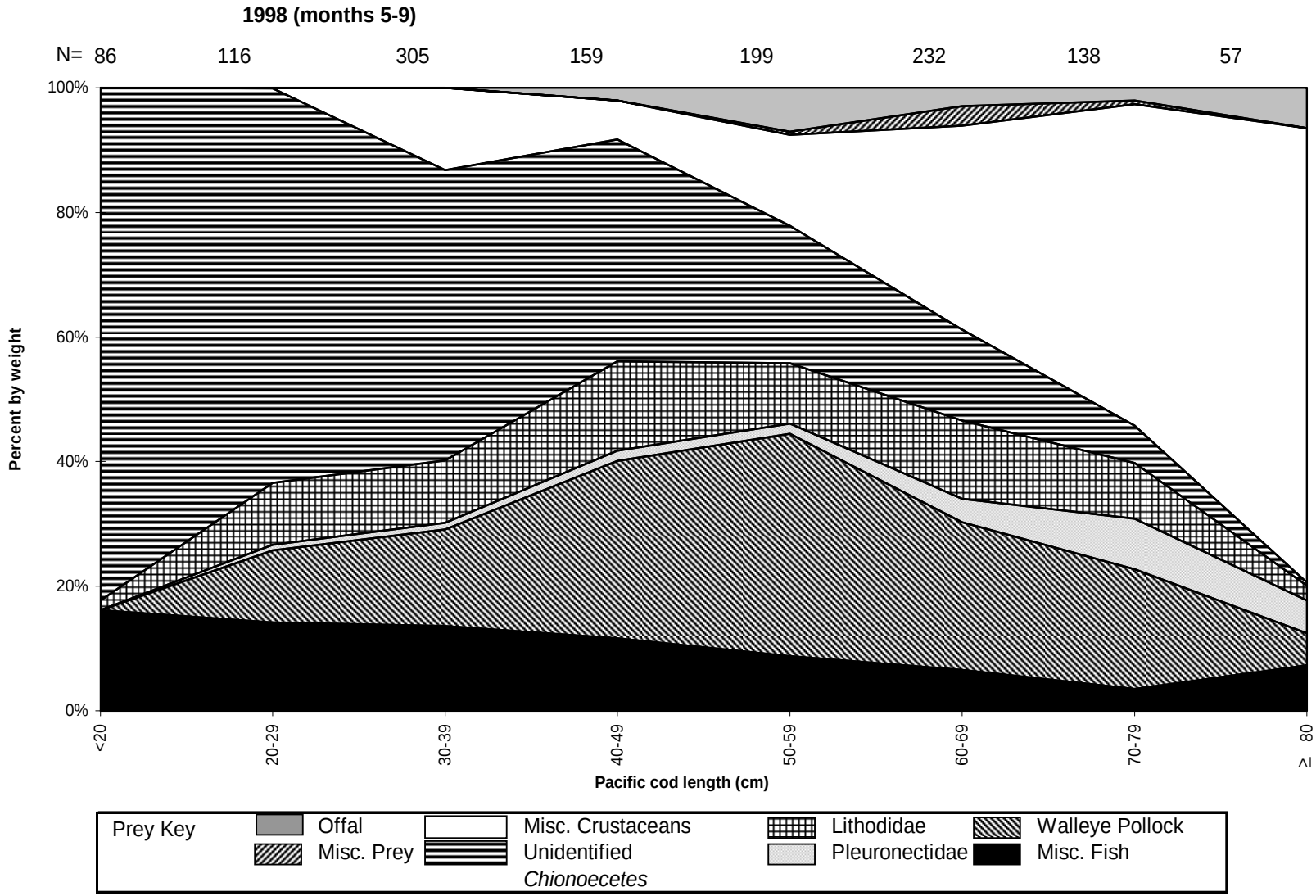

Figure B-3.--Diet composition of Pacific cod, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

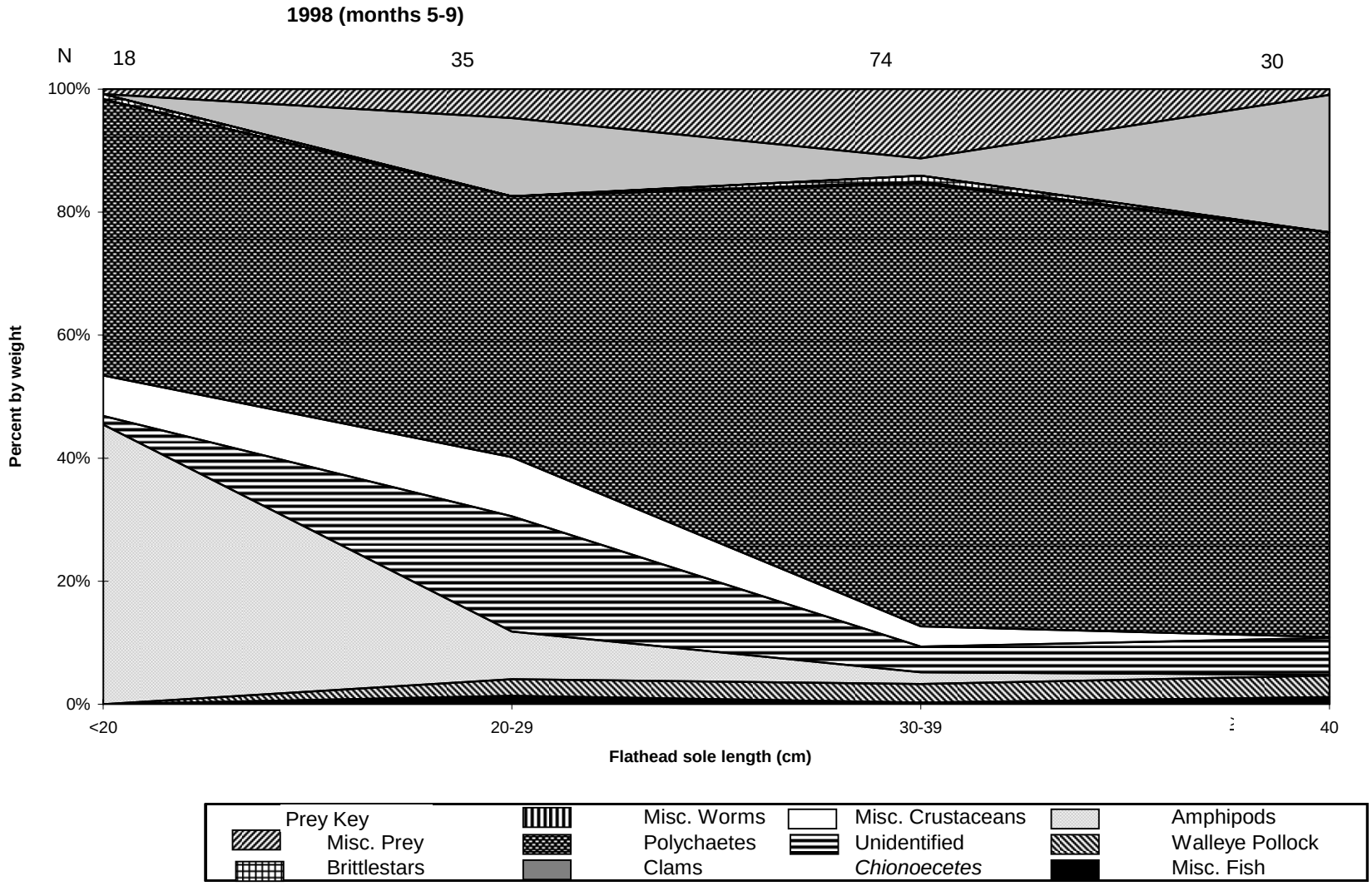

Figure B-4.--Diet composition of flathead sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

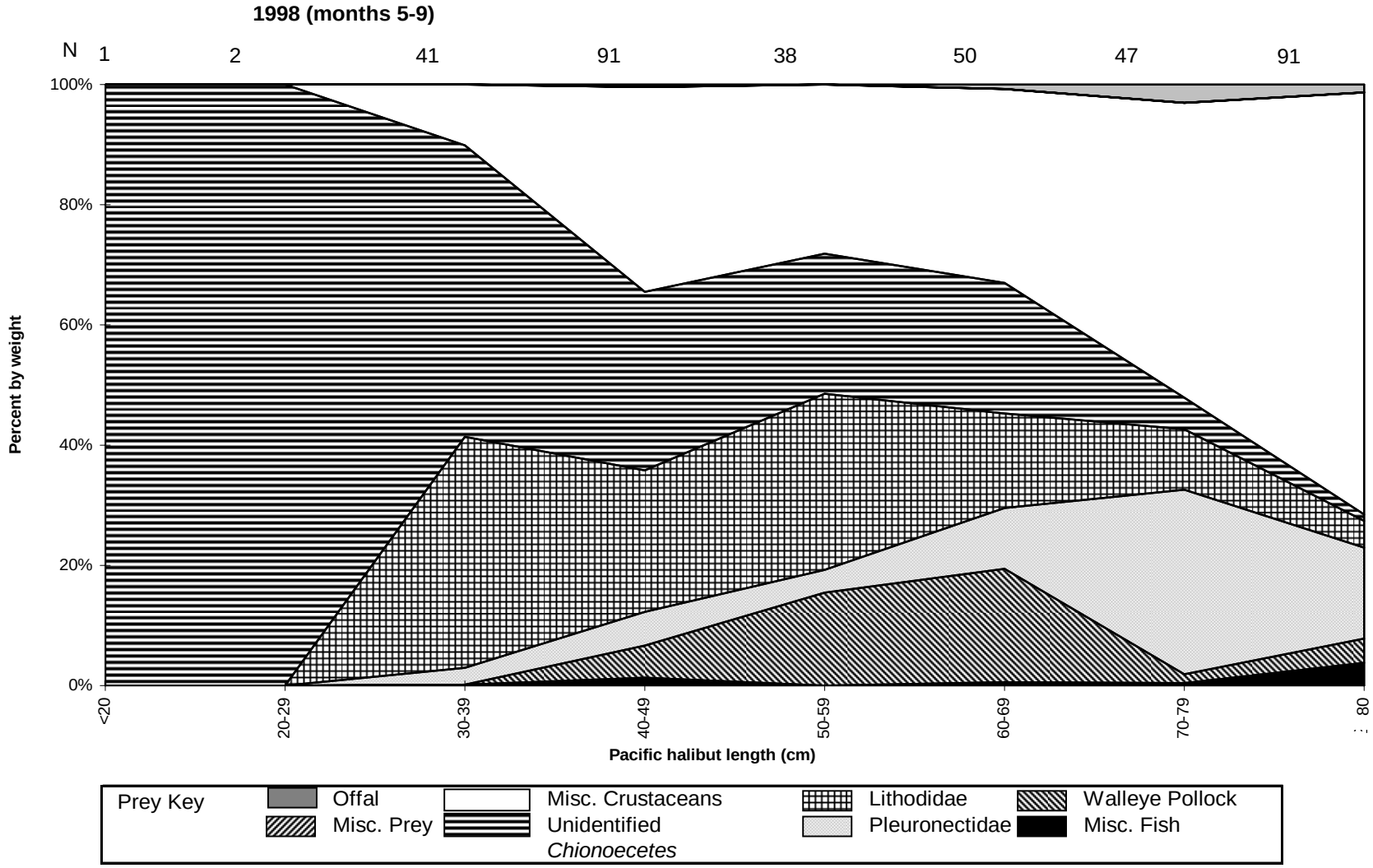

Figure B-5.--Diet composition of Pacific halibut, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

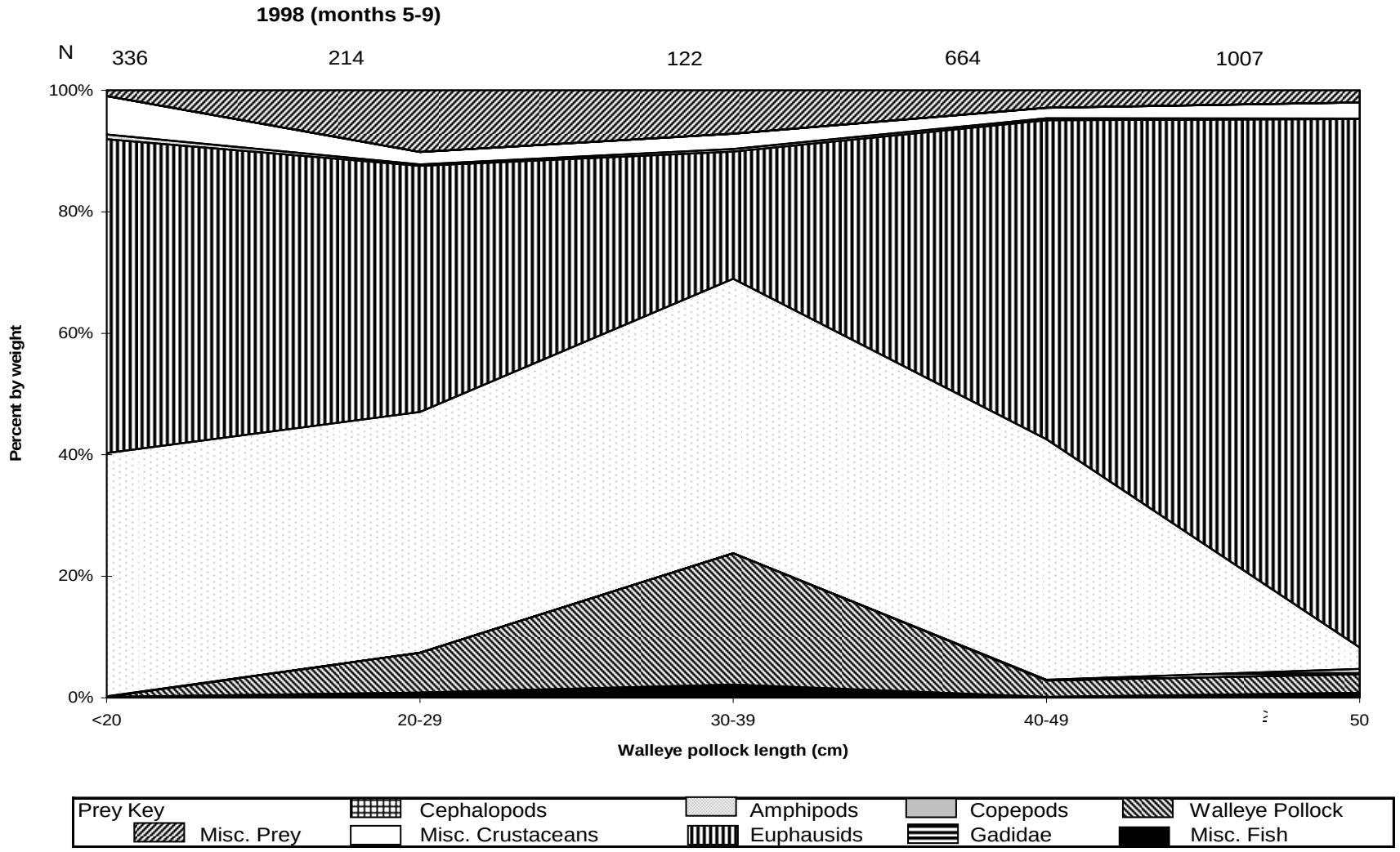

Figure B-6.--Diet composition of walleye pollock, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

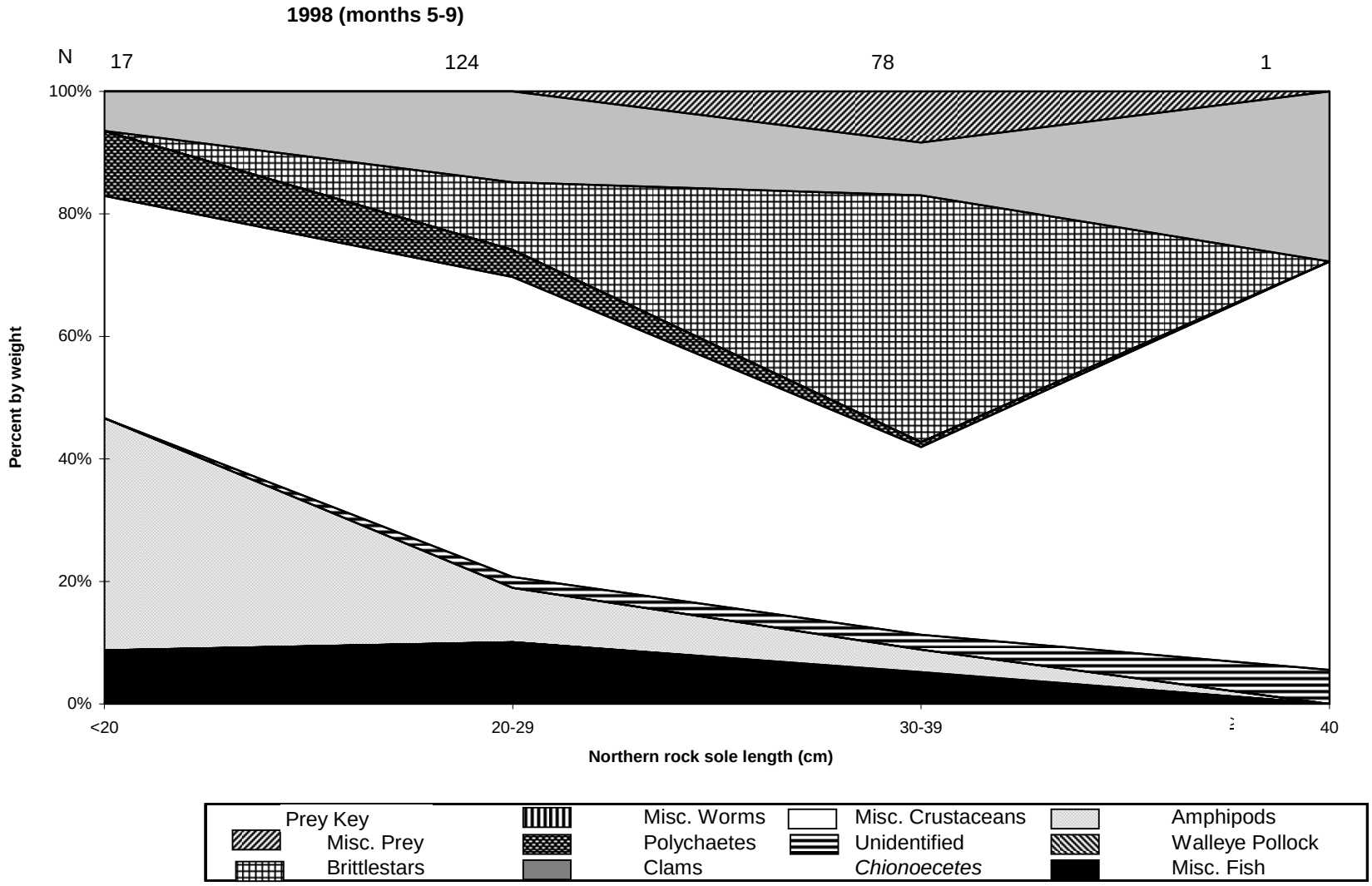

Figure B-7.--Diet composition of northern rock sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

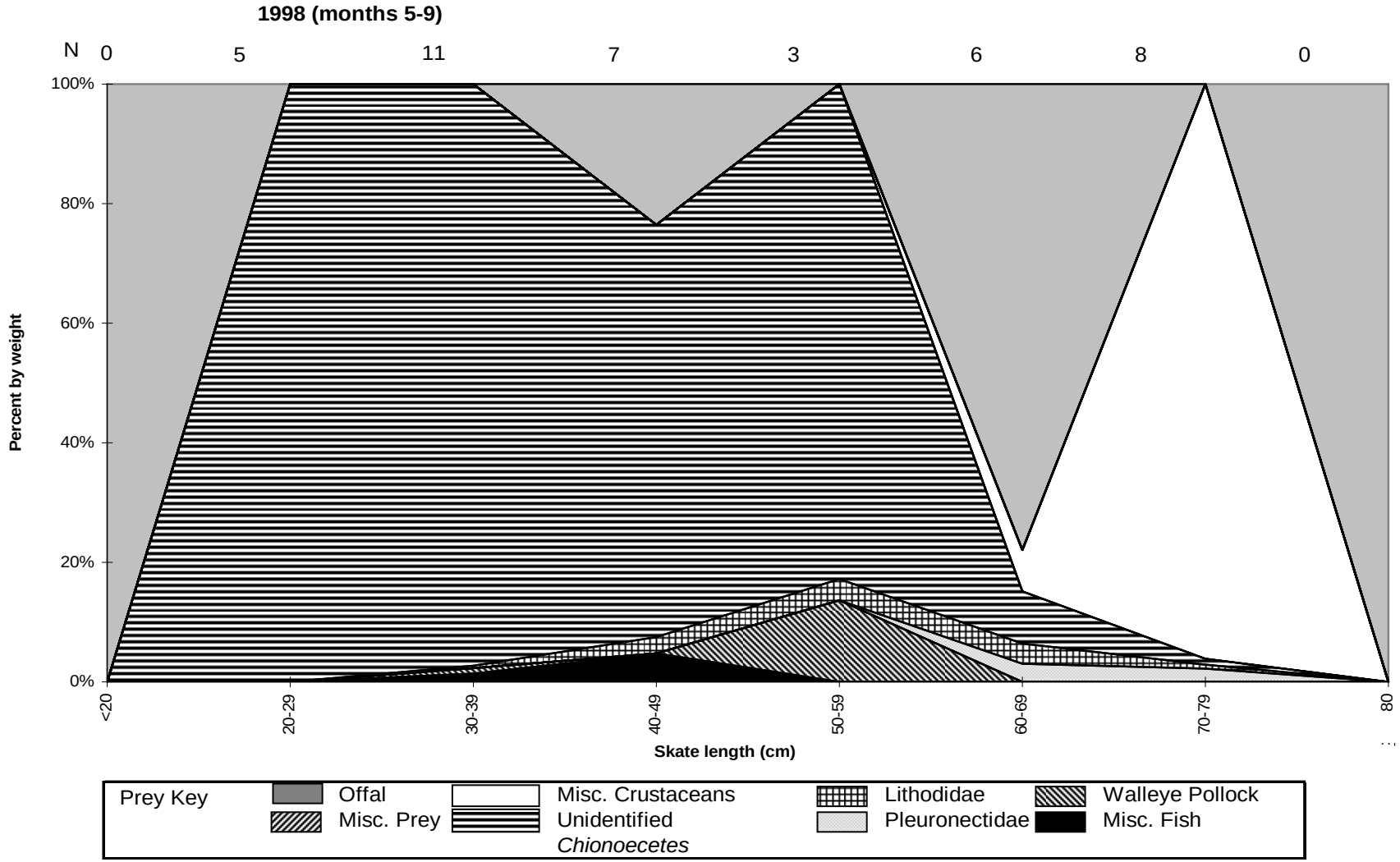

Figure B-8.--Diet composition of skates, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

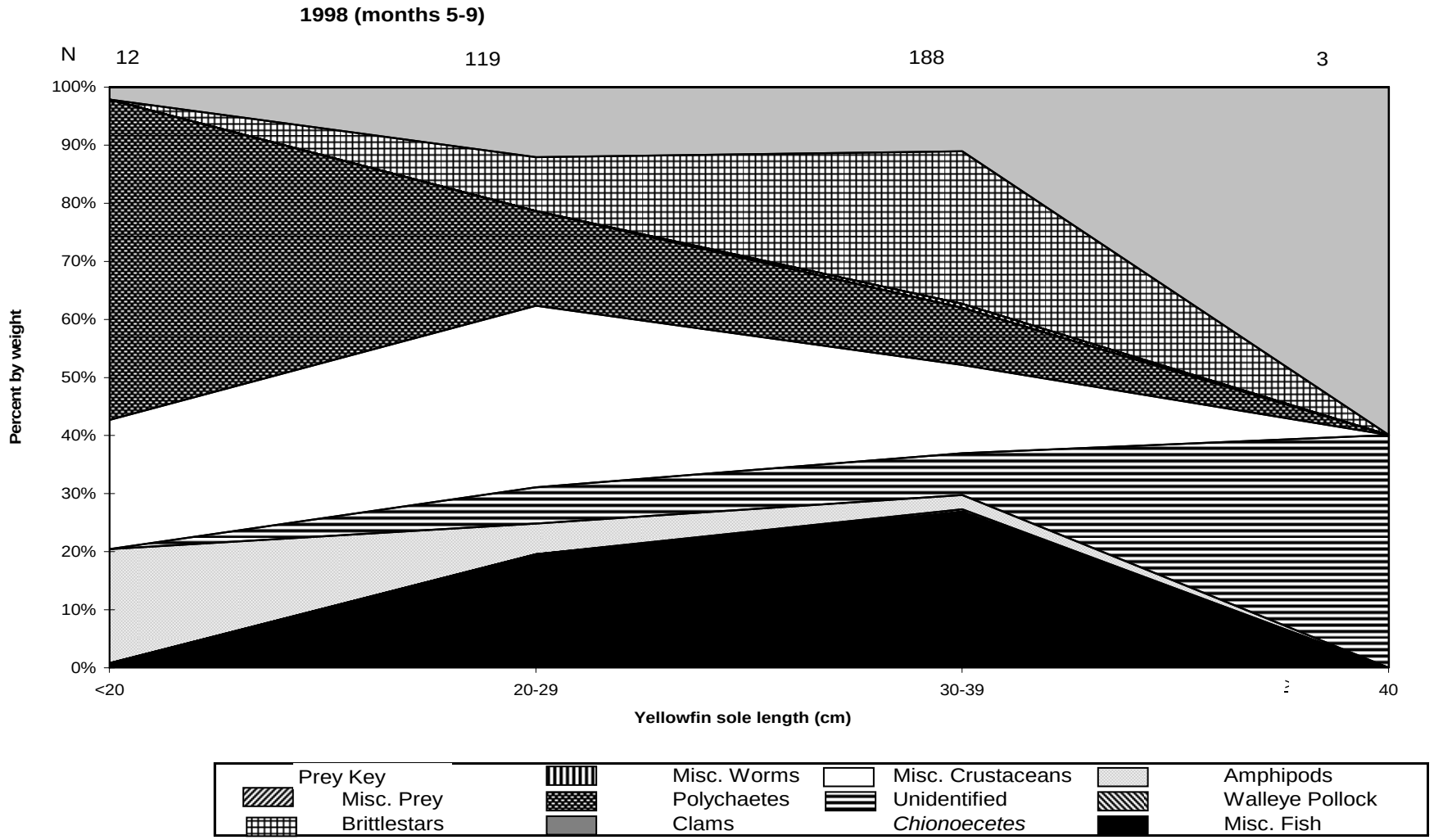

Figure B-9.--Diet composition of yellowfin sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

Appendix C- Diet of major groundfish species collected from the eastern Bering Sea in 1999

Table C-1.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Alaska plaice (*Pleuronectes quadrituberculatus*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Porifera (sponge)	2.24	1.19
Anthozoa (anemome)	0.90	0.09
Polychaeta (worm)	83.86	53.95
Polynoidae (polychaete)	0.90	0.05
Nephtyidae (polychaete)	4.48	3.23
Opheliidae (polychaete)	1.35	0.55
Sternaspidae (polychaete)	0.45	0.04
Maldanidae (polychaete)	9.42	3.29
Ampharetidae (polychaete)	0.45	0.25
Mollusca	0.45	0.09
Gastropoda (snail)	6.73	0.28
Bivalvia (clam)	18.83	3.44
Calanoida (copepod)	0.90	0.00
Cumacea (cumacean)	0.90	0.00
Isopoda (isopod)	0.45	0.04
Gammaridea (amphipod)	20.63	1.10
Amphipoda Hyperiidea (amphipod)	4.93	0.13
Reptantia (crab)	0.90	0.01
Majidae (spider crab)	0.45	0.07
Sipuncula (marine worm)	4.48	23.22
Echiura (marine worm)	9.42	6.54
Priapulida (worm)	0.90	0.77
Ophiuroidae Ophiurida (brittle star)	6.28	0.22
Echinoidea Clypeasteroida (sand dollar)	4.93	0.13
Holothuroidea (sea cucumber)	0.45	0.58
Hemichordata (acorn worm)	0.90	<0.1
Non-gadoid fish remains	0.45	0.04
Osmeridae (smelts)	0.45	0.00
Unidentified worm-like organism	0.90	0.08
Unidentified tube	0.45	0.03

Total non-empty stomachs = 223
Total prey number = 135
Total prey weight = 1,170 g
Total empty stomachs = 68
Number of hauls = 30

Table C-2.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of arrowtooth flounder (*Atheresthes stomias*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Bivalvia (clam)	0.62	0.01
Gammaridea (amphipod)	2.47	0.00
Euphausiidae (euphausiid)	11.11	0.25
Caridea (shrimp)	0.62	0.01
Pandalidae (shrimp)	0.62	0.05
Pandalus borealis (shrimp)	0.62	0.05
Crangonidae (shrimp)	2.47	0.02
Crangon sp. (shrimp)	3.09	0.06
Reptantia (crab)	4.32	0.08
Ophiuroidae Ophiurida (brittle star)	0.62	0.00
Urochordata (tunicate)	0.62	0.03
Osteichthyes Teleostei (fish)	6.79	0.23
Non-gadoid fish remains	1.23	0.50
Osmeridae (smelts)	0.62	0.10
Gadidae (gadid fish)	14.81	5.64
Theragra chalcogramma (walleye pollock)	54.32	92.47
Zoarcidae (eelpout)	0.62	0.13
Cottoidei (sculpin)	0.62	0.05
Stichaeidae (prickleback)	0.62	0.10
Ammodytes hexapterus (Pacific sand lance)	0.62	0.22
Pleuronectidae (flatfish)	0.62	0.00
Unidentified worm-like organism	0.62	<0.01

Total non-empty stomachs = 162
Total prey number = 169
Total prey weight = 6,278 g
Total empty stomachs = 171
Number of hauls = 41

Table C-3.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific cod (*Gadus macrocephalus*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Porifera (sponge)	0.11	0.02
Scyphozoa (jellyfish)	0.05	0.00
Anthozoa (anemome)	0.16	0.02
Polychaeta (worm)	31.11	0.75
Aphroditidae (sea mouse)	0.43	0.09
Phyllodocidae (polychaete)	0.33	0.00
Nephtyidae (polychaete)	0.38	0.02
Cirratulidae (polychaete)	0.05	0.00
Opheliidae (polychaete)	0.05	0.00
Sternaspidae (polychaete)	0.05	0.00
Maldanidae (polychaete)	0.05	0.01
Hirudinea (leech)	0.38	0.05
Mollusca	0.81	0.08
Gastropoda (snail)	3.96	0.18
Fusitriton oregonensis (snail)	0.05	0.04
Thecosomata (pteropod)	0.05	<0.01
Bivalvia (clam)	2.93	0.05
Nuculana sp. (clam)	0.33	0.00
Nuculana fossa (clam)	0.11	0.00
Cardiidae (cockles)	0.05	0.00
Cephalopoda (squid and octopus)	0.54	0.06
Teuthoidea (squid)	0.70	0.06
Octopoda (octopus)	3.09	0.24
Crustacea	2.44	0.03
Calanoida (copepod)	0.43	0.00
Mysidacea Mysida (mysid)	5.31	0.05
Mysidae (mysid)	7.64	0.06
Cumacea (cumacean)	0.22	0.00
Isopoda (isopod)	0.22	0.00
Amphipoda (amphipod)	0.33	0.00
Gammaridea (amphipod)	23.96	0.22
Ampeliscidae (amphipod)	0.49	0.00
Amphipoda Hyperiidea (amphipod)	4.01	0.01
Hyperiidae (amphipod)	0.05	0.00
Caprellidea (amphipod)	0.70	0.00
Caprellidae (amphipod)	0.22	0.00
Euphausiacea (euphausiid)	1.52	0.17
Euphausiidae (euphausiid)	5.04	0.03
Thysanoessa raschii (euphausiid)	0.05	0.00
Decapoda (shrimp and crab)	0.05	<0.01
Natantia (shrimp)	7.43	0.66
Caridea (shrimp)	4.23	0.10
Hippolytidae (shrimp)	1.90	0.04
Eualus sp. (shrimp)	0.05	0.00
Pandalidae (shrimp)	5.42	0.31
Pandalus sp. (shrimp)	1.73	0.37

Table C-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Pandalus borealis (shrimp)	1.41	0.24
Pandalus goniurus (shrimp)	0.33	0.01
Pandalus jordani (shrimp)	0.05	0.01
Pandalus montagui tridens (shrimp)	0.05	0.00
Crangonidae (shrimp)	8.83	0.23
Crangon sp. (shrimp)	5.09	0.10
Crangon alaskensis (shrimp)	0.27	0.00
Crangon dalli (shrimp)	3.96	0.10
Crangon communis (shrimp)	0.27	0.01
Sclerocrangon boreas (shrimp)	0.05	0.00
Argis sp. (shrimp)	0.65	0.03
Argis lar (shrimp)	0.43	0.03
Reptantia (crab)	6.99	0.50
Decapoda Reptantia legs (for unident. crabs)	0.05	0.00
Anomura (crab)	0.16	0.01
Paguridae (hermit crab)	14.09	2.90
Paguridae legs (hermit crabs)	0.60	0.06
Pagurus sp. (hermit crab)	0.54	0.15
Elassochirus cavimanus (purple hermit crab)	0.05	0.02
Lithodidae (king crab)	1.30	1.59
Lithodidae (king crab - legs only)	0.54	0.27
Paralithodes sp. (king crab)	0.38	0.28
Paralithodes camtschatica (red king crab)	0.05	0.19
Decapoda brachyura (crab)	1.03	0.18
Oxyrhyncha	0.11	0.02
Decapoda brachyura legs (for unident. crabs)	0.27	0.07
Majidae (spider crab)	0.54	0.04
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.05	0.04
Hyas sp. (lyre crab)	0.16	0.03
Hyas lyratus (lyre crab)	0.05	0.00
Hyas coarctatus (lyre crab)	0.11	0.02
Chionoecetes sp. (snow and Tanner crab)	9.81	1.90
Chionoecetes opilio (snow crab)	7.64	2.81
Chionoecetes bairdi (Tanner crab)	9.54	2.30
Telmessus cheiragonus (hair crab)	0.11	0.02
Cancridae (crab)	0.11	0.00
Pinnotheridae (pea crab)	0.38	0.00
Pinnixa sp. (pea crab)	1.30	0.07
Insecta (insect)	0.05	0.00
Sipuncula (marine worm)	0.49	0.09
Echiura (marine worm)	9.97	0.74
Priapulida (worm)	0.05	0.02
Ectoprocta (bryozoan)	0.22	0.00
Asteroidea (starfish)	0.11	0.00
Ctenodiscus crispatus (mud sea star)	0.11	0.01
Ophiuroidea Euryalina (basket star)	0.11	0.03
Ophiuroidae Ophiurida (brittle star)	0.81	0.01
Echinoidea (sea urchin and sand dollar)	0.05	0.00

Table C-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Urochordata (tunicate)	0.16	0.00
Ascidiacea (sea squirt)	0.05	0.00
Styela rustica (sea potato)	0.11	0.02
Boltenia sp. (sea onion)	0.11	0.01
Thaliacea (pelagic salp)	0.05	0.00
Bathyraja sp. (skate)	0.05	0.05
Osteichthyes Teleostei (fish)	9.49	0.41
Non-gadoid fish remains	3.85	0.47
Fish eggs	0.05	0.03
Clupeoidei	0.22	0.02
Clupeidae	0.49	0.08
Alosa sapidissima (American shad)	0.05	0.02
Clupea pallasi (Pacific herring)	2.01	1.03
Osmeridae (smelts)	0.38	0.05
Mallotus villosus (capelin)	0.05	0.01
Myctophidae (lanternfish)	0.05	0.03
Stenobrachius sp. (lampfish)	0.11	0.12
Gadidae (gadid fish)	7.05	2.12
Gadus macrocephalus (Pacific cod)	0.27	1.23
Theragra chalcogramma (walleye pollock)	20.43	50.46
Zoarcidae (eelpout)	3.58	0.83
Lycodes sp. (eelpout unid)	0.05	0.02
Lycodes palearis (wattled eelpout)	0.05	0.09
Pleurogrammus monopterygius (Atka mackerel)	0.05	0.37
Cottoidei (sculpin)	0.70	0.07
Icelus spiniger (thorny sculpin)	0.05	0.01
Cottidae (sculpin)	0.22	0.02
Artediellus sp. (sculpin)	0.11	0.00
Dasycottus setiger (spinyhead sculpin)	0.05	0.06
Agonidae (poacher)	0.81	0.03
Aspidophoroides bartoni (Aleutian alligatorfish)	0.11	0.01
Asterotheca sp. (poacher)	0.11	0.01
Podothecus acipenserinus (sturgeon poacher)	0.16	0.06
Cyclopteridae (snailfish)	0.05	0.01
Bathymasteridae (ronquils)	0.05	0.01
Bathymaster signatus (searcher)	0.22	0.81
Stichaeidae (prickleback)	0.87	0.11
Lumpenella longirostris (longsnout prickleback)	0.05	0.00
Cryptacanthodes aleutensis (dwarf wrymouth)	0.05	0.01
Zaprora silenus (prowfish)	0.05	0.04
Ammodytes hexapterus (Pacific sand lance)	0.22	0.01
Pleuronectiformes Pleuronectoidei (flatfish)	1.36	0.75
Pleuronectidae (flatfish)	3.52	4.16
Atheresthes stomias (arrowtooth flounder)	0.22	0.12
Hippoglossoides elassodon (flathead sole)	0.33	0.20
Lepidopsetta sp. (rock sole type)	0.76	1.89
Lepidopsetta polyxystra (northern rock sole)	0.38	1.24
Pleuronectes asper (yellowfin sole)	0.22	0.48

Table C-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Aves (bird part)	0.05	0.00
Unidentified organic material	0.92	0.06
Sand	0.05	0.00
Unidentified eggs	0.05	0.00
Unidentified worm-like organism	0.60	0.03
Fishery offal	5.96	13.21
Unidentified tube	0.27	0.00
Overboard material (non-fishery)	0.05	0.29
Wood	0.11	0.00
Unidentified algae	0.43	0.00

Total non-empty stomachs = 1,845
Total prey number = 15,596
Total prey weight = 118,810 g
Total empty stomachs = 47
Number of hauls = 215

Table C-4.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of flathead sole (*Hippoglossoides elassodon*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	23.71	4.63
Nephtyidae (polychaete)	0.43	0.07
Terebellidae (polychaete)	0.43	0.01
Bivalvia (clam)	6.47	8.85
Nuculana sp. (clam)	0.43	0.02
Yoldia sp. (clam)	3.88	2.45
Pectinidae (scallops)	1.72	0.23
Calanoida (copepod)	2.59	0.03
Peracarida Mysidacea (mysid)	0.43	0.01
Mysidacea Mysida (mysid)	4.31	0.99
Mysidae (mysid)	3.88	0.69
Cumacea (cumacean)	2.16	0.03
Isopoda (isopod)	0.86	0.07
Gammaridea (amphipod)	8.62	0.83
Ampeliscidae (amphipod)	0.43	0.02
Amphipoda Hyperiidea (amphipod)	1.29	0.03
Euphausiidae (euphausiid)	1.29	0.04
Caridea (shrimp)	0.86	0.46
Pandalidae (shrimp)	1.29	1.70
Pandalus sp. (shrimp)	1.29	2.07
Pandalus borealis (shrimp)	0.43	0.47
Crangonidae (shrimp)	1.29	1.06
Crangon sp. (shrimp)	2.16	1.44
Crangon dalli (shrimp)	3.02	1.58
Crangon communis (shrimp)	0.43	0.41
Paguridae (hermit crab)	6.47	5.36
Pagurus sp. (hermit crab)	1.29	3.37
Majidae (spider crab)	0.43	0.15
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.43	0.03
Chionoecetes sp. (snow and Tanner crab)	3.02	0.48
Chionoecetes opilio (snow crab)	1.29	0.27
Chionoecetes bairdi (Tanner crab)	4.74	3.12
Pinnixa sp. (pea crab)	0.86	0.19
Echiura (marine worm)	0.43	3.32
Ophiuroidae Ophiurida (brittle star)	39.66	22.17
Osteichthyes Teleostei (fish)	0.86	0.13
Non-gadoid fish remains	1.29	0.50
Gadidae (gadid fish)	1.29	1.37
Theragra chalcogramma (walleye pollock)	9.05	30.60
Cottoidei (sculpin)	0.43	0.07
Pleuronectidae (flatfish)	0.43	0.34
Unidentified tube	1.72	0.35
Rocks	0.43	0.00

Table C-4.--Continued.

Total non-empty stomachs = 232
Total prey number = 223
Total prey weight = 518 g
Total empty stomachs = 80
Number of hauls = 38

Table C-5.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Greenland turbot (*Reinhardtius hippoglossoides*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Mysidacea Mysida (mysid)	2.33	0.00
Gammaridea (amphipod)	4.65	0.00
Caridea (shrimp)	2.33	0.00
Chionoecetes bairdi (Tanner crab)	2.33	0.01
Osteichthyes Teleostei (fish)	6.98	0.00
Non-gadoid fish remains	2.33	0.05
Gadidae (gadid fish)	13.95	3.05
Theragra chalcogramma (walleye pollock)	62.79	87.73
Zoarcidae (eelpout)	2.33	0.01
Pleuronectidae (flatfish)	2.33	0.24
Lepidopsetta bilineata (southern rock sole)	2.33	1.18
Fishery offal	4.65	7.72

Total non-empty stomachs = 43
Total prey number = 53
Total prey weight = 8,090 g
Total empty stomachs = 25
Number of hauls = 23

Table C-6.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific halibut (*Hippoglossus stenolepis*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	0.84	0.01
Mollusca	0.42	0.05
Gastropoda (snail)	0.84	0.01
Bivalvia (clam)	0.42	0.02
Cephalopoda (squid and octopus)	0.84	0.63
Octopoda (octopus)	1.68	3.03
Crustacea	0.42	<0.01
Mysidacea Mysida (mysid)	0.84	0.00
Mysidae (mysid)	5.46	0.06
Isopoda (isopod)	0.42	0.00
Gammaridea (amphipod)	0.84	0.01
Euphausiidae (euphausiid)	2.10	0.02
Natantia (shrimp)	3.36	0.03
Caridea (shrimp)	1.68	0.06
Hippolytidae (shrimp)	0.42	0.00
Pandalidae (shrimp)	1.68	0.56
Pandalus borealis (shrimp)	0.84	0.10
Crangonidae (shrimp)	2.52	0.02
Crangon sp. (shrimp)	5.46	0.09
Crangon dalli (shrimp)	1.26	0.01
Reptantia (crab)	1.26	0.00
Paguridae (hermit crab)	29.41	4.35
Paguridae legs (hermit crabs)	2.52	0.03
Pagurus sp. (hermit crab)	2.94	0.75
Lithodidae (king crab)	0.42	<0.01
Decapoda brachyura (crab)	0.84	0.01
Oxyrhyncha	0.84	0.03
Majidae (spider crab)	0.84	0.08
Chionoecetes sp. (snow and Tanner crab)	4.20	0.63
Chionoecetes opilio (snow crab)	2.94	2.40
Chionoecetes bairdi (Tanner crab)	7.98	1.51
Echiura (marine worm)	1.68	0.39
Ectoprocta (bryozoan)	0.42	0.00
Urochordata (tunicate)	0.42	0.04
Osteichthyes Teleostei (fish)	10.92	0.62
Non-gadoid fish remains	5.04	0.17
Clupeidae	0.42	0.29
Clupea pallasi (Pacific herring)	0.84	0.70
Osmeridae (smelts)	3.78	0.48
Mallotus villosus (capelin)	3.78	0.75
Gadidae (gadid fish)	13.03	3.65
Gadus macrocephalus (Pacific cod)	0.42	4.08
Theragra chalcogramma (walleye pollock)	27.31	68.31
Zoarcidae (eelpout)	1.68	0.14
Lycodes sp. (eelpout unid)	0.42	0.18

Table C-6.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Lycodes palearis (wattled eelpout)	0.42	0.10
Cottoidei (sculpin)	0.84	0.12
Myoxocephalus sp. (sculpin)	0.42	0.80
Agonidae (poacher)	0.42	0.06
Ammodytes sp. (sand lance)	0.42	0.05
Ammodytes hexapterus (Pacific sand lance)	0.42	0.04
Pleuronectiformes Pleuronectoidei (flatfish)	0.42	0.16
Pleuronectidae (flatfish)	1.26	0.56
Unidentified worm-like organism	0.42	<0.01
Fishery offal	2.10	3.46

Total non-empty stomachs = 238
Total prey number = 546
Total prey weight = 19,884 g
Total empty stomachs = 199
Number of hauls = 67

Table C-7.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of northern rock sole (*Lepidopsetta polyxystra*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Anthozoa (anemome)	0.25	0.03
Polychaeta (worm)	77.19	54.03
Phyllodocidae (polychaete)	0.25	<0.01
Nephtyidae (polychaete)	3.76	5.46
Eunicidae	0.25	<0.01
Cirratulidae (polychaete)	1.25	1.90
Opheliidae (polychaete)	3.26	4.13
Maldanidae (polychaete)	2.51	1.94
Gastropoda (snail)	0.25	0.04
Pteropoda	0.50	0.01
Bivalvia (clam)	12.53	2.57
Yoldia sp. (clam)	1.00	0.39
Cardiidae (cockles)	0.50	0.21
Mysidacea Mysida (mysid)	2.26	0.22
Mysidae (mysid)	1.75	0.09
Cumacea (cumacean)	3.51	0.06
Isopoda (isopod)	0.75	0.03
Gammaridea (amphipod)	21.80	2.39
Amphipoda Hyperiidea (amphipod)	3.01	0.06
Caprellidea (amphipod)	0.25	0.00
Euphausiacea (euphausiid)	0.25	0.00
Natantia (shrimp)	0.75	0.30
Caridea (shrimp)	0.25	0.00
Crangonidae (shrimp)	0.75	0.16
Crangon dalli (shrimp)	1.25	0.78
Argis sp. (shrimp)	0.25	0.20
Paguridae (hermit crab)	0.50	0.14
Chionoecetes opilio (snow crab)	0.25	0.04
Sipuncula (marine worm)	2.76	11.49
Echiura (marine worm)	3.01	4.51
Priapulida (worm)	0.25	0.30
Ophiuroidae Ophiurida (brittle star)	14.04	3.45
Echinoidea Clypeasteroida (sand dollar)	3.76	0.43
Holothuroidea (sea cucumber)	0.25	0.12
Osteichthyes Teleostei (fish)	0.75	0.05
Ammodytes sp. (sand lance)	3.76	3.42
Unidentified organic material	0.25	<0.01
Unidentified worm-like organism	0.75	0.33
Unidentified tube	1.25	0.18
Rocks	1.00	<0.01

Table C-7.--Continued.

