

**TABLES**



Table 1.--Amount of wire to pay out by depth range using the West Coast upper continental slope Nor'Eastern trawl with mudsweep roller gear, one inch die-formed trawl warps, and a 2.3 knot towing speed.

Depth Range (meters)			Wire Out (meters)	Ratio Wire Out/Depth
183	To	203	450	2.22
204	To	234	500	2.14
235	To	265	550	2.08
266	To	296	600	2.03
297	To	328	650	1.98
329	To	359	700	1.95
360	To	390	750	1.92
391	To	421	800	1.90
422	To	453	850	1.88
454	To	484	900	1.86
485	To	515	950	1.84
516	To	546	1000	1.83
547	To	578	1050	1.82
579	To	609	1100	1.81
610	To	640	1150	1.80
641	To	671	1200	1.79
672	To	703	1250	1.78
704	To	734	1300	1.77
735	To	765	1350	1.76
766	To	796	1400	1.76
797	To	828	1450	1.75
829	To	859	1500	1.75
860	To	890	1550	1.74
891	To	921	1600	1.74
922	To	953	1650	1.73
954	To	984	1700	1.73
985	To	1015	1750	1.72
1016	To	1046	1800	1.72
1047	To	1078	1850	1.72
1079	To	1109	1900	1.71
1110	To	1140	1950	1.71
1141	To	1171	2000	1.71
1172	To	1202	2000	1.66
1203	To	1234	2000	1.62
1235	To	1265	2000	1.58

Table 2.--Latitude boundaries, depth stratum areas (km<sup>2</sup>), and sampling densities by International North Pacific Fisheries Commission (INPFC) statistical area based on successful tows during the 1997 West Coast upper continental slope bottom trawl surveys.

INPFC Area/ Latitude bounds	Stratum 1 (183-366 m)			Stratum 2 (367-549 m)			Stratum 3 (550-732 m)			Stratum 4 (733-914 m)		
	Area (km <sup>2</sup> )	No. Hauls	Hauls/ 1,000km <sup>2</sup>	Area (km <sup>2</sup> )	No. Hauls	Hauls/ 1,000km <sup>2</sup>	Area (km <sup>2</sup> )	No. Hauls	Hauls/ 1,000km <sup>2</sup>	Area (km <sup>2</sup> )	No. Hauls	Hauls/ 1,000km <sup>2</sup>
U.S.-Vancouver 47°30' - Border	1,181	2	1.7	412	1	2.4	517	1	1.9	611	1	1.6
Columbia 43°00' - 47°30'	4,025	13	3	3,741	12	3.2	2,610	10	3.8	2,354	10	4.2
Eureka 40°30' - 43°00'	1,076	5	5	1,103	5	4.5	1,671	5	3.0	1,719	4	2.3
Monterey 36°00' - 40°30'	1,771	7	4	1,727	9	5.2	2,010	9	4.5	2,074	7	3.4
Conception 34°30' - 36°00'	1,198	4	3	2,288	6	2.6	2,417	5	2.1	1,547	4	2.6
Entire Survey Area 34°30' - Border	9,250	31	3	9,272	33	3.6	9,224	30	3.3	8,305	26	3.1

  

INPFC Area/ Latitude bounds	Stratum 5 (915-1,097 m)			Stratum 6 (1,098-1,280 m)			All Strata Combined (183-1,280 m)		
	Area (km <sup>2</sup> )	No. Hauls	Hauls/ 1,000km <sup>2</sup>	Area (km <sup>2</sup> )	No. Hauls	Hauls/ 1,000km <sup>2</sup>	Area (km <sup>2</sup> )	No. Hauls	Hauls/ 1,000km <sup>2</sup>
U.S.-Vancouver 47°30' - Border	668	2	3.0	529	1	1.9	3,919	8	2.0
Columbia 43°00' - 47°30'	2,383	9	3.8	2,393	11	4.6	17,506	65	3.7
Eureka 40°30' - 43°00'	1,951	5	2.6	1,399	6	4.3	8,918	30	3.4
Monterey 36°00' - 40°30'	2,250	8	3.6	2,359	10	4.2	12,191	50	4.1
Conception 34°30' - 36°00'	1,869	5	2.7	1,279	5	3.9	10,597	29	2.7
Entire Survey area 34°30' - Border	9,121	29	3.2	7,957	33	4.1	53,130	182	3.4

Table 3.--Biological data collected during the 1997 West Coast upper continental slope groundfish trawl survey.

Common Name of Fish Species	Age Structures	Fish Weights	Maturities	Pathology Tissue Samples	DNA Tissue Samples	Stomach Samples
Arrowtooth flounder	238	236	196	-	-	-
Dover sole	1,734	1,732	1,724	25	-	-
Sablefish	1,529	1,528	1,486	26	-	-
Pacific grenadier	789	786	46	-	-	810
Giant grenadier	-	-	-	-	-	614
Pacific hake	30	28	30	23	-	838
Shortspine thornyhead	1,702	1,702	21	-	40	-
Longspine thornyhead	1,455	1,455	0	-	10	-
Rougeye rockfish	-	-	-	-	28	-
Darkblotched rockfish	107	107	79	-	-	-
Splitnose rockfish	530	529	384	-	-	-
Greenstriped rockfish	30	30	30	-	-	-
Rosethorn rockfish	24	24	24	-	-	-
Blackgill rockfish	-	-	-	-	10	-
Sharpchin rockfish	30	30	30	-	-	-

**Table 4.--Frequency of occurrence, depth, and latitude ranges for fish species caught during the 1997 West Coast upper continental slope bottom trawl survey.**

Family and Scientific Name <sup>a</sup>	Common Name <sup>a</sup>	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) <sup>d</sup>	
			Min.	Max.	Mean	South	North
<b>Myxinidae</b>							
<i>Eptatretus deani</i>	Black hagfish	112	200	1,247	834	3429	4807
<i>Eptatretus stouti</i>	Pacific hagfish	1	200	200	200	4048	4048
<b>Petromyzontidae</b>							
<i>Lampetra tridentata</i>	Pacific lamprey	2	183	425	304	4450	4642
<b>Chimeridae</b>							
<i>Hydrolagus colliei</i>	Spotted ratfish	49	181	1,201	363	3429	4807
<b>Scyliorhinidae</b>							
<i>Apristurus</i> sp.	Cat shark unident.	3	604	1,113	908	3932	4051
<i>Apristurus brunneus</i>	Brown cat shark	139	193	1,247	697	3429	4738
<i>Apristurus kampae</i> <sup>b</sup>	Longnose cat shark	11	367	1,253	1,039	3549	4026
<i>Parmaturus xaniurus</i>	Filetail cat shark	31	327	936	536	3429	3958
<b>Squalidae</b>							
<i>Somniosus pacificus</i>	Pacific sleeper shark	5	1,044	1,201	1,120	3527	4619
<i>Squalus acanthias</i>	Spiny dogfish	64	181	942	405	3429	4807
<b>Rajidae</b>							
<i>Bathyraja abyssicola</i> <sup>b</sup>	Deepsea skate	15	644	1,247	1,077	3431	4648
<i>Bathyraja aleutica</i>	Aleutian skate	2	425	478	452	4450	4737
<i>Bathyraja interrupta</i>	Bering skate	74	181	1,059	401	3429	4807
<i>Bathyraja trachura</i>	Black skate	71	565	1,253	1,004	3431	4804
<i>Raja binoculata</i>	Big skate	5	183	379	261	4457	4807
<i>Raja rhina</i>	Longnose skate	85	181	1,069	428	3429	4807
<b>Torpedinidae</b>							
<i>Torpedo californica</i>	Pacific electric ray	7	196	893	382	3525	4028
<b>Nemichthyidae</b>							
<i>Avocettina infans</i> <sup>b</sup>	Blackline snipe eel	4	965	1,205	1,069	3431	3549
Nemichthyidae	Snipe eel unident.	5	824	1,177	1,076	3431	4736
<i>Nemichthys scolopaceus</i>	Slender snipe eel	2	782	935	859	4455	4518
<i>Nemichthys larseni</i>		3	770	1,128	945	3432	3902
<b>Serrivomeridae<sup>b</sup></b>							
<i>Serrivomer sector</i>	Sawtooth eel	11	790	1,247	1,067	3431	3951
<b>Saccopharyngidae<sup>b</sup></b>							
<i>Saccopharynx</i> sp.		2	1,133	1,205	1,169	3549	4209
<b>Eurypharyngidae<sup>b</sup></b>							
<i>Eurypharynx pelecanoides</i>	Umbrellamouth gulper	3	1,040	1,177	1,101	3431	3903
<b>Clupeidae</b>							
<i>Alosa sapidissima</i>	American shad	3	196	205	200	3714	4807
<i>Clupea pallasii</i>	Pacific herring	10	193	644	313	3502	4738
<i>Sardinops sagax</i>	Pacific sardine	2	335	367	351	3552	3957
<b>Engraulidae</b>							
<i>Engraulis mordax</i>	Northern anchovy	3	193	478	292	3502	3806
<b>Argentinidae</b>							
Argentinidae	Argentine unident.	2	196	205	201	3714	3806
<i>Argentina sialis</i>	Pacific argentine	4	193	437	300	3429	3526
<b>Bathylagidae</b>							
Bathylagidae unident.	Deepsea smelt unident.	8	555	1,085	776	3454	4052
<i>Bathylagus</i> sp.	Blacksmelt unident.	110	417	1,253	919	3431	4804

Table 4.--Continued.

Family and Scientific Name <sup>a</sup>	Common Name <sup>a</sup>	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) <sup>d</sup>	
			Min.	Max.	Mean	South	North
<b>Bathylagidae (continued)</b>							
<i>Leuroglossus</i> sp.		1	1,077	1,077	1,077	4209	4209
<i>Leuroglossus schmidti</i>	Northern smoothtongue	9	555	1,128	795	3433	3929
<i>Leuroglossus stilbius</i>	California smoothtongue	2	581	583	582	3429	3429
<b>Opisthoproctidae</b>							
<i>Dolichopteryx</i> sp. <sup>b</sup>		1	654	654	654	4645	4645
<i>Macropinna microstoma</i> <sup>b</sup>	Barreleye	1	942	942	942	4736	4736
<b>Osmeridae</b>							
Osmeridae	Smelt unident.	1	585	585	585	3500	3500
<i>Thaleichthys pacificus</i>	Eulachon	2	259	379	319	4617	4711
<b>Salmonidae</b>							
<i>Oncorhynchus tshawytscha</i>	Chinook salmon	6	186	303	219	3806	4807
<b>Alepocephalidae<sup>b</sup></b>							
<i>Alepocephalus</i> sp.		2	790	1,069	930	3433	4116
<i>Alepocephalus tenebrosus</i>	California slickhead	105	327	1,253	932	3431	4804
<i>Bathylaco nigricans</i> <sup>c</sup>	Bonythroat	1	1,188	1,188	1,188	4648	4648
<i>Talismania bifurcata</i>	Threadfin slickhead	58	584	1,247	901	3431	4804
<b>Searsiidae<sup>b</sup></b>							
<i>Maulisa maui</i> <sup>c</sup>		2	1,064	1,205	1,135	3548	3549
<i>Sagamichthys abei</i>	Shining tubeshoulder	11	585	1,188	835	3500	4648
<b>Sternoptychidae<sup>b</sup></b>							
<i>Argyropelecus</i> sp.	Hatchetfish unident.	7	369	1,205	735	3429	4428
<i>Sternoptyx</i> sp.		4	1,024	1,128	1,065	3526	3715
<i>Sternoptychidae</i> unident.	Hatchetfish unident.	12	555	1,177	837	3431	4736
<b>Gonostomatidae</b>							
<i>Cyclothone</i> sp. <sup>b</sup>		6	681	1,128	1,006	3454	4026
Gonostomatidae	Bristlemouth unident.	2	893	923	908	3525	3929
<b>Stomiidae</b>							
<i>Aristostomias scintillans</i>	Shining loosejaw	18	196	1,194	818	3431	4736
<i>Bathophilus flemingi</i>	Highfin dragonfish	12	585	1,201	971	3431	4116
<i>Chauliodus macouni</i>	Pacific viperfish	93	369	1,253	920	3431	4804
<i>Idiacanthus antrostomus</i>	Pacific blackdragon	19	193	1,253	922	3429	4457
<i>Melanostomiidae</i>	Dragonfish unident.	3	555	1,064	798	3526	3646
<i>Neonesthes capensis</i>		2	1,064	1,205	1,135	3548	3549
<i>Stomias atriventer</i>	Blackbelly dragonfish	2	1,177	1,241	1,209	3643	4355
<i>Tactostoma macropus</i>	Longfin dragonfish	59	337	1,253	885	3429	4804
<b>Scopelarchidae</b>							
<i>Benthalbella</i> sp.		4	565	1,061	773	4521	4804
<i>Benthalbella dentata</i>	Northern pearleye	5	942	1,188	1,088	4117	4736
<b>Notosudidae<sup>b</sup></b>							
<i>Scopelosaurus harryi</i>	Scaly paperbone	1	1,220	1,220	1,220	4025	4025
<i>Scopelosaurus</i> unident.		2	1,015	1,076	1,046	4240	4358
<b>Paralepididae</b>							
<i>Notolepsis risso</i>	Ribbon barracudina	4	524	1,128	768	3526	4210
Paralepididae	Barracudina unident.	1	256	256	256	4240	4240
<b>Anotopteridae</b>							
<i>Anotopterus pharao</i>	Daggertooth	3	770	1,194	1,047	3643	4615
<b>Alepisauridae</b>							
<i>Alepisaurus ferox</i>	Longnose lancetfish	1	643	643	643	4735	4735
<b>Myctophidae</b>							
<i>Ceratoscopelus townsendi</i>		1	923	923	923	3929	3929
<i>Diaphus</i> sp.		2	335	923	629	3552	3929

Table 4.--Continued.

Family and Scientific Name <sup>a</sup>	Common Name <sup>a</sup>	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) <sup>d</sup>	
			Min.	Max.	Mean	South	North
<b>Myctophidae (continued)</b>							
<i>Diaphus theta</i>	California headlightfish	1	555	555	555	3526	3526
<i>Lampanyctus</i> sp.		88	241	1,241	874	3429	4804
Myctophidae	Lanternfish unident.	114	200	1,253	808	3429	4804
<i>Stenobranchius leucopsarus</i>	Northern lampfish	1	790	790	790	3433	3433
<i>Stenobranchius</i> sp.		1	335	335	335	3552	3552
<i>Symbolophorus californiensis</i> <sup>b</sup>	California lanternfish	6	604	1,128	850	3454	4051
<i>Tarletonbeania crenularis</i>	Blue lanternfish	20	186	1,184	790	3429	4648
<i>Tarletonbeania</i> sp.		1	265	265	265	4146	4146
<b>Moridae</b>							
<i>Antimora microlepis</i>	Pacific flatnose	119	335	1,253	902	3431	4804
<i>Halagyreus johnsoni</i> <sup>c</sup>		2	770	1,205	988	3549	4615
<b>Gadidae</b>							
<i>Merluccius productus</i>	Pacific whiting	143	181	1,205	609	3429	4807
<i>Microgadus proximus</i>	Pacific tomcod	1	303	303	303	4617	4617
<i>Gadus macrocephalus</i>	Pacific cod	1	200	200	200	4807	4807
<i>Theragra chalcogramma</i>	Walleye pollock	1	303	303	303	4617	4617
<b>Macrouridae</b>							
<i>Albatrossia pectoralis</i>	Giant grenadier	106	565	1,253	948	3431	4804
<i>Coryphaenoides acrolepis</i> <sup>b</sup>	Pacific grenadier	104	552	1,253	952	3431	4804
<i>Coryphaenoides cinereus</i> <sup>b</sup>	Popeye grenadier	10	688	1,200	996	3548	4738
Macrouridae	Grenadier unident.	1	839	839	839	4145	4145
<i>Malacocephalus laevis</i> <sup>b</sup>		1	417	417	417	3619	3619
<i>Nezumia liolepis</i>	Smooth grenadier	17	681	1,247	916	3431	4644
<i>Nezumia stelgidolepis</i>	California grenadier	9	285	800	503	3502	4644
<b>Ophidiidae</b>							
<i>Chilara taylori</i>	Spotted cusk-eel	4	196	437	275	3429	3929
<i>Lamprogrammus niger</i> <sup>b</sup>	Paperbone cusk-eel	5	770	867	804	3433	3929
Ophidiidae	Cusk-eel unident.	1	1,128	1,128	1,128	3526	3526
<b>Bythitidae</b>							
<i>Cataetyx rubrirostris</i> <sup>b</sup>	Rubynose brotula	1	432	432	432	3526	3526
<b>Batrachoididae</b>							
<i>Porichthys notatus</i>	Plainfin midshipman	5	193	241	208	3432	3836
<b>Oneirodidae<sup>c</sup></b>							
<i>Oneirodes</i> sp.		1	1,130	1,130	1,130	3842	3842
<b>Melanocetidae<sup>c</sup></b>							
<i>Melanocetus johnsonii</i>	Common blackdevil	1	1,113	1,113	1,113	3932	3932
<b>Scomberesocidae</b>							
<i>Cololabis saira</i>	Pacific saury	6	242	507	380	3526	4643
<b>Trachipteridae</b>							
<i>Trachipterus altivelis</i>	King-of-the-salmon	1	943	943	943	4457	4457
<b>Anoplogastridae<sup>b</sup></b>							
<i>Anoplogaster cornuta</i>	Fangtooth	26	580	1,253	1,011	3431	4738
<b>Melamphaidae<sup>b</sup></b>							
<i>Melamphaes lugubris</i>	Highsnout bigscale	7	935	1,181	1,086	3903	4804
Melamphaidae	Bigscale unident.	11	676	1,253	1,003	3548	4714
<i>Poromitra crassiceps</i>	Crested bigscale	7	775	1,188	1,115	3431	4736
<b>Scorpaenidae</b>							
<i>Sebastolobus alascanus</i>	Shortspine thornyhead	176	181	1,253	738	3429	4807
<i>Sebastolobus altivelis</i>	Longspine thornyhead	138	409	1,253	854	3429	4804
<i>Sebastes aleutianus</i>	Rougheye rockfish	11	303	787	441	4306	4714
<i>Sebastes alutus</i>	Pacific ocean perch	22	183	468	338	3806	4807



Table 4.--Continued.

