Roundfish

Atka mackerel (*Pleurogrammus monopterygius*)

Atka mackerel had the highest mean CPUE and estimated biomass of all species in the 2002 survey (Table 2). Distributed throughout the entire survey area (Fig. 2), its overall mean CPUE was almost twice as high as the next most abundant species, Pacific ocean perch (Table 2). Estimated biomass for the entire survey area surpassed 830,000 t. Atka mackerel mean CPUE and estimated biomass was notably highest (70% of total biomass) in the Central and Western Aleutian areas, respectively (Table 21). The Southern Bering Sea area mean CPUE was slightly higher than that in the Eastern Aleutian area, but due to its larger geographic area, the latter had a much higher biomass estimate. The highest Atka mackerel abundance in the Western and Central areas was found in the 101-200 m depth interval, and in the 1-100 m depth interval in the Eastern Aleutian and Southern Bering Sea areas. Actual catches of 1,000 kg or more were concentrated between about 70 m and 225 m with only one significantly large catch deeper than 200 m. Atka mackerel was captured in 63% of all successful survey tows conducted shallower than 300 m.

The highest three stratum-specific mean CPUEs were found in the SW Central Aleutian subarea between Amchitka and Kiska Islands in the 101-200 m depth interval (Table 22 and Fig. 24); in the SE Eastern Aleutian subarea near Amukta Island in the 1-100 m depth interval; and in the SE Central Aleutian subarea between Tanaga Island and the Delarof Islands in the 101-200 m depth interval. Atka mackerel can be a very contagiously distributed species. For example, the fifth highest mean CPUE was the result of one 7,000 kg catch in 201-300 m out of a total of 9 tows in the Western Aleutian area. The Southern Bering Sea area produced the eleventh highest mean CPUE in the 1-100 m depth interval due to a single 10,000 kg catch at the far eastern end of the area, near Akun Island (Table 22, Fig. 24). This station also produced the largest mean length and mean weight Atka mackerel (Table 21). The smallest mean size fish were found in the Western and Central areas. Over 16,600 Atka mackerel were measured during the

survey. Two major modes dominated the Aleutian size composition distributions for males and females: one at 28 cm and the other at 35 cm (Fig. 25). The smaller mode was most predominant in the 1-100 m depth interval, whereas the larger mode was found in the 101-200 depth interval. Although representing a much smaller part of the Atka mackerel population, the primary frequency mode in the Southern Bering Sea area was at 38 cm, more similar to the size composition mode from 101-200 m in the Aleutian areas and probably denoting a larger proportion of adult fish.

Figure 26 shows length-weight relationships for male, female, and combined sexes of Atka mackerel. Larger males were slightly heavier than similar-sized females. Data were pooled over the entire survey area.

Table 21.--Number of survey hauls, number of hauls with Atka mackerel, mean CPUE, biomass estimates with confidence limits, mean weight, and mean length based on the 2002 Aleutian Islands bottom trawl survey, by NPFMC regulatory area and depth interval.

NPFMC area	Depth (m)	Number of trawl hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	95% Confidence limits Minimum biomass (t)	95% Confidence limits Maximum biomass (t)	Mean weight (kg)	Mean length (cm)
Western	1-100	26	14	106.47	51,921	5,507	98,334	0.288	28.5
Aleutian	101-200	51	36	291.15	154,820	33,018	276,623	0.431	32.9
	201-300	19	9	280.61	48,367	0	157,511	0.469	36.1
	301-500	13	1	0.02	8	0	24	0.328	31.8
	All depths	109	60	167.95	255,115	93,636	416,594	0.397	32.2
Central	1-100	30	25	216.87	126,811	6,429	247,194	0.286	28.7
Aleutian	101-200	45	41	433.69	199,743	92,438	307,048	0.612	36.8
	201-300	23	13	0.80	169	46	292	0.637	37.4
	301-500	17	1	0.36	143	0	538	0.818	42.4
	All depths	115	80	197.59	326,866	166,385	487,347	0.424	32.2
Eastern	1-100	16	12	222.20	152,159	0	432,278	0.572	34.7
Aleutian	101-200	47	27	49.55	38,492	2,816	74,168	0.714	37.2
	201-300	42	11	0.19	94	0	191	0.577	34.9
	301-500	27	7	0.13	71	5	137	0.431	31.2
	All depths	132	57	75.72	190,817	0	474,452	0.596	35.2
All	1-100	72	51	188.31	330,891	23,467	638,316	0.372	30.5
Aleutian	101-200	143	104	222.17	393,055	228,629	557,482	0.532	34.9
Areas	201-300	84	33	55.68	48,630	0	157,774	0.470	36.1
	301-500	57	9	0.17	221	0	579	0.610	36.6
	All depths	356	197	135.74	772,798	417,072	1,128,523	0.446	33.0
Southern	1-100	30	24	148.24	59,682	0	180,892	0.868	39.4
Bering Sea	101-200	16	7	0.56	103	6	200	0.523	34.4
	201-300	7	3	1.73	98	0	271	0.871	41.0
	301-500	8	0	-	-	-	-	-	-
	All depths	61	34	80.04	59,883	0	181,093	0.867	39.4

Table 22.--Sampling effort, mean CPUE, and estimated biomass with 95% confidence limits (CL) of Atka mackerel by NPFMC regulatory area and survey subarea, ranked by descending mean CPUE for the 2002 Aleutian Islands bottom trawl survey.

NPFMC Area	Depth range (m)	Subarea	Number of hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	Biomass CL Min. (t)	Biomass CL Max. (t)
Central Aleutian	101-200	SW Central Aleutian	17	17	1,004.33	105,686	21,163	190,209
Eastern Aleutian	1-100	SE Eastern Aleutian	5	5	866.24	150,781	0	453,229
Central Aleutian	101-200	SE Central Aleutian	14	13	851.60	64,023	8,328	119,718
Western Aleutian	101-200	E Western Aleutian	23	21	659.94	82,655	24,145	141,165
Western Aleutian	201-300	W Western Aleutian	9	1	513.19	48,251	0	159,519
Central Aleutian	1-100	SE Central Aleutian	7	7	329.28	38,330	0	123,942
Western Aleutian	1-100	E Western Aleutian	10	10	292.04	34,558	29	69,087
Central Aleutian	1-100	N Central Aleutian	14	10	286.05	60,231	0	144,603
Central Aleutian	1-100	Petrel Bank	4	3	268.63	25,789	0	107,831
Central Aleutian	101-200	N Central Aleutian	8	7	254.36	27,116	0	79,923
Southern Bering	1-100	E Southern Bering Sea	27	21	243.90	59,519	0	180,965
Western Aleutian	101-200	W Western Aleutian	28	15	177.52	72,165	0	180,009
Eastern Aleutian	101-200	NE Eastern Aleutian	17	11	127.43	25,647	0	56,656
Western Aleutian	1-100	W Western Aleutian	16	4	47.01	17,363	0	52,047
Eastern Aleutian	101-200	SW Eastern Aleutian	9	3	40.70	9,202	0	30,201
Eastern Aleutian	101-200	SE Eastern Aleutian	15	9	18.46	3,507	0	7,253
Central Aleutian	101-200	Petrel Bank	6	4	16.81	2,918	0	10,372
Central Aleutian	1-100	SW Central Aleutian	5	5	15.22	2,462	743	4,181
Eastern Aleutian	1-100	SW Eastern Aleutian	5	4	6.66	1,270	0	3,089
Central Aleutian	301-500	SE Central Aleutian	4	1	2.00	143	0	596
Central Aleutian	201-300	N Central Aleutian	10	6	1.81	79	0	166
Southern Bering	201-300	Combined Southern Bering	7	3	1.73	98	0	277
Western Aleutian	201-300	E Western Aleutian	10	8	1.47	115	0	231
Southern Bering	1-100	W Southern Bering Sea	3	3	1.03	163	0	644
Southern Bering	101-200	W Southern Bering Sea	5	5	1.02	69	0	163
Central Aleutian	201-300	SW Central Aleutian	6	5	1.02	43	0	104
Central Aleutian	201-300	SE Central Aleutian	4	2	0.97	46	0	152
Eastern Aleutian	101-200	NW Eastern Aleutian	6	4	0.86	136	0	304
Eastern Aleutian	1-100	NE Eastern Aleutian	2	2	0.79	101	0	206
Southern Bering	101-200	E Southern Bering Sea	11	2	0.30	35	0	101
Eastern Aleutian	201-300	SE Eastern Aleutian	12	4	0.28	58	0	152
Eastern Aleutian	301-500	SE Eastern Aleutian	12	4	0.20	51	0	111
Eastern Aleutian	201-300	NE Eastern Aleutian	22	7	0.18	36	3	69
Eastern Aleutian	301-500	Combined Eastern Aleutian	13	3	0.08	21	0	54
Western Aleutian	301-500	W Western Aleutian	11	1	0.04	8	0	24
Eastern Aleutian	1-100	NW Eastern Aleutian	4	1	0.04	8	0	32

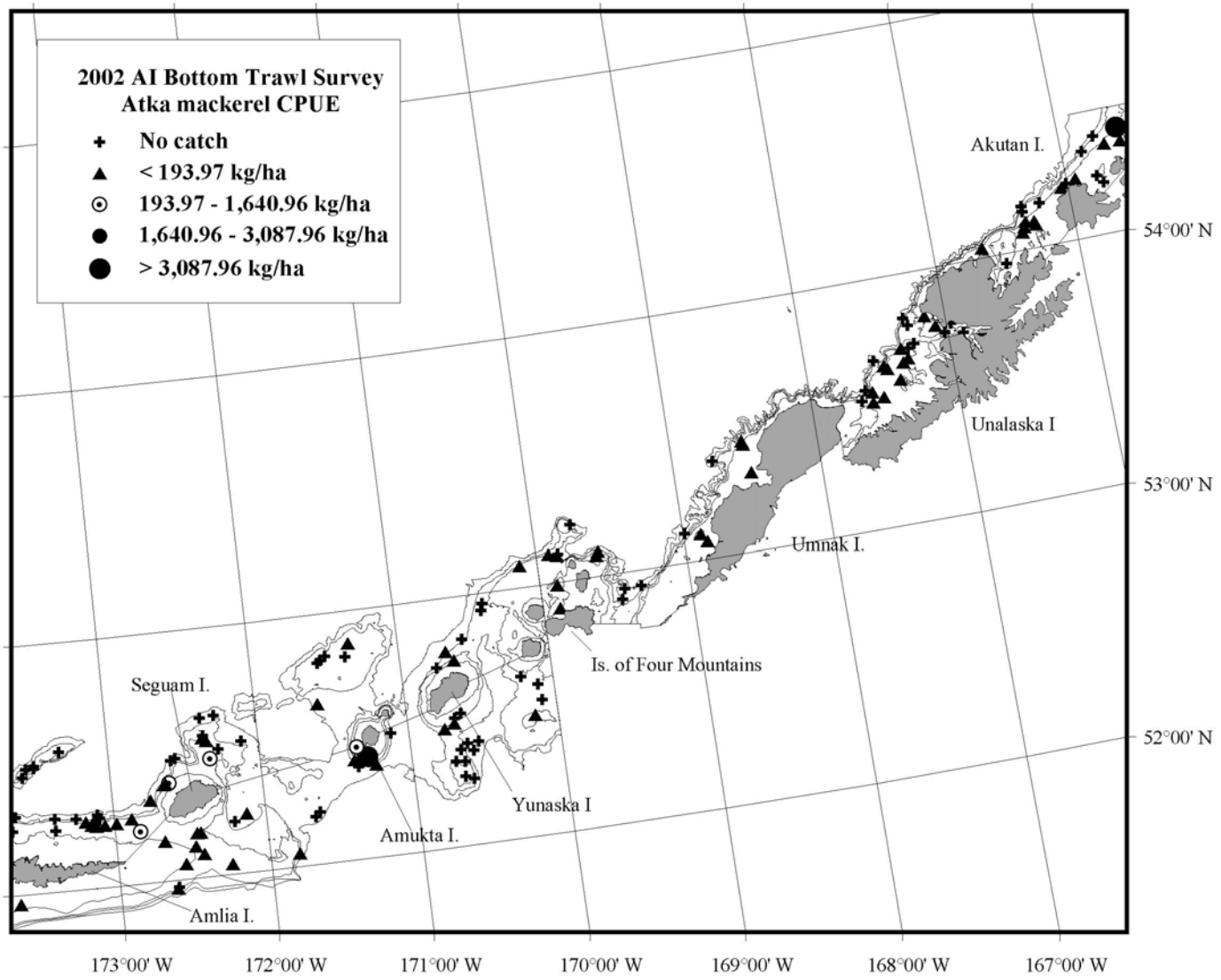


Figure 24.--Distribution and relative abundance of Atka mackerel from the 2002 Aleutian Islands bottom trawl survey. Relative abundance is categorized as no catch, sample CPUE less than mean CPUE, between mean CPUE and two standard deviations above mean CPUE, between two and four standard deviations, and greater than four standard deviations above mean CPUE.

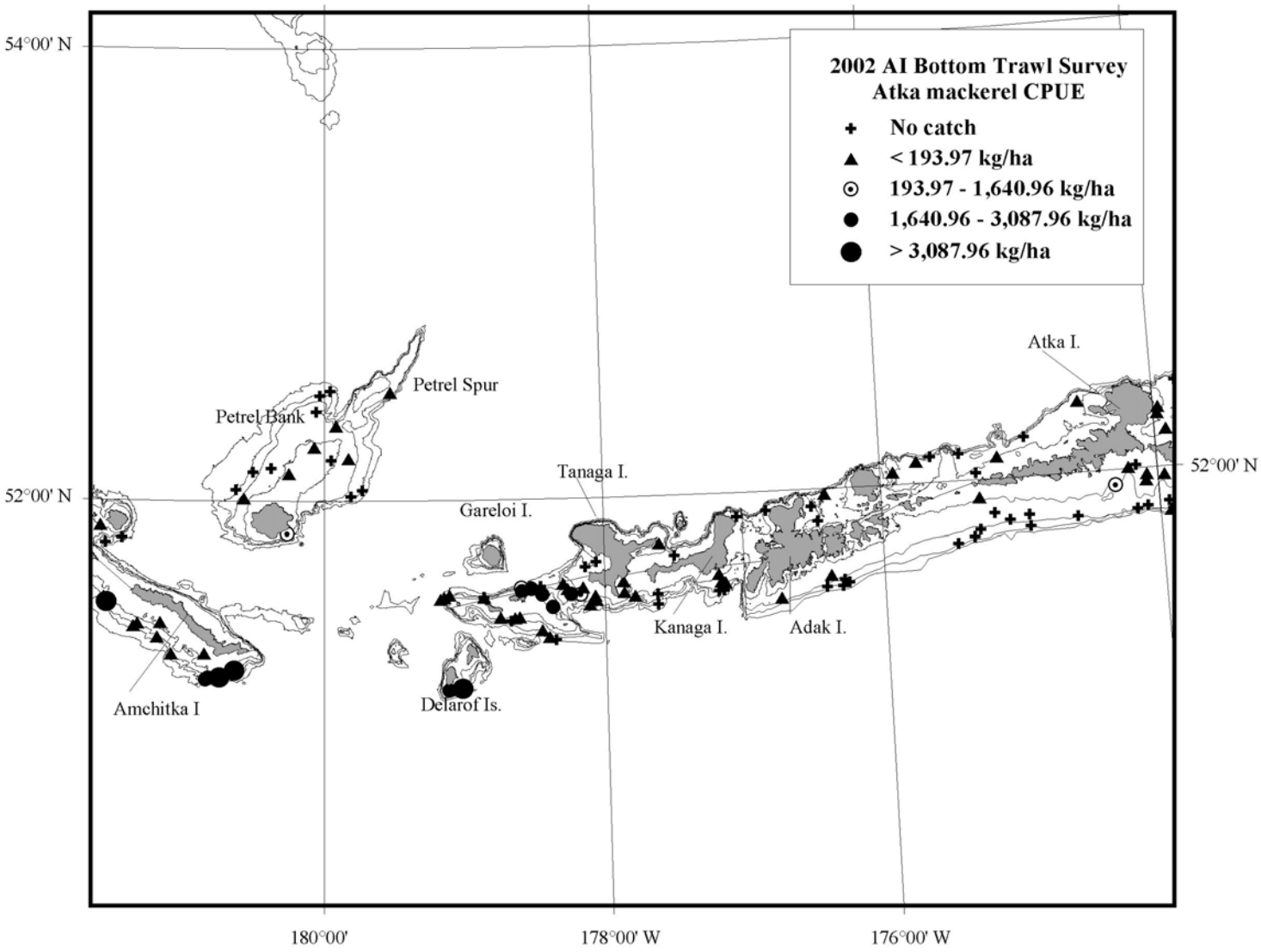
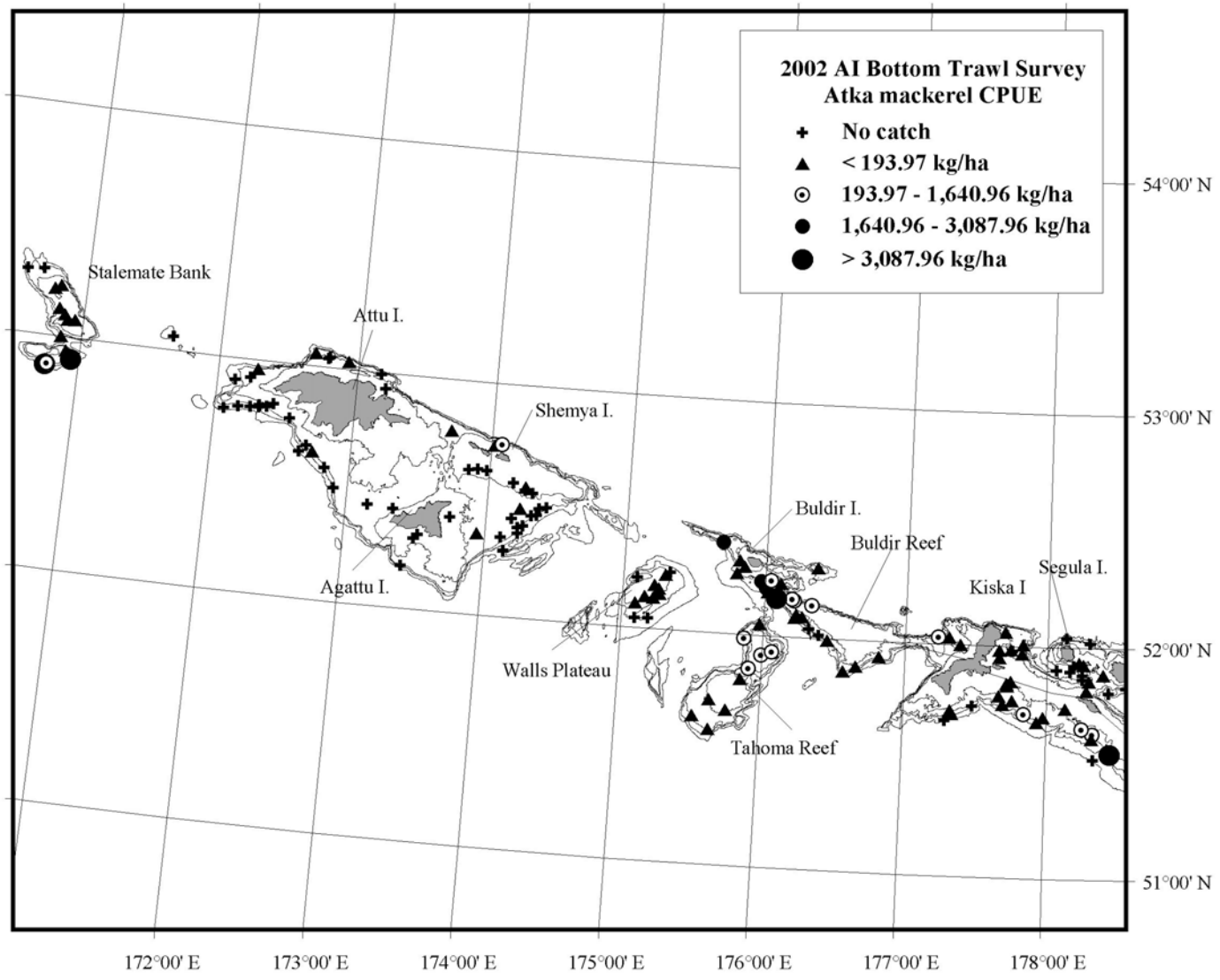


Figure 24.--(Continued).