Total non-empty stomachs = 399
Total prey number = 335
Total prey weight = 859.452g
Total empty stomachs = 73
Number of hauls = 55

Table C-8.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of skates collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Cnidaria	0.29	0.02
Scyphozoa (jellyfish)	0.58	0.03
Polychaeta (worm)	21.68	1.73
Polynoidae (polychaete)	0.58	0.01
Gastropoda (snail)	0.29	0.01
Cephalopoda (squid and octopus)	0.29	0.02
Teuthoidea (squid)	0.29	0.00
Crustacea	2.89	0.05
Mysidacea Mysida (mysid)	5.78	0.10
Mysidae (mysid)	1.45	0.03
Isopoda (isopod)	0.87	0.01
Gammaridea (amphipod)	44.80	4.18
Amphipoda Hyperiidea (amphipod)	0.58	0.00
Euphausiacea (euphausiid)	1.16	0.02
Euphausiidae (euphausiid)	5.49	0.02
Decapoda (shrimp and crab)	0.29	<0.01
Natantia (shrimp)	8.38	1.79
Caridea (shrimp)	2.60	0.09
Hippolytidae (shrimp)	0.29	0.00
Spirontocaris sp. (shrimp)	0.58	0.01
Pandalidae (shrimp)	3.76	0.54
Pandalus sp. (shrimp)	0.29	0.01
Pandalus borealis (shrimp)	1.45	0.27
Crangonidae (shrimp)	6.94	0.46
Crangon sp. (shrimp)	2.02	0.18
Crangon alaskensis (shrimp)	0.58	0.04
Crangon dalli (shrimp)	1.45	0.19
Argis sp. (shrimp)	1.16	0.13
Argis lar (shrimp)	0.29	0.05
Reptantia (crab)	6.07	0.54
Paguridae (hermit crab)	34.97	10.59
Pagurus sp. (hermit crab)	0.87	0.26
Lithodidae (king crab)	1.16	3.34
Lithodidae (king crab - legs only)	0.29	0.11
Paralithodes sp. (king crab)	0.29	0.14
Decapoda brachyura (crab)	2.89	1.26
Majidae (spider crab)	2.89	0.55
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	2.02	1.20
Hyas lyratus (lyre crab)	0.29	0.12
Chionoecetes sp. (snow and Tanner crab)	18.21	4.78
Chionoecetes opilio (snow crab)	3.47	1.21
Chionoecetes bairdi (Tanner crab)	2.89	3.13
Echiura (marine worm)	0.29	0.00
Holothuroidea (sea cucumber)	0.29	0.01
Osteichthyes Teleostei (fish)	4.62	0.60

Table C-8.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Non-gadoid fish remains	4.34	0.95
Clupeidae	0.58	0.69
Clupea pallasi (Pacific herring)	1.16	0.44
Oncorhynchus sp. (salmon)	0.29	6.66
Osmeridae (smelts)	0.29	0.00
Gadidae (gadid fish)	3.18	0.89
Theragra chalcogramma (walleye pollock)	10.69	35.03
Zoarcidae (eelpout)	4.62	3.45
Lycodes brevipes (shortfin eelpout)	0.58	0.17
Gasterosteus aculeatus (3-spined stickleback)	0.29	0.01
Cottoidei (sculpin)	0.58	0.28
Agonidae (poacher)	0.29	0.04
Podothecus acipenserinus (sturgeon poacher)	0.29	0.01
Cyclopteridae (snailfish)	0.29	0.03
Stichaeidae (prickleback)	1.73	0.34
Ammodytes sp. (sand lance)	0.29	0.14
Ammodytes hexapterus (Pacific sand lance)	0.87	0.40
Pleuronectidae (flatfish)	4.91	2.54
Hippoglossoides elassodon (flathead sole)	0.29	0.64
Lepidopsetta polyxystra (northern rock sole)	1.16	5.93
Pleuronectes asper (yellowfin sole)	0.29	0.48
Unidentified organic material	0.29	0.01
Unidentified eggs	0.29	0.01
Fishery offal	2.02	3.00

Total non-empty stomachs = 346
Total prey number = 685
Total prey weight = 9,535 g
Total empty stomachs = 44
Number of hauls = 62

Table C-9.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of walleye pollock (*Theragra chalcogramma*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Scyphozoa (jellyfish)	0.02	<0.01
Polychaeta (worm)	4.40	0.66
Polynoidae (polychaete)	0.10	0.00
Nephtyidae (polychaete)	0.02	0.04
Mollusca	0.04	0.00
Gastropoda (snail)	0.10	0.06
Pteropoda	3.34	0.37
Thecosomata (pteropod)	1.67	0.12
Gymnosomata (pteropod)	0.02	0.00
Bivalvia (clam)	0.16	0.00
Cephalopoda (squid and octopus)	0.12	0.01
Teuthoidea (squid)	0.14	0.00
Octopoda (octopus)	0.06	0.00
Crustacea	1.59	0.14
Copepoda	9.33	2.05
Calanoida (copepod)	41.66	10.43
Calanidae (copepod)	0.10	0.01
Harpacticoida (copepod)	0.02	<0.01
Cirripedia (barnacle)	0.02	0.00
Mysidacea Mysida (mysid)	3.42	1.62
Mysidae (mysid)	9.55	6.29
Petalophthalmus sp. (mysid)	0.02	<0.01
Cumacea (cumacean)	1.45	0.05
Amphipoda (amphipod)	0.12	0.02
Gammaridea (amphipod)	7.40	0.45
Ampeliscidae (amphipod)	0.60	0.19
Ampelisca sp. (amphipod)	0.02	0.00
Amphipoda Hyperiidea (amphipod)	11.42	0.49
Hyperiidae (amphipod)	0.48	0.01
Caprellidea (amphipod)	0.02	<0.01
Caprellidae (amphipod)	0.02	0.00
Euphausiacea (euphausiid)	7.20	2.78
Euphausiidae (euphausiid)	57.68	34.11
Euphausia pacifica (euphausiid)	0.06	0.00
Thysanoessa sp. (euphausiid)	0.02	0.01
Thysanoessa inermis (euphausiid)	0.32	0.03
Decapoda (shrimp and crab)	0.18	0.01
Natantia (shrimp)	1.07	0.20
Caridea (shrimp)	2.59	0.27
Pasiphaea pacifica (shrimp)	0.02	0.00
Hippolytidae (shrimp)	1.09	0.28
Eualus sp. (shrimp)	0.02	0.00
Pandalidae (shrimp)	1.67	1.06
Pandalus sp. (shrimp)	0.20	0.08
Pandalus borealis (shrimp)	0.12	0.09
Crangonidae (shrimp)	4.68	4.59

Table C-9.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Crangon sp. (shrimp)	0.72	0.45
Crangon alaskensis (shrimp)	0.36	0.15
Crangon dalli (shrimp)	1.89	2.05
Crangon communis (shrimp)	0.08	0.01
Argis sp. (shrimp)	0.26	0.15
Argis dentata (shrimp)	0.02	0.00
Reptantia (crab)	5.21	0.73
Decapoda Reptantia legs (for unident. crabs)	0.02	0.04
Anomura (crab)	0.06	0.00
Paguridae (hermit crab)	0.52	0.05
Decapoda brachyura (crab)	0.08	0.00
Chionoecetes sp. (snow and Tanner crab)	0.02	0.00
Telmessus cheiragonus (hair crab)	0.02	0.68
Echiura (marine worm)	0.58	0.33
Ectoprocta (bryozoan)	0.04	0.00
Asteroidea (starfish)	0.04	0.00
Ctenodiscus crispatus (mud sea star)	0.02	0.01
Ophiuroidae Ophiurida (brittle star)	0.02	0.00
Brittle star legs	0.02	0.00
Holothuroidea (sea cucumber)	0.02	0.01
Chaetognatha (arrow worm)	3.64	0.08
Urochordata (tunicate)	0.02	0.01
Thaliacea (pelagic salp)	0.04	0.01
Larvacea Copelata	5.27	2.11
Misc. fish	0.12	0.02
Osteichthyes	0.06	0.01
Osteichthyes Teleostei (fish)	3.56	0.99
Non-gadoid fish remains	1.49	0.50
Fish eggs	0.04	0.00
Clupeoidei	0.06	0.10
Clupeidae	0.10	0.07
Clupea pallasi (Pacific herring)	2.13	9.28
Osmeridae (smelts)	0.34	0.33
Mallotus villosus (capelin)	0.28	1.08
Thaleichthys pacificus (eulachon)	0.08	0.36
Bathylagus stilbius (California smoothtongue)	0.02	0.01
Gadidae (gadid fish)	2.59	1.18
Theragra chalcogramma (walleye pollock)	4.50	9.53
Zoarcidae (eelpout)	0.04	0.04
Scorpaeniformes (rockfish and cottid)	0.02	0.00
Cottoidei (sculpin)	0.18	0.02
Cottidae (sculpin)	0.02	0.00
Hemilepidotus sp. (sculpin)	0.06	0.00
Agonidae (poacher)	0.04	0.00
Pallasina barbata (tubenose poacher)	0.02	0.00
Stichaeidae (prickleback)	0.06	0.04
Ammodytes sp. (sand lance)	0.46	0.45
Ammodytes hexapterus (Pacific sand lance)	0.76	0.36

Table C-9.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Pleuronectiformes Pleuronectoidei (flatfish)	0.22	0.06
Pleuronectidae (flatfish)	0.18	0.43
Pleuronectes asper (yellowfin sole)	0.02	0.02
Reinhardtius hippoglossoides (Greenland turbot)	0.02	0.01
Aves (bird part)	0.02	0.00
Unidentified organic material	0.62	0.04
Sand	0.02	<0.01
Unidentified eggs	0.04	0.00
Unidentified worm-like organism	0.10	0.03
Fishery offal	0.56	1.63
Unidentified tube	0.08	0.00
Unidentified algae	0.04	0.00
Unidentified material	0.06	<0.01

Total non-empty stomachs = 4,974
Total prey number = 9,332
Total prey weight = 33,346 g
Total empty stomachs = 339
Number of hauls = 336

Table C-10.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of yellowfin sole (*Limanda aspera*) collected in the eastern Bering Sea in 1999, May through September.

Prey Name	Mean % F.O	Mean % Weight
Porifera (sponge)	0.27	0.01
Hydrozoa Hydroida (hydroid)	0.27	0.20
Scyphozoa (jellyfish)	4.35	3.03
Polychaeta (worm)	39.95	18.90
Phyllodocidae (polychaete)	1.09	0.17
Nephtyidae (polychaete)	0.82	1.26
Mollusca	0.54	<0.01
Gastropoda (snail)	0.54	0.04
Pteropoda	1.36	<0.01
Nudibranchia dendronotoidea (nudibranch)	0.54	0.05
Bivalvia (clam)	24.46	16.28
Yoldia sp. (clam)	0.82	2.06
Clinocardium ciliatum (Iceland cockle)	0.27	0.33
Crustacea	0.27	<0.01
Cirripedia (barnacle)	0.27	0.01
Mysidacea Mysida (mysid)	3.53	2.20
Mysidae (mysid)	0.82	0.11
Cumacea (cumacean)	9.51	0.72
Isopoda (isopod)	0.82	0.05
Gammaridea (amphipod)	26.63	3.40
Ampeliscidae (amphipod)	1.63	0.21
Amphipoda Hyperiidea (amphipod)	10.60	0.67
Caprellidea (amphipod)	0.27	0.00
Euphausiidae (euphausiid)	4.89	2.97
Natantia (shrimp)	0.54	0.00
Caridea (shrimp)	0.54	0.27
Crangonidae (shrimp)	0.27	0.00
Crangon sp. (shrimp)	0.54	0.50
Crangon dalli (shrimp)	0.54	0.46
Reptantia (crab)	0.82	0.06
Decapoda Reptantia legs (for unident. crabs)	0.27	0.08
Paguridae (hermit crab)	1.90	0.76
Pagurus sp. (hermit crab)	0.27	0.20
Decapoda Reptantia legs (for unident. crabs)	0.27	0.06
Pinnotheridae (pea crab)	1.36	0.08
Sipuncula (marine worm)	0.54	1.16
Echiura (marine worm)	9.51	21.47
Priapulida (worm)	0.27	0.06
Ectoprocta (bryozoan)	4.35	2.99
Ophiuroidae Ophiurida (brittle star)	20.65	6.19
Echinoidea (sea urchin and sand dollar)	9.24	2.22
Sand dollar	0.54	0.05
Holothuroidea (sea cucumber)	1.09	0.89
Ascidiacea (sea squirt)	0.27	<0.01

Table C-10.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Ascidia sp. (tunicate)	0.54	0.10
Non-gadoid fish remains	0.27	0.57
Theragra chalcogramma (walleye pollock)	0.27	0.57
Cyclopteridae (snailfish)	0.27	0.39
Ammodytes hexapterus (Pacific sand lance)	0.82	0.23
Unidentified eggs	0.27	<0.01
Unidentified worm-like organism	1.63	0.20
Fishery offal	0.82	<0.01
Unidentified tube	1.90	0.21
Unidentified algae	0.27	<0.01
Unidentified material	0.27	0.30

Total non-empty stomachs = 368
Total prey number = 738
Total prey weight = 461 g
Total empty stomachs = 228
Number of hauls = 58

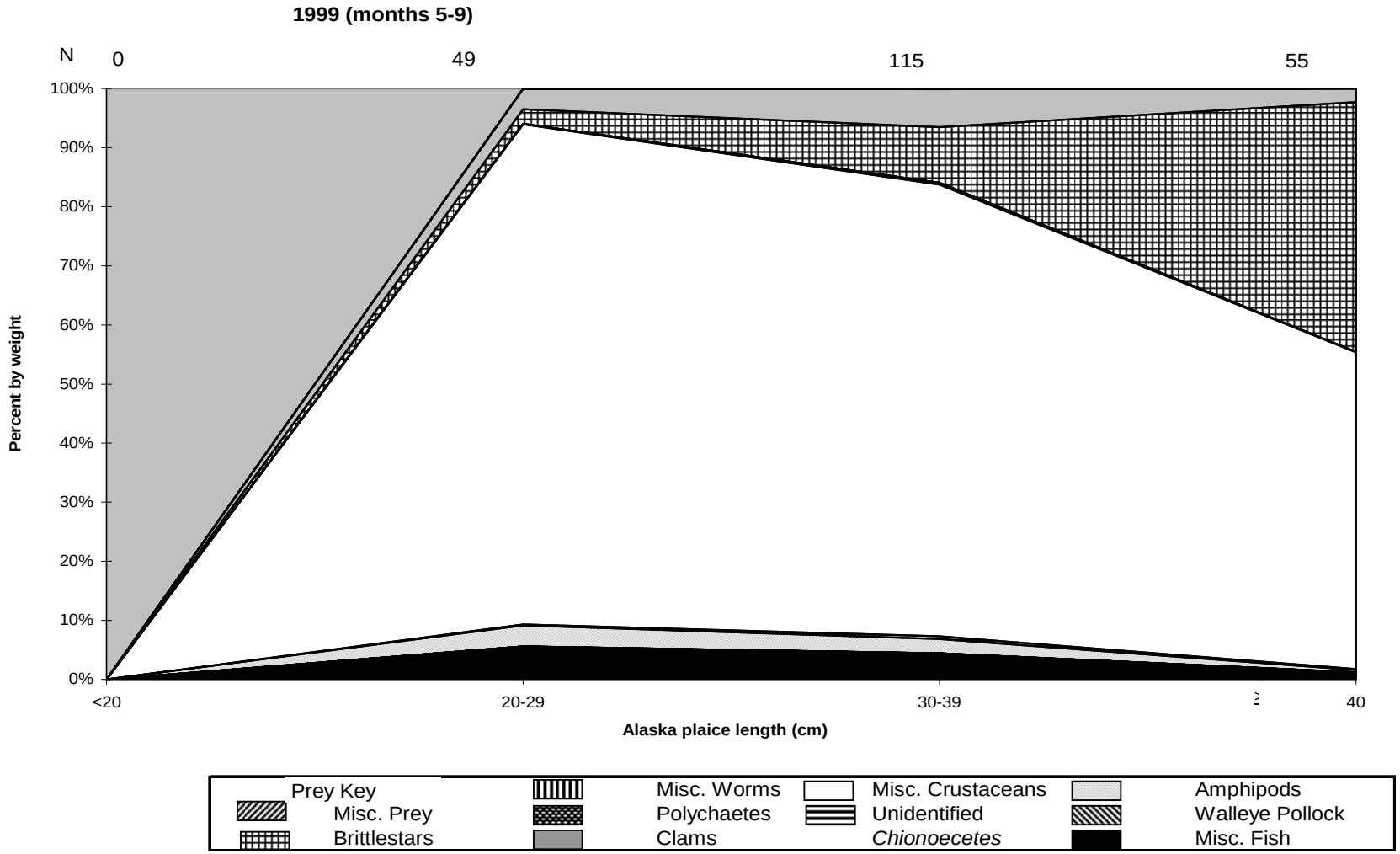

Figure C-1.--Diet composition of Alaska plaice, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

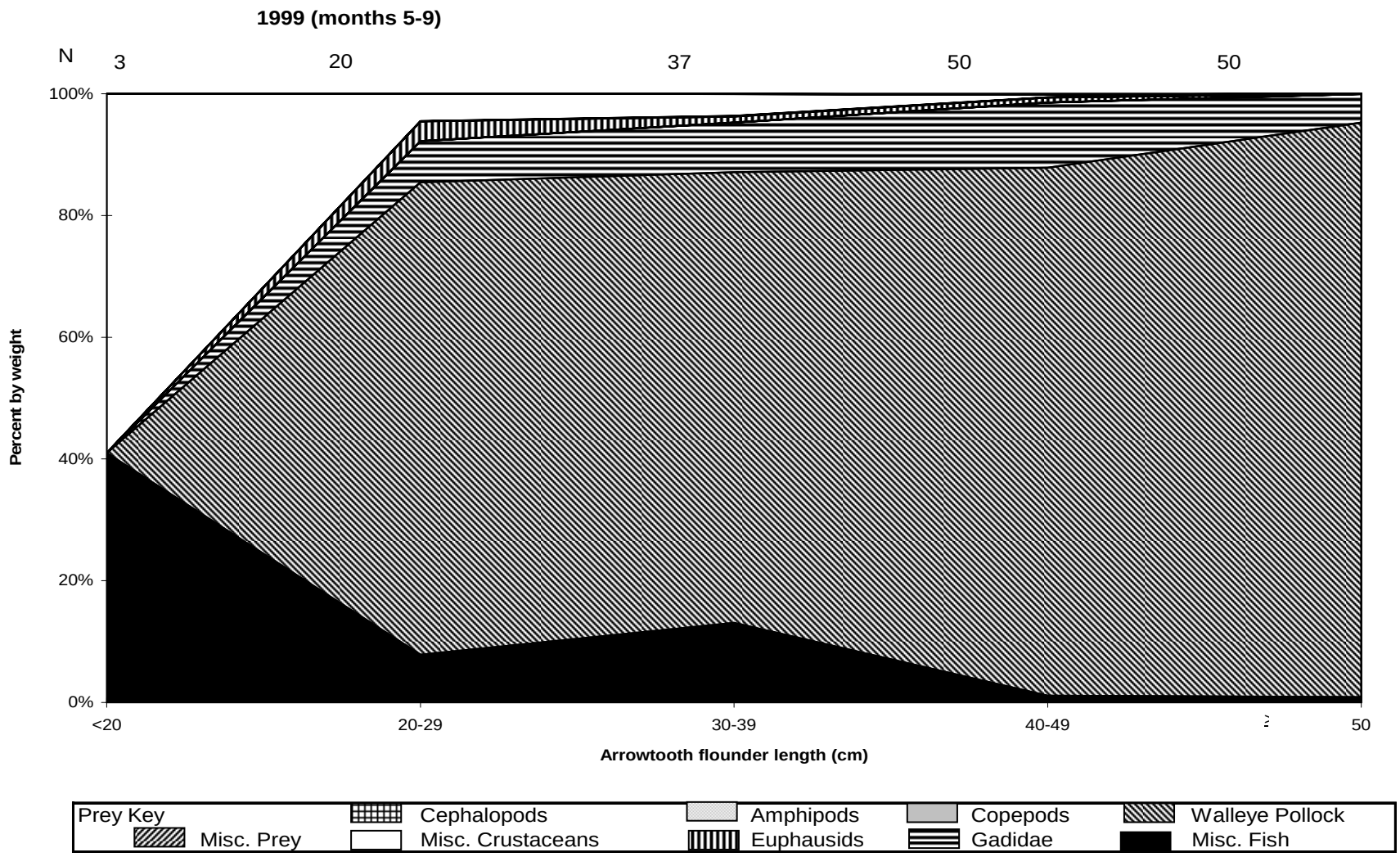

Figure C-2.--Diet composition of arrowtooth flounder, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

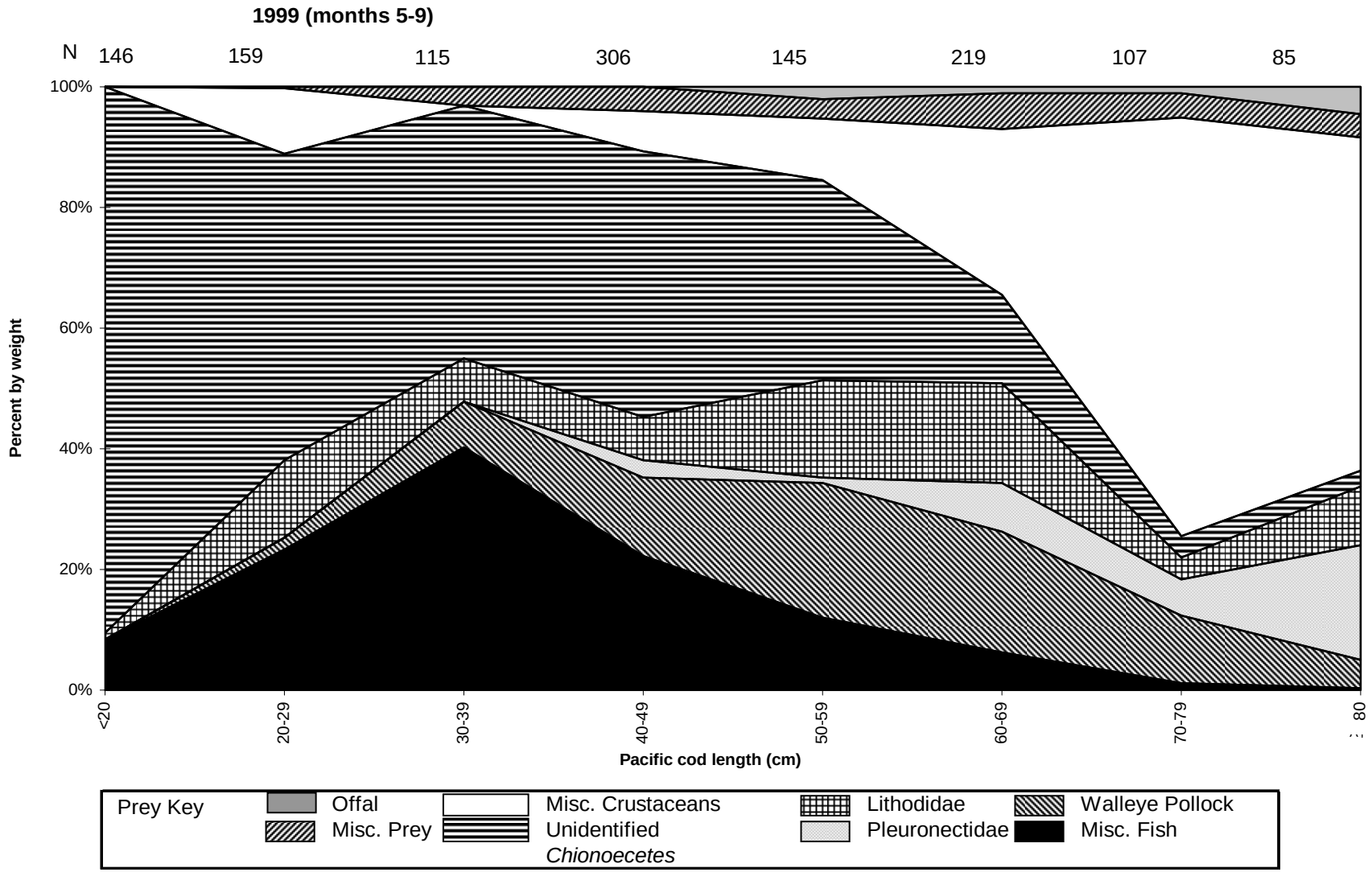

Figure C-3.--Diet composition of Pacific cod, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

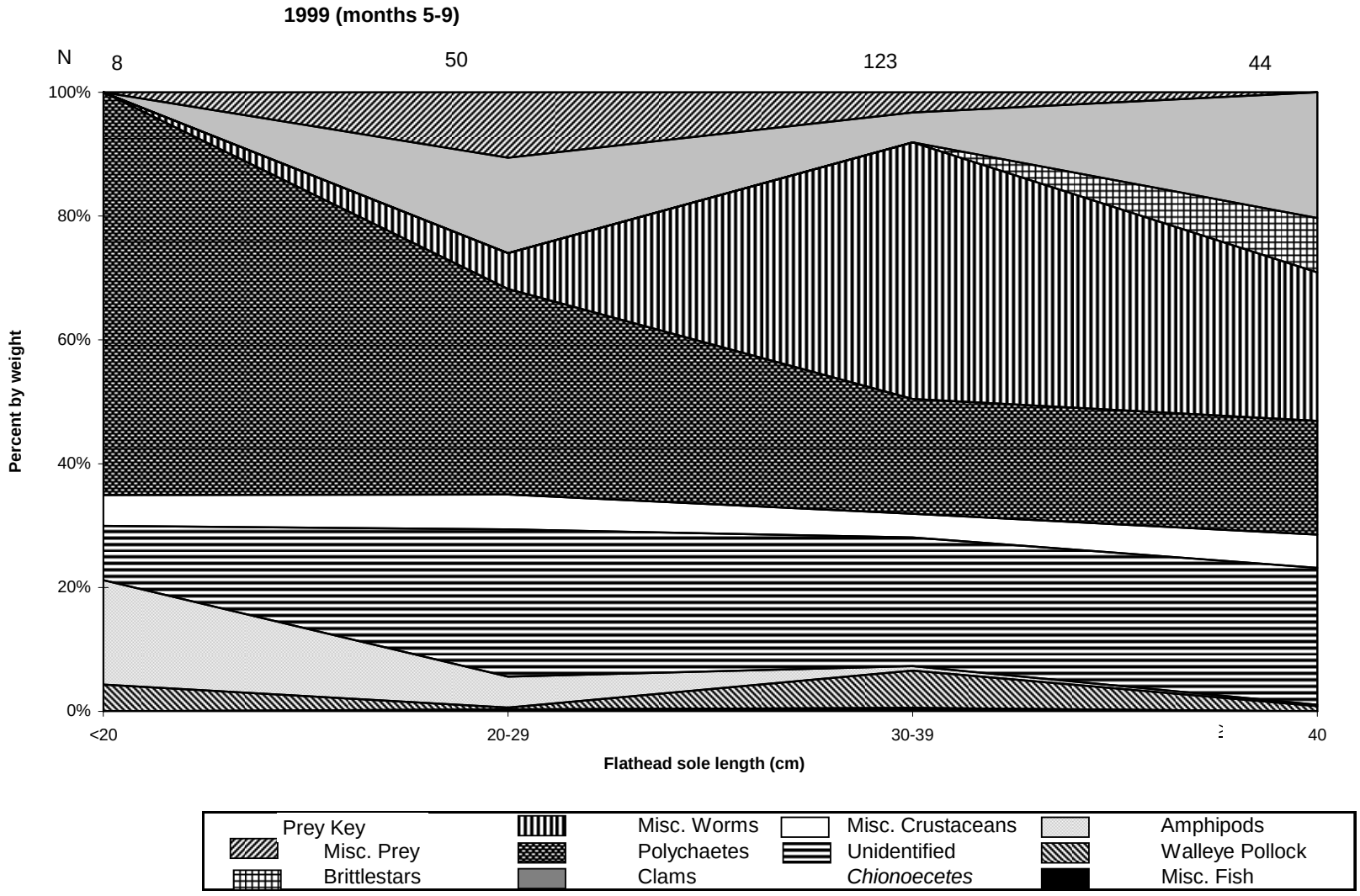

Figure C-4.--Diet composition of flathead sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

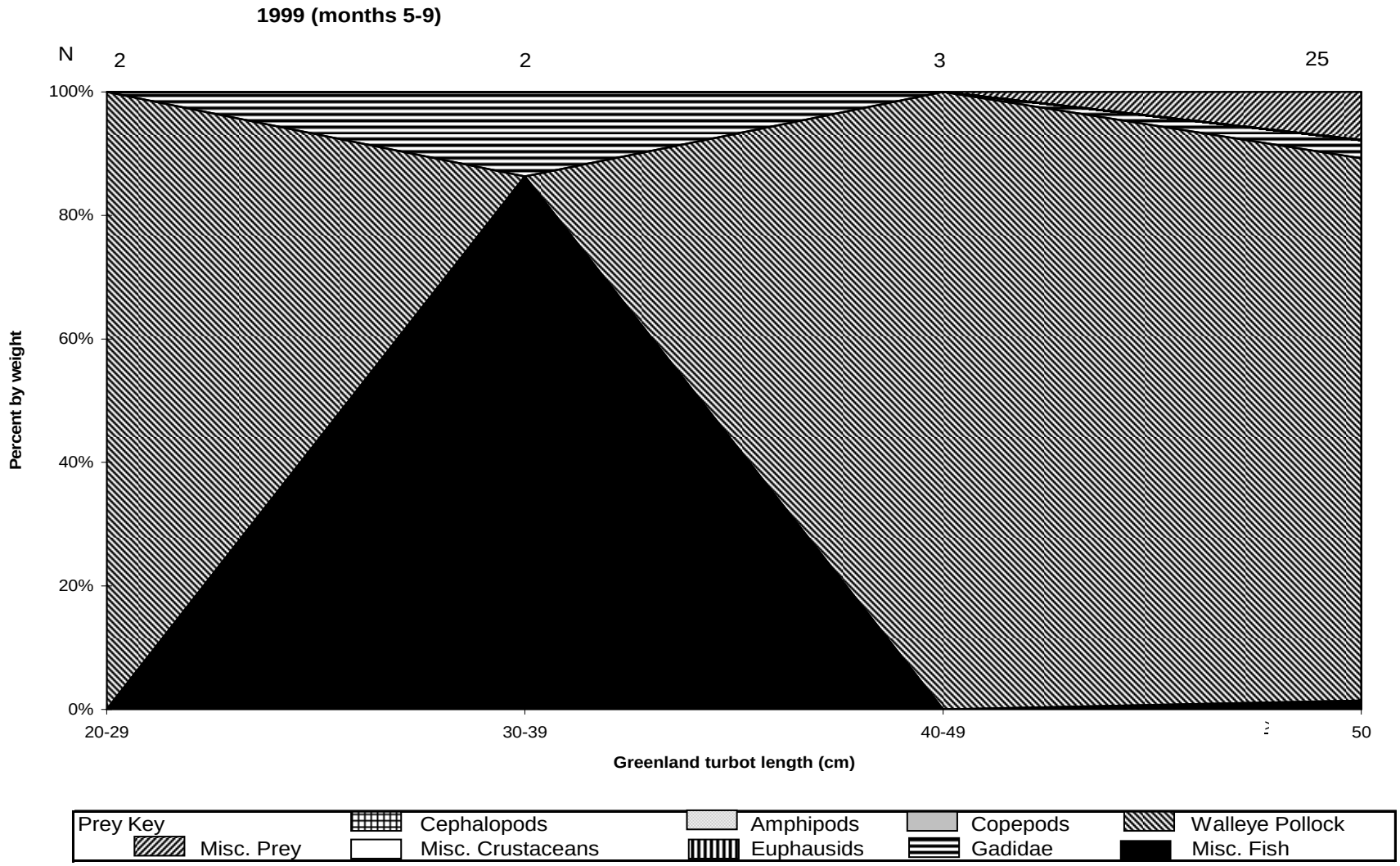

Figure C-5.--Diet composition of Greenland turbot, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

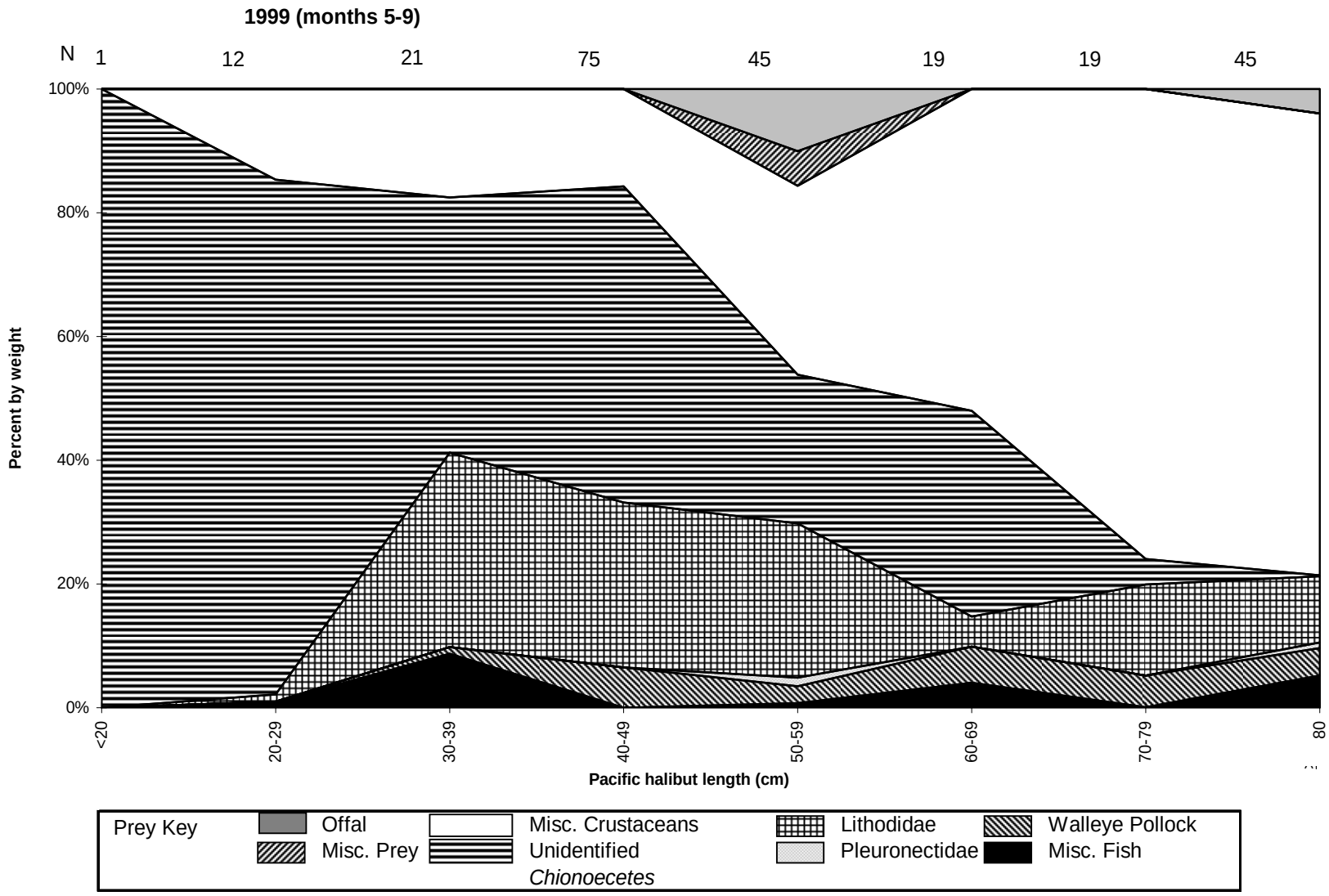

Figure C-6.--Diet composition of Pacific halibut, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

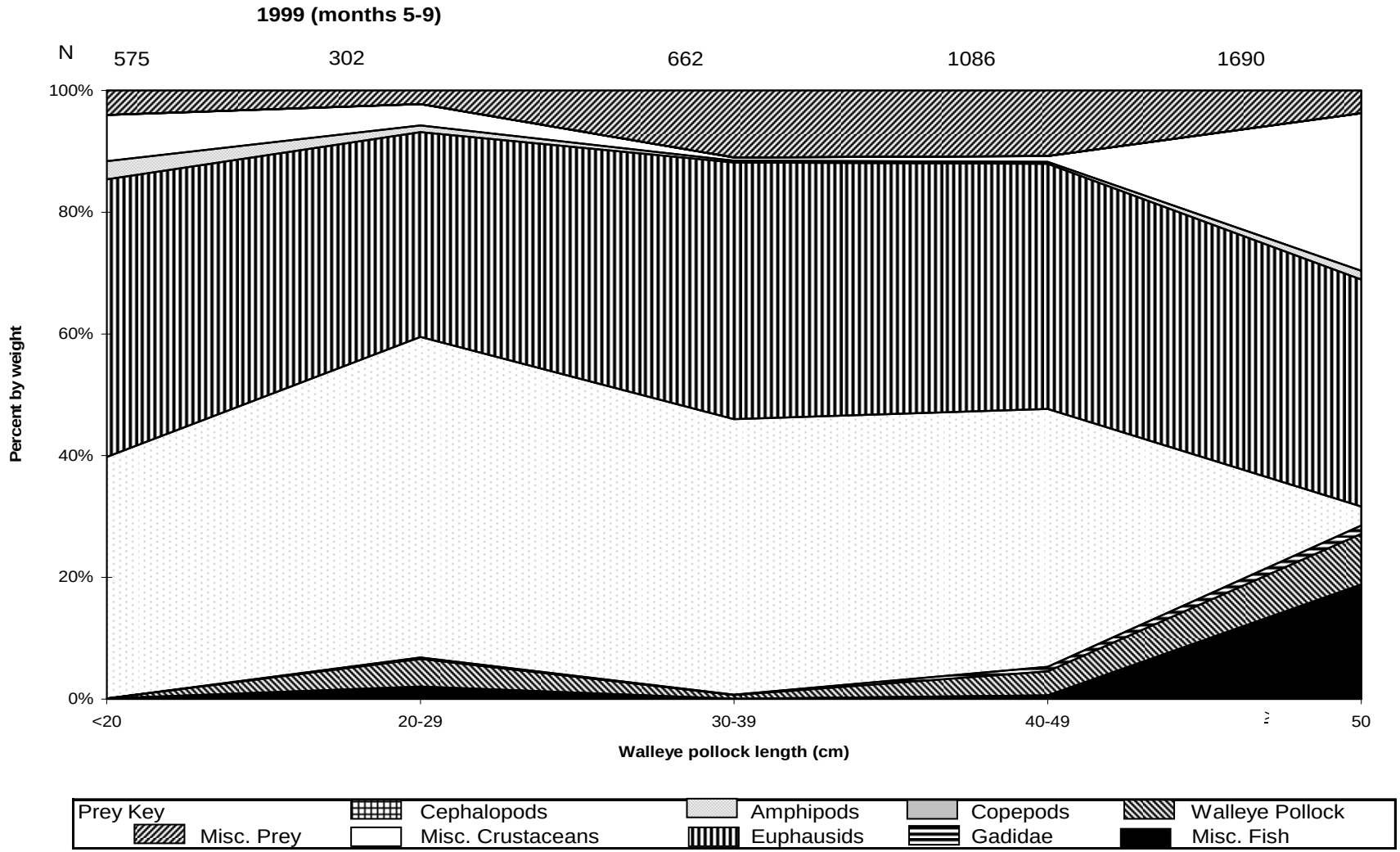

Figure C-7.--Diet composition of walleye pollock, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

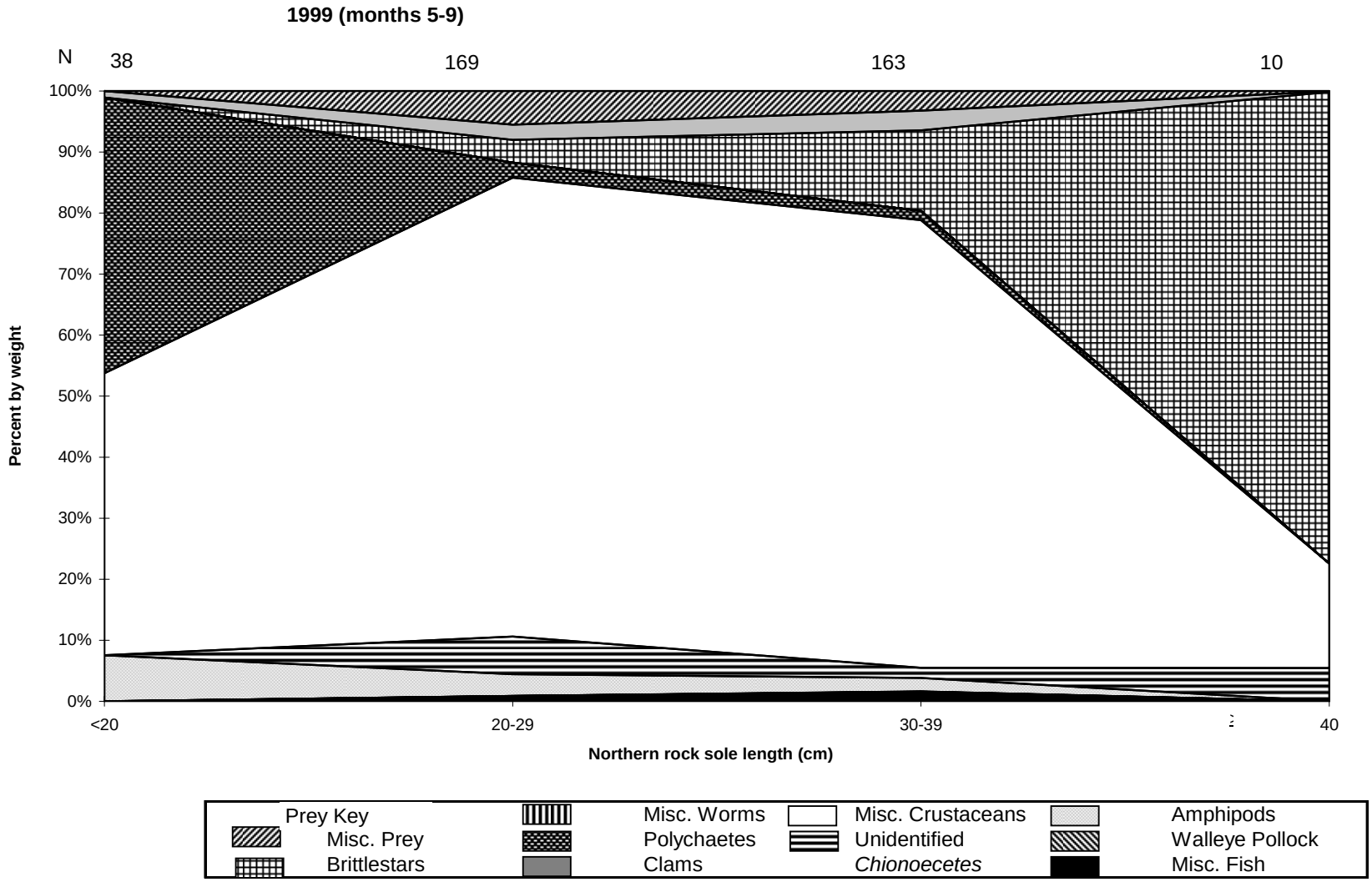

Figure C-8.--Diet composition of northern rock sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

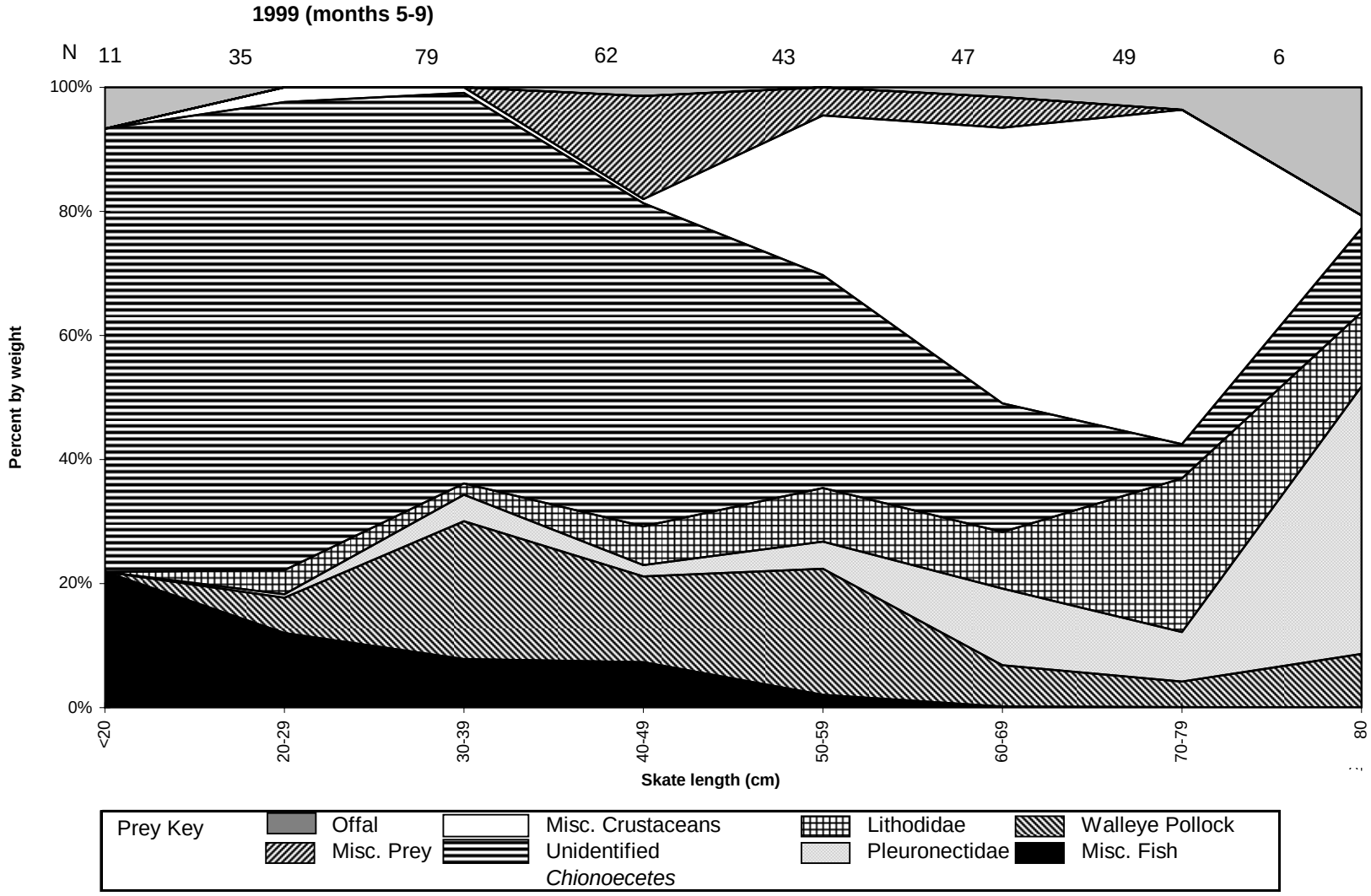

Figure C-9.--Diet composition of skates, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