Family and Scientific Name <sup>a</sup>	Common Name <sup>a</sup>	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) <sup>d</sup>	
			Min.	Max.	Mean	South	North
<b>Scorpaenidae (continued)</b>							
<i>Sebastes aurora</i>	Aurora rockfish	40	248	893	471	3429	4714
<i>Sebastes babcocki</i>	Redbanded rockfish	18	181	413	282	3833	4738
<i>Sebastes borealis</i>	Shortraker rockfish	3	303	468	383	4617	4714
<i>Sebastes brevispinis</i>	Silvergray rockfish	2	200	203	202	3836	4807
<i>Sebastes chlorostictus</i>	Greenspotted rockfish	4	196	208	203	3714	4028
<i>Sebastes crameri</i>	Darkblotched rockfish	27	181	781	317	3714	4807
<i>Sebastes diploproa</i>	Splitnose rockfish	49	181	580	324	3429	4807
<i>Sebastes elongatus</i>	Greenstriped rockfish	16	181	828	253	3714	4807
<i>Sebastes entomelas</i>	Widow rockfish	10	183	242	211	3806	4807
<i>Sebastes flavidus</i>	Yellowtail rockfish	2	200	205	203	3806	4807
<i>Sebastes goodei</i>	Chilipepper	12	181	335	236	3432	4307
<i>Sebastes helvomaculatus</i>	Rosethorn rockfish	7	183	369	239	3836	4642
<i>Sebastes jordani</i>	Shortbelly rockfish	9	196	346	245	3526	4115
<i>Sebastes levis</i>	Cowcod	3	196	241	213	3432	3836
<i>Sebastes melanostomus</i>	Blackgill rockfish	14	196	524	421	3429	4549
<i>Sebastes paucispinis</i>	Bocaccio	7	196	335	238	3432	4048
<i>Sebastes pinniger</i>	Canary rockfish	2	203	242	223	3836	4207
<i>Sebastes proriger</i>	Redstripe rockfish	4	181	256	208	4028	4426
<i>Sebastes reedi</i>	Yellowmouth rockfish	1	248	248	248	4454	4454
<i>Sebastes rosenblatti</i>	Greenblotched rockfish	1	241	241	241	3432	3432
<i>Sebastes rufus</i>	Bank rockfish	1	417	417	417	3619	3619
<i>Sebastes saxicola</i>	Stripetail rockfish	20	181	335	230	3432	4807
<i>Sebastes semicinctus</i>	Halfbanded rockfish	1	242	242	242	4457	4457
<i>Sebastes zacentrus</i>	Sharpchin rockfish	22	181	379	245	3714	4807
<b>Anoplopomatidae</b>							
<i>Anoplopoma fimbria</i>	Sablefish	181	181	1,253	724	3429	4807
<b>Hexagrammidae</b>							
<i>Ophiodon elongatus</i>	Lingcod	13	183	379	255	3714	4738
<i>Zaniolepis frenata</i>	Shortspine combfish	1	241	241	241	3432	3432
<b>Cottidae</b>							
Cottidae	Sculpin unident.	1	203	203	203	3836	3836
<i>Icelinus filamentosus</i>	Threadfin sculpin	8	183	1,201	339	3836	4642
<i>Malacocottus kincaidi</i>	Blackfin sculpin	1	417	417	417	3619	3619
<i>Psychrolutes phrictus</i>	Blob sculpin	3	1,110	1,201	1,166	3951	4648
<i>Radulinus asprellus</i>	Slim sculpin	6	200	346	234	3806	4115
<b>Agonidae</b>							
Agonidae	Poacher unident.	2	183	242	213	4457	4642
<i>Bathyagonus nigripinnis</i>	Blackfin poacher	11	186	759	511	3714	4714
<i>Bathyagonus pentacanthus</i>	Bigeye poacher	5	183	468	368	3500	4714
<i>Bathyagonus</i> sp.	Poacher unident.	1	781	781	781	4002	4002
<i>Xeneretmus latifrons</i>	Blacktip poacher	2	200	241	221	3432	4048
<i>Xeneretmus leiops</i>	Smootheye poacher	1	248	248	248	4454	4454
<i>Xeneretmus triacanthus</i>	Bluespotted poacher	1	242	242	242	4457	4457
<b>Cyclopteridae</b>							
<i>Careproctus cypselurus</i>	Blackfinned snailfish	8	379	1,253	1,014	3713	4648
<i>Careproctus gilberti</i>	Smalldisk snailfish	1	1,181	1,181	1,181	3954	3954
<i>Careproctus melanurus</i>	Blacktail snailfish	97	200	1,201	605	3429	4738
<i>Careproctus</i> sp.	Snailfish unident.	29	450	1,241	913	3432	4736
<i>Careproctus</i> sp. Type A	Black careproctus	4	775	1,220	962	3646	4025
<i>Careproctus</i> sp. Type B	Red careproctus	9	454	781	642	3646	4118
<i>Careproctus</i> sp. Type C	Blackgilled careproctus	6	456	775	621	3646	4027

Table 4.--Continued.

Family and Scientific Name <sup>a</sup>	Common Name <sup>a</sup>	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) <sup>d</sup>	
			Min.	Max.	Mean	South	North
<b>Cyclopteridae (continued)</b>							
Cyclopteridae	Snailfish unident.	9	417	1,247	849	3431	4714
<i>Paraliparis cephalus</i>	Swellhead snailfish	2	604	1,007	806	4026	4051
<i>Paraliparis</i> sp.		5	770	1,128	903	3526	4240
<i>Rhinoliparis barbulifer</i>		5	775	1,128	968	3453	3646
<b>Carangidae</b>							
<i>Trachurus symmetricus</i>	Jack mackerel	1	186	186	186	4426	4426
<i>Scomber japonicus</i>	Chub mackerel	1	1,247	1,247	1,247	3459	3459
<b>Caristiidae<sup>b</sup></b>							
<i>Caristius macropus</i>	Manefish	1	565	565	565	4521	4521
<b>Embiotocidae</b>							
<i>Cymatogaster aggregata</i>	Shiner perch	1	303	303	303	4617	4617
Embiotocidae	Surfperch unident.	1	196	196	196	3714	3714
<b>Zoarcidae</b>							
<i>Bothrocara brunneum</i>	Twoline eelpout	103	432	1,253	901	3431	4804
<i>Lycenchelys camchatica</i>	Kamchatka eelpout	2	1,007	1,120	1,064	4026	4240
<i>Lycenchelys crotalinus</i>	Snakehead eelpout	65	392	1,236	934	3432	4738
<i>Lycodapus endemoscotus</i>	Deepwater eelpout	4	555	651	593	3429	3552
<i>Lycodapus fierasfer</i>	Blackmouth eelpout	17	416	1,146	788	3429	4117
<i>Lycodapus mandibularis</i>	Pallid eelpout	4	516	651	569	3429	3552
<i>Lycodapus</i> sp.		12	478	1,157	886	3431	4645
<i>Lycodes corteziianus</i>	Bigfin eelpout	66	181	644	389	3429	4737
<i>Lycodes diapterus</i>	Black eelpout	55	242	1,007	544	3429	4737
<i>Lycodes pacificus</i>	Blackbelly eelpout	9	193	524	343	3429	4115
<i>Melanostigma pammelas</i>	Midwater eelpout	3	770	1,042	893	3453	3902
<b>Chiasmodontidae<sup>b</sup></b>							
<i>Chiasmodon niger</i>		5	790	1,128	992	3431	4145
<b>Trichiuridae</b>							
<i>Aphanopus carbo</i>	Black scabbardfish	3	676	923	791	3646	3929
<i>Benthodesmus pacificus</i>		1	729	729	729	4332	4332
<b>Centrolophidae</b>							
<i>Icichthys lockingtoni</i>	Medusafish	3	729	1,113	867	3932	4332
<b>Bothidae</b>							
<i>Citharichthys sordidus</i>	Pacific sanddab	5	181	303	218	3714	4617
<b>Pleuronectidae</b>							
<i>Atheresthes stomias</i>	Arrowtooth flounder	37	181	688	369	3833	4807
<i>Embassichthys bathybius</i>	Deepsea sole	107	416	1,253	913	3431	4804
<i>Lyopsetta exilis</i>	Slender sole	58	181	583	338	3432	4807
<i>Eopsetta jordani</i>	Petrale sole	41	183	584	329	3502	4807
<i>Glyptocephalus zachirus</i>	Rex sole	79	181	857	399	3429	4807
<i>Hippoglossoides elassodon</i>	Flathead sole	2	303	379	341	4617	4617
<i>Hippoglossus stenolepis</i>	Pacific halibut	6	242	450	346	4207	4714
<i>Lepidopsetta bilineata</i>	Southern rock sole	1	203	203	203	3836	3836
<i>Microstomus pacificus</i>	Dover sole	167	181	1,253	667	3429	4807
<i>Parophrys vetulus</i>	English sole	22	181	413	248	3432	4807
<i>Pleuronichthys decurrens</i>	Curlfin sole	2	196	200	198	3714	4048

<sup>a</sup> Nomenclature from Robins (1990) unless otherwise noted.

<sup>b</sup> Nomenclature from Eschmeyer and Herald (1983).

<sup>c</sup> Nomenclature from Nelson (1984).

<sup>d</sup> Degrees and minutes of latitude.

Table 5.--Frequency of occurrence and depth and latitude ranges for invertebrate species caught during the 1997 West Coast upper continental slope bottom trawl survey.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
<b>Porifera</b>							
	<i>Porifera</i> unident.	12	376	1,181	740	3431	4736
	<i>Suberites ficus</i>	1	193	193	193	3502	3502
	<i>Aphrocallistes vastus</i>	30	259	1,151	624	3459	4714
	<i>Hylonema</i> sp.	5	942	1,188	1,123	4619	4736
<b>Cnidaria</b>							
<b>Scyphozoa</b>							
	<i>Cyanea capillata</i>	1	781	781	781	4002	4002
	<i>Periphylla</i> sp.	18	545	1,241	914	3549	4804
	Scyphozoa unident.	105	200	1,253	763	3431	4738
<b>Anthozoa</b>							
	<i>Actinauge verrillii</i>	59	183	1,205	758	3459	4804
	Actiniaria unident.	127	193	1,247	776	3429	4804
	<i>Actinoscyphia</i> sp.	8	679	1,128	863	3525	4457
	<i>Anthomastus</i> sp.	7	369	1,220	638	3833	4617
	<i>Antipathes</i> sp.	16	290	1,241	876	3958	4738
	<i>Bathypathes</i> sp.	3	1,037	1,194	1,097	4145	4804
	<i>Calcigorgia spiculifera</i>	1	1,120	1,120	1,120	3431	3431
	<i>Corallimorphus</i> sp.	7	248	1,108	820	3708	4645
	Gorgonacea unident.	6	248	1,061	752	3453	4804
	<i>Liponemis brevicornis</i>	96	183	1,253	719	3429	4738
	<i>Metridium senile</i>	2	203	225	214	3836	3929
	<i>Metridium</i> sp.	8	193	440	270	3502	4207
	<i>Paractinostola faeculenta</i>	132	242	1,253	804	3525	4804
	Pennatulacea unident.	77	242	1,253	886	3429	4804
	<i>Stylatula</i> sp.	30	285	1,253	865	3429	4804
	<i>Tealia</i> sp.	1	203	203	203	3836	3836
	<i>Umbellula</i> sp.	15	416	1,236	885	3500	4738
	<i>Virgularia</i> sp.	4	516	1,177	832	3550	3951
<b>Ctenophora</b>							
	Ctenophora unident.	5	621	1,201	913	3432	4645
<b>Annelida</b>							
<b>Polychaeta</b>							
	Aphroditidae unident.	50	196	1,220	714	3429	4737
	<i>Eunoe depressa</i>	3	630	1,253	982	3548	4335
	<i>Eunoe</i> sp.	1	1,128	1,128	1,128	3526	3526
	Polychaeta unident.	7	208	1,181	908	3623	4548
<b>Arthropoda</b>							
<b>Cirripedia</b>							
	<i>Balanus</i> sp.	1	857	857	857	3549	3549
<b>Malacostraca</b>							
	<i>Acanthephyra</i> sp.	1	1,037	1,037	1,037	4145	4145
	Albuneidae unident.	1	1,128	1,128	1,128	3526	3526
	<i>Cancer magister</i>	8	196	379	270	3714	4617
	<i>Chionoecetes tanneri</i>	136	208	1,253	849	3431	4804
	<i>Chorilia longipes</i>	31	241	1,205	680	3429	4645
	<i>Crangon communis</i>	1	265	265	265	4146	4146
	<i>Crangon</i> sp.	4	193	225	210	3502	4115

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
<b>Malacostraca (continued)</b>							
	<i>Eryonicus agassizi</i>	1	1,064	1,064	1,064	3548	3548
	<i>Eualus macrophthalmus</i>	12	468	1,188	796	3454	4714
	<i>Eualus</i> sp.	1	1,181	1,181	1,181	4458	4458
	Galatheidae unident.	9	925	1,253	1,096	3431	3954
	Isopoda unident.	8	867	1,194	1,075	3453	4648
	<i>Lebbeus</i> sp.	1	200	200	200	4048	4048
	<i>Lithodes couesi</i>	13	800	1,194	1,064	3903	4804
	<i>Lithodes</i> sp.	1	1,064	1,064	1,064	3548	3548
	Lithodidae unident.	1	1,205	1,205	1,205	3549	3549
	<i>Lopholithodes foraminatus</i>	7	186	376	284	3526	4807
	<i>Lopholithodes</i> sp.	1	205	205	205	3806	3806
	<i>Munida quadrispina</i>	4	200	581	324	3429	4454
	<i>Mursia gaudichaudii</i>	2	196	205	201	3714	3806
	Natantia unident.	13	432	1,247	977	3431	4804
	<i>Notostomus japonicus</i>	3	790	1,120	971	3431	4617
	<i>Notostomus</i> sp.	8	681	1,253	1,032	3454	3715
	Paguridae unident.	24	241	1,247	811	3429	4358
	<i>Pagurus aleuticus</i>	4	222	440	307	4049	4457
	<i>Pagurus capillatus</i>	9	200	440	290	3905	4711
	<i>Pagurus confragosus</i>	35	200	1,220	633	3619	4714
	<i>Pagurus</i> sp.	35	200	1,220	715	3548	4804
	Pandalidae unident.	2	1,120	1,130	1,125	3431	3842
	<i>Pandalopsis ampla</i>	13	1,024	1,247	1,141	3431	4145
	<i>Pandalopsis dispar</i>	5	222	368	265	4115	4738
	<i>Pandalus borealis</i>	1	242	242	242	4457	4457
	<i>Pandalus jordani</i>	7	181	242	205	3502	4547
	<i>Pandalus platyceros</i>	12	183	413	247	3432	4738
	<i>Pandalus</i> sp.	8	248	1,194	866	3431	4549
	<i>Paralithodes californiensis</i>	1	437	437	437	3429	3429
	<i>Paralithodes</i> sp.	3	203	335	288	3526	3836
	<i>Paralomis multispina</i>	39	265	1,253	1,112	3431	4804
	<i>Paralomis verrilli</i>	2	1,177	1,247	1,212	3459	3643
	<i>Pasiphaea pacifica</i>	37	259	924	582	3429	4714
	<i>Pasiphaea tarda</i>	84	545	1,253	963	3431	4714
	<i>Pasiphaeidae</i> unident.	1	555	555	555	3526	3526
	<i>Stellaspis braueri</i>	1	1,151	1,151	1,151	4331	4331
<b>Pycnogonida</b>							
	Pycnogonida unident.	1	1,151	1,151	1,151	3623	3623
<b>Brachipoda</b>							
<b>Inarticulata</b>							
	<i>Laqueus californianus</i>	6	259	468	397	3833	4714
<b>Bryozoa</b>							
	Bryozoa unident.	1	1,129	1,129	1,129	4619	4619
<b>Mollusca</b>							
<b>Aplacophora</b>							
	Aplacophora unident.	21	346	1,120	648	3431	4738
<b>Gastropoda</b>							
	<i>Aforia goodei</i>	1	1,184	1,184	1,184	4648	4648
	<i>Antiplanes</i> sp.	7	196	1,236	755	3431	4426
	<i>Antiplanes thalea</i>	3	413	474	437	3459	4210

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
<b>Gastropoda (continued)</b>							
	<i>Bathybembix bairdii</i>	86	450	1,247	883	3429	4804
	<i>Buccinum</i> sp.	4	265	936	558	3432	4521
	<i>Buccinum strigillatum</i>	5	344	493	395	3928	4331
	<i>Buccinum viridum</i>	55	440	1,241	999	3431	4804
	<i>Calinaticina oldroyi</i>	2	193	225	209	3502	3929
	<i>Calliostoma platinum</i>	3	437	811	673	3429	3902
	<i>Colus aphelus</i>	15	681	1,253	1,022	3454	4644
	<i>Colus</i> sp.	5	392	1,133	843	3708	4644
	Doridacea unident.	1	580	580	580	3619	3619
	<i>Fusitriton oregonensis</i>	9	259	824	525	4428	4737
	Gastropod unident.	2	765	1,042	904	3715	3838
	Heteropoda unident.	2	413	1,181	797	3833	4458
	<i>Natica clausa</i>	3	1,059	1,220	1,131	3932	4307
	<i>Neptunea amianta</i>	116	337	1,253	890	3429	4804
	<i>Neptunea ithia</i>	5	346	1,024	626	3619	3957
	<i>Neptunea phoenicia</i>	1	604	604	604	4051	4051
	<i>Neptunea pribiloffensis</i>	29	303	1,150	556	3833	4737
	<i>Neptunea smirnia</i>	3	474	1,024	797	3459	3622
	<i>Neptunea</i> sp.	5	344	454	413	3429	4643
	Nudibranchia unident.	13	242	1,133	693	3502	4209
	Opisthobranchia unident.	15	193	583	303	3429	4115
	<i>Plicifusus griseus</i>	15	617	1,108	857	3433	4645
	<i>Polinices</i> sp.	2	285	1,044	665	3527	3905
	<i>Solariella nuda</i>	3	569	652	614	3833	4432
	<i>Tritonia</i> sp.	41	371	1,236	878	3429	4738
<b>Bivalvia</b>							
	<i>Acharax johnsoni</i>	2	965	1,117	1,041	3457	4240
	<i>Delectopecten vancouverensis</i>	9	740	1,128	921	3431	4311
	<i>Mya</i> sp.	1	604	604	604	4051	4051
	Mytilidae unident.	1	492	492	492	3902	3902
	Pelecypoda unident.	3	1,133	1,150	1,143	4117	4209
	<i>Solemya reidi</i>	3	924	1,241	1,107	4355	4550
	<i>Yoldia</i> sp.	1	1,024	1,024	1,024	3622	3622
<b>Cephalopoda</b>							
	<i>Berryteuthis magister</i>	11	456	1,205	675	3549	4737
	Cephalopoda unident.	46	183	1,253	873	3431	4736
	<i>Chiroteuthis calyx</i>	1	740	740	740	4311	4311
	<i>Gonatus</i> sp.	1	953	953	953	3959	3959
	<i>Histioteuthis dofleini</i>	42	367	1,247	716	3431	4804
	<i>Histioteuthis heteropsis</i>	1	493	493	493	3928	3928
	<i>Loligo opalescens</i>	25	181	1,181	445	3429	4521
	<i>Moroteuthis robusta</i>	12	203	1,151	465	3619	4332
	<i>Octopus dofleini</i>	9	193	688	430	3429	4614
	<i>Octopus</i> sp.	66	193	1,253	618	3429	4737
	<i>Ommastrephes bartrami</i>	19	242	1,076	541	3713	4735
	Onychoteuthidae unident.	1	265	265	265	4146	4146
	<i>Onychoteuthis borealijaponicus</i>	9	200	861	511	3500	4735
	<i>Opisthoteuthis californiana</i>	47	335	1,181	702	3429	4738
	<i>Rossia pacifica</i>	1	205	205	205	3806	3806
	<i>Taningia danae</i>	64	456	1,253	871	3433	4804
	<i>Vampyroteuthis infernalis</i>	43	335	1,253	1,000	3431	4804

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
<b>Echinodermata</b>							
<b>Crinoidea</b>							
	Crinoid unident.	4	1,120	1,188	1,153	3431	4736
	<i>Florimetra serratissima</i>	2	800	1,061	931	4644	4804
<b>Asteroidea</b>							
	<i>Ampheraster marianus</i>	38	337	1,108	722	3453	4738
	<i>Anteliaster</i> sp.	7	413	1,108	832	3833	4736
	Asteroidea unident.	5	1,069	1,191	1,148	3431	4458
	<i>Asthenactis fisheri</i>	2	620	1,188	904	4457	4648
	<i>Astropecten californicus</i>	2	196	425	311	3713	3714
	<i>Brisingella exilis</i>	19	545	1,120	707	3433	4645
	<i>Ceramaster leptoceramus</i>	8	651	965	785	3453	3929
	<i>Ceramaster patagonicus</i>	1	649	649	649	4210	4210
	<i>Ceramaster</i> sp.	1	585	585	585	3500	3500
	<i>Crossaster borealis</i>	102	200	1,253	875	3431	4807
	<i>Crossaster papposus</i>	2	203	208	206	3836	4028
	<i>Crossaster</i> sp.	1	492	492	492	3902	3902
	<i>Cryptopeltaster lepidonotus</i>	4	196	1,241	733	3500	4355
	<i>Ctenodiscus crispatus</i>	10	290	1,177	684	3643	4714
	<i>Diplopteraster multipes</i>	13	239	1,253	623	3713	4738
	<i>Dipsacaster borealis</i>	2	857	1,200	1,029	3549	4714
	<i>Dipsacaster</i> sp.	23	545	1,205	879	3431	4648
	<i>Gephyreaster swifti</i>	1	208	208	208	4028	4028
	<i>Henricia</i> sp.	4	643	1,201	928	4050	4804
	<i>Heterozonias alternatus</i>	134	203	1,253	830	3429	4804
	<i>Hippasteria californica</i>	99	196	1,253	823	3431	4804
	<i>Hippasteria</i> sp.	1	893	893	893	3525	3525
	<i>Hippasteria spinosa</i>	18	196	1,201	420	3714	4807
	<i>Leptychaster arcticus</i>	2	450	1,201	826	4050	4714
	<i>Leptychaster pacificus</i>	1	371	371	371	4549	4549
	<i>Lophaster furcilliger</i>	33	413	1,253	1,049	3524	4736
	<i>Luidia foliata</i>	36	183	1,157	410	3713	4738
	<i>Luidiaster dawsoni</i>	4	242	450	372	4450	4714
	<i>Mediaster aequalis</i>	3	203	1,130	699	3836	3842
	<i>Mediaster tenellus</i>	2	413	416	415	3500	3833
	<i>Myoxoderma platyacanthum rhomaleum</i>	45	222	1,157	594	3429	4738
	<i>Myoxoderma sacculatum</i>	42	604	1,247	1,031	3431	4355
	<i>Nearchaster aciculosus</i>	63	369	1,253	975	3429	4804
	<i>Nearchaster</i> sp.	1	1,037	1,037	1,037	4145	4145
	<i>Paraniopsis flexilius</i>	1	413	413	413	3833	3833
	<i>Paraniopsis inflata</i>	2	208	248	228	4028	4454
	<i>Pseudarchaster dissonus</i>	6	440	1,220	1,042	3623	4240
	<i>Pseudarchaster parelii</i>	10	327	1,247	738	3429	4332
	<i>Pseudarchaster parelii alascensis</i>	26	239	1,157	459	3453	4738
	<i>Pseudarchaster pussillus</i>	10	222	1,205	613	3500	4115
	<i>Pseudarchaster</i> sp.	1	1,177	1,177	1,177	3643	3643
	<i>Pteraster militaris</i>	2	208	643	426	4028	4735
	<i>Pteraster</i> sp.	27	259	1,194	797	3459	4804
	<i>Pteraster tessellatus</i>	6	208	1,205	587	3549	4711
	<i>Pycnopodia helianthoides</i>	1	256	256	256	4240	4240
	<i>Rathbunaster californicus</i>	33	196	681	408	3429	4714