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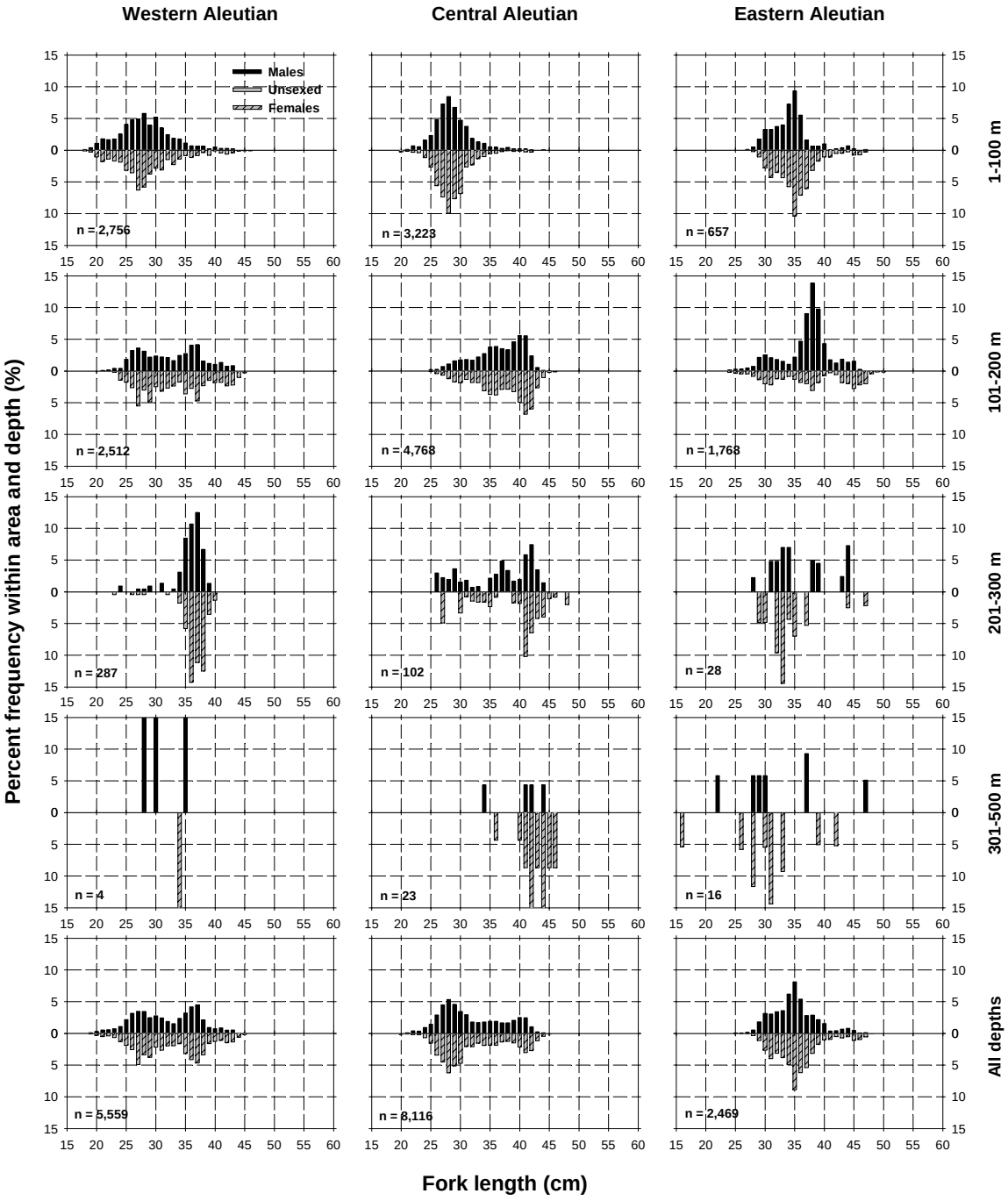


Figure 25.--Size composition of the estimated Atka mackerel population from the 2002 Aleutian Islands bottom trawl survey by NPFMC regulatory area and depth interval.

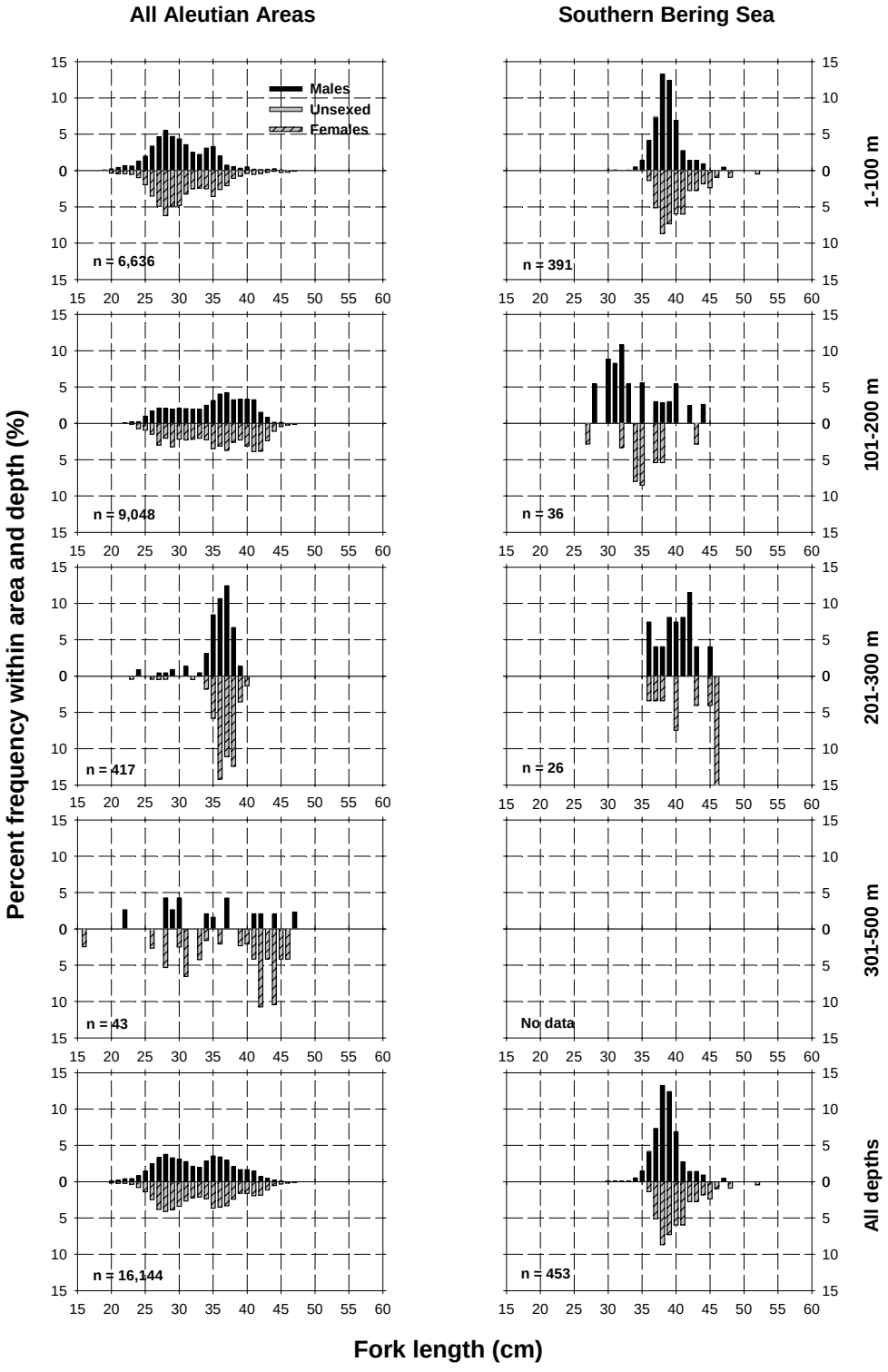


Figure 25.--(Atka mackerel, continued).

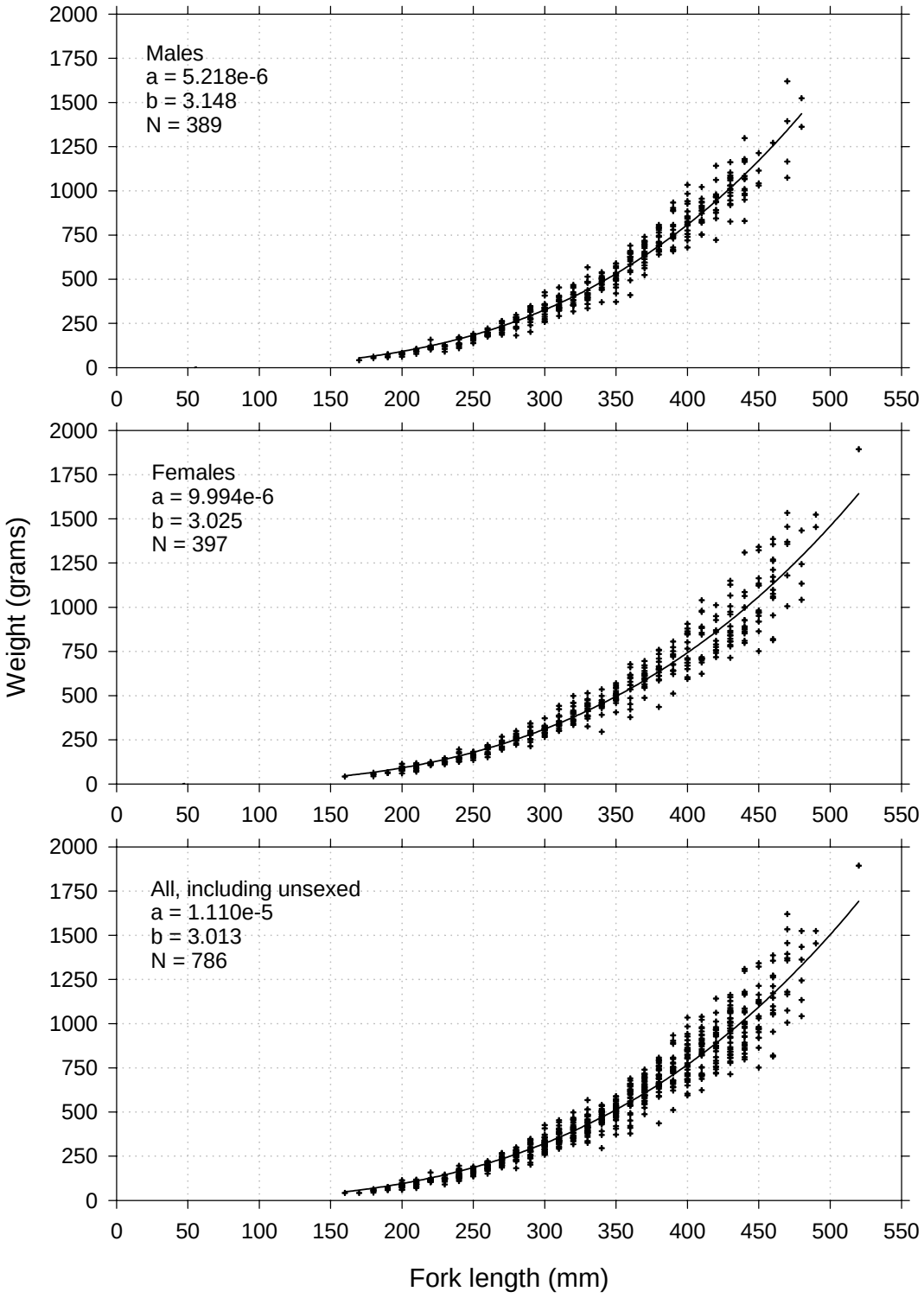


Figure 26.--Length-weight relationship for Atka mackerel specimens collected during the 2002 Aleutian Islands bottom trawl survey. The non-linear least squares regression (solid line) was calculated using the formula $Weight_{(grams)} = a * Length_{(mm)}^{b}$.

Pacific cod (*Gadus macrocephalus*)

Pacific cod were more or less evenly distributed throughout the survey area to depths of about 300 m. Cod mean CPUE was highest in the Western and Central Aleutian areas, decreased in the Eastern Aleutian area, and increased in the Southern Bering Sea area (Table 2). Estimated biomass for the entire survey area was 82,853 t. The Aleutian area biomass was quite evenly distributed among the three NPFMC areas with 24,000-25,000 t in each. Although the mean CPUE in the Southern Bering Sea was comparable to the Aleutian areas, the relatively small geographic area only produced an estimated biomass of 9,600 t (Table 23). The 101-200 m depth interval produced 60% of the overall Aleutian biomass. The 1-100 m interval produced 70% of the estimated biomass in the Southern Bering Sea area. Pacific cod was captured in 70% of all successful survey tows conducted shallower than 300 m.

There were no outstandingly large catches of Pacific cod. The highest three CPUEs were observed in the 101-200 m depth interval of all three NPFMC Aleutian regulatory areas (Table 24), specifically on Buldir Reef, south of Amchitka Island, and north of Yunaska Island (Fig. 27). In the three Aleutian areas the smallest individual mean lengths and weights were generally found at the shallower stations. Almost 5,000 cod were measured representing a very broad size range. Lengths ranged from 15 to 115 cm. In the Aleutian areas distinct length frequency modes were found at 18, 37, 48, and 56 cm (Fig. 28), probably corresponding to ages 1^+ through 4^+ years. In the Southern Bering Sea area the 48 cm mode dominated (Fig. 28).

Figure 29 shows length-weight relationships for male, female, and combined sexes of Pacific cod. Judging by the similar coefficients, the male and female regression curves track each other very closely, but there were more of the largest cod represented in the female curve.

Table 23.--Number of survey hauls, number of hauls with Pacific cod, mean CPUE, biomass estimates with confidence limits, mean weight, and mean length based on the 2002 Aleutian Islands bottom trawl survey, by NPFMC regulatory area and depth interval.

NPFMC area	Depth (m)	Number of trawl hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	95% Confidence limits Minimum biomass (t)	95% Confidence limits Maximum biomass (t)	Mean weight (kg)	Mean length (cm)
Western Aleutian	1-100	26	13	18.89	9,214	1,938	16,489	2.707	51.3
	101-200	51	29	27.09	14,403	5,044	23,763	4.259	64.8
	201-300	19	6	1.07	185	29	341	2.543	59.4
	301-500	13	0	-	-	-	-	-	-
	All depths	109	48	15.67	23,802	12,011	35,592	3.471	58.0
Central Aleutian	1-100	30	26	21.21	12,400	1,158	23,641	3.659	58.5
	101-200	45	40	24.61	11,333	4,777	17,889	3.763	61.0
	201-300	23	14	2.26	477	110	844	2.663	57.1
	301-500	17	0	-	-	-	-	-	-
	All depths	115	80	14.63	24,210	11,337	37,083	3.680	59.6
Eastern Aleutian	1-100	16	11	6.25	4,281	0	10,921	0.731	38.2
	101-200	47	32	23.47	18,231	1,706	34,757	3.207	61.1
	201-300	42	22	5.17	2,535	1,439	3,630	2.631	58.8
	301-500	27	2	0.34	194	0	487	2.515	57.5
	All depths	132	67	10.02	25,241	8,110	42,371	2.007	50.3
All Aleutian Areas	1-100	72	50	14.74	25,894	12,008	39,780	2.048	47.2
	101-200	143	101	24.85	43,968	24,147	63,789	3.640	62.1
	201-300	84	42	3.66	3,196	2,054	4,339	2.631	58.6
	301-500	57	2	0.15	194	0	487	2.515	57.5
	All depths	356	195	12.87	73,252	49,521	96,983	2.816	54.5
Southern Bering Sea	1-100	30	30	16.79	6,758	3,059	10,457	2.223	53.4
	101-200	16	16	7.46	1,380	659	2,100	1.606	49.5
	201-300	7	7	21.95	1,238	56	2,419	2.623	59.8
	301-500	8	4	2.16	226	0	480	3.439	67.7
	All depths	61	57	12.83	9,601	5,707	13,495	2.164	53.5

Table 24.--Sampling effort, mean CPUE, and estimated biomass with 95% confidence limits (CL) of Pacific cod by NPFMC regulatory area and survey subarea, ranked by descending mean CPUE for the 2002 Aleutian Islands bottom trawl survey.

NPFMC Area	Depth range (m)	Subarea	Number of hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	Biomass CL Min. (t)	Biomass CL Max. (t)
Western Aleutian	101-200	E Western Aleutian	23	14	70.58	8,840	644	17,035
Eastern Aleutian	101-200	NE Eastern Aleutian	17	14	62.92	12,663	0	28,623
Central Aleutian	101-200	SW Central Aleutian	17	17	54.04	5,686	1,084	10,288
Central Aleutian	1-100	N Central Aleutian	14	12	34.89	7,348	0	18,048
Central Aleutian	101-200	N Central Aleutian	8	7	30.65	3,267	0	8,381
Central Aleutian	101-200	SE Central Aleutian	14	14	28.94	2,176	1,111	3,241
Eastern Aleutian	201-300	NW Eastern Aleutian	2	2	27.89	435	0	1,979
Southern Bering	1-100	E Southern Bering Sea	27	27	23.70	5,782	2,080	9,485
Central Aleutian	1-100	SE Central Aleutian	7	7	23.02	2,679	0	6,474
Southern Bering	201-300	Combined Southern Bering	7	7	21.95	1,238	16	2,460
Western Aleutian	1-100	W Western Aleutian	16	9	19.33	7,141	209	14,072
Eastern Aleutian	101-200	SE Eastern Aleutian	15	8	17.86	3,395	0	8,554
Western Aleutian	1-100	E Western Aleutian	10	4	17.52	2,073	0	4,661
Eastern Aleutian	1-100	NW Eastern Aleutian	4	3	13.87	2,680	0	10,123
Western Aleutian	101-200	W Western Aleutian	28	15	13.69	5,563	608	10,519
Central Aleutian	1-100	Petrel Bank	4	3	13.22	1,270	0	4,687
Eastern Aleutian	101-200	NW Eastern Aleutian	6	4	8.43	1,344	0	3,234
Southern Bering	101-200	E Southern Bering Sea	11	11	8.38	988	320	1,657
Eastern Aleutian	1-100	NE Eastern Aleutian	2	2	6.96	882	0	2,219
Central Aleutian	1-100	SW Central Aleutian	5	4	6.82	1,104	0	3,121
Eastern Aleutian	201-300	NE Eastern Aleutian	22	12	6.73	1,325	449	2,202
Southern Bering	1-100	W Southern Bering Sea	3	3	6.15	976	392	1,559
Southern Bering	101-200	W Southern Bering Sea	5	5	5.85	391	0	810
Central Aleutian	201-300	SE Central Aleutian	4	4	5.69	272	0	679
Eastern Aleutian	101-200	SW Eastern Aleutian	9	6	3.67	830	37	1,623
Central Aleutian	201-300	N Central Aleutian	10	6	3.27	143	15	271
Eastern Aleutian	1-100	SE Eastern Aleutian	5	3	3.14	546	0	1,847
Eastern Aleutian	201-300	SW Eastern Aleutian	6	3	3.03	217	0	579
Eastern Aleutian	201-300	SE Eastern Aleutian	12	5	2.70	557	0	1,162
Eastern Aleutian	301-500	SW Eastern Aleutian	2	1	2.42	106	0	1,452
Southern Bering	301-500	Combined Southern Bering	8	4	2.16	226	0	486
Western Aleutian	201-300	W Western Aleutian	9	5	1.84	173	17	330
Central Aleutian	201-300	SW Central Aleutian	6	4	1.46	62	0	132
Central Aleutian	101-200	Petrel Bank	6	2	1.18	205	0	589
Eastern Aleutian	1-100	SW Eastern Aleutian	5	3	0.90	172	0	573
Eastern Aleutian	301-500	Combined Eastern Aleutian	13	1	0.33	88	0	280
Western Aleutian	201-300	E Western Aleutian	10	1	0.15	12	0	38