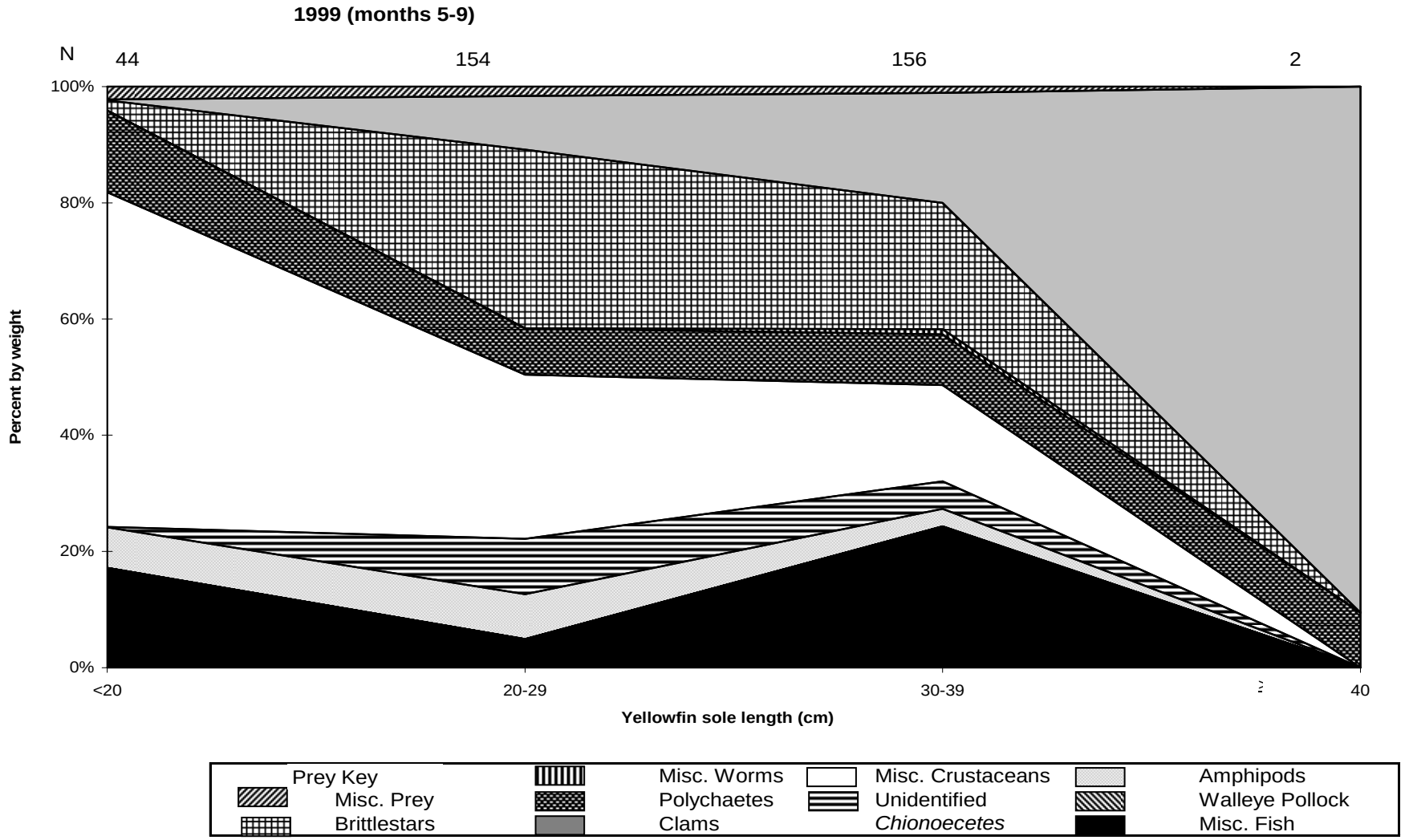

Figure C-10.--Diet composition of yellowfin sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

Appendix D- Diet of major groundfish species collected from the eastern Bering Sea in 2000

Table D-1.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Alaska plaice (*Pleuronectes quadrituberculatus*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	49.49	16.29
Polynoidae (polychaete)	1.01	0.01
Phyllodocidae (polychaete)	4.04	0.07
Nephtyidae (polychaete)	18.18	18.45
Goniadidae (polychaete)	1.01	0.02
Onuphidae (polychaete)	3.03	0.34
Arabellidae (polychaete)	1.01	1.05
Orbiniidae (polychaete)	3.03	1.12
Flabelligeridae (polychaete)	2.02	1.11
Opheliidae (polychaete)	6.06	1.72
Sternaspidae (polychaete)	14.14	8.92
Maldanidae (polychaete)	31.31	5.78
Oweniidae (polychaete)	4.04	0.02
Pectinariidae (polychaete)	1.01	0.20
Ampharetidae (polychaete)	6.06	0.76
Terebellidae (polychaete)	1.01	0.12
Gastropoda (snail)	2.02	0.02
Bivalvia (clam)	41.41	25.98
Mysidacea Mysida (mysid)	1.01	0.06
Cumacea (cumacean)	3.03	0.01
Isopoda (isopod)	1.01	0.02
Gammaridea (amphipod)	28.28	4.11
Ampeliscidae (amphipod)	3.03	0.69
Amphipoda Hyperiidea (amphipod)	2.02	0.05
Sipuncula (marine worm)	1.01	7.67
Echiura (marine worm)	1.01	4.48
Ophiuroidae Ophiurida (brittle star)	8.08	0.71
Ophiura sarsi (brittle star)	1.01	0.02
Sand dollar	1.01	0.19

Total non-empty stomachs = 99
Total prey number = 943
Total prey weight = 416 g
Total empty stomachs = 6
Number of hauls = 13

Table D-2.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of arrowtooth flounder (*Atheresthes stomias*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	2.56	0.08
Opheliidae (polychaete)	0.23	0.00
Mollusca	0.47	0.03
Bivalvia (clam)	0.93	0.03
Cephalopoda (squid and octopus)	0.23	0.01
Teuthoidea (squid)	0.47	0.54
Crustacea	1.40	0.01
Calanoida (copepod)	1.17	0.00
Mysidae (mysid)	5.36	0.16
Cumacea (cumacean)	0.23	0.00
Amphipoda (amphipod)	0.23	0.00
Gammaridea (amphipod)	2.80	0.02
Amphipoda Hyperiidea (amphipod)	0.47	0.00
Euphausiacea (euphausiid)	0.23	0.01
Euphausiidae (euphausiid)	20.75	2.61
Natantia (shrimp)	5.36	0.33
Caridea (shrimp)	4.90	0.73
Hippolytidae (shrimp)	0.23	0.06
Eualus sp. (shrimp)	0.23	0.05
Eualus biunguis (shrimp)	0.23	0.11
Pandalidae (shrimp)	1.86	0.42
Pandalus sp. (shrimp)	0.93	0.17
Pandalus borealis (shrimp)	1.17	0.43
Pandalus goniurus (shrimp)	0.47	0.06
Pandalopsis sp. (shrimp)	0.47	0.36
Pandalopsis dispar (sidestripe shrimp)	0.70	0.46
Crangonidae (shrimp)	1.86	0.04
Crangon sp. (shrimp)	0.70	0.03
Crangon dalli (shrimp)	0.47	0.03
Crangon communis (shrimp)	0.70	0.04
Argis lar (shrimp)	0.47	0.02
Reptantia (crab)	0.23	0.00
Chionoecetes bairdi (Tanner crab)	0.23	0.00
Ophiuroidae Ophiurida (brittle star)	0.47	0.00
Ophiura sarsi (brittle star)	0.23	0.20
Chaetognatha (arrow worm)	0.47	0.00
Osteichthyes Teleostei (fish)	11.42	0.88
Non-gadoid fish remains	3.03	2.81
Osmeridae (smelts)	0.23	0.67
Thaleichthys pacificus (eulachon)	0.23	1.18
Mallotus villosus (capelin)	0.23	0.02
Myctophidae (lanternfish)	0.23	0.00

Table D-2.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Gadidae (gadid fish)	7.46	3.29
Theragra chalcogramma (walleye pollock)	34.27	74.70
Zoarcidae (eelpout)	0.93	0.42
Lycodapus fierasfer (black mouth eelpout)	0.23	0.15
Lycodes sp. (eelpout unid)	0.47	0.14
Lycodes brevipes (shortfin eelpout)	0.93	1.00
Lycodes palearis (wattled eelpout)	0.23	0.57
Coryphaenoides cinereus (popeye grenadier)	0.23	4.20
Pleurogrammus monopterygius (Atka mackerel)	0.23	0.25
Cottoidei (sculpin)	0.47	0.33
Icelus spiniger (thorny sculpin)	0.47	0.17
Triglops sp. (sculpin)	0.23	0.71
Podothecus acipenserinus (sturgeon poacher)	0.23	0.10
Stichaeidae (prickleback)	0.70	0.11
Ammodytes hexapterus (Pacific sand lance)	0.70	0.06
Pleuronectidae (flatfish)	0.23	0.02
Unidentified organic material	0.23	0.02
Sand	1.40	0.02
Unidentified worm-like organism	0.23	0.01
Fishery offal	1.40	1.10

Total non-empty stomachs = 429
Total prey number = 6,689
Total prey weight = 7,486 g
Total empty stomachs = 200
Number of hauls = 100

Table D-3.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific cod (*Gadus macrocephalus*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Porifera (sponge)	0.05	0.01
Cnidaria	0.20	0.02
Scyphozoa (jellyfish)	0.05	0.00
Anthozoa (anemome)	0.15	0.10
Polychaeta (worm)	28.34	1.10
Aphroditidae (sea mouse)	0.85	0.19
Polynoidae (polychaete)	0.05	0.00
Phyllodocidae (polychaete)	1.30	0.03
Tomopteridae (polychaete)	0.05	0.00
Nereidae (polychaete)	0.20	0.01
Nephtyidae (polychaete)	1.05	0.04
Goniadidae (polychaete)	0.10	0.00
Onuphidae (polychaete)	0.15	0.00
Lumbrineridae	0.20	0.00
Flabelligeridae (polychaete)	0.10	0.01
Scalibregmidae	0.10	0.00
Capitellidae (polychaete)	0.20	0.00
Maldanidae (polychaete)	0.80	0.03
Pectinariidae (polychaete)	0.05	0.00
Ampharetidae (polychaete)	0.10	0.00
Hirudinea (leech)	0.10	0.00
Mollusca	0.25	0.01
Gastropoda (snail)	4.56	0.50
Pteropoda	0.10	0.00
Thecosomata (pteropod)	0.05	0.00
Bivalvia (clam)	1.05	0.03
Nuculana sp. (clam)	0.15	0.00
Yoldia sp. (clam)	0.05	0.00
Cardiidae (cockles)	0.05	0.00
Cephalopoda (squid and octopus)	0.70	0.32
Teuthoidea (squid)	1.15	0.19
Octopoda (octopus)	2.31	1.22
Crustacea	1.00	0.01
Copepoda	0.05	0.00
Calanoida (copepod)	0.25	0.00
Large calanoid (copepod) > 5mm	0.05	0.00
Cirripedia (barnacle)	0.20	0.01
Mysidacea Mysida (mysid)	8.02	0.06
Mysidae (mysid)	2.41	0.02
Cumacea (cumacean)	0.65	0.00
Isopoda (isopod)	0.85	0.00
Amphipoda (amphipod)	0.05	0.00
Gammaridea (amphipod)	25.63	0.49
Ampeliscidae (amphipod)	1.55	0.02
Amphipoda Hyperiidea (amphipod)	3.06	0.02

Table D-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Caprellidea (amphipod)	0.95	0.00
Caprellidae (amphipod)	0.15	0.00
Euphausiacea (euphausiid)	1.20	0.02
Euphausiidae (euphausiid)	3.61	0.08
Thysanoessa sp. (euphausiid)	0.05	0.00
Decapoda (shrimp and crab)	0.05	0.00
Natantia (shrimp)	5.02	0.15
Caridea (shrimp)	3.61	0.07
Hippolytidae (shrimp)	4.11	0.08
Spirontocaris arcuata (shrimp)	0.10	0.00
Eualus sp. (shrimp)	0.30	0.02
Eualus barbata (shrimp)	0.05	0.01
Eualus biunguis (shrimp)	0.05	0.00
Heptacarpus moseri (shrimp)	0.10	0.00
Pandalidae (shrimp)	5.87	0.39
Pandalus sp. (shrimp)	2.51	0.23
Pandalus borealis (shrimp)	2.81	0.31
Pandalus goniurus (shrimp)	0.60	0.04
Pandalus jordani (shrimp)	0.65	0.03
Pandalus montagui tridens (shrimp)	0.60	0.09
Pandalopsis sp. (shrimp)	0.25	0.11
Pandalopsis dispar (sidestripe shrimp)	0.10	0.04
Crangonidae (shrimp)	11.03	0.25
Crangon sp. (shrimp)	6.67	0.21
Crangon alaskensis (shrimp)	0.30	0.01
Crangon dalli (shrimp)	7.22	0.32
Crangon communis (shrimp)	2.31	0.08
Argis sp. (shrimp)	0.55	0.02
Argis lar (shrimp)	0.45	0.02
Argis dentata (shrimp)	0.05	0.00
Argis alaskensis (shrimp)	0.10	0.00
Argis crassa	0.05	0.01
Reptantia (crab)	7.47	0.65
Decapoda Reptantia legs (for unident. crabs)	0.50	0.08
Anomura (crab)	0.05	0.02
Paguridae (hermit crab)	18.05	4.34
Paguridae legs (hermit crabs)	1.35	0.15
Pagurus sp. (hermit crab)	0.25	0.12
Elassochirus cavimanus (purple hermit crab)	0.05	0.00
Lithodidae (king crab)	0.25	0.48
Lithodidae (king crab - legs only)	0.15	0.45
Paralithodes sp. (king crab)	0.35	0.75
Paralithodes camtschatica (red king crab)	0.10	0.33
Munida quadrispina (pinch bug)	0.10	0.01
Decapoda brachyura (crab)	0.90	0.21
Oxyrhyncha	0.20	0.02
Decapoda brachyura legs (for unident. crabs)	0.35	0.03
Majidae (spider crab)	1.96	0.32

Table D-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.80	0.21
Oregonia gracilis (decorator crab)	0.10	0.02
Hyas sp. (lyre crab)	0.20	0.01
Hyas lyratus (lyre crab)	0.15	0.03
Hyas coarctatus (lyre crab)	0.10	0.02
Chionoecetes sp. (snow and Tanner crab)	9.23	2.43
Chionoecetes opilio (snow crab)	12.99	5.91
Chionoecetes bairdi (Tanner crab)	10.03	2.92
Pugettia richii (kelp crab)	0.05	0.00
Cherilia longipes (decorator crab)	0.05	0.00
Telmessus cheiragonus (hair crab)	0.15	0.02
Erimacrus isenbeckii (Korean horse-hair crab)	0.05	0.28
Cancer oregonensis (pygmy Cancer crab)	0.10	0.01
Pinnotheridae (pea crab)	0.30	0.01
Pinnixa sp. (pea crab)	0.50	0.01
Sipuncula (marine worm)	0.15	0.01
Echiura (marine worm)	8.38	0.81
Echiuridae (marine worm)	0.20	0.00
Priapulida (worm)	0.20	0.01
Ectoprocta (bryozoan)	0.30	0.00
Asteroidea (starfish)	0.05	0.00
Ctenodiscus crispatus (mud sea star)	0.05	0.01
Ophiuroidae Ophiurida (brittle star)	0.25	0.00
Ophiura sarsi (brittle star)	0.10	0.00
Holothuroidea (sea cucumber)	0.05	0.12
Chaetognatha (arrow worm)	0.05	0.00
Urochordata (tunicate)	0.35	0.02
Ascidia sp. (tunicate)	0.05	0.01
Thaliacea (pelagic salp)	0.15	0.01
Larvacea Copelata	0.05	0.00
Rajidae (skate)	0.05	0.00
Osteichthyes Teleostei (fish)	4.71	0.17
Non-gadoid fish remains	2.01	0.24
Fish eggs	0.05	0.02
Clupea pallasi (Pacific herring)	0.20	0.09
Osmeridae (smelts)	0.25	0.03
Mallotus villosus (capelin)	0.05	0.00
Gadidae (gadid fish)	5.62	1.38
Gadus macrocephalus (Pacific cod)	0.40	0.22
Theragra chalcogramma (walleye pollock)	18.61	46.85
Zoarcidae (eelpout)	4.46	2.43
Lycodes sp. (eelpout unid)	0.65	0.27
Lycodes brevipes (shortfin eelpout)	0.25	0.15
Lycodes palearis (wattled eelpout)	0.40	0.33
Scorpaenidae	0.05	0.02
Cottoidei (sculpin)	1.35	0.24
Icelus spiniger (thorny sculpin)	0.10	0.06
Cottidae (sculpin)	0.15	0.02

Table D-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Dasycottus setiger (spinyhead sculpin)	0.05	0.00
Triglops pingeli (ribbed sculpin)	0.10	0.00
Agonidae (poacher)	0.80	0.15
Aspidophoroides bartoni (Aleutian alligatorfish)	0.20	0.01
Podothecus acipenserinus (sturgeon poacher)	0.15	0.02
Sarritor frenatus (sawback poacher)	0.10	0.01
Cyclopteridae (snailfish)	0.20	0.02
Paraliparis sp. (snailfish)	0.05	0.00
Bathymaster signatus (searcher)	0.10	0.17
Stichaeidae (prickleback)	1.60	0.33
Allolumpenus hypochromus (y-prickleback)	0.05	0.02
Lumpenus maculatus (daubed shanny)	0.20	0.02
Poroclinus rothrocki (whitebarred pricklback)	0.10	0.01
Cryptacanthodes aleutensis (dwarf wrymouth)	0.10	0.01
Pholis sp. (gunnel)	0.05	0.01
Ammodytes sp. (sand lance)	0.15	0.03
Ammodytes hexapterus (Pacific sand lance)	1.60	0.24
Pleuronectiformes Pleuronectoidei (flatfish)	1.45	0.47
Pleuronectidae (flatfish)	2.91	2.15
Atheresthes stomias (arrowtooth flounder)	0.15	0.15
Hippoglossoides elassodon (flathead sole)	0.45	0.52
Lepidopsetta sp. (rock sole type)	0.05	0.06
Lepidopsetta bilineata (southern rock sole)	0.10	0.32
Lepidopsetta polyxystra (northern rock sole)	0.45	0.67
Pleuronectes asper (yellowfin sole)	0.30	1.83
Hippoglossus stenolepis (Pacific halibut)	0.05	0.08
Aves (bird part)	0.05	0.00
Unidentified organic material	0.80	0.04
Unidentified eggs	0.25	0.26
Fishery offal	5.07	11.95
Unidentified tube	0.10	0.00
Overboard material (non-fishery)	0.05	0.00
Unidentified algae	0.20	0.01
Rocks	0.35	0.01

Total non-empty stomachs = 1,994
Total prey number = 9,071
Total prey weight = 108,097 g
Total empty stomachs = 60
Number of hauls = 247

Table D-4.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of flathead sole (*Hippoglossoides elassodon*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	11.24	0.76
Phyllodocidae (polychaete)	1.12	0.00
Nephtyidae (polychaete)	1.12	0.25
Flabelligeridae (polychaete)	4.49	2.97
Maldanidae (polychaete)	2.25	0.96
Bivalvia (clam)	5.62	1.56
Nuculana sp. (clam)	6.74	1.47
Yoldia sp. (clam)	2.25	10.42
Chlamys sp. (scallop)	2.25	0.15
Calanoida (copepod)	1.12	0.01
Large calanoid (copepod) > 5mm	1.12	0.00
Mysidacea Mysida (mysid)	8.99	6.70
Mysidae (mysid)	12.36	0.96
Cumacea (cumacean)	1.12	0.07
Isopoda (isopod)	1.12	0.01
Gammaridea (amphipod)	10.11	0.87
Amphipoda Hyperiidea (amphipod)	5.62	0.04
Natantia (shrimp)	1.12	0.01
Hippolytidae (shrimp)	4.49	0.85
Pandalus sp. (shrimp)	1.12	1.19
Pandalus goniurus (shrimp)	1.12	0.47
Pandalus jordani (shrimp)	1.12	0.51
Crangonidae (shrimp)	4.49	0.75
Crangon dalli (shrimp)	8.99	4.00
Crangon communis (shrimp)	1.12	0.54
Paguridae (hermit crab)	3.37	7.61
Chionoecetes sp. (snow and Tanner crab)	2.25	3.50
Chionoecetes bairdi (Tanner crab)	5.62	0.82
Ophiuroidae Ophiurida (brittle star)	41.57	13.64
Ophiuridae (brittle star)	2.25	0.31
Ophiura sarsi (brittle star)	7.87	10.26
Ophiopholis aculenta (ubiquitous brittle star)	1.12	0.02
Theragra chalcogramma (walleye pollock)	8.99	27.94
Ammodytes hexapterus (Pacific sand lance)	1.12	0.33
Unidentified tube	1.12	0.02

Total non-empty stomachs = 89
Total prey number = 1,152
Total prey weight = 206 g
Total empty stomachs = 11
Number of hauls = 8

Table D-5.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Greenland turbot (*Reinhardtius hippoglossoides*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	1.85	0.00
Gastropoda (snail)	1.85	0.00
Teuthoidea (squid)	18.52	15.39
Crustacea	1.85	0.00
Mysidae (mysid)	16.67	0.00
Euphausiidae (euphausiid)	1.85	0.00
Natantia (shrimp)	3.70	0.01
Caridea (shrimp)	1.85	0.01
Hippolytidae (shrimp)	3.70	0.10
Eualus sp. (shrimp)	1.85	0.05
Decapoda brachyura (crab)	1.85	0.04
Majidae (spider crab)	1.85	0.18
Chionoecetes angulatus (triangle Tanner crab)	3.70	1.95
Osteichthyes Teleostei (fish)	11.11	0.08
Non-gadoid fish remains	7.41	0.02
Leuroglossus schmidti (northern smoothtongue)	11.11	1.62
Gadidae (gadid fish)	5.56	3.01
Theragra chalcogramma (walleye pollock)	9.26	33.74
Coryphaenoides cinereus (popeye grenadier)	1.85	1.14
Icelus sp. (sculpin)	1.85	0.02
Careproctus sp. (snailfish)	1.85	4.30
Careproctus cypselurus (blackfinned redsnail)	1.85	1.53
Unidentified organic material	1.85	0.03

Total non-empty stomachs = 54
Total prey number = 91
Total prey weight = 5,630 g
Total empty stomachs = 57
Number of hauls = 18

Table D-6.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific halibut (*Hippoglossus stenolepis*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	3.03	0.00
Mysidacea Mysida (mysid)	15.15	0.16
Mysidae (mysid)	3.03	0.11
Gammaridea (amphipod)	3.03	0.08
Crangonidae (shrimp)	3.03	0.06
Crangon alaskensis (shrimp)	3.03	0.03
Crangon dalli (shrimp)	12.12	0.54
Paguridae (hermit crab)	30.30	6.42
Oregonia gracilis (decorator crab)	9.09	1.66
Pugettia gracilis (kelp crab)	3.03	0.30
Non-gadoid fish remains	3.03	0.01
Mallotus villosus (capelin)	9.09	6.86
Gadidae (gadid fish)	9.09	0.35
Theragra chalcogramma (walleye pollock)	21.21	74.47
Zoarcidae (eelpout)	3.03	0.58
Cottoidei (sculpin)	3.03	0.33
Agonidae (poacher)	3.03	1.21
Podothecus acipenserinus (sturgeon poacher)	3.03	2.20
Ammodytes sp. (sand lance)	3.03	1.01
Ammodytes hexapterus (Pacific sand lance)	9.09	2.20
Pleuronectidae (flatfish)	3.03	0.70
Lepidopsetta bilineata (southern rock sole)	3.03	0.32
Lepidopsetta polyxystra (northern rock sole)	3.03	0.40

Total non-empty stomachs = 33
Total prey number = 120
Total prey weight = 1,029 g
Total empty stomachs = 3
Number of hauls = 4

Table D-7.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of northern rock sole (*Lepidopsetta polyxystra*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Scyphozoa (jellyfish)	0.88	0.01
Polychaeta (worm)	38.94	18.46
Polynoidae (polychaete)	0.88	0.16
Phyllodocidae (polychaete)	5.31	0.54
Nereidae (polychaete)	1.77	0.07
Nephtyidae (polychaete)	19.47	9.12
Goniadidae (polychaete)	0.88	0.01
Eunicidae	0.88	0.03
Lumbrineridae	0.88	0.69
Arabellidae (polychaete)	1.77	0.69
Orbiniidae (polychaete)	0.88	0.11
Cirratulidae (polychaete)	0.88	0.24
Flabelligeridae (polychaete)	7.08	8.35
Opheliidae (polychaete)	12.39	4.10
Maldanidae (polychaete)	18.58	5.08
Oweniidae (polychaete)	8.85	1.10
Pectinariidae (polychaete)	3.54	0.21
Ampharetidae (polychaete)	1.77	1.68
Terebellidae (polychaete)	2.65	0.78
Bivalvia (clam)	15.04	3.61
Yoldia sp. (clam)	0.88	0.19
Clinocardium ciliatum (Iceland cockle)	0.88	0.12
Mya sp. (soft shell clam)	0.88	0.18
Teuthoidea (squid)	0.88	2.23
Mysidacea Mysida (mysid)	8.85	8.92
Cumacea (cumacean)	6.19	0.08
Gammaridea (amphipod)	29.20	3.17
Amphipoda Hyperiidea (amphipod)	10.62	0.86
Caprellidea (amphipod)	0.88	0.00
Thysanoessa raschii (euphausiid)	0.88	0.86
Crangonidae (shrimp)	5.31	1.98
Crangon dalli (shrimp)	3.54	2.15
Paguridae (hermit crab)	0.88	0.04
Chionoecetes opilio (snow crab)	3.54	0.90
Sipuncula (marine worm)	1.77	1.18
Echiura (marine worm)	9.73	17.69
Ectoprocta (bryozoan)	1.77	0.04
Ophiuroidae Ophiurida (brittle star)	9.73	0.98
Ophiuroidae ophiurida chilophiurina (brittle star)	0.88	0.07
Ophiura sarsi (brittle star)	5.31	0.68
Sand dollar	0.88	0.33
Chaetognatha (arrow worm)	0.88	0.01
Urochordata (tunicate)	0.88	0.72
Larvacea Copelata	0.88	0.01
Gadidae (gadid fish)	0.88	0.82

Table D-7.—Continued.

Prey Name	Mean % F.O	Mean % Weight
Theragra chalcogramma (walleye pollock)	0.88	0.75

Total non-empty stomachs = 113
Total prey number = 1,801
Total prey weight = 189 g
Total empty stomachs = 23
Number of hauls = 12

Table D-8.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of skates collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	28.10	1.17
Polynoidae (polychaete)	0.29	0.00
Eunoe nodosa (polychaete)	0.14	0.01
Phyllodocidae (polychaete)	0.14	0.00
Nereidae (polychaete)	0.43	0.00
Nephtyidae (polychaete)	1.85	0.10
Goniadidae (polychaete)	0.29	0.00
Opheliidae (polychaete)	0.29	0.04
Ophelina acuminata (polychaete)	0.29	0.01
Pectinariidae (polychaete)	0.14	0.00
Gastropoda (snail)	0.71	0.02
Bivalvia (clam)	1.43	0.00
Cephalopoda (squid and octopus)	0.29	0.00
Teuthoidea (squid)	3.71	0.36
Teuthoidea oegopsida (squid)	0.14	0.00
Octopoda (octopus)	0.43	0.05
Crustacea	1.71	0.03
Calanoida (copepod)	0.29	0.00
Large calanoid (copepod) > 5mm	0.14	0.00
Mysidacea Mysida (mysid)	6.42	0.20
Mysidae (mysid)	20.83	0.64
Cumacea (cumacean)	1.43	0.00
Isopoda (isopod)	0.71	0.01
Gammaridea (amphipod)	41.65	2.04
Ampeliscidae (amphipod)	6.70	0.46
Amphipoda Hyperiidea (amphipod)	0.71	0.01
Caprellidea (amphipod)	0.43	0.00
Euphausiacea (euphausiid)	1.71	0.02
Euphausiidae (euphausiid)	8.27	0.04
Thysanoessa inermis (euphausiid)	0.14	0.00
Thysanoessa raschii (euphausiid)	0.14	0.00
Decapoda (shrimp and crab)	0.14	0.00
Natantia (shrimp)	3.71	0.16
Caridea (shrimp)	5.14	0.17
Hippolytidae (shrimp)	6.99	0.58
Spirontocaris sp. (shrimp)	0.14	0.00
Spirontocaris ochotensis (shrimp)	0.29	0.00
Spirontocaris arcuata (shrimp)	0.29	0.03
Lebbeus sp. (shrimp)	0.14	0.00
Lebbeus groenlandicus (shrimp)	0.14	0.01
Eualus sp. (shrimp)	0.57	0.02
Eualus biunguis (shrimp)	0.29	0.01
Eualus avinus (shrimp)	0.14	0.00
Heptacarpus sp. (shrimp)	0.29	0.00
Pandalidae (shrimp)	1.71	0.09

Table D-8.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Pandalus sp. (shrimp)	0.29	0.00
Pandalus borealis (shrimp)	0.43	0.02
Pandalus goniurus (shrimp)	1.43	0.06
Pandalus jordani (shrimp)	0.14	0.00
Pandalopsis sp. (shrimp)	0.14	0.01
Crangonidae (shrimp)	7.28	0.80
Crangon sp. (shrimp)	9.13	1.47
Crangon alaskensis (shrimp)	0.57	0.03
Crangon dalli (shrimp)	11.70	3.98
Crangon communis (shrimp)	0.86	0.04
Argis sp. (shrimp)	2.57	0.20
Argis lar (shrimp)	5.56	0.90
Argis dentata (shrimp)	0.29	0.04
Argis alaskensis (shrimp)	0.43	0.06
Argis crassa	0.14	0.00
Reptantia (crab)	16.41	5.48
Decapoda Reptantia legs (for unident. crabs)	0.57	0.69
Paguridae (hermit crab)	14.98	2.80
Paguridae legs (hermit crabs)	0.71	0.08
Pagurus sp. (hermit crab)	0.57	0.14
Elassochirus sp.	0.14	0.01
Decapoda brachyura (crab)	1.14	0.18
Majidae (spider crab)	1.14	0.19
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.43	0.02
Oregonia gracilis (decorator crab)	0.14	0.01
Hyas sp. (lyre crab)	0.57	0.18
Hyas lyratus (lyre crab)	0.29	0.09
Hyas coarctatus (lyre crab)	0.14	0.00
Chionoecetes sp. (snow and Tanner crab)	19.97	9.45
Chionoecetes opilio (snow crab)	11.84	10.33
Chionoecetes bairdi (Tanner crab)	6.28	2.80
Chionoecetes tanneri (grooved Tanner crab)	0.14	0.34
Echiura (marine worm)	0.43	0.03
Ectoprocta (bryozoan)	1.00	0.01
Ophiuroidae Ophiurida (brittle star)	0.29	0.00
Holothuroidea (sea cucumber)	0.43	0.03
Urochordata (tunicate)	0.14	0.01
Osteichthyes Teleostei (fish)	2.85	0.17
Non-gadoid fish remains	4.71	0.50
Clupea pallasi (Pacific herring)	0.43	0.74
Bathylagidae (deepsea smelts)	0.14	0.00
Bathylagus pacificus (slender blacksmelt)	0.14	0.06
Myctophidae (lanternfish)	2.00	0.21
Gadidae (gadid fish)	1.71	0.76
Gadus macrocephalus (Pacific cod)	0.14	0.28
Theragra chalcogramma (walleye pollock)	9.13	28.74
Zoarcidae (eelpout)	1.43	1.85
Lycodes sp. (eelpout unid)	0.14	0.05

Table D-8.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Lycodes brevipes (shortfin eelpout)	0.29	0.11
Lycodes palearis (wattled eelpout)	0.29	0.88
Cottoidei (sculpin)	1.14	0.05
Cottidae (sculpin)	0.57	0.16
Gymnocanthus sp. (sculpin)	0.14	0.05
Gymnocanthus galeatus (sculpin)	0.14	0.19
Agonidae (poacher)	1.14	0.20
Aspidophoroides bartoni (Aleutian alligatorfish)	0.14	0.03
Occella dodecaedron (Bering poacher)	0.71	0.67
Pallasina barbata (tubenose poacher)	0.14	0.01
Cyclopteridae (snailfish)	0.57	0.08
Trichodon trichodon (Pacific sandfish)	0.29	1.50
Bathymaster signatus (searcher)	0.14	0.01
Stichaeidae (prickleback)	0.57	0.10
Ammodytes sp. (sand lance)	0.14	0.11
Ammodytes hexapterus (Pacific sand lance)	6.99	5.38
Pleuronectiformes Pleuronectoidei (flatfish)	1.00	0.54
Pleuronectidae (flatfish)	4.85	3.74
Errex zachirus (rex sole)	0.14	0.78
Hippoglossoides elassodon (flathead sole)	0.29	0.21
Limanda sp.	0.14	0.01
Pleuronectes asper (yellowfin sole)	0.43	0.66
Pleuronectes proboscideus (longhead dab)	0.29	0.24
Unidentified eggs	0.14	0.01
Fishery offal	0.86	4.11
Unidentified tube	0.57	0.01
Unidentified algae	0.57	0.00

Total non-empty stomachs = 701
Total prey number = 8,190
Total prey weight = 19,600 g
Total empty stomachs = 76
Number of hauls = 137

Table D-9.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of walleye pollock (*Theragra chalcogramma*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Foraminiferida (protozoan)	0.03	0.00
Scyphozoa (jellyfish)	0.08	0.00
Polychaeta (worm)	4.63	0.48
Phyllodocidae (polychaete)	0.08	0.00
Nephtyidae (polychaete)	0.13	0.02
Maldanidae (polychaete)	0.05	0.00
Mollusca	0.05	0.04
Gastropoda (snail)	0.08	0.00
Colus halli (snail)	0.03	0.02
Pteropoda	0.21	0.00
Thecosomata (pteropod)	0.03	0.00
Gymnosomata (pteropod)	0.77	0.01
Bivalvia (clam)	0.13	0.01
Cephalopoda (squid and octopus)	0.08	0.00
Teuthoidea (squid)	0.62	0.23
Octopoda (octopus)	0.03	0.00
Crustacea	1.70	0.08
Copepoda	5.35	0.91
Calanoida (copepod)	37.76	8.16
Calanidae (copepod)	0.03	0.00
Calanus sp.	0.49	0.17
Large calanoid (copepod) > 5mm	0.59	0.10
Medium calanoid (copepod) 2-5mm	2.19	0.62
Small calanod (copepod) 2mm	0.18	0.00
Mysidacea Mysida (mysid)	5.53	1.97
Mysidae (mysid)	13.09	3.03
Cumacea (cumacean)	4.19	0.11
Lampropidae (cumacean)	0.03	0.00
Isopoda (isopod)	0.05	0.00
Amphipoda (amphipod)	0.18	0.00
Gammaridea (amphipod)	11.39	1.84
Ampeliscidae (amphipod)	1.52	0.53
Amphipoda Hyperiidea (amphipod)	20.14	1.78
Hyperiidae (amphipod)	0.03	0.00
Caprellidea (amphipod)	0.26	0.00
Caprellidae (amphipod)	0.03	0.00
Euphausiacea (euphausiid)	15.66	7.40
Euphausiidae (euphausiid)	51.77	37.28
Thysanoessa sp. (euphausiid)	1.88	1.47
Thysanoessa inermis (euphausiid)	0.62	0.56
Thysanoessa raschii (euphausiid)	0.46	0.34
Thysanoessa spinifera (euphausiid)	0.36	0.57
Decapoda (shrimp and crab)	0.59	0.00
Natantia (shrimp)	2.39	0.36
Caridea (shrimp)	2.26	0.37
Hippolytidae (shrimp)	0.64	0.29

Table D-9.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Spirontocaris ochotensis (shrimp)	0.03	0.00
Eualus sp. (shrimp)	0.15	0.02
Eualus biunguis (shrimp)	0.03	0.00
Eualus gaimurdii (shrimp)	0.10	0.01
Eualus avinus (shrimp)	0.05	0.01
Pandalidae (shrimp)	0.77	0.20
Pandalus sp. (shrimp)	0.31	0.05
Pandalus borealis (shrimp)	0.18	0.08
Pandalus goniurus (shrimp)	1.47	1.15
Pandalus jordani (shrimp)	0.08	0.01
Pandalus montagui tridens (shrimp)	0.18	0.01
Crangonidae (shrimp)	4.68	1.01
Crangon sp. (shrimp)	2.03	0.43
Crangon alaskensis (shrimp)	1.49	0.45
Crangon dalli (shrimp)	4.89	1.85
Crangon communis (shrimp)	0.21	0.04
Argis sp. (shrimp)	0.21	0.07
Argis lar (shrimp)	0.08	0.05
Argis alaskensis (shrimp)	0.03	0.00
Reptantia (crab)	1.34	0.01
Decapoda Reptantia legs (for unident. crabs)	0.03	0.00
Anomura (crab)	0.28	0.00
Paguridae (hermit crab)	1.39	0.08
Decapoda brachyura (crab)	0.05	0.00
Hyas lyratus (lyre crab)	0.03	0.10
Chionoecetes sp. (snow and Tanner crab)	0.03	0.00
Chionoecetes opilio (snow crab)	0.03	0.06
Echiura (marine worm)	0.77	0.44
Ectoprocta (bryozoan)	0.10	0.01
Echinodermata (sea star, cucumber, urchin)	0.03	0.00
Ophiuroidae Ophiurida (brittle star)	0.03	0.00
Chaetognatha (arrow worm)	9.36	0.20
Urochordata (tunicate)	0.08	0.01
Larvacea Copelata	1.26	0.29
Misc. fish	0.03	0.00
Osteichthyes	0.03	0.00
Osteichthyes Teleostei (fish)	5.89	1.79
Non-gadoid fish remains	1.75	1.31
Fish eggs	0.08	0.00
Clupeidae	0.03	0.00
Clupea pallasi (Pacific herring)	0.18	0.87
Salmonidae (salmon, whitefish)	0.03	0.00
Osmeridae (smelts)	0.23	0.23
Mallotus villosus (capelin)	1.16	2.52
Thaleichthys pacificus (eulachon)	0.03	0.01
Leuroglossus schmidti (northern smoothtongue)	0.13	0.13
Myctophidae (lanternfish)	0.05	0.01
Stenobrachius sp. (lampfish)	0.03	0.00

Table D-9.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Gadidae (gadid fish)	2.62	1.35
Gadus macrocephalus (Pacific cod)	0.05	0.11
Theragra chalcogramma (walleye pollock)	6.94	13.20
Zoarcidae (eelpout)	0.03	0.01
Scorpaeniformes (rockfish and cottid)	0.03	0.00
Cottoidei (sculpin)	0.21	0.07
Cottidae (sculpin)	0.08	0.00
Agonidae (poacher)	0.08	0.01
Stichaeidae (prickleback)	0.05	0.02
Zaprora silenus (prowfish)	0.03	0.18
Ammodytes sp. (sand lance)	0.03	0.01
Ammodytes hexapterus (Pacific sand lance)	1.11	0.57
Pleuronectiformes Pleuronectoidei (flatfish)	0.03	0.00
Pleuronectidae (flatfish)	0.15	0.06
Atheresthes evermanni (Kamchatka flounder)	0.03	0.06
Atheresthes stomias (arrowtooth flounder)	0.03	0.01
Lepidopsetta sp. (rock sole type)	0.05	0.00
Lepidopsetta polyxystra (northern rock sole)	0.21	0.22
Microstomus pacificus (Dover sole)	0.03	0.00
Unidentified organic material	1.41	0.16
Sand	0.03	0.01
Unidentified eggs	0.05	0.00
Unidentified worm-like organism	0.05	0.01
Fishery offal	0.41	1.61
Unidentified tube	0.08	0.00
Wood	0.03	0.00
Unidentified algae	0.13	0.05
Rocks	0.05	0.00
Unidentified material	0.03	0.00

Total non-empty stomachs = 3,888
Total prey number = 219,389
Total prey weight = 29,748 g
Total empty stomachs = 162
Number of hauls = 292

Table D-10.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of yellowfin sole (*Limanda aspera*) collected in the eastern Bering Sea in 2000, May through September.