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
<b>Asteroidea (continued)</b>							
	<i>Solaster endeca</i>	1	555	555	555	3526	3526
	<i>Solaster paxillatus</i>	11	248	1,247	927	3431	4617
	<i>Solaster</i> sp.	1	1,120	1,120	1,120	3431	3431
	<i>Stylasterias forreri</i>	13	183	1,201	448	3713	4736
	<i>Thrissacanthias penicillatus</i>	120	239	1,253	833	3429	4738
	<i>Zoraster evermanni mordax</i>	62	337	1,247	924	3431	4804
	Zoroasteridae unident.	2	691	1,076	884	4358	4358
<b>Echinoidea</b>							
	<i>Alloccentrotus fragilis</i>	72	183	1,120	479	3429	4807
	<i>Alloccentrotus</i> sp.	5	222	644	424	3619	4115
	<i>Brisaster latifrons</i>	31	181	1,130	549	3526	4714
	<i>Brisaster</i> sp.	14	193	790	518	3429	4115
	<i>Brisaster townsendi</i>	21	193	936	605	3432	4115
	Echinoidea unident.	2	242	493	368	3928	4547
	Schiasteridae unident.	8	241	861	554	3429	4213
	<i>Strongylocentrotus droebachiensis</i>	1	369	369	369	4428	4428
<b>Ophiuroidea</b>							
	<i>Amphiophiura ponderosa</i>	18	478	1,205	915	3431	4737
	<i>Asteronyx loveni</i>	46	285	1,253	857	3429	4648
	<i>Ophiopholis aculeata</i>	5	248	630	411	4335	4521
	<i>Ophiura sarsi</i>	21	222	1,184	424	3902	4737
	Ophiuroid unident.	28	248	1,200	797	3429	4804
<b>Holothuroidea</b>							
	Holothuroidea unident.	28	241	1,236	704	3429	4714
	<i>Molpadia intermedia</i>	11	516	1,236	949	3429	4426
	<i>Molpadia</i> sp.	9	376	1,201	731	3457	4648
	<i>Pannychia moseleyi</i>	44	239	1,253	796	3429	4804
	<i>Parastichopus californicus</i>	1	376	376	376	4405	4405
	<i>Parastichopus leucothele</i>	31	183	913	423	3432	4711
	<i>Parastichopus</i> sp.	2	193	935	564	3502	4518
	<i>Pseudostichopus mollis</i>	26	186	1,247	631	3453	4738
	<i>Pseudostichopus</i> sp.	1	1,113	1,113	1,113	3932	3932
	<i>Psolus</i> sp.	1	1,120	1,120	1,120	3431	3431
	<i>Psolus squamatus</i>	14	248	1,151	682	3459	4804
	<i>Scotoplanes theeli</i>	36	492	1,241	1,100	3524	4804
<b>Urochordata</b>							
<b>Ascidiacea</b>							
	Ascidian unident.	11	203	1,253	827	3431	4454
<b>Thaliacea</b>							
	Thaliacea unident.	58	200	1,253	736	3457	4736

\* Degrees and minutes of latitude.

Table 6.--Number of length frequency measurements collected by stratum during the 1997 West Coast upper continental slope bottom trawl survey for all of the International North Pacific Fisheries Commission areas combined.

Species	Stratum 1 183-366 m	Stratum 2 367-549 m	Stratum 3 550-732 m	Stratum 4 733-914 m	Stratum 5 915-1,097 m	Stratum 6 1,098-1,280 m
Brown cat shark	66	686	1,305	613	140	30
Filetail cat shark	71	145	185	8	1	0
Longnose cat shark	0	6	0	0	22	21
Spiny dogfish	1,788	1,188	28	4	1	0
Deepsea skate	0	0	1	2	5	13
Big skate	4	1	0	0	0	0
Bering skate	408	462	37	0	2	0
Longnose skate	594	503	72	5	1	0
Black skate	0	0	18	18	100	203
Spotted ratfish	892	290	3	3	0	4
Pacific sanddab	278	0	0	0	0	0
Arrowtooth flounder	231	299	7	0	0	0
Pacific halibut	6	3	0	0	0	0
Flathead sole	3	24	0	0	0	0
Slender sole	2,727	1,521	4	0	0	0
Petrable sole	362	203	1	0	0	0
English sole	853	86	0	0	0	0
Dover sole	2,079	4,228	2,518	1,176	879	765
Deepsea sole	0	7	104	411	696	490
Rex sole	3,314	2,989	399	1	0	0
Blacktip poacher	11	0	0	0	0	0
Bigeye poacher	0	2	0	0	0	0
Blackfin poacher	0	0	3	0	0	0
California slickhead	0	0	517	1,448	1,375	948
Threadfin slickhead	0	0	112	369	211	14
Sablefish	646	1,345	1,084	722	783	602
Plainfin midshipman	162	0	0	0	0	0
Spotted cusk-eel	48	0	0	0	0	0
Jack mackerel	3	0	0	0	0	0
California grenadier	1	8	3	1	0	0
Smooth grenadier	0	0	0	63	5	1
Pacific grenadier	0	0	658	557	2,799	5,268
Giant grenadier	0	0	159	680	732	1,985
Popeye grenadier	0	0	1	1	3	10
Threadfin sculpin	21	0	0	0	0	0
Slim sculpin	41	0	0	0	0	0
Blob sculpin	0	0	0	0	0	2
Pacific cod	5	0	0	0	0	0
Pacific flatnose	2	55	773	423	1,197	2,038
Lingcod	24	1	0	0	0	0
Blacktail snailfish	75	185	390	203	69	3
Pacific whiting	7,026	7,219	2,473	60	46	37
Chinook salmon	11	0	0	0	0	0
Twoline eelpout	0	7	134	265	233	187
Snakehead eelpout	0	3	53	238	374	36
Bigfin eelpout	863	1,316	92	0	0	0
Black eelpout	14	1,014	808	30	58	0
Blackbelly eelpout	126	111	0	0	0	0
Shortspine thornyhead	1,683	3,633	969	285	491	393
Longspine thornyhead	0	1,374	7,221	7,846	8,002	9,212
Rougheye rockfish	12	18	1	1	0	0
Pacific ocean perch	306	41	0	0	0	0
Aurora rockfish	9	1,165	11	2	0	0
Silvergray rockfish	3	0	0	0	0	0
Greenspotted rockfish	25	0	0	0	0	0
Darkblotched rockfish	293	20	0	1	0	0
Splitnose rockfish	1,808	1,031	17	0	0	0
Greenstriped rockfish	374	0	0	1	0	0
Widow rockfish	29	0	0	0	0	0
Yellowtail rockfish	4	0	0	0	0	0
Chilipepper	693	0	0	0	0	0
Rosethorn rockfish	111	7	0	0	0	0
Shortbelly rockfish	327	0	0	0	0	0
Cowcod	15	0	0	0	0	0
Blackgill rockfish	1	51	0	0	0	0
Bocaccio	97	0	0	0	0	0
Canary rockfish	326	0	0	0	0	0
Redstripe rockfish	39	0	0	0	0	0
Redbanded rockfish	47	8	0	0	0	0
Stripetail rockfish	2,049	0	0	0	0	0
Halfbanded rockfish	1	0	0	0	0	0
Sharpchin rockfish	652	2	0	0	0	0
Bank rockfish	0	1	0	0	0	0
Shortraker rockfish	2	2	0	0	0	0
Yellowmouth rockfish	15	0	0	0	0	0



Table 7.--Number of length frequency measurements collected by stratum during the 1997 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission Conception area.

Species	Stratum 1 183-366 m	Stratum 2 367-549 m	Stratum 3 550-732 m	Stratum 4 733-914 m	Stratum 5 915-1,097 m	Stratum 6 1,098-1,280 m
Brown cat shark	33	76	246	86	20	18
Filetail cat shark	52	113	144	7	1	0
Spiny dogfish	23	6	1	1	0	0
Deepsea skate	0	0	0	2	1	5
Bering skate	17	79	3	0	0	0
Longnose skate	92	134	37	4	0	0
Black skate	0	0	0	5	11	12
Spotted ratfish	196	19	0	0	0	0
Slender sole	165	16	0	0	0	0
Petrable sole	0	9	0	0	0	0
English sole	42	0	0	0	0	0
Dover sole	95	492	469	259	198	118
Deepsea sole	0	2	0	58	71	9
Rex sole	234	535	2	1	0	0
Blacktip poacher	7	0	0	0	0	0
Bigeye poacher	0	2	0	0	0	0
California slickhead	0	0	137	229	375	227
Threadfin slickhead	0	0	48	62	69	5
Sablefish	7	87	119	183	212	31
Plainfin midshipman	162	0	0	0	0	0
Spotted cusk-eel	39	0	0	0	0	0
California grenadier	0	1	3	0	0	0
Smooth grenadier	0	0	0	1	3	1
Pacific grenadier	0	0	0	23	246	802
Giant grenadier	0	0	10	18	121	143
Pacific flatnose	0	0	4	23	47	164
Blacktail snailfish	19	17	72	50	8	0
Pacific whiting	1,024	1,018	470	14	7	2
Twoline eelpout	0	1	13	73	66	40
Snakehead eelpout	0	0	0	18	18	0
Bigfin eelpout	82	360	1	0	0	0
Black eelpout	11	229	39	0	0	0
Blackbelly eelpout	126	111	0	0	0	0
Shortspine thornyhead	19	281	351	133	156	49
Longspine thornyhead	0	646	889	733	1,305	1,155
Aurora rockfish	2	560	8	2	0	0
Splitnose rockfish	390	478	0	0	0	0
Chilipepper	202	0	0	0	0	0
Shortbelly rockfish	8	0	0	0	0	0
Cowcod	2	0	0	0	0	0
Blackgill rockfish	0	13	0	0	0	0
Bocaccio	29	0	0	0	0	0
Stripetail rockfish	452	0	0	0	0	0

Table 8.--Number of length frequency measurements collected by stratum during the 1997 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission Monterey area.

Species	Stratum 1 183-366 m	Stratum 2 367-549 m	Stratum 3 550-732 m	Stratum 4 733-914 m	Stratum 5 915-1,097 m	Stratum 6 1,098-1,280 m
Brown cat shark	11	241	519	212	47	6
Filetail cat shark	19	32	41	1	0	0
Longnose cat shark	0	6	0	0	22	21
Spiny dogfish	14	142	5	0	0	0
Deepsea skate	0	0	1	0	4	6
Bering skate	89	181	24	0	0	0
Longnose skate	312	165	24	1	0	0
Black skate	0	0	0	10	38	43
Spotted ratfish	284	240	3	0	0	0
Pacific sanddab	254	0	0	0	0	0
Arrowtooth flounder	1	1	0	0	0	0
Slender sole	697	324	0	0	0	0
Petrable sole	269	149	0	0	0	0
English sole	540	86	0	0	0	0
Dover sole	525	1,271	954	529	418	452
Deepsea sole	0	4	23	129	309	209
Rex sole	1,095	1,040	89	0	0	0
California slickhead	0	0	251	735	373	476
Threadfin slickhead	0	0	63	91	9	6
Sablefish	62	237	251	140	370	231
Spotted cusk-eel	9	0	0	0	0	0
California grenadier	1	3	0	0	0	0
Smooth grenadier	0	0	0	60	1	0
Pacific grenadier	0	0	272	147	1,320	1,863
Giant grenadier	0	0	45	62	172	457
Popeye grenadier	0	0	0	0	3	0
Threadfin sculpin	21	0	0	0	0	0
Slim sculpin	6	0	0	0	0	0
Blob sculpin	0	0	0	0	0	1
Pacific flatnose	0	27	180	157	564	754
Lingcod	16	0	0	0	0	0
Blacktail snailfish	10	89	270	123	47	0
Pacific whiting	1,268	1,984	545	15	10	12
Twoline eelpout	0	1	68	106	88	84
Snakehead eelpout	0	0	13	66	144	13
Bigfin eelpout	127	550	68	0	0	0
Black eelpout	0	123	190	29	58	0
Shortspine thornyhead	84	408	228	85	181	217
Longspine thornyhead	0	445	1,672	1,895	2,209	2,852
Pacific ocean perch	1	0	0	0	0	0
Aurora rockfish	0	428	3	0	0	0
Silvergray rockfish	2	0	0	0	0	0
Greenspotted rockfish	25	0	0	0	0	0
Darkblotched rockfish	26	0	0	1	0	0
Splitnose rockfish	349	484	17	0	0	0
Greenstriped rockfish	188	0	0	0	0	0
Widow rockfish	9	0	0	0	0	0
Yellowtail rockfish	1	0	0	0	0	0
Chilipepper	442	0	0	0	0	0
Rosethorn rockfish	26	0	0	0	0	0
Shortbelly rockfish	307	0	0	0	0	0
Cowcod	13	0	0	0	0	0
Blackgill rockfish	1	37	0	0	0	0
Bocaccio	67	0	0	0	0	0
Canary rockfish	324	0	0	0	0	0
Redstripe rockfish	1	0	0	0	0	0
Redbanded rockfish	5	5	0	0	0	0
Stripetail rockfish	973	0	0	0	0	0
Sharpchin rockfish	170	0	0	0	0	0
Bank rockfish	0	1	0	0	0	0

Table 9.--Number of length frequency measurements collected by stratum during the 1997 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission Eureka area.

Species	Stratum 1 183-366 m	Stratum 2 367-549 m	Stratum 3 550-732 m	Stratum 4 733-914 m	Stratum 5 915-1,097 m	Stratum 6 1,098-1,280 m
Brown cat shark	7	144	227	129	21	2
Spiny dogfish	45	381	2	0	0	0
Bering skate	130	45	0	0	0	0
Longnose skate	48	122	8	0	1	0
Black skate	0	0	5	0	28	47
Spotted ratfish	11	0	0	0	0	4
Arrowtooth flounder	4	45	0	0	0	0
Pacific halibut	0	2	0	0	0	0
Slender sole	799	86	0	0	0	0
Petrable sole	21	25	1	0	0	0
English sole	106	0	0	0	0	0
Dover sole	686	835	429	205	199	170
Deepsea sole	0	0	20	86	156	179
Rex sole	737	365	176	0	0	0
Blacktip poacher	4	0	0	0	0	0
California slickhead	0	0	76	103	302	141
Threadfin slickhead	0	0	0	13	10	0
Sablefish	302	401	135	67	83	197
California grenadier	0	4	0	0	0	0
Pacific grenadier	0	0	163	62	491	668
Giant grenadier	0	0	35	136	161	398
Slim sculpin	35	0	0	0	0	0
Pacific flatnose	0	0	114	46	227	306
Lingcod	1	0	0	0	0	0
Blacktail snailfish	36	25	22	5	12	3
Pacific whiting	1,342	1,454	372	7	7	0
Chinook salmon	4	0	0	0	0	0
Twoline eelpout	0	5	14	1	26	22
Snakehead eelpout	0	0	16	74	128	4
Bigfin eelpout	315	59	2	0	0	0
Black eelpout	0	427	298	0	0	0
Shortspine thornyhead	514	565	84	17	40	64
Longspine thornyhead	0	57	1,241	1,206	1,483	1,733
Aurora rockfish	0	123	0	0	0	0
Darkblotched rockfish	145	1	0	0	0	0
Splitnose rockfish	358	1	0	0	0	0
Greenstriped rockfish	32	0	0	1	0	0
Widow rockfish	4	0	0	0	0	0
Chilipepper	48	0	0	0	0	0
Rosethorn rockfish	3	0	0	0	0	0
Shortbelly rockfish	12	0	0	0	0	0
Bocaccio	1	0	0	0	0	0
Canary rockfish	2	0	0	0	0	0
Redstripe rockfish	1	0	0	0	0	0
Redbanded rockfish	20	0	0	0	0	0
Stripetail rockfish	481	0	0	0	0	0
Sharpchin rockfish	51	0	0	0	0	0

Table 10.--Number of length frequency measurements collected by stratum during the 1997 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission Columbia area.

Species	Stratum 1 183-366 m	Stratum 2 367-549 m	Stratum 3 550-732 m	Stratum 4 733-914 m	Stratum 5 915-1,097 m	Stratum 6 1,098-1,280 m
Brown cat shark	15	217	311	183	52	4
Spiny dogfish	1,417	650	20	0	0	0
Deepsea skate	0	0	0	0	0	2
Big skate	3	1	0	0	0	0
Bering skate	144	156	10	0	2	0
Longnose skate	126	82	3	0	0	0
Black skate	0	0	13	2	16	91
Spotted ratfish	292	31	0	3	0	0
Pacific sanddab	24	0	0	0	0	0
Arrowtooth flounder	71	248	7	0	0	0
Pacific halibut	6	1	0	0	0	0
Flathead sole	3	24	0	0	0	0
Slender sole	953	986	4	0	0	0
Petrale sole	67	20	0	0	0	0
English sole	90	0	0	0	0	0
Dover sole	651	1,611	633	182	63	25
Deepsea sole	0	1	44	122	134	90
Rex sole	1,176	1,048	132	0	0	0
Blackfin poacher	0	0	3	0	0	0
California slickhead	0	0	53	374	302	104
Threadfin slickhead	0	0	1	198	121	3
Sablefish	253	603	559	300	114	141
Jack mackerel	3	0	0	0	0	0
California grenadier	0	0	0	1	0	0
Smooth grenadier	0	0	0	2	1	0
Pacific grenadier	0	0	202	306	583	1,863
Giant grenadier	0	0	63	459	224	968
Popeye grenadier	0	0	1	0	0	10
Blob sculpin	0	0	0	0	0	1
Pacific flatnose	2	5	436	178	325	806
Lingcod	6	1	0	0	0	0
Blacktail snailfish	10	49	26	19	2	0
Pacific whiting	3,028	2,597	1,076	21	19	23
Chinook salmon	6	0	0	0	0	0
Twoline eelpout	0	0	37	64	46	40
Snakehead eelpout	0	3	24	73	81	17
Bigfin eelpout	339	342	21	0	0	0
Black eelpout	3	223	266	1	0	0
Shortspine thornyhead	1,053	2,235	290	48	101	56
Longspine thornyhead	0	215	2,764	3,644	2,433	3,189
Rougheye rockfish	12	18	1	1	0	0
Pacific ocean perch	42	41	0	0	0	0
Aurora rockfish	7	54	0	0	0	0
Darkblotched rockfish	115	19	0	0	0	0
Splitnose rockfish	656	68	0	0	0	0
Greenstriped rockfish	149	0	0	0	0	0
Widow rockfish	6	0	0	0	0	0
Chilipepper	1	0	0	0	0	0
Rosethorn rockfish	82	7	0	0	0	0
Blackgill rockfish	0	1	0	0	0	0
Redstripe rockfish	37	0	0	0	0	0
Redbanded rockfish	21	3	0	0	0	0
Stripetail rockfish	142	0	0	0	0	0
Halfbanded rockfish	1	0	0	0	0	0
Sharpchin rockfish	425	2	0	0	0	0
Shortraker rockfish	2	2	0	0	0	0
Yellowmouth rockfish	15	0	0	0	0	0

Table 11.--Number of length frequency measurements collected by stratum during the 1997 West Coast upper continental slope bottom trawl survey of the International North Pacific Fisheries Commission U.S.-Vancouver area.