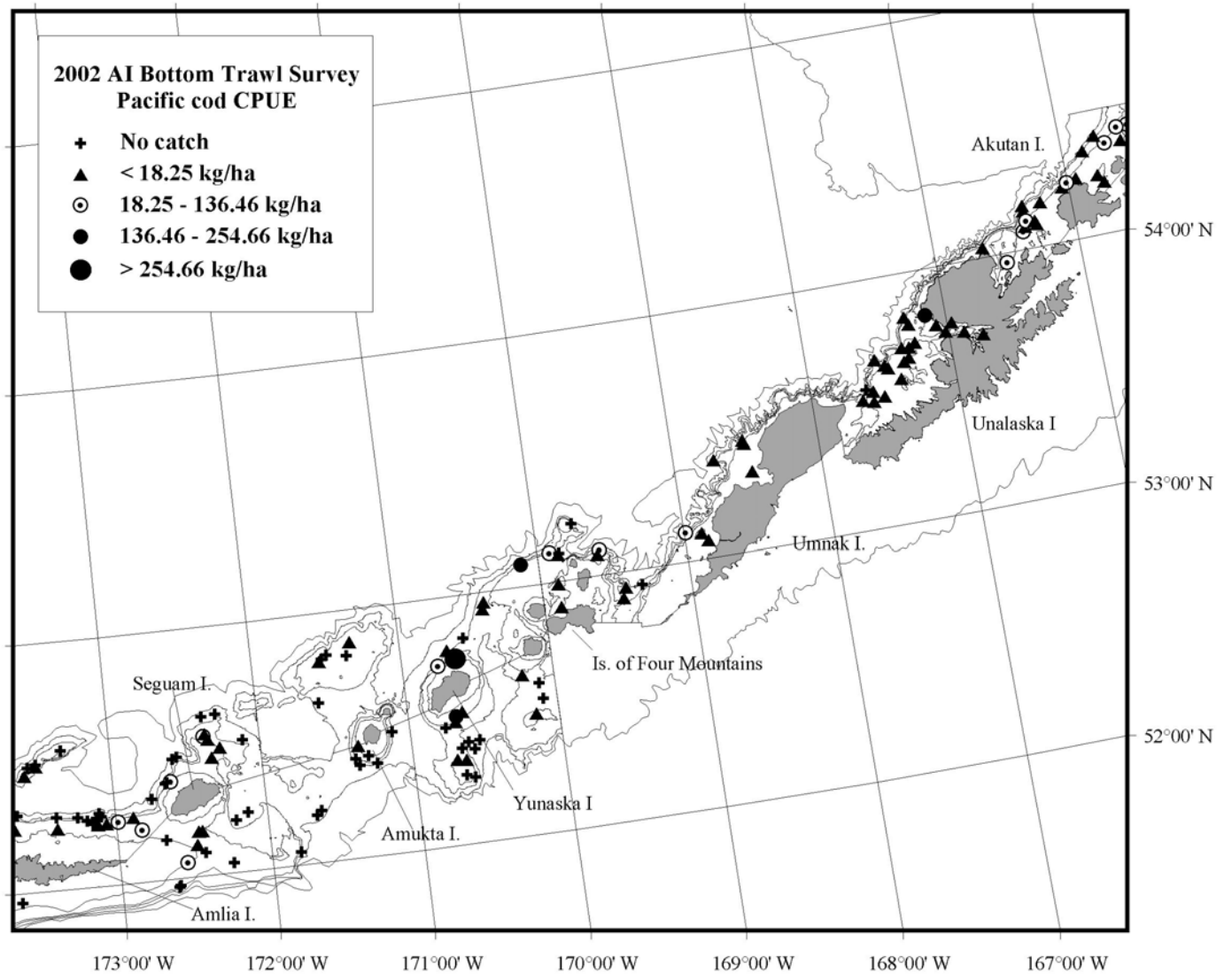
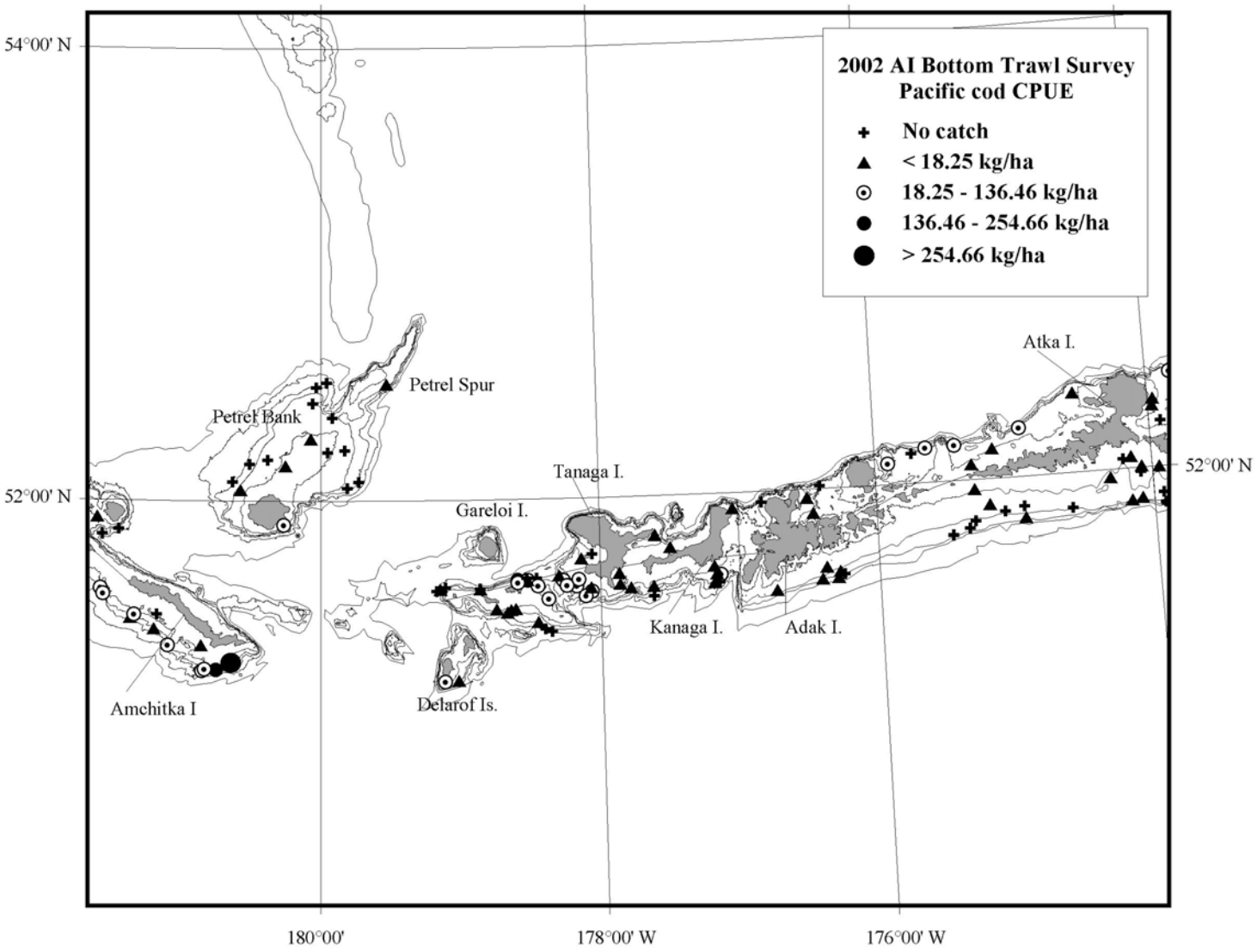


Figure 27.--Distribution and relative abundance of Pacific cod from the 2002 Aleutian Islands bottom trawl survey. Relative abundance is categorized as no catch, sample CPUE less than mean CPUE, between mean CPUE and two standard deviations above mean CPUE, between two and four standard deviations, and greater than four standard deviations above mean CPUE.



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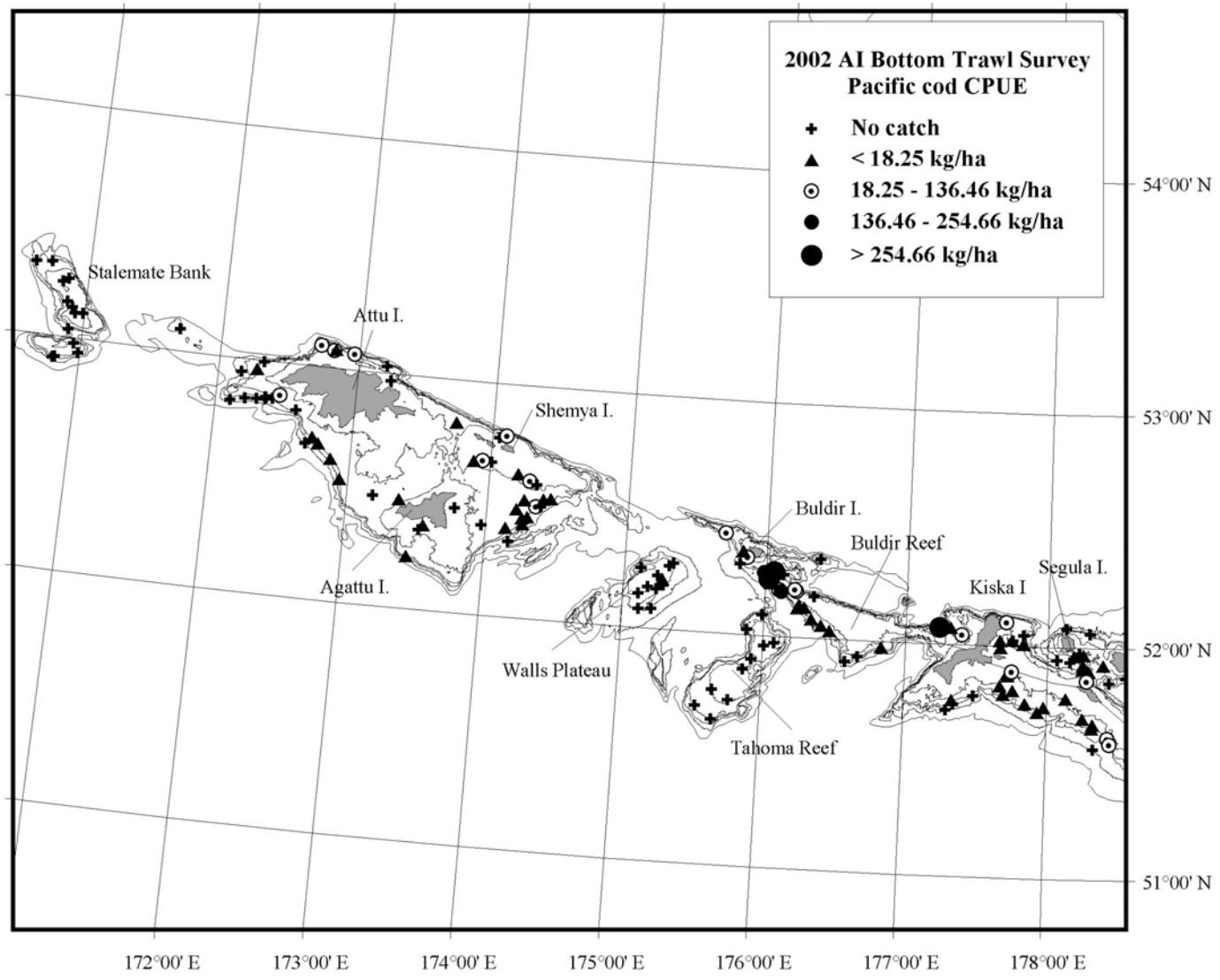

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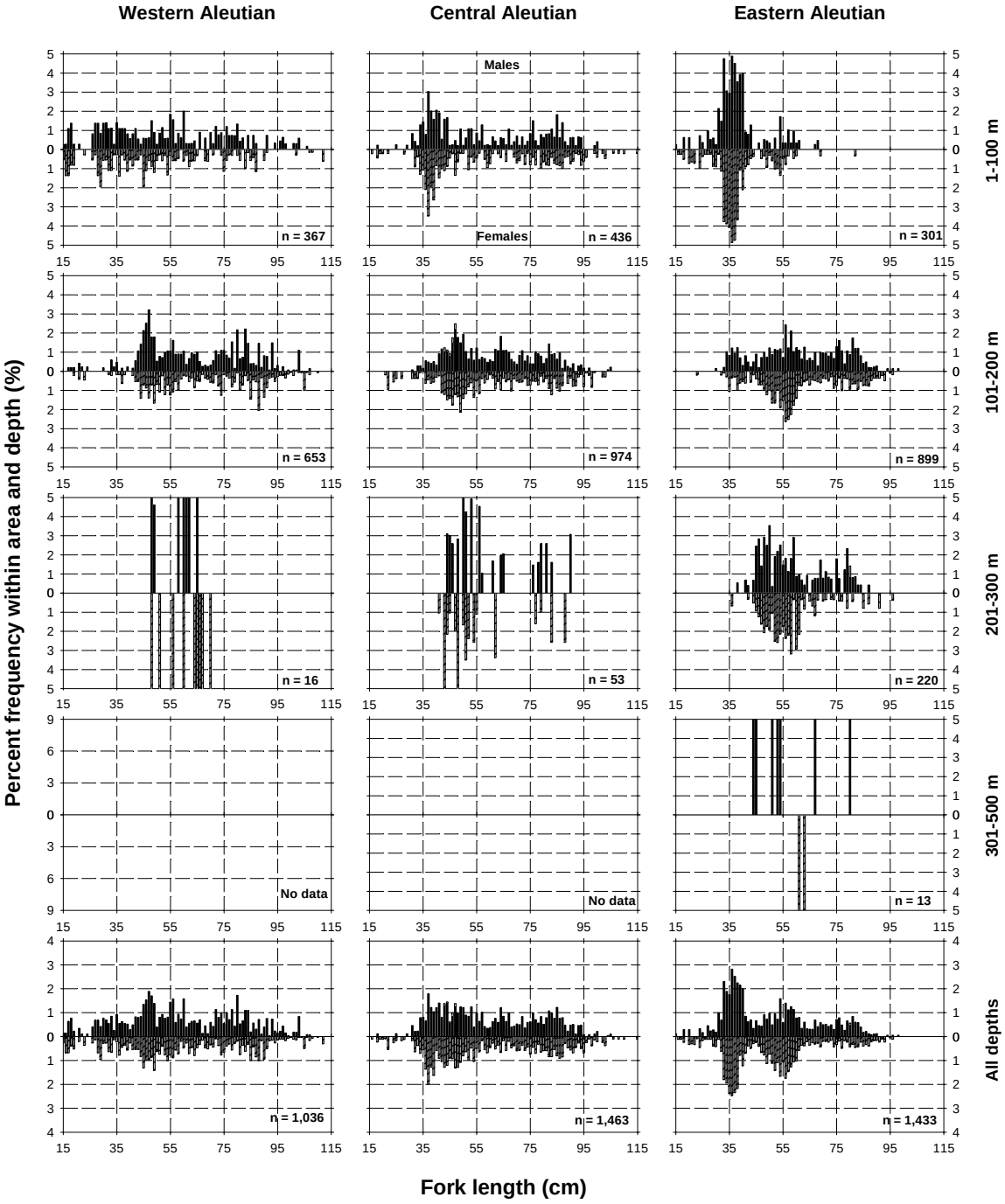


Figure 28.--Size composition of the estimated Pacific cod population from the 2002 Aleutian Islands bottom trawl survey by NPFMC regulatory area and depth interval.

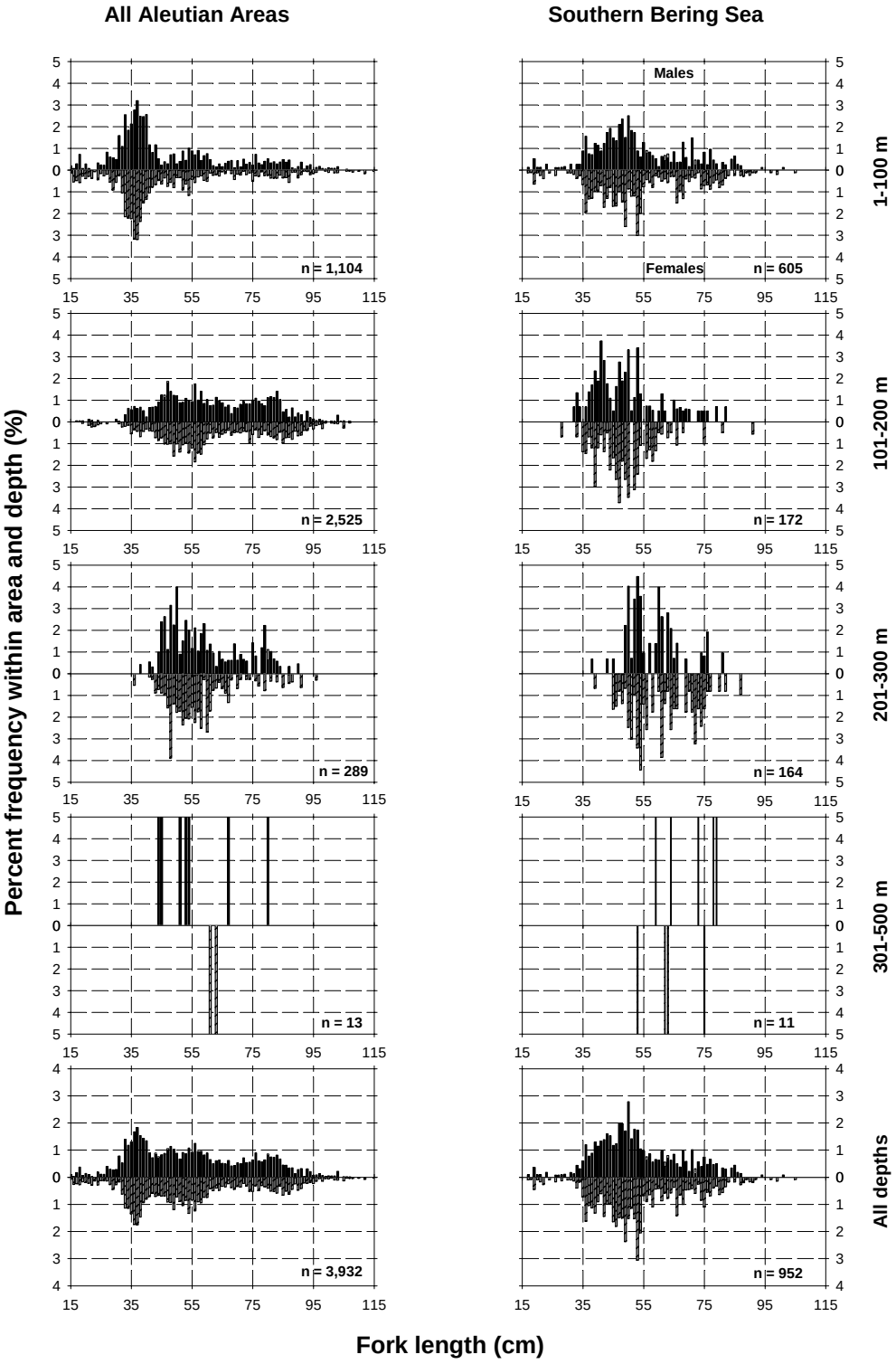


Figure 28.--(Pacific cod, continued).

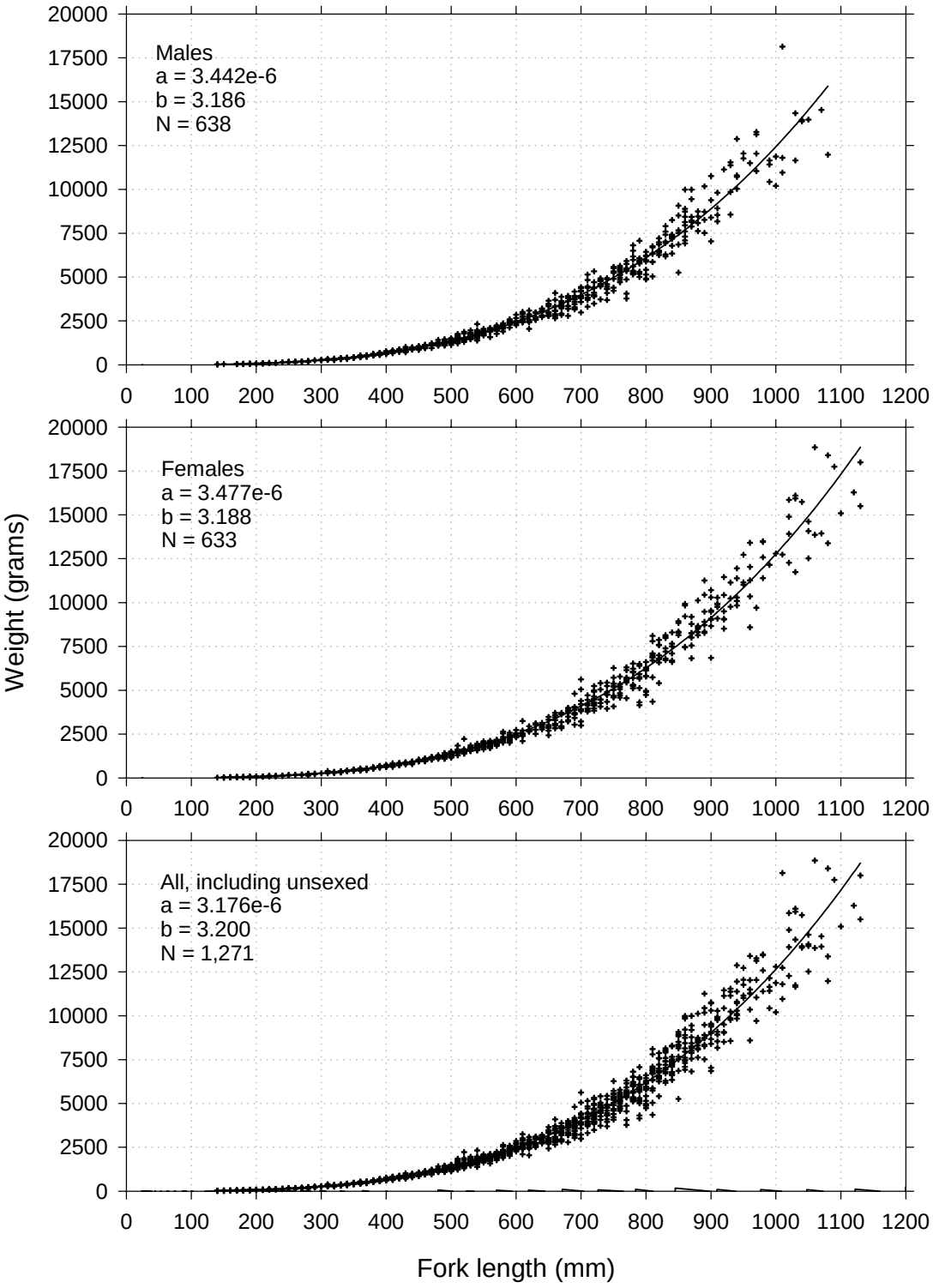


Figure 29.--Length-weight relationship for Pacific cod specimens collected during the 2002 Aleutian Islands bottom trawl survey. The non-linear least squares regression (solid line) was calculated using the formula $Weight_{(grams)} = a * Length_{(mm)}^{b}$.

Walleye pollock (*Theragra chalcogramma*)

Walleye pollock mean CPUE was the fifth highest in the combined Aleutian areas and by far the highest in the Southern Bering Sea area (Table 2). Pollock was captured in all areas and depth intervals. Estimated total pollock biomass reached almost 357,000 t and 46% of the total was found in the 1-100 m depth interval in the Southern Bering Sea area (Table 25). Pollock mean CPUE in the Southern Bering Sea area decreased with depth. In the Aleutian areas, mean CPUE was highest in the 201-300 m and 301-500 m depth intervals in the Central Aleutian area, but was less than half of that found in the 1-100 m interval in the Southern Bering Sea area. In the areas where pollock was most abundant, a large proportion of trawl hauls caught that species (Table 25).

The three highest subarea mean CPUEs were in the N Central Aleutian subarea (201-300 m and 301-500 m) and Southern Bering Sea area (1-100 m). Although yielding a higher mean CPUE (Table 26) because it is geographically small in comparison to the 1-100 m depth interval in the Southern Bering Sea area, the 201-300 m depth interval in the N Central Aleutian subarea produced a much smaller estimated biomass. The high mean CPUE in the N Central area resulted from catches that occurred immediately west of Tanaga Island. The high mean CPUE from the Southern Bering Sea area resulted from a group of large catches near Akun and Akutan Islands (Fig. 30). A catch of pollock from a station west of Seguam Island produced the fourth highest subarea mean CPUE.

Pollock from the high abundance depth intervals in the N Central Aleutian area were more than 10 cm longer and more than 0.5 kg heavier on average than pollock from the Southern Bering Sea area (Table 25). Figure 31 shows the difference in the principal modes (fork length) from the Aleutian areas and the Southern Bering Sea area. The female mode at about 60-63 cm likely corresponds to the same cohort as a male mode at about 57-59 cm in the Aleutian areas, as do similar modes of females at about 47-48 cm and males at 45-47 cm in the Southern Bering Sea area. In the entire survey area juvenile and subadult pollock (< 40 cm) were not abundant. Figure 32 illustrates the length-weight relationships for male, female, and combined sexes of walleye pollock.