Prey Name	Mean % F.O	Mean % Weight
Foraminiferida (protozoan)	1.64	0.00
Scyphozoa (jellyfish)	4.10	1.54
Polychaeta (worm)	34.43	11.32
Phyllodocidae (polychaete)	0.82	0.04
Nereidae (polychaete)	0.82	0.13
Nephtyidae (polychaete)	4.92	2.05
Onuphidae (polychaete)	0.82	0.02
Opheliidae (polychaete)	0.82	0.06
Capitellidae (polychaete)	0.82	0.41
Maldanidae (polychaete)	3.28	2.74
Oweniidae (polychaete)	5.74	0.74
Pectinariidae (polychaete)	1.64	0.32
Ampharetidae (polychaete)	0.82	0.74
Hirudinea (leech)	0.82	0.42
Gastropoda (snail)	4.92	4.06
Bivalvia (clam)	15.57	5.66
Yoldia sp. (clam)	0.82	1.16
Cardiidae (cockles)	1.64	0.80
Siliqua sp.(razor clam)	1.64	1.84
Cephalopoda (squid and octopus)	0.82	1.74
Mysidacea Mysida (mysid)	9.02	5.64
Mysidae (mysid)	3.28	0.15
Cumacea (cumacean)	9.84	0.47
Isopoda (isopod)	0.82	0.09
Amphipoda (amphipod)	0.82	0.00
Gammaridea (amphipod)	32.79	8.48
Amphipoda Hyperiidea (amphipod)	11.48	0.27
Caprellidea (amphipod)	1.64	0.00
Euphausiidae (euphausiid)	0.82	0.01
Natantia (shrimp)	0.82	0.00
Pandalidae (shrimp)	0.82	0.01
Crangonidae (shrimp)	2.46	0.50
Crangon alaskensis (shrimp)	0.82	0.99
Crangon dalli (shrimp)	3.28	2.63
Crangon communis (shrimp)	0.82	0.32
Reptantia (crab)	0.82	4.28
Paguridae (hermit crab)	7.38	9.05
Paguridae legs (hermit crabs)	0.82	2.36
Chionoecetes opilio (snow crab)	1.64	1.20
Echiura (marine worm)	8.20	14.74
Priapulida (worm)	0.82	0.20
Ectoprocta (bryozoan)	1.64	0.21
Ophiuroidae Ophiurida (brittle star)	16.39	8.43
Ophiura sarsi (brittle star)	0.82	0.90
Echinoidea (sea urchin and sand dollar)	1.64	0.00

Table D-10.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Urochordata (tunicate)	0.82	0.11
Larvacea Copelata	0.82	0.00
Theragra chalcogramma (walleye pollock)	0.82	0.14
Unidentified organic material	1.64	0.40
Unidentified worm-like organism	4.10	2.63

Total non-empty stomachs = 122
Total prey number = 3,537
Total prey weight = 291 g
Total empty stomachs = 31
Number of hauls = 11

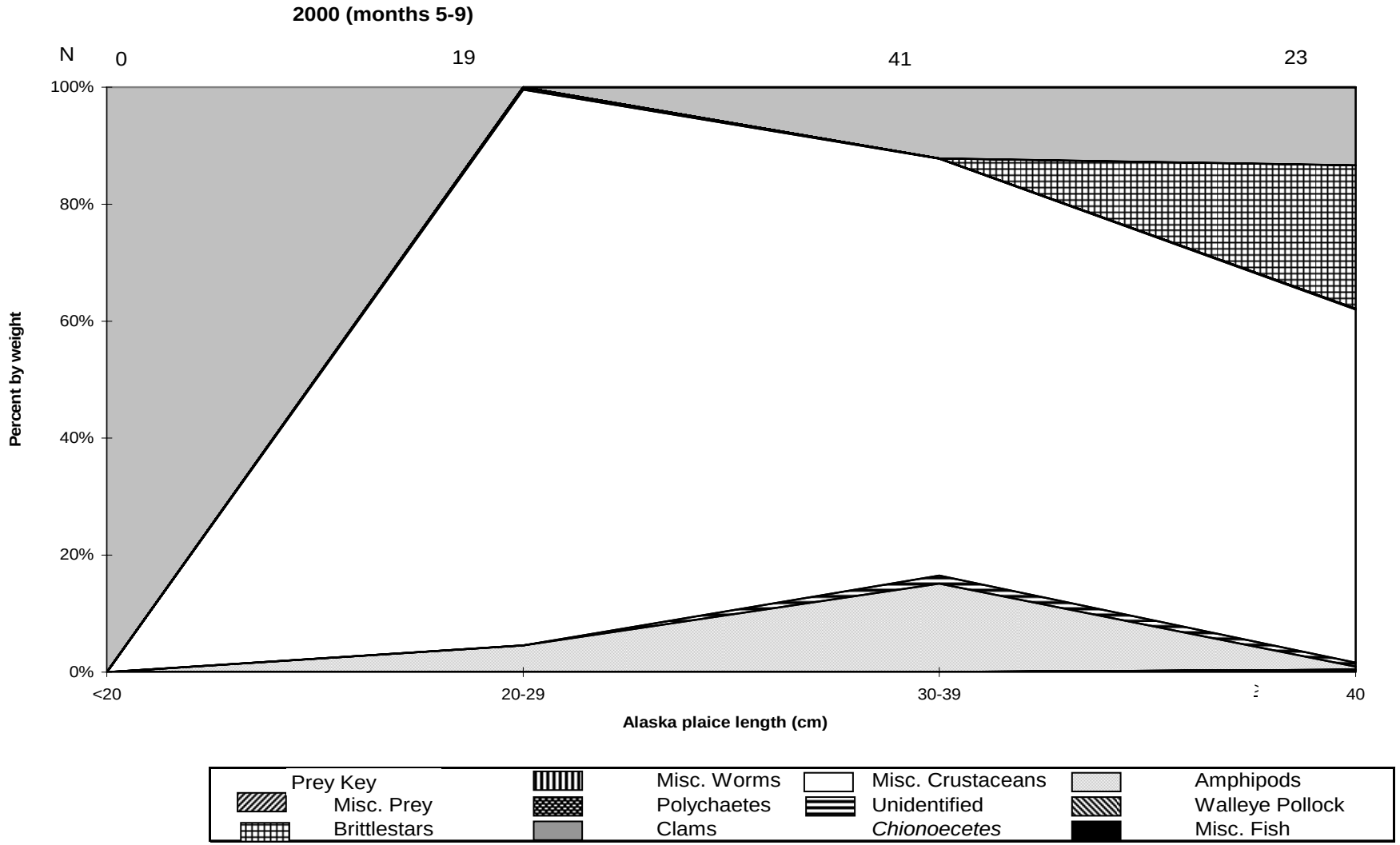

Figure D-1.--Diet composition of Alaska plaice, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

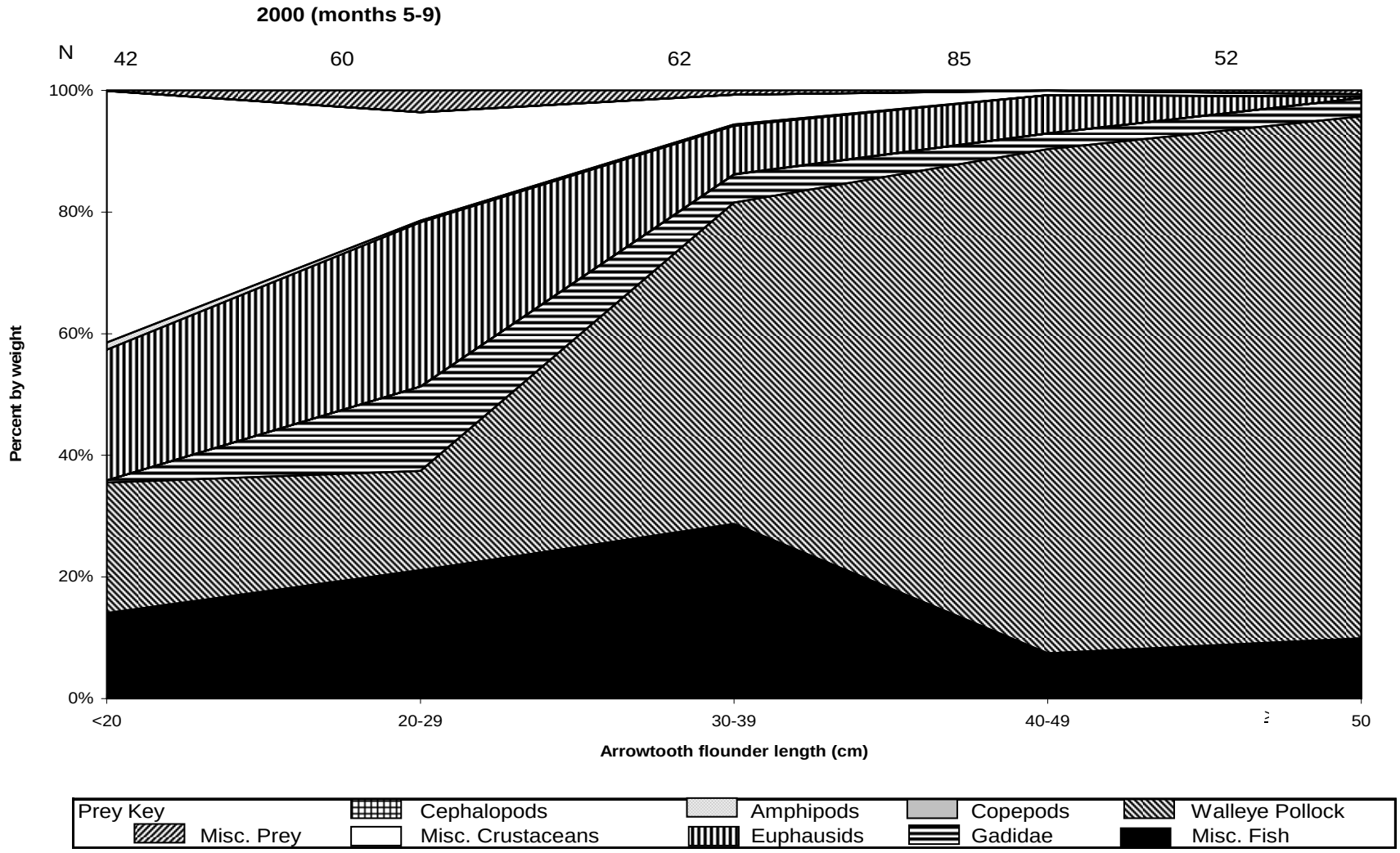

Figure D-2.--Diet composition of arrowtooth flounder, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

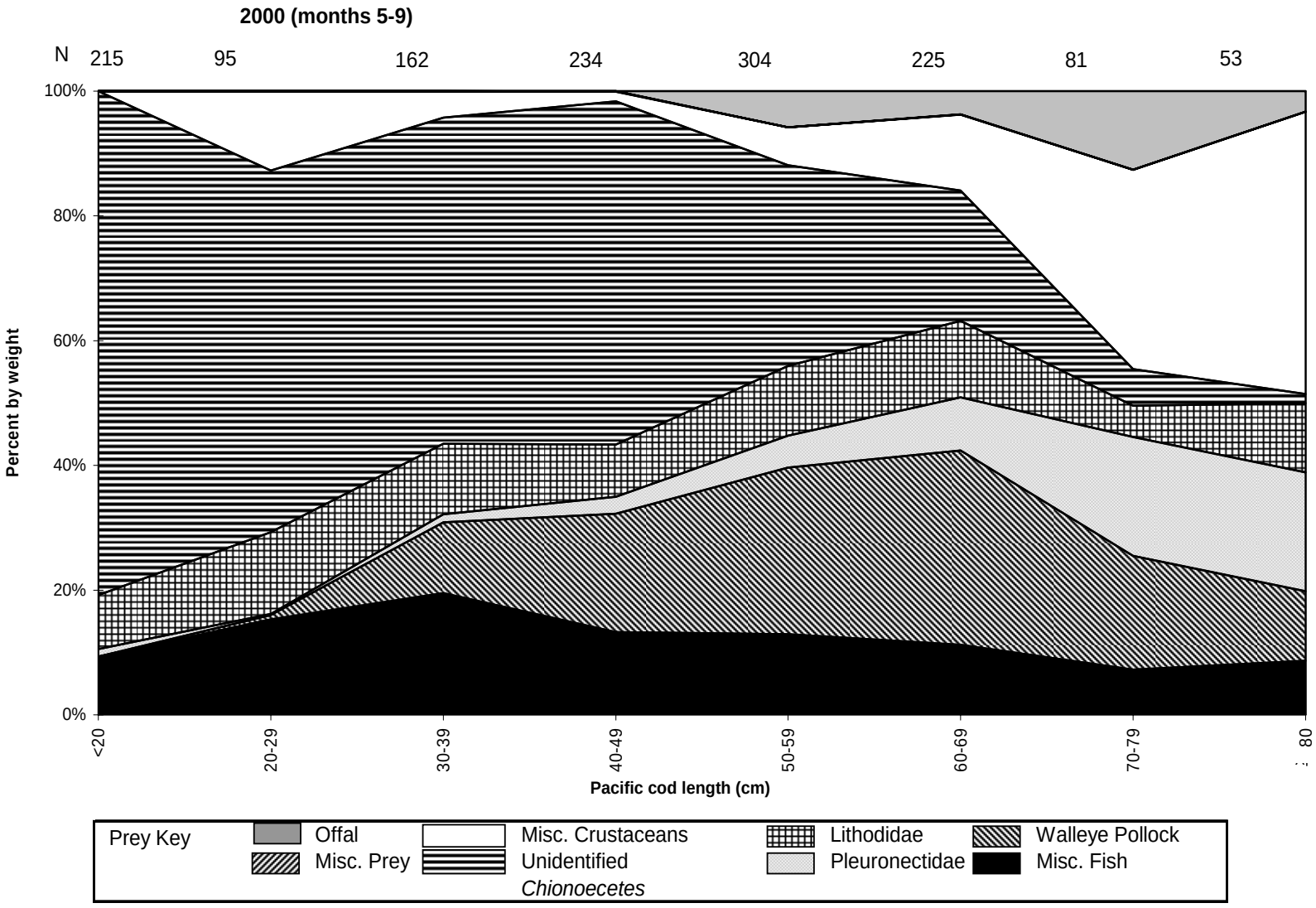

Figure D-3.--Diet composition of Pacific cod, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

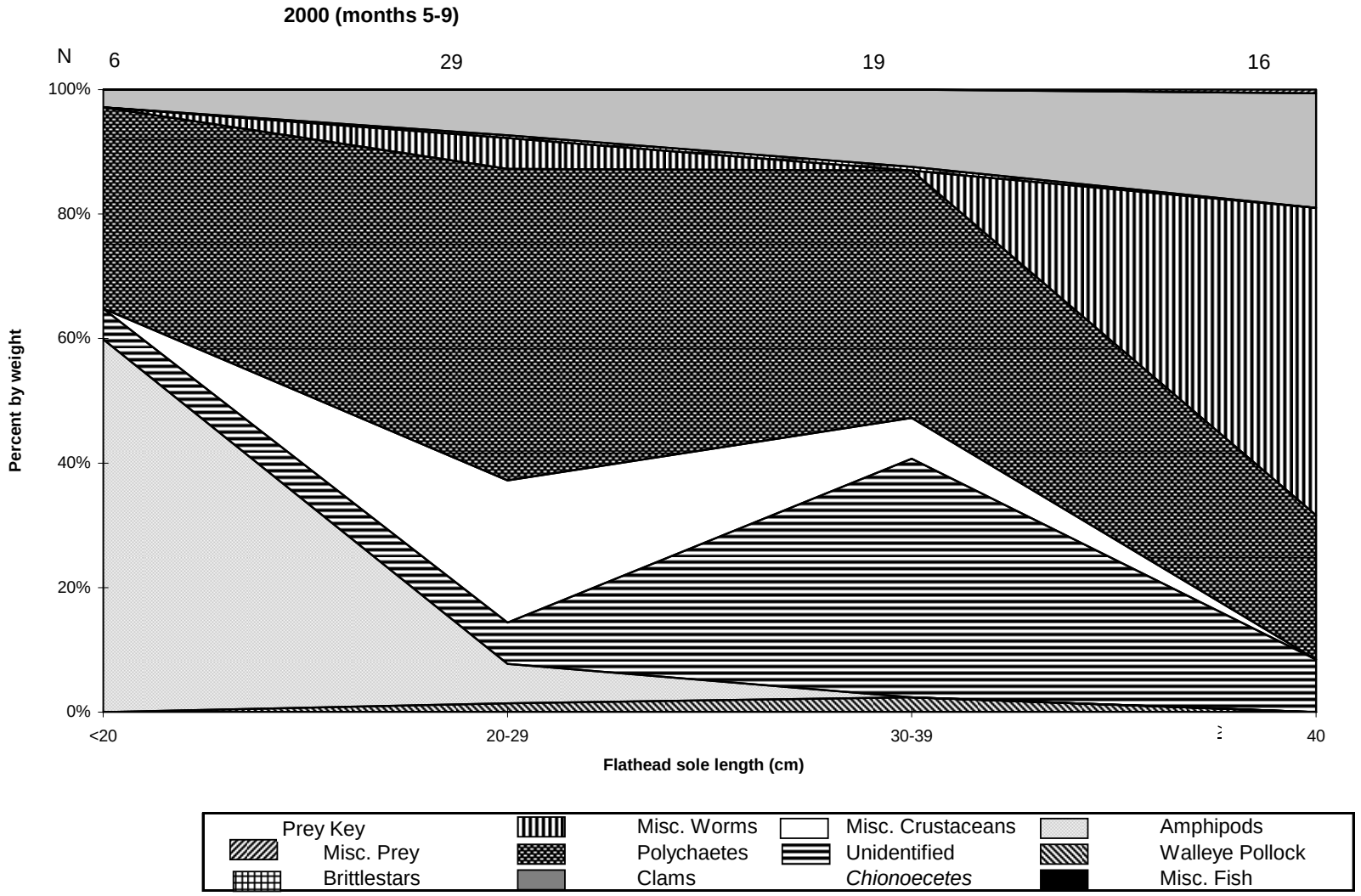

Figure D-4.--Diet composition of flathead sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

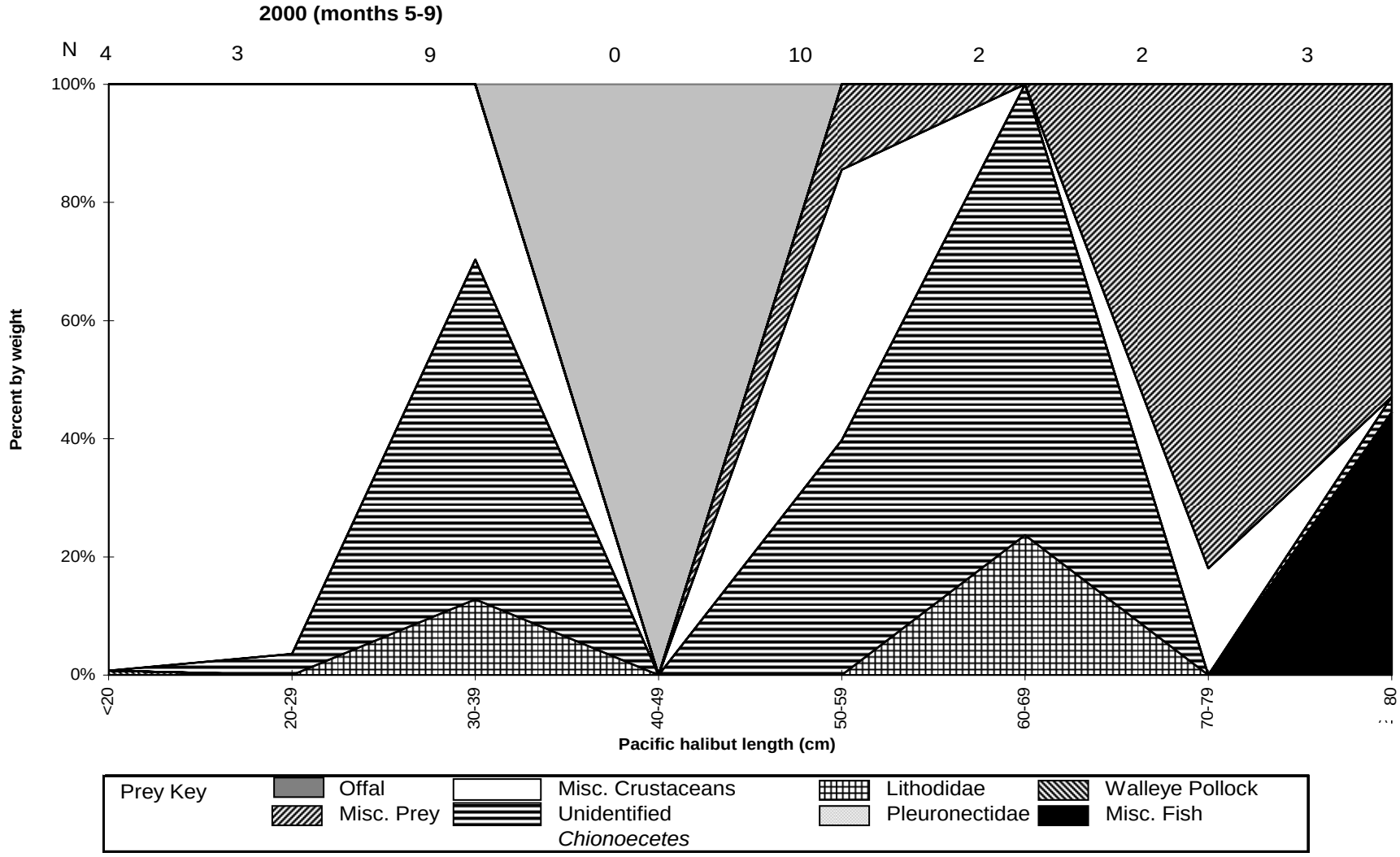

Figure D-5.--Diet composition of Pacific halibut, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

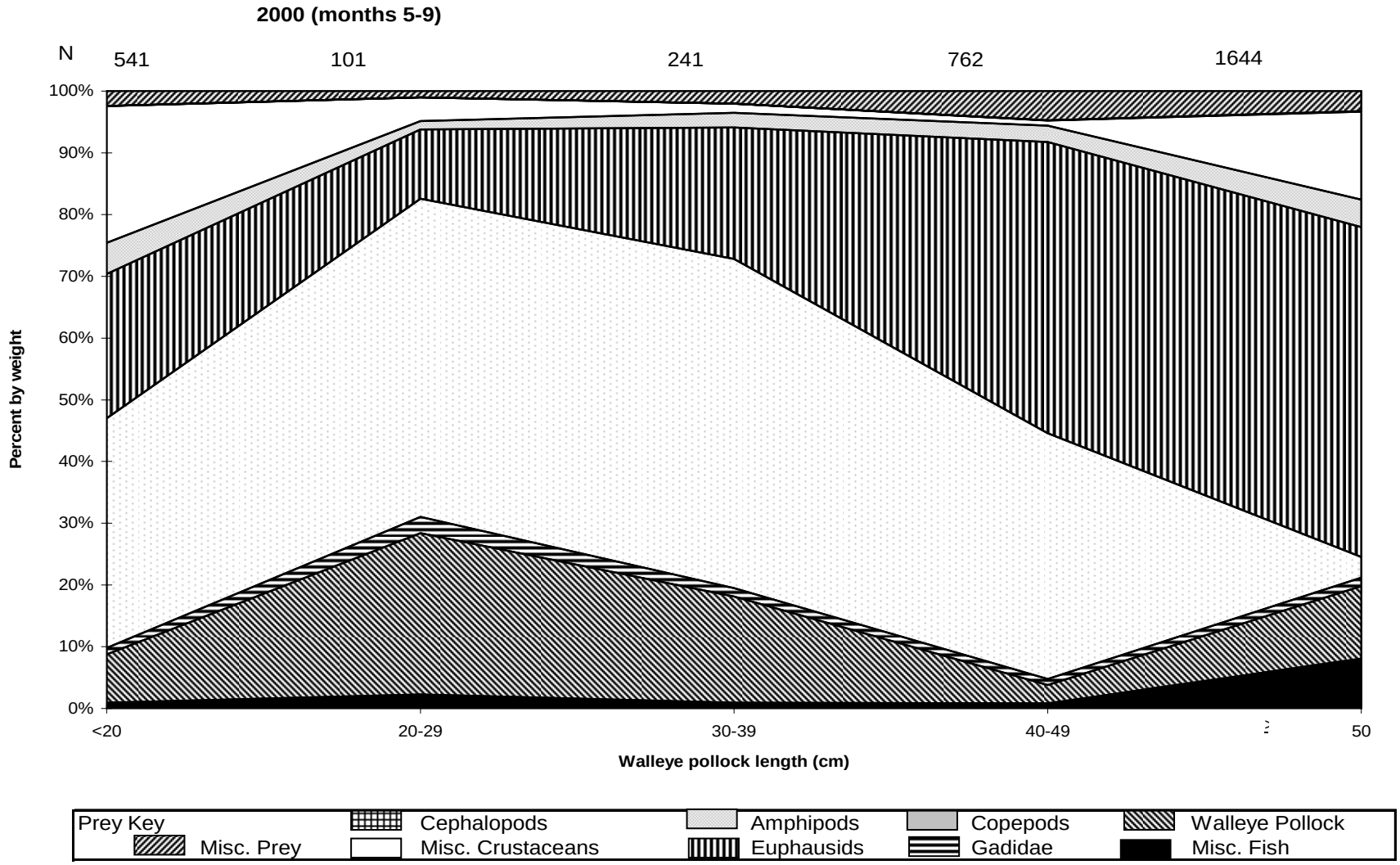

Figure D-6.--Diet composition of walleye pollock, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

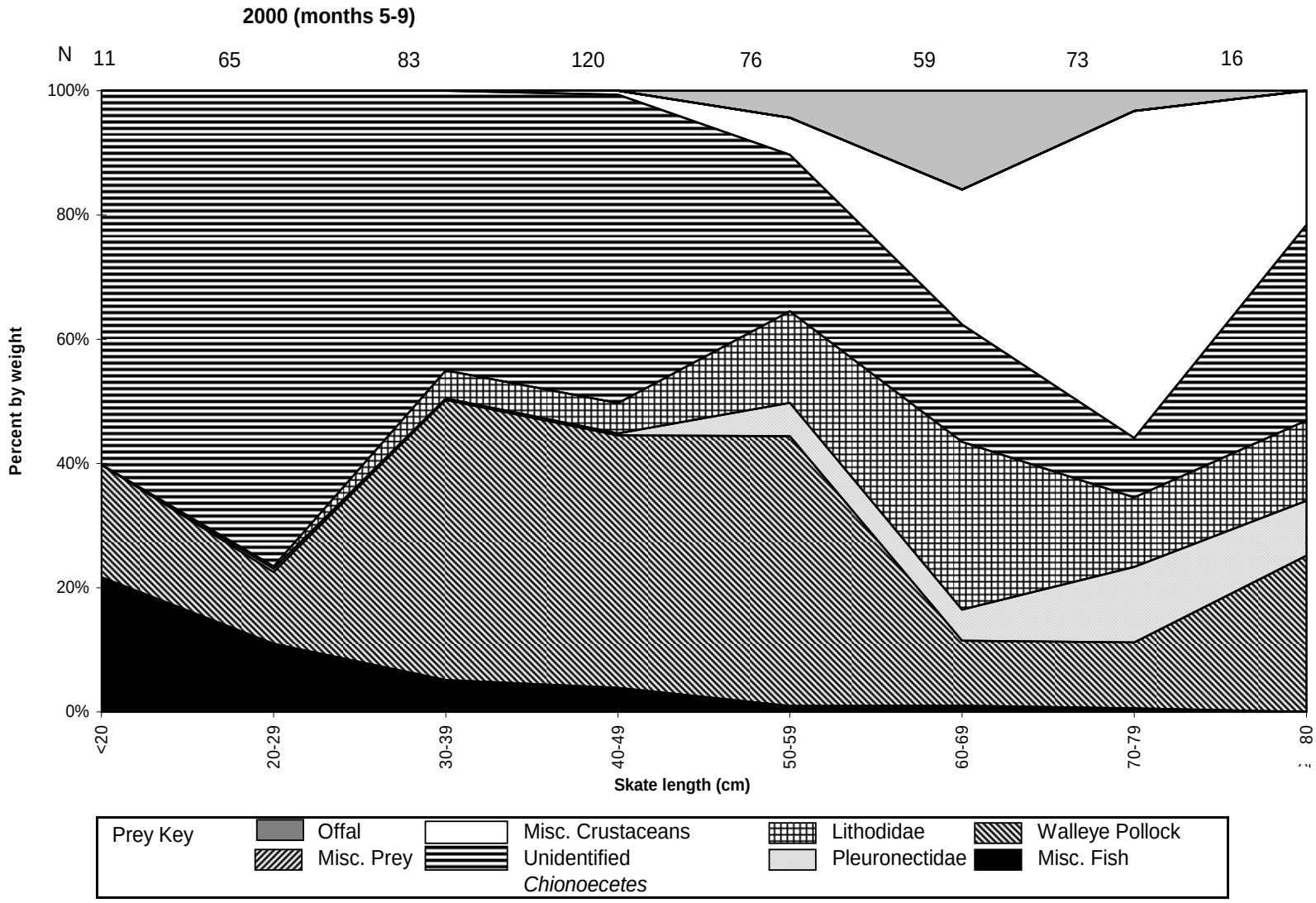

Figure D-7.--Diet composition of skate, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

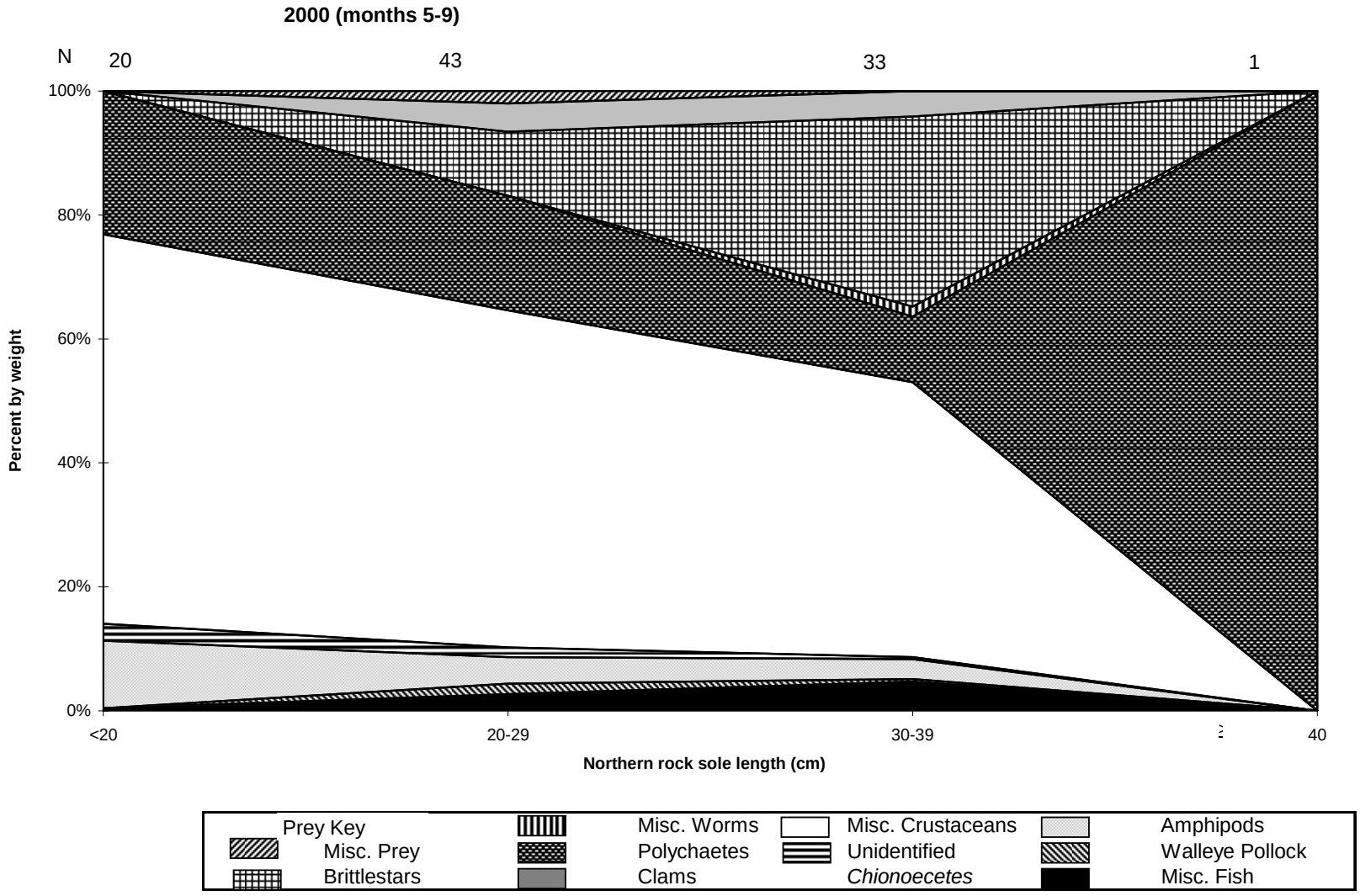

Figure D-8.--Diet composition of northern rock sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

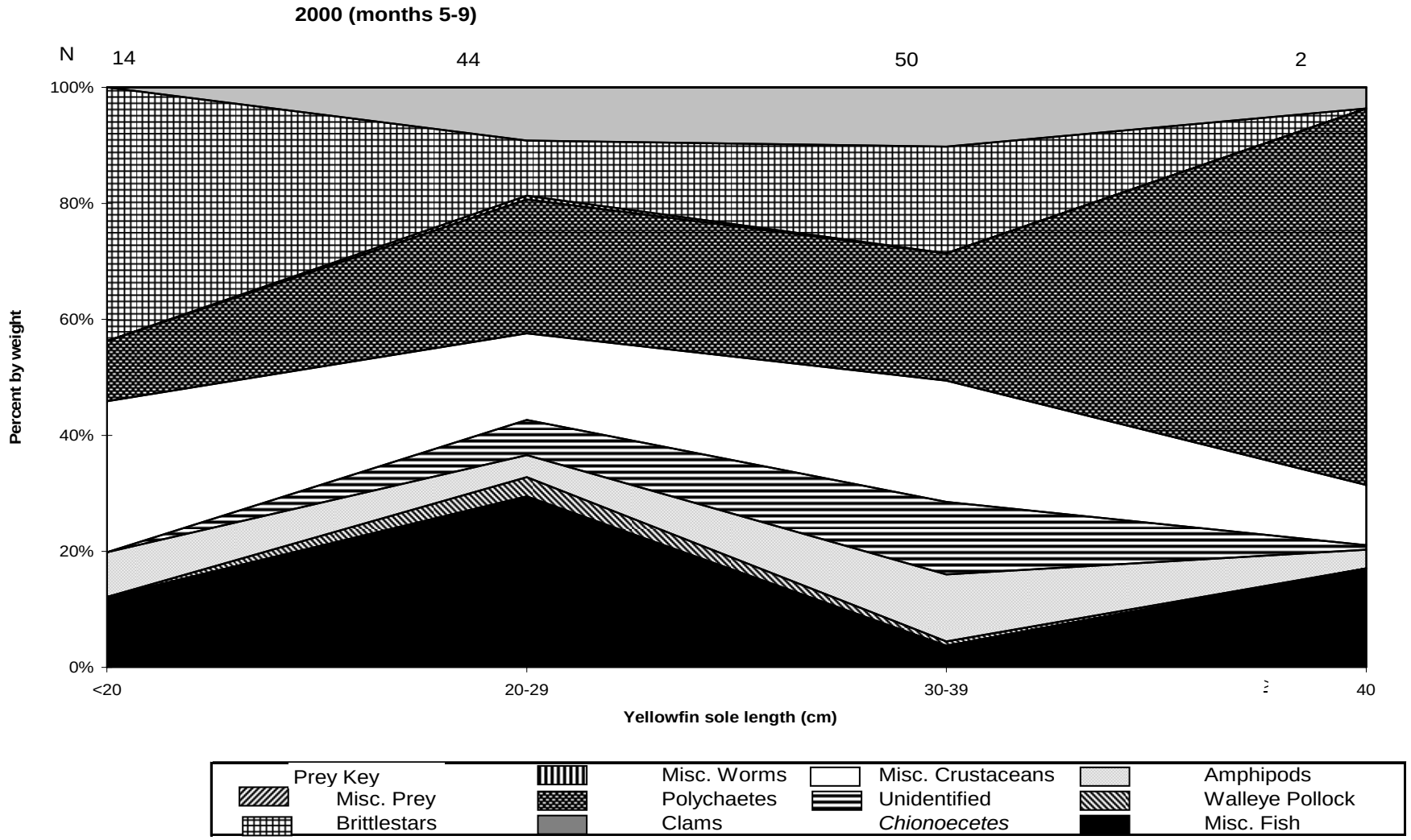

Figure D-9.--Diet composition of yellowfin sole, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

Appendix E- Diet of major groundfish species collected from the eastern Bering Sea in 2001

Table E-1.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of arrowtooth flounder (*Atheresthes stomias*) collected in the eastern Bering Sea in 2001, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	4.04	0.07
Aphroditidae (sea mouse)	0.34	0.72
Bivalvia (clam)	0.34	0.00
Octopoda (octopus)	1.01	2.43
Crustacea	0.34	0.00
Mysidae (mysid)	5.05	0.08
Gammaridea (amphipod)	1.01	0.00
Amphipoda Hyperiidea (amphipod)	1.01	0.00
Euphausiacea (euphausiid)	0.34	0.00
Euphausiidae (euphausiid)	18.86	1.08
Thysanoessa spinifera (euphausiid)	0.34	0.00
Sergestidae (sergestid shrimp)	0.34	0.08
Sergestes similis (Pacific sergestid)	0.34	0.04
Natantia (shrimp)	1.68	0.01
Caridea (shrimp)	1.01	0.01
Hippolytidae (shrimp)	0.34	0.00
Pandalidae (shrimp)	2.02	0.21
Pandalus sp. (shrimp)	0.67	0.07
Pandalus borealis (shrimp)	0.34	0.05
Pandalus jordani (shrimp)	0.34	0.02
Crangonidae (shrimp)	3.03	0.07
Crangon sp. (shrimp)	0.67	0.03
Argis sp. (shrimp)	1.01	0.08
Anomura (crab)	0.34	0.00
Ectoprocta (bryozoan)	0.34	0.03
Ophiuridae (brittle star)	0.34	0.00
Osteichthyes Teleostei (fish)	6.06	0.18
Non-gadoid fish remains	1.35	0.09
Mallotus villosus (capelin)	0.67	0.52
Bathylagidae (deepsea smelts)	0.34	0.34
Gadidae (gadid fish)	13.80	7.89
Gadus macrocephalus (Pacific cod)	0.34	0.03
Theragra chalcogramma (walleye pollock)	36.36	71.26
Zoarcidae (eelpout)	2.02	1.98
Lycodes palearis (wattled eelpout)	0.34	0.94
Trichodon trichodon (Pacific sandfish)	0.34	4.32
Stichaeidae (prickleback)	0.67	0.14
Ammodytes hexapterus (Pacific sand lance)	0.34	0.03
Pleuronectiformes Pleuronectoidei (flatfish)	0.34	0.46
Pleuronectidae (flatfish)	1.01	0.47
Hippoglossoides elassodon (flathead sole)	0.34	5.47
Unidentified organic material	0.34	0.00
Unidentified eggs	0.34	0.39
Fishery offal	0.34	0.40

Table E-1.--Continued.

Total non-empty stomachs = 297
Total prey number = 424
Total prey weight = 3966.862g
Total empty stomachs = 335
Number of hauls = 67

Table E-2.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific cod (*Gadus macrocephalus*) collected in the eastern Bering Sea in 2001, May through September.

Prey Name	Mean % F.O	Mean % Weight
Foraminiferida (protozoan)	0.06	0.00
Anthozoa (anemome)	0.17	0.02
Polychaeta (worm)	35.64	1.39
Aphroditidae (sea mouse)	0.28	0.13
Polynoidae (polychaete)	0.11	0.00
Phyllodocidae (polychaete)	0.94	0.02
Nereidae (polychaete)	0.33	0.00
Nephtyidae (polychaete)	0.72	0.10
Lumbrineridae	0.06	0.00
Flabelligeridae (polychaete)	0.06	0.00
Capitellidae (polychaete)	0.11	0.00
Sabellaridae	0.06	0.00
Pectinariidae (polychaete)	0.11	0.00
Eunicida (polychaete)	0.06	0.00
Hirudinea (leech)	0.17	0.01
Mollusca	0.33	0.06
Gastropoda (snail)	5.03	0.70
Neptunea sp. (snail)	0.06	0.01
Bivalvia (clam)	5.41	0.24
Cardiidae (cockles)	0.11	0.02
Cephalopoda (squid and octopus)	0.72	0.46
Teuthoidea (squid)	0.61	0.03
Octopoda (octopus)	3.65	2.88
Crustacea	2.27	0.07
Calanoida (copepod)	0.50	0.00
Cirripedia (barnacle)	0.06	0.00
Malacostraca Leptostraca	0.06	0.00
Mysidacea Mysida (mysid)	2.93	0.30
Mysidae (mysid)	13.43	0.27
Cumacea (cumacean)	4.92	0.02
Isopoda (isopod)	0.66	0.01
Idoteidae (isopod)	0.06	0.00
Amphipoda (amphipod)	0.06	0.00
Gammaridea (amphipod)	33.70	0.61
Ampeliscidae (amphipod)	2.65	0.03
Haustoriidae (amphipod)	0.06	0.00
Amphipoda Hyperiidea (amphipod)	3.31	0.02
Caprellidea (amphipod)	0.94	0.00
Caprellidae (amphipod)	0.11	0.00
Eucarida	0.06	0.00
Euphausiacea (euphausiid)	0.94	0.06
Euphausiidae (euphausiid)	8.90	0.85
Thysanoessa inermis (euphausiid)	0.11	0.02
Natantia (shrimp)	2.93	0.08
Caridea (shrimp)	6.69	0.38

Table E-2.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Hippolytidae (shrimp)	2.38	0.15
Spirontocaris arcuata (shrimp)	0.06	0.00
Lebbeus sp. (shrimp)	0.06	0.00
Eualus sp. (shrimp)	0.28	0.02
Eualus barbata (shrimp)	0.06	0.00
Eualus biunguis (shrimp)	0.11	0.00
Eualus pusiolus (shrimp)	0.11	0.00
Eualus avinus (shrimp)	0.22	0.00
Pandalidae (shrimp)	2.98	0.27
Pandalus sp. (shrimp)	0.94	0.06
Pandalus borealis (shrimp)	1.82	0.31
Pandalus goniurus (shrimp)	1.27	0.24
Pandalus jordani (shrimp)	0.50	0.06
Pandalus montagui tridens (shrimp)	0.22	0.03
Pandalus platyceros (shrimp)	0.11	0.03
Crangonidae (shrimp)	12.43	0.52
Crangon sp. (shrimp)	8.01	0.35
Crangon alaskensis (shrimp)	1.60	0.21
Crangon stylirostris (shrimp)	0.11	0.00
Crangon dalli (shrimp)	9.12	0.85
Crangon communis (shrimp)	3.37	0.20
Argis sp. (shrimp)	1.44	0.07
Argis lar (shrimp)	0.66	0.10
Argis dentata (shrimp)	0.06	0.00
Argis alaskensis (shrimp)	0.06	0.00
Reptantia (crab)	10.61	1.13
Decapoda Reptantia legs (for unident. crabs)	0.06	0.00
Anomura (crab)	0.06	0.02
Paguridae (hermit crab)	15.41	4.89
Paguridae legs (hermit crabs)	0.50	0.04
Pagurus sp. (hermit crab)	0.17	0.08
Lithodidae (king crab)	0.11	0.01
Munida quadrispina (pinch bug)	0.06	0.00
Munidopsis sp. (squat lobster)	0.06	0.00
Decapoda brachyura (crab)	1.55	0.26
Decapoda brachyura legs (for unident. crabs)	0.06	0.00
Majidae (spider crab)	0.28	0.16
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.22	0.14
Oregonia gracilis (decorator crab)	0.06	0.00
Hyas sp. (lyre crab)	0.83	0.24
Hyas lyratus (lyre crab)	0.39	0.18
Hyas coarctatus (lyre crab)	0.39	0.25
Chionoecetes sp. (snow and Tanner crab)	5.64	1.67
Chionoecetes opilio (snow crab)	10.06	9.66
Chionoecetes bairdi (Tanner crab)	14.64	8.21
Atelecyclidae (crab)	0.11	0.00
Telmessus cheiragonus (hair crab)	0.55	0.26

Table E-2.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Erimacrus isenbeckii (Korean horse-hair crab)	0.77	0.23
Cancer oregonensis (pygmy Cancer crab)	0.28	0.02
Pinnotheridae (pea crab)	0.44	0.02
Pinnixa sp. (pea crab)	0.50	0.08
Sipuncula (marine worm)	0.11	0.01
Echiura (marine worm)	8.45	1.40
Priapulida (worm)	0.22	0.22
Ectoprocta (bryozoan)	1.49	0.02
Asteroidea (starfish)	0.06	0.00
Ophiuroidae Ophiurida (brittle star)	0.39	0.01
Ophiuridae (brittle star)	0.11	0.00
Ophiura sarsi (brittle star)	0.11	0.00
Echinoidea (sea urchin and sand dollar)	0.06	0.04
Holothuroidea (sea cucumber)	0.11	0.04
Urochordata (tunicate)	0.28	0.07
Ascidiacea (sea squirt)	0.11	0.04
Ascidia sp. (tunicate)	0.06	0.13
Boltenia echinata (sea onion)	0.17	0.03
Osteichthyes Teleostei (fish)	8.18	0.65
Non-gadoid fish remains	4.03	0.66
Fish eggs	0.06	0.00
Clupeidae	0.11	0.01
Clupea pallasi (Pacific herring)	0.50	0.74
Osmeridae (smelts)	0.28	0.06
Mallotus villosus (capelin)	0.55	0.17
Thaleichthys pacificus (eulachon)	0.11	0.03
Gadidae (gadid fish)	3.81	1.07
Gadus macrocephalus (Pacific cod)	0.50	2.28
Theragra chalcogramma (walleye pollock)	11.88	34.97
Zoarcidae (eelpout)	2.76	1.54
Lycodes sp. (eelpout unid)	0.11	0.01
Lycodes brevipes (shortfin eelpout)	0.11	0.02
Lycodes palearis (wattled eelpout)	0.33	0.28
Pleurogrammus monopterygius (Atka mackerel)	0.06	0.00
Cottoidei (sculpin)	1.38	0.34
Icelus spiniger (thorny sculpin)	0.11	0.05
Cottidae (sculpin)	0.22	0.04
Artediellus sp. (sculpin)	0.06	0.00
Agonidae (poacher)	0.77	0.13
Aspidophoroides bartoni (Aleutian alligatorfish)	0.11	0.00
Asterotheca alascana (gray starsnout)	0.06	0.01
Podothecus acipenserinus (sturgeon poacher)	0.11	0.02
Sarritor frenatus (sawback poacher)	0.06	0.00
Bathymasteridae (ronquils)	0.06	0.01
Stichaeidae (prickleback)	0.55	0.13
Poroclinus rothrocki (whitebarred pricklback)	0.06	0.23
Ammodytes sp. (sand lance)	0.22	0.06
Ammodytes hexapterus (Pacific sand lance)	2.60	0.96

Table E-2.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Pleuronectiformes Pleuronectoidei (flatfish)	1.55	1.32
Pleuronectidae (flatfish)	3.37	3.38
Atheresthes evermanni (Kamchatka flounder)	0.06	0.55
Atheresthes stomias (arrowtooth flounder)	0.06	0.07
Hippoglossoides elassodon (flathead sole)	0.28	0.52
Lepidopsetta sp. (rock sole type)	0.06	0.46
Lepidopsetta polyxystra (northern rock sole)	0.77	0.47
Pleuronectes asper (yellowfin sole)	0.77	2.58
Pleuronectes proboscideus (longhead dab)	0.17	0.24
Unidentified organic material	1.10	0.09
Unidentified eggs	0.44	0.01
Unidentified worm-like organism	0.28	0.05
Fishery offal	0.83	3.80
Unidentified tube	0.17	0.00
Wood	0.06	0.00
Unidentified algae	0.39	0.00
Rocks	2.10	0.09

Total non-empty stomachs = 1,810
Total prey number = 12,813
Total prey weight = 58,861 g
Total empty stomachs = 30
Number of hauls = 172

Table E-3.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of Pacific halibut (*Hippoglossus stenolepis*) collected in the eastern Bering Sea in 2001, May through September.