Species	Stratum 1 183-366 m	Stratum 2 367-549 m	Stratum 3 550-732 m	Stratum 4 733-914 m	Stratum 5 915-1,097 m	Stratum 6 1,098-1,280 m
Brown cat shark	0	8	2	3	0	0
Spiny dogfish	289	9	0	3	1	0
Big skate	1	0	0	0	0	0
Bering skate	28	1	0	0	0	0
Longnose skate	16	0	0	0	0	0
Black skate	0	0	0	1	7	10
Spotted ratfish	109	0	0	0	0	0
Arrowtooth flounder	155	5	0	0	0	0
Slender sole	113	109	0	0	0	0
Petrале sole	5	0	0	0	0	0
English sole	75	0	0	0	0	0
Dover sole	122	19	33	1	1	0
Deepsea sole	0	0	17	16	26	3
Rex sole	72	1	0	0	0	0
California slickhead	0	0	0	7	23	0
Threadfin slickhead	0	0	0	5	2	0
Sablefish	22	17	20	32	4	2
Pacific grenadier	0	0	21	19	159	72
Giant grenadier	0	0	6	5	54	19
Popeye grenadier	0	0	0	1	0	0
Pacific cod	5	0	0	0	0	0
Pacific flatnose	0	23	39	19	34	8
Lingcod	1	0	0	0	0	0
Blacktail snailfish	0	5	0	6	0	0
Pacific whiting	364	166	10	3	3	0
Chinook salmon	1	0	0	0	0	0
Twoline eelpout	0	0	2	21	7	1
Snakehead eelpout	0	0	0	7	3	2
Bigfin eelpout	0	5	0	0	0	0
Black eelpout	0	12	15	0	0	0
Shortspine thornyhead	13	144	16	2	13	7
Longspine thornyhead	0	11	655	368	572	283
Pacific ocean perch	263	0	0	0	0	0
Silvergray rockfish	1	0	0	0	0	0
Darkblotched rockfish	7	0	0	0	0	0
Splitnose rockfish	55	0	0	0	0	0
Greenstriped rockfish	5	0	0	0	0	0
Widow rockfish	10	0	0	0	0	0
Yellowtail rockfish	3	0	0	0	0	0
Redbanded rockfish	1	0	0	0	0	0
Stripetail rockfish	1	0	0	0	0	0
Sharpchin rockfish	6	0	0	0	0	0

Table 12.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in each of the International North Pacific Fisheries Commission areas for all strata combined during the 1997 West Coast upper continental slope groundfish survey.

U.S.-Vancouver Area Species	All Strata 183-1,280m	Columbia Area Species	All Strata 183-1,280m	Eureka Area Species	All Strata 183-1,280m
Pacific whiting	71.44	Pacific whiting	163.71	Pacific whiting	145.85
Spiny dogfish	30.45	Spiny dogfish	58.38	Spiny dogfish	35.90
Longspine thornyhead	12.54	Longspine thornyhead	14.68	Longspine thornyhead	23.31
Sablefish	5.79	Sablefish	13.80	Dover sole	22.67
True Tanner crab	4.26	Dover sole	13.72	Sablefish	18.38
Pacific ocean perch	3.41	Rex sole	10.81	Pacific sleeper shark	9.40
Dover sole	3.00	Giant grenadier	8.12	True Tanner crab	7.64
Giant grenadier	2.62	True Tanner crab	6.08	Rex sole	6.76
Longnose skate	2.59	Pacific grenadier	4.10	Giant grenadier	6.65
Arrowtooth flounder	2.52	Shortspine thornyhead	3.98	Pacific grenadier	5.05
Spotted ratfish	2.50	Longnose skate	3.26	Shortspine thornyhead	4.27
Rex sole	2.40	Slender sole	2.17	Longnose skate	3.03
English sole	2.30	Sharpchin rockfish	1.36	Stripetail rockfish	2.49
Pacific grenadier	1.97	Pacific flatnose	1.11	Deepsea sole	2.24
Shortspine thornyhead	1.83	Spotted ratfish	1.11	California slickhead	2.05
Bering skate	0.88	Splitnose rockfish	1.06	Brown cat shark	1.48
Deepsea sole	0.77	Bering skate	1.04	Splitnose rockfish	1.41
Black skate	0.72	Arrowtooth flounder	0.98	Slender sole	1.28
Big skate	0.67	Brown cat shark	0.97	Black eelpout	1.23
Slender sole	0.61	California slickhead	0.82	Black skate	1.16
<b>Number of hauls</b>	<b>8</b>	<b>Number of hauls</b>	<b>65</b>	<b>Number of hauls</b>	<b>30</b>

  

Monterey Area Species	All Strata 183-1,280m	Conception Area Species	All Strata 183-1,280m	All Areas Species	All Strata 183-1,280m
Dover sole	31.71	Dover sole	19.59	Pacific whiting	92.63
Longspine thornyhead	22.27	Longspine thornyhead	18.28	Spiny dogfish	28.51
Pacific whiting	17.47	Pacific whiting	13.69	Dover sole	20.60
Sablefish	13.37	Sablefish	9.17	Longspine thornyhead	18.67
Pacific grenadier	10.72	Shortspine thornyhead	6.96	Sablefish	13.35
Stripetail rockfish	7.68	Pacific grenadier	6.19	Rex sole	7.55
Rex sole	7.43	Splitnose rockfish	5.38	Pacific grenadier	6.31
Shortspine thornyhead	6.24	Stripetail rockfish	3.68	Giant grenadier	5.60
Splitnose rockfish	5.55	Chilipepper	3.16	Shortspine thornyhead	5.03
Canary rockfish	5.24	California slickhead	2.87	True Tanner crab	4.58
Longnose skate	3.90	Rex sole	2.70	Longnose skate	3.26
Giant grenadier	3.86	Giant grenadier	2.70	Stripetail rockfish	3.14
California slickhead	3.62	Longnose skate	2.57	Splitnose rockfish	3.01
True Tanner crab	3.23	Aurora rockfish	1.70	California slickhead	2.09
Spotted ratfish	2.26	Filetail cat shark	1.43	Pacific sleeper shark	1.66
Deepsea sole	2.19	Deepsea sole	0.92	Canary rockfish	1.44
Pacific flatnose	1.96	Bigfin eelpout	0.81	Deepsea sole	1.39
Plainfin midshipman	1.95	Bering skate	0.77	Slender sole	1.30
Chilipepper	1.82	Brown cat shark	0.72	Spotted ratfish	1.25
Bocaccio	1.73	Spotted ratfish	0.69	Pacific flatnose	1.22
<b>Number of hauls</b>	<b>50</b>	<b>Number of hauls</b>	<b>29</b>	<b>Number of hauls</b>	<b>182</b>

Table 13.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in all the International North Pacific Fisheries Commission areas combined during the 1997 West Coast upper continental slope groundfish survey.

Species	Stratum 1 183-366 m	Species	Stratum 2 367-549 m	Species	Stratum 3 550-732 m
Pacific whiting	318.67	Pacific whiting	192.33	Dover sole	22.62
Spiny dogfish	108.48	Spiny dogfish	54.88	Pacific whiting	20.61
Stripetail rockfish	18.42	Dover sole	46.47	Longspine thornyhead	17.60
Rex sole	17.14	Rex sole	24.15	Sablefish	16.94
Longnose skate	9.90	Sablefish	15.61	True Tanner crab	5.93
Dover sole	9.53	Splitnose rockfish	11.41	Shortspine thornyhead	5.51
Canary rockfish	8.47	Longnose skate	7.84	Brown cat shark	2.28
Sablefish	7.41	Shortspine thornyhead	5.43	Rex sole	1.54
Chilipepper	5.98	Aurora rockfish	3.38	Black eelpout	1.34
Spotted ratfish	5.88	Bering skate	2.98	Giant grenadier	1.29
Splitnose rockfish	5.46	Bigfin eelpout	2.86	Filetail cat shark	1.08
Slender sole	4.76	Slender sole	2.68	California slickhead	0.88
Sharpchin rockfish	3.59	Brown cat shark	2.18	Longnose skate	0.85
Plainfin midshipman	3.52	Longspine thornyhead	2.04	Twoline eelpout	0.58
English sole	3.51	Arrowtooth flounder	1.78	Pacific grenadier	0.52
Bocaccio	3.12	Petrале sole	1.46	Spiny dogfish	0.50
Petrале sole	2.53	Spotted ratfish	1.33	Pacific flatnose	0.46
Shortspine thornyhead	2.52	Black eelpout	1.26	Deepsea sole	0.42
Pacific herring	2.20	True Tanner crab	0.74	Blacktail snailfish	0.33
Bering skate	1.66	Blackgill rockfish	0.61	Black skate	0.32
<b>Number of hauls</b>	<b>31</b>	<b>Number of hauls</b>	<b>33</b>	<b>Number of hauls</b>	<b>30</b>

  

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Sablefish	12.47	Longspine thornyhead	34.20	Pacific grenadier	22.33
Giant grenadier	6.06	Dover sole	15.83	Longspine thornyhead	21.29
California slickhead	3.36	Sablefish	14.91	Giant grenadier	19.22
Shortspine thornyhead	3.08	Pacific grenadier	13.16	Sablefish	12.71
Deepsea sole	1.62	Shortspine thornyhead	6.79	Dover sole	9.10
Brown cat shark	1.13	Giant grenadier	6.51	Pacific sleeper shark	8.74
Twoline eelpout	0.73	True Tanner crab	6.06	Shortspine thornyhead	6.54
Pacific grenadier	0.57	California slickhead	5.36	Pacific flatnose	5.03
Threadfin slickhead	0.54	Deepsea sole	3.83	True Tanner crab	3.97
Black skate	0.31	Black skate	1.47	California slickhead	3.40
Snakehead eelpout	0.25	Pacific flatnose	1.21	Deepsea sole	2.58
Pacific whiting	0.24	Twoline eelpout	0.95	Black skate	2.57
Blacksmelt unident.	0.24	Snakehead eelpout	0.49	<i>Paralomis multispina</i>	1.26
Black hagfish	0.22	Pacific sleeper shark	0.49	Deepsea skate	0.88
Pacific flatnose	0.19	Brown cat shark	0.33	Twoline eelpout	0.73
Blacktail snailfish	0.14	Blacksmelt unident.	0.30	Blacksmelt unident.	0.31
Filetail cat shark	0.05	Black hagfish	0.29	Longnose cat shark	0.17
Longnose skate	0.05	Deepsea skate	0.27	Blob sculpin	0.15
Deepsea skate	0.05	Threadfin slickhead	0.27	Black hagfish	0.15
Smooth grenadier	0.04	Longnose cat shark	0.15	Pacific whiting	0.13
<b>Number of hauls</b>	<b>26</b>	<b>Number of hauls</b>	<b>29</b>	<b>Number of hauls</b>	<b>33</b>

Table 14.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in the International North Pacific Fisheries Commission Conception area during the 1997 West Coast upper continental slope groundfish survey.

Species	Stratum 1 183-366 m	Species	Stratum 2 367-549 m	Species	Stratum 3 550-732 m
Stripetail rockfish	26.64	Pacific whiting	43.30	Dover sole	33.71
Pacific whiting	24.06	Dover sole	24.06	Longspine thornyhead	26.56
Chilipepper	22.91	Splitnose rockfish	16.86	Shortspine thornyhead	11.49
Splitnose rockfish	13.71	Rex sole	12.55	Sablefish	8.59
Spotted ratfish	4.49	Longnose skate	9.20	Pacific whiting	7.71
California market squid	3.04	Longspine thornyhead	8.21	Filetail cat shark	5.44
Plainfin midshipman	2.98	Aurora rockfish	7.92	Longnose skate	1.92
Bocaccio	2.49	Shortspine thornyhead	4.96	Brown cat shark	1.20
Longnose skate	2.30	Sablefish	4.40	California slickhead	0.98
Spiny dogfish	1.99	Bigfin eelpout	3.50	Giant grenadier	0.46
Slender sole	1.21	Bering skate	3.04	Threadfin slickhead	0.41
Northern anchovy	1.08	Blackgill rockfish	1.82	True Tanner crab	0.23
English sole	0.94	Filetail cat shark	1.63	Aurora rockfish	0.23
Bering skate	0.81	Black eelpout	1.45	Blacktail snailfish	0.23
Filetail cat shark	0.81	Brown cat shark	0.70	Bering skate	0.18
Rex sole	0.74	Blackbelly eelpout	0.52	Twoline eelpout	0.18
Brown cat shark	0.73	Spiny dogfish	0.34	Black hagfish	0.10
Bigfin eelpout	0.61	Spotted ratfish	0.33	Black eelpout	0.07
Dover sole	0.53	Petrals sole	0.26	Spiny dogfish	0.07
Shortspine thornyhead	0.46	True Tanner crab	0.08	Lanternfish	0.04
<b>Number of hauls</b>	<b>4</b>	<b>Number of hauls</b>	<b>6</b>	<b>Number of hauls</b>	<b>5</b>

  

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Longspine thornyhead	51.86	Longspine thornyhead	20.15	Pacific grenadier	27.63
Dover sole	41.69	Sablefish	18.71	Longspine thornyhead	7.96
Sablefish	20.79	Shortspine thornyhead	10.73	Giant grenadier	7.86
Shortspine thornyhead	9.61	Dover sole	9.90	Dover sole	7.36
Deepsea sole	2.83	California slickhead	8.14	California slickhead	5.47
California slickhead	2.57	Pacific grenadier	7.77	Shortspine thornyhead	4.12
Twoline eelpout	1.52	Giant grenadier	6.43	Sablefish	3.75
Giant grenadier	1.12	Deepsea sole	2.62	Pacific flatnose	3.04
Brown cat shark	0.98	Twoline eelpout	1.26	Deepsea skate	1.82
True Tanner crab	0.91	Pacific sleeper shark	1.24	Blacksmelt unident.	0.72
Black skate	0.63	True Tanner crab	1.23	Black skate	0.56
Threadfin slickhead	0.62	Black skate	0.88	Brown cat shark	0.52
Pacific grenadier	0.61	Deepsea skate	0.67	Twoline eelpout	0.39
Black hagfish	0.47	Threadfin slickhead	0.51	True Tanner crab	0.37
Pacific whiting	0.42	Blacksmelt unident.	0.44	Deepsea sole	0.36
Blacksmelt unident.	0.37	Pacific flatnose	0.29	Longnose cat shark	0.25
Deepsea skate	0.30	Brown cat shark	0.24	Black hagfish	0.07
Filetail cat shark	0.29	Black hagfish	0.19	Pacific whiting	0.05
Blacktail snailfish	0.26	Deepsea smelt	0.17	Sawtooth eel	0.02
Pacific electric ray	0.23	Snakehead eelpout	0.10	Pacific viperfish	0.01
<b>Number of hauls</b>	<b>4</b>	<b>Number of hauls</b>	<b>5</b>	<b>Number of hauls</b>	<b>5</b>



Table 15.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in the International North Pacific Fisheries Commission Monterey area during the 1997 West Coast upper continental slope groundfish survey.

Species	Stratum 1 183-366 m	Species	Stratum 2 367-549 m	Species	Stratum 3 550-732 m
Stripetail rockfish	54.82	Dover sole	54.00	Dover sole	29.61
Pacific whiting	52.80	Pacific whiting	48.66	Longspine thornyhead	15.33
Canary rockfish	37.39	Splitnose rockfish	29.97	Sablefish	12.45
Longnose skate	17.22	Rex sole	28.14	Pacific whiting	7.07
Rex sole	16.35	Sablefish	9.40	True Tanner crab	5.96
Plainfin midshipman	13.90	Longnose skate	7.12	Shortspine thornyhead	4.25
Chilipepper	13.02	Spiny dogfish	6.02	Brown cat shark	3.24
Bocaccio	12.32	Bigfin eelpout	5.40	California slickhead	1.86
Spotted ratfish	10.96	Aurora rockfish	5.07	Giant grenadier	1.31
Pacific herring	9.72	Spotted ratfish	3.98	Longnose skate	1.06
English sole	9.27	Petrale sole	3.96	Twoline eelpout	1.03
Dover sole	8.39	Bering skate	3.51	Black eelpout	0.93
Petrale sole	7.01	Shortspine thornyhead	2.61	Blacktail snailfish	0.81
Slender sole	5.73	Brown cat shark	2.14	Bering skate	0.60
Pacific sanddab	5.25	Longspine thornyhead	1.51	Filetail cat shark	0.59
Sharpchin rockfish	2.88	English sole	1.20	Bigfin eelpout	0.53
Sablefish	2.41	Blackgill rockfish	0.98	Pacific grenadier	0.48
Greenstriped rockfish	2.08	Slender sole	0.77	Rex sole	0.44
Lingcod	1.91	Filetail cat shark	0.49	Deepsea sole	0.37
Greenspotted rockfish	1.29	Blacktail snailfish	0.34	Pacific flatnose	0.33
<b>Number of hauls</b>	<b>7</b>	<b>Number of hauls</b>	<b>9</b>	<b>Number of hauls</b>	<b>9</b>

  

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Longspine thornyhead	64.75	Dover sole	41.24	Pacific grenadier	28.99
Dover sole	33.10	Longspine thornyhead	38.22	Dover sole	21.27
Sablefish	8.25	Pacific grenadier	29.86	Longspine thornyhead	20.27
California slickhead	7.53	Sablefish	29.18	Sablefish	16.38
True Tanner crab	6.53	Shortspine thornyhead	11.50	Shortspine thornyhead	13.22
Shortspine thornyhead	3.30	California slickhead	7.12	Giant grenadier	12.54
Giant grenadier	1.87	Deepsea sole	6.80	Pacific flatnose	7.13
Brown cat shark	1.58	Giant grenadier	5.32	California slickhead	5.47
Deepsea sole	1.36	True Tanner crab	4.69	Deepsea sole	4.13
Twoline eelpout	1.00	Pacific flatnose	2.64	True Tanner crab	2.45
Threadfin slickhead	0.55	Black skate	2.21	Black skate	2.27
Black skate	0.46	Twoline eelpout	1.29	<i>Paralomis multispina</i>	1.46
Pacific grenadier	0.39	Black hagfish	0.59	Deepsea skate	1.19
Black hagfish	0.34	Deepsea skate	0.56	Twoline eelpout	1.06
Blacksmelt unident.	0.31	Snakehead eelpout	0.54	Pacific sleeper shark	0.92
Blacktail snailfish	0.29	Longnose cat shark	0.54	Longnose cat shark	0.44
Pacific flatnose	0.25	Blacksmelt unident.	0.38	Blacksmelt unident.	0.34
Snakehead eelpout	0.22	Brown cat shark	0.35	Black hagfish	0.25
Pacific whiting	0.14	Black eelpout	0.19	Blob sculpin	0.13
Smooth grenadier	0.13	Blacktail snailfish	0.13	Brown cat shark	0.11
<b>Number of hauls</b>	<b>7</b>	<b>Number of hauls</b>	<b>8</b>	<b>Number of hauls</b>	<b>10</b>

Table 16.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in the International North Pacific Fisheries Commission Eureka area during the 1997 West Coast upper continental slope groundfish survey.