Table 25.--Number of survey hauls, number of hauls with walleye pollock, mean CPUE, biomass estimates with confidence limits, mean weight, and mean length based on the 2002 Aleutian Islands bottom trawl survey, by NPFMC regulatory area and depth interval.

NPFMC area	Depth (m)	Number of trawl hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	95% Confidence limits Minimum biomass (t)	95% Confidence limits Maximum biomass (t)	Mean weight (kg)	Mean length (cm)
Western Aleutian	1-100	26	5	0.83	404	0	1,149	1.373	50.9
	101-200	51	30	4.57	2,429	0	5,056	0.803	41.3
	201-300	19	17	55.38	9,546	0	21,663	1.178	53.8
	301-500	13	2	0.19	62	0	269	1.355	56.4
	All depths	109	54	8.19	12,442	288	24,596	1.085	50.4
Central Aleutian	1-100	30	10	1.16	677	0	1,939	0.349	35.8
	101-200	45	34	38.40	17,684	0	35,504	1.244	54.3
	201-300	23	23	174.32	36,761	0	79,614	1.472	57.9
	301-500	17	9	133.36	53,086	0	169,747	1.786	61.3
	All depths	115	76	65.41	108,208	0	232,120	1.527	58.0
Eastern Aleutian	1-100	16	9	2.27	1,558	0	7,160	0.417	34.5
	101-200	47	26	50.20	38,995	0	119,548	1.411	56.6
	201-300	42	26	22.14	10,850	1,065	20,635	1.434	57.0
	301-500	27	18	5.69	3,232	639	5,824	1.427	56.5
	All depths	132	79	21.68	54,634	0	135,542	1.326	54.7
All Aleutian Areas	1-100	72	24	1.50	2,638	0	7,321	0.442	35.7
	101-200	143	90	33.41	59,108	0	141,053	1.317	54.9
	201-300	84	66	65.44	57,157	14,530	99,785	1.406	56.9
	301-500	57	29	43.58	56,380	0	173,077	1.760	60.9
	All depths	356	209	30.79	175,283	35,077	315,489	1.419	56.2
Southern Bering Sea	1-100	30	28	404.59	162,882	51,885	273,879	0.835	48.2
	101-200	16	16	79.18	14,637	6,363	22,911	0.897	47.8
	201-300	7	6	42.70	2,408	0	5,313	1.413	57.0
	301-500	8	7	13.50	1,408	85	2,731	1.125	52.6
	All depths	61	57	242.38	181,334	70,035	292,634	0.846	48.2

Table 26.--Sampling effort, mean CPUE, and estimated biomass with 95% confidence limits (CL) of walleye pollock by NPFMC regulatory area and survey subarea, ranked by descending mean CPUE for the 2002 Aleutian Islands bottom trawl survey.

NPFMC Area	Depth range (m)	Subarea	Number of hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	Biomass CL Min. (t)	Biomass CL Max. (t)
Central Aleutian	201-300	N Central Aleutian	10	10	728.65	31,988	0	75,780
Southern Bering	1-100	E Southern Bering Sea	27	25	660.63	161,211	50,011	272,411
Central Aleutian	301-500	N Central Aleutian	8	6	426.97	52,934	0	172,579
Eastern Aleutian	101-200	NE Eastern Aleutian	17	11	191.32	38,505	0	119,438
Southern Bering	101-200	E Southern Bering Sea	11	11	121.98	14,384	6,021	22,746
Western Aleutian	201-300	E Western Aleutian	10	9	84.25	6,600	0	18,668
Central Aleutian	101-200	SW Central Aleutian	17	15	71.42	7,515	0	16,170
Eastern Aleutian	201-300	NE Eastern Aleutian	22	12	49.25	9,696	0	19,457
Central Aleutian	201-300	SW Central Aleutian	6	6	42.74	1,821	0	3,715
Southern Bering	201-300	Combined Southern Bering	7	6	42.70	2,408	0	5,414
Central Aleutian	201-300	Petrel Bank	3	3	36.83	2,823	0	11,130
Central Aleutian	101-200	Petrel Bank	6	5	35.80	6,213	0	20,706
Central Aleutian	101-200	N Central Aleutian	8	6	35.79	3,816	0	12,541
Western Aleutian	201-300	W Western Aleutian	9	8	31.34	2,946	0	7,225
Eastern Aleutian	201-300	NW Eastern Aleutian	2	2	27.75	433	0	4,258
Southern Bering	301-500	Combined Southern Bering	8	7	13.50	1,408	51	2,765
Eastern Aleutian	1-100	NE Eastern Aleutian	2	2	11.80	1,496	0	18,035
Western Aleutian	101-200	E Western Aleutian	23	13	11.34	1,420	0	3,913
Southern Bering	1-100	W Southern Bering Sea	3	3	10.54	1,671	0	5,246
Eastern Aleutian	301-500	Combined Eastern Aleutian	13	7	6.36	1,698	0	4,046
Eastern Aleutian	201-300	SW Eastern Aleutian	6	4	6.23	446	0	1,333
Eastern Aleutian	301-500	SE Eastern Aleutian	12	9	5.22	1,344	0	2,718
Eastern Aleutian	301-500	SW Eastern Aleutian	2	2	4.33	190	0	874
Southern Bering	101-200	W Southern Bering Sea	5	5	3.79	254	0	850
Central Aleutian	1-100	N Central Aleutian	14	6	2.83	596	0	1,858
Central Aleutian	201-300	SE Central Aleutian	4	4	2.70	129	0	328
Western Aleutian	101-200	W Western Aleutian	28	17	2.48	1,009	0	2,023
Central Aleutian	101-200	SE Central Aleutian	14	8	1.86	140	0	350
Eastern Aleutian	101-200	SE Eastern Aleutian	15	7	1.85	351	0	876
Eastern Aleutian	201-300	SE Eastern Aleutian	12	8	1.34	275	0	616
Western Aleutian	1-100	W Western Aleutian	16	4	1.08	399	0	1,147
Central Aleutian	301-500	Petrel Bank	3	1	1.04	129	0	685
Central Aleutian	1-100	SE Central Aleutian	7	2	0.64	75	0	256
Eastern Aleutian	101-200	NW Eastern Aleutian	6	3	0.49	79	0	222
Central Aleutian	301-500	SE Central Aleutian	4	2	0.33	24	0	85
Western Aleutian	301-500	E Western Aleutian	2	1	0.29	45	0	613
Eastern Aleutian	1-100	SW Eastern Aleutian	5	4	0.28	53	0	145
Eastern Aleutian	101-200	SW Eastern Aleutian	9	5	0.27	60	0	160
Western Aleutian	301-500	W Western Aleutian	11	1	0.10	18	0	57
Central Aleutian	1-100	Petrel Bank	4	1	0.05	5	0	20
Western Aleutian	1-100	E Western Aleutian	10	1	0.05	6	0	19

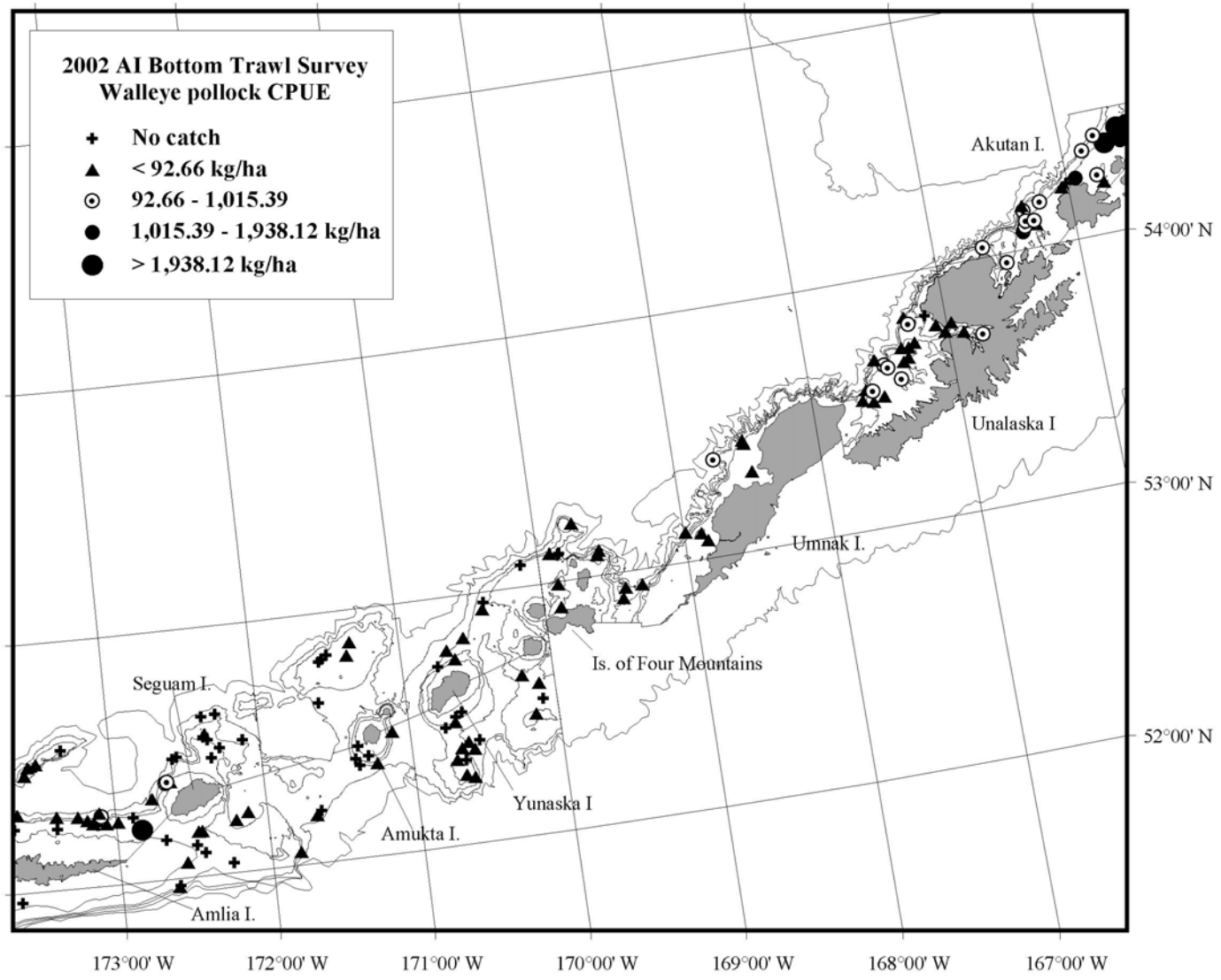
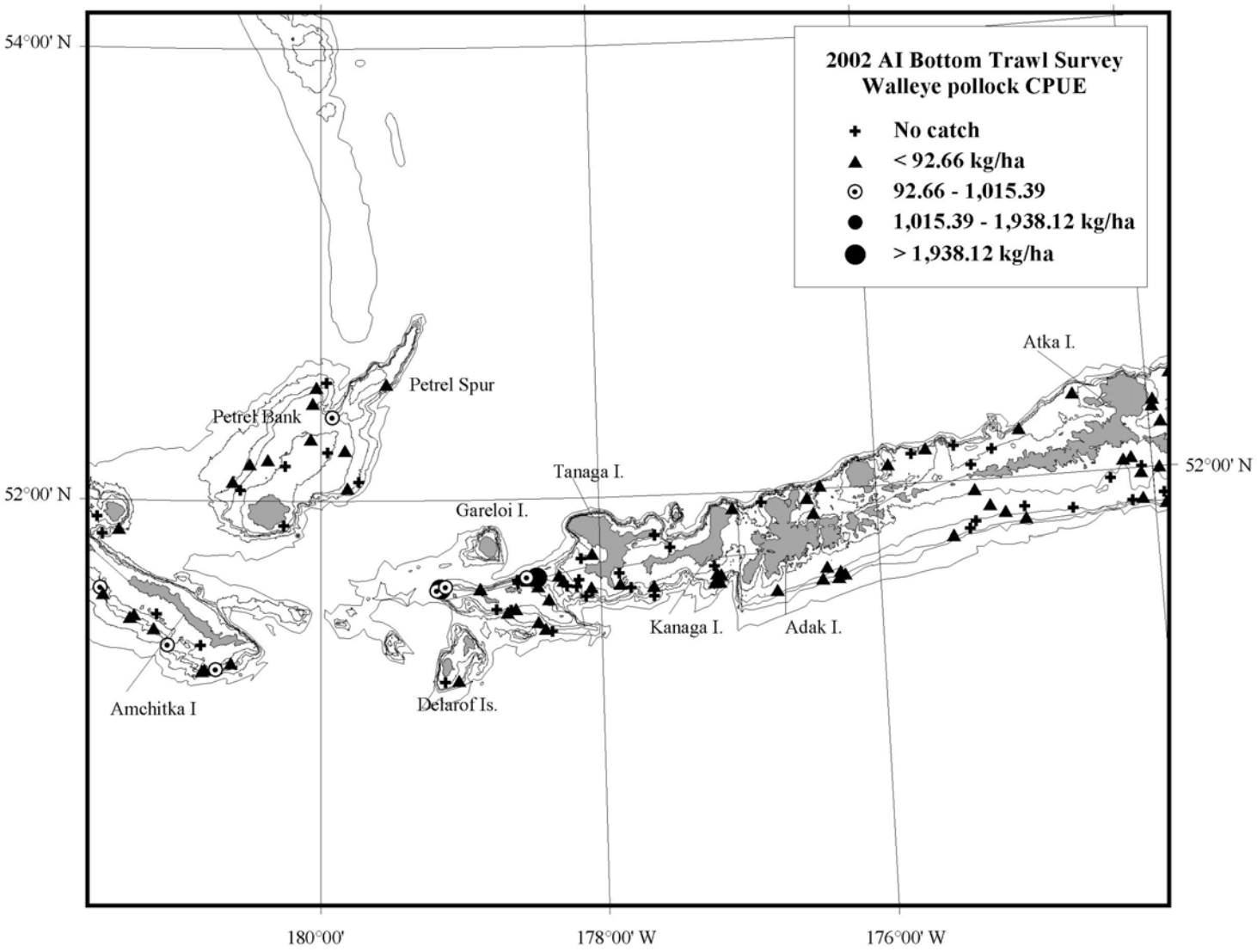


Figure 30.--Distribution and relative abundance of walleye pollock from the 2002 Aleutian Islands bottom trawl survey. Relative abundance is categorized as no catch, sample CPUE less than mean CPUE, between mean CPUE and two standard deviations above mean CPUE, between two and four standard deviations, and greater than four standard deviations above mean CPUE.



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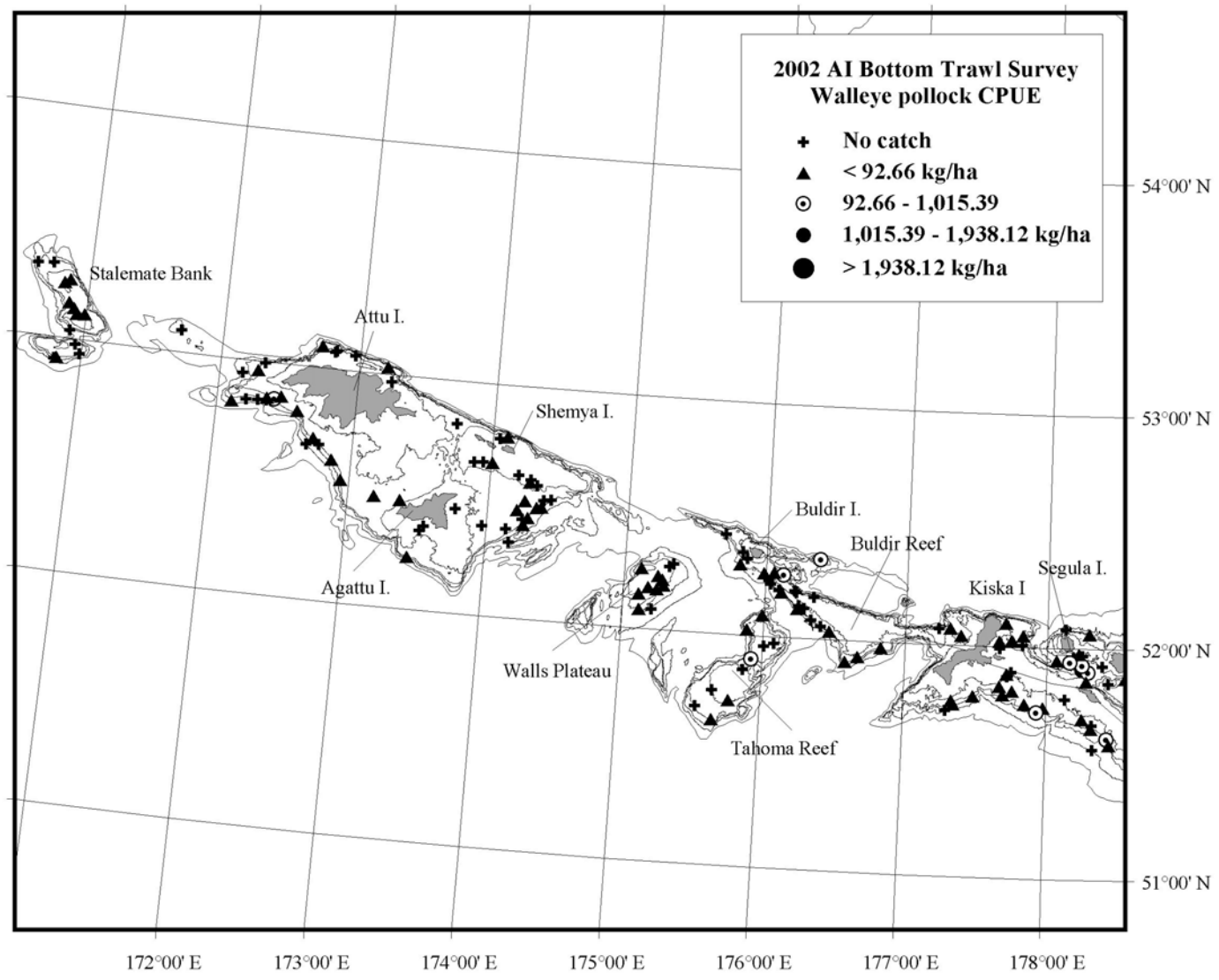

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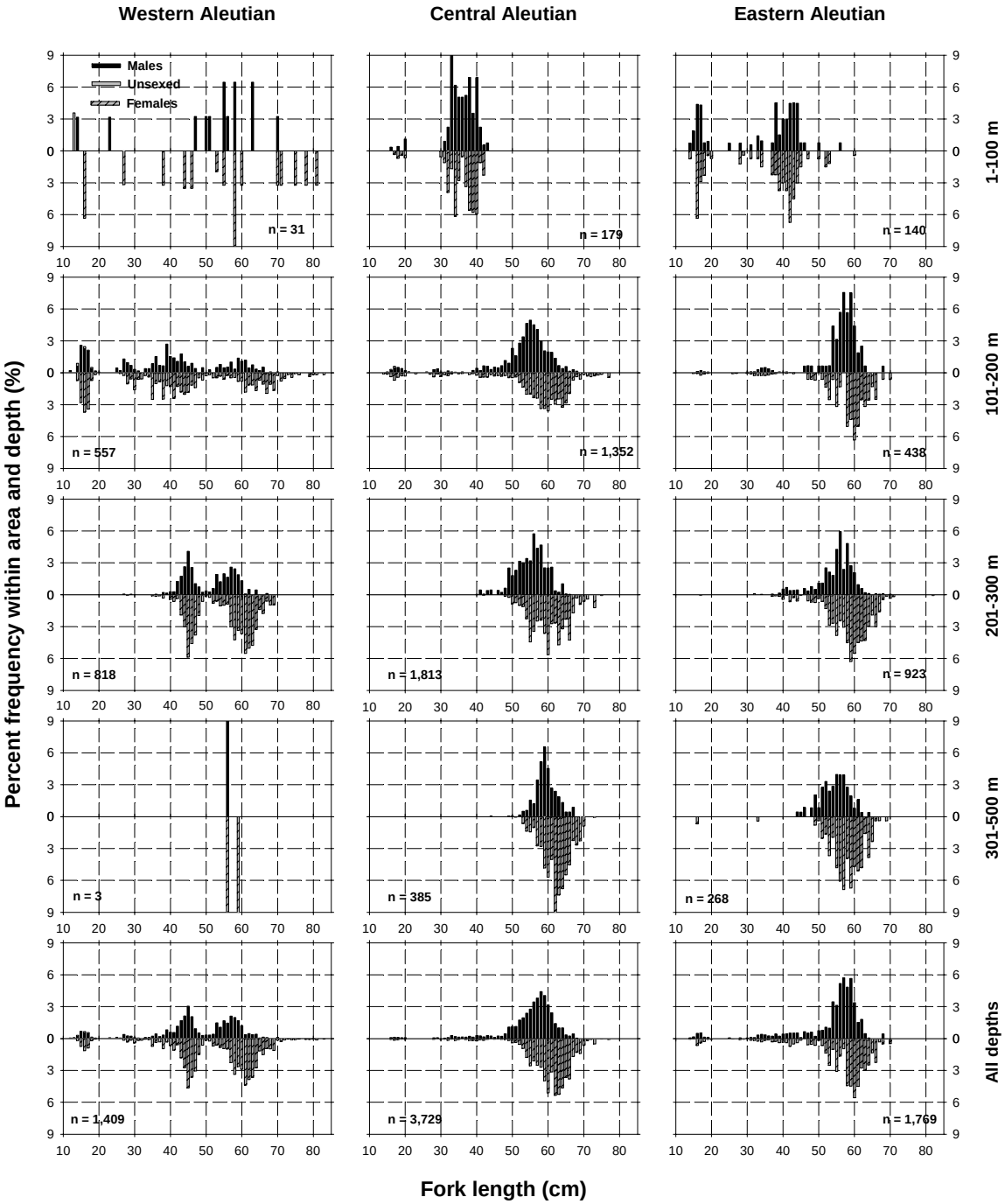


Figure 31.--Size composition of the estimated walleye pollock population from the 2002 Aleutian Islands bottom trawl survey by NPFMC regulatory area and depth interval.