Prey Name	Mean % F.O	Mean % Weight
Anthozoa (anemome)	0.90	0.02
Polychaeta (worm)	6.31	0.05
Aphroditidae (sea mouse)	0.90	0.01
Bivalvia (clam)	0.90	0.00
Teuthoidea (squid)	0.90	0.05
Octopoda (octopus)	1.80	5.81
Mysidacea Mysida (mysid)	0.90	0.00
Mysidae (mysid)	7.21	0.07
Isopoda (isopod)	2.70	0.00
Arcturidae	0.90	0.00
Gammaridea (amphipod)	0.90	0.01
Amphipoda Hyperiidea (amphipod)	0.90	0.00
Euphausiidae (euphausiid)	5.41	0.02
Caridea (shrimp)	2.70	0.03
Eualus barbata (shrimp)	0.90	0.05
Eualus biunguis (shrimp)	0.90	0.04
Pandalidae (shrimp)	0.90	0.03
Crangonidae (shrimp)	2.70	0.06
Crangon sp. (shrimp)	3.60	0.06
Crangon alaskensis (shrimp)	1.80	0.05
Crangon dalli (shrimp)	3.60	0.16
Argis sp. (shrimp)	0.90	0.02
Reptantia (crab)	3.60	0.49
Decapoda Reptantia legs (for unident. crabs)	1.80	<0.01
Anomura (crab)	0.90	0.01
Paguridae (hermit crab)	16.22	0.89
Paguridae legs (hermit crabs)	0.90	0.02
Pagurus sp. (hermit crab)	3.60	0.27
Pagurus aleuticus	0.90	0.45
Pagurus trigonocheirus (hermit crab)	0.90	0.02
Elassochirus sp.	1.80	0.14
Elassachirus tenuimanus	0.90	0.03
Elassochirus cavimanus (purple hermit crab)	0.90	0.02
Decapoda brachyura (crab)	0.90	0.06
Hyas sp. (lyre crab)	1.80	0.36
Hyas coarctatus (lyre crab)	0.90	0.20
Chionoecetes sp. (snow and Tanner crab)	8.11	0.83
Chionoecetes bairdi (Tanner crab)	37.84	20.32
Ectoprocta (bryozoan)	0.90	0.00
Opniura leptoctenia (brittle star)	0.90	0.02
Holothuroidea (sea cucumber)	0.90	0.88
Osteichthyes Teleostei (fish)	12.61	5.90
Non-gadoid fish remains	3.60	0.72
Gadidae (gadid fish)	3.60	1.23
Gadus macrocephalus (Pacific cod)	1.80	1.76

Table E-3.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Theragra chalcogramma (walleye pollock)	18.92	50.37
Pleurogrammus monopterygius (Atka mackerel)	0.90	1.61
Cottoidei (sculpin)	1.80	0.20
Cottidae (sculpin)	0.90	2.73
Triglops pingeli (ribbed sculpin)	0.90	0.08
Ammodytes hexapterus (Pacific sand lance)	6.31	1.27
Pleuronectiformes Pleuronectoidei (flatfish)	2.70	0.40
Hippoglossus stenolepis (Pacific halibut)	0.90	0.02
Unidentified eggs	1.80	<0.01
Fishery offal	9.01	1.89
Unidentified tube	0.90	0.00

Total non-empty stomachs = 111
Total prey number = 6,422
Total prey weight = 3,725 g
Total empty stomachs = 21
Number of hauls = 20

Table E-4.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of skates collected in the eastern Bering Sea in 2001, May through September.

Prey Name	Mean % F.O	Mean % Weight
Cnidaria	0.13	0.00
Anthozoa (anemome)	0.13	0.00
Polychaeta (worm)	20.70	0.75
Polynoidae (polychaete)	0.26	0.01
Nephtyidae (polychaete)	0.39	0.02
Gastropoda (snail)	0.39	0.01
Bivalvia (clam)	1.16	0.02
Cephalopoda (squid and octopus)	0.13	0.00
Teuthoidea (squid)	0.39	0.38
Crustacea	1.16	0.06
Mysidacea Mysida (mysid)	1.16	0.03
Mysidae (mysid)	8.41	0.07
Cumacea (cumacean)	0.65	0.00
Isopoda (isopod)	0.52	0.01
Gammaridea (amphipod)	34.80	1.97
Ampeliscidae (amphipod)	2.20	0.04
Amphipoda Hyperiidea (amphipod)	0.78	0.01
Caprellidea (amphipod)	0.13	0.00
Euphausiacea (euphausiid)	0.78	0.01
Euphausiidae (euphausiid)	2.72	0.02
Natantia (shrimp)	2.46	0.39
Caridea (shrimp)	2.46	0.08
Hippolytidae (shrimp)	3.36	0.15
Eualus sp. (shrimp)	0.13	0.03
Eualus avinus (shrimp)	0.26	0.01
Pandalidae (shrimp)	2.07	0.09
Pandalus sp. (shrimp)	1.68	0.11
Pandalus borealis (shrimp)	0.91	0.13
Pandalus goniurus (shrimp)	1.68	0.18
Crangonidae (shrimp)	15.65	2.88
Crangon sp. (shrimp)	9.70	2.58
Crangon alaskensis (shrimp)	1.94	0.57
Crangon stylirostris (shrimp)	0.26	0.09
Crangon dalli (shrimp)	14.62	6.01
Crangon communis (shrimp)	1.81	0.11
Argis sp. (shrimp)	2.59	0.23
Argis lar (shrimp)	3.75	0.95
Argis dentata (shrimp)	0.52	0.08
Reptantia (crab)	7.37	0.97
Decapoda Reptantia legs (for unident. crabs)	0.78	0.07
Paguridae (hermit crab)	22.25	3.48
Paguridae legs (hermit crabs)	0.39	0.01
Decapoda brachyura (crab)	1.03	0.20
Decapoda brachyura legs (for unident. crabs)	0.26	0.01
Majidae (spider crab)	0.26	0.03

Table E-4.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	0.13	0.05
Hyas sp. (lyre crab)	0.26	0.02
Hyas lyratus (lyre crab)	0.13	0.01
Hyas coarctatus (lyre crab)	0.13	0.10
Hyas coarctatus alutaceus (lyre crab)	0.13	0.07
Chionoecetes sp. (snow and Tanner crab)	13.71	5.08
Chionoecetes opilio (snow crab)	5.82	2.78
Chionoecetes bairdi (Tanner crab)	1.68	0.57
Cancer oregonensis (pygmy Cancer crab)	0.13	0.01
Echiura (marine worm)	0.13	0.02
Ophiuridae (brittle star)	0.13	0.00
Larvacea Copelata	0.13	0.00
Osteichthyes Teleostei (fish)	3.75	0.12
Non-gadoid fish remains	1.94	0.16
Clupea pallasi (Pacific herring)	0.65	0.31
Gadidae (gadid fish)	2.46	1.35
Gadus macrocephalus (Pacific cod)	0.13	3.40
Microgadus proximus (Pacific tomcod)	0.13	0.05
Theragra chalcogramma (walleye pollock)	13.32	42.91
Zoarcidae (eelpout)	5.17	2.43
Lycodes brevipes (shortfin eelpout)	0.52	0.44
Lycodes palearis (wattled eelpout)	0.13	0.22
Lycodes raridens (marbled eelpout)	0.13	1.30
Hexagrammidae (greenling)	0.13	0.07
Cottoidei (sculpin)	0.65	0.13
Cottidae (sculpin)	0.26	0.45
Artediellus sp. (sculpin)	0.13	0.00
Myoxocephalus jaok (plain sculpin)	0.13	0.17
Agonidae (poacher)	0.78	0.17
Podothecus acipenserinus (sturgeon poacher)	0.39	0.03
Occella dodecaedron (Bering poacher)	0.13	0.00
Liparis sp. (snailfish)	0.13	0.23
Liparis gibbes (snailfish)	0.13	0.96
Trichodon trichodon (Pacific sandfish)	0.13	0.08
Bathymaster signatus (searcher)	0.13	0.00
Stichaeidae (prickleback)	1.29	0.17
Lumpenus sp. (prickleback)	0.13	0.05
Lumpenus maculatus (daubed shanny)	0.26	0.04
Ammodytes sp. (sand lance)	0.39	0.38
Ammodytes hexapterus (Pacific sand lance)	5.82	4.03
Pleuronectiformes Pleuronectoidei (flatfish)	5.17	0.74
Pleuronectidae (flatfish)	4.14	1.46
Hippoglossoides elassodon (flathead sole)	0.13	0.17
Hippoglossoides robustus (Bering flounder)	0.26	0.68
Lepidopsetta polyxystra (northern rock sole)	0.91	0.75
Pleuronectes asper (yellowfin sole)	0.39	0.99
Unidentified organic material	0.13	0.00

Table E-4.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Fishery offal	2.20	4.00

Total non-empty stomachs = 773
Total prey number = 4,634
Total prey weight = 25,577 g
Total empty stomachs = 98
Number of hauls = 136

Table E-5.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of walleye pollock (*Theragra chalcogramma*) collected in the eastern Bering Sea in 2001, May through September.

Prey Name	Mean % F.O	Mean % Weight
Foraminiferida (protozoan)	0.03	0.00
Nematoda (worm)	0.29	0.00
Polychaeta (worm)	5.39	0.59
Polynoidae (polychaete)	0.03	0.00
Phyllodocidae (polychaete)	0.06	0.01
Nereidae (polychaete)	0.03	0.00
Nephtyidae (polychaete)	0.10	0.01
Mollusca	0.06	0.00
Gastropoda (snail)	0.19	0.02
Pteropoda	0.13	0.00
Thecosomata (pteropod)	0.03	0.00
Gymnosomata (pteropod)	0.77	0.01
Bivalvia (clam)	0.38	0.04
Cephalopoda (squid and octopus)	0.22	0.04
Teuthoidea (squid)	0.89	0.66
Loligo sp. (squid)	0.03	0.07
Octopoda (octopus)	0.16	0.01
Crustacea	2.68	0.06
Copepoda	9.86	1.06
Calanoida (copepod)	31.96	4.03
Large calanoid (copepod) > 5mm	1.79	0.51
Medium calanoid (copepod) 2-5mm	1.63	0.11
Malacostraca Leptostraca	0.06	0.00
Mysidacea Mysida (mysid)	1.53	0.15
Mysidae (mysid)	13.94	6.46
Acanthomysis sp. (mysid)	0.03	0.53
Cumacea (cumacean)	7.11	0.10
Leptocuma sp. (cumacean)	0.03	0.00
Isopoda (isopod)	0.03	0.00
Amphipoda (amphipod)	0.29	0.00
Gammaridea (amphipod)	10.62	0.47
Ampeliscidae (amphipod)	0.96	0.12
Amphipoda Hyperiidea (amphipod)	13.81	0.45
Themisto sp. (amphipod)	0.03	0.00
Caprellidea (amphipod)	0.06	0.00
Eucarida	0.03	0.00
Euphausiacea (euphausiid)	12.12	4.32
Euphausiidae (euphausiid)	53.17	41.18
Thysanoessa inermis (euphausiid)	3.73	4.63
Thysanoessa raschii (euphausiid)	0.41	0.17
Thysanoessa spinifera (euphausiid)	0.03	0.00
Decapoda (shrimp and crab)	0.83	0.04
Sergestidae (sergestid shrimp)	0.06	0.04
Sergestes similis (Pacific sergestid)	0.13	0.10
Natantia (shrimp)	1.28	0.53

Table E-5.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Caridea (shrimp)	1.63	0.29
Oplophoridae (shrimp)	0.06	0.02
Pasiphaeidae (shrimp)	0.03	0.01
Pasiphaea pacifica (shrimp)	0.03	0.01
Hippolytidae (shrimp)	0.38	1.14
Eualus sp. (shrimp)	0.06	0.01
Eualus gaimurdii (shrimp)	0.29	0.40
Pandalidae (shrimp)	0.54	0.22
Pandalus sp. (shrimp)	0.22	0.04
Pandalus borealis (shrimp)	0.38	0.19
Pandalus goniurus (shrimp)	0.41	0.09
Pandalus jordani (shrimp)	0.03	0.01
Crangonidae (shrimp)	2.58	2.76
Crangon sp. (shrimp)	2.84	2.55
Crangon alaskensis (shrimp)	0.51	0.96
Crangon dalli (shrimp)	3.70	5.69
Crangon communis (shrimp)	0.03	0.00
Argis sp. (shrimp)	0.10	0.05
Argis crassa	0.03	0.01
Reptantia (crab)	0.96	0.00
Paguridae (hermit crab)	1.59	0.49
Echiura (marine worm)	0.70	0.56
Ectoprocta (bryozoan)	0.22	0.03
Ophiuroidae Ophiurida (brittle star)	0.03	0.00
Ophiuridae (brittle star)	0.03	0.00
Chaetognatha (arrow worm)	5.90	0.18
Urochordata (tunicate)	0.03	0.00
Larvacea Copelata	2.84	1.28
Misc. fish	0.26	0.11
Osteichthyes	0.03	0.01
Osteichthyes Teleostei (fish)	3.03	0.17
Non-gadoid fish remains	1.40	0.34
Clupeidae	0.03	0.00
Clupea pallasi (Pacific herring)	0.54	3.29
Engraulis mordax (northern anchovy)	0.03	0.05
Osmeridae (smelts)	0.26	0.15
Mallotus villosus (capelin)	0.61	2.12
Bathylagidae (deepsea smelts)	0.06	0.01
Myctophidae (lanternfish)	0.03	0.01
Stenobrachius leucopsarus (northern lampfish)	0.13	0.07
Gadidae (gadid fish)	0.93	0.35
Theragra chalcogramma (walleye pollock)	2.74	6.05
Zoarcidae (eelpout)	0.03	0.24
Lycodes brevipes (shortfin eelpout)	0.06	0.02
Scorpaeniformes (rockfish and cottid)	0.03	0.00
Cottoidei (sculpin)	0.19	0.01
Hemilepidotus jordani (yellow Irish lord)	0.03	0.00
Agonidae (poacher)	0.16	0.17

Table E-5.--Continued.

Prey Name	Mean % F.O	Mean % Weight
Aspidophoroides bartoni (Aleutian alligatorfish)	0.03	0.01
Hypsagonus quadricornis (4-horn poacher)	0.03	0.00
Podothecus acipenserinus (sturgeon poacher)	0.03	0.02
Trichodon trichodon (Pacific sandfish)	0.10	0.50
Stichaeidae (prickleback)	0.16	0.09
Lumpenus maculatus (daubed shanny)	0.03	0.02
Ammodytes sp. (sand lance)	0.03	0.01
Ammodytes hexapterus (Pacific sand lance)	1.79	2.18
Pleuronectiformes Pleuronectoidei (flatfish)	0.22	0.02
Pleuronectidae (flatfish)	0.06	0.03
Lepidopsetta polyxystra (northern rock sole)	0.06	0.23
Pleuronectes quadrituberculatus (Alaska plaice)	0.03	0.01
Unidentified organic material	0.13	0.02
Fishery offal	0.10	0.17
Unidentified algae	0.16	0.01

Total non-empty stomachs = 3,135
Total prey number = 57,999
Total prey weight = 17,511 g
Total empty stomachs = 158
Number of hauls = 196

Table E-6.--Prey items (expressed in mean percent frequency of occurrence and mean percent total weight) of yellowfin sole (*Limanda aspera*) collected in the eastern Bering Sea in 2001, May through September.

Prey Name	Mean % F.O	Mean % Weight
Polychaeta (worm)	6.25	0.03
Mysidacea Mysida (mysid)	6.25	0.01
Gammaridea (amphipod)	6.25	0.04
Euphausiacea (euphausiid)	12.50	1.33
Thysanoessa inermis (euphausiid)	18.75	18.81
Crangon sp. (shrimp)	6.25	0.71
Crangon stylirostris (shrimp)	31.25	8.73
Crangon dalli (shrimp)	68.75	65.38
Majidae legs (for *C. opilio*, *C. bairdi*, etc)	6.25	1.70
Ophiuroidae Ophiurida (brittle star)	6.25	1.19
Holothuroidea (sea cucumber)	6.25	0.99
Osteichthyes Teleostei (fish)	6.25	0.05
Leuroglossus schmidti (northern smoothtongue)	6.25	0.41
Ammodytes sp. (sand lance)	6.25	0.62

Total non-empty stomachs = 16
Total prey number = 87
Total prey weight = 120 g
Total empty stomachs = 0
Number of hauls = 1

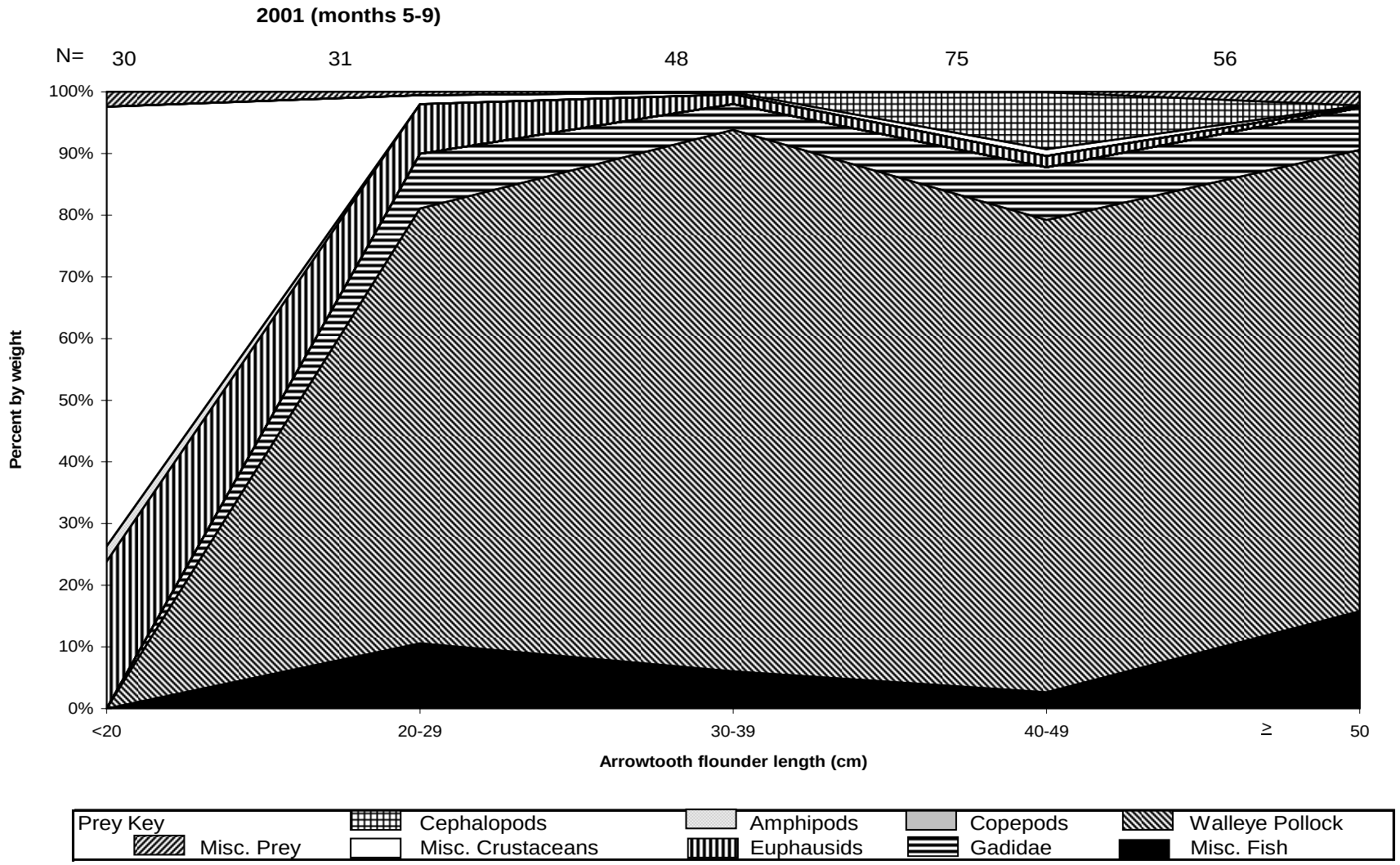

Figure E-1.--Diet composition of arrowtooth flounder, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

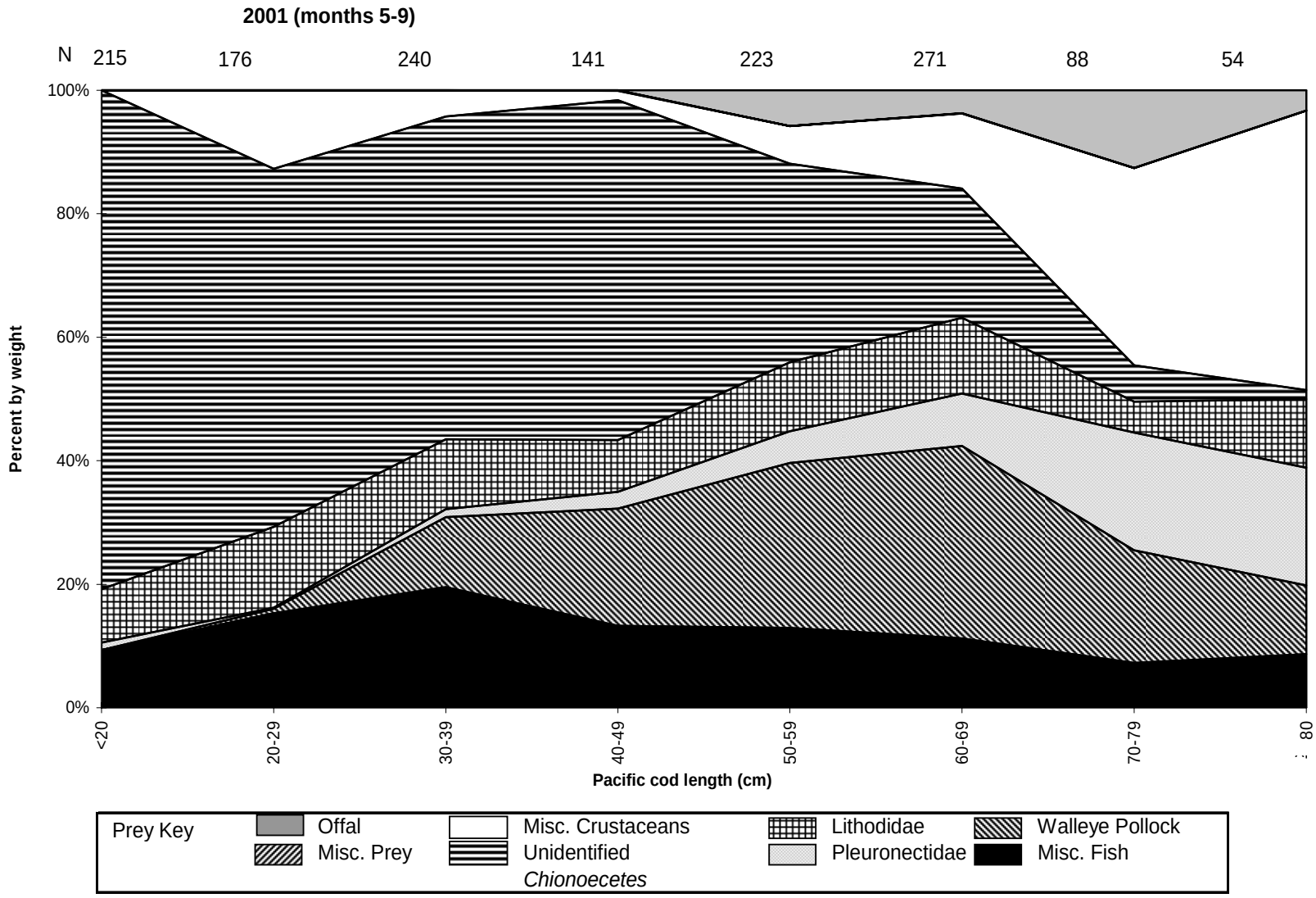

Figure E-2.--Diet composition of Pacific cod, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

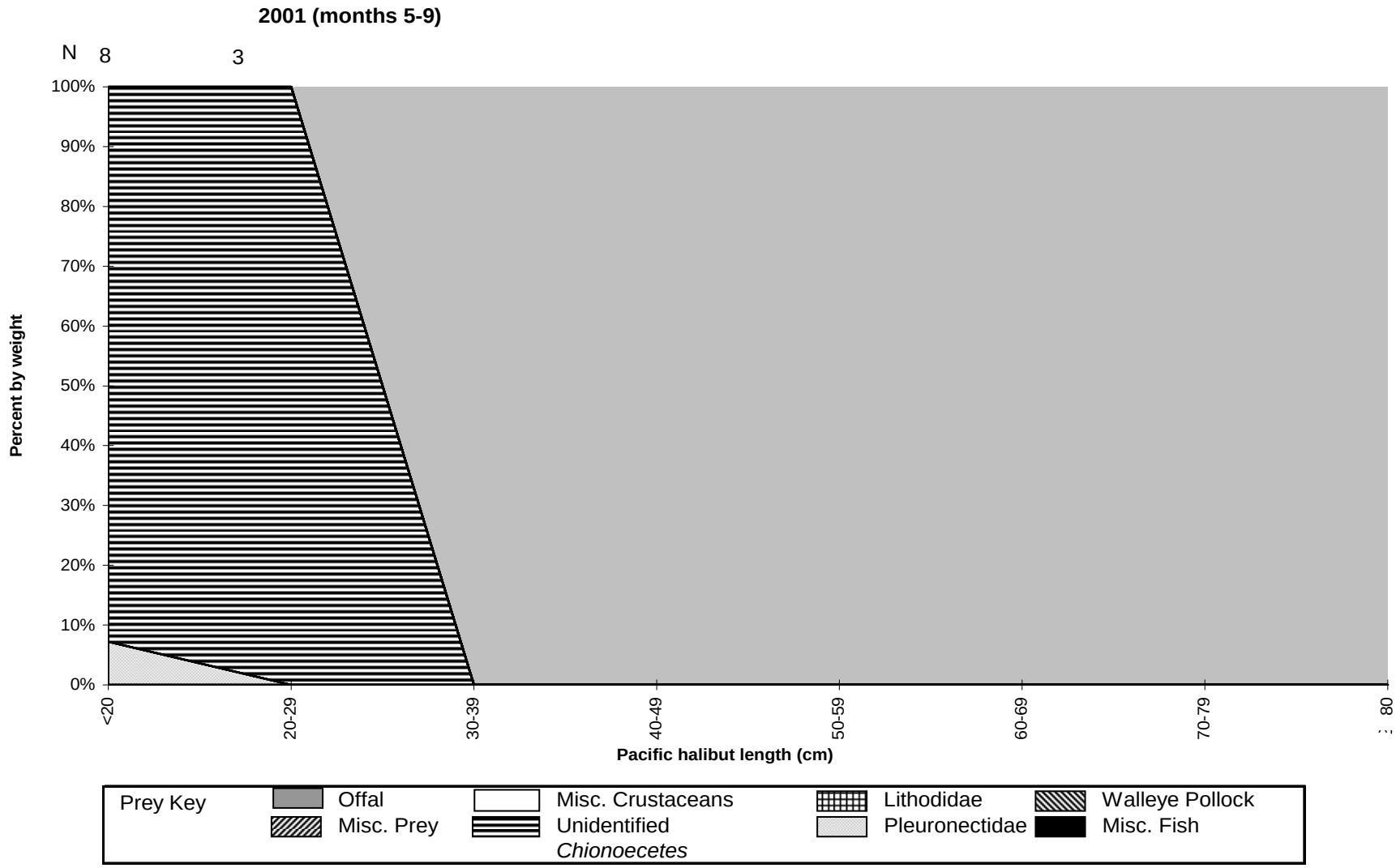

Figure E-3.--Diet composition of Pacific halibut, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

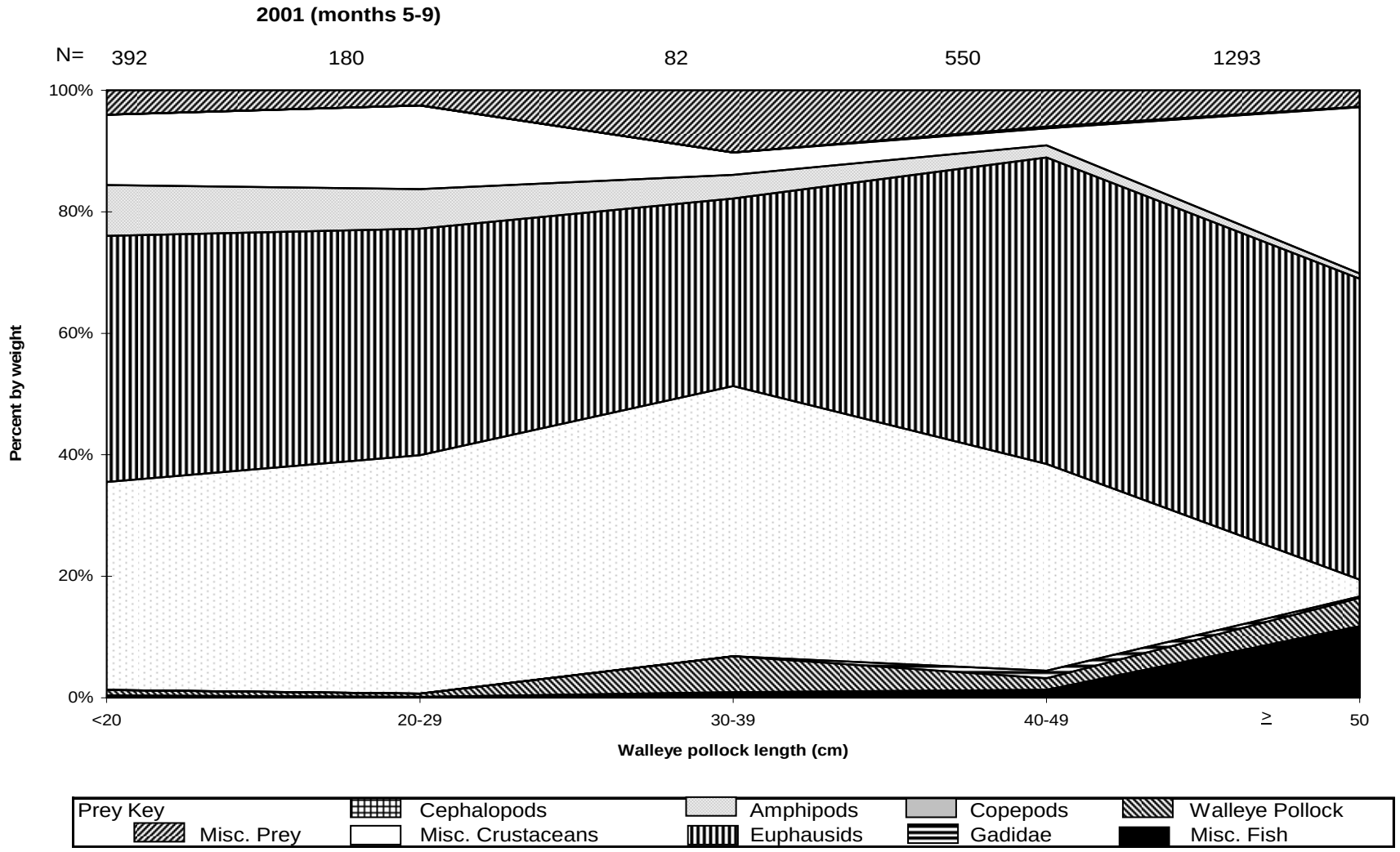

Figure E-4.--Diet composition of walleye pollock, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

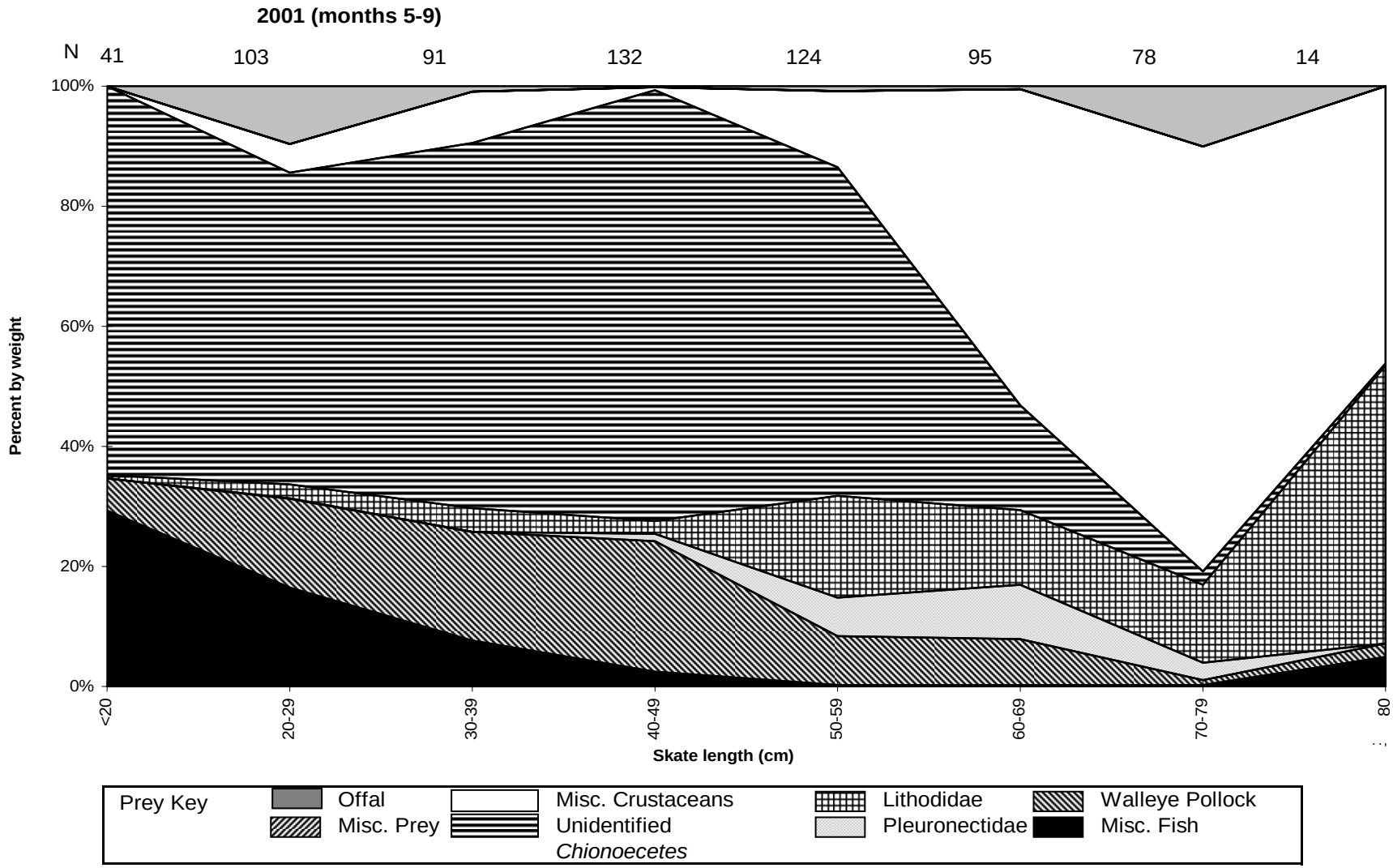

Figure E-5.--Diet composition of skates, in terms of average percent by weight, during months 5 through 9 by predator size in the eastern Bering Sea; N=number of full stomachs.

Appendix F- Estimates of fish and crab prey consumption by groundfish populations and predator biomass by year, stratum, predator and predator size group.

Table F-1.-- Estimates of total fish and crab prey consumed (in metric tons) by groundfish populations in the eastern Bering Sea from May through September by year, stratum, predator and predator size groups.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	1	Flathead sole	1	Walleye pollock	10.13	10.13	5	43	4209.2	4209.2	38779
1997	1	Pacific cod	1	Walleye pollock	1.21	1.21	10	77	50.86	50.86	2282
1997	1	Pacific cod	2	Northern rock sole	7.31	4.98	10	58	3203.96	2181.42	31818
1997	1	Pacific cod	2	Pleuronectidae	1.03	1.03	10	58	452.87	452.87	31818
1997	1	Pacific cod	2	Walleye pollock	0.68	0.68	10	58	297.82	297.82	31818
1997	1	Pacific cod	3	King crab legs	1.94	1.94	10	46	926.03	926.03	44586
1997	1	Pacific cod	3	Northern rock sole	5.67	3.32	10	46	2705.51	1584.22	44586
1997	1	Pacific cod	3	Offal	1.49	1.49	10	46	710.96	710.96	44586
1997	1	Pacific cod	3	*Paralithodes* sp.	0.41	0.4	10	46	39.95	39.14	44586
1997	1	Pacific cod	3	Pleuronectidae	3.45	1.92	10	46	1649.16	919.14	44586
1997	1	Pacific cod	3	Walleye pollock	7.96	5.54	10	46	3802.03	2646.75	44586
1997	1	Pacific cod	3	Yellowfin sole	11.18	8.63	10	46	5337.32	4121.74	44586
1997	1	Pacific halibut	2	Capelin	22.59	14.3	6	27	1765.37	1117.17	5107
1997	1	Pacific halibut	2	Gadidae	8.63	6.56	6	27	674.18	512.36	5107
1997	1	Pacific halibut	2	Northern rock sole	1.61	1.61	6	27	126.13	126.13	5107
1997	1	Pacific halibut	2	Pleuronectidae	1.22	1.22	6	27	95.28	95.28	5107
1997	1	Pacific halibut	2	Walleye pollock	1.35	1.35	6	27	105.24	105.24	5107
1997	1	Pacific halibut	3	Capelin	2.68	1.63	8	28	352.52	213.99	21497
1997	1	Pacific halibut	3	Gadidae	0.89	0.89	8	28	117.59	117.59	21497
1997	1	Pacific halibut	3	Pacific cod	14.78	9.68	8	28	1944.33	1272.96	21497
1997	1	Pacific halibut	3	Pleuronectidae	36.11	10.42	8	28	4750.7	1371.07	21497
1997	1	Pacific halibut	3	Unid. Osmerid	0.89	0.76	8	28	117.52	100.17	21497
1997	1	Pacific halibut	3	Walleye pollock	10.74	6.4	8	28	1412.39	841.42	21497
1997	1	Pacific halibut	3	Yellowfin sole	12.16	5.99	8	28	1599.55	787.57	21497
1997	1	Skates	1	Gadidae	0.24	0.24	5	21	53.06	53.06	20377
1997	1	Skates	1	Northern rock sole	2.29	2.29	5	21	499.48	499.48	20377
1997	1	Skates	1	Offal	6.49	6.49	5	21	1415.88	1415.88	20377
1997	1	Skates	1	Pleuronectidae	33.52	6.91	5	21	7315.35	1507.03	20377
1997	1	Walleye pollock	4	Gadidae	0.36	0.31	19	201	229.74	198.05	103508
1997	1	Walleye pollock	4	Walleye pollock	5.88	4.4	19	201	3724.38	2785.33	103508
1997	1	Yellowfin sole	1	Unid. Osmerid	5.3	5.3	14	86	33551.99	33551.99	1.00E+06
1997	2	Alaska plaice	1	Opilio snow crab	1.85	1.85	14	63	633.34	633.34	44861
1997	2	Northern rock sole	1	Bairdi Tanner crab	0.48	0.48	14	67	1512.75	1512.75	295074

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	2	Northern rock sole	1	Unid. *Chionoecetes*	0.2	0.2	14	67	636.5	636.5	295074
1997	2	Pacific cod	1	Capelin	1.4	1.4	7	79	48.57	48.57	1895
1997	2	Pacific cod	1	Opilio snow crab	2.69	2.69	7	79	93.66	93.66	1895
1997	2	Pacific cod	1	Pleuronectidae	2.52	1.96	7	79	87.7	68.23	1895
1997	2	Pacific cod	2	Flathead sole	1.08	1.08	5	19	68.35	68.35	4617
1997	2	Pacific cod	2	Opilio snow crab	8.97	8.97	5	19	570.04	570.04	4617
1997	2	Pacific cod	2	Pleuronectidae	0.9	0.9	5	19	57.35	57.35	4617
1997	2	Pacific cod	2	Walleye pollock	10.75	7.77	5	19	683.13	493.92	4617
1997	2	Pacific cod	3	Flathead sole	3.29	3.29	7	21	388.25	388.25	11003
1997	2	Pacific cod	3	Gadidae	0.47	0.47	7	21	55.32	55.32	11003
1997	2	Pacific cod	3	Northern rock sole	4.43	3.18	7	21	522.02	375.29	11003
1997	2	Pacific cod	3	Opilio snow crab	11.4	5.38	7	21	1343.13	634.04	11003
1997	2	Pacific cod	3	Pleuronectidae	24.08	10.69	7	21	2837.6	1259.64	11003
1997	2	Pacific cod	3	Unid. *Chionoecetes*	0.41	0.41	7	21	48.37	48.37	11003
1997	2	Pacific cod	3	Walleye pollock	7.21	4.22	7	21	849.83	497.82	11003
1997	2	Pacific halibut	2	Capelin	1.97	1.37	8	37	64.18	44.48	2126
1997	2	Pacific halibut	2	Gadidae	9.09	3.93	8	37	295.61	128	2126
1997	2	Pacific halibut	2	Pacific cod	7.62	5.03	8	37	247.85	163.49	2126
1997	2	Pacific halibut	2	Pleuronectidae	0.29	0.29	8	37	9.28	9.28	2126
1997	2	Pacific halibut	2	Unid. Osmerid	2.8	1.85	8	37	91.16	60.2	2126
1997	2	Pacific halibut	2	Walleye pollock	18.61	8.41	8	37	605.2	273.45	2126
1997	2	Pacific halibut	3	Gadidae	14.94	9.92	10	28	914.88	607.5	10008
1997	2	Pacific halibut	3	Northern rock sole	2.73	2.73	10	28	167.2	167.2	10008
1997	2	Pacific halibut	3	Pacific cod	11.39	4.93	10	28	697.79	302.07	10008
1997	2	Pacific halibut	3	Pacific herring	0.08	0.08	10	28	4.6	4.6	10008
1997	2	Pacific halibut	3	Pleuronectidae	16.81	8.43	10	28	1029.46	516.54	10008
1997	2	Pacific halibut	3	Walleye pollock	17.49	11.18	10	28	1071	684.6	10008
1997	2	Pacific halibut	3	Yellowfin sole	2.16	2.16	10	28	132.21	132.21	10008
1997	2	Skates	1	Gadidae	0.78	0.55	6	43	262.75	187	31541
1997	2	Skates	1	Northern rock sole	4.52	4.14	6	43	1528.17	1398.12	31541
1997	2	Skates	1	Opilio snow crab	0.14	0.14	6	43	47.03	47.03	31541
1997	2	Skates	1	Pleuronectidae	16.36	5.9	6	43	5525.27	1991.44	31541
1997	2	Skates	1	Unid. *Chionoecetes*	0.29	0.22	6	43	97.39	74.54	31541
1997	2	Skates	1	Walleye pollock	4.08	1.89	6	43	1379.48	639.89	31541

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	2	Skates	1	Yellowfin sole	4.34	2.16	6	43	1465.65	728.65	31541
1997	2	Walleye pollock	1	Pleuronectidae	0.69	0.69	8	76	34.47	34.47	2983
1997	2	Walleye pollock	1	Walleye pollock	6.33	5.77	8	76	317.96	289.72	2983
1997	2	Walleye pollock	4	Gadidae	1.92	1.92	11	108	395.44	395.44	33660
1997	2	Walleye pollock	4	Pleuronectidae	0.88	0.86	11	108	182.29	177.73	33660
1997	2	Walleye pollock	4	Walleye pollock	19.82	10.54	11	108	4083.52	2171.13	33660
1997	2	Yellowfin sole	1	Bairdi Tanner crab	2.22	2.22	6	45	4579.59	4579.59	337690
1997	3	Arrowtooth flounder	1	Walleye pollock	31.6	31.6	3	8	179.69	179.69	413
1997	3	Arrowtooth flounder	2	Gadidae	25	25	4	16	4357.52	4357.52	12658
1997	3	Arrowtooth flounder	2	Walleye pollock	44.25	24.26	4	16	7712.84	4228.27	12658
1997	3	Arrowtooth flounder	3	Walleye pollock	39.86	24.41	5	16	39441.29	24153	92384
1997	3	Flathead sole	1	Opilio snow crab	1.1	1.1	4	36	3281.51	3281.51	278889
1997	3	Greenland turbot	3	Gadidae	4.52	0	1	2	34.13	0	988
1997	3	Greenland turbot	3	Walleye pollock	95.18	0	1	2	719.42	0	988
1997	3	Northern rock sole	1	Offal	0	0	15	84	18.03	12.7	455639
1997	3	Northern rock sole	1	Opilio snow crab	0.33	0.33	15	84	1608.76	1608.76	455639
1997	3	Northern rock sole	1	Unid. *Chionoecetes*	0.57	0.57	15	84	2781.44	2781.44	455639
1997	3	Pacific cod	1	Bairdi Tanner crab	6.89	6.89	11	23	193.68	193.68	1530
1997	3	Pacific cod	2	Arrowtooth flounder	0.15	0.15	22	154	152.98	152.98	74933
1997	3	Pacific cod	2	Bairdi Tanner crab	2.26	1.08	22	154	2334.24	1111.82	74933
1997	3	Pacific cod	2	Gadidae	0.21	0.21	22	154	221.56	221.56	74933
1997	3	Pacific cod	2	Lithodidae	2.42	1.68	22	154	506.89	351.25	74933
1997	3	Pacific cod	2	Opilio snow crab	18.11	4.33	22	154	18684.94	4470.8	74933
1997	3	Pacific cod	2	*Paralithodes* sp.	3.63	2.61	22	154	758.06	546.58	74933
1997	3	Pacific cod	2	Pleuronectidae	0.11	0.11	22	154	111.48	111.48	74933
1997	3	Pacific cod	2	Unid. Osmerid	3.97	3.97	22	154	4098.49	4098.49	74933
1997	3	Pacific cod	2	Unid. *Chionoecetes*	1.42	0.69	22	154	1464.41	712.57	74933
1997	3	Pacific cod	2	Walleye pollock	6.16	2.64	22	154	6352.2	2722.19	74933
1997	3	Pacific cod	3	Arrowtooth flounder	1.95	1.95	21	97	1076.69	1076.69	51524
1997	3	Pacific cod	3	Bairdi Tanner crab	2.67	1.27	21	97	1474.04	700.39	51524
1997	3	Pacific cod	3	Gadidae	0.15	0.13	21	97	80.29	69	51524
1997	3	Pacific cod	3	King crab legs	0.04	0.04	21	97	22.58	22.58	51524
1997	3	Pacific cod	3	Lithodidae	3.85	2.75	21	97	430.77	307.77	51524
1997	3	Pacific cod	3	Northern rock sole	2.25	1.73	21	97	1241.32	957.15	51524