Species	Stratum 1 183-366 m	Species	Stratum 2 367-549 m	Species	Stratum 3 550-732 m
Pacific whiting	320.12	Pacific whiting	545.10	Longspine thornyhead	20.46
Rex sole	19.29	Spiny dogfish	210.17	Dover sole	20.06
Sablefish	18.20	Dover sole	68.96	Sablefish	11.81
Dover sole	15.58	Sablefish	36.75	Pacific whiting	9.50
Stripetail rockfish	14.93	Rex sole	16.89	True Tanner crab	9.36
Splitnose rockfish	8.43	Longnose skate	13.05	Rex sole	4.37
Slender sole	7.10	Brown cat shark	4.14	Shortspine thornyhead	4.03
Darkblotched rockfish	5.44	Shortspine thornyhead	3.92	Black eelpout	3.79
Spiny dogfish	5.00	True Tanner crab	3.60	Brown cat shark	3.00
Longnose skate	3.98	Black eelpout	3.60	Giant grenadier	1.51
Shortspine thornyhead	3.69	Aurora rockfish	3.04	Longnose skate	1.09
Bigfin eelpout	2.32	Arrowtooth flounder	2.25	Pacific grenadier	0.58
Bering skate	1.82	Pacific halibut	2.05	California slickhead	0.55
English sole	1.64	Bigfin eelpout	1.66	Deepsea sole	0.54
Dungeness crab	0.79	Bering skate	1.65	Black skate	0.50
Petrals sole	0.59	Petrals sole	1.03	Twoline eelpout	0.27
Chilipepper	0.51	Slender sole	0.57	Pacific flatnose	0.26
Sharpchin rockfish	0.46	Twoline eelpout	0.38	Spiny dogfish	0.20
Pacific halibut	0.41	Longspine thornyhead	0.33	Blacktail snailfish	0.14
Greenstriped rockfish	0.39	Blacktail snailfish	0.27	Snakehead eelpout	0.11
<b>Number of hauls</b>	<b>5</b>	<b>Number of hauls</b>	<b>5</b>	<b>Number of hauls</b>	<b>5</b>

  

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Longspine thornyhead	43.68	Longspine thornyhead	45.46	Pacific sleeper shark	45.70
True Tanner crab	23.08	Dover sole	12.72	Longspine thornyhead	32.19
Dover sole	12.24	Pacific grenadier	10.69	Sablefish	23.00
Giant grenadier	7.69	Sablefish	9.91	Giant grenadier	19.91
Sablefish	7.50	True Tanner crab	8.65	Pacific grenadier	15.56
Deepsea sole	2.36	Giant grenadier	8.36	Dover sole	7.40
Shortspine thornyhead	2.29	California slickhead	7.02	Shortspine thornyhead	6.44
Brown cat shark	1.26	Deepsea sole	5.14	Deepsea sole	4.91
California slickhead	1.19	Shortspine thornyhead	4.42	True Tanner crab	4.80
Snakehead eelpout	0.56	Black skate	2.71	Pacific flatnose	3.87
Pacific grenadier	0.48	Pacific sleeper shark	1.58	California slickhead	3.16
Pacific whiting	0.19	Snakehead eelpout	1.39	Black skate	3.11
Black hagfish	0.18	Pacific flatnose	1.33	<i>Paralomis multispina</i>	2.31
Pacific flatnose	0.14	Twoline eelpout	0.94	Twoline eelpout	0.77
Threadfin slickhead	0.12	Brown cat shark	0.40	Blob sculpin	0.25
Blacksmelt unident.	0.07	Black hagfish	0.25	Lithodes couesi	0.12
Lampyctus sp.	0.04	Pacific whiting	0.22	Blacksmelt unident.	0.12
Twoline eelpout	0.03	Blacksmelt unident.	0.13	Black hagfish	0.11
Greenstriped rockfish	0.02	<i>Paralomis multispina</i>	0.08	Snakehead eelpout	0.05
Blacktail snailfish	0.02	Threadfin slickhead	0.06	Brown cat shark	0.04
<b>Number of hauls</b>	<b>4</b>	<b>Number of hauls</b>	<b>5</b>	<b>Number of hauls</b>	<b>6</b>

Table 17.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in the International North Pacific Fisheries Commission Columbia area during the 1997 West Coast upper continental slope groundfish survey.

Species	Stratum 1 183-366 m	Species	Stratum 2 367-549 m	Species	Stratum 3 550-732 m
Pacific whiting	559.01	Pacific whiting	241.65	Pacific whiting	46.70
Spiny dogfish	237.05	Spiny dogfish	58.50	Sablefish	28.35
Rex sole	22.94	Dover sole	46.33	Dover sole	13.91
Dover sole	10.74	Rex sole	31.99	Longspine thornyhead	13.65
Longnose skate	10.51	Sablefish	17.93	True Tanner crab	7.15
Sablefish	8.43	Shortspine thornyhead	8.51	Shortspine thornyhead	4.76
Sharpchin rockfish	6.77	Slender sole	6.42	Rex sole	2.04
Spotted ratfish	5.07	Longnose skate	6.19	Brown cat shark	1.81
Slender sole	4.92	Arrowtooth flounder	3.87	Giant grenadier	1.61
Splitnose rockfish	4.87	Bering skate	3.35	Black eelpout	1.22
Shortspine thornyhead	4.10	Brown cat shark	2.24	Spiny dogfish	1.11
Petrale sole	1.90	Bigfin eelpout	1.33	Pacific flatnose	0.86
Bering skate	1.84	Black eelpout	1.04	Pacific grenadier	0.81
Box crab	1.67	Pacific ocean perch	0.60	Black skate	0.70
Pacific halibut	1.45	Spotted ratfish	0.51	Deepsea sole	0.57
Greenstriped rockfish	1.44	Petrale sole	0.49	Twoline eelpout	0.55
Arrowtooth flounder	1.22	Rougheye rockfish	0.48	Bering skate	0.32
Darkblotched rockfish	1.20	Splitnose rockfish	0.45	California slickhead	0.20
Big skate	1.04	Box crab	0.35	Arrowtooth flounder	0.14
English sole	1.04	Darkblotched rockfish	0.33	Bigfin eelpout	0.13
<b>Number of hauls</b>	<b>13</b>	<b>Number of hauls</b>	<b>12</b>	<b>Number of hauls</b>	<b>10</b>
Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Longspine thornyhead	25.36	Longspine thornyhead	34.77	Giant grenadier	31.34
True Tanner crab	16.81	True Tanner crab	8.93	Longspine thornyhead	22.59
Sablefish	13.75	Giant grenadier	6.57	Pacific grenadier	19.16
Giant grenadier	10.80	Sablefish	6.05	Sablefish	8.80
Dover sole	3.47	Pacific grenadier	4.43	True Tanner crab	6.69
California slickhead	1.92	Shortspine thornyhead	2.70	Pacific flatnose	5.09
Deepsea sole	1.04	California slickhead	2.30	Black skate	3.33
Brown cat shark	0.91	Dover sole	1.75	Shortspine thornyhead	2.04
Shortspine thornyhead	0.91	Deepsea sole	1.59	Deepsea sole	1.10
Pacific grenadier	0.75	Black skate	0.66	California slickhead	1.01
Threadfin slickhead	0.70	Twoline eelpout	0.60	<i>Paralomis multispina</i>	0.84
Twoline eelpout	0.52	Pacific flatnose	0.59	Deepsea skate	0.72
Pacific whiting	0.24	Threadfin slickhead	0.50	Twoline eelpout	0.63
Pacific flatnose	0.22	Brown cat shark	0.40	Dover sole	0.59
Blacksmelt unident.	0.22	Blacksmelt unident.	0.32	Pacific sleeper shark	0.46
Snakehead eelpout	0.20	Snakehead eelpout	0.27	Pacific whiting	0.30
Black skate	0.15	Pacific whiting	0.21	Blob sculpin	0.21
Rougheye rockfish	0.06	King-of-the-salmon	0.14	Blacksmelt unident.	0.21
Black hagfish	0.05	Black hagfish	0.12	Black hagfish	0.13
Pacific viperfish	0.04	Pacific viperfish	0.06	<i>Lithodes couesi</i>	0.06
<b>Number of hauls</b>	<b>10</b>	<b>Number of hauls</b>	<b>9</b>	<b>Number of hauls</b>	<b>11</b>

Table 18.--Mean CPUE (kg/ha) of the 20 most abundant groundfish and selected crab species caught in the International North Pacific Fisheries Commission U.S.-Vancouver area during the 1997 West Coast upper continental slope groundfish survey.

Species	Stratum 1 183-366 m	Species	Stratum 2 367-549 m	Species	Stratum 3 550-732 m
Pacific whiting	272.61	Pacific whiting	23.72	Longspine thornyhead	18.49
Spiny dogfish	120.74	Sablefish	5.13	Sablefish	10.68
Pacific ocean perch	13.62	Shortspine thornyhead	4.14	True Tanner crab	4.96
Longnose skate	10.38	True Tanner crab	3.55	Dover sole	4.20
Spotted ratfish	9.98	Dover sole	2.15	Glass sponge	2.74
Rex sole	9.58	Spiny dogfish	1.71	Shortspine thornyhead	1.72
Arrowtooth flounder	9.56	Slender sole	1.56	Pacific whiting	1.60
English sole	9.18	Arrowtooth flounder	1.07	Giant grenadier	1.01
Dover sole	8.54	Brown cat shark	1.00	Pacific flatnose	0.88
Sablefish	5.56	Pacific flatnose	0.61	Deepsea sole	0.86
Bering skate	3.43	Bigfin eelpout	0.53	Longnose lancetfish	0.77
Big skate	2.67	Black eelpout	0.34	Pacific grenadier	0.43
Widow rockfish	2.42	Bering skate	0.21	Black eelpout	0.34
Pacific cod	2.24	Blacktail snailfish	0.16	Twoline eelpout	0.32
Slender sole	1.65	Longspine thornyhead	0.15	Brown cat shark	0.21
Splitnose rockfish	1.36	Aleutian skate	0.12	Pacific viperfish	0.09
Yellowtail rockfish	0.96	Black hagfish	0.06	Blacksmelt unident.	0.07
Shortspine thornyhead	0.83	Rex sole	0.02	<i>Benthalbella</i> sp.	0.02
Petrale sole	0.81	Pacific herring	0.01	Fangtooth	0.01
Greenstriped rockfish	0.45	Pacific viperfish	<0.01		
<b>Number of hauls</b>	<b>2</b>	<b>Number of hauls</b>	<b>1</b>	<b>Number of hauls</b>	<b>1</b>

  

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280 m
Longspine thornyhead	18.17	Longspine thornyhead	22.50	Longspine thornyhead	18.53
Sablefish	15.71	Giant grenadier	6.61	Giant grenadier	5.49
True Tanner crab	14.68	Pacific grenadier	5.29	Pacific grenadier	4.49
Deepsea sole	1.44	True Tanner crab	4.26	Black skate	4.09
Giant grenadier	1.23	Shortspine thornyhead	2.47	True Tanner crab	2.36
Black skate	0.75	Deepsea sole	1.67	Sablefish	2.20
Twoline eelpout	0.71	California slickhead	0.97	Shortspine thornyhead	1.91
Pacific whiting	0.55	Sablefish	0.72	Deepsea sole	0.48
California slickhead	0.32	Black skate	0.46	Pacific flatnose	0.48
Pacific grenadier	0.29	Twoline eelpout	0.44	Twoline eelpout	0.20
Shortspine thornyhead	0.29	<i>Lithodes couesi</i>	0.28	Snakehead eelpout	0.08
Dover sole	0.28	Pacific flatnose	0.22	Pacific viperfish	0.08
Brown cat shark	0.27	Pacific whiting	0.21	Blacksmelt unident.	0.05
Spiny dogfish	0.25	Black hagfish	0.18	Crested bigscale	0.02
Pacific flatnose	0.20	Dover sole	0.14	Longfin dragonfish	0.02
Snakehead eelpout	0.19	Blacksmelt unident.	0.06	Lanternfish	0.01
Blacktail snailfish	0.17	Spiny dogfish	0.06	Shining loosejaw	0.01
Threadfin slickhead	0.16	<i>Paralomis multispina</i>	0.05		
Glass sponge	0.14	Snakehead eelpout	0.04		
Black hagfish	0.12	Pacific viperfish	0.04		
<b>Number of hauls</b>	<b>1</b>	<b>Number of hauls</b>	<b>2</b>	<b>Number of hauls</b>	<b>1</b>

**Table 19.--Estimates of fish biomass (metric tons) and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission U.S.-Vancouver, Columbia, Eureka Monterey, and Conception areas combined from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.**

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	292	31%	2,024	17%	2,106	13%	941	11%
Spiny dogfish	100,348	36%	50,880	42%	464	75%	18	70%
Bering skate	1,535	15%	2,766	24%	290	29%	-	-
Longnose skate	9,161	18%	7,272	20%	780	22%	41	71%
Black skate	-	-	-	-	291	37%	254	43%
Pacific whiting	294,777	30%	178,325	24%	19,010	51%	202	27%
Pacific grenadier	-	-	-	-	481	34%	476	24%
Giant grenadier	-	-	-	-	1,194	27%	5,033	28%
Shortspine thornyhead	2,332	29%	5,030	14%	5,078	19%	2,558	26%
Longspine thornyhead	-	-	1,895	36%	16,237	15%	35,368	12%
Pacific ocean perch	1,127	57%	201	47%	-	-	-	-
Aurora rockfish	19	68%	3,134	35%	54	50%	8	100%
Darkblotched rockfish	1,334	60%	132	38%	-	-	16	100%
Splitnose rockfish	5,054	35%	10,576	63%	39	100%	-	-
Redbanded rockfish	188	48%	23	53%	-	-	-	-
Sablefish	6,855	31%	14,470	20%	15,625	14%	10,354	17%
Twoline eelpout	-	-	61	75%	531	25%	609	23%
Bigfin eelpout	-	-	3	100%	49	50%	208	22%
Black eelpout	3	49%	1,168	35%	1,236	28%	20	85%
<i>Lycenchelys</i> spp.	947	19%	2,652	19%	198	34%	-	-
Arrowtooth flounder	1,056	52%	1,653	31%	44	69%	-	-
Slender sole	4,404	22%	2,488	52%	1	73%	-	-
Dover sole	8,817	27%	43,083	24%	20,866	16%	15,409	29%
Deepsea sole	-	-	45	63%	387	24%	1,344	18%
Rex sole	15,852	31%	22,391	38%	1,423	47%	1	100%

  

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	301	17%	103	39%	5,768	8%
Spiny dogfish	4	100%	-	-	151,714	27%
Bering skate	11	100%	-	-	4,601	15%
Longnose skate	4	100%	-	-	17,258	13%
Black skate	1,337	19%	2,048	16%	3,931	11%
Pacific whiting	133	39%	106	60%	492,553	20%
Pacific grenadier	12,002	21%	17,765	9%	30,723	10%
Giant grenadier	5,938	14%	15,297	15%	27,462	10%
Shortspine thornyhead	6,193	19%	5,202	19%	26,393	8%
Longspine thornyhead	31,191	7%	16,944	11%	101,636	6%
Pacific ocean perch	-	-	-	-	1,328	49%
Aurora rockfish	-	-	-	-	3,214	34%
Darkblotched rockfish	-	-	-	-	1,482	54%
Splitnose rockfish	-	-	-	-	15,669	44%
Redbanded rockfish	-	-	-	-	211	43%
Sablefish	13,600	21%	10,116	14%	71,019	8%
Twoline eelpout	867	21%	584	19%	2,652	11%
Bigfin eelpout	448	29%	35	32%	742	19%
Black eelpout	48	100%	-	-	2,476	22%
<i>Lycenchelys</i> spp.	-	-	-	-	3,797	14%
Arrowtooth flounder	-	-	-	-	2,752	27%
Slender sole	-	-	-	-	6,893	23%
Dover sole	14,439	36%	7,244	28%	109,858	12%
Deepsea sole	3,489	17%	2,053	30%	7,319	12%
Rex sole	-	-	-	-	39,667	25%

Table 20.--Estimates of fish biomass (metric tons) and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Conception area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	87	50%	150	41%	345	47%	152	23%
Spiny dogfish	239	86%	81	65%	-	-	13	100%
Bering skate	98	56%	734	40%	35	100%	-	-
Longnose skate	275	66%	2,461	61%	482	43%	20	100%
Black skate	-	-	-	-	-	-	98	44%
Pacific whiting	2,881	52%	9,581	41%	1,690	47%	65	92%
Pacific grenadier	-	-	-	-	-	-	95	87%
Giant grenadier	-	-	-	-	139	85%	174	69%
Shortspine thornyhead	55	62%	1,125	37%	1,651	17%	1,486	15%
Longspine thornyhead	-	-	1,980	37%	6,828	44%	8,023	10%
Pacific ocean perch	-	-	-	-	-	-	-	-
Aurora rockfish	11	100%	1,728	43%	63	73%	9	100%
Darkblotched rockfish	-	-	-	-	-	-	-	-
Splitnose rockfish	1,642	83%	4,390	90%	-	-	-	-
Redbanded rockfish	-	-	-	-	-	-	-	-
Sablefish	36	54%	1,143	35%	2,048	31%	3,216	45%
Twoline eelpout	-	-	6	100%	54	67%	235	24%
Bigfin eelpout	-	-	-	-	-	-	21	77%
Black eelpout	2	64%	105	38%	21	35%	-	-
<i>Lycenchelys</i> spp.	73	49%	575	43%	1	100%	-	-
Arrowtooth flounder	-	-	-	-	-	-	-	-
Slender sole	144	52%	9	57%	-	-	-	-
Dover sole	64	44%	5,960	45%	10,065	37%	6,449	53%
Deepsea sole	-	-	15	100%	-	-	438	55%
Rex sole	89	53%	2,823	56%	-	-	1	100%

  

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	45	32%	66	50%	845	22%
Spiny dogfish	-	-	-	-	333	64%
Bering skate	-	-	-	-	866	35%
Longnose skate	-	-	-	-	3,238	47%
Black skate	164	51%	72	69%	334	32%
Pacific whiting	12	83%	6	69%	14,234	30%
Pacific grenadier	1,453	47%	3,533	33%	5,080	27%
Giant grenadier	1,201	23%	1,005	53%	2,518	25%
Shortspine thornyhead	2,006	33%	526	22%	6,849	13%
Longspine thornyhead	3,767	21%	1,018	26%	21,615	15%
Pacific ocean perch	-	-	-	-	-	-
Aurora rockfish	-	-	-	-	1,811	41%
Darkblotched rockfish	-	-	-	-	-	-
Splitnose rockfish	-	-	-	-	6,032	69%
Redbanded rockfish	-	-	-	-	-	-
Sablefish	3,497	24%	479	37%	10,420	18%
Twoline eelpout	235	47%	50	77%	579	23%
Bigfin eelpout	18	56%	-	-	39	49%
Black eelpout	-	-	-	-	127	32%
<i>Lycenchelys</i> spp.	-	-	-	-	648	39%
Arrowtooth flounder	-	-	-	-	-	-
Slender sole	-	-	-	-	153	49%
Dover sole	1,851	59%	942	72%	25,330	23%
Deepsea sole	490	26%	46	83%	989	28%
Rex sole	-	-	-	-	2,912	55%

Table 21.--Estimates of fish biomass (metric tons) and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Monterey area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	24	100%	369	33%	651	14%	328	12%
Spiny dogfish	174	90%	1,040	59%	60	100%	-	-
Bering skate	210	41%	606	26%	120	34%	-	-
Longnose skate	3,050	28%	1,230	20%	213	20%	23	100%
Black skate	-	-	-	-	-	-	95	96%
Pacific whiting	9,351	59%	8,405	16%	1,420	38%	29	60%
Pacific grenadier	-	-	-	-	96	95%	80	35%
Giant grenadier	-	-	-	-	264	75%	387	41%
Shortspine thornyhead	73	63%	450	33%	853	23%	684	51%
Longspine thornyhead	-	-	261	58%	3,081	38%	13,430	23%
Pacific ocean perch	9	100%	-	-	-	-	-	-
Aurora rockfish	-	-	875	71%	13	53%	-	-
Darkblotched rockfish	34	45%	5	100%	-	-	14	100%
Splitnose rockfish	159	69%	5,176	81%	28	100%	-	-
Redbanded rockfish	20	83%	7	82%	-	-	-	-
Sablefish	426	53%	1,623	35%	2,503	31%	1,710	32%
Twoline eelpout	-	-	3	100%	206	37%	208	48%
Bigfin eelpout	-	-	-	-	6	100%	45	47%
Black eelpout	-	-	41	83%	187	81%	18	86%
<i>Lycenchelys</i> spp.	130	70%	933	22%	107	31%	-	-
Arrowtooth flounder	1	100%	1	100%	-	-	-	-
Slender sole	1,015	46%	133	55%	-	-	-	-
Dover sole	1,485	48%	9,327	41%	5,950	21%	6,864	37%
Deepsea sole	-	-	17	100%	74	51%	281	30%
Rex sole	2,896	18%	4,860	29%	89	83%	-	-

  