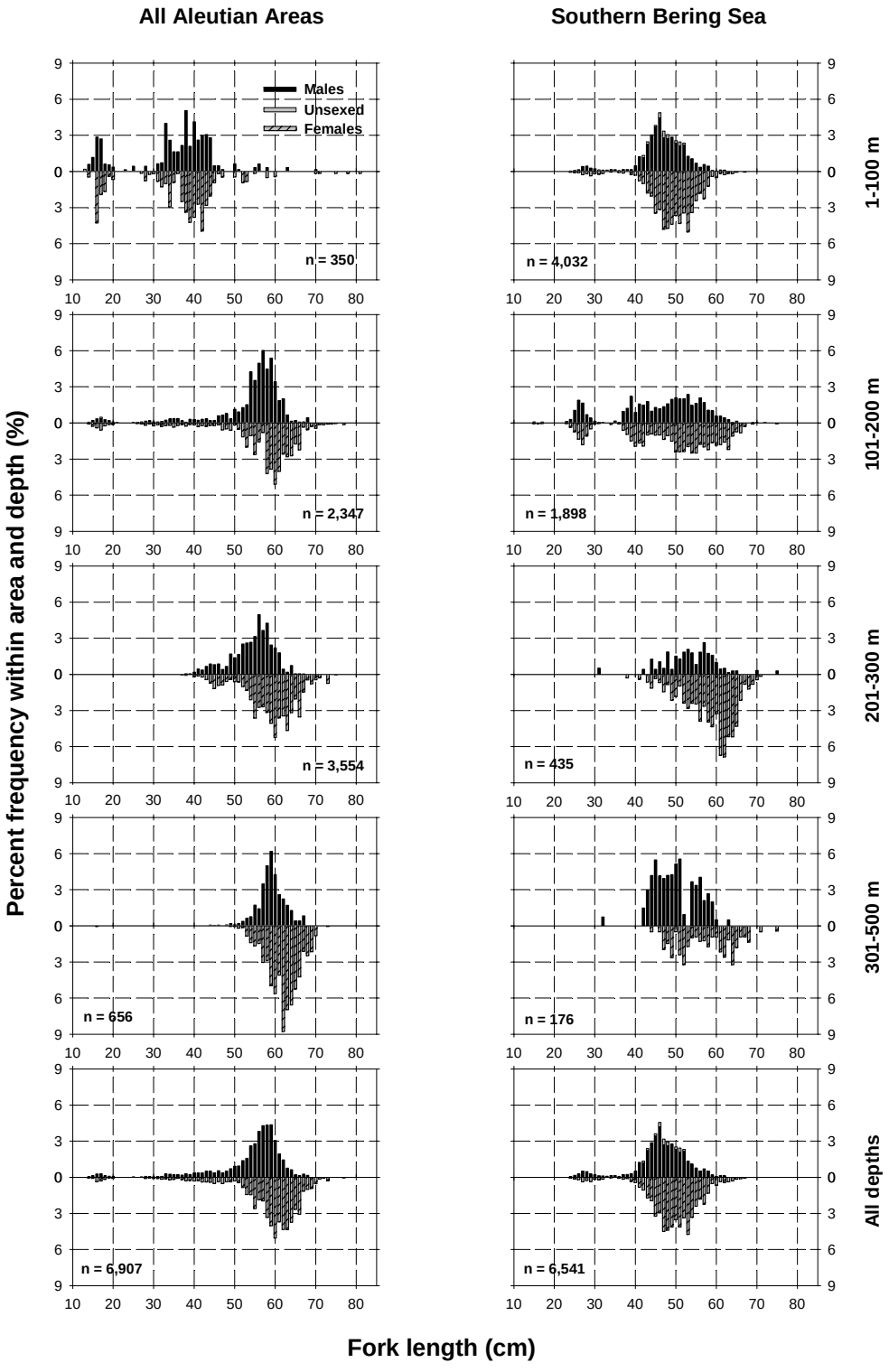


Figure 31.--(Walleye pollock, continued).

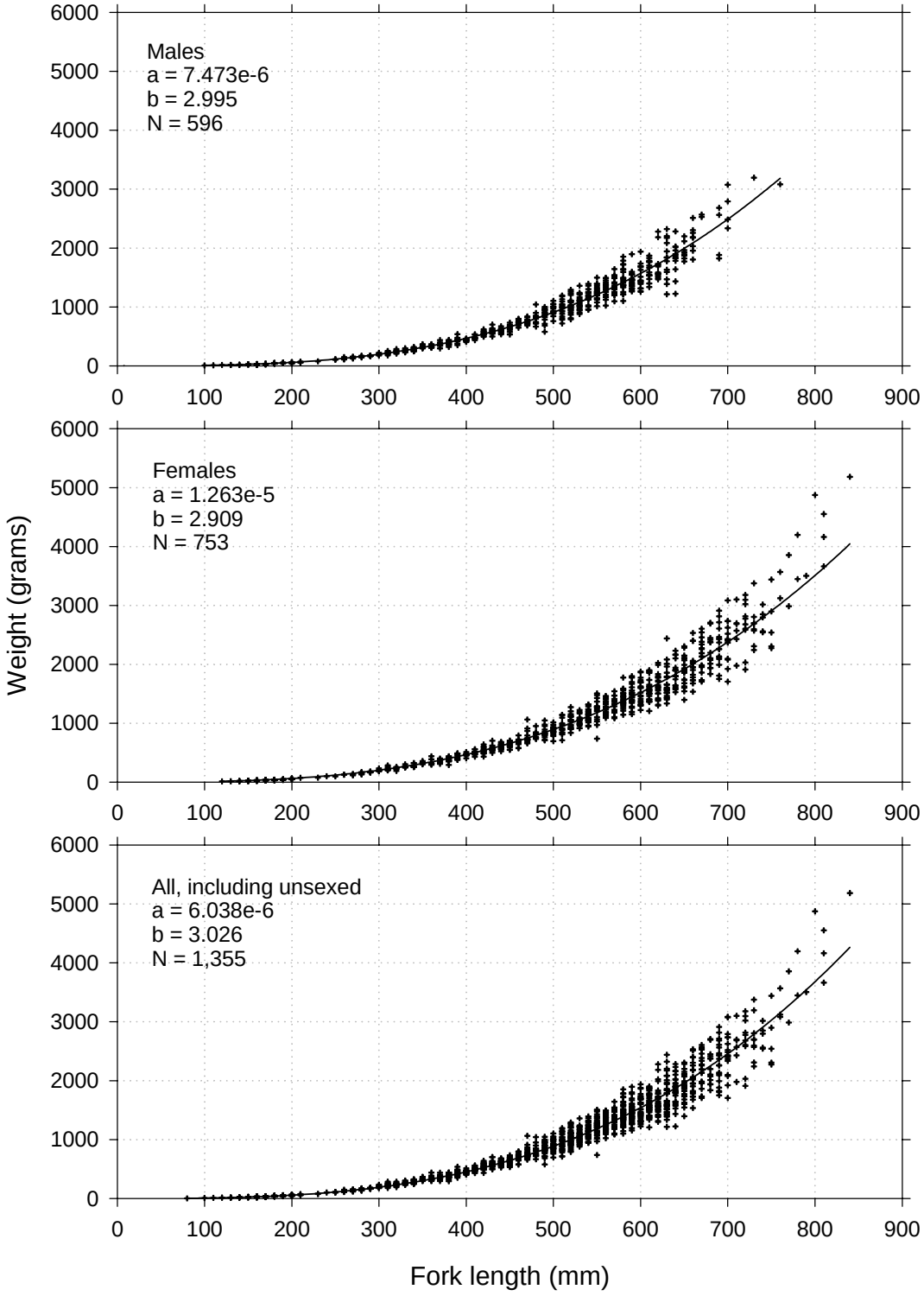


Figure 32.--Length-weight relationship for walleye pollock specimens collected during the 2002 Aleutian Islands bottom trawl survey. The non-linear least squares regression (solid line) was calculated using the formula $\text{Weight}_{(\text{grams})} = a * \text{Length}_{(\text{mm})}^{\ b}$.

Sablefish (*Anoplopoma fimbria*)

Sablefish habitat customarily extends deeper than is sampled by this survey. Mean CPUE was highest in the Central Aleutian area (Table 2). Throughout the entire survey area, mean CPUE was always highest in the 301-500 m depth interval. Mean individual weight and length increased with increasing depth (Table 27). The total biomass estimate of 6,500 t is undoubtedly an underestimate of true biomass. The two highest mean CPUEs were reported for the N Central Aleutian subarea in the 301-500 m and 201-300 m depth intervals (Table 28). The largest individual catch rates were reported in the two strata mentioned above, specifically south of Gareloi Island, and on the continental shelf west of Attu Island (Fig. 33). Figure 34 summarizes sablefish size composition data. Generally sablefish captured during the survey were in the middle of their normal adult size range. No length-weight data were collected for sablefish.

Giant grenadier (*Albatrossia pectoralis*)

Catches of giant grenadier were restricted to the 301-500 m depth interval, primarily in the Eastern Aleutian area (Tables 29 and 30). The high mean CPUE in that area resulted from three large catches north of Seguam Island (Fig. 35). While those few large catches contributed unusually heavy influence, giant grenadier abundance is probably very high along the Aleutian Archipelago. The survey does not sample deeper waters adequately to measure grenadier abundance, nor does it capture a significant number of male grenadiers (Fig. 36). This species was found to be most abundant in the 501-900 m depth range during the 1980 U.S.- Japan cooperative trawl survey (Ronholt et al. 1986). Ronholt also reported that the larger grenadiers were found in the 301-500 m depth interval and the smaller sizes were found in the 501-900 m interval. Coincidentally, the mean vent length of males was 21.1 cm and the mean vent length of females was 26.6 cm. (The vent length measurement is the distance from anterior tip of the head to the origin of the anal fin). Thus, it might be expected that males are more likely to be found in depths outside the survey range.

Table 27.--Number of survey hauls, number of hauls with sablefish, mean CPUE, biomass estimates with confidence limits, mean weight, and mean length based on the 2002 Aleutian Islands bottom trawl survey, by NPFMC regulatory area and depth interval.

NPFMC area	Depth (m)	Number of trawl hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	95% Confidence limits Minimum biomass (t)	95% Confidence limits Maximum biomass (t)	Mean weight (kg)	Mean length (cm)
Western Aleutian	1-100	26	0	-	-	-	-	-	-
	101-200	51	0	-	-	-	-	-	-
	201-300	19	0	-	-	-	-	-	-
	301-500	13	4	2.72	891	0	2,430	5.100	75.8
	All depths	109	4	0.59	891	0	2,430	5.100	75.8
Central Aleutian	1-100	30	0	-	-	-	-	-	-
	101-200	45	2	0.12	56	0	145	-	-
	201-300	23	8	2.50	526	52	1,000	2.420	60.8
	301-500	17	6	8.01	3,189	0	9,493	2.563	62.0
	All depths	115	16	2.28	3,771	0	10,096	2.541	61.8
Eastern Aleutian	1-100	16	0	-	-	-	-	-	-
	101-200	47	1	0.04	34	0	106	-	-
	201-300	42	9	0.29	141	27	254	2.171	59.2
	301-500	27	16	2.14	1,214	273	2,156	2.531	64.5
	All depths	132	26	0.55	1,389	438	2,340	2.515	64.0
All Aleutian Areas	1-100	72	0	-	-	-	-	-	-
	101-200	143	3	0.05	90	0	201	-	-
	201-300	84	17	0.76	667	209	1,125	2.363	60.5
	301-500	57	26	4.09	5,294	0	11,589	2.789	63.9
	All depths	356	46	1.06	6,051	0	12,366	2.737	63.5
Southern Bering Sea	1-100	30	2	0.02	7	0	16	-	-
	101-200	16	6	0.28	52	9	96	0.586	40.6
	201-300	7	2	0.65	36	0	95	2.744	63.5
	301-500	8	4	3.30	344	0	899	4.366	70.2
	All depths	61	14	0.59	440	0	999	2.269	54.1

Table 28.--Sampling effort, mean CPUE, and estimated biomass with 95% confidence limits (CL) of sablefish by NPFMC regulatory area and survey subarea, ranked by descending mean CPUE for the 2002 Aleutian Islands bottom trawl survey.

NPFMC Area	Depth range (m)	Subarea	Number of hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	Biomass CL Min. (t)	Biomass CL Max. (t)
Central Aleutian	301-500	N Central Aleutian	8	3	24.81	3,076	0	9,540
Central Aleutian	201-300	N Central Aleutian	10	6	11.26	494	10	979
Western Aleutian	301-500	W Western Aleutian	11	3	4.25	728	0	2,273
Eastern Aleutian	301-500	Combined Eastern Aleutian	13	10	3.37	899	0	1,818
Southern Bering	301-500	Combined Southern Bering	8	4	3.30	344	0	913
Central Aleutian	301-500	SE Central Aleutian	4	3	1.58	113	0	285
Eastern Aleutian	301-500	SE Eastern Aleutian	12	5	1.14	293	0	595
Western Aleutian	301-500	E Western Aleutian	2	1	1.05	163	0	2,236
Central Aleutian	101-200	SE Central Aleutian	14	2	0.75	56	0	145
Central Aleutian	201-300	SE Central Aleutian	4	2	0.67	32	0	104
Southern Bering	201-300	Combined Southern Bering	7	2	0.65	36	0	97
Eastern Aleutian	301-500	SW Eastern Aleutian	2	1	0.51	23	0	309
Southern Bering	101-200	E Southern Bering Sea	11	6	0.44	52	8	96
Eastern Aleutian	201-300	NE Eastern Aleutian	22	5	0.34	66	0	136
Eastern Aleutian	201-300	SW Eastern Aleutian	6	2	0.27	20	0	53
Eastern Aleutian	201-300	SE Eastern Aleutian	12	2	0.27	55	0	145
Eastern Aleutian	101-200	NE Eastern Aleutian	17	1	0.17	34	0	106
Southern Bering	1-100	E Southern Bering Sea	27	2	0.03	7	0	17

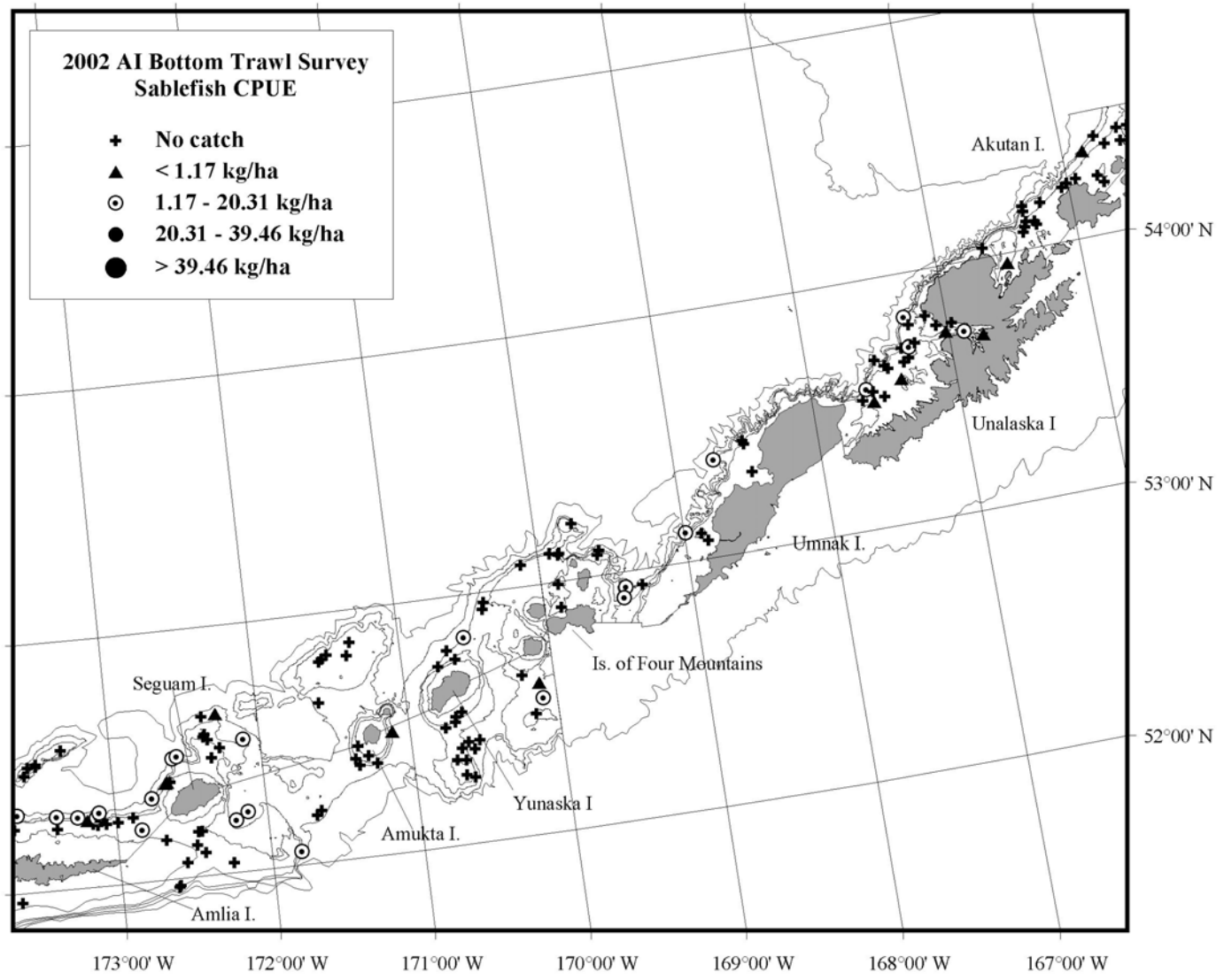
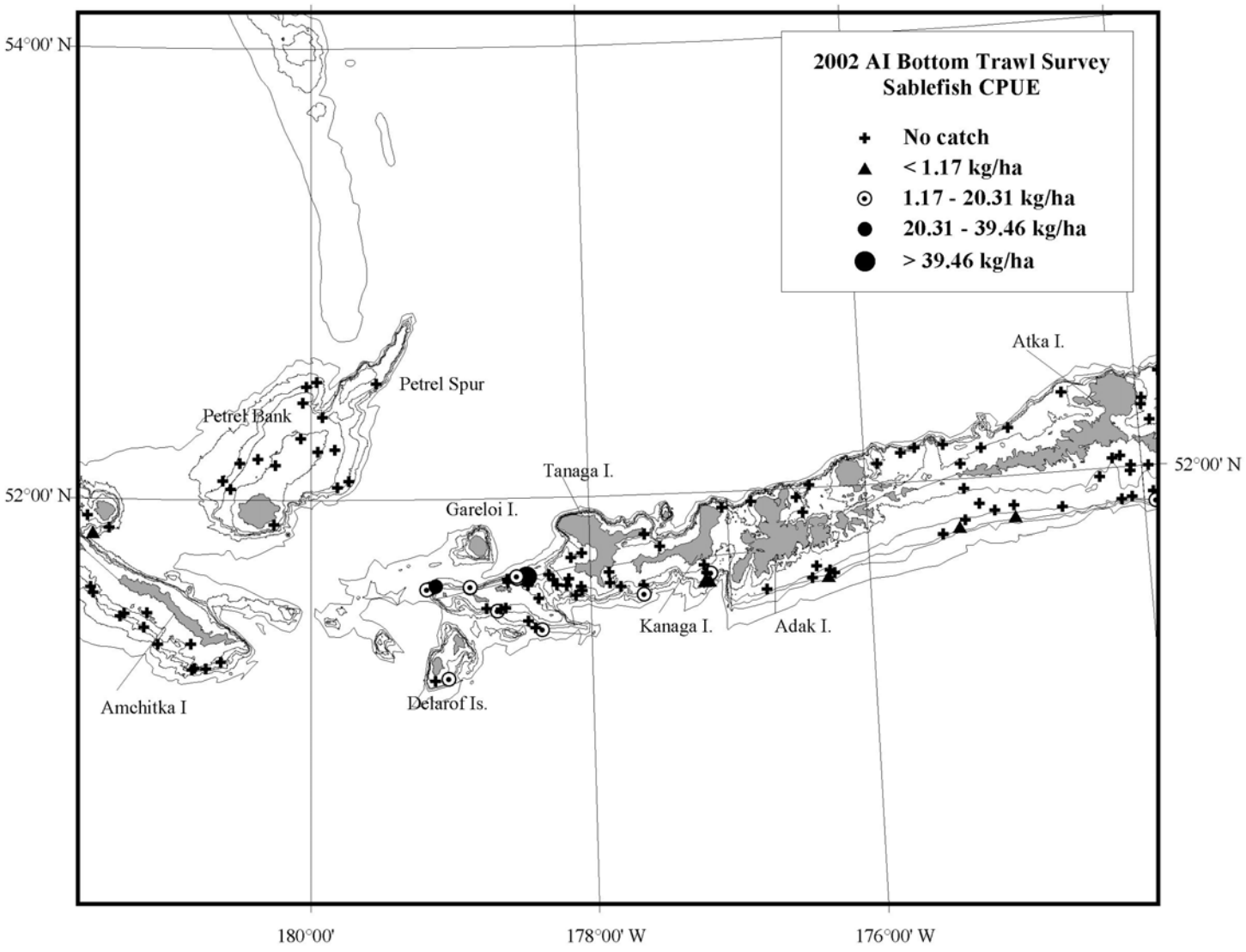


Figure 33.--Distribution and relative abundance of sablefish from the 2002 Aleutian Islands bottom trawl survey. Relative abundance is categorized as no catch, sample CPUE less than mean CPUE, between mean CPUE and two standard deviations above mean CPUE, between two and four standard deviations, and greater than four standard deviations above mean CPUE.