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	3	Pacific cod	3	Offal	5	4.73	21	97	2756.72	2609.95	51524
1997	3	Pacific cod	3	Opilio snow crab	7.23	2.96	21	97	3991.43	1633.96	51524
1997	3	Pacific cod	3	Pacific cod	3.39	2.21	21	97	1868.42	1219	51524
1997	3	Pacific cod	3	*Paralithodes* sp.	2.05	1.92	21	97	229.21	214.55	51524
1997	3	Pacific cod	3	Pleuronectidae	1.79	1.72	21	97	985.66	947.25	51524
1997	3	Pacific cod	3	Unid. *Chionoecetes*	0.99	0.91	21	97	544.04	503.84	51524
1997	3	Pacific cod	3	Walleye pollock	44.67	7.57	21	97	24652.62	4177.33	51524
1997	3	Pacific halibut	2	Bairdi Tanner crab	8.79	8.6	6	13	384.41	375.89	2857
1997	3	Pacific halibut	2	Unid. Osmerid	0.45	0.45	6	13	19.84	19.84	2857
1997	3	Pacific halibut	2	Walleye pollock	0.12	0.12	6	13	5.23	5.23	2857
1997	3	Pacific halibut	3	Bairdi Tanner crab	2.04	1.6	11	30	482.2	377.9	38643
1997	3	Pacific halibut	3	Capelin	0.8	0.8	11	30	188.78	188.78	38643
1997	3	Pacific halibut	3	Gadidae	9.09	9.09	11	30	2149.96	2149.96	38643
1997	3	Pacific halibut	3	Lithodidae	2.45	2.45	11	30	117.33	117.33	38643
1997	3	Pacific halibut	3	Opilio snow crab	0.8	0.8	11	30	188.53	188.53	38643
1997	3	Pacific halibut	3	Pacific cod	5.32	5.32	11	30	1257.64	1257.64	38643
1997	3	Pacific halibut	3	Pleuronectidae	7.33	6.23	11	30	1733.79	1473.87	38643
1997	3	Pacific halibut	3	Unid. *Chionoecetes*	0.01	0.01	11	30	1.23	1.23	38643
1997	3	Pacific halibut	3	Walleye pollock	58.28	13.26	11	30	13782.8	3135.74	38643
1997	3	Skates	1	Gadidae	19.83	19.83	5	16	15543.64	15543.64	73202
1997	3	Skates	1	Opilio snow crab	7.2	7.2	5	16	5647.44	5647.44	73202
1997	3	Skates	1	Pleuronectidae	8.07	8.07	5	16	6324.54	6324.54	73202
1997	3	Skates	1	Walleye pollock	1.9	1.9	5	16	1487.44	1487.44	73202
1997	3	Skates	1	Yellowfin sole	13.43	13.43	5	16	10529.82	10529.82	73202
1997	3	Walleye pollock	1	Lithodidae	0.12	0.12	20	117	2.16	2.16	5173
1997	3	Walleye pollock	1	*Paralithodes* sp.	0.1	0.1	20	117	1.69	1.69	5173
1997	3	Walleye pollock	1	Walleye pollock	0.91	0.91	20	117	79.15	79.15	5173
1997	3	Walleye pollock	2	Blue king crab	0.05	0.05	21	65	4.54	4.54	25241
1997	3	Walleye pollock	2	Offal	0.73	0.73	21	65	308.58	308.58	25241
1997	3	Walleye pollock	2	*Paralithodes* sp.	0	0	21	65	0.4	0.4	25241
1997	3	Walleye pollock	2	Walleye pollock	1.57	1.57	21	65	665.86	665.86	25241
1997	3	Walleye pollock	3	Blue king crab	0.1	0.1	30	183	28.13	28.13	113137
1997	3	Walleye pollock	3	Offal	0.03	0.03	30	183	44.89	44.89	113137
1997	3	Walleye pollock	3	*Paralithodes* sp.	0.01	0.01	30	183	1.75	1.75	113137

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	3	Walleye pollock	3	Pleuronectidae	0.01	0.01	30	183	13.08	9.14	113137
1997	3	Walleye pollock	3	Walleye pollock	2.52	1.67	30	183	3484	2312.65	113137
1997	3	Walleye pollock	4	Gadidae	0.25	0.18	41	546	771.62	543.04	499086
1997	3	Walleye pollock	4	Greenland turbot	0.02	0.01	41	546	61.02	44.12	499086
1997	3	Walleye pollock	4	Northern rock sole	0.05	0.04	41	546	144.4	129.51	499086
1997	3	Walleye pollock	4	Offal	3.82	2.77	41	546	11679.56	8447.68	499086
1997	3	Walleye pollock	4	Pacific halibut	0	0	41	546	9.98	9.98	499086
1997	3	Walleye pollock	4	*Paralithodes* sp.	0	0	41	546	0.33	0.33	499086
1997	3	Walleye pollock	4	Pleuronectidae	0.28	0.28	41	546	859.59	859.59	499086
1997	3	Walleye pollock	4	Walleye pollock	8.91	3.46	41	546	27224.53	10573.58	499086
1997	3	Yellowfin sole	1	Offal	2.81	2.81	13	116	10470.32	10470.32	609318
1997	3	Yellowfin sole	1	Opilio snow crab	2.39	2	13	116	8907.74	7475.04	609318
1997	3	Yellowfin sole	1	Unid. *Chionoecetes*	0.68	0.68	13	116	2539.17	2539.17	609318
1997	3	Yellowfin sole	1	Walleye pollock	3.96	3.96	13	116	14777.03	14777.03	609318
1997	4	Alaska plaice	1	Opilio snow crab	2.76	2.76	29	131	5455.54	5455.54	258294
1997	4	Alaska plaice	1	Unid. *Chionoecetes*	0.54	0.5	29	131	1063.99	983.16	258294
1997	4	Arrowtooth flounder	2	Arrowtooth flounder	14.12	14.12	5	24	1018.57	1018.57	5239
1997	4	Arrowtooth flounder	2	Capelin	1.34	1.34	5	24	96.78	96.78	5239
1997	4	Arrowtooth flounder	2	Gadidae	19.91	18.8	5	24	1436.06	1356.11	5239
1997	4	Arrowtooth flounder	2	Walleye pollock	56.1	23.18	5	24	4046.84	1672	5239
1997	4	Arrowtooth flounder	3	Gadidae	10.78	7.18	5	11	1037.11	691.39	8986
1997	4	Arrowtooth flounder	3	Walleye pollock	58.31	16.95	5	11	5611.3	1631.11	8986
1997	4	Flathead sole	1	Bairdi Tanner crab	3.75	1.99	12	88	2285.75	1214.74	56890
1997	4	Flathead sole	1	Gadidae	1.67	1.35	12	88	1015.94	823.12	56890
1997	4	Flathead sole	1	Unid. *Chionoecetes*	0.33	0.23	12	88	202.41	140.39	56890
1997	4	Flathead sole	1	Walleye pollock	20.35	8.6	12	88	12400.74	5242.77	56890
1997	4	Greenland turbot	3	Gadidae	21.47	19.68	5	7	552.22	506.25	3362
1997	4	Greenland turbot	3	Walleye pollock	76.96	19.31	5	7	1979.27	496.75	3362
1997	4	Northern rock sole	1	Opilio snow crab	0.36	0.21	29	132	2115.74	1252.06	551864
1997	4	Northern rock sole	1	Unid. *Chionoecetes*	0.34	0.34	29	132	2024.67	2022.51	551864
1997	4	Pacific cod	1	Opilio snow crab	9.35	9.35	10	48	566.47	566.47	3299
1997	4	Pacific cod	2	Bairdi Tanner crab	2.28	1.41	18	199	3753.25	2321.86	119345
1997	4	Pacific cod	2	Gadidae	0.49	0.49	18	199	801.72	801.72	119345
1997	4	Pacific cod	2	Opilio snow crab	17.38	4.76	18	199	28562.72	7821.42	119345

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	4	Pacific cod	2	Unid. *Chionoecetes*	2.52	1.35	18	199	4142.47	2218.47	119345
1997	4	Pacific cod	2	Walleye pollock	12.66	4.36	18	199	20803.14	7159.66	119345
1997	4	Pacific cod	3	Bairdi Tanner crab	0.79	0.5	15	63	579.44	366.28	68771
1997	4	Pacific cod	3	Gadidae	0.27	0.25	15	63	201.46	187.33	68771
1997	4	Pacific cod	3	King crab legs	0.14	0.14	15	63	103.67	103.67	68771
1997	4	Pacific cod	3	Opilio snow crab	37.57	8.62	15	63	27672.57	6347.89	68771
1997	4	Pacific cod	3	Pacific cod	0.17	0.17	15	63	126.08	126.08	68771
1997	4	Pacific cod	3	*Paralithodes* sp.	0.15	0.15	15	63	22.27	22.27	68771
1997	4	Pacific cod	3	Pleuronectidae	3.21	3.04	15	63	2360.78	2240.83	68771
1997	4	Pacific cod	3	Unid. *Chionoecetes*	0.17	0.17	15	63	122.79	122.79	68771
1997	4	Pacific cod	3	Walleye pollock	29.72	8.81	15	63	21886.63	6491.3	68771
1997	4	Pacific cod	3	Yellowfin sole	3.07	3.07	15	63	2258.37	2258.37	68771
1997	4	Pacific halibut	2	Bairdi Tanner crab	15.88	15.79	5	11	198.99	197.9	819
1997	4	Pacific halibut	2	Gadidae	2.25	1.43	5	11	28.13	17.93	819
1997	4	Pacific halibut	2	Offal	9.58	9.58	5	11	119.99	119.99	819
1997	4	Pacific halibut	2	Opilio snow crab	2.07	1.34	5	11	25.96	16.73	819
1997	4	Pacific halibut	2	Unid. *Chionoecetes*	1.62	1.27	5	11	20.35	15.95	819
1997	4	Pacific halibut	2	Walleye pollock	26.52	15.15	5	11	332.28	189.86	819
1997	4	Pacific halibut	3	Bairdi Tanner crab	5.12	5.08	19	48	563.5	558.89	17969
1997	4	Pacific halibut	3	Flathead sole	3.69	3.69	19	48	405.38	405.38	17969
1997	4	Pacific halibut	3	Gadidae	0.92	0.49	19	48	100.98	54.11	17969
1997	4	Pacific halibut	3	Opilio snow crab	12.15	5.72	19	48	1336.62	629.09	17969
1997	4	Pacific halibut	3	Unid. *Chionoecetes*	6.02	5.28	19	48	662.24	580.17	17969
1997	4	Pacific halibut	3	Walleye pollock	57.96	9.4	19	48	6373.7	1033.85	17969
1997	4	Skates	1	Bairdi Tanner crab	1.23	0.73	19	92	1014.18	604.57	77231
1997	4	Skates	1	Gadidae	4.65	2.86	19	92	3849.83	2365.68	77231
1997	4	Skates	1	Northern rock sole	5.24	5.24	19	92	4330.68	4330.68	77231
1997	4	Skates	1	Offal	9.35	6.37	19	92	7734.9	5271.65	77231
1997	4	Skates	1	Opilio snow crab	2.21	1.38	19	92	1827.69	1137.44	77231
1997	4	Skates	1	Pleuronectidae	1.71	1.71	19	92	1414.02	1414.02	77231
1997	4	Skates	1	Unid. *Chionoecetes*	3.43	1.39	19	92	2840.01	1146.35	77231
1997	4	Skates	1	Walleye pollock	17.98	7.22	19	92	14871.81	5970.14	77231
1997	4	Walleye pollock	1	Lithodidae	0.01	0.01	25	203	0.18	0.18	7594
1997	4	Walleye pollock	1	Walleye pollock	2.4	2.4	25	203	306.74	306.74	7594

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	4	Walleye pollock	2	Blue king crab	0.02	0.01	19	50	4.77	2.76	78023
1997	4	Walleye pollock	2	Walleye pollock	2.33	2.33	19	50	3065.92	3065.92	78023
1997	4	Walleye pollock	3	Blue king crab	0.13	0.09	33	309	231	167.45	716307
1997	4	Walleye pollock	3	Gadidae	1.26	0.8	33	309	11053.85	7013.01	716307
1997	4	Walleye pollock	3	Pleuronectidae	0.02	0.02	33	309	162.95	162.95	716307
1997	4	Walleye pollock	3	Walleye pollock	15.77	4.7	33	309	138233.5	41229.17	716307
1997	4	Walleye pollock	4	Blue king crab	0.01	0.01	47	438	4.62	4.57	458058
1997	4	Walleye pollock	4	Gadidae	0.2	0.16	47	438	557.97	437.48	458058
1997	4	Walleye pollock	4	Greenland turbot	0.01	0.01	47	438	27.68	19.54	458058
1997	4	Walleye pollock	4	Northern rock sole	0	0	47	438	6.87	6.87	458058
1997	4	Walleye pollock	4	Pacific halibut	0	0	47	438	7.37	5.9	458058
1997	4	Walleye pollock	4	Pacific herring	0.01	0.01	47	438	22.98	22.98	458058
1997	4	Walleye pollock	4	Pleuronectidae	1.34	1.34	47	438	3760.77	3746.29	458058
1997	4	Walleye pollock	4	Rockfish	0.01	0.01	47	438	15.4	15.4	458058
1997	4	Walleye pollock	4	Walleye pollock	15.54	4.12	47	438	43569.43	11544.63	458058
1997	4	Yellowfin sole	1	Bairdi Tanner crab	1.76	1.76	12	77	1945.49	1945.49	180912
1997	4	Yellowfin sole	1	Opilio snow crab	0.42	0.28	12	77	466.18	314.4	180912
1997	4	Yellowfin sole	1	Pleuronectidae	2.03	2.03	12	77	2242.22	2242.22	180912
1997	4	Yellowfin sole	1	Unid. *Chionoecetes*	0.44	0.44	12	77	483.75	483.75	180912
1997	5	Arrowtooth flounder	2	Gadidae	1.84	1.84	11	32	657.01	657.01	25938
1997	5	Arrowtooth flounder	2	Walleye pollock	33.13	12.11	11	32	11831.86	4325.41	25938
1997	5	Arrowtooth flounder	3	Gadidae	0.91	0.91	10	47	1383.87	1383.87	142722
1997	5	Arrowtooth flounder	3	Offal	6.8	6.8	10	47	10392.62	10392.62	142722
1997	5	Arrowtooth flounder	3	Walleye pollock	57.86	15.8	10	47	88434.42	24155.65	142722
1997	5	Flathead sole	1	Bairdi Tanner crab	6.3	6.3	4	33	4531.76	4531.76	67143
1997	5	Pacific cod	2	Bairdi Tanner crab	33.54	9.57	7	41	3172.85	905.38	6870
1997	5	Pacific cod	2	Opilio snow crab	3.07	2.74	7	41	290.77	259.42	6870
1997	5	Pacific cod	2	Unid. *Chionoecetes*	2.95	1.72	7	41	279.18	162.54	6870
1997	5	Pacific cod	2	Walleye pollock	18.77	13.91	7	41	1775.23	1316.17	6870
1997	5	Pacific cod	3	Bairdi Tanner crab	15.72	7.31	9	48	2854.47	1327.72	16950
1997	5	Pacific cod	3	Flathead sole	2.71	2.71	9	48	491.25	491.25	16950
1997	5	Pacific cod	3	Gadidae	0.51	0.51	9	48	92.94	92.94	16950
1997	5	Pacific cod	3	Offal	2.33	2.33	9	48	423.49	423.49	16950
1997	5	Pacific cod	3	Opilio snow crab	5.71	3.01	9	48	1036.12	545.97	16950

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	5	Pacific cod	3	Pleuronectidae	0.34	0.26	9	48	61.81	47.35	16950
1997	5	Pacific cod	3	Unid. *Chionoecetes*	0.66	0.59	9	48	119.36	106.5	16950
1997	5	Pacific cod	3	Walleye pollock	42.16	11.89	9	48	7654.36	2157.78	16950
1997	5	Pacific halibut	3	Bairdi Tanner crab	6.31	4.14	4	17	780.55	512.29	20212
1997	5	Pacific halibut	3	Opilio snow crab	6.48	6.2	4	17	802.16	767.52	20212
1997	5	Pacific halibut	3	Pleuronectidae	2.48	2.48	4	17	306.2	306.2	20212
1997	5	Pacific halibut	3	Walleye pollock	75.82	11.79	4	17	9378.85	1457.9	20212
1997	5	Skates	1	Bairdi Tanner crab	30.44	20.57	3	18	13277.79	8974.72	40734
1997	5	Skates	1	Gadidae	6.26	6.26	3	18	2732.81	2732.81	40734
1997	5	Skates	1	Offal	2.32	2.32	3	18	1010.07	1010.07	40734
1997	5	Skates	1	Opilio snow crab	7.86	6.24	3	18	3429.8	2722	40734
1997	5	Skates	1	Walleye pollock	33.18	20.42	3	18	14475.33	8906.29	40734
1997	5	Walleye pollock	3	Blue king crab	0	0	13	94	0.38	0.38	51938
1997	5	Walleye pollock	3	Gadidae	2.11	1.4	13	94	1338.67	893.18	51938
1997	5	Walleye pollock	3	Offal	1.53	1.53	13	94	975.03	975.03	51938
1997	5	Walleye pollock	3	*Paralithodes* sp.	0	0	13	94	0.12	0.12	51938
1997	5	Walleye pollock	3	Walleye pollock	32.99	9.48	13	94	20974.4	6026	51938
1997	5	Walleye pollock	4	Gadidae	7.53	5.67	15	129	6398.12	4820.12	138795
1997	5	Walleye pollock	4	Walleye pollock	33.05	10.72	15	129	28073.38	9106.77	138795
1997	6	Arrowtooth flounder	1	Gadidae	11.11	11.11	9	15			
1997	6	Arrowtooth flounder	1	Pleuronectidae	5.34	5.34	9	15			
1997	6	Arrowtooth flounder	1	Walleye pollock	11.11	11.11	9	15			
1997	6	Arrowtooth flounder	2	Gadidae	10.59	7.95	13	28	2717.42	2040.07	18643
1997	6	Arrowtooth flounder	2	Walleye pollock	43.08	13.73	13	28	11059.97	3524.18	18643
1997	6	Arrowtooth flounder	3	Gadidae	2.01	1.25	22	107	3266.94	2038.63	151757
1997	6	Arrowtooth flounder	3	Pleuronectidae	0.17	0.17	22	107	274.9	274.9	151757
1997	6	Arrowtooth flounder	3	Walleye pollock	73.72	8.87	22	107	119817.2	14420.7	151757
1997	6	Flathead sole	1	Bairdi Tanner crab	6.5	4.47	8	69	24417.01	16782.76	350924
1997	6	Flathead sole	1	Unid. *Chionoecetes*	0.04	0.04	8	69	158.61	158.61	350924
1997	6	Flathead sole	1	Walleye pollock	3.65	3.65	8	69	13736.21	13736.21	350924
1997	6	Greenland turbot	3	Gadidae	0.15	0.15	5	14	27.61	27.61	24417
1997	6	Greenland turbot	3	Offal	1.35	1.35	5	14	251.58	251.58	24417
1997	6	Greenland turbot	3	Walleye pollock	98.51	1.32	5	14	18399.82	246.13	24417
1997	6	Pacific cod	2	Bairdi Tanner crab	3.15	2.23	14	83	1703.07	1206.55	39262

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	6	Pacific cod	2	Flathead sole	2.21	1.32	14	83	1195.56	712.87	39262
1997	6	Pacific cod	2	Gadidae	0.57	0.57	14	83	307.18	307.18	39262
1997	6	Pacific cod	2	Opilio snow crab	11.71	3.88	14	83	6332.55	2098.58	39262
1997	6	Pacific cod	2	Pleuronectidae	0.7	0.42	14	83	378.82	226.1	39262
1997	6	Pacific cod	2	Unid. *Chionoecetes*	1.19	0.59	14	83	644.31	317.38	39262
1997	6	Pacific cod	2	Walleye pollock	3.7	2.82	14	83	2001.74	1526.38	39262
1997	6	Pacific cod	3	Bairdi Tanner crab	6.03	3	16	114	7107.16	3539.65	110065
1997	6	Pacific cod	3	Flathead sole	3.17	1.7	16	114	3734.84	2007.74	110065
1997	6	Pacific cod	3	Gadidae	0.18	0.09	16	114	211.48	108.93	110065
1997	6	Pacific cod	3	Offal	0.99	0.99	16	114	1162.67	1162.67	110065
1997	6	Pacific cod	3	Opilio snow crab	31.93	6.35	16	114	37644.08	7486.99	110065
1997	6	Pacific cod	3	Pleuronectidae	0.25	0.18	16	114	298.93	213.1	110065
1997	6	Pacific cod	3	Unid. *Chionoecetes*	1.29	0.63	16	114	1520.33	739.44	110065
1997	6	Pacific cod	3	Walleye pollock	29.04	6.93	16	114	34227.19	8166.82	110065
1997	6	Pacific halibut	3	Bairdi Tanner crab	1.97	1.62	10	35	354.29	291.57	29427
1997	6	Pacific halibut	3	Gadidae	0.15	0.14	10	35	26.18	24.46	29427
1997	6	Pacific halibut	3	Offal	0.59	0.59	10	35	105.39	105.39	29427
1997	6	Pacific halibut	3	Opilio snow crab	10.21	6.32	10	35	1838.65	1137.67	29427
1997	6	Pacific halibut	3	Unid. *Chionoecetes*	10.7	4.86	10	35	1927.3	875.39	29427
1997	6	Pacific halibut	3	Walleye pollock	59.12	13.01	10	35	10646.83	2343.78	29427
1997	6	Skates	1	Flathead sole	1.71	1.63	9	53	2755.48	2629.5	150632
1997	6	Skates	1	Gadidae	0.36	0.36	9	53	578	578	150632
1997	6	Skates	1	Offal	5	3.31	9	53	8064.24	5334.93	150632
1997	6	Skates	1	Opilio snow crab	1.24	1.04	9	53	2002.61	1680.07	150632
1997	6	Skates	1	Unid. *Chionoecetes*	5.52	3.43	9	53	8900.61	5540.95	150632
1997	6	Skates	1	Walleye pollock	56.52	14.68	9	53	91189.41	23676.54	150632
1997	6	Walleye pollock	1	Gadidae	3.19	2.49	31	394	2586.11	2024.2	48215
1997	6	Walleye pollock	1	Greenland turbot	1.45	1.45	31	394	1174.57	1174.57	48215
1997	6	Walleye pollock	1	Offal	1.36	1.23	31	394	1106.99	994.96	48215
1997	6	Walleye pollock	1	Unid. *Chionoecetes*	0	0	31	394	1.42	1.42	48215
1997	6	Walleye pollock	1	Walleye pollock	1.86	1.39	31	394	1512	1129.53	48215
1997	6	Walleye pollock	2	Gadidae	0.02	0.02	28	199	17.57	17.57	45884
1997	6	Walleye pollock	2	Offal	2.69	1.88	28	199	2077.04	1455.42	45884
1997	6	Walleye pollock	2	Walleye pollock	4.63	3.22	28	199	3578.09	2482.77	45884

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1997	6	Walleye pollock	3	Blue king crab	0.02	0.02	39	414	16.17	16.17	376002
1997	6	Walleye pollock	3	Gadidae	0.67	0.66	39	414	3073.28	3059.1	376002
1997	6	Walleye pollock	3	Greenland turbot	0.02	0.02	39	414	87.68	87.68	376002
1997	6	Walleye pollock	3	Offal	4.47	3.12	39	414	20586.49	14379.59	376002
1997	6	Walleye pollock	3	Pacific halibut	0	0	39	414	7.76	7.76	376002
1997	6	Walleye pollock	3	Pacific herring	0	0	39	414	1.46	1.46	376002
1997	6	Walleye pollock	3	Pleuronectidae	0.11	0.1	39	414	520.66	438.37	376002
1997	6	Walleye pollock	3	Walleye pollock	12.53	3.77	39	414	57684.95	17340.7	376002
1997	6	Walleye pollock	4	Gadidae	5.65	3.35	32	210	11189.67	6634.22	323481
1997	6	Walleye pollock	4	Greenland turbot	4.1	3.13	32	210	8116.63	6200.21	323481
1997	6	Walleye pollock	4	Offal	6.2	3.35	32	210	12274.72	6625.27	323481
1997	6	Walleye pollock	4	Pacific halibut	0.04	0.04	32	210	80.07	80.07	323481
1997	6	Walleye pollock	4	Pleuronectidae	0.02	0.02	32	210	40.95	40.95	323481
1997	6	Walleye pollock	4	Walleye pollock	32.94	7.19	32	210	65213.38	14228.91	323481
1998	1	Pacific cod	1	Capelin	2.23	2.23	18	79	258.99	258.99	6316
1998	1	Pacific cod	2	Flathead sole	1.35	1.35	18	120	1179.2	1179.2	63432
1998	1	Pacific cod	2	Gadidae	0.33	0.29	18	120	288.12	257.25	63432
1998	1	Pacific cod	2	Pleuronectidae	5.09	3.66	18	120	4442.1	3196.64	63432
1998	1	Pacific cod	2	Walleye pollock	5.9	4.13	18	120	5151.24	3606.92	63432
1998	1	Pacific cod	3	Bairdi Tanner crab	0.72	0.58	19	80	542.35	438.04	69947
1998	1	Pacific cod	3	Gadidae	1.33	1.33	19	80	996.12	994.23	69947
1998	1	Pacific cod	3	King crab legs	0.16	0.16	19	80	116.78	116.78	69947
1998	1	Pacific cod	3	Lithodidae	5.76	4.97	19	80	874.01	754.9	69947
1998	1	Pacific cod	3	Northern rock sole	2.19	1.62	19	80	1642.12	1216.72	69947
1998	1	Pacific cod	3	Offal	2.83	2.04	19	80	2118.36	1529.42	69947
1998	1	Pacific cod	3	Pacific cod	0.11	0.11	19	80	80.8	80.8	69947
1998	1	Pacific cod	3	Pleuronectidae	20.73	5.58	19	80	15528.9	4180.35	69947
1998	1	Pacific cod	3	Red king crab	2.82	2.82	19	80	428.66	428.66	69947
1998	1	Pacific cod	3	Unid. Osmerid	0.58	0.46	19	80	437.58	344.1	69947
1998	1	Pacific cod	3	Unid. *Chionoecetes*	2.73	1.87	19	80	2047.36	1404.33	69947
1998	1	Pacific cod	3	Walleye pollock	20.18	6.01	19	80	15115.75	4504.99	69947
1998	1	Pacific cod	3	Yellowfin sole	3.12	1.79	19	80	2335.64	1342.38	69947
1998	1	Pacific halibut	2	Capelin	5.96	4.1	16	65	728.35	501.04	7989
1998	1	Pacific halibut	2	Flathead sole	0.89	0.89	16	65	109.37	109.37	7989

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1998	1	Pacific halibut	2	Gadidae	6.23	6.01	16	65	761.18	734.12	7989
1998	1	Pacific halibut	2	Pleuronectidae	8.68	4.14	16	65	1060.73	505.71	7989
1998	1	Pacific halibut	2	Unid. Osmerid	1.87	1.62	16	65	228.96	198.26	7989
1998	1	Pacific halibut	2	Walleye pollock	15.17	8.38	16	65	1854.53	1024.9	7989
1998	1	Pacific halibut	2	Yellowfin sole	1.16	1.16	16	65	141.31	141.31	7989
1998	1	Pacific halibut	3	Capelin	0.04	0.04	17	49	4.9	4.9	22450
1998	1	Pacific halibut	3	Gadidae	0.53	0.43	17	49	73.23	59.33	22450
1998	1	Pacific halibut	3	Northern rock sole	0.41	0.41	17	49	56.8	56.8	22450
1998	1	Pacific halibut	3	Pacific herring	5.95	4.57	17	49	817.18	627.51	22450
1998	1	Pacific halibut	3	Pleuronectidae	39.77	9.03	17	49	5463.74	1240.42	22450
1998	1	Pacific halibut	3	Walleye pollock	34.08	9.88	17	49	4682.38	1356.92	22450
1998	1	Pacific halibut	3	Yellowfin sole	10.16	2.58	17	49	1396.27	354.68	22450
1998	1	Walleye pollock	4	Gadidae	0.03	0.02	20	328	56.78	41.17	326050
1998	1	Walleye pollock	4	Northern rock sole	0.02	0.02	20	328	45.19	45.19	326050
1998	1	Walleye pollock	4	Unid. Osmerid	0.07	0.07	20	328	140.32	140.32	326050
1998	1	Walleye pollock	4	Walleye pollock	0.92	0.53	20	328	1834.2	1065.75	326050
1998	2	Pacific cod	1	Bairdi Tanner crab	1.37	1.37	12	47	39.91	39.91	1583
1998	2	Pacific cod	1	Capelin	0.65	0.65	12	47	18.84	18.84	1583
1998	2	Pacific cod	1	Unid. *Chionoecetes*	10.15	7.07	12	47	295.12	205.41	1583
1998	2	Pacific cod	1	Walleye pollock	0.18	0.18	12	47	5.35	5.35	1583
1998	2	Pacific cod	2	Bairdi Tanner crab	1.89	1.38	11	85	239.83	174.46	9201
1998	2	Pacific cod	2	Gadidae	2.98	2.93	11	85	377.7	371.62	9201
1998	2	Pacific cod	2	Opilio snow crab	26.26	9.7	11	85	3326.56	1228.49	9201
1998	2	Pacific cod	2	Unid. *Chionoecetes*	1.73	0.8	11	85	218.98	101.4	9201
1998	2	Pacific cod	2	Walleye pollock	13.33	6.49	11	85	1688.83	822.68	9201
1998	2	Pacific cod	3	Bairdi Tanner crab	0.05	0.05	11	36	5.03	5.03	10219
1998	2	Pacific cod	3	Gadidae	1.3	1.3	11	36	142.74	142.74	10219
1998	2	Pacific cod	3	Lithodidae	0.17	0.17	11	36	3.84	3.84	10219
1998	2	Pacific cod	3	Opilio snow crab	18.52	9.17	11	36	2026.54	1003.89	10219
1998	2	Pacific cod	3	Pacific cod	7.89	5.67	11	36	863.66	620.08	10219
1998	2	Pacific cod	3	Pleuronectidae	3.08	1.92	11	36	337.64	210.31	10219
1998	2	Pacific cod	3	Unid. *Chionoecetes*	6.24	5.54	11	36	682.83	606.27	10219
1998	2	Pacific cod	3	Walleye pollock	4.93	2	11	36	539.23	219	10219
1998	2	Pacific halibut	2	Flathead sole	0.68	0.68	5	35	35.17	35.17	3400

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1998	2	Pacific halibut	2	Gadidae	0.68	0.68	5	35	35.29	35.29	3400
1998	2	Pacific halibut	2	Pacific cod	27.08	11.81	5	35	1408.53	614.43	3400
1998	2	Pacific halibut	2	Pleuronectidae	4.94	3.38	5	35	257.23	175.89	3400
1998	2	Pacific halibut	2	Unid. Osmerid	6.43	6.43	5	35	334.7	334.7	3400
1998	2	Pacific halibut	2	Walleye pollock	32.55	17.33	5	35	1693.49	901.36	3400
1998	2	Pacific halibut	3	Gadidae	3.03	3.03	4	11	166.42	166.42	8966
1998	2	Pacific halibut	3	Pacific cod	34.58	21.9	4	11	1897.26	1201.77	8966
1998	2	Pacific halibut	3	Pleuronectidae	37.87	23.11	4	11	2077.93	1268.04	8966
1998	2	Pacific halibut	3	Unid. Osmerid	1.67	1.26	4	11	91.76	69.07	8966
1998	2	Pacific halibut	3	Walleye pollock	18.15	17.71	4	11	996.07	971.69	8966
1998	2	Pacific halibut	3	Yellowfin sole	2.29	2.29	4	11	125.45	125.45	8966
1998	2	Skates	1	Gadidae	1.24	0	1	8	568.06	0	42867
1998	2	Skates	1	Unid. *Chionoecetes*	3.54	0	1	8	1626.55	0	42867
1998	2	Skates	1	Walleye pollock	3.06	0	1	8	1406.5	0	42867
1998	2	Walleye pollock	4	Flathead sole	0.25	0.25	18	161	69.55	69.55	44939
1998	2	Walleye pollock	4	Gadidae	0.62	0.44	18	161	171.73	121.92	44939
1998	2	Walleye pollock	4	Walleye pollock	2.23	1.33	18	161	612.17	366.77	44939
1998	3	Alaska plaice	1	Opilio snow crab	0.1	0.1	12	58	93.78	93.78	121650
1998	3	Arrowtooth flounder	2	Gadidae	5.01	5.01	8	24	1877.2	1877.2	27220
1998	3	Arrowtooth flounder	2	Walleye pollock	28.37	14.45	8	24	10634.39	5414.79	27220
1998	3	Arrowtooth flounder	3	Gadidae	11.11	11.11	6	12	8217.07	8217.07	69051
1998	3	Arrowtooth flounder	3	Walleye pollock	50.35	21.96	6	12	37236.95	16241.94	69051
1998	3	Flathead sole	1	Unid. *Chionoecetes*	1.64	1.64	5	25	3307.8	3307.8	188855
1998	3	Pacific cod	1	Bairdi Tanner crab	4.6	4.6	10	24	184.08	184.08	2178
1998	3	Pacific cod	1	Northern rock sole	1.56	1.56	10	24	62.58	62.58	2178
1998	3	Pacific cod	1	Unid. *Chionoecetes*	7.93	5.52	10	24	317.16	220.76	2178
1998	3	Pacific cod	2	Bairdi Tanner crab	3.96	1.8	19	142	3046.71	1383.76	55845
1998	3	Pacific cod	2	Gadidae	0.09	0.07	19	142	70.77	56.61	55845
1998	3	Pacific cod	2	King crab legs	5.26	5.26	19	142	4047.29	4047.29	55845
1998	3	Pacific cod	2	Offal	4.92	3.39	19	142	3781.11	2604.89	55845
1998	3	Pacific cod	2	Opilio snow crab	16.7	4.82	19	142	12838.45	3706.82	55845
1998	3	Pacific cod	2	Pacific herring	0.31	0.31	19	142	241.15	241.15	55845
1998	3	Pacific cod	2	Pleuronectidae	0.45	0.45	19	142	349.68	344.68	55845
1998	3	Pacific cod	2	Unid. *Chionoecetes*	1.02	0.66	19	142	786.82	507.78	55845

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1998	3	Pacific cod	2	Walleye pollock	4.19	2.77	19	142	3219.12	2132.54	55845
1998	3	Pacific cod	2	Yellowfin sole	1.95	1.95	19	142	1495.81	1495.81	55845
1998	3	Pacific cod	3	Bairdi Tanner crab	2.84	1.4	24	98	2112.84	1044.07	69486
1998	3	Pacific cod	3	Gadidae	4.33	3.6	24	98	3221.54	2676.99	69486
1998	3	Pacific cod	3	King crab legs	5.04	4.13	24	98	3752.69	3072.04	69486
1998	3	Pacific cod	3	Lithodidae	1.38	1.38	24	98	208.07	208.07	69486
1998	3	Pacific cod	3	Northern rock sole	2.66	1.81	24	98	1979.41	1346.51	69486
1998	3	Pacific cod	3	Offal	2.25	1.75	24	98	1676.58	1301.33	69486
1998	3	Pacific cod	3	Opilio snow crab	10.28	4.21	24	98	7648.74	3130.31	69486
1998	3	Pacific cod	3	Pleuronectidae	8.71	4.39	24	98	6484.77	3270.16	69486
1998	3	Pacific cod	3	Unid. Osmerid	0.01	0.01	24	98	5.96	5.96	69486
1998	3	Pacific cod	3	Unid. *Chionoecetes*	1.52	0.77	24	98	1128.5	570.27	69486
1998	3	Pacific cod	3	Walleye pollock	47.88	8.35	24	98	35632.43	6214.44	69486
1998	3	Pacific halibut	2	Bairdi Tanner crab	2.62	2.54	10	23	208.72	202.72	5212
1998	3	Pacific halibut	2	Offal	4.45	4.45	10	23	355.09	355.09	5212
1998	3	Pacific halibut	2	Opilio snow crab	1.78	1.78	10	23	141.8	141.8	5212
1998	3	Pacific halibut	2	Unid. *Chionoecetes*	3.87	3.03	10	23	308.33	241.41	5212
1998	3	Pacific halibut	2	Walleye pollock	31.44	13.33	10	23	2507.12	1063.3	5212
1998	3	Pacific halibut	3	Bairdi Tanner crab	0.66	0.49	15	37	101.47	75.54	25037
1998	3	Pacific halibut	3	Gadidae	1.45	0.93	15	37	222.93	142.55	25037
1998	3	Pacific halibut	3	Opilio snow crab	3.75	2.54	15	37	574.44	389.8	25037
1998	3	Pacific halibut	3	Pleuronectidae	13.52	8.62	15	37	2072.18	1321.42	25037
1998	3	Pacific halibut	3	Walleye pollock	61.68	11.01	15	37	9451.37	1686.26	25037
1998	3	Pacific halibut	3	Yellowfin sole	0.55	0.55	15	37	83.97	83.97	25037
1998	3	Walleye pollock	1	Walleye pollock	6.46	5.05	19	127	993.42	777.64	9144
1998	3	Walleye pollock	2	Walleye pollock	15.16	8.87	13	46	11270.9	6593.79	44188
1998	3	Walleye pollock	3	Pleuronectidae	0.04	0.04	25	218	178.37	178.37	355996
1998	3	Walleye pollock	3	Walleye pollock	0.48	0.48	25	218	2088.9	2088.9	355996
1998	3	Walleye pollock	4	Gadidae	0.51	0.45	32	293	621.52	546.36	197251
1998	3	Walleye pollock	4	Offal	0.26	0.26	32	293	318.9	318.9	197251
1998	3	Walleye pollock	4	Pleuronectidae	0.04	0.04	32	293	46.9	46.9	197251
1998	3	Walleye pollock	4	Walleye pollock	4.33	3.03	32	293	5232.31	3653.22	197251
1998	4	Arrowtooth flounder	1	Gadidae	3.09	3.09	3	7	3.87	3.87	91
1998	4	Arrowtooth flounder	1	Walleye pollock	20.52	20.52	3	7	25.72	25.72	91

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1998	4	Arrowtooth flounder	2	Gadidae	41.2	24.03	5	34	2032.92	1185.52	3583
1998	4	Arrowtooth flounder	2	Walleye pollock	34.41	21.28	5	34	1697.81	1049.67	3583
1998	4	Arrowtooth flounder	3	Gadidae	0.2	0.2	4	12	26.05	26.05	12228
1998	4	Arrowtooth flounder	3	Walleye pollock	66.73	23.54	4	12	8739.12	3083.42	12228
1998	4	Flathead sole	1	Bairdi Tanner crab	0.67	0.67	7	40	534.18	534.18	74716
1998	4	Flathead sole	1	Unid. *Chionoecetes*	0.42	0.42	7	40	333.16	333.16	74716
1998	4	Flathead sole	1	Walleye pollock	14.29	14.29	7	40	11431.55	11431.55	74716
1998	4	Greenland turbot	3	Walleye pollock	100	0	1	1	4261.05	0	5570
1998	4	Pacific cod	1	Bairdi Tanner crab	6.11	4.19	17	50	777.53	532.83	6934
1998	4	Pacific cod	1	Opilio snow crab	2.82	2.26	17	50	359.46	288.19	6934
1998	4	Pacific cod	1	Unid. *Chionoecetes*	1.34	1.03	17	50	170.23	131.52	6934
1998	4	Pacific cod	2	Bairdi Tanner crab	9.52	2.84	19	154	9875.44	2940.32	75303
1998	4	Pacific cod	2	Gadidae	0.11	0.11	19	154	110.42	110.42	75303
1998	4	Pacific cod	2	Offal	4.78	2.4	19	154	4959.09	2490.35	75303
1998	4	Pacific cod	2	Opilio snow crab	15.14	4.76	19	154	15701.43	4938.86	75303
1998	4	Pacific cod	2	Pacific herring	3.4	2.76	19	154	3522.84	2859.39	75303
1998	4	Pacific cod	2	Pleuronectidae	0.11	0.11	19	154	110.81	110.81	75303
1998	4	Pacific cod	2	Unid. *Chionoecetes*	5.52	2.69	19	154	5727.7	2788.95	75303
1998	4	Pacific cod	2	Walleye pollock	5.02	2.47	19	154	5203.93	2563.89	75303
1998	4	Pacific cod	3	Bairdi Tanner crab	2.3	1.48	23	75	1703.91	1094.41	69204
1998	4	Pacific cod	3	Gadidae	4.07	3.86	23	75	3018.23	2859.79	69204
1998	4	Pacific cod	3	Offal	7.28	3.86	23	75	5397.63	2859.28	69204
1998	4	Pacific cod	3	Opilio snow crab	29.86	8.07	23	75	22132.49	5978.9	69204
1998	4	Pacific cod	3	Pleuronectidae	0.65	0.65	23	75	479.28	479.28	69204
1998	4	Pacific cod	3	Unid. *Chionoecetes*	0.99	0.58	23	75	731.89	430.33	69204
1998	4	Pacific cod	3	Walleye pollock	30.76	8	23	75	22799.24	5930.4	69204
1998	4	Pacific cod	3	Yellowfin sole	0.45	0.45	23	75	333.83	333.83	69204
1998	4	Pacific halibut	2	Bairdi Tanner crab	0.38	0.27	10	37	12.21	8.52	2080
1998	4	Pacific halibut	2	Gadidae	3.65	3.1	10	37	116.27	98.78	2080
1998	4	Pacific halibut	2	Northern rock sole	0.24	0.24	10	37	7.7	7.7	2080
1998	4	Pacific halibut	2	Opilio snow crab	13.85	9.68	10	37	440.74	308.19	2080
1998	4	Pacific halibut	2	Pleuronectidae	0.27	0.27	10	37	8.72	8.72	2080
1998	4	Pacific halibut	2	Unid. *Chionoecetes*	0.86	0.86	10	37	27.26	27.26	2080
1998	4	Pacific halibut	2	Walleye pollock	6.7	6.51	10	37	213.18	207.02	2080

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1998	4	Pacific halibut	3	Gadidae	2.33	2.24	14	35	315.87	304.32	22189
1998	4	Pacific halibut	3	Offal	8.87	7.07	14	35	1204.34	960.05	22189
1998	4	Pacific halibut	3	Opilio snow crab	9.91	7.07	14	35	1345.83	960.19	22189
1998	4	Pacific halibut	3	Pleuronectidae	0.72	0.72	14	35	98.15	98.15	22189
1998	4	Pacific halibut	3	Unid. *Chionoecetes*	0.1	0.1	14	35	13.58	13.58	22189
1998	4	Pacific halibut	3	Walleye pollock	51.18	10.99	14	35	6950.04	1492.74	22189
1998	4	Pacific halibut	3	Yellowfin sole	1.45	1.45	14	35	196.53	196.53	22189
1998	4	Skates	1	Gadidae	0.27	0.27	4	31	238.69	238.69	82312
1998	4	Skates	1	Northern rock sole	0.71	0.71	4	31	624.05	624.05	82312
1998	4	Skates	1	Offal	25.32	24.26	4	31	22320.68	21382.92	82312
1998	4	Skates	1	Pleuronectidae	1.21	1.21	4	31	1070.95	1070.95	82312
1998	4	Skates	1	Unid. *Chionoecetes*	0.23	0.21	4	31	201.08	182.25	82312
1998	4	Skates	1	Walleye pollock	42.76	24.69	4	31	37694.06	21766.87	82312
1998	4	Walleye pollock	3	Walleye pollock	2.95	2.95	31	309	16759.56	16759.56	464697
1998	4	Walleye pollock	4	Gadidae	5.62	3.84	31	141	6947.44	4750.59	202110
1998	4	Walleye pollock	4	Greenland turbot	0.01	0.01	31	141	13.46	13.46	202110
1998	4	Walleye pollock	4	*Paralithodes* sp.	0	0	31	141	0.07	0.07	202110
1998	4	Walleye pollock	4	Rockfish	0.01	0.01	31	141	8.59	8.59	202110
1998	4	Walleye pollock	4	Walleye pollock	3.22	3.22	31	141	3981.46	3981.46	202110
1998	4	Yellowfin sole	1	Bairdi Tanner crab	0.02	0.02	16	115	40.19	40.19	369854
1998	4	Yellowfin sole	1	Walleye pollock	1.17	1.17	16	115	2649.15	2649.15	369854
1998	5	Arrowtooth flounder	2	Gadidae	23.97	12.84	10	25	6275.03	3362.41	19011
1998	5	Arrowtooth flounder	2	Walleye pollock	9.71	9.71	10	25	2540.78	2540.78	19011
1998	5	Arrowtooth flounder	3	Gadidae	26.58	16.1	8	18	18602.86	11264.71	65347
1998	5	Arrowtooth flounder	3	Walleye pollock	29.7	14.81	8	18	20785.78	10362.27	65347
1998	5	Flathead sole	1	Bairdi Tanner crab	30.97	19.16	4	24	21067.71	13033.51	63523
1998	5	Pacific cod	2	Bairdi Tanner crab	50.99	8.73	9	58	5371.36	920.13	7650
1998	5	Pacific cod	2	Gadidae	0.35	0.35	9	58	37.13	37.13	7650
1998	5	Pacific cod	2	Opilio snow crab	2.15	1.73	9	58	226.88	182.41	7650
1998	5	Pacific cod	2	Pleuronectidae	0.02	0.02	9	58	2.5	2.5	7650
1998	5	Pacific cod	2	Unid. *Chionoecetes*	4.31	1.95	9	58	454.45	205.29	7650
1998	5	Pacific cod	2	Walleye pollock	1.38	1.38	9	58	145.63	145.63	7650
1998	5	Pacific cod	3	Bairdi Tanner crab	41.24	9.67	11	46	5815.72	1364.14	13168
1998	5	Pacific cod	3	Offal	8.26	7.02	11	46	1164.74	990.68	13168