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	78	39%	25	62%	1,476	11%
Spiny dogfish	-	-	-	-	1,274	50%
Bering skate	-	-	-	-	936	20%
Longnose skate	-	-	-	-	4,516	20%
Black skate	497	26%	536	36%	1,128	22%
Pacific whiting	15	94%	22	52%	19,240	30%
Pacific grenadier	6,719	22%	6,839	10%	13,734	12%
Giant grenadier	1,197	27%	2,957	24%	4,805	17%
Shortspine thornyhead	2,587	27%	3,118	22%	7,766	14%
Longspine thornyhead	8,600	12%	4,782	22%	30,152	12%
Pacific ocean perch	-	-	-	-	9	1
Aurora rockfish	-	-	-	-	888	69%
Darkblotched rockfish	-	-	-	-	54	40%
Splitnose rockfish	-	-	-	-	5,364	78%
Redbanded rockfish	-	-	-	-	26	66%
Sablefish	6,566	29%	3,864	21%	16,692	14%
Twoline eelpout	291	44%	249	28%	957	20%
Bigfin eelpout	122	49%	11	75%	184	35%
Black eelpout	43	100%	-	-	290	56%
<i>Lycenchelys</i> spp.	-	-	-	-	1,170	20%
Arrowtooth flounder	-	-	-	-	2	72%
Slender sole	-	-	-	-	1,148	41%
Dover sole	9,280	43%	5,018	30%	37,926	17%
Deepsea sole	1,531	15%	975	52%	2,878	20%
Rex sole	-	-	-	-	7,844	19%

Table 22.--Estimates of fish biomass (metric tons) and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Eureka area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	29	56%	457	25%	501	21%	216	32%
Spiny dogfish	538	66%	23,187	55%	33	65%	-	-
Bering skate	195	41%	182	41%	-	-	-	-
Longnose skate	428	38%	1,440	49%	183	39%	-	-
Black skate	-	-	-	-	84	73%	-	-
Pacific whiting	34,443	63%	60,138	42%	1,587	36%	33	58%
Pacific grenadier	-	-	-	-	96	55%	83	31%
Giant grenadier	-	-	-	-	253	49%	1,321	53%
Shortspine thornyhead	397	42%	432	30%	674	36%	393	70%
Longspine thornyhead	-	-	37	89%	3,419	27%	7,508	16%
Pacific ocean perch	-	-	-	-	-	-	-	-
Aurora rockfish	-	-	336	48%	-	-	-	-
Darkblotched rockfish	585	96%	9	61%	-	-	-	-
Splitnose rockfish	907	39%	2	100%	-	-	-	-
Redbanded rockfish	21	98%	-	-	-	-	-	-
Sablefish	1,958	62%	4,054	40%	1,972	22%	1,290	76%
Twoline eelpout	-	-	42	84%	45	84%	5	100%
Bigfin eelpout	-	-	-	-	19	100%	96	15%
Black eelpout	-	-	397	37%	632	21%	-	-
<i>Lycenchelys</i> spp.	250	24%	183	94%	12	62%	-	-
Arrowtooth flounder	9	61%	248	54%	-	-	-	-
Slender sole	764	27%	63	99%	-	-	-	-
Dover sole	1,676	37%	7,608	33%	3,351	24%	2,103	24%
Deepsea sole	-	-	-	-	90	44%	405	28%
Rex sole	2,075	30%	1,863	47%	730	59%	-	-

  

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	.78	38%	5	72%	1,286	13%
Spiny dogfish	-	-	-	-	23,758	53%
Bering skate	-	-	-	-	378	29%
Longnose skate	5	100%	-	-	2,056	36%
Black skate	529	28%	435	29%	1,048	19%
Pacific whiting	43	79%	-	-	96,244	34%
Pacific grenadier	2,084	28%	2,176	16%	4,440	15%
Giant grenadier	1,631	19%	2,785	39%	5,990	22%
Shortspine thornyhead	861	33%	901	17%	3,659	15%
Longspine thornyhead	8,868	3%	4,502	15%	24,332	7%
Pacific ocean perch	-	-	-	-	-	-
Aurora rockfish	-	-	-	-	336	48%
Darkblotched rockfish	-	-	-	-	594	94%
Splitnose rockfish	-	-	-	-	909	39%
Redbanded rockfish	-	-	-	-	21	98%
Sablefish	1,934	25%	3,216	12%	14,424	16%
Twoline eelpout	183	39%	107	53%	383	27%
Bigfin eelpout	270	42%	7	70%	392	29%
Black eelpout	-	-	-	-	1,029	19%
<i>Lycenchelys</i> spp.	-	-	-	-	445	41%
Arrowtooth flounder	-	-	-	-	257	52%
Slender sole	-	-	-	-	827	26%
Dover sole	2,482	42%	1,035	43%	18,255	16%
Deepsea sole	1,003	48%	686	34%	2,184	25%
Rex sole	-	-	-	-	4,669	25%



Table 23.--Estimates of fish biomass (metric tons) and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Columbia area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	142	51%	839	27%	473	30%	215	20%
Spiny dogfish	95,409	34%	21,888	56%	289	100%	-	-
Bering skate	741	20%	1,252	52%	83	56%	-	-
Longnose skate	4,230	26%	2,315	27%	19	100%	-	-
Black skate	-	-	-	-	182	37%	35	67%
Pacific whiting	224,998	35%	90,407	16%	12,188	65%	56	22%
Pacific grenadier	-	-	-	-	210	39%	177	37%
Giant grenadier	-	-	-	-	421	25%	2,544	33%
Shortspine thornyhead	1,650	37%	3,182	18%	1,243	25%	214	24%
Longspine thornyhead	-	-	88	83%	3,563	20%	5,970	9%
Pacific ocean perch	315	50%	223	42%	-	-	-	-
Aurora rockfish	8	88%	100	45%	-	-	-	-
Darkblotched rockfish	481	48%	125	39%	-	-	-	-
Splitnose rockfish	1,962	53%	170	42%	-	-	-	-
Redbanded rockfish	133	66%	14	69%	-	-	-	-
Sablefish	3,392	34%	6,707	18%	7,397	16%	3,237	17%
Twoline eelpout	-	-	-	-	143	34%	121	22%
Bigfin eelpout	-	-	4	100%	20	69%	48	49%
Black eelpout	2	68%	388	83%	318	49%	-	100%
<i>Lycenchelys</i> spp.	389	20%	496	26%	33	100%	-	-
Arrowtooth flounder	489	51%	1,449	31%	37	67%	-	-
Slender sole	1,978	39%	2,401	57%	1	71%	-	-
Dover sole	4,324	48%	17,335	51%	3,631	36%	818	25%
Deepsea sole	-	-	12	100%	149	36%	245	19%
Rex sole	9,233	52%	11,970	76%	532	81%	-	-

  

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	95	23%	9	51%	1,773	16%
Spiny dogfish	-	-	-	-	117,586	29%
Bering skate	9	100%	-	-	2,085	32%
Longnose skate	-	-	-	-	6,564	19%
Black skate	158	41%	797	22%	1,172	17%
Pacific whiting	50	72%	71	79%	327,768	25%
Pacific grenadier	1,055	36%	4,585	13%	6,027	12%
Giant grenadier	1,564	37%	7,499	16%	12,028	13%
Shortspine thornyhead	642	30%	487	24%	7,419	12%
Longspine thornyhead	8,285	10%	5,406	14%	23,311	6%
Pacific ocean perch	-	-	-	-	538	0.34
Aurora rockfish	-	-	-	-	107	42%
Darkblotched rockfish	-	-	-	-	606	39%
Splitnose rockfish	-	-	-	-	2,132	49%
Redbanded rockfish	-	-	-	-	147	60%
Sablefish	1,441	28%	2,105	26%	24,280	9%
Twoline eelpout	143	28%	150	27%	557	14%
Bigfin eelpout	64	28%	13	38%	148	22%
Black eelpout	-	-	-	-	708	50%
<i>Lycenchelys</i> spp.	-	-	-	-	919	17%
Arrowtooth flounder	-	-	-	-	1,975	26%
Slender sole	-	-	-	-	4,380	36%
Dover sole	417	36%	140	90%	26,664	34%
Deepsea sole	379	17%	264	36%	1,049	13%
Rex sole	-	-	-	-	21,735	48%

Table 24.--Estimates of fish biomass (metric tons) and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission U.S.-Vancouver area from the West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	-	-	41	-	11	-	17	-
Spiny dogfish	14,258	2%	70	-	-	-	15	-
Bering skate	404	29%	9	-	-	-	-	-
Longnose skate	1,225	5%	-	-	-	-	-	-
Black skate	-	-	-	-	-	-	46	-
Pacific whiting	32,192	18%	977	-	83	-	34	-
Pacific grenadier	-	-	-	-	22	-	18	-
Giant grenadier	-	-	-	-	52	-	75	-
Shortspine thornyhead	98	100%	171	-	89	-	18	-
Longspine thornyhead	-	-	6	-	957	-	1,111	-
Pacific ocean perch	1,608	50%	-	-	-	-	-	-
Aurora rockfish	-	-	-	-	-	-	-	-
Darkblotched rockfish	39	100%	-	-	-	-	-	-
Splitnose rockfish	161	95%	-	-	-	-	-	-
Redbanded rockfish	14	100%	-	-	-	-	-	-
Sablefish	657	69%	211	-	553	-	960	-
Twoline eelpout	-	-	-	-	17	-	43	-
Bigfin eelpout	-	-	-	-	-	-	11	-
Black eelpout	-	-	14	-	18	-	-	-
<i>Lycenchelys</i> spp.	-	-	22	-	-	-	-	-
Arrowtooth flounder	1,129	78%	44	-	-	-	-	-
Slender sole	194	82%	64	-	-	-	-	-
Dover sole	1,009	74%	88	-	217	-	17	-
Deepsea sole	-	-	-	-	44	-	88	-
Rex sole	1,131	93%	1	-	-	-	-	-

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Biomass (t)	CV	Biomass (t)	CV	Biomass (t)	CV
Brown cat shark	-	-	-	-	69	-
Spiny dogfish	4	100%	-	-	14,348	2%
Bering skate	-	-	-	-	413	28%
Longnose skate	-	-	-	-	1,225	5%
Black skate	31	29%	216	-	293	3%
Pacific whiting	14	100%	-	-	33,299	18%
Pacific grenadier	354	65%	237	-	631	36%
Giant grenadier	442	43%	290	-	859	22%
Shortspine thornyhead	165	34%	101	-	641	18%
Longspine thornyhead	1,504	17%	980	-	4,557	6%
Pacific ocean perch	-	-	-	-	1,608	0.5
Aurora rockfish	-	-	-	-	-	-
Darkblotched rockfish	-	-	-	-	39	100%
Splitnose rockfish	-	-	-	-	161	95%
Redbanded rockfish	-	-	-	-	14	100%
Sablefish	48	100%	116	-	2,546	18%
Twoline eelpout	29	100%	10	-	100	29%
Bigfin eelpout	3	100%	4	-	19	15%
Black eelpout	-	-	-	-	32	-
<i>Lycenchelys</i> spp.	-	-	-	-	22	-
Arrowtooth flounder	-	-	-	-	1,173	75%
Slender sole	-	-	-	-	258	62%
Dover sole	9	100%	-	-	1,341	56%
Deepsea sole	112	52%	25	-	270	21%
Rex sole	-	-	-	-	1,132	93%

Table 25.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission U.S.-Vancouver, Columbia, Eureka, Monterey, and Conception areas combined from the 1996 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	636,325	38%	5,576,005	19%	10,898,777	15%	5,223,063	15%
Spiny dogfish	119,359,300	34%	34,316,280	46%	246,556	71%	33,359	77%
Bering skate	3,764,233	19%	4,168,053	25%	314,110	32%	-	-
Longnose skate	5,499,161	20%	4,085,246	21%	607,234	33%	45,480	82%
Black skate	-	-	-	-	146,742	37%	150,843	44%
Pacific whiting	845,170,568	24%	417,178,258	28%	43,200,331	48%	514,706	25%
Pacific grenadier	-	-	-	-	5,456,526	40%	4,728,175	20%
Giant grenadier	-	-	-	-	1,319,620	27%	5,653,343	28%
Shortspine thornyhead	19,390,799	28%	36,380,843	20%	9,514,588	27%	2,397,353	23%
Longspine thornyhead	-	-	21,209,791	43%	172,183,669	15%	409,655,302	13%
Pacific ocean perch	4,007,408	77%	323,130	44%	-	-	-	-
Aurora rockfish	78,056	68%	12,812,677	39%	94,374	49%	18,362	100%
Darkblotched rockfish	5,178,920	61%	174,453	36%	-	-	7,898	100%
Splitnose rockfish	50,167,236	30%	37,598,061	65%	148,227	100%	-	-
Redbanded rockfish	460,404	37%	59,524	51%	-	-	-	-
Sablefish	6,956,373	32%	11,549,016	20%	9,124,421	13%	6,074,113	16%
Twoline eelpout	-	-	74,922	71%	1,114,218	23%	2,249,001	23%
Bigfin eelpout	-	-	22,326	100%	456,368	48%	2,037,585	22%
Black eelpout	131,346	64%	21,516,578	36%	19,935,841	28%	256,787	81%
<i>Lycenchelys</i> spp.	8,544,362	18%	15,649,791	20%	818,642	35%	-	-
Arrowtooth flounder	2,821,881	68%	2,518,540	34%	59,315	74%	-	-
Slender sole	111,262,213	26%	62,452,071	55%	33,547	78%	-	-
Dover sole	33,995,896	25%	135,996,397	26%	35,668,934	17%	23,317,542	34%
Deepsea sole	-	-	56,149	60%	871,205	25%	3,516,631	14%
Rex sole	148,319,153	27%	156,700,327	39%	10,108,791	48%	7,585	100%

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	1,171,957	20%	186,459	38%	23,692,585	9%
Spiny dogfish	7,901	100%	-	-	153,963,396	28%
Bering skate	14,764	100%	-	-	8,261,159	15%
Longnose skate	8,717	100%	-	-	10,245,837	14%
Black skate	832,730	18%	1,315,601	17%	2,445,915	12%
Pacific whiting	406,606	38%	252,527	49%	1,306,722,996	18%
Pacific grenadier	26,618,377	17%	35,244,186	7%	72,047,264	8%
Giant grenadier	6,410,277	14%	12,779,652	14%	26,162,892	10%
Shortspine thornyhead	4,043,280	21%	2,565,065	17%	74,291,927	13%
Longspine thornyhead	280,835,315	8%	168,043,238	11%	1,051,927,315	6%
Pacific ocean perch	-	-	-	-	4,330,538	71%
Aurora rockfish	-	-	-	-	13,003,469	38%
Darkblotched rockfish	-	-	-	-	5,361,272	59%
Splitnose rockfish	-	-	-	-	87,913,524	33%
Redbanded rockfish	-	-	-	-	519,927	33%
Sablefish	6,587,833	19%	3,932,998	14%	44,224,753	9%
Twoline eelpout	1,951,895	22%	1,225,477	22%	6,615,513	12%
Bigfin eelpout	3,921,425	29%	236,186	34%	6,673,890	19%
Black eelpout	511,934	100%	-	-	42,352,487	22%
<i>Lycenchelys</i> spp.	-	-	-	-	25,012,795	14%
Arrowtooth flounder	-	-	-	-	5,399,736	39%
Slender sole	-	-	-	-	173,747,831	26%
Dover sole	14,377,445	37%	7,552,498	33%	250,908,712	15%
Deepsea sole	5,887,624	14%	3,217,972	26%	13,549,580	9%
Rex sole	-	-	-	-	315,135,854	23%

Table 26.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Conception area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	312,337	59%	925,630	46%	3,938,966	50%	899,947	34%
Spiny dogfish	222,407	82%	61,541	51%	-	-	10,561	100%
Bering skate	137,161	45%	812,474	33%	33,417	100%	-	-
Longnose skate	745,620	79%	1,703,013	48%	492,274	72%	44,459	100%
Black skate	-	-	-	-	-	-	53,836	39%
Pacific whiting	47,171,236	42%	17,951,453	26%	4,976,245	49%	154,423	83%
Pacific grenadier	-	-	-	-	-	-	248,534	58%
Giant grenadier	-	-	-	-	157,023	87%	185,977	73%
Shortspine thornyhead	188,343	95%	2,533,156	40%	3,474,240	12%	1,375,217	6%
Longspine thornyhead	-	-	23,452,503	52%	50,862,097	43%	61,156,161	5%
Pacific ocean perch	-	-	-	-	-	-	-	-
Aurora rockfish	20,093	100%	5,548,247	44%	114,820	69%	22,230	100%
Darkblotched rockfish	-	-	-	-	-	-	-	-
Splitnose rockfish	17,164,504	69%	16,934,337	91%	-	-	-	-
Redbanded rockfish	-	-	-	-	-	-	-	-
Sablefish	61,660	46%	1,042,295	32%	1,505,337	28%	1,921,128	40%
Twoline eelpout	-	-	12,479	100%	205,010	79%	735,422	20%
Bigfin eelpout	-	-	-	-	-	-	185,977	73%
Black eelpout	90,103	86%	1,977,529	37%	612,923	38%	-	-
<i>Lycenchelys</i> spp.	759,279	50%	3,607,927	43%	15,087	100%	-	-
Arrowtooth flounder	-	-	-	-	-	-	-	-
Slender sole	3,759,653	51%	189,873	58%	-	-	-	-
Dover sole	757,819	44%	17,482,515	39%	16,459,186	36%	9,537,481	60%
Deepsea sole	-	-	23,880	100%	-	-	606,420	45%
Rex sole	1,811,244	60%	13,420,560	57%	-	-	9,182	100%

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	190,607	28%	112,828	56%	6,380,315	32%
Spiny dogfish	-	-	-	-	294,509	63%
Bering skate	-	-	-	-	983,052	28%
Longnose skate	-	-	-	-	2,985,366	36%
Black skate	103,734	57%	77,767	54%	235,337	32%
Pacific whiting	72,451	83%	13,594	61%	70,339,402	29%
Pacific grenadier	2,423,252	39%	5,240,513	28%	7,912,299	22%
Giant grenadier	1,182,624	21%	999,213	48%	2,524,837	23%
Shortspine thornyhead	1,456,906	38%	322,706	18%	9,350,569	13%
Longspine thornyhead	32,831,975	15%	7,769,607	29%	176,072,344	15%
Pacific ocean perch	-	-	-	-	-	-
Aurora rockfish	-	-	-	-	5,705,390	43%
Darkblotched rockfish	-	-	-	-	-	-
Splitnose rockfish	-	-	-	-	34,098,841	57%
Redbanded rockfish	-	-	-	-	-	-
Sablefish	2,002,390	27%	197,093	40%	6,729,902	16%
Twoline eelpout	617,818	44%	276,402	58%	1,847,130	21%
Bigfin eelpout	170,089	54%	-	-	356,066	46%
Black eelpout	-	-	-	-	2,680,555	28%
<i>Lycenchelys</i> spp.	-	-	-	-	4,382,293	37%
Arrowtooth flounder	-	-	-	-	-	-
Slender sole	-	-	-	-	3,949,526	48%
Dover sole	1,849,939	59%	800,657	68%	46,887,596	23%
Deepsea sole	673,957	26%	60,093	76%	1,364,350	24%
Rex sole	-	-	-	-	15,240,986	50%

Table 27.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Monterey area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	80,255	100%	1,275,760	43%	3,185,215	13%	1,645,899	16%
Spiny dogfish	92,109	75%	717,428	41%	37,765	100%	-	-
Bering skate	626,906	45%	978,579	26%	147,167	35%	-	-
Longnose skate	2,338,696	23%	882,293	23%	150,002	20%	8,122	100%
Black skate	-	-	-	-	-	-	74,386	76%
Pacific whiting	54,564,069	73%	17,138,472	20%	3,487,827	34%	117,973	58%
Pacific grenadier	-	-	-	-	1,625,778	92%	1,143,078	26%
Giant grenadier	-	-	-	-	284,997	78%	483,394	42%
Shortspine thornyhead	562,981	50%	2,140,619	36%	1,455,531	31%	644,879	44%
Longspine thornyhead	-	-	2,257,244	57%	22,881,350	43%	157,633,141	26%
Pacific ocean perch	13,572	100%	-	-	-	-	-	-
Aurora rockfish	-	-	4,657,975	65%	20,003	50%	-	-
Darkblotched rockfish	179,784	44%	4,718	100%	-	-	7,326	100%
Splitnose rockfish	3,548,316	58%	17,858,022	86%	107,648	100%	-	-
Redbanded rockfish	44,741	57%	25,423	69%	-	-	-	-
Sablefish	448,949	42%	1,239,649	31%	1,614,680	28%	1,075,405	29%
Twoline eelpout	-	-	5,126	100%	418,548	32%	848,783	47%
Bigfin eelpout	-	-	-	-	75,466	100%	488,246	47%
Black eelpout	-	-	629,469	85%	2,384,828	77%	230,548	82%
<i>Lycenchelys</i> spp.	862,929	56%	5,346,076	25%	427,820	29%	-	-
Arrowtooth flounder	6,664	100%	5,329	100%	-	-	-	-
Slender sole	19,867,171	51%	2,097,012	50%	-	-	-	-
Dover sole	5,893,763	42%	35,189,696	44%	10,548,304	22%	11,244,763	48%
Deepsea sole	-	-	19,098	100%	137,717	44%	980,386	32%
Rex sole	25,545,534	15%	29,813,540	28%	542,175	85%	-	-