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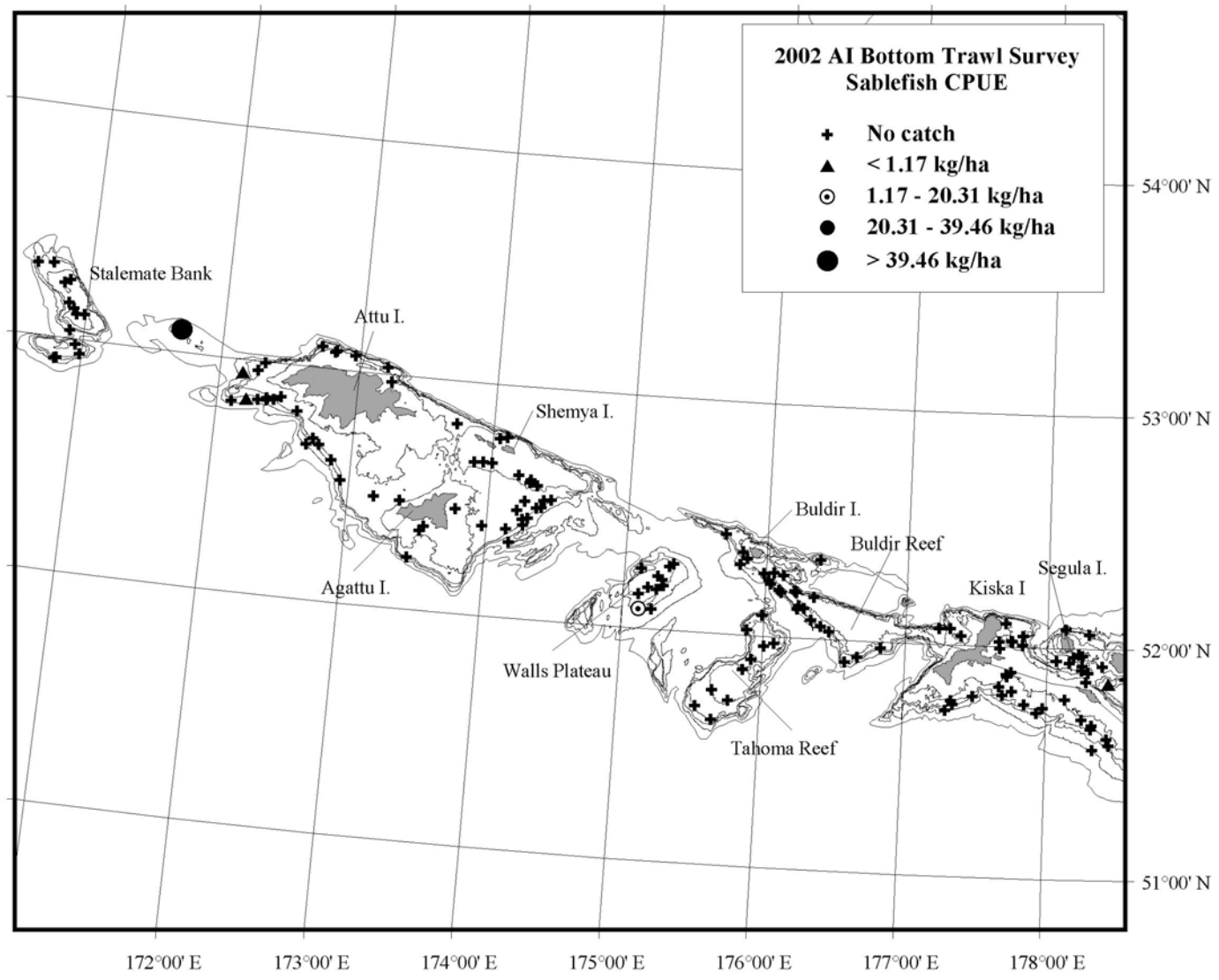

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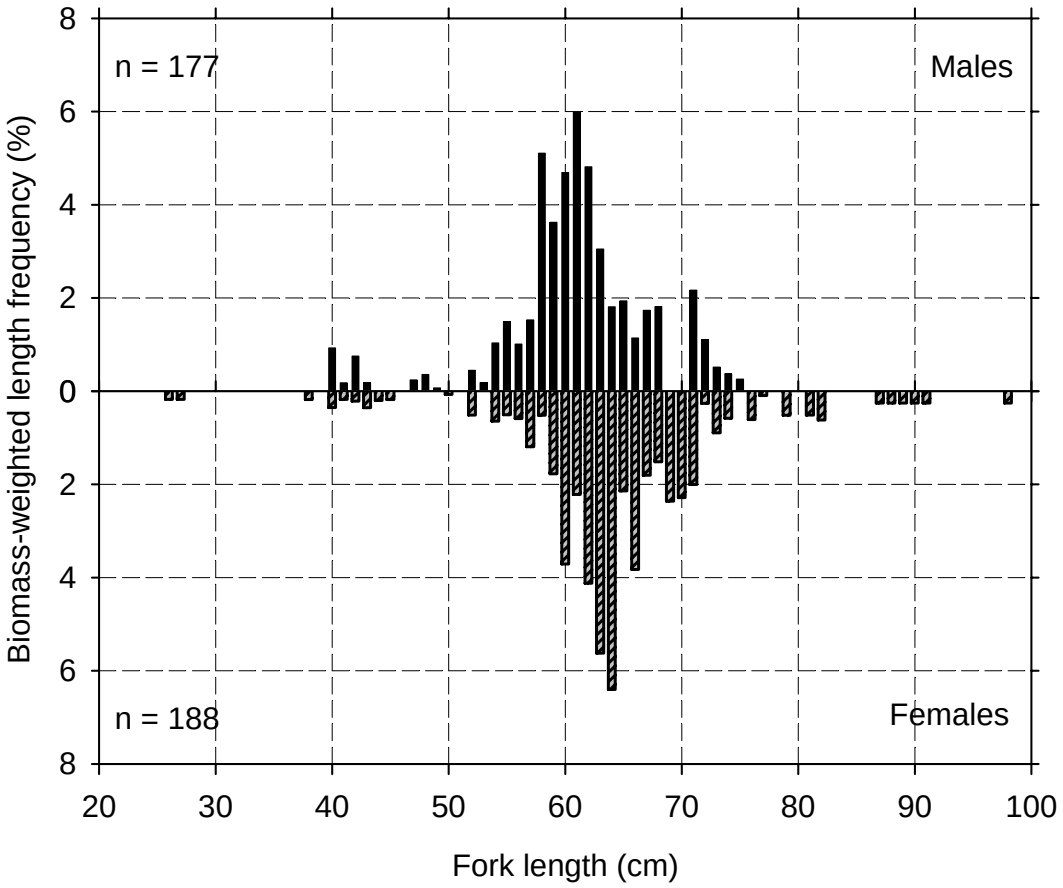


Figure 34.--Size composition of the estimated sablefish population from the 2002 Aleutian Islands bottom trawl survey. Lengths are from all areas and depths combined.

Table 29.--Number of survey hauls, number of hauls with giant grenadier, mean CPUE, biomass estimates with confidence limits, mean weight, and mean length based on the 2002 Aleutian Islands bottom trawl survey, by NPFMC regulatory area and depth interval.

NPFMC area	Depth (m)	Number of trawl hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	95% Confidence limits Minimum biomass (t)	95% Confidence limits Maximum biomass (t)	Mean weight (kg)	Mean length (cm)
Western Aleutian	1-100	26	0	-	-	-	-	-	-
	101-200	51	0	-	-	-	-	-	-
	201-300	19	0	-	-	-	-	-	-
	301-500	13	6	17.74	5,805	0	15,495	4.116	29.9
	All depths	109	6	3.82	5,805	0	15,495	4.116	29.9
Central Aleutian	1-100	30	0	-	-	-	-	-	-
	101-200	45	0	-	-	-	-	-	-
	201-300	23	0	-	-	-	-	-	-
	301-500	17	9	19.64	7,818	154	15,481	4.505	32.3
	All depths	115	9	4.73	7,818	154	15,481	4.505	32.3
Eastern Aleutian	1-100	16	0	-	-	-	-	-	-
	101-200	47	0	-	-	-	-	-	-
	201-300	42	0	-	-	-	-	-	-
	301-500	27	12	359.89	204,524	0	490,661	5.019	34.0
	All depths	132	12	81.16	204,524	0	490,661	5.019	34.0
All Aleutian Areas	1-100	72	0	-	-	-	-	-	-
	101-200	143	0	-	-	-	-	-	-
	201-300	84	0	-	-	-	-	-	-
	301-500	57	27	168.63	218,147	0	504,545	4.970	33.8
	All depths	356	27	38.32	218,147	0	504,545	4.970	33.8
Southern Bering Sea	1-100	30	0	-	-	-	-	-	-
	101-200	16	0	-	-	-	-	-	-
	201-300	7	0	-	-	-	-	-	-
	301-500	8	0	-	-	-	-	-	-
	All depths	61	0	-	-	-	-	-	-

Table 30.--Sampling effort, mean CPUE, and estimated biomass with 95% confidence limits (CL) of giant grenadier by NPFMC regulatory area and survey subarea, ranked by descending mean CPUE for the 2002 Aleutian Islands bottom trawl survey.

NPFMC Area	Depth range (m)	Subarea	Number of hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	Biomass CL Min. (t)	Biomass CL Max. (t)
Eastern Aleutian	301-500	Combined Eastern Aleutian	13	6	756.87	202,085	0	490,702
Central Aleutian	301-500	SE Central Aleutian	4	4	38.82	2,773	0	8,762
Western Aleutian	301-500	W Western Aleutian	11	6	33.93	5,805	0	15,614
Central Aleutian	301-500	N Central Aleutian	8	3	25.92	3,213	0	9,374
Central Aleutian	301-500	SW Central Aleutian	2	1	18.43	1,454	0	19,934
Eastern Aleutian	301-500	SE Eastern Aleutian	12	6	9.47	2,439	0	7,162
Central Aleutian	301-500	Petrel Bank	3	1	3.05	377	0	2,001

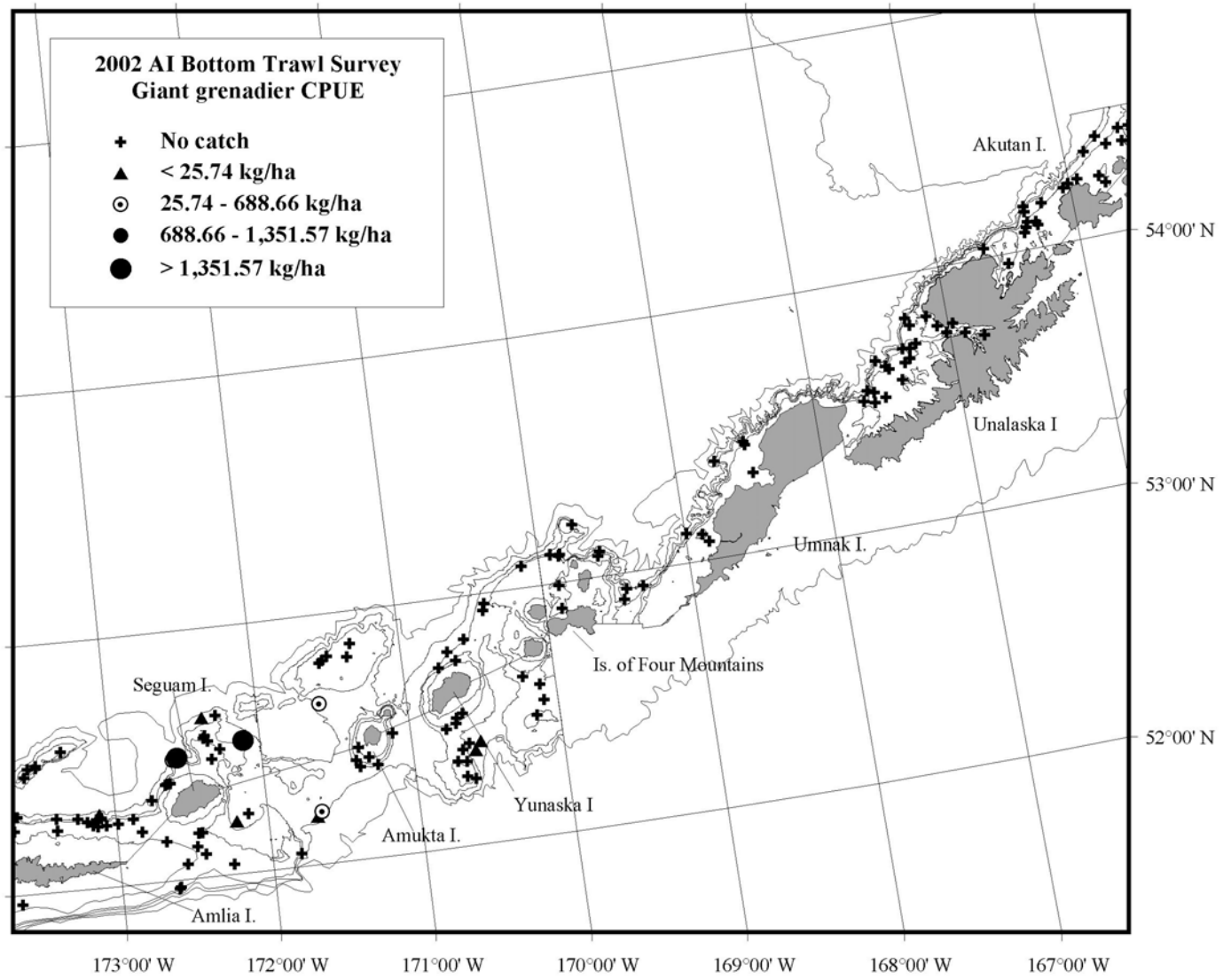
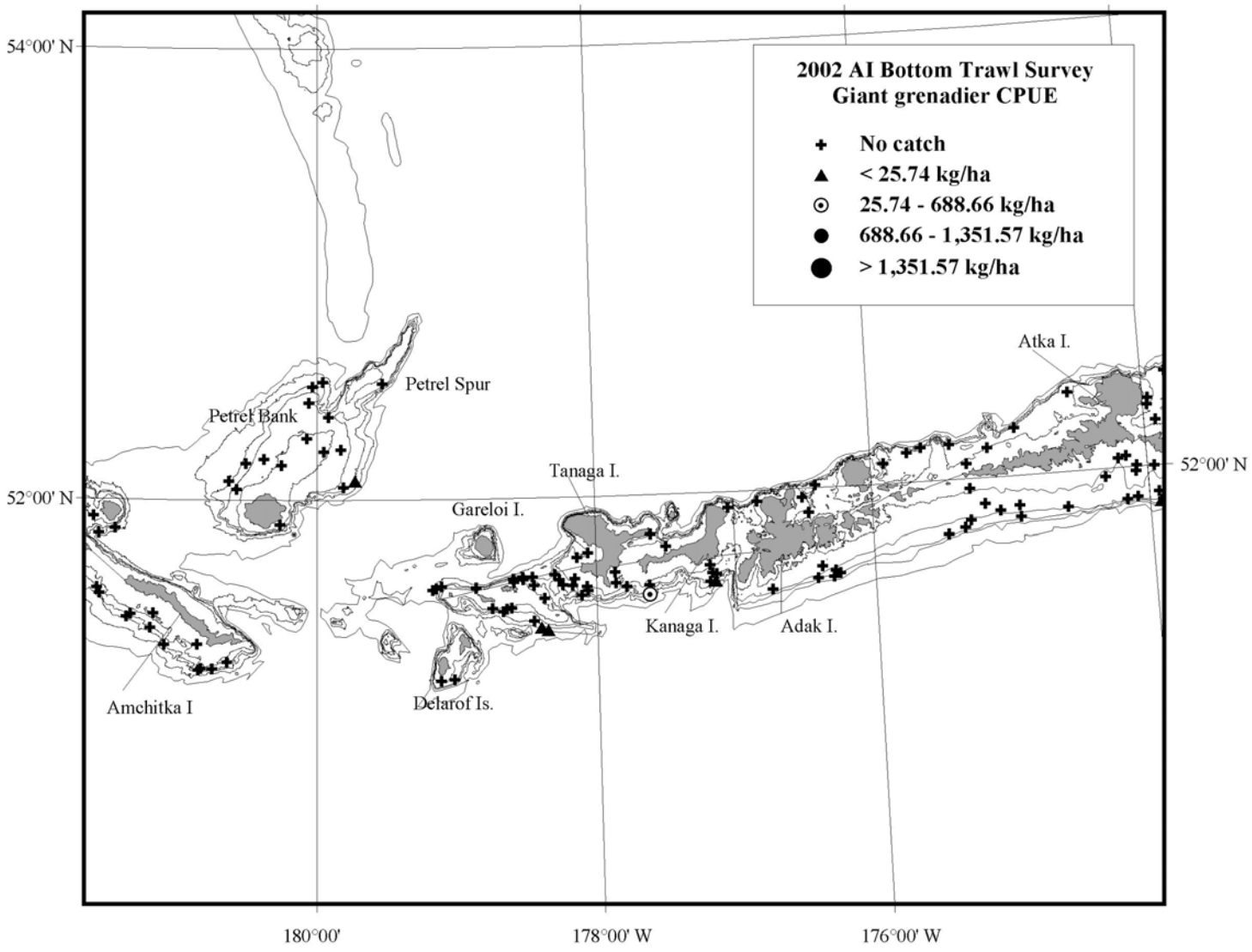


Figure 35.--Distribution and relative abundance of giant grenadier from the 2002 Aleutian Islands bottom trawl survey. Relative abundance is categorized as no catch, sample CPUE less than mean CPUE, between mean CPUE and two standard deviations above mean CPUE, between two and four standard deviations, and greater than four standard deviations above mean CPUE.



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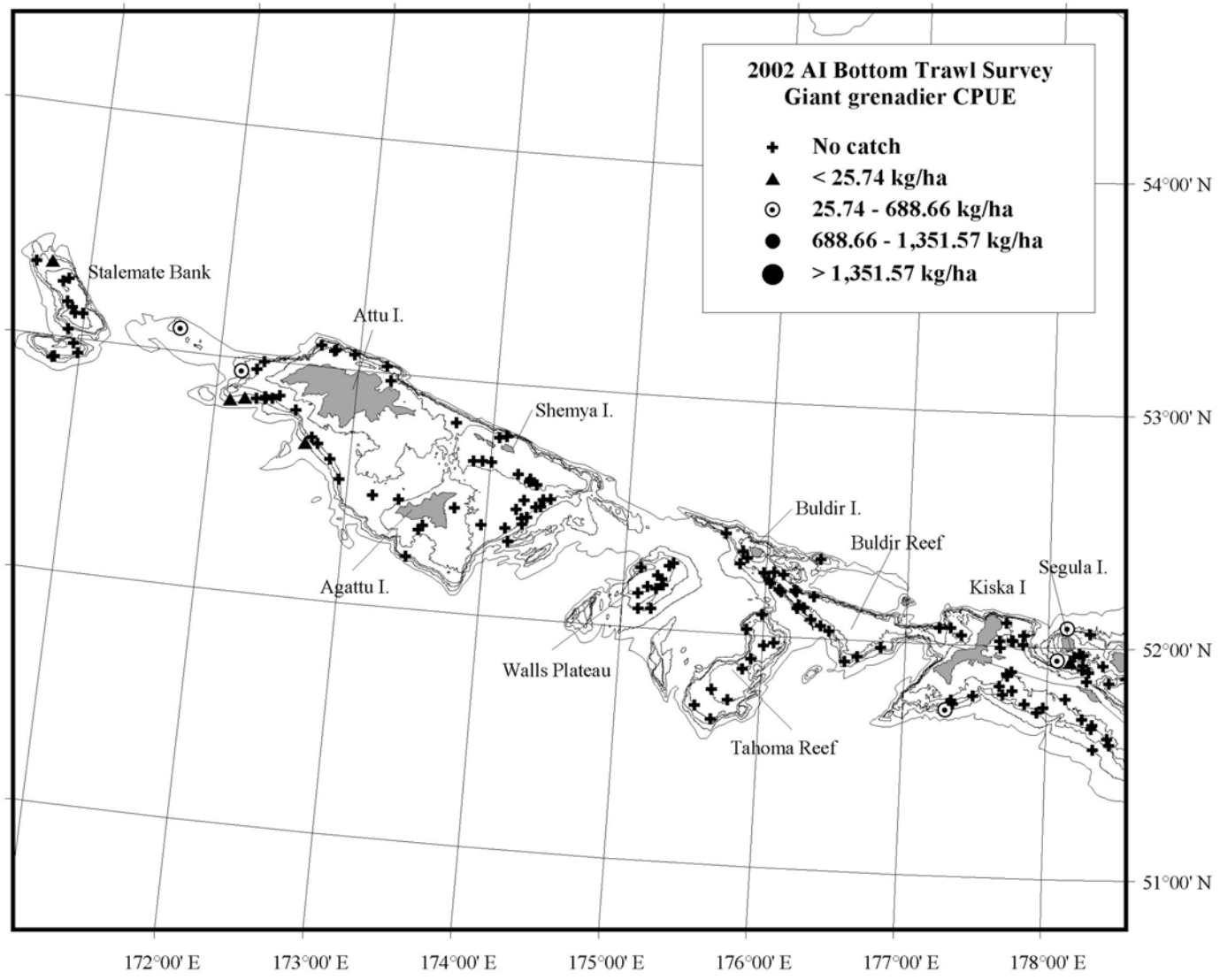

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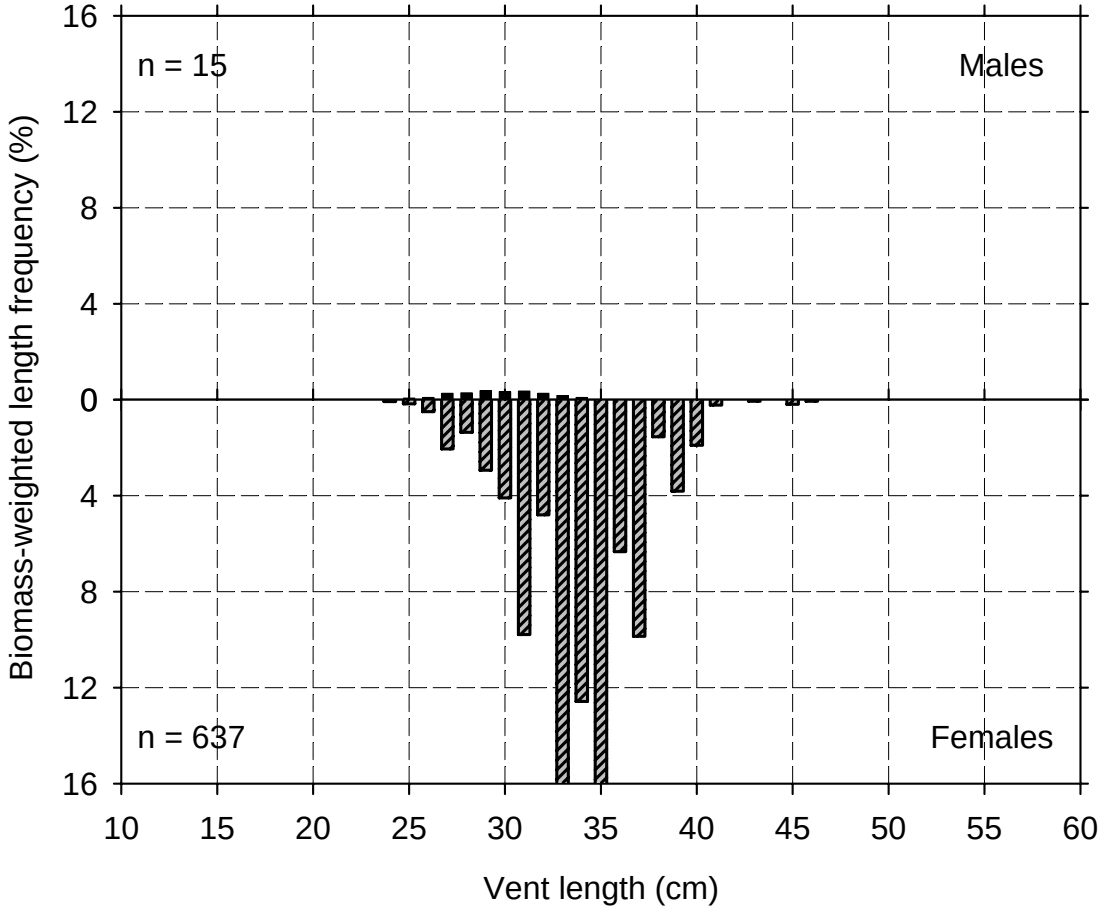

Figure 36.--Size composition of the estimated giant grenadier population from the 2002 Aleutian Islands bottom trawl survey. Lengths are from all areas combined, 301-500 m.