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1998	5	Pacific cod	3	Opilio snow crab	0.09	0.09	11	46	12.24	12.24	13168
1998	5	Pacific cod	3	Pleuronectidae	0.45	0.45	11	46	63.69	63.69	13168
1998	5	Pacific cod	3	Unid. *Chionoecetes*	1.28	0.79	11	46	180.43	112.09	13168
1998	5	Pacific cod	3	Walleye pollock	29.76	12.06	11	46	4196.94	1700.81	13168
1998	5	Pacific halibut	2	Bairdi Tanner crab	20.48	20.48	3	4	166.98	166.98	533
1998	5	Pacific halibut	2	Opilio snow crab	2.12	2.12	3	4	17.26	17.26	533
1998	5	Pacific halibut	2	Pacific cod	33.33	33.33	3	4	271.83	271.83	533
1998	5	Pacific halibut	3	Bairdi Tanner crab	43.12	14.56	8	20	4805.13	1622.92	18209
1998	5	Pacific halibut	3	Offal	0.79	0.79	8	20	88.11	88.11	18209
1998	5	Pacific halibut	3	Opilio snow crab	4.45	3.02	8	20	495.5	336.07	18209
1998	5	Pacific halibut	3	Unid. *Chionoecetes*	0.39	0.32	8	20	43.4	35.55	18209
1998	5	Pacific halibut	3	Walleye pollock	30.25	15.04	8	20	3370.7	1676.5	18209
1998	6	Arrowtooth flounder	2	Gadidae	12.06	9.92	10	17	2315.44	1904.4	13939
1998	6	Arrowtooth flounder	2	Walleye pollock	37.84	15.52	10	17	7263.49	2979.47	13939
1998	6	Arrowtooth flounder	3	Gadidae	6.25	3.65	13	71	8836.7	5156.6	132000
1998	6	Arrowtooth flounder	3	Offal	1.07	1.07	13	71	1519.07	1519.07	132000
1998	6	Arrowtooth flounder	3	Walleye pollock	74.46	10.11	13	71	105266.8	14289.18	132000
1998	6	Flathead sole	1	Bairdi Tanner crab	5.39	5.39	5	32	18478.55	18478.55	320251
1998	6	Flathead sole	1	Unid. *Chionoecetes*	1.41	1.41	5	32	4825.56	4825.56	320251
1998	6	Northern rock sole	1	Bairdi Tanner crab	0.16	0.16	2	14	212.96	212.96	124277
1998	6	Pacific cod	2	Bairdi Tanner crab	12.96	4.07	16	104	3934.34	1236.76	22044
1998	6	Pacific cod	2	Flathead sole	0.36	0.36	16	104	109.66	109.66	22044
1998	6	Pacific cod	2	Gadidae	0.23	0.23	16	104	69.29	69.29	22044
1998	6	Pacific cod	2	Offal	1.02	0.79	16	104	309.9	240.36	22044
1998	6	Pacific cod	2	Opilio snow crab	8.23	3.2	16	104	2498.76	972.58	22044
1998	6	Pacific cod	2	Pleuronectidae	0.03	0.03	16	104	9.9	9.9	22044
1998	6	Pacific cod	2	Unid. *Chionoecetes*	8.11	2.72	16	104	2460.97	826.32	22044
1998	6	Pacific cod	2	Walleye pollock	17.64	6.62	16	104	5353.64	2010.44	22044
1998	6	Pacific cod	3	Bairdi Tanner crab	13.37	2.95	19	92	10865.55	2399.22	75861
1998	6	Pacific cod	3	Flathead sole	0.82	0.82	19	92	668.08	668.08	75861
1998	6	Pacific cod	3	Gadidae	1.43	0.87	19	92	1158.18	708	75861
1998	6	Pacific cod	3	Offal	1.51	0.97	19	92	1226.57	785.25	75861
1998	6	Pacific cod	3	Opilio snow crab	12.62	3.83	19	92	10252.38	3114.45	75861
1998	6	Pacific cod	3	Pleuronectidae	3.28	2.69	19	92	2662.56	2184.51	75861

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1998	6	Pacific cod	3	Unid. *Chionoecetes*	3.32	2.15	19	92	2698.08	1748.44	75861
1998	6	Pacific cod	3	Walleye pollock	22.06	5.73	19	92	17920.6	4655.93	75861
1998	6	Pacific halibut	2	Bairdi Tanner crab	24	14.02	3	6	357.63	208.94	974
1998	6	Pacific halibut	2	Opilio snow crab	36.49	21.72	3	6	543.83	323.67	974
1998	6	Pacific halibut	2	Unid. *Chionoecetes*	4.75	4.75	3	6	70.83	70.83	974
1998	6	Pacific halibut	2	Walleye pollock	8.5	8.18	3	6	126.6	121.91	974
1998	6	Pacific halibut	3	Bairdi Tanner crab	3.84	3.5	9	36	1164.07	1059.73	49491
1998	6	Pacific halibut	3	Offal	1.42	1.42	9	36	430.01	430.01	49491
1998	6	Pacific halibut	3	Opilio snow crab	1.9	1.14	9	36	576.02	345.75	49491
1998	6	Pacific halibut	3	Pleuronectidae	0.02	0.02	9	36	6.11	6.11	49491
1998	6	Pacific halibut	3	Unid. *Chionoecetes*	1.29	1.04	9	36	389.85	316.03	49491
1998	6	Pacific halibut	3	Walleye pollock	66.72	9.96	9	36	20208.21	3016.57	49491
1998	6	Walleye pollock	1	Gadidae	0.36	0.36	16	172	188.87	188.87	30990
1998	6	Walleye pollock	1	Offal	0.65	0.65	16	172	337.01	337.01	30990
1998	6	Walleye pollock	1	Walleye pollock	0.69	0.69	16	172	358.22	358.22	30990
1998	6	Walleye pollock	2	Offal	12.39	10.05	8	41	4611.61	3739.04	22115
1998	6	Walleye pollock	3	Gadidae	0.96	0.96	18	110	2719.34	2719.34	231044
1998	6	Walleye pollock	3	Walleye pollock	9.3	6.4	18	110	26305.73	18095.23	231044
1998	6	Walleye pollock	4	Gadidae	5.11	3.02	15	75	4972.98	2938.43	159150
1998	6	Walleye pollock	4	Offal	8.52	6.59	15	75	8300.18	6422.85	159150
1998	6	Walleye pollock	4	Walleye pollock	26.89	10.6	15	75	26188.6	10328.31	159150
1998	6	Yellowfin sole	1	Unid. *Chionoecetes*	3.07	0	1	9	197.38	0	10510
1999	1	Flathead sole	1	Pleuronectidae	3.4	3.4	3	14	340.02	340.02	9343
1999	1	Flathead sole	1	Walleye pollock	19.35	19.35	3	14	1936.47	1936.47	9343
1999	1	Pacific cod	1	Capelin	5.76	5.76	11	123	56.25	56.25	532
1999	1	Pacific cod	1	Unid. Osmerid	6.61	6.61	11	123	64.61	64.61	532
1999	1	Pacific cod	2	Gadidae	0.51	0.41	6	70	43.22	34.24	6121
1999	1	Pacific cod	2	King crab legs	11.4	5.24	6	70	960.6	441.56	6121
1999	1	Pacific cod	2	Pleuronectidae	0.95	0.7	6	70	80.14	59.31	6121
1999	1	Pacific cod	2	Unid. Osmerid	0.43	0.43	6	70	36.01	36.01	6121
1999	1	Pacific cod	2	Walleye pollock	11.5	11.5	6	70	969.62	969.62	6121
1999	1	Pacific cod	3	Gadidae	1.17	0.88	9	28	221.57	167.36	17685
1999	1	Pacific cod	3	King crab legs	7.68	5.62	9	28	1454.7	1065.35	17685
1999	1	Pacific cod	3	Lithodidae	5.86	5.7	9	28	224.85	218.74	17685

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	1	Pacific cod	3	Northern rock sole	7.3	4.4	9	28	1383.51	832.83	17685
1999	1	Pacific cod	3	*Paralithodes* sp.	2.7	2.7	9	28	103.5	103.5	17685
1999	1	Pacific cod	3	Pleuronectidae	26.66	8.57	9	28	5050.45	1623.42	17685
1999	1	Pacific cod	3	Walleye pollock	11.67	4.99	9	28	2210.26	944.21	17685
1999	1	Pacific cod	3	Yellowfin sole	1.65	1.65	9	28	312.3	312.3	17685
1999	1	Pacific halibut	2	Capelin	21.91	11.69	11	30	1114.32	594.64	3324
1999	1	Pacific halibut	2	Gadidae	9.35	7.54	11	30	475.27	383.66	3324
1999	1	Pacific halibut	2	Pleuronectidae	3.28	3.28	11	30	166.57	166.57	3324
1999	1	Pacific halibut	2	Unid. Osmerid	8.1	7.62	11	30	412.04	387.46	3324
1999	1	Pacific halibut	2	Walleye pollock	3.24	3.24	11	30	164.98	164.98	3324
1999	1	Pacific halibut	3	Capelin	10.24	10.24	2	3	499.71	499.71	7976
1999	1	Pacific halibut	3	Walleye pollock	50	50	2	3	2440.66	2440.66	7976
1999	1	Walleye pollock	4	Capelin	2.43	1.76	22	286	1543.64	1117.97	103985
1999	1	Walleye pollock	4	Gadidae	1.05	0.8	22	286	667.73	509.83	103985
1999	1	Walleye pollock	4	Pacific herring	2.71	1.81	22	286	1726.28	1151.71	103985
1999	1	Walleye pollock	4	Pleuronectidae	0.18	0.14	22	286	116.95	90.63	103985
1999	1	Walleye pollock	4	Unid. Osmerid	0.88	0.67	22	286	559.1	428.91	103985
1999	1	Walleye pollock	4	Walleye pollock	1.1	0.43	22	286	701.18	270.94	103985
1999	1	Walleye pollock	4	Yellowfin sole	0.08	0.08	22	286	51.98	51.98	103985
1999	1	Yellowfin sole	1	Offal	0.83	0.82	13	90	3503.01	3451.47	686444
1999	1	Yellowfin sole	1	Walleye pollock	5.48	5.48	13	90	23020.57	23020.57	686444
1999	2	Alaska plaice	1	Unid. Osmerid	0.02	0.02	5	45	16.53	16.53	103731
1999	2	Flathead sole	1	Gadidae	26.34	0	1	2	32.44	0	115
1999	2	Flathead sole	1	Walleye pollock	73.66	0	1	2	90.73	0	115
1999	2	Pacific cod	2	Gadidae	3.42	3.42	2	7	50.01	50.01	1062
1999	2	Pacific cod	2	Opilio snow crab	25.59	25.59	2	7	374.2	374.2	1062
1999	2	Pacific cod	2	Walleye pollock	3.29	3.29	2	7	48.09	48.09	1062
1999	2	Pacific cod	3	Gadidae	10.05	7.91	5	31	679.35	534.79	6310
1999	2	Pacific cod	3	Lithodidae	6.29	4.32	5	31	86.17	59.2	6310
1999	2	Pacific cod	3	Opilio snow crab	15.94	9.57	5	31	1076.89	646.92	6310
1999	2	Pacific cod	3	Pacific herring	2.96	2.03	5	31	199.72	137.18	6310
1999	2	Pacific cod	3	Pleuronectidae	15.76	14.93	5	31	1064.91	1008.79	6310
1999	2	Pacific cod	3	Unid. Osmerid	0.04	0.04	5	31	2.45	2.45	6310
1999	2	Pacific cod	3	Unid. *Chionoecetes*	15.39	13.56	5	31	1039.88	916.61	6310

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	2	Pacific cod	3	Walleye pollock	8.73	3.95	5	31	590.16	266.86	6310
1999	2	Pacific halibut	1	Walleye pollock	17.87	17.87	3	9	34.07	34.07	89
1999	2	Pacific halibut	2	Capelin	15.27	9.58	4	22	391.98	245.91	1678
1999	2	Pacific halibut	2	Gadidae	6.38	4.1	4	22	163.88	105.34	1678
1999	2	Pacific halibut	2	Pacific herring	2.63	2.63	4	22	67.54	67.54	1678
1999	2	Pacific halibut	2	Unid. Osmerid	12.48	12.48	4	22	320.5	320.5	1678
1999	2	Pacific halibut	2	Walleye pollock	35.28	14.71	4	22	905.8	377.67	1678
1999	2	Pacific halibut	3	Pacific herring	20.77	20.77	2	3	434.12	434.12	3416
1999	2	Pacific halibut	3	Pleuronectidae	4.79	4.79	2	3	100.23	100.23	3416
1999	2	Skates	1	Lithodidae	9.28	9.28	5	13	252.67	252.67	12550
1999	2	Skates	1	Pacific herring	0.47	0.47	5	13	63.28	63.28	12550
1999	2	Skates	1	*Paralithodes* sp.	0.9	0.9	5	13	24.5	24.5	12550
1999	2	Skates	1	Pleuronectidae	10.17	5.96	5	13	1366.46	801.54	12550
1999	2	Skates	1	Unid. *Chionoecetes*	21.12	14.61	5	13	2838.15	1963.78	12550
1999	2	Walleye pollock	1	Walleye pollock	8.51	8.51	11	74	87.37	87.37	610
1999	2	Walleye pollock	4	Capelin	5.99	3.63	15	203	1178.64	713.32	32147
1999	2	Walleye pollock	4	Gadidae	1.93	0.84	15	203	380.4	164.5	32147
1999	2	Walleye pollock	4	Pacific herring	25.27	4.81	15	203	4970.74	945.82	32147
1999	2	Walleye pollock	4	Unid. Osmerid	0.13	0.08	15	203	25.51	16.4	32147
1999	2	Walleye pollock	4	Walleye pollock	6.36	1.74	15	203	1252.14	342.3	32147
1999	3	Arrowtooth flounder	2	Gadidae	14.26	10.97	9	22	5219.21	4012.12	26572
1999	3	Arrowtooth flounder	2	Pleuronectidae	0.45	0.45	9	22	165.16	165.16	26572
1999	3	Arrowtooth flounder	2	Walleye pollock	38.62	15.5	9	22	14129.85	5671.76	26572
1999	3	Arrowtooth flounder	3	Gadidae	22.22	12.11	9	18	7299.47	3977.71	30670
1999	3	Arrowtooth flounder	3	Walleye pollock	66.67	14.44	9	18	21898.37	4741.56	30670
1999	3	Flathead sole	1	Gadidae	1.29	1.29	9	59	1928.46	1928.46	140049
1999	3	Flathead sole	1	Walleye pollock	28.58	14.47	9	59	42861.97	21700.69	140049
1999	3	Greenland turbot	3	Gadidae	99.02	0	1	1	358.29	0	473
1999	3	Pacific cod	1	Gadidae	1.77	1.29	21	69	146.24	106.7	4506
1999	3	Pacific cod	1	King crab legs	1.48	1.48	21	69	122.32	122.32	4506
1999	3	Pacific cod	1	Opilio snow crab	3.2	2.86	21	69	264.36	236.34	4506
1999	3	Pacific cod	1	Unid. Osmerid	0.36	0.36	21	69	29.99	29.99	4506
1999	3	Pacific cod	1	Walleye pollock	2.87	2.02	21	69	237.47	167.22	4506
1999	3	Pacific cod	2	Bairdi Tanner crab	5.78	2.71	27	204	10354.66	4856.33	130018

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	3	Pacific cod	2	Flathead sole	0.01	0.01	27	204	22.79	22.79	130018
1999	3	Pacific cod	2	Gadidae	1.89	1	27	204	3388.12	1794.68	130018
1999	3	Pacific cod	2	King crab legs	2.69	1.92	27	204	4820.22	3435.92	130018
1999	3	Pacific cod	2	Lithodidae	0.96	0.87	27	204	347.88	314.16	130018
1999	3	Pacific cod	2	Northern rock sole	2.4	1.67	27	204	4302.02	2994.66	130018
1999	3	Pacific cod	2	Opilio snow crab	5.11	3.71	27	204	9147.68	6642.5	130018
1999	3	Pacific cod	2	Pacific herring	1.82	1.82	27	204	3254.55	3254.55	130018
1999	3	Pacific cod	2	Pleuronectidae	0.09	0.08	27	204	162.55	146.2	130018
1999	3	Pacific cod	2	Unid. *Chionoecetes*	2.97	1.48	27	204	5325.95	2656.27	130018
1999	3	Pacific cod	2	Walleye pollock	4.75	2.1	27	204	8507.97	3751.35	130018
1999	3	Pacific cod	3	Bairdi Tanner crab	2.75	1.91	35	116	2049.4	1426.65	69572
1999	3	Pacific cod	3	Gadidae	2.57	0.84	35	116	1912.92	624.08	69572
1999	3	Pacific cod	3	King crab legs	0.15	0.15	35	116	112.19	112.19	69572
1999	3	Pacific cod	3	Lithodidae	4.61	2.29	35	116	696.58	345.36	69572
1999	3	Pacific cod	3	Northern rock sole	1.46	0.73	35	116	1086.7	545.82	69572
1999	3	Pacific cod	3	Offal	1.68	1.47	35	116	1252.62	1095.57	69572
1999	3	Pacific cod	3	Opilio snow crab	4.83	3.14	35	116	3599.34	2337.88	69572
1999	3	Pacific cod	3	Pacific cod	0.68	0.68	35	116	505.68	505.68	69572
1999	3	Pacific cod	3	Pacific herring	2.17	1.42	35	116	1617.42	1060.86	69572
1999	3	Pacific cod	3	*Paralithodes* sp.	0.56	0.56	35	116	84.86	84.86	69572
1999	3	Pacific cod	3	Pleuronectidae	11.39	3.96	35	116	8486.13	2950.92	69572
1999	3	Pacific cod	3	Red king crab	2.24	2.24	35	116	337.48	337.48	69572
1999	3	Pacific cod	3	Unid. Osmerid	1.12	1.12	35	116	832.08	832.08	69572
1999	3	Pacific cod	3	Unid. *Chionoecetes*	3.26	2.37	35	116	2428.97	1765.08	69572
1999	3	Pacific cod	3	Walleye pollock	43.15	7.16	35	116	32154.23	5338	69572
1999	3	Pacific cod	3	Yellowfin sole	0.77	0.77	35	116	573.28	573.28	69572
1999	3	Pacific halibut	2	Gadidae	9.09	5.52	14	37	2175.8	1321.42	15636
1999	3	Pacific halibut	2	Lithodidae	1.02	1.02	14	37	49.25	49.25	15636
1999	3	Pacific halibut	2	Offal	7.16	7.14	14	37	1713.84	1708.41	15636
1999	3	Pacific halibut	2	Unid. Osmerid	1.78	1.78	14	37	425.89	425.89	15636
1999	3	Pacific halibut	2	Walleye pollock	5.53	4.87	14	37	1322.36	1166	15636
1999	3	Pacific halibut	3	Bairdi Tanner crab	17.87	11.02	9	20	2773.56	1710.97	25361
1999	3	Pacific halibut	3	Gadidae	28.01	14.52	9	20	4347.5	2253.54	25361
1999	3	Pacific halibut	3	Opilio snow crab	1.23	1.23	9	20	190.96	190.96	25361

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	3	Pacific halibut	3	Pleuronectidae	3.04	3.04	9	20	472.47	472.47	25361
1999	3	Pacific halibut	3	Unid. *Chionoecetes*	0.31	0.24	9	20	48.14	36.9	25361
1999	3	Pacific halibut	3	Walleye pollock	43.82	16.87	9	20	6801.43	2618.77	25361
1999	3	Skates	1	Bairdi Tanner crab	7.95	5.3	10	56	6708.78	4474.42	78836
1999	3	Skates	1	Gadidae	8.74	4.58	10	56	7377.62	3867.52	78836
1999	3	Skates	1	Lithodidae	5.59	5.59	10	56	955.71	955.71	78836
1999	3	Skates	1	Northern rock sole	1.34	1.34	10	56	1131.91	1131.91	78836
1999	3	Skates	1	Offal	0.75	0.54	10	56	633.25	454.16	78836
1999	3	Skates	1	Pleuronectidae	0.82	0.61	10	56	694.61	515.64	78836
1999	3	Skates	1	Unid. Osmerid	0.01	0.01	10	56	12.23	12.23	78836
1999	3	Skates	1	Unid. *Chionoecetes*	8.37	4.1	10	56	7066.34	3460.6	78836
1999	3	Skates	1	Walleye pollock	23.78	10.14	10	56	20080.03	8559.39	78836
1999	3	Walleye pollock	1	Gadidae	3.27	2.88	24	130	340.8	300.34	6188
1999	3	Walleye pollock	1	Offal	0.94	0.94	24	130	98.17	98.17	6188
1999	3	Walleye pollock	1	Walleye pollock	8.72	5.31	24	130	908.56	552.56	6188
1999	3	Walleye pollock	2	Gadidae	0.55	0.55	18	134	98.47	98.47	10626
1999	3	Walleye pollock	2	Offal	1.1	1.1	18	134	196.86	196.86	10626
1999	3	Walleye pollock	2	Walleye pollock	1.05	1.05	18	134	188.1	188.1	10626
1999	3	Walleye pollock	3	Gadidae	0.88	0.6	25	232	758.09	519.85	70425
1999	3	Walleye pollock	3	Offal	4.56	2.98	25	232	3929.7	2570.63	70425
1999	3	Walleye pollock	3	Pleuronectidae	0.05	0.05	25	232	46.92	46.92	70425
1999	3	Walleye pollock	3	Walleye pollock	0.57	0.39	25	232	487.75	339.18	70425
1999	3	Walleye pollock	4	Capelin	0.47	0.47	37	466	1049.18	1049.18	360972
1999	3	Walleye pollock	4	Gadidae	2.02	1.08	37	466	4457.05	2396.7	360972
1999	3	Walleye pollock	4	Offal	1.27	1.27	37	466	2809.36	2809.36	360972
1999	3	Walleye pollock	4	Pacific herring	0.76	0.47	37	466	1687.23	1037.73	360972
1999	3	Walleye pollock	4	Pleuronectidae	0.04	0.03	37	466	81.19	58	360972
1999	3	Walleye pollock	4	Unid. Osmerid	2.66	1.93	37	466	5872.93	4252.64	360972
1999	3	Walleye pollock	4	Walleye pollock	15.75	4.13	37	466	34791.38	9127.96	360972
1999	3	Yellowfin sole	1	Offal	5.08	5.08	12	85	11102.81	11102.81	357324
1999	4	Arrowtooth flounder	2	Gadidae	5.65	5.65	2	6	118.04	118.04	1516
1999	4	Arrowtooth flounder	2	Walleye pollock	86.8	13.2	2	6	1811.93	275.6	1516
1999	4	Arrowtooth flounder	3	Gadidae	0.46	0.46	2	5	4.97	4.97	1018
1999	4	Arrowtooth flounder	3	Walleye pollock	99.51	0.49	2	5	1084.9	5.38	1018

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	4	Flathead sole	1	Bairdi Tanner crab	0.62	0.32	10	62	252.84	129.9	37818
1999	4	Flathead sole	1	Gadidae	1.52	1.03	10	62	615.92	417.56	37818
1999	4	Flathead sole	1	Opilio snow crab	0.55	0.55	10	62	223.5	223.5	37818
1999	4	Flathead sole	1	Unid. *Chionoecetes*	0.04	0.04	10	62	14.47	14.47	37818
1999	4	Flathead sole	1	Walleye pollock	28.86	12.06	10	62	11687.5	4885.22	37818
1999	4	Greenland turbot	2	Walleye pollock	50	50	2	2	64.64	64.64	65
1999	4	Northern rock sole	1	Opilio snow crab	0.6	0.6	10	59	1506.41	1506.41	235669
1999	4	Pacific cod	1	Gadidae	0.96	0.69	22	99	88.96	63.96	5040
1999	4	Pacific cod	1	Pacific herring	0.12	0.12	22	99	10.72	10.72	5040
1999	4	Pacific cod	1	Unid. *Chionoecetes*	0.03	0.02	22	99	3.03	2.2	5040
1999	4	Pacific cod	1	Walleye pollock	9.82	4.86	22	99	908.78	449.76	5040
1999	4	Pacific cod	2	Bairdi Tanner crab	3.74	2.05	24	140	5179.35	2844.23	100662
1999	4	Pacific cod	2	Gadidae	0.11	0.11	24	140	159.26	148.09	100662
1999	4	Pacific cod	2	King crab legs	1.4	1.24	24	140	1935.2	1719.24	100662
1999	4	Pacific cod	2	Opilio snow crab	13.6	4.4	24	140	18850.36	6099.9	100662
1999	4	Pacific cod	2	Pacific herring	4.33	2.72	24	140	6004.54	3764.98	100662
1999	4	Pacific cod	2	Unid. *Chionoecetes*	4.9	1.78	24	140	6785.49	2465.17	100662
1999	4	Pacific cod	2	Walleye pollock	9.9	5.04	24	140	13721.08	6986.36	100662
1999	4	Pacific cod	3	Arrowtooth flounder	0.04	0.04	22	112	35.28	35.28	81149
1999	4	Pacific cod	3	Bairdi Tanner crab	0.36	0.22	22	112	314.29	190.72	81149
1999	4	Pacific cod	3	Flathead sole	1.6	1.6	22	112	1390.39	1390.39	81149
1999	4	Pacific cod	3	Gadidae	7.3	3.24	22	112	6340.77	2814.17	81149
1999	4	Pacific cod	3	King crab legs	0.17	0.17	22	112	147.59	147.59	81149
1999	4	Pacific cod	3	Northern rock sole	1.59	1.31	22	112	1377.55	1134.26	81149
1999	4	Pacific cod	3	Offal	0.38	0.38	22	112	334.54	334.54	81149
1999	4	Pacific cod	3	Opilio snow crab	14.93	4.11	22	112	12976.74	3569.18	81149
1999	4	Pacific cod	3	Pacific cod	0.58	0.58	22	112	506.6	506.6	81149
1999	4	Pacific cod	3	Pacific herring	6.33	2.89	22	112	5500.02	2508.54	81149
1999	4	Pacific cod	3	Pleuronectidae	2.28	1.48	22	112	1984.17	1287.37	81149
1999	4	Pacific cod	3	Unid. *Chionoecetes*	15.02	6.01	22	112	13052.62	5227.63	81149
1999	4	Pacific cod	3	Walleye pollock	27.26	6.49	22	112	23692.72	5638.05	81149
1999	4	Pacific cod	3	Yellowfin sole	1.71	1.48	22	112	1482.76	1283.72	81149
1999	4	Pacific halibut	2	Bairdi Tanner crab	0.68	0.49	12	32	46.27	33.68	4452
1999	4	Pacific halibut	2	Gadidae	0.64	0.36	12	32	43.83	24.49	4452

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	4	Pacific halibut	2	Unid. *Chionoecetes*	1.12	0.98	12	32	76.46	66.47	4452
1999	4	Pacific halibut	2	Walleye pollock	0.48	0.48	12	32	32.51	32.51	4452
1999	4	Pacific halibut	3	Bairdi Tanner crab	8.95	8.95	7	13	944.97	944.97	17256
1999	4	Pacific halibut	3	Gadidae	24.75	14.44	7	13	2613.81	1524.65	17256
1999	4	Pacific halibut	3	Opilio snow crab	11.93	11.93	7	13	1260.21	1260.21	17256
1999	4	Pacific halibut	3	Pleuronectidae	7.12	7.12	7	13	751.99	751.99	17256
1999	4	Pacific halibut	3	Walleye pollock	19.32	13.82	7	13	2040.16	1459.63	17256
1999	4	Skates	1	Bairdi Tanner crab	2.81	2.53	25	160	1911.72	1723.78	63498
1999	4	Skates	1	Gadidae	0.15	0.08	25	160	104.3	52.97	63498
1999	4	Skates	1	Northern rock sole	4.72	3.37	25	160	3207.17	2289.68	63498
1999	4	Skates	1	Offal	0.88	0.88	25	160	600.68	600.68	63498
1999	4	Skates	1	Opilio snow crab	1.04	0.71	25	160	705.71	484.23	63498
1999	4	Skates	1	Pacific herring	1.77	1.22	25	160	1201.87	831.27	63498
1999	4	Skates	1	Pleuronectidae	5.05	2.83	25	160	3434.66	1925.67	63498
1999	4	Skates	1	Unid. *Chionoecetes*	11.79	4.15	25	160	8020.95	2820.36	63498
1999	4	Skates	1	Walleye pollock	9.73	4.66	25	160	6614.04	3166.34	63498
1999	4	Skates	1	Yellowfin sole	3.66	3.66	25	160	2485.73	2485.73	63498
1999	4	Walleye pollock	1	Walleye pollock	1.76	1.76	43	340	262.53	262.53	8869
1999	4	Walleye pollock	3	Gadidae	0.27	0.26	22	267	734.82	726.03	226446
1999	4	Walleye pollock	3	Pacific herring	1.25	1.25	22	267	3451.68	3451.68	226446
1999	4	Walleye pollock	3	Walleye pollock	5.11	2.81	22	267	14162.88	7775.5	226446
1999	4	Walleye pollock	4	Capelin	0.07	0.07	39	410	133.85	133.85	321980
1999	4	Walleye pollock	4	Gadidae	3.15	1.52	39	410	6208.12	2992.99	321980
1999	4	Walleye pollock	4	Offal	0.06	0.06	39	410	119.38	119.38	321980
1999	4	Walleye pollock	4	Pacific herring	10.19	3.3	39	410	20076.22	6511.12	321980
1999	4	Walleye pollock	4	Pleuronectidae	0.02	0.02	39	410	46.39	46.39	321980
1999	4	Walleye pollock	4	Unid. Osmerid	0.24	0.24	39	410	468.74	468.74	321980
1999	4	Walleye pollock	4	Walleye pollock	12.94	4.07	39	410	25490.76	8012.36	321980
1999	5	Arrowtooth flounder	2	Gadidae	19.81	19.81	5	9	5175.83	5175.83	18972
1999	5	Arrowtooth flounder	2	Walleye pollock	16.7	16.7	5	9	4361.8	4361.8	18972
1999	5	Arrowtooth flounder	3	Gadidae	1.12	1.12	5	16	1279.15	1279.15	107074
1999	5	Arrowtooth flounder	3	Unid. Osmerid	19.75	19.75	5	16	22644.01	22644.01	107074
1999	5	Arrowtooth flounder	3	Walleye pollock	58.24	23.81	5	16	66783.6	27306.56	107074
1999	5	Flathead sole	1	Bairdi Tanner crab	28.04	28.04	3	21	12678.37	12678.37	42224

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	5	Pacific cod	2	Bairdi Tanner crab	23.16	10.19	4	24	2283.07	1004.71	7159
1999	5	Pacific cod	2	Opilio snow crab	0.54	0.54	4	24	52.75	52.75	7159
1999	5	Pacific cod	2	Pleuronectidae	2.16	2.16	4	24	212.44	212.44	7159
1999	5	Pacific cod	2	Unid. Osmerid	1.56	1.56	4	24	154.24	154.24	7159
1999	5	Pacific cod	2	Unid. *Chionoecetes*	26.25	16.8	4	24	2587.97	1656.16	7159
1999	5	Pacific cod	2	Walleye pollock	4.78	4.78	4	24	470.75	470.75	7159
1999	5	Pacific cod	3	Bairdi Tanner crab	28.01	7.53	4	16	4282.99	1150.58	14276
1999	5	Pacific cod	3	Gadidae	5.69	5.33	4	16	869.82	815.12	14276
1999	5	Pacific cod	3	Opilio snow crab	0.85	0.85	4	16	129.45	129.45	14276
1999	5	Pacific cod	3	Pleuronectidae	0.18	0.18	4	16	27.8	27.8	14276
1999	5	Pacific cod	3	Unid. *Chionoecetes*	10.2	4.74	4	16	1558.95	724.76	14276
1999	5	Pacific cod	3	Walleye pollock	4.44	2.38	4	16	678.32	363.14	14276
1999	5	Pacific halibut	2	Bairdi Tanner crab	31.88	31.88	2	8	270.26	270.26	554
1999	5	Pacific halibut	2	Offal	1.61	1.61	2	8	13.62	13.62	554
1999	5	Pacific halibut	2	Opilio snow crab	1.25	1.25	2	8	10.63	10.63	554
1999	5	Pacific halibut	2	Unid. *Chionoecetes*	20.11	20.11	2	8	170.5	170.5	554
1999	5	Pacific halibut	3	Bairdi Tanner crab	1.03	0.75	5	7	54.11	39.18	8573
1999	5	Pacific halibut	3	Offal	19.74	19.74	5	7	1035.51	1035.51	8573
1999	5	Pacific halibut	3	Walleye pollock	55.97	22.95	5	7	2936.73	1204.12	8573
1999	5	Skates	1	Gadidae	0.81	0.81	6	35	822.04	822.04	94343
1999	5	Skates	1	Opilio snow crab	0.66	0.66	6	35	670.61	670.61	94343
1999	5	Skates	1	Unid. *Chionoecetes*	0.73	0.69	6	35	740.29	698.63	94343
1999	5	Skates	1	Walleye pollock	63.08	20	6	35	63740.81	20205.38	94343
1999	5	Walleye pollock	3	Gadidae	0.05	0.05	13	101	16.71	16.71	28762
1999	5	Walleye pollock	3	Offal	4.07	4.07	13	101	1433.27	1433.27	28762
1999	5	Walleye pollock	3	Pleuronectidae	0.12	0.09	13	101	42.3	31.44	28762
1999	5	Walleye pollock	4	Gadidae	5.08	2.78	13	99	1015.5	556.08	32638
1999	5	Walleye pollock	4	Offal	2.77	2.77	13	99	554.18	554.18	32638
1999	5	Walleye pollock	4	Pacific herring	2.44	2.44	13	99	487.29	487.29	32638
1999	5	Walleye pollock	4	Walleye pollock	14.24	6.6	13	99	2843.82	1317.37	32638
1999	6	Arrowtooth flounder	2	Gadidae	1.49	1.49	10	17	250.73	250.73	12241
1999	6	Arrowtooth flounder	2	Walleye pollock	36.23	15.19	10	17	6106.21	2559.59	12241
1999	6	Arrowtooth flounder	3	Gadidae	10.97	6.63	16	61	5209.59	3150.85	44355
1999	6	Arrowtooth flounder	3	Walleye pollock	81.99	8.59	16	61	38950.36	4079.08	44355

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	6	Flathead sole	1	Bairdi Tanner crab	3.79	2.87	12	67	6182.3	4682.71	152470
1999	6	Flathead sole	1	Unid. *Chionoecetes*	3.05	2.72	12	67	4975.73	4434.87	152470
1999	6	Flathead sole	1	Walleye pollock	7.5	5.9	12	67	12252.63	9629.87	152470
1999	6	Greenland turbot	1	Walleye pollock	100	0	2	2	178.4	0	106
1999	6	Greenland turbot	2	Gadidae	33.33	33.33	3	3	211.5	211.5	319
1999	6	Greenland turbot	2	Walleye pollock	66.67	33.33	3	3	422.99	211.5	319
1999	6	Greenland turbot	3	Bairdi Tanner crab	0.04	0.04	16	24	5.92	5.92	18285
1999	6	Greenland turbot	3	Gadidae	6.47	6.2	16	24	905.29	866.65	18285
1999	6	Greenland turbot	3	Northern rock sole	6.25	6.25	16	24	874.25	874.25	18285
1999	6	Greenland turbot	3	Offal	2.89	2.01	16	24	404.5	280.61	18285
1999	6	Greenland turbot	3	Pleuronectidae	0.06	0.06	16	24	8.71	8.71	18285
1999	6	Greenland turbot	3	Walleye pollock	84.28	8.47	16	24	11789.29	1184.84	18285
1999	6	Pacific cod	2	Arrowtooth flounder	0.83	0.83	18	121	693.64	693.64	60620
1999	6	Pacific cod	2	Bairdi Tanner crab	6.96	2.09	18	121	5806.36	1745.07	60620
1999	6	Pacific cod	2	Flathead sole	0.28	0.28	18	121	230.01	230.01	60620
1999	6	Pacific cod	2	Gadidae	0.76	0.35	18	121	638.33	294.39	60620
1999	6	Pacific cod	2	Lithodidae	0.35	0.26	18	121	58.39	43.9	60620
1999	6	Pacific cod	2	Offal	1.71	1.71	18	121	1426.51	1426.51	60620
1999	6	Pacific cod	2	Opilio snow crab	6.25	2.48	18	121	5216.36	2067.66	60620
1999	6	Pacific cod	2	Pacific herring	0.35	0.35	18	121	293.15	293.15	60620
1999	6	Pacific cod	2	Pleuronectidae	0.08	0.05	18	121	65.59	38.39	60620
1999	6	Pacific cod	2	Unid. *Chionoecetes*	3.58	1.24	18	121	2986.07	1032.65	60620
1999	6	Pacific cod	2	Walleye pollock	4.26	1.81	18	121	3555.24	1510.53	60620
1999	6	Pacific cod	3	Bairdi Tanner crab	7.39	2.52	20	108	6205.04	2110.69	78348
1999	6	Pacific cod	3	Flathead sole	1.32	0.72	20	108	1103.77	606.91	78348
1999	6	Pacific cod	3	Gadidae	2.2	1.09	20	108	1846.52	914.55	78348
1999	6	Pacific cod	3	Lithodidae	1.49	1.18	20	108	253.16	200.75	78348
1999	6	Pacific cod	3	Offal	1.49	1.49	20	108	1249.45	1249.45	78348
1999	6	Pacific cod	3	Opilio snow crab	13.3	4.27	20	108	11159.77	3586.62	78348
1999	6	Pacific cod	3	Pacific cod	3.98	3.98	20	108	3341.21	3341.21	78348
1999	6	Pacific cod	3	Pleuronectidae	0.26	0.16	20	108	219.8	136.4	78348
1999	6	Pacific cod	3	Unid. *Chionoecetes*	3.25	1.56	20	108	2727.47	1311.57	78348
1999	6	Pacific cod	3	Walleye pollock	43.76	7.37	20	108	36717.32	6187.21	78348
1999	6	Pacific halibut	2	Bairdi Tanner crab	3.35	2.34	7	12	92.11	64.21	1796

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
1999	6	Pacific halibut	2	Gadidae	5.99	5.43	7	12	164.66	149.31	1796
1999	6	Pacific halibut	2	Walleye pollock	24.69	10.04	7	12	678.56	275.78	1796
1999	6	Pacific halibut	3	Bairdi Tanner crab	0.75	0.4	13	37	175.52	94.7	38360
1999	6	Pacific halibut	3	Gadidae	4.91	2.86	13	37	1153.36	670.98	38360
1999	6	Pacific halibut	3	Offal	0.62	0.62	13	37	144.94	144.94	38360
1999	6	Pacific halibut	3	Opilio snow crab	7.87	7.22	13	37	1847.64	1696.01	38360
1999	6	Pacific halibut	3	Pacific cod	2.31	2.31	13	37	541.32	541.32	38360
1999	6	Pacific halibut	3	Unid. *Chionoecetes*	0.76	0.46	13	37	178.85	108.7	38360
1999	6	Pacific halibut	3	Walleye pollock	71.59	9.67	13	37	16807.36	2270.79	38360
1999	6	Skates	1	Bairdi Tanner crab	5.28	4.53	13	68	6468.44	5548.3	114440
1999	6	Skates	1	Gadidae	0.06	0.06	13	68	78.51	78.51	114440
1999	6	Skates	1	Offal	15.14	7.7	13	68	18559.5	9437.33	114440
1999	6	Skates	1	Opilio snow crab	0.14	0.14	13	68	170.21	170.21	114440
1999	6	Skates	1	Pacific salmon	5.6	5.6	13	68	6866.23	6866.23	114440
1999	6	Skates	1	Unid. *Chionoecetes*	2.7	1.28	13	68	3312.27	1567.14	114440
1999	6	Skates	1	Walleye pollock	16.95	7.74	13	68	20768.77	9481.36	114440
1999	6	Walleye pollock	2	Gadidae	0.02	0.02	39	350	86.56	86.56	286518
1999	6	Walleye pollock	2	Offal	0.04	0.04	39	350	181.69	181.69	286518
1999	6	Walleye pollock	2	Walleye pollock	0.15	0.15	39	350	705.36	705.36	286518
1999	6	Walleye pollock	3	Gadidae	0.2	0.16	40	470	3506.82	2784.1	1.00E+06
1999	6	Walleye pollock	3	Offal	1.29	1.14	40	470	22557.26	20065.35	1.00E+06
1999	6	Walleye pollock	3	Pleuronectidae	0.01	0.01	40	470	128.34	90.04	1.00E+06
1999	6	Walleye pollock	3	Unid. *Chionoecetes*	0	0	40	470	2.41	2.41	1.00E+06
1999	6	Walleye pollock	3	Walleye pollock	1.91	1.42	40	470	33506.72	24966.62	1.00E+06
1999	6	Walleye pollock	4	Gadidae	4.69	2.24	34	226	15636.89	7468.65	544870
1999	6	Walleye pollock	4	Greenland turbot	0.14	0.14	34	226	461.76	461.76	544870
1999	6	Walleye pollock	4	Offal	9.38	3.93	34	226	31269	13115	544870
1999	6	Walleye pollock	4	Pleuronectidae	0.17	0.17	34	226	568.63	552.97	544870
1999	6	Walleye pollock	4	Walleye pollock	19.9	4.99	34	226	66349.04	16643.61	544870
2000	1	Arrowtooth flounder	1	Walleye pollock	87.81	0	1	3	13.3	0	11
2000	1	Arrowtooth flounder	2	Gadidae	10.96	0	1	5	12.37	0	82
2000	1	Arrowtooth flounder	2	Walleye pollock	71.72	0	1	5	80.98	0	82
2000	1	Flathead sole	1	Walleye pollock	42.61	28.99	2	14	4819.82	3279.7	10562
2000	1	Northern rock sole	1	Gadidae	2.53	2.53	3	43	34159.18	34159.18	1.00E+06

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2000	1	Pacific cod	1	Gadidae	3.39	2.2	21	159	242.96	158.01	3909
2000	1	Pacific cod	1	Unid. Osmerid	0.07	0.07	21	159	5.19	5.19	3909
2000	1	Pacific cod	1	Unid. *Chionoecetes*	1.31	0.91	21	159	94.01	65.44	3909
2000	1	Pacific cod	1	Walleye pollock	6.82	3.56	21	159	489.75	255.7	3909
2000	1	Pacific cod	2	Bairdi Tanner crab	1.72	1.72	20	122	710.42	710.42	29936
2000	1	Pacific cod	2	Gadidae	0.17	0.12	20	122	70.06	51.11	29936
2000	1	Pacific cod	2	King crab legs	0.66	0.66	20	122	273.03	273.03	29936
2000	1	Pacific cod	2	Lithodidae	4.11	4.11	20	122	343.44	343.44	29936
2000	1	Pacific cod	2	Northern rock sole	0.66	0.66	20	122	273.29	273.29	29936
2000	1	Pacific cod	2	Offal	0.95	0.95	20	122	392.42	392.42	29936
2000	1	Pacific cod	2	Opilio snow crab	3.83	2.95	20	122	1578.98	1217.83	29936
2000	1	Pacific cod	2	Pacific halibut	3.16	3.16	20	122	1302.98	1302.98	29936
2000	1	Pacific cod	2	Paralithodes sp.	0	0	20	122	0.08	0.08	29936
2000	1	Pacific cod	2	Pleuronectidae	3.06	1.77	20	122	1260.07	728.78	29936
2000	1	Pacific cod	2	Unid. Osmerid	0.22	0.21	20	122	91.51	87.52	29936
2000	1	Pacific cod	2	Unid. *Chionoecetes*	3.78	2.31	20	122	1557.97	950.44	29936
2000	1	Pacific cod	2	Walleye pollock	5.76	3.45	20	122	2374.8	1423.8	29936
2000	1	Pacific cod	3	Flathead sole	1.13	1.13	19	40	371.56	371.56	30769
2000	1	Pacific cod	3	Gadidae	3.93	2.17	19	40	1293.64	714.84	30769
2000	1	Pacific cod	3	King crab legs	0.39	0.39	19	40	130	130	30769
2000	1	Pacific cod	3	Northern rock sole	7.7	4.39	19	40	2539.02	1445.14	30769
2000	1	Pacific cod	3	Opilio snow crab	2	2	19	40	659.44	659.44	30769
2000	1	Pacific cod	3	Pacific cod	1.26	0.9	19	40	415.42	295.46	30769
2000	1	Pacific cod	3	*Paralithodes* sp.	5.26	5.26	19	40	351.41	351.41	30769
2000	1	Pacific cod	3	Pleuronectidae	4.14	2.24	19	40	1362.83	737.18	30769
2000	1	Pacific cod	3	Unid. *Chionoecetes*	3.67	2.38	19	40	1208.93	782.68	30769
2000	1	Pacific cod	3	Walleye pollock	21.65	8.13	19	40	7133.65	2680.62	30769
2000	1	Pacific halibut	2	Capelin	13.69	13.69	3	17	1277.72	1277.72	6100
2000	1	Pacific halibut	2	Gadidae	0.71	0.71	3	17	66.47	66.47	6100
2000	1	Pacific halibut	2	Northern rock sole	5.33	3.59	3	17	497.32	335.09	6100
2000	1	Pacific halibut	2	Walleye pollock	8.56	8.56	3	17	798.78	798.78	6100
2000	1	Pacific halibut	3	Capelin	3.68	3.68	3	6	336.2	336.2	14940
2000	1	Pacific halibut	3	Pleuronectidae	0.72	0.72	3	6	66.11	66.11	14940
2000	1	Pacific halibut	3	Walleye pollock	68.55	22.2	3	6	6267.58	2029.45	14940