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	356,271	47%	35,105	57%	6,578,505	12%
Spiny dogfish	-	-	-	-	847,302	36%
Bering skate	-	-	-	-	1,752,652	22%
Longnose skate	-	-	-	-	3,379,112	17%
Black skate	289,975	25%	267,455	26%	631,815	18%
Pacific whiting	79,685	90%	80,615	49%	75,468,641	53%
Pacific grenadier	11,898,988	24%	11,239,684	8%	25,907,528	13%
Giant grenadier	1,321,074	27%	2,682,950	24%	4,772,415	17%
Shortspine thornyhead	1,374,399	26%	1,397,259	24%	7,575,669	14%
Longspine thornyhead	74,627,739	16%	45,848,316	24%	303,247,791	15%
Pacific ocean perch	-	-	-	-	13,572	100%
Aurora rockfish	-	-	-	-	4,677,978	65%
Darkblotched rockfish	-	-	-	-	191,828	42%
Splitnose rockfish	-	-	-	-	21,513,985	72%
Redbanded rockfish	-	-	-	-	70,164	44%
Sablefish	2,858,893	27%	1,542,396	19%	8,779,971	12%
Twoline eelpout	680,013	41%	552,574	32%	2,505,043	21%
Bigfin eelpout	1,080,256	47%	79,658	80%	1,723,626	33%
Black eelpout	457,847	100%	-	-	3,702,691	53%
<i>Lycenchelys</i> spp.	-	-	-	-	6,636,824	21%
Arrowtooth flounder	-	-	-	-	11,993	71%
Slender sole	-	-	-	-	21,964,183	47%
Dover sole	9,165,807	46%	5,478,040	38%	77,520,373	22%
Deepsea sole	2,365,838	12%	1,354,701	48%	4,857,740	16%
Rex sole	-	-	-	-	55,901,249	17%

Table 28.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Eureka area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	38,893	52%	961,606	22%	2,009,860	22%	1,528,747	54%
Spiny dogfish	260,368	65%	10,524,998	55%	16,957	61%	-	-
Bering skate	740,379	49%	313,124	44%	-	-	-	-
Longnose skate	271,015	45%	835,865	53%	71,484	26%	-	-
Black skate	-	-	-	-	42,258	77%	-	-
Pacific whiting	130,003,412	55%	172,091,028	41%	3,174,353	36%	76,467	58%
Pacific grenadier	-	-	-	-	1,470,044	48%	715,180	36%
Giant grenadier	-	-	-	-	303,429	53%	1,532,270	53%
Shortspine thornyhead	4,536,323	41%	3,632,343	39%	719,121	37%	190,992	52%
Longspine thornyhead	-	-	328,938	97%	40,276,368	36%	104,265,571	19%
Pacific ocean perch	-	-	-	-	-	-	-	-
Aurora rockfish	-	-	827,655	59%	-	-	-	-
Darkblotched rockfish	2,338,584	95%	15,466	63%	-	-	-	-
Splitnose rockfish	8,992,291	31%	10,304	100%	-	-	-	-
Redbanded rockfish	122,479	89%	-	-	-	-	-	-
Sablefish	1,742,823	67%	3,304,075	40%	1,176,974	24%	787,523	74%
Twoline eelpout	-	-	46,928	86%	118,282	83%	13,111	100%
Bigfin eelpout	-	-	-	-	165,230	100%	897,648	17%
Black eelpout	-	-	7,717,639	45%	10,768,311	22%	-	-
<i>Lycenchelys</i> spp.	2,184,060	16%	1,070,271	93%	21,065	89%	-	-
Arrowtooth flounder	22,380	47%	358,677	56%	-	-	-	-
Slender sole	18,484,212	32%	878,230	98%	-	-	-	-
Dover sole	6,941,787	27%	17,973,174	32%	5,064,666	27%	2,418,618	19%
Deepsea sole	-	-	-	-	187,908	45%	1,051,052	26%
Rex sole	32,543,187	35%	16,472,346	47%	5,634,219	60%	-	-

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	224,991	42%	12,275	63%	4,776,371	20%
Spiny dogfish	-	-	-	-	10,802,324	54%
Bering skate	-	-	-	-	1,053,503	37%
Longnose skate	10,812	100%	-	-	1,189,177	39%
Black skate	290,735	40%	285,096	26%	618,088	23%
Pacific whiting	75,321	84%	-	-	305,420,581	33%
Pacific grenadier	6,509,300	27%	5,076,996	13%	13,771,520	14%
Giant grenadier	1,742,579	16%	2,458,718	37%	6,036,997	21%
Shortspine thornyhead	422,296	30%	389,577	14%	9,890,651	24%
Longspine thornyhead	91,529,284	11%	47,145,382	14%	283,545,543	10%
Pacific ocean perch	-	-	-	-	-	-
Aurora rockfish	-	-	-	-	827,655	59%
Darkblotched rockfish	-	-	-	-	2,354,049	94%
Splitnose rockfish	-	-	-	-	9,002,595	31%
Redbanded rockfish	-	-	-	-	122,479	89%
Sablefish	867,481	27%	1,208,898	13%	9,087,773	21%
Twoline eelpout	279,591	36%	134,399	59%	592,310	28%
Bigfin eelpout	2,289,629	46%	37,555	70%	3,390,063	31%
Black eelpout	-	-	-	-	18,485,949	23%
<i>Lycenchelys</i> spp.	-	-	-	-	3,275,395	32%
Arrowtooth flounder	-	-	-	-	381,057	53%
Slender sole	-	-	-	-	19,362,442	31%
Dover sole	2,533,480	35%	1,004,987	43%	35,936,712	17%
Deepsea sole	1,690,078	39%	1,073,273	31%	4,002,312	20%
Rex sole	-	-	-	-	54,649,752	26%

Table 29.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Columbia area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	183,064	45%	1,999,204	31%	2,206,826	38%	1,137,969	18%
Spiny dogfish	110,990,329	33%	21,915,874	68%	144,758	100%	-	-
Bering skate	1,528,664	22%	1,903,304	57%	73,046	62%	-	-
Longnose skate	1,444,105	25%	698,985	22%	21,714	100%	-	-
Black skate	-	-	-	-	91,542	36%	13,241	67%
Pacific whiting	548,115,031	30%	174,554,163	18%	26,394,021	64%	131,539	21%
Pacific grenadier	-	-	-	-	1,434,422	27%	1,918,277	30%
Giant grenadier	-	-	-	-	439,691	24%	2,799,411	34%
Shortspine thornyhead	12,537,156	35%	28,094,219	20%	2,081,391	35%	300,507	31%
Longspine thornyhead	-	-	1,897,567	69%	52,155,271	20%	76,798,714	8%
Pacific ocean perch	537,526	52%	358,556	38%	-	-	-	-
Aurora rockfish	60,210	86%	467,076	61%	-	-	-	-
Darkblotched rockfish	1,696,252	53%	164,062	37%	-	-	-	-
Splitnose rockfish	16,025,672	49%	578,161	35%	-	-	-	-
Redbanded rockfish	228,132	34%	24,745	72%	-	-	-	-
Sablefish	3,709,343	40%	5,204,417	19%	3,968,154	16%	1,827,464	16%
Twoline eelpout	-	-	-	-	261,459	33%	401,120	22%
Bigfin eelpout	-	-	24,774	100%	170,089	67%	466,332	50%
Black eelpout	43,104	68%	6,280,555	80%	5,351,535	50%	6,065	100%
<i>Lycenchelys</i> spp.	3,881,895	25%	3,128,297	29%	151,996	100%	-	-
Arrowtooth flounder	809,560	47%	2,237,556	35%	50,345	71%	-	-
Slender sole	59,098,749	45%	63,614,023	57%	28,474	76%	-	-
Dover sole	15,100,429	50%	54,417,102	53%	6,526,703	38%	1,112,862	23%
Deepsea sole	-	-	15,010	100%	311,465	38%	770,877	19%
Rex sole	70,907,324	51%	92,541,903	73%	3,531,123	84%	-	-

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	363,495	22%	28,401	45%	5,918,958	18%
Spiny dogfish	-	-	-	-	133,050,961	29%
Bering skate	12,427	100%	-	-	3,517,441	32%
Longnose skate	-	-	-	-	2,164,804	18%
Black skate	110,506	30%	550,189	30%	765,478	23%
Pacific whiting	144,882	69%	141,891	74%	749,481,527	23%
Pacific grenadier	3,991,924	21%	11,816,784	11%	19,161,407	9%
Giant grenadier	1,765,127	34%	5,799,845	15%	10,804,074	13%
Shortspine thornyhead	703,625	61%	346,940	25%	44,063,838	16%
Longspine thornyhead	69,374,974	10%	53,702,914	15%	253,929,440	6%
Pacific ocean perch	-	-	-	-	896,081	35%
Aurora rockfish	-	-	-	-	527,286	55%
Darkblotched rockfish	-	-	-	-	1,860,313	49%
Splitnose rockfish	-	-	-	-	16,603,833	47%
Redbanded rockfish	-	-	-	-	252,878	32%
Sablefish	821,157	31%	818,198	27%	16,348,734	12%
Twoline eelpout	327,741	34%	229,609	29%	1,219,929	15%
Bigfin eelpout	589,898	28%	93,005	37%	1,344,099	23%
Black eelpout	-	-	-	-	11,681,259	49%
<i>Lycenchelys</i> spp.	-	-	-	-	7,162,188	18%
Arrowtooth flounder	-	-	-	-	3,097,461	28%
Slender sole	-	-	-	-	122,741,246	36%
Dover sole	439,195	34%	142,502	91%	77,738,794	38%
Deepsea sole	928,608	15%	583,604	28%	2,609,563	11%
Rex sole	-	-	-	-	166,980,350	46%

**Table 30.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1997 West Coast upper continental slope bottom trawl survey. Differences in totals result from rounding.**

Species	Stratum 1 183-366 m		Stratum 2 367-549 m		Stratum 3 550-732 m		Stratum 4 733-914 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	-	-	88,023	-	28,051	-	47,159	-
Spiny dogfish	23,148,136	29%	99,026	-	-	-	47,159	-
Bering skate	768,075	45%	11,003	-	-	-	-	-
Longnose skate	454,992	22%	-	-	-	-	-	-
Black skate	-	-	-	-	-	-	15,720	-
Pacific whiting	50,003,862	27%	1,826,481	-	140,256	-	47,159	-
Pacific grenadier	-	-	-	-	294,537	-	298,672	-
Giant grenadier	-	-	-	-	84,153	-	78,598	-
Shortspine thornyhead	328,080	100%	1,584,417	-	224,409	-	31,439	-
Longspine thornyhead	-	-	121,032	-	19,705,911	-	14,304,800	-
Pacific ocean perch	6,872,829	76%	-	-	-	-	-	-
Aurora rockfish	-	-	-	-	-	-	-	-
Darkblotched rockfish	176,658	100%	-	-	-	-	-	-
Splitnose rockfish	1,900,045	87%	-	-	-	-	-	-
Redbanded rockfish	35,477	100%	-	-	-	-	-	-
Sablefish	739,537	73%	187,049	-	280,511	-	503,026	-
Twoline eelpout	-	-	-	-	28,051	-	330,111	-
Bigfin eelpout	-	-	-	-	-	-	110,037	-
Black eelpout	-	-	132,035	-	210,383	-	-	-
<i>Lycenchelys</i> spp.	-	-	55,014	-	-	-	-	-
Arrowtooth flounder	3,962,919	91%	55,014	-	-	-	-	-
Slender sole	2,954,171	76%	1,199,316	-	-	-	-	-
Dover sole	4,174,615	82%	209,055	-	462,843	-	15,720	-
Deepsea sole	-	-	-	-	238,435	-	251,513	-
Rex sole	5,775,219	91%	11,003	-	-	-	-	-

Species	Stratum 5 915-1,097 m		Stratum 6 1,098-1,280 m		All Strata 183-1,280 m	
	Population (number)	CV	Population (number)	CV	Population (number)	CV
Brown cat shark	-	-	-	-	163,233	-
Spiny dogfish	8,394	100%	-	-	23,302,715	29%
Bering skate	-	-	-	-	779,078	44%
Longnose skate	-	-	-	-	454,992	22%
Black skate	59,014	71%	140,330	-	215,063	19%
Pacific whiting	25,182	100%	-	-	52,042,939	26%
Pacific grenadier	1,364,746	50%	1,010,374	-	2,968,328	23%
Giant grenadier	463,479	49%	266,626	-	892,857	26%
Shortspine thornyhead	110,908	9%	98,231	-	2,377,483	14%
Longspine thornyhead	14,403,501	2%	12,152,551	-	60,687,796	1%
Pacific ocean perch	-	-	-	-	6,872,829	76%
Aurora rockfish	-	-	-	-	-	-
Darkblotched rockfish	-	-	-	-	176,658	100%
Splitnose rockfish	-	-	-	-	1,900,045	87%
Redbanded rockfish	-	-	-	-	35,477	100%
Sablefish	33,576	100%	28,066	-	1,771,766	30%
Twoline eelpout	60,543	100%	14,033	-	432,738	14%
Bigfin eelpout	25,182	100%	28,066	-	163,285	15%
Black eelpout	-	-	-	-	342,418	-
<i>Lycenchelys</i> spp.	-	-	-	-	55,014	-
Arrowtooth flounder	-	-	-	-	4,017,933	90%
Slender sole	-	-	-	-	4,153,487	54%
Dover sole	8,649	100%	-	-	4,870,883	70%
Deepsea sole	222,581	32%	42,099	-	754,627	9%
Rex sole	-	-	-	-	5,786,221	91%



Table 31.--Total number of hauls and hauls with weight, number and length data by stratum for the International North Pacific Fisheries Commission Conception, Monterey, Eureka, Columbia, and U.S.-Vancouver areas from the 1997 West Coast upper continental slope bottom trawl survey.

Species	Stratum 1 183-366 m			Stratum 2 367-549 m			Stratum 3 550-732 m		
	Total hauls = 31			Total hauls = 33			Total hauls = 30		
	Hauls with:			Hauls with:			Hauls with:		
	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.
Brown cat shark	14	14	14	29	29	29	30	30	30
Spiny dogfish	24	24	24	30	30	30	5	5	5
Bering skate	28	28	26	32	32	32	10	10	10
Longnose skate	30	30	30	18	18	18	18	18	18
Black skate	0	0	0	24	24	24	8	8	8
Pacific whiting	31	31	29	33	33	33	30	30	30
Pacific grenadier	0	0	0	0	0	0	17	17	17
Giant grenadier	0	0	0	0	0	0	19	19	19
Shortspine thornyhead	22	22	22	32	32	32	30	30	30
Longspine thornyhead	0	0	0	16	16	16	30	30	30
Pacific ocean perch	11	11	11	10	10	10	0	0	0
Aurora rockfish	3	3	3	27	27	27	6	6	6
Darkblotched rockfish	17	17	17	9	9	7	0	0	0
Splitnose rockfish	29	29	28	19	19	19	1	1	1
Redbanded rockfish	14	14	13	4	4	4	0	0	0
Sablefish	26	26	24	33	33	33	30	30	30
Twoline eelpout	0	0	0	4	4	4	24	24	24
Bigfin eelpout	0	0	0	1	1	1	6	6	6
Black eelpout	4	4	4	23	23	23	23	23	22
<i>Lycenchelys</i> spp.	26	26	26	29	29	29	10	9	9
Arrowtooth flounder	15	15	15	18	18	18	3	3	3
Slender sole	31	31	30	24	24	24	2	2	2
Dover sole	30	30	30	33	33	33	30	30	30
Deepsea sole	0	0	0	3	3	3	19	19	18
Rex sole	30	30	30	33	32	32	13	13	13

  

Species	Stratum 4 733-914 m			Stratum 5 915-1,097 m			Stratum 6 1,098-1,280 m		
	Total hauls = 26			Total hauls = 29			Total hauls = 33		
	Hauls with:			Hauls with:			Hauls with:		
	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.
Brown cat shark	26	26	26	23	23	23	13	13	12
Spiny dogfish	2	2	2	1	1	1	0	0	0
Bering skate	0	0	0	1	1	1	0	0	0
Longnose skate	2	2	2	1	1	1	0	0	0
Black skate	9	9	9	24	24	24	30	30	30
Pacific whiting	18	18	18	13	13	13	13	13	13
Pacific grenadier	23	23	22	29	29	29	33	33	32
Giant grenadier	23	23	23	29	29	29	33	33	33
Shortspine thornyhead	25	25	25	29	29	29	33	33	33
Longspine thornyhead	26	26	26	29	29	29	33	33	33
Pacific ocean perch	0	0	0	0	0	0	0	0	0
Aurora rockfish	1	1	1	0	0	0	0	0	0
Darkblotched rockfish	1	1	1	0	0	0	0	0	0
Splitnose rockfish	0	0	0	0	0	0	0	0	0
Redbanded rockfish	0	0	0	0	0	0	0	0	0
Sablefish	26	26	26	28	28	28	33	33	32
Twoline eelpout	21	21	21	24	24	24	29	29	29
Bigfin eelpout	19	19	19	24	24	23	14	14	13
Black eelpout	4	4	4	1	1	1	0	0	0
<i>Lycenchelys</i> spp.	0	0	0	0	0	0	0	0	0
Arrowtooth flounder	0	0	0	0	0	0	0	0	0
Slender sole	0	0	0	0	0	0	0	0	0
Dover sole	26	26	26	25	25	25	19	19	18
Deepsea sole	25	25	25	29	29	29	29	29	29
Rex sole	1	1	1	0	0	0	0	0	0

Table 32.--Total number of hauls and hauls with weight, number and length data by stratum for the International North Pacific Fisheries Commission Conception area from the 1997 West Coast upper continental slope bottom trawl survey.