Sculpins (Cottidae)

Sculpins are probably not sampled well by the AFSC survey trawl. The small size of many of the species and their demersal orientation may help them to escape under the footrope, especially on rough bottom. They are no doubt biologically important, perhaps not as individual species, but as a family. In this report, sculpin catch rates and biomass estimates are treated as a grouped whole. However, in some cases, specific information allows them to be reported upon separately. Eighteen species of sculpins were identified from trawl catches. The table below summarizes the total catches in descending order of total weight. Yellow Irish lord represented the largest total catch in terms of weight, but darkfin sculpin and spectacled sculpin were much more numerous.

Species name	Common name	Weight (kg)	Number
Hemilepidotus jordani	yellow Irish lord	779	1,128
Malacocottus zonurus	darkfin sculpin	719	8,847
Triglops scepticus	spectacled sculpin	405	6,124
Hemitripterus bolini	bigmouth sculpin	205	46
Myoxocephalus polyacanthocephalus	great sculpin	184	52
Triglops forficata	scissortail sculpin	59	721
Gymnocanthus galeatus	armorhead sculpin	24	123
Hemilepidotus zapus	longfin Irish lord	14	315
Dasycottus setiger	spinyhead sculpin	4	52
Triglops macellus	roughspine sculpin	2	27
Thyriscus anoplus	sponge sculpin	1	63
Triglops pingeli	ribbed sculpin	1	20
Icelus euryops	wide-eyed sculpin	<1	25
Icelus spiniger	thorny sculpin	<1	6
Triglops metopias	crescent-tail sculpin	<1	6
Icelus uncinalis	uncinate sculpin	<1	5
Nautichthys oculofasciatus	sailfin sculpin	<1	3
Nautichthys pribilovius	eyeshade sculpin	<1	1

Sculpins were captured throughout the survey area (Table 2) and in all depth intervals (Table 31). They were captured in 86% of all trawl hauls. Sculpin mean CPUE was lowest in the Western Aleutian area and highest in the Central Aleutian area. The 201-300 m depth interval on Petrel Bank was the most productive subarea (Table 32 and Fig. 37). Figure 38 below summarizes depth distribution ranges and relative measures of species catch sizes for the seven most frequently captured species of sculpin. A high

degree of species distribution overlap occurs at depths less than about 250 m. At depths greater than 250 m, three of the four most abundant species dominate, including darkfin, spectacled, and bigmouth sculpins. Depth ranges where the highest relative catches by species were found do not overlap in most cases. Bigmouth sculpin catches were relatively small and spread across its depth range.

Figure 38.--Depth distributions for major sculpin species (Total catch - kg)

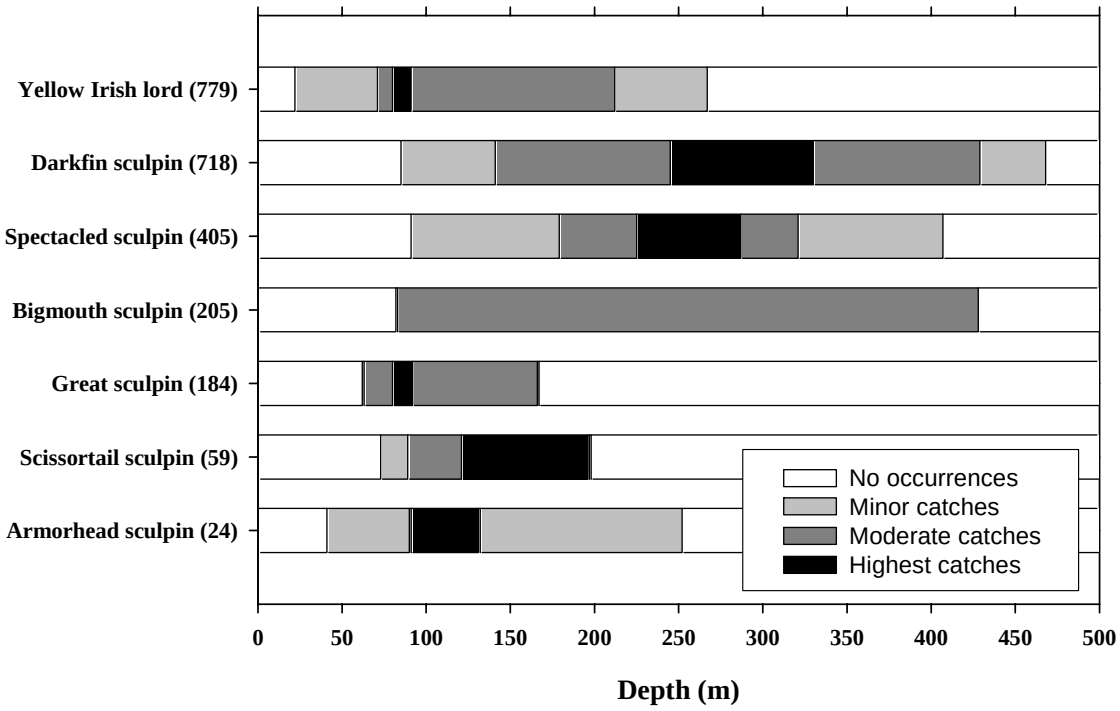

Figure 39 shows the unweighted length frequencies for male, female, and combined sexes of yellow Irish lords. Females were more than twice as abundant in length frequency measurements. Judging by the size distribution, the majority of fish measured were adults. Figure 40 shows the unweighted length frequencies for combined sexes of darkfin sculpins, a relatively small sculpin with a wide depth distribution. Armorhead sculpins (Fig. 41) were generally larger in length than darkfin or spectacled sculpins (Fig. 42), but composed a relatively small part of the total sculpin catch. Scissortail sculpins composed another small component of sculpin catches. Their unweighted length frequencies were heavily dominated by females (Fig. 43).

Table 31.--Number of survey hauls, number of hauls with sculpins (mixed species), mean CPUE, biomass estimates with confidence limits, mean weight, and mean length based on the 2002 Aleutian Islands bottom trawl survey, by NPFMC regulatory area and depth interval.

NPFMC area	Depth (m)	Number of trawl hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	95% Confidence limits Minimum biomass (t)	95% Confidence limits Maximum biomass (t)	Mean weight (kg)	Mean length (cm)
Western Aleutian	1-100	26	17	1.50	730	270	1,189	0.831	No data
	101-200	51	44	1.28	681	384	978	0.231	
	201-300	19	18	0.78	135	61	210	0.053	
	301-500	13	8	0.57	188	0	737	0.040	
	All depths	109	87	1.14	1,734	1,118	2,350	0.157	
Central Aleutian	1-100	30	22	2.90	1,694	0	3,745	0.602	
	101-200	45	42	2.38	1,095	666	1,524	0.150	
	201-300	23	23	8.29	1,748	0	3,945	0.068	
	301-500	17	12	1.33	530	0	1,450	0.066	
	All depths	115	99	3.06	5,067	2,555	7,579	0.116	
Eastern Aleutian	1-100	16	15	1.89	1,294	592	1,996	0.480	
	101-200	47	43	1.50	1,162	683	1,642	0.179	
	201-300	42	38	2.76	1,353	813	1,894	0.092	
	301-500	27	23	2.89	1,641	825	2,457	0.067	
	All depths	132	119	2.16	5,451	4,208	6,694	0.113	
All Aleutian Areas	1-100	72	54	2.12	3,718	1,687	5,749	0.582	
	101-200	143	129	1.66	2,938	2,264	3,613	0.176	
	201-300	84	79	3.71	3,237	1,345	5,128	0.075	
	301-500	57	43	1.82	2,359	1,309	3,409	0.064	
	All depths	356	305	2.15	12,252	9,506	14,998	0.119	
Southern Bering Sea	1-100	30	26	2.60	1,048	426	1,670	0.657	
	101-200	16	13	1.41	260	50	470	0.465	
	201-300	7	7	2.03	114	0	266	0.256	
	301-500	8	8	5.51	575	266	884	0.141	
	All depths	61	54	2.67	1,997	1,283	2,710	0.299	

Table 32.--Sampling effort, mean CPUE, and estimated biomass with 95% confidence limits (CL) of sculpins (mixed species) by NPFMC regulatory area and survey subarea, ranked by descending mean CPUE for the 2002 Aleutian Islands bottom trawl survey.

NPFMC Area	Depth range (m)	Subarea	Number of hauls	Hauls with catch	Mean CPUE (kg/ha)	Estimated biomass (t)	Biomass CL Min. (t)	Biomass CL Max. (t)
Central Aleutian	201-300	Petrel Bank	3	3	16.95	1,299	0	4,236
Central Aleutian	1-100	SE Central Aleutian	7	4	7.77	904	0	3,008
Central Aleutian	201-300	SE Central Aleutian	4	4	6.05	289	0	598
Southern Bering	301-500	Combined Southern Bering	8	8	5.51	575	258	892
Central Aleutian	1-100	Petrel Bank	4	4	4.06	390	0	910
Eastern Aleutian	301-500	SE Eastern Aleutian	12	11	3.92	1,008	364	1,653
Eastern Aleutian	201-300	SE Eastern Aleutian	12	12	3.76	775	264	1,285
Southern Bering	1-100	E Southern Bering Sea	27	24	3.67	897	320	1,473
Central Aleutian	101-200	N Central Aleutian	8	8	2.89	308	14	602
Eastern Aleutian	101-200	SE Eastern Aleutian	15	15	2.85	542	141	943
Eastern Aleutian	201-300	NE Eastern Aleutian	22	21	2.65	522	332	712
Eastern Aleutian	1-100	SE Eastern Aleutian	5	5	2.60	453	0	1,002
Central Aleutian	101-200	SE Central Aleutian	14	13	2.60	196	75	316
Eastern Aleutian	1-100	NW Eastern Aleutian	4	4	2.43	469	0	1,212
Eastern Aleutian	1-100	NE Eastern Aleutian	2	2	2.34	296	0	892
Eastern Aleutian	301-500	Combined Eastern Aleutian	13	10	2.32	619	41	1,198
Central Aleutian	101-200	Petrel Bank	6	6	2.32	402	91	714
Central Aleutian	301-500	Petrel Bank	3	2	2.28	282	0	1,455
Central Aleutian	201-300	N Central Aleutian	10	10	2.18	96	35	156
Southern Bering	201-300	Combined Southern Bering	7	7	2.03	114	0	271
Central Aleutian	101-200	SW Central Aleutian	17	15	1.80	189	43	336
Central Aleutian	201-300	SW Central Aleutian	6	6	1.52	65	3	127
Western Aleutian	1-100	W Western Aleutian	16	9	1.51	559	128	989
Southern Bering	101-200	W Southern Bering Sea	5	4	1.49	100	0	223
Eastern Aleutian	101-200	NW Eastern Aleutian	6	5	1.46	232	0	539
Western Aleutian	1-100	E Western Aleutian	10	8	1.44	171	0	356
Central Aleutian	301-500	SE Central Aleutian	4	3	1.42	101	0	355
Central Aleutian	1-100	N Central Aleutian	14	11	1.38	291	0	587
Southern Bering	101-200	E Southern Bering Sea	11	9	1.36	160	0	355
Western Aleutian	101-200	W Western Aleutian	28	24	1.34	546	271	820
Central Aleutian	301-500	N Central Aleutian	8	6	1.15	142	12	272
Western Aleutian	101-200	E Western Aleutian	23	20	1.08	136	19	253
Eastern Aleutian	101-200	SW Eastern Aleutian	9	7	1.06	240	84	395
Western Aleutian	201-300	E Western Aleutian	10	10	1.02	80	43	117
Western Aleutian	301-500	E Western Aleutian	2	2	1.02	159	0	1,768
Southern Bering	1-100	W Southern Bering Sea	3	2	0.95	151	0	590
Eastern Aleutian	201-300	SW Eastern Aleutian	6	5	0.79	57	0	149
Eastern Aleutian	101-200	NE Eastern Aleutian	17	16	0.74	148	86	210
Central Aleutian	1-100	SW Central Aleutian	5	3	0.68	110	0	328
Western Aleutian	201-300	W Western Aleutian	9	8	0.59	56	0	124
Eastern Aleutian	1-100	SW Eastern Aleutian	5	4	0.40	76	18	134

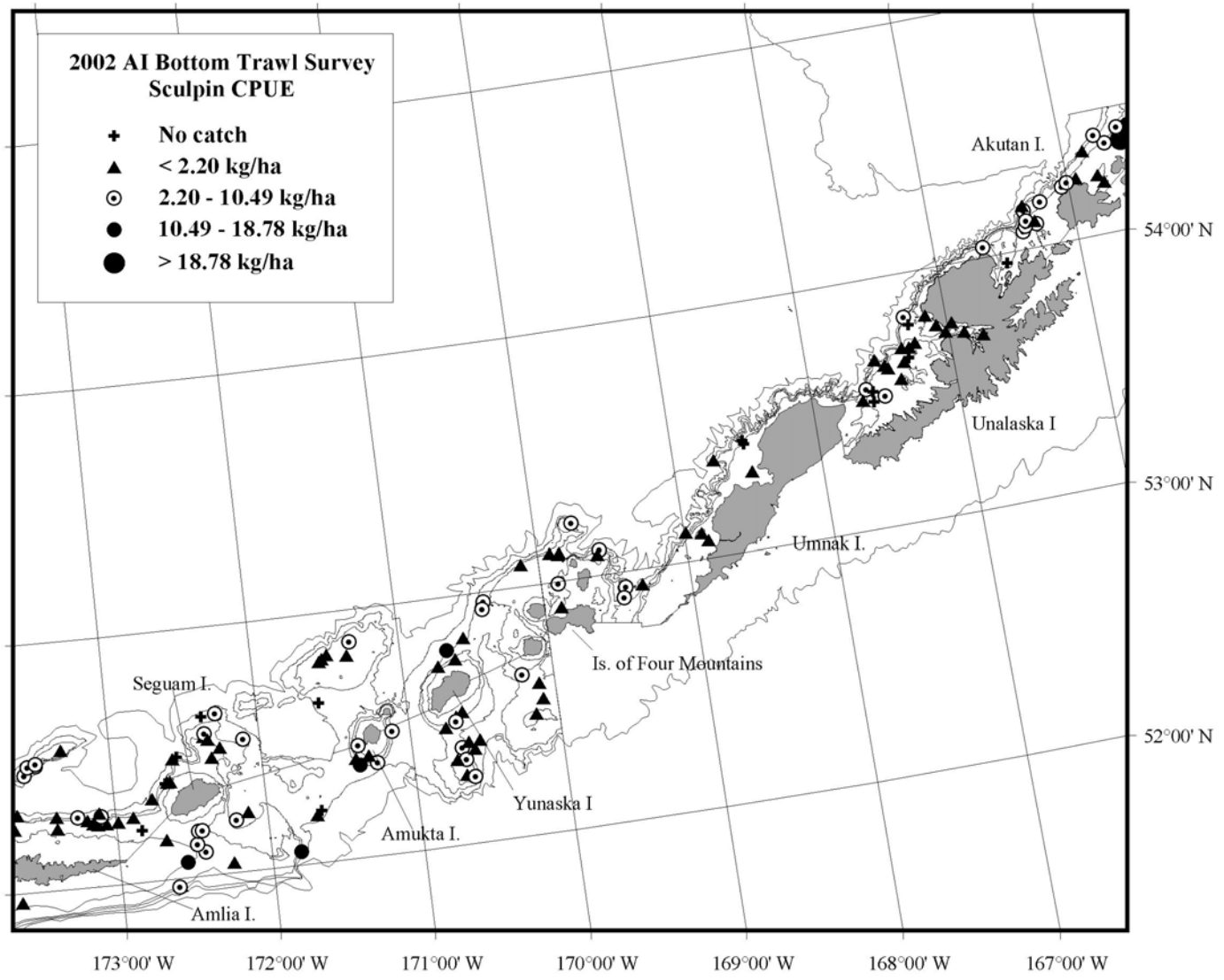

Figure 37.--Distribution and relative abundance of sculpins (all species) from the 2002 Aleutian Islands bottom trawl survey. Relative abundance is categorized as no catch, sample CPUE less than mean CPUE, between mean CPUE and two standard deviations above mean CPUE, between two and four standard deviations, and greater than four standard deviations above mean CPUE.

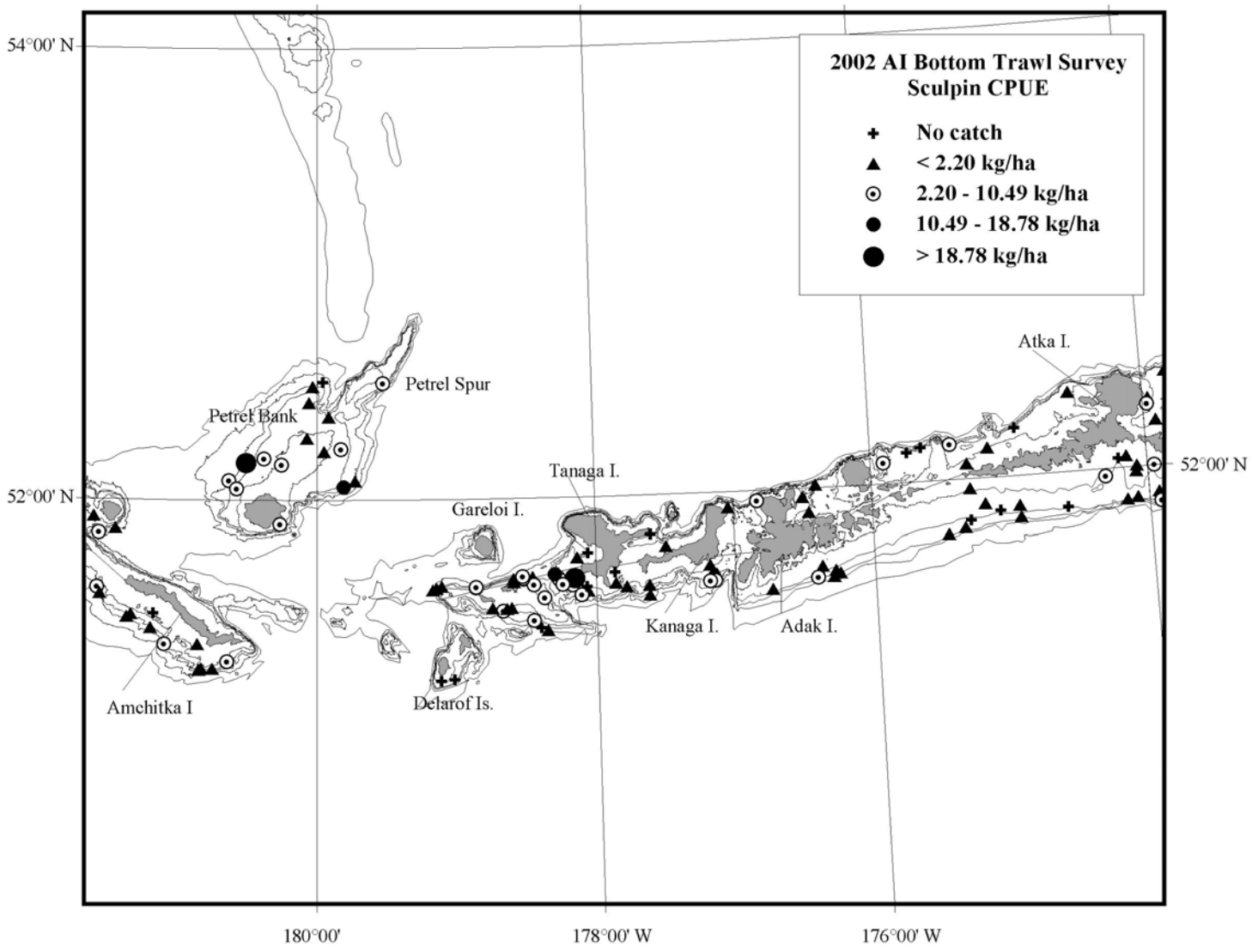

Figure 37.--(Continued).