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2000	1	Skates	1	Bairdi Tanner crab	0.56	0.46	18	51	153.75	125.27	25449
2000	1	Skates	1	Offal	2.88	2.88	18	51	783.75	783.75	25449
2000	1	Skates	1	Opilio snow crab	9.23	5.88	18	51	2516.21	1603.41	25449
2000	1	Skates	1	Pleuronectidae	6.22	3.15	18	51	1695.64	858.6	25449
2000	1	Skates	1	Unid. *Chionoecetes*	4.75	2.69	18	51	1294.43	732.84	25449
2000	1	Skates	1	Walleye pollock	6.28	5.55	18	51	1711.2	1511.52	25449
2000	1	Skates	1	Yellowfin sole	2.36	1.93	18	51	644.14	527.34	25449
2000	1	Walleye pollock	1	Gadidae	1.37	1.37	20	179	51.32	51.32	2218
2000	1	Walleye pollock	1	Unid. *Chionoecetes*	0.53	0.53	20	179	19.72	19.72	2218
2000	1	Walleye pollock	1	Walleye pollock	4.01	4.01	20	179	149.74	149.74	2218
2000	1	Walleye pollock	2	Walleye pollock	77.76	2.45	2	3			
2000	1	Walleye pollock	4	Arrowtooth flounder	0.29	0.29	28	405	426.98	426.98	239129
2000	1	Walleye pollock	4	Capelin	3.74	1.61	28	405	5476.33	2349.15	239129
2000	1	Walleye pollock	4	Gadidae	1.1	0.5	28	405	1605.55	726.14	239129
2000	1	Walleye pollock	4	Northern rock sole	1.77	1.07	28	405	2583.38	1560.38	239129
2000	1	Walleye pollock	4	Pacific cod	0.18	0.18	28	405	259.62	259.62	239129
2000	1	Walleye pollock	4	Pacific herring	0.25	0.25	28	405	368.43	368.43	239129
2000	1	Walleye pollock	4	Pleuronectidae	1.06	0.83	28	405	1547.64	1214.3	239129
2000	1	Walleye pollock	4	Unid. Osmerid	0.37	0.33	28	405	539.53	478.52	239129
2000	1	Walleye pollock	4	Walleye pollock	9.01	3.31	28	405	13193.1	4851.18	239129
2000	2	Northern rock sole	1	Walleye pollock	3.86	3.86	2	22	10456.17	10456.17	252880
2000	2	Pacific cod	1	Walleye pollock	3.04	2.08	12	54	51.9	35.53	930
2000	2	Pacific cod	2	Northern rock sole	1.79	1.79	9	58	196.22	196.22	7944
2000	2	Pacific cod	2	Offal	0.13	0.13	9	58	13.73	13.73	7944
2000	2	Pacific cod	2	Opilio snow crab	11.79	6.07	9	58	1289.23	664.11	7944
2000	2	Pacific cod	2	Pacific herring	2.95	2.95	9	58	322.51	322.51	7944
2000	2	Pacific cod	2	Pleuronectidae	7.05	7.05	9	58	771.57	771.57	7944
2000	2	Pacific cod	2	Unid. *Chionoecetes*	3.29	2.78	9	58	359.86	304.2	7944
2000	2	Pacific cod	2	Walleye pollock	5.4	3.18	9	58	590.37	348.05	7944
2000	2	Pacific cod	3	Gadidae	1.52	1.52	9	19	120.11	120.11	7369
2000	2	Pacific cod	3	Opilio snow crab	38.02	13.21	9	19	3000.88	1042.33	7369
2000	2	Pacific cod	3	Pacific cod	0.23	0.23	9	19	18.1	18.1	7369
2000	2	Pacific cod	3	Pleuronectidae	0.64	0.64	9	19	50.37	50.37	7369
2000	2	Pacific cod	3	Unid. *Chionoecetes*	9.87	9.22	9	19	779.29	727.34	7369

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2000	2	Pacific cod	3	Walleye pollock	10.55	6.57	9	19	832.5	518.54	7369
2000	2	Pacific halibut	2	Gadidae	51.69	0	1	2	2805.9	0	3548
2000	2	Pacific halibut	3	Gadidae	100	0	1	1	3915.58	0	6398
2000	2	Skates	1	Bairdi Tanner crab	1.79	1.79	10	80	724.03	724.03	37822
2000	2	Skates	1	Gadidae	0.15	0.15	10	80	62.1	62.1	37822
2000	2	Skates	1	Opilio snow crab	7.95	6.74	10	80	3222.09	2731.99	37822
2000	2	Skates	1	Pacific herring	0.06	0.06	10	80	24.42	24.42	37822
2000	2	Skates	1	Pleuronectidae	6.14	3.2	10	80	2488.69	1296.84	37822
2000	2	Skates	1	Unid. *Chionoecetes*	18.09	5.57	10	80	7329.29	2256.9	37822
2000	2	Skates	1	Walleye pollock	2.68	1.48	10	80	1087.28	600.3	37822
2000	2	Walleye pollock	4	Capelin	0.41	0.32	14	164	204.74	159.76	82507
2000	2	Walleye pollock	4	Gadidae	2.63	1.42	14	164	1329.56	716.94	82507
2000	2	Walleye pollock	4	Northern rock sole	0.93	0.64	14	164	468.45	322.77	82507
2000	2	Walleye pollock	4	Pacific cod	0.63	0.63	14	164	318.1	318.1	82507
2000	2	Walleye pollock	4	Pacific herring	2.18	2.18	14	164	1099.14	1099.14	82507
2000	2	Walleye pollock	4	Unid. Osmerid	0.72	0.7	14	164	364.24	352.85	82507
2000	2	Walleye pollock	4	Walleye pollock	12.57	4.33	14	164	6347.42	2188.75	82507
2000	3	Arrowtooth flounder	2	Capelin	1.47	1.47	10	43	447.66	447.66	22050
2000	3	Arrowtooth flounder	2	Gadidae	11.93	9.85	10	43	3621.12	2992.18	22050
2000	3	Arrowtooth flounder	2	Walleye pollock	31.08	14	10	43	9437.68	4251.45	22050
2000	3	Arrowtooth flounder	3	Gadidae	1.22	0.97	12	31	499.38	396.3	38283
2000	3	Arrowtooth flounder	3	Walleye pollock	60.33	13.59	12	31	24736.52	5571.14	38283
2000	3	Pacific cod	1	Northern rock sole	0.16	0.16	16	59	4.31	4.31	1457
2000	3	Pacific cod	1	Walleye pollock	0.38	0.38	16	59	10.14	10.14	1457
2000	3	Pacific cod	2	Bairdi Tanner crab	0.36	0.3	18	140	367.6	303.19	73911
2000	3	Pacific cod	2	Flathead sole	2.3	2.3	18	140	2344.97	2344.97	73911
2000	3	Pacific cod	2	Gadidae	0.39	0.19	18	140	393.22	195.75	73911
2000	3	Pacific cod	2	Lithodidae	3.44	3.44	18	140	710.18	710.18	73911
2000	3	Pacific cod	2	Opilio snow crab	9.81	3.67	18	140	9979.93	3736.7	73911
2000	3	Pacific cod	2	Pleuronectidae	2.26	1.31	18	140	2301.6	1338	73911
2000	3	Pacific cod	2	Unid. Osmerid	0.27	0.27	18	140	271.89	271.89	73911
2000	3	Pacific cod	2	Unid. *Chionoecetes*	8.07	2.98	18	140	8209.67	3037.35	73911
2000	3	Pacific cod	2	Walleye pollock	6.44	3.79	18	140	6550.55	3862.06	73911
2000	3	Pacific cod	3	Bairdi Tanner crab	4.01	2.87	20	80	1869.19	1338.02	43503

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2000	3	Pacific cod	3	Flathead sole	0.88	0.74	20	80	411.6	346.66	43503
2000	3	Pacific cod	3	Gadidae	0.4	0.24	20	80	188.24	110.52	43503
2000	3	Pacific cod	3	King crab legs	0.09	0.09	20	80	40.44	40.44	43503
2000	3	Pacific cod	3	Lithodidae	0.11	0.11	20	80	10.37	10.37	43503
2000	3	Pacific cod	3	Northern rock sole	2.04	2.04	20	80	952.43	952.43	43503
2000	3	Pacific cod	3	Opilio snow crab	8.36	5	20	80	3895.94	2330.26	43503
2000	3	Pacific cod	3	Pacific cod	0.01	0.01	20	80	5.15	5.15	43503
2000	3	Pacific cod	3	Pacific herring	0.02	0.02	20	80	10.09	10.09	43503
2000	3	Pacific cod	3	*Paralithodes* sp.	0.77	0.77	20	80	72.98	72.98	43503
2000	3	Pacific cod	3	Pleuronectidae	1.55	1.07	20	80	720.08	499.94	43503
2000	3	Pacific cod	3	Red king crab	1.05	1.05	20	80	98.85	98.85	43503
2000	3	Pacific cod	3	Unid. *Chionoecetes*	1.83	1.01	20	80	851.25	470.28	43503
2000	3	Pacific cod	3	Walleye pollock	46.03	9.19	20	80	21444.96	4284.02	43503
2000	3	Pacific cod	3	Yellowfin sole	8.75	5.35	20	80	4075.8	2490.53	43503
2000	3	Skates	1	Bairdi Tanner crab	1.87	0.92	25	90	1081.75	533.23	54109
2000	3	Skates	1	Gadidae	1.29	1.29	25	90	747.5	747.5	54109
2000	3	Skates	1	Offal	5.4	3.78	25	90	3129.7	2188.69	54109
2000	3	Skates	1	Opilio snow crab	1.34	0.75	25	90	774.66	435.59	54109
2000	3	Skates	1	Pleuronectidae	4.76	2.54	25	90	2756.7	1469.26	54109
2000	3	Skates	1	Unid. *Chionoecetes*	10.68	3.84	25	90	6189.26	2226.73	54109
2000	3	Skates	1	Walleye pollock	4.07	3.29	25	90	2356.11	1905.9	54109
2000	3	Skates	1	Yellowfin sole	1.86	1.86	25	90	1078.52	1078.52	54109
2000	3	Walleye pollock	1	Gadidae	1.42	1.2	22	143	132.27	111.98	5524
2000	3	Walleye pollock	1	Walleye pollock	5.26	4.37	22	143	488.59	406.58	5524
2000	3	Walleye pollock	2	Gadidae	7.58	6.8	11	45	2428.72	2178.48	19034
2000	3	Walleye pollock	2	Walleye pollock	5.61	5.61	11	45	1797.79	1797.79	19034
2000	3	Walleye pollock	3	Gadidae	1.84	1.36	24	189	14975.64	11053.59	665238
2000	3	Walleye pollock	3	Northern rock sole	2.32	2.32	24	189	18902.26	18902.26	665238
2000	3	Walleye pollock	3	Pleuronectidae	0.14	0.14	24	189	1163.22	1163.22	665238
2000	3	Walleye pollock	3	Walleye pollock	1.88	1.16	24	189	15348.19	9462.57	665238
2000	3	Walleye pollock	4	Capelin	0.75	0.45	41	441	3477.19	2106.54	756620
2000	3	Walleye pollock	4	Gadidae	1.85	1.17	41	441	8556.16	5412.78	756620
2000	3	Walleye pollock	4	Opilio snow crab	0.66	0.66	41	441	3074.18	3074.18	756620
2000	3	Walleye pollock	4	Pacific herring	1.79	1.79	41	441	8305.94	8305.94	756620

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2000	3	Walleye pollock	4	Pleuronectidae	0.42	0.41	41	441	1939.58	1920.99	756620
2000	3	Walleye pollock	4	Unid. Osmerid	0.19	0.19	41	441	901.87	901.87	756620
2000	3	Walleye pollock	4	Walleye pollock	4.18	2.11	41	441	19368.72	9784.28	756620
2000	4	Arrowtooth flounder	2	Gadidae	52.09	27.72	4	10	3406.03	1812.46	4749
2000	4	Arrowtooth flounder	2	Walleye pollock	17.61	17.61	4	10	1151.9	1151.9	4749
2000	4	Arrowtooth flounder	3	Gadidae	20	20	5	11	1842.76	1842.76	8603
2000	4	Arrowtooth flounder	3	Walleye pollock	57.33	23.53	5	11	5282.39	2168.18	8603
2000	4	Flathead sole	1	Walleye pollock	14.11	14.11	2	8	7613.08	7613.08	50373
2000	4	Northern rock sole	1	Opilio snow crab	1.4	1.4	2	16	3694.69	3694.69	246756
2000	4	Pacific cod	1	Unid. *Chionoecetes*	2.32	2.32	14	37	62.01	62.01	1459
2000	4	Pacific cod	1	Walleye pollock	13.16	8.95	14	37	352.41	239.74	1459
2000	4	Pacific cod	2	Bairdi Tanner crab	0.93	0.47	25	172	1757.29	890.61	137221
2000	4	Pacific cod	2	Gadidae	1.32	0.63	25	172	2485.02	1183.45	137221
2000	4	Pacific cod	2	Opilio snow crab	26.72	5.88	25	172	50483.53	11109.1	137221
2000	4	Pacific cod	2	Pacific herring	0.75	0.56	25	172	1414.12	1055.93	137221
2000	4	Pacific cod	2	Unid. *Chionoecetes*	11	4.37	25	172	20789.08	8260.74	137221
2000	4	Pacific cod	2	Walleye pollock	4.55	2.38	25	172	8601.22	4497.68	137221
2000	4	Pacific cod	3	Bairdi Tanner crab	4.7	3.1	26	59	2121.48	1398.05	42102
2000	4	Pacific cod	3	Northern rock sole	0.77	0.77	26	59	347.57	347.57	42102
2000	4	Pacific cod	3	Opilio snow crab	34.91	6.23	26	59	15743.24	2810.7	42102
2000	4	Pacific cod	3	Pacific cod	0.48	0.48	26	59	217.69	217.69	42102
2000	4	Pacific cod	3	Pleuronectidae	2.54	2.54	26	59	1146.57	1146.57	42102
2000	4	Pacific cod	3	Unid. *Chionoecetes*	8.31	2.84	26	59	3746.4	1279.38	42102
2000	4	Pacific cod	3	Walleye pollock	13.72	4.98	26	59	6185.1	2246.01	42102
2000	4	Skates	1	Bairdi Tanner crab	3.58	1.26	32	177	3364.68	1180.23	87769
2000	4	Skates	1	Flathead sole	0.43	0.43	32	177	407.06	401.23	87769
2000	4	Skates	1	Gadidae	0.04	0.04	32	177	35.24	35.24	87769
2000	4	Skates	1	Offal	0.92	0.92	32	177	864.22	864.22	87769
2000	4	Skates	1	Opilio snow crab	18.69	4.81	32	177	17570.23	4521.33	87769
2000	4	Skates	1	Pacific herring	3.97	2.82	32	177	3735.65	2650.21	87769
2000	4	Skates	1	Pleuronectidae	0.5	0.5	32	177	474	468	87769
2000	4	Skates	1	Unid. *Chionoecetes*	18.62	4.2	32	177	17502.72	3949.47	87769
2000	4	Skates	1	Walleye pollock	11.59	4.29	32	177	10893.58	4028.92	87769
2000	4	Walleye pollock	3	Gadidae	0.02	0.02	26	223	214.6	214.6	710138

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2000	4	Walleye pollock	3	Walleye pollock	0.5	0.5	26	223	4363.51	4363.51	710138
2000	4	Walleye pollock	4	Gadidae	2.1	1.41	39	333	6335.08	4245.41	493385
2000	4	Walleye pollock	4	Pacific herring	1.33	1.32	39	333	4029.16	3979.17	493385
2000	4	Walleye pollock	4	Walleye pollock	7.19	2.68	39	333	21714.01	8106.11	493385
2000	4	Yellowfin sole	1	Opilio snow crab	2.26	2.26	4	44	2238.38	2238.38	161825
2000	4	Yellowfin sole	1	Walleye pollock	0.27	0.27	4	44	262.51	262.51	161825
2000	5	Arrowtooth flounder	1	Gadidae	1.46	1.46	4	13	26.16	26.16	1299
2000	5	Arrowtooth flounder	2	Bairdi Tanner crab	0.02	0.02	7	24	11.46	11.46	38273
2000	5	Arrowtooth flounder	2	Gadidae	2.42	2.42	7	24	1273.16	1273.16	38273
2000	5	Arrowtooth flounder	2	Walleye pollock	28.97	16.77	7	24	15268.5	8840.24	38273
2000	5	Arrowtooth flounder	3	Gadidae	8.22	8.22	6	10	4488.89	4488.89	50984
2000	5	Arrowtooth flounder	3	Walleye pollock	23.3	16.66	6	10	12723.72	9097.22	50984
2000	5	Flathead sole	1	Bairdi Tanner crab	12.07	0	1	15	6327.86	0	48948
2000	5	Flathead sole	1	Unid. *Chionoecetes*	0.24	0	1	15	123.56	0	48948
2000	5	Pacific cod	2	Arrowtooth flounder	0.74	0.74	10	68	81.76	81.76	7973
2000	5	Pacific cod	2	Bairdi Tanner crab	10.98	5.24	10	68	1205.84	575	7973
2000	5	Pacific cod	2	Flathead sole	0.22	0.22	10	68	23.92	23.92	7973
2000	5	Pacific cod	2	Gadidae	3.93	3.3	10	68	431.12	362.5	7973
2000	5	Pacific cod	2	Offal	1.82	1.82	10	68	200.3	200.3	7973
2000	5	Pacific cod	2	Opilio snow crab	0.93	0.62	10	68	101.7	68.24	7973
2000	5	Pacific cod	2	Pleuronectidae	2.31	2.27	10	68	253.86	249.17	7973
2000	5	Pacific cod	2	Unid. *Chionoecetes*	10.09	4.84	10	68	1107.22	531.11	7973
2000	5	Pacific cod	3	Bairdi Tanner crab	31.38	9.62	10	48	5081.18	1557.74	15117
2000	5	Pacific cod	3	Flathead sole	0.06	0.06	10	48	9.2	9.2	15117
2000	5	Pacific cod	3	Gadidae	0.3	0.3	10	48	48.84	48.84	15117
2000	5	Pacific cod	3	Opilio snow crab	13.22	6.13	10	48	2139.58	992.08	15117
2000	5	Pacific cod	3	Pacific cod	0.08	0.08	10	48	13.57	13.57	15117
2000	5	Pacific cod	3	Pleuronectidae	2.24	2.24	10	48	363.23	363.23	15117
2000	5	Pacific cod	3	Unid. *Chionoecetes*	9.03	2.9	10	48	1462.22	469.92	15117
2000	5	Pacific cod	3	Walleye pollock	9.65	7.86	10	48	1562.05	1271.89	15117
2000	5	Skates	1	Bairdi Tanner crab	0.35	0.35	6	41	94.34	93.72	25172
2000	5	Skates	1	Opilio snow crab	7.58	6.25	6	41	2042.76	1685.28	25172
2000	5	Skates	1	Pleuronectidae	2.46	2.46	6	41	664.33	664.33	25172
2000	5	Skates	1	Unid. *Chionoecetes*	11.19	4.34	6	41	3017.71	1170.49	25172

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2000	5	Skates	1	Walleye pollock	52.02	15.09	6	41	14023.36	4067.08	25172
2000	6	Arrowtooth flounder	2	Gadidae	1.54	1.27	12	40	360.52	297.45	16975
2000	6	Arrowtooth flounder	2	Walleye pollock	43.16	13.7	12	40	10088.7	3201.64	16975
2000	6	Arrowtooth flounder	3	Gadidae	8.43	5.65	18	84	12317.72	8248.44	136402
2000	6	Arrowtooth flounder	3	Walleye pollock	55.15	10.85	18	84	80568.92	15855.12	136402
2000	6	Flathead sole	1	Bairdi Tanner crab	1.27	0	1	19	1713.14	0	125841
2000	6	Greenland turbot	3	Gadidae	24.51	0	1	1	3843.46	0	20502
2000	6	Greenland turbot	3	Walleye pollock	75.49	0	1	1	11840.57	0	20502
2000	6	Pacific cod	2	Bairdi Tanner crab	4.14	2.1	18	140	2919.82	1483.1	51265
2000	6	Pacific cod	2	Flathead sole	1.41	1.41	18	140	998.32	998.32	51265
2000	6	Pacific cod	2	Gadidae	3.28	1.12	18	140	2315.56	790.76	51265
2000	6	Pacific cod	2	Opilio snow crab	9.91	3.35	18	140	6994.74	2361.41	51265
2000	6	Pacific cod	2	Pleuronectidae	0.38	0.36	18	140	269.85	250.98	51265
2000	6	Pacific cod	2	Unid. *Chionoecetes*	8	2.74	18	140	5649.54	1935.03	51265
2000	6	Pacific cod	2	Walleye pollock	9.3	4.09	18	140	6565.72	2885.13	51265
2000	6	Pacific cod	3	Arrowtooth flounder	1.44	1.44	21	113	1138.6	1138.6	73595
2000	6	Pacific cod	3	Bairdi Tanner crab	3.82	1.6	21	113	3010.14	1260.35	73595
2000	6	Pacific cod	3	Flathead sole	0.19	0.19	21	113	149.45	149.45	73595
2000	6	Pacific cod	3	Gadidae	0.61	0.39	21	113	480.37	309.68	73595
2000	6	Pacific cod	3	Offal	1.66	1.15	21	113	1309.86	906.94	73595
2000	6	Pacific cod	3	Opilio snow crab	16.42	4.85	21	113	12943.83	3825.72	73595
2000	6	Pacific cod	3	Pacific cod	0.11	0.11	21	113	88.98	88.98	73595
2000	6	Pacific cod	3	Pleuronectidae	0.96	0.6	21	113	754.73	473.01	73595
2000	6	Pacific cod	3	Unid. *Chionoecetes*	9.09	3.14	21	113	7163.49	2473.82	73595
2000	6	Pacific cod	3	Walleye pollock	29.7	7.03	21	113	23409.88	5542.04	73595
2000	6	Skates	1	Bairdi Tanner crab	0.9	0.9	17	63	921.55	921.55	95164
2000	6	Skates	1	Gadidae	0.61	0.51	17	63	616.78	516.79	95164
2000	6	Skates	1	Opilio snow crab	0.66	0.54	17	63	667.9	549.31	95164
2000	6	Skates	1	Pleuronectidae	7.96	5.31	17	63	8112.68	5414.05	95164
2000	6	Skates	1	Unid. *Chionoecetes*	10.89	6.16	17	63	11103.17	6283	95164
2000	6	Skates	1	Walleye pollock	35.22	9.62	17	63	35893.57	9809.77	95164
2000	6	Walleye pollock	1	Offal	0.13	0.13	17	116	43.52	43.52	19496
2000	6	Walleye pollock	1	Walleye pollock	1.07	1.07	17	116	352.33	352.33	19496
2000	6	Walleye pollock	2	Gadidae	0.16	0.16	31	170	779.26	779.26	289338

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2000	6	Walleye pollock	2	Offal	2.58	1.86	31	170	12553.82	9040.33	289338
2000	6	Walleye pollock	2	Walleye pollock	1.52	1.52	31	170	7417.79	7417.79	289338
2000	6	Walleye pollock	3	Gadidae	0.79	0.57	37	304	10743.95	7765.62	1.00E+06
2000	6	Walleye pollock	3	Offal	1.93	1.7	37	304	26429.92	23286.3	1.00E+06
2000	6	Walleye pollock	3	Walleye pollock	2.3	1.19	37	304	31406.34	16208.22	1.00E+06
2000	6	Walleye pollock	4	Gadidae	2.75	1.67	35	245	7783.84	4722.44	462205
2000	6	Walleye pollock	4	Offal	8.87	4.38	35	245	25091.3	12378.92	462205
2000	6	Walleye pollock	4	Walleye pollock	13.14	4.53	35	245	37167.59	12824.71	462205
2001	1	Arrowtooth flounder	2	Capelin	25.59	25.59	2	9	88.45	88.45	251
2001	1	Arrowtooth flounder	2	Walleye pollock	66.73	17.91	2	9	230.63	61.91	251
2001	1	Arrowtooth flounder	3	Gadidae	50	50	2	2	187.43	187.43	350
2001	1	Arrowtooth flounder	3	Walleye pollock	47.5	47.5	2	2	178.05	178.05	350
2001	1	Pacific cod	1	Capelin	0.86	0.86	24	136	139.1	139.1	8807
2001	1	Pacific cod	1	Pleuronectidae	1.94	1.25	24	136	313.48	201.77	8807
2001	1	Pacific cod	1	Walleye pollock	1.9	1.9	24	136	307.91	307.91	8807
2001	1	Pacific cod	2	Bairdi Tanner crab	0.37	0.21	16	113	328	190.52	65103
2001	1	Pacific cod	2	Capelin	2.65	2.28	16	113	2375.92	2039.57	65103
2001	1	Pacific cod	2	Gadidae	1.11	0.9	16	113	999.34	804.15	65103
2001	1	Pacific cod	2	Northern rock sole	3.94	3.25	16	113	3533.18	2913.85	65103
2001	1	Pacific cod	2	Opilio snow crab	5.46	4.24	16	113	4891.38	3802.54	65103
2001	1	Pacific cod	2	Pacific cod	0.3	0.3	16	113	272.21	272.21	65103
2001	1	Pacific cod	2	Pleuronectidae	9.28	3.97	16	113	8318.71	3560.13	65103
2001	1	Pacific cod	2	Unid. *Chionoecetes*	0.57	0.57	16	113	511.57	511.57	65103
2001	1	Pacific cod	2	Walleye pollock	0.98	0.79	16	113	876.97	711.98	65103
2001	1	Pacific cod	2	Yellowfin sole	1.56	1.23	16	113	1396.31	1102.86	65103
2001	1	Pacific cod	3	Capelin	1.94	1.34	25	77	919.91	636.81	44270
2001	1	Pacific cod	3	Flathead sole	1.36	1.36	25	77	645.32	645.32	44270
2001	1	Pacific cod	3	Gadidae	1.79	0.95	25	77	849.97	449.51	44270
2001	1	Pacific cod	3	Northern rock sole	2.35	2.12	25	77	1112.71	1005.1	44270
2001	1	Pacific cod	3	Offal	1.92	1.92	25	77	909.88	909.88	44270
2001	1	Pacific cod	3	Opilio snow crab	2.4	2.34	25	77	1136.06	1110.71	44270
2001	1	Pacific cod	3	Pacific herring	2.62	2.62	25	77	1243.49	1243.49	44270
2001	1	Pacific cod	3	Pleuronectidae	23.16	5.87	25	77	10982.37	2785.29	44270
2001	1	Pacific cod	3	Unid. *Chionoecetes*	0.01	0.01	25	77	6.25	6.25	44270

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2001	1	Pacific cod	3	Walleye pollock	10.85	4.21	25	77	5143.76	1996.37	44270
2001	1	Pacific cod	3	Yellowfin sole	7.97	4.37	25	77	3779.3	2071.91	44270
2001	1	Pacific halibut	1	Pacific halibut	2.72	2.72	3	11	39.37	39.37	676
2001	1	Skates	1	Flathead sole	4.02	4.02	23	96	1389.63	1389.63	32310
2001	1	Skates	1	Gadidae	0.24	0.17	23	96	84.36	60.42	32310
2001	1	Skates	1	Northern rock sole	10.62	4.82	23	96	3675.63	1668.68	32310
2001	1	Skates	1	Offal	0.13	0.13	23	96	45.78	45.78	32310
2001	1	Skates	1	Opilio snow crab	0.03	0.03	23	96	9.88	9.88	32310
2001	1	Skates	1	Pacific cod	3.81	3.81	23	96	1317.84	1317.84	32310
2001	1	Skates	1	Pacific herring	0.5	0.5	23	96	173.8	173.8	32310
2001	1	Skates	1	Pleuronectidae	9.7	2.37	23	96	3356.95	821.8	32310
2001	1	Skates	1	Unid. *Chionoecetes*	0.32	0.3	23	96	109.35	104.4	32310
2001	1	Skates	1	Walleye pollock	0.38	0.19	23	96	130.36	65.99	32310
2001	1	Skates	1	Yellowfin sole	5.33	3.73	23	96	1844.26	1290.72	32310
2001	1	Walleye pollock	2	Walleye pollock	26.37	26.37	2	3	1310.33	1310.33	2953
2001	1	Walleye pollock	4	Alaska plaice	0	0	24	303	2.99	2.99	183126
2001	1	Walleye pollock	4	Capelin	7.72	3.77	24	303	8649.61	4223.88	183126
2001	1	Walleye pollock	4	Gadidae	0.67	0.35	24	303	755.72	396.86	183126
2001	1	Walleye pollock	4	Northern rock sole	0.99	0.69	24	303	1105.18	774.52	183126
2001	1	Walleye pollock	4	Pacific herring	2.53	1.66	24	303	2834.64	1859.38	183126
2001	1	Walleye pollock	4	Pleuronectidae	0.21	0.14	24	303	232.72	160.7	183126
2001	1	Walleye pollock	4	Unid. Osmerid	0.07	0.07	24	303	76.22	76.22	183126
2001	1	Walleye pollock	4	Walleye pollock	6.83	3.06	24	303	7658.93	3427.93	183126
2001	2	Pacific cod	1	Capelin	2.87	2.87	9	85	79.83	79.83	1514
2001	2	Pacific cod	1	Unid. Osmerid	2.76	2.76	9	85	76.75	76.75	1514
2001	2	Pacific cod	1	Walleye pollock	5.33	3.73	9	85	148.25	103.65	1514
2001	2	Pacific cod	2	Capelin	1.24	1.24	7	27	108.85	108.85	6399
2001	2	Pacific cod	2	Gadidae	0.51	0.51	7	27	44.69	44.69	6399
2001	2	Pacific cod	2	Northern rock sole	3.54	3.54	7	27	312.32	312.32	6399
2001	2	Pacific cod	2	Opilio snow crab	7.22	3.49	7	27	635.78	307.82	6399
2001	2	Pacific cod	2	Pleuronectidae	4.01	2.92	7	27	352.92	257.55	6399
2001	2	Pacific cod	2	Unid. Osmerid	3.69	2.41	7	27	324.91	212.5	6399
2001	2	Pacific cod	2	Unid. *Chionoecetes*	3.97	3.97	7	27	350.01	350.01	6399
2001	2	Pacific cod	2	Walleye pollock	8.32	7.66	7	27	733.16	674.99	6399

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2001	2	Pacific cod	3	Capelin	0.59	0.59	10	25	75.65	75.65	11907
2001	2	Pacific cod	3	Gadidae	0.44	0.44	10	25	55.48	55.48	11907
2001	2	Pacific cod	3	Northern rock sole	0.09	0.09	10	25	10.86	10.86	11907
2001	2	Pacific cod	3	Opilio snow crab	16.73	10.31	10	25	2132.99	1314.16	11907
2001	2	Pacific cod	3	Pacific cod	8.8	5.86	10	25	1121.82	747.89	11907
2001	2	Pacific cod	3	Pacific herring	2.83	2.57	10	25	360.77	327.56	11907
2001	2	Pacific cod	3	Pleuronectidae	7.91	3.17	10	25	1008.43	404.17	11907
2001	2	Pacific cod	3	Walleye pollock	4.58	3.08	10	25	584.06	392.73	11907
2001	2	Pacific cod	3	Yellowfin sole	8.99	6.08	10	25	1145.87	775.5	11907
2001	2	Skates	1	Pacific herring	4	2.74	5	40	1480.42	1013.79	34539
2001	2	Skates	1	Pleuronectidae	6.88	3.81	5	40	2546.81	1407.62	34539
2001	2	Walleye pollock	4	Capelin	1.59	1.59	9	113	770.89	770.89	79212
2001	2	Walleye pollock	4	Gadidae	0.02	0.02	9	113	10.56	10.56	79212
2001	2	Walleye pollock	4	Pacific herring	4.54	2.39	9	113	2201.17	1160.8	79212
2001	2	Walleye pollock	4	Pleuronectidae	0.38	0.38	9	113	183.63	183.63	79212
2001	2	Walleye pollock	4	Unid. Osmerid	0.11	0.11	9	113	52.57	52.57	79212
2001	2	Walleye pollock	4	Walleye pollock	9.01	5.51	9	113	4369.79	2670.37	79212
2001	3	Arrowtooth flounder	2	Gadidae	17.44	10.76	9	20	9682.86	5974.28	40311
2001	3	Arrowtooth flounder	2	Walleye pollock	56.75	14.79	9	20	31503.31	8208.67	40311
2001	3	Arrowtooth flounder	3	Gadidae	17	10.14	10	27	10215.64	6096.04	56109
2001	3	Arrowtooth flounder	3	Pleuronectidae	20	13.33	10	27	12018.55	8012.37	56109
2001	3	Arrowtooth flounder	3	Walleye pollock	25.57	13.37	10	27	15364.77	8036.2	56109
2001	3	Pacific cod	2	Bairdi Tanner crab	3.99	2.82	18	172	6524.36	4617.43	118854
2001	3	Pacific cod	2	Capelin	0.22	0.22	18	172	364.95	364.95	118854
2001	3	Pacific cod	2	Gadidae	1.73	0.71	18	172	2832.65	1156.31	118854
2001	3	Pacific cod	2	Lithodidae	0.07	0.07	18	172	21.75	21.75	118854
2001	3	Pacific cod	2	Offal	2.18	2.18	18	172	3571.1	3571.1	118854
2001	3	Pacific cod	2	Opilio snow crab	3.54	2.04	18	172	5789.63	3339.65	118854
2001	3	Pacific cod	2	Pacific herring	3.84	3.67	18	172	6282.41	6012.61	118854
2001	3	Pacific cod	2	Pleuronectidae	3.02	1.92	18	172	4944.44	3141.17	118854
2001	3	Pacific cod	2	Unid. Osmerid	0.16	0.16	18	172	262.43	262.43	118854
2001	3	Pacific cod	2	Unid. *Chionoecetes*	2.48	1.3	18	172	4050.8	2134.22	118854
2001	3	Pacific cod	2	Walleye pollock	5.61	2.44	18	172	9178.48	3991.18	118854
2001	3	Pacific cod	3	Arrowtooth flounder	0.74	0.74	27	84	598.93	598.93	75465

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2001	3	Pacific cod	3	Bairdi Tanner crab	5.82	2.02	27	84	4702.57	1634.89	75465
2001	3	Pacific cod	3	Flathead sole	2.53	2.29	27	84	2041.78	1849.94	75465
2001	3	Pacific cod	3	Gadidae	1.19	0.55	27	84	962.66	445.34	75465
2001	3	Pacific cod	3	Offal	2.63	1.95	27	84	2125.05	1574.41	75465
2001	3	Pacific cod	3	Opilio snow crab	3.13	2.05	27	84	2528.1	1659.07	75465
2001	3	Pacific cod	3	Pacific cod	1.03	1.03	27	84	829.48	829.48	75465
2001	3	Pacific cod	3	Pacific herring	0.71	0.71	27	84	577.88	577.88	75465
2001	3	Pacific cod	3	Pleuronectidae	4.73	2.06	27	84	3826.81	1662.29	75465
2001	3	Pacific cod	3	Unid. *Chionoecetes*	0.46	0.39	27	84	371.81	318.39	75465
2001	3	Pacific cod	3	Walleye pollock	25.7	6.81	27	84	20774.86	5504.79	75465
2001	3	Pacific cod	3	Yellowfin sole	4.78	3.04	27	84	3866.87	2455	75465
2001	3	Skates	1	Gadidae	0.62	0.35	28	144	428.73	240.97	65030
2001	3	Skates	1	Offal	2.3	2.26	28	144	1598.96	1572.58	65030
2001	3	Skates	1	Opilio snow crab	0.22	0.22	28	144	155.54	155.54	65030
2001	3	Skates	1	Pacific herring	0.02	0.02	28	144	17.13	17.13	65030
2001	3	Skates	1	Pleuronectidae	3.2	1.47	28	144	2230.7	1024.51	65030
2001	3	Skates	1	Unid. *Chionoecetes*	9.4	4.41	28	144	6547.18	3071.02	65030
2001	3	Skates	1	Walleye pollock	19.98	6.22	28	144	13918.04	4335	65030
2001	3	Walleye pollock	1	Offal	0.24	0.24	23	172	203.14	203.14	50977
2001	3	Walleye pollock	1	Walleye pollock	2.37	1.75	23	172	2033.95	1504.35	50977
2001	3	Walleye pollock	3	Gadidae	2.78	2.31	23	68	8397.96	6997.75	247075
2001	3	Walleye pollock	3	Unid. Osmerid	2.59	2.59	23	68	7835.12	7835.12	247075
2001	3	Walleye pollock	3	Walleye pollock	6.76	4.87	23	68	20437.91	14741.36	247075
2001	3	Walleye pollock	4	Gadidae	3.67	2.3	29	302	15804.81	9880.51	703217
2001	3	Walleye pollock	4	Walleye pollock	8.01	3.86	29	302	34492.82	16606.24	703217
2001	4	Arrowtooth flounder	2	Pleuronectidae	33.33	33.33	3	5	1783.22	1783.22	3885
2001	4	Arrowtooth flounder	2	Walleye pollock	59.46	30.38	3	5	3180.95	1625.13	3885
2001	4	Arrowtooth flounder	3	Gadidae	18.09	18.09	2	7	2134.8	2134.8	11016
2001	4	Arrowtooth flounder	3	Walleye pollock	81.2	18.8	2	7	9580.15	2217.98	11016
2001	4	Greenland turbot	3	Walleye pollock	100	0	1	1	2213.15	0	2893
2001	4	Pacific cod	1	Gadidae	1.58	1.58	17	105	275.92	275.92	9519
2001	4	Pacific cod	1	Opilio snow crab	1.49	1.49	17	105	260.34	260.34	9519
2001	4	Pacific cod	1	Unid. *Chionoecetes*	0.09	0.09	17	105	15.23	15.23	9519
2001	4	Pacific cod	1	Walleye pollock	8.33	5.72	17	105	1456.47	998.81	9519

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2001	4	Pacific cod	2	Bairdi Tanner crab	4.27	2.85	17	136	10750.57	7187.15	182878
2001	4	Pacific cod	2	Gadidae	1.03	0.5	17	136	2582.58	1258.87	182878
2001	4	Pacific cod	2	Opilio snow crab	21.25	4.96	17	136	53509.01	12494.31	182878
2001	4	Pacific cod	2	Pleuronectidae	0.73	0.55	17	136	1849.49	1387.13	182878
2001	4	Pacific cod	2	Unid. *Chionoecetes*	3.71	1.97	17	136	9331.32	4964.68	182878
2001	4	Pacific cod	2	Walleye pollock	6.58	3.26	17	136	16562.19	8206.2	182878
2001	4	Pacific cod	3	Atka mackerel	0.03	0.03	33	106	38.01	38.01	107411
2001	4	Pacific cod	3	Bairdi Tanner crab	3.57	1.85	33	106	4102.61	2127.35	107411
2001	4	Pacific cod	3	Gadidae	0.56	0.48	33	106	647.35	549.78	107411
2001	4	Pacific cod	3	Lithodidae	0.23	0.23	33	106	52.9	52.9	107411
2001	4	Pacific cod	3	Offal	1.23	1.23	33	106	1413.59	1413.59	107411
2001	4	Pacific cod	3	Opilio snow crab	50.51	5.85	33	106	58100.97	6729.96	107411
2001	4	Pacific cod	3	Pacific cod	1.07	0.93	33	106	1228.45	1072.56	107411
2001	4	Pacific cod	3	Pacific herring	0.02	0.02	33	106	18.39	18.39	107411
2001	4	Pacific cod	3	Pleuronectidae	1.9	1.18	33	106	2185.14	1353.3	107411
2001	4	Pacific cod	3	Unid. *Chionoecetes*	3.62	1.79	33	106	4163.01	2061.69	107411
2001	4	Pacific cod	3	Walleye pollock	13.39	4.62	33	106	15408.79	5311.93	107411
2001	4	Skates	1	Bairdi Tanner crab	1.54	1.03	25	180	1795.02	1203.62	108861
2001	4	Skates	1	Gadidae	4.93	3.99	25	180	5747.11	4654.15	108861
2001	4	Skates	1	Offal	5.04	4	25	180	5877.38	4664.24	108861
2001	4	Skates	1	Opilio snow crab	6.07	2.27	25	180	7076.37	2650.98	108861
2001	4	Skates	1	Pleuronectidae	0.11	0.08	25	180	126.25	98.66	108861
2001	4	Skates	1	Unid. *Chionoecetes*	14.23	4.51	25	180	16590.02	5259.88	108861
2001	4	Skates	1	Walleye pollock	26.62	7.49	25	180	31037.57	8732.43	108861
2001	4	Walleye pollock	4	Gadidae	1.83	1.4	30	236	5327.38	4066.71	475902
2001	4	Walleye pollock	4	Pacific herring	0.04	0.04	30	236	129.01	129.01	475902
2001	4	Walleye pollock	4	Pleuronectidae	1.2	1.19	30	236	3494.2	3479.92	475902
2001	4	Walleye pollock	4	Walleye pollock	7.44	3.71	30	236	21682.15	10794.97	475902
2001	5	Arrowtooth flounder	2	Gadidae	20.09	13.66	8	16	10366.76	7052.21	37481
2001	5	Arrowtooth flounder	2	Walleye pollock	37.5	18.3	8	16	19354.25	9443.91	37481
2001	5	Arrowtooth flounder	3	Flathead sole	14.29	14.29	7	13	10642.53	10642.53	69559
2001	5	Arrowtooth flounder	3	Gadidae	0.65	0.65	7	13	486.82	486.82	69559
2001	5	Arrowtooth flounder	3	Offal	14.29	14.29	7	13	10642.53	10642.53	69559
2001	5	Arrowtooth flounder	3	Walleye pollock	28.96	17.78	7	13	21575.28	13245.49	69559

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2001	5	Pacific cod	2	Bairdi Tanner crab	27.33	6.6	5	51	4733.1	1142.96	12578
2001	5	Pacific cod	2	Offal	2.17	2.17	5	51	376.39	376.39	12578
2001	5	Pacific cod	2	Opilio snow crab	0.62	0.62	5	51	106.61	106.61	12578
2001	5	Pacific cod	2	Unid. *Chionoecetes*	2.01	1.71	5	51	348.82	296.62	12578
2001	5	Pacific cod	2	Walleye pollock	8.6	7.94	5	51	1489.88	1375.75	12578
2001	5	Pacific cod	3	Bairdi Tanner crab	33.92	14.24	6	16	3657.18	1535.22	10068
2001	5	Pacific cod	3	Offal	8.97	5.9	6	16	967.26	636.02	10068
2001	5	Pacific cod	3	Pleuronectidae	2.93	2.93	6	16	315.66	315.66	10068
2001	5	Pacific cod	3	Unid. *Chionoecetes*	3.81	2.7	6	16	410.88	290.75	10068
2001	5	Pacific cod	3	Walleye pollock	16.5	11.55	6	16	1779.34	1245.67	10068
2001	5	Skates	1	Bairdi Tanner crab	1.81	1.05	7	49	926.5	534.45	47713
2001	5	Skates	1	Gadidae	0.78	0.78	7	49	398.34	398.34	47713
2001	5	Skates	1	Offal	13.09	13.07	7	49	6691.26	6677.74	47713
2001	5	Skates	1	Opilio snow crab	3.11	2.98	7	49	1589.15	1521.57	47713
2001	5	Skates	1	Unid. *Chionoecetes*	10.32	5.78	7	49	5273.82	2952.47	47713
2001	5	Skates	1	Walleye pollock	55.78	16.72	7	49	28502.83	8544.11	47713
2001	5	Walleye pollock	4	Walleye pollock	5.63	2.82	14	158	3423.42	1714.71	99348
2001	6	Arrowtooth flounder	2	Capelin	7.69	7.69	13	29	2248.54	2248.54	21228
2001	6	Arrowtooth flounder	2	Gadidae	30.78	13.25	13	29	8998.58	3873.03	21228
2001	6	Arrowtooth flounder	2	Walleye pollock	29.43	12.79	13	29	8603.04	3737.5	21228
2001	6	Arrowtooth flounder	3	Gadidae	17.72	5.71	23	82	25666.74	8274.36	135232
2001	6	Arrowtooth flounder	3	Pacific cod	4.31	4.31	23	82	6242.82	6242.82	135232
2001	6	Arrowtooth flounder	3	Walleye pollock	53.91	9.22	23	82	78084.94	13359.7	135232
2001	6	Pacific cod	2	Bairdi Tanner crab	8.25	4.44	17	105	6132.41	3302.42	53990
2001	6	Pacific cod	2	Gadidae	1.51	1.11	17	105	1121.61	825.32	53990
2001	6	Pacific cod	2	Offal	6	4.88	17	105	4458.5	3628.81	53990
2001	6	Pacific cod	2	Opilio snow crab	14.15	5.42	17	105	10521.85	4032.9	53990
2001	6	Pacific cod	2	Pleuronectidae	0.73	0.5	17	105	539.36	372.31	53990
2001	6	Pacific cod	2	Unid. *Chionoecetes*	9.01	4.03	17	105	6701.77	2993.1	53990
2001	6	Pacific cod	2	Walleye pollock	6.18	3.25	17	105	4598.08	2418.66	53990
2001	6	Pacific cod	3	Arrowtooth flounder	2.53	2.53	16	105	3141.27	3141.27	115988
2001	6	Pacific cod	3	Bairdi Tanner crab	3.13	1.57	16	105	3884.84	1949.65	115988
2001	6	Pacific cod	3	Gadidae	2.31	1.23	16	105	2871.16	1524.65	115988
2001	6	Pacific cod	3	Northern rock sole	0.06	0.06	16	105	70.54	70.54	115988

Table F-1.--Continued.

YEAR	STR	PREDATOR	PREDATOR SIZE GROUP	PREY	MEAN % WEIGHT	SE MEAN % WEIGHT	NO. OF STATIONS	NO. OF FULL STOMACHS	BIOMASS CONSUMED (TONS)	SE BIOMASS CONSUMED (TONS)	PREDATOR BIOMASS (TONS)
2001	6	Pacific cod	3	Offal	2.5	1.88	16	105	3100.68	2341.49	115988
2001	6	Pacific cod	3	Opilio snow crab	16.7	4.43	16	105	20740.72	5502.09	115988
2001	6	Pacific cod	3	Pacific cod	1.97	1.97	16	105	2451.32	2451.32	115988
2001	6	Pacific cod	3	Unid. *Chionoecetes*	4.75	2.27	16	105	5905.25	2820.33	115988
2001	6	Pacific cod	3	Walleye pollock	31.82	6.92	16	105	39529.5	8592.47	115988
2001	6	Skates	1	Bairdi Tanner crab	0.8	0.78	28	168	1120.17	1095.7	131286
2001	6	Skates	1	Gadidae	3.3	2.11	28	168	4643.78	2971.69	131286
2001	6	Skates	1	Offal	2.34	1.7	28	168	3283.96	2395.28	131286
2001	6	Skates	1	Opilio snow crab	2.24	2.02	28	168	3153.32	2838.69	131286
2001	6	Skates	1	Pleuronectidae	0.48	0.42	28	168	672.83	586.67	131286
2001	6	Skates	1	Unid. *Chionoecetes*	9.5	4.33	28	168	13351.2	6087.21	131286
2001	6	Skates	1	Walleye pollock	41.51	7.37	28	168	58365.68	10357.98	131286
2001	6	Walleye pollock	3	Gadidae	1.04	0.78	30	276	14513.93	10865.15	1.00E+06
2001	6	Walleye pollock	3	Walleye pollock	2.49	2.49	30	276	34779.67	34779.67	1.00E+06
2001	6	Walleye pollock	4	Walleye pollock	4.61	3.53	27	158	15695.59	12013.28	556655

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