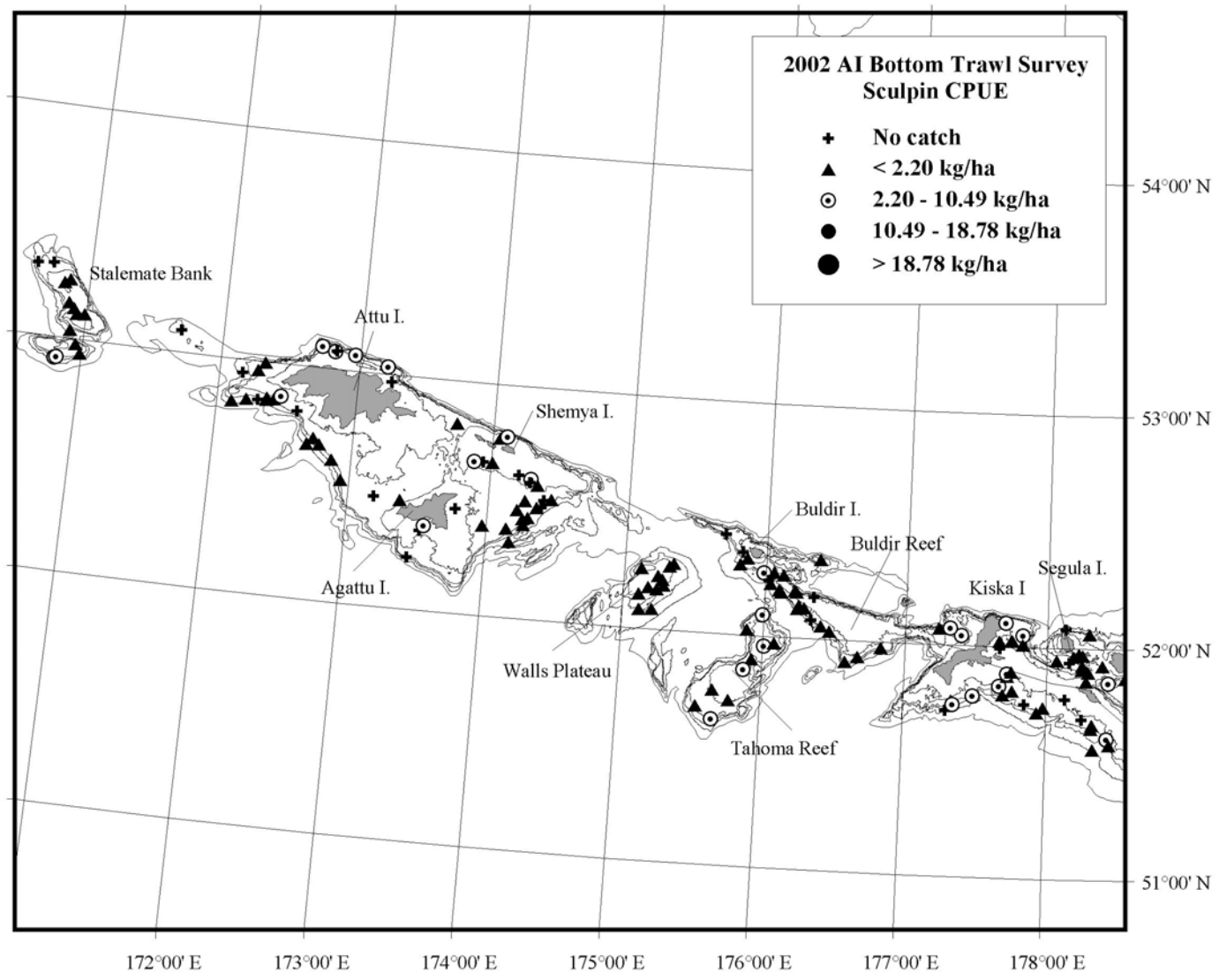

Figure 37.--(Continued).

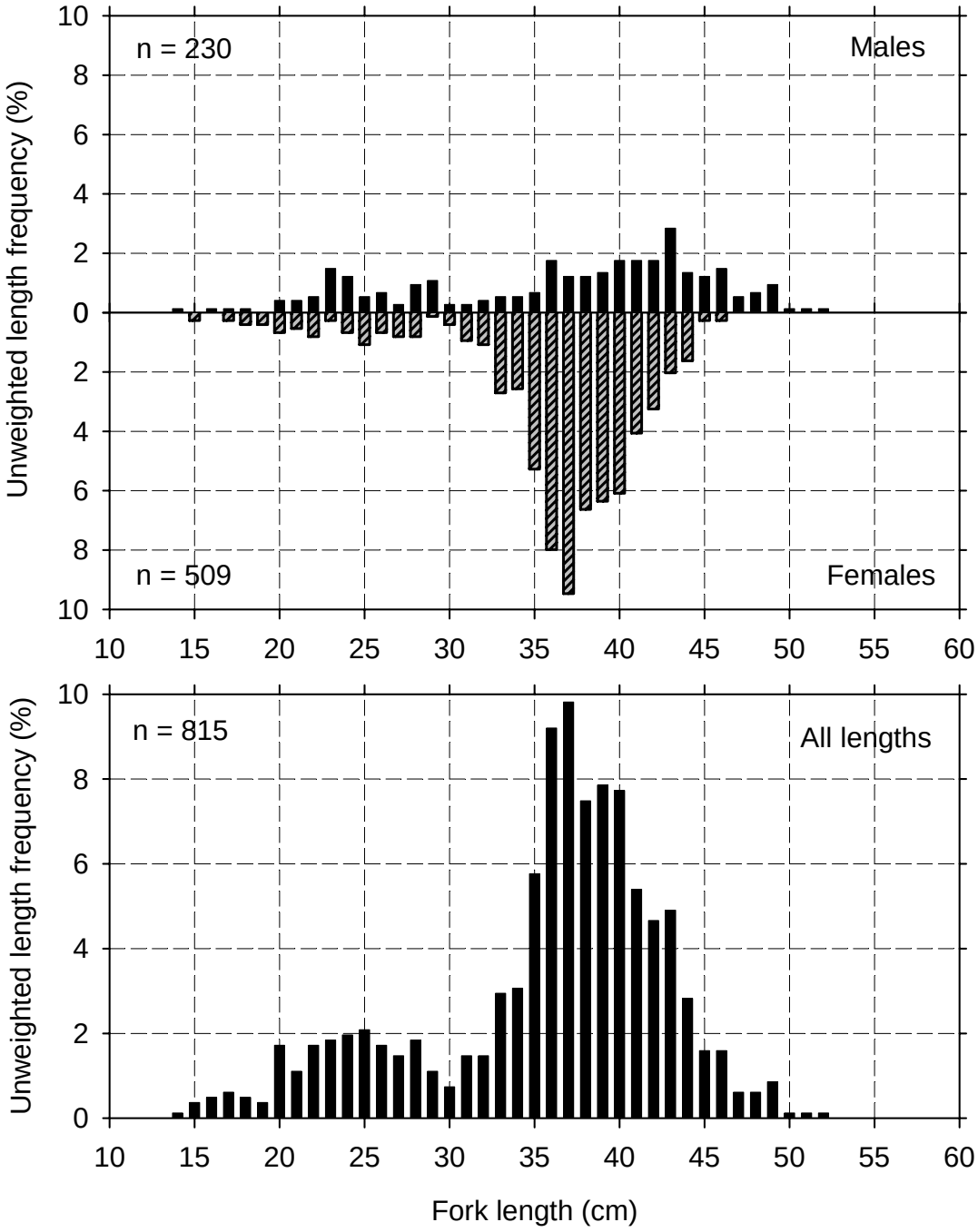

Figure 39.--Length frequencies of yellow Irish lord catches from the 2002 Aleutian Islands bottom trawl survey. Lengths are from all areas and depths combined.

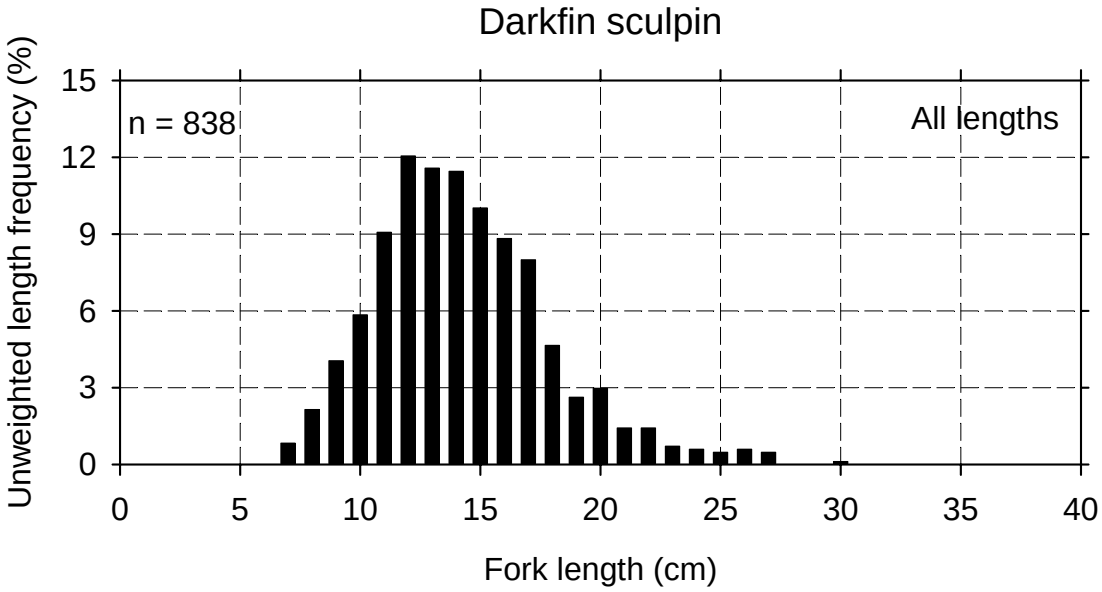

Figure 40.--Length frequencies of darkfin sculpin catches from the 2002 Aleutian Islands bottom trawl survey. Lengths are from all areas and depths combined.

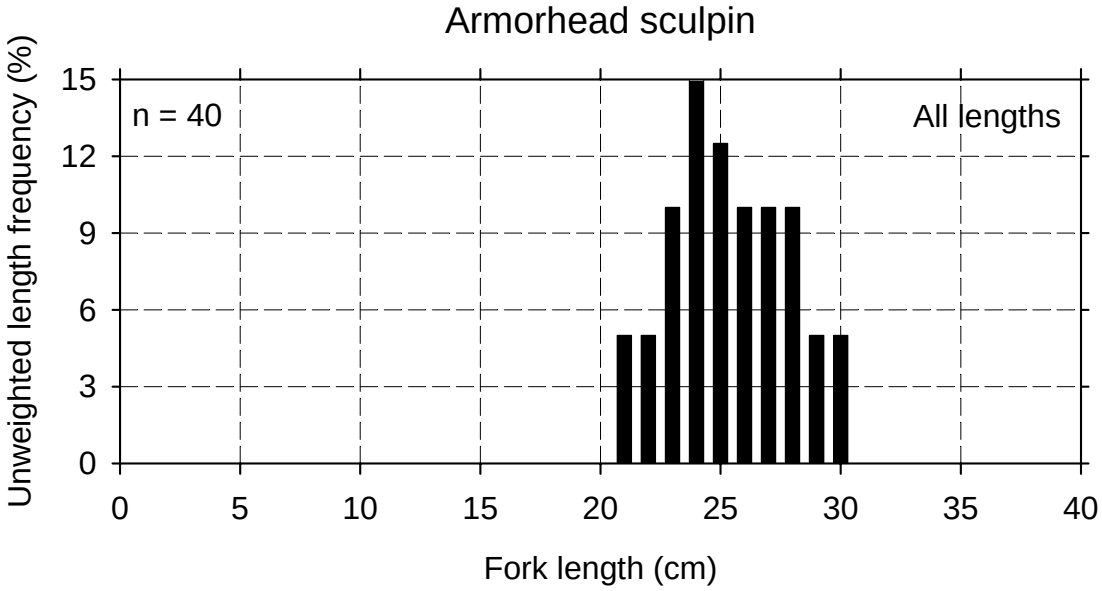

Figure 41.--Length frequencies of armorhead sculpin catches from the 2002 Aleutian Islands bottom trawl survey. Lengths are from all areas and depths combined.

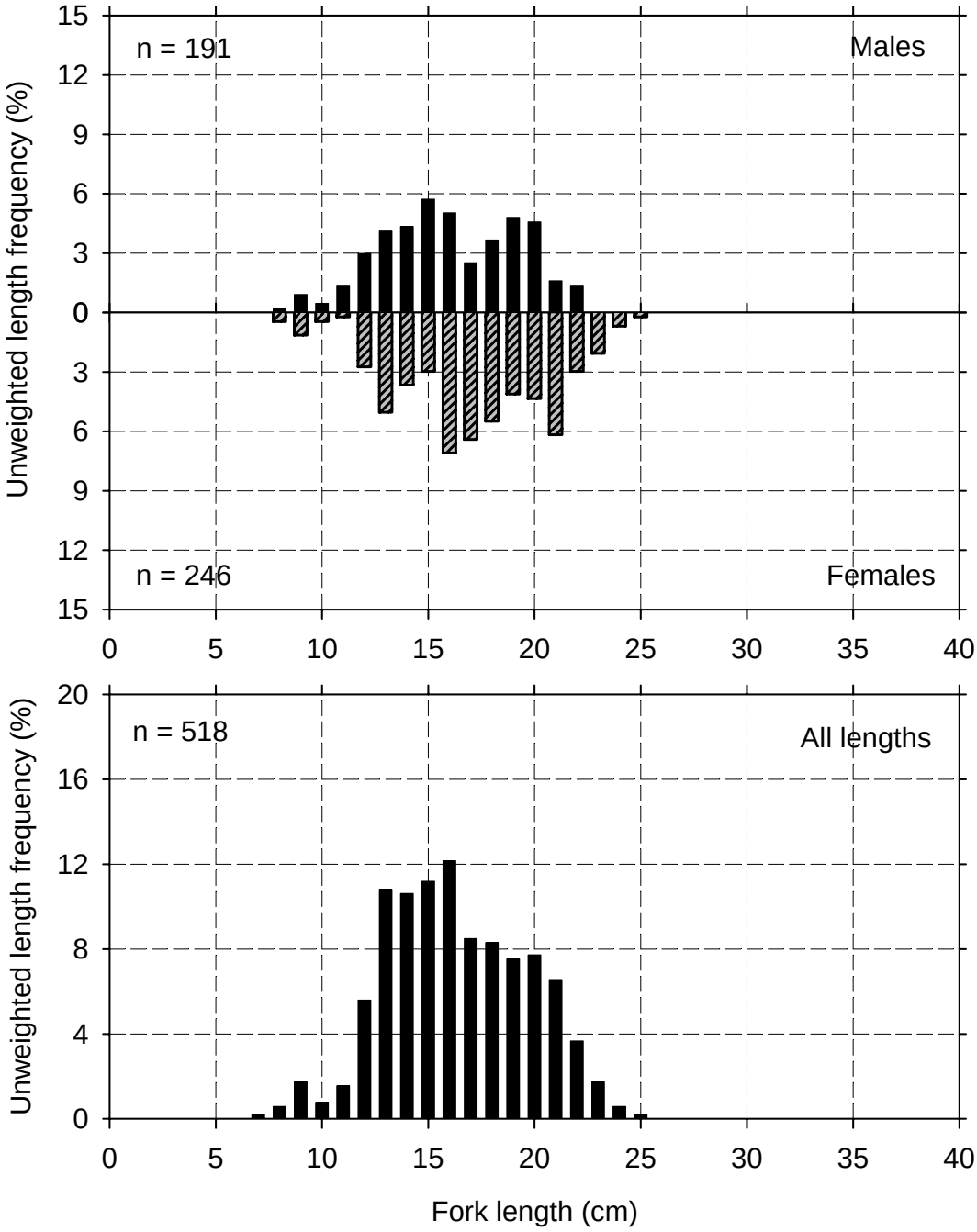

Figure 42.--Length frequencies of spectacled sculpin catches from the 2002 Aleutian Islands bottom trawl survey. Lengths are from all areas and depths combined.

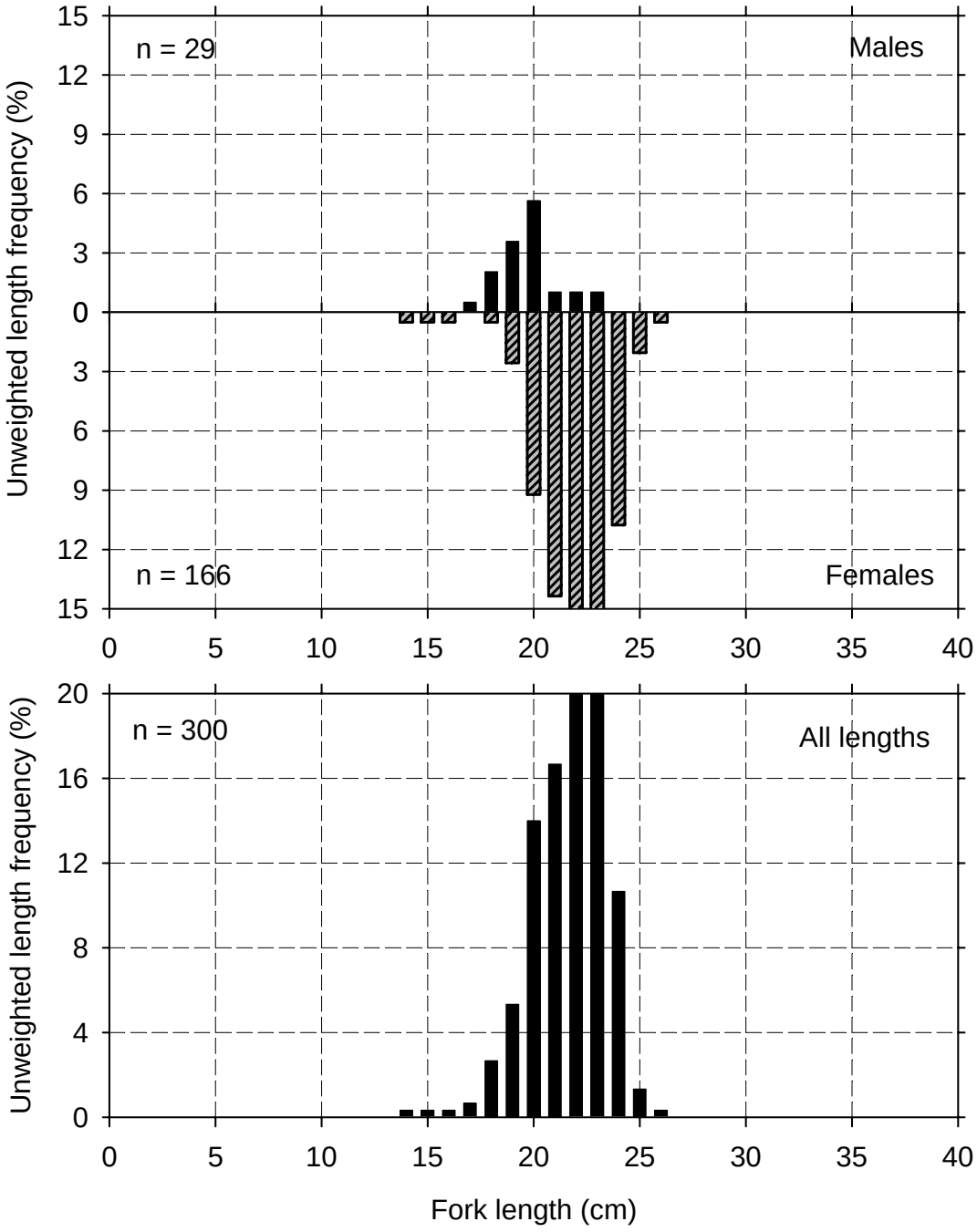

Figure 43.--Length frequencies of scissortail sculpin catches from the 2002 Aleutian Islands bottom trawl survey. Lengths are from all areas and depths.

Prowfish (*Zaprora silenus*)

Prowfish is a common component of trawl catches in the Western Aleutian area (Table 2). Its apparent biomass is relatively small, but it is of considerable biological interest as a member of the Aleutian ecosystem. The author has videotaped prowfish over very rough bottom during daylight hours in the vicinity of Seguam Pass where the adults appeared to be semi-demersal and apparently attracted to the lights on the camera frame. The few juveniles detected were associated with rock outcrops, just off the bottom, and apparently using the rocks for protection.

Prowfish catch rates are highest in the 101-200 m depth interval (Table 33). This species may not be sampled well because they appear to spend time off bottom, and they are closely associated with rocky substrates. Prowfish occur sporadically in trawl catches at low CPUE levels (Table 34), mostly in the Western Aleutian area and the SW Central Aleutian subarea in 101-200 m depths. No CPUE distribution charts were produced for this species. Length frequency distributions of males and females are similar, although females are more abundant in the length frequency samples (Fig. 44).