Species	Stratum 1 183-366 m			Stratum 2 367-549 m			Stratum 3 550-732 m		
	Total hauls = 4			Total hauls = 6			Total hauls = 5		
	Hauls with:			Hauls with:			Hauls with:		
	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.
Brown cat shark	4	4	4	5	5	5	5	5	5
Spiny dogfish	3	3	3	4	4	4	1	1	1
Bering skate	3	3	3	6	6	6	2	2	2
Longnose skate	4	4	4	0	0	0	4	4	4
Black skate	0	0	0	3	3	3	0	0	0
Pacific whiting	4	4	4	6	6	6	5	5	5
Pacific grenadier	0	0	0	0	0	0	0	0	0
Giant grenadier	0	0	0	0	0	0	2	2	2
Shortspine thornyhead	2	2	2	6	6	6	5	5	5
Longspine thornyhead	0	0	0	5	5	5	5	5	5
Pacific ocean perch	0	0	0	0	0	0	0	0	0
Aurora rockfish	1	1	1	6	6	6	3	3	3
Darkblotched rockfish	0	0	0	0	0	0	0	0	0
Splitnose rockfish	4	4	4	5	5	5	0	0	0
Redbanded rockfish	0	0	0	0	0	0	0	0	0
Sablefish	3	3	3	6	6	6	5	5	5
Twoline eelpout	0	0	0	1	1	1	3	3	3
Bigfin eelpout	0	0	0	0	0	0	0	0	0
Black eelpout	2	2	2	6	6	6	3	3	3
<i>Lycenchelys</i> spp.	4	4	4	4	4	4	1	1	1
Arrowtooth flounder	0	0	0	0	0	0	0	0	0
Slender sole	4	4	3	3	3	3	0	0	0
Dover sole	3	3	3	6	6	6	5	5	5
Deepsea sole	0	0	0	1	1	1	0	0	0
Rex sole	3	3	3	6	6	6	1	1	1

  

Species	Stratum 4 733-914 m			Stratum 5 915-1,097 m			Stratum 6 1,098-1,280 m		
	Total hauls = 4			Total hauls = 5			Total hauls = 5		
	Hauls with:			Hauls with:			Hauls with:		
	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.
Brown cat shark	4	4	4	5	5	5	4	4	4
Spiny dogfish	1	1	1	0	0	0	0	0	0
Bering skate	0	0	0	0	0	0	0	0	0
Longnose skate	1	1	1	0	0	0	0	0	0
Black skate	3	3	3	4	4	4	3	3	3
Pacific whiting	2	2	2	2	2	2	2	2	2
Pacific grenadier	2	2	2	5	5	5	5	5	5
Giant grenadier	3	3	3	5	5	5	5	5	5
Shortspine thornyhead	4	4	4	5	5	5	5	5	5
Longspine thornyhead	4	4	4	5	5	5	5	5	5
Pacific ocean perch	0	0	0	0	0	0	0	0	0
Aurora rockfish	1	1	1	0	0	0	0	0	0
Darkblotched rockfish	0	0	0	0	0	0	0	0	0
Splitnose rockfish	0	0	0	0	0	0	0	0	0
Redbanded rockfish	0	0	0	0	0	0	0	0	0
Sablefish	4	4	4	5	5	5	5	5	5
Twoline eelpout	4	4	4	4	4	4	4	4	4
Bigfin eelpout	3	3	3	3	3	3	0	0	0
Black eelpout	0	0	0	0	0	0	0	0	0
<i>Lycenchelys</i> spp.	0	0	0	0	0	0	0	0	0
Arrowtooth flounder	0	0	0	0	0	0	0	0	0
Slender sole	0	0	0	0	0	0	0	0	0
Dover sole	4	4	4	5	5	5	2	2	2
Deepsea sole	4	4	4	5	5	5	2	2	2
Rex sole	1	1	1	0	0	0	0	0	0









Table 37.--Population estimates for sablefish by age group and mean length at age for all the International North Pacific Fisheries Commission areas combined for all depth strata (183-1,280 m) from the 1997 West Coast upper continental slope bottom trawl survey.

Age	Year Class	Population Number	Mean Length (cm)	Standard Deviation
1	1996	123,279	35.62	9.99
2	1995	2,938,022	45.12	4.13
3	1994	4,033,664	46.96	4.38
4	1993	4,841,942	48.15	4.34
5	1992	2,983,384	48.29	4.56
6	1991	2,198,608	49.11	4.93
7	1990	1,719,333	52.44	6.85
8	1989	1,651,855	52.85	5.91
9	1988	1,557,506	53.49	5.11
10	1987	1,092,311	53.98	5.67
11	1986	1,252,865	53.45	7.10
12	1985	1,295,486	53.39	5.73
13	1984	1,026,313	53.15	5.08
14	1983	941,173	55.04	6.27
15	1982	957,821	54.32	6.72
16	1981	996,381	55.25	5.98
17	1980	636,540	56.36	5.71
18	1979	837,196	56.20	5.69
19	1978	895,652	57.51	6.60
20	1977	508,396	56.53	5.63
21	1976	387,639	57.58	5.71
22	1975	735,001	55.76	4.82
23	1974	577,855	56.61	3.38
24	1973	582,282	55.28	4.26
25	1972	478,400	57.81	3.99
26	1971	620,992	56.12	5.52
27	1970	379,505	55.61	5.01
28	1969	462,134	57.58	7.06
29	1968	693,745	56.65	3.82
30	1967	451,950	57.45	5.96
31	1966	264,976	59.49	5.45
32	1965	319,132	54.93	3.86
33	1964	358,747	58.91	5.53
34	1963	606,202	56.34	5.59
35	1962	198,974	60.57	5.71
36	1961	360,411	60.30	5.87
37	1960	459,431	55.95	6.83
38	1959	428,904	55.68	5.06
39	1958	342,981	54.98	4.45
40	1957	243,007	55.14	4.40
41	1956	352,581	57.19	5.55
42	1955	281,934	55.59	6.53
43	1954	197,868	57.36	4.10
44	1953	276,116	57.72	3.84
45	1952	186,659	56.57	5.92
46	1951	125,977	58.30	6.38
47	1950	105,476	57.73	2.90
48	1949	126,103	56.63	2.25
49	1948	151,771	60.15	3.43
50	1947	54,454	62.13	1.45
51	1946	199,856	58.00	5.31
52	1945	206,933	57.45	5.52
53	1944	16,981	61.00	-
54	1943	76,083	58.72	5.52
56	1941	46,144	56.08	1.38
57	1940	41,112	56.00	-
59	1938	9,390	64.00	-
63	1934	14,070	70.00	-
69	1928	6,943	73.00	-
Above, below, or between key lengths		298,392	31.80	12.68
Total		44,214,838	52.11	-

Table 38.--Population estimates for sablefish by age group and mean length at age for the International North Pacific Fisheries Commission Conception area for all depth strata (183-1,280 m) from the 1997 West Coast upper continental slope bottom trawl survey.

Age	Year Class	Population Number	Mean Length (cm)	Standard Deviation
1	1996	14,653	36.74	11.00
2	1995	358,409	45.48	4.27
3	1994	565,812	47.55	4.95
4	1993	645,328	49.42	4.56
5	1992	434,384	48.82	4.92
6	1991	301,638	49.49	5.12
7	1990	254,721	52.07	5.56
8	1989	270,267	52.07	4.54
9	1988	281,414	52.73	4.14
10	1987	181,642	53.58	4.85
11	1986	180,689	52.82	5.72
12	1985	225,053	52.50	4.07
13	1984	170,908	53.21	3.85
14	1983	172,279	53.26	3.55
15	1982	172,901	53.92	5.07
16	1981	159,321	53.94	4.42
17	1980	95,698	54.46	4.15
18	1979	147,128	54.61	5.06
19	1978	143,129	55.34	4.64
20	1977	88,845	54.91	4.67
21	1976	65,414	56.17	4.32
22	1975	132,882	54.40	3.17
23	1974	102,716	55.73	2.65
24	1973	107,767	54.59	3.61
25	1972	77,954	56.28	2.78
26	1971	96,892	55.04	4.17
27	1970	68,549	54.44	4.34
28	1969	60,395	55.67	5.34
29	1968	103,833	55.61	3.16
30	1967	69,598	55.27	4.40
31	1966	30,862	56.21	4.15
32	1965	57,793	53.94	3.11
33	1964	49,615	56.65	5.18
34	1963	100,771	55.15	4.54
35	1962	22,916	56.48	3.61
36	1961	42,209	58.48	6.28
37	1960	67,925	55.14	4.28
38	1959	61,448	54.52	4.51
39	1958	55,962	53.71	3.05
40	1957	43,238	53.65	3.27
41	1956	61,569	54.95	4.11
42	1955	49,298	53.27	4.79
43	1954	32,352	56.09	2.80
44	1953	44,822	56.49	2.69
45	1952	29,325	55.82	5.04
46	1951	18,839	56.13	1.74
47	1950	15,088	57.25	2.62
48	1949	20,856	56.44	1.89
49	1948	19,552	58.97	2.79
50	1947	3,328	62.61	1.50
51	1946	31,471	56.60	4.70
52	1945	28,064	55.94	3.10
53	1944	771	61.00	0.00
54	1943	9,209	58.39	5.88
56	1941	9,964	55.72	1.48
57	1940	7,689	56.00	0.00
63	1934	1,902	70.00	0.00
69	1928	1,486	73.00	0.00
Above, below, or between key lengths		10,409	35.00	-
Total		6,678,952	52.04	-



Table 39.--Population estimates for sablefish by age group and mean length at age for the International North Pacific Fisheries Commission Monterey area for all depth strata (183-1,280 m) from the 1997 West Coast upper continental slope bottom trawl survey.

Age	Year Class	Population Number	Mean Length (cm)	Standard Deviation
1	1996	35,076	32.10	8.57
2	1995	314,232	45.67	5.07
3	1994	505,355	48.74	4.70
4	1993	644,210	49.82	4.39
5	1992	426,739	50.02	4.99
6	1991	353,376	51.35	5.78
7	1990	347,664	55.15	7.11
8	1989	338,247	54.63	6.01
9	1988	327,229	55.16	5.37
10	1987	239,269	55.71	6.14
11	1986	261,166	55.83	7.29
12	1985	290,423	55.09	6.93
13	1984	218,501	54.93	5.06
14	1983	208,532	56.47	6.95
15	1982	213,533	55.83	6.65
16	1981	239,181	56.69	5.45
17	1980	160,927	57.41	5.60
18	1979	226,039	57.71	5.76
19	1978	228,185	58.51	6.24
20	1977	136,325	58.13	5.56
21	1976	114,048	58.30	4.90
22	1975	181,106	56.85	4.73
23	1974	155,691	57.39	3.60
24	1973	142,817	56.38	4.72
25	1972	131,765	58.37	3.69
26	1971	155,799	56.99	4.42
27	1970	87,462	56.39	4.88
28	1969	124,683	59.19	6.23
29	1968	194,555	57.67	3.84
30	1967	112,581	58.07	5.94
31	1966	87,257	60.70	5.01
32	1965	78,705	55.90	3.73
33	1964	102,656	59.83	4.98
34	1963	147,725	57.49	5.60
35	1962	53,775	60.33	4.52
36	1961	112,838	60.89	5.38
37	1960	116,346	59.08	8.20
38	1959	105,237	56.85	4.89
39	1958	95,204	56.90	4.70
40	1957	61,292	56.48	4.70
41	1956	90,625	58.30	5.43
42	1955	66,146	57.20	6.91
43	1954	53,307	57.77	4.10
44	1953	78,768	58.52	4.00
45	1952	50,718	58.30	5.95
46	1951	35,726	59.38	7.18
47	1950	31,631	57.88	2.89
48	1949	35,428	56.85	2.40
49	1948	47,067	60.01	3.37
50	1947	25,932	61.78	1.32
51	1946	55,642	59.31	4.80
52	1945	59,122	57.41	3.23
53	1944	9,588	61.00	-
54	1943	22,347	59.66	6.15
56	1941	13,428	56.44	1.17
57	1940	9,633	56.00	-
59	1938	5,309	64.00	-
63	1934	5,225	70.00	-
69	1928	3,127	73.00	-
Above, below, or between key lengths		-	-	-
Total		8,774,520	54.91	-

Table 40.--Population estimates for sablefish by age group and mean length at age for the International North Pacific Fisheries Commission Eureka area for all depth strata (183-1,280 m) from the 1997 West Coast upper continental slope bottom trawl survey.

Age	Year Class	Population Number	Mean Length (cm)	Standard Deviation
1	1996	13,896	48.00	-
2	1995	528,617	46.88	2.91
3	1994	794,199	48.15	3.68
4	1993	1,029,969	48.63	3.57
5	1992	706,774	48.81	3.85
6	1991	544,046	48.94	4.10
7	1990	382,575	52.24	6.67
8	1989	379,367	52.41	5.79
9	1988	334,298	53.19	5.09
10	1987	235,492	53.28	5.23
11	1986	314,605	52.49	7.09
12	1985	275,498	52.93	5.58
13	1984	229,257	52.82	5.52
14	1983	188,521	54.09	5.44
15	1982	206,509	53.34	6.38
16	1981	200,742	55.16	6.31
17	1980	124,195	56.42	5.97
18	1979	168,753	55.70	5.65
19	1978	184,392	57.94	7.07
20	1977	101,628	55.84	5.24
21	1976	73,421	57.23	4.92
22	1975	128,013	55.41	4.91
23	1974	99,366	56.95	3.47
24	1973	104,760	55.84	4.62
25	1972	83,118	58.09	3.68
26	1971	119,182	55.72	6.31
27	1970	74,965	56.50	6.32
28	1969	109,320	57.34	7.83
29	1968	120,985	57.02	4.10
30	1967	74,928	57.13	5.58
31	1966	47,263	60.44	6.04
32	1965	62,874	55.24	4.79
33	1964	70,111	59.60	6.19
34	1963	121,061	56.57	6.25
35	1962	39,015	61.29	5.37
36	1961	67,394	60.95	6.33
37	1960	85,365	55.71	5.79
38	1959	87,252	55.63	5.38
39	1958	58,486	53.99	4.51
40	1957	46,181	54.68	4.50
41	1956	69,883	57.51	5.97
42	1955	56,763	55.23	6.54
43	1954	36,212	58.00	4.44
44	1953	46,067	57.97	3.99
45	1952	38,597	55.39	5.72
46	1951	23,331	59.55	7.59
47	1950	21,115	58.21	2.99
48	1949	21,804	56.81	2.47
49	1948	28,492	60.79	3.59
50	1947	11,393	62.59	1.50
51	1946	45,455	58.15	5.45
52	1945	34,502	56.79	3.47
53	1944	2,682	61.00	-
54	1943	11,583	57.64	4.57
56	1941	8,355	55.99	1.42
57	1940	6,461	56.00	-
59	1938	962	64.00	-
63	1934	1,658	70.00	-
Above, below, or between key lengths		5,662	71.00	-
Total		9,087,370	52.34	-

**Table 41.--Population estimates for sablefish by age group and mean length at age for the International North Pacific Fisheries Commission Columbia area for all depth strata (183-1,280 m) from the 1997 West Coast upper continental slope bottom trawl survey.**

Age	Year Class	Population Number	Mean Length (cm)	Standard Deviation
1	1996	49,175	33.20	8.78
2	1995	1,559,868	44.10	4.04
3	1994	1,896,104	45.64	4.05
4	1993	2,156,105	46.94	4.35
5	1992	1,161,691	47.13	4.58
6	1991	805,137	48.19	4.87
7	1990	601,031	51.39	7.07
8	1989	523,037	52.51	6.27
9	1988	494,080	53.16	5.24
10	1987	346,753	53.71	5.94
11	1986	385,401	53.39	7.32
12	1985	396,708	53.20	5.54
13	1984	328,892	52.46	5.13
14	1983	294,781	55.84	7.17
15	1982	295,064	54.63	7.76
16	1981	316,523	54.84	6.15
17	1980	206,840	56.72	6.07
18	1979	237,826	56.36	5.71
19	1978	276,625	57.83	7.05
20	1977	145,214	56.65	6.09
21	1976	112,239	57.74	6.79
22	1975	241,550	55.86	5.03
23	1974	178,570	56.21	3.24
24	1973	186,735	54.78	3.96
25	1972	153,434	57.89	4.68
26	1971	194,388	55.98	5.48
27	1970	119,977	55.32	4.54
28	1969	136,271	57.77	7.41
29	1968	218,455	56.21	3.78
30	1967	160,307	58.08	6.49
31	1966	81,869	58.85	5.44
32	1965	95,980	54.63	3.54
33	1964	111,450	58.78	5.53
34	1963	189,094	56.19	5.52
35	1962	69,820	61.27	6.36
36	1961	109,459	60.24	5.81
37	1960	157,969	54.11	6.25
38	1959	133,714	55.52	4.95
39	1958	103,889	54.54	3.98
40	1957	73,564	55.21	4.30
41	1956	107,544	57.33	5.63
42	1955	86,424	56.24	6.85
43	1954	61,884	57.19	4.19
44	1953	86,015	57.49	3.90
45	1952	53,775	56.74	6.13
46	1951	38,072	57.71	5.90
47	1950	31,054	57.57	2.89
48	1949	39,146	56.52	2.17
49	1948	48,207	60.52	3.57
50	1947	11,449	62.44	1.50
51	1946	53,045	57.56	5.62
52	1945	69,942	58.77	8.17
53	1944	2,983	61.00	-
54	1943	25,926	58.71	5.35
56	1941	12,473	56.12	1.37
57	1940	13,775	56.00	-
59	1938	1,148	64.00	-
63	1934	4,886	70.00	-
69	1928	1,945	73.00	-
Above, below, or between key lengths		290,875	30.63	10.31
Total		16,346,157	50.49	-

Table 42.--Population estimates for sablefish by age group and mean length at age for the International North Pacific Fisheries Commission U.S.-Vancouver area for all depth strata (183-1,280 m) from the 1997 West Coast upper continental slope bottom trawl survey.

Age	Year Class	Population Number	Mean Length (cm)	Standard Deviation
1	1996	3,008	48.00	-
2	1995	168,156	43.88	3.12
3	1994	223,231	44.68	4.48
4	1993	214,607	45.89	5.00
5	1992	151,289	45.63	4.75
6	1991	86,205	45.89	3.98
7	1990	56,001	49.78	6.03
8	1989	65,973	54.67	7.76
9	1988	53,476	52.60	5.61
10	1987	34,499	52.94	3.85
11	1986	44,174	53.32	6.96
12	1985	37,602	53.12	3.50
13	1984	34,929	52.22	4.20
14	1983	34,605	53.94	4.16
15	1982	28,329	52.09	4.95
16	1981	37,941	58.60	11.16
17	1980	20,619	55.03	4.79
18	1979	22,901	53.90	4.22
19	1978	34,229	57.18	7.35
20	1977	14,237	55.58	4.70
21	1976	10,483	62.02	9.22
22	1975	25,426	57.28	7.66
23	1974	18,279	56.36	3.49
24	1973	16,707	53.84	2.89
25	1972	15,119	57.56	4.01
26	1971	31,786	60.91	10.18
27	1970	14,792	55.05	3.29
28	1969	14,137	57.26	7.00
29	1968	26,886	55.87	2.72
30	1967	18,074	58.08	5.14
31	1966	5,806	57.10	3.26
32	1965	10,142	55.16	4.51
33	1964	8,981	57.18	4.63
34	1963	24,070	55.15	4.50
35	1962	8,985	65.37	8.35
36	1961	12,132	58.89	5.18
37	1960	13,373	54.13	5.64
38	1959	20,829	56.19	5.62
39	1958	13,660	54.74	5.36
40	1957	10,368	54.54	3.28
41	1956	11,499	57.04	5.71
42	1955	10,591	53.79	5.03
43	1954	8,382	58.30	5.03
44	1953	9,571	56.31	2.53
45	1952	4,414	51.50	1.50
46	1951	5,523	55.55	0.50
47	1950	3,045	56.07	2.30
48	1949	4,509	55.44	0.50
49	1948	4,114	59.52	2.10
50	1947	715	64.00	0.00
51	1946	7,134	59.00	5.57
52	1945	6,831	55.93	2.62
54	1943	4,480	56.76	1.99
56	1941	722	54.00	0.00
57	1940	2,006	56.00	0.00
59	1938	1,310	64.00	0.00
Above, below, or between key lengths		-	-	-
Total		1,770,892	50.34	-

Table 43.--The length-weight relationships for all the International North Pacific Fisheries Commission areas combined from the 1997 West Coast upper continental slope survey using nonlinear regression fit for the equation:

$$\text{Fish weight (g)} = a * \text{fork length (cm)}^b$$

Species	Sex	Number Sampled	Length-Weight Coefficients		Predicted Weight at Length (g)		
			a	b	40 cm	60 cm	80 cm
Arrowtooth flounder	M	71	0.005600	3.128700	576.2	2048.8	5039.5
	F	165	0.003100	3.315500	635.3	2436.8	6324.9
	T	236	0.002900	3.325300	616.2	2372.9	6176.5
Dover sole	M	1,518	0.003900	3.258200	67.6	647.0	2424.6
	F	972	0.003400	3.298300	66.5	654.0	2490.9
	T	2,490	0.003600	3.283900	67.4	656.6	2486.4
Sablefish	M	726	0.003000	3.309500	601.4	2301.0	5962.1
	F	800	0.002400	3.366000	592.6	2319.9	6109.6
	T	1,526	0.002500	3.349500	580.8	2258.7	5920.2
Shortspine thornyhead	M	780	0.006200	3.193300	88.5	809.6	2955.0
	F	855	0.005300	3.238900	86.7	818.8	3044.6
	U	58	0.023100	2.701300	75.5	-	-
T	1,693	0.006400	3.184900	89.1	810.2	2947.2	
Longspine thornyhead	M	606	0.005800	3.227600	9.8	91.8	339.6
	F	587	0.007000	3.167700	10.3	92.5	334.3
	U	256	0.017700	2.790500	10.9	75.6	-
T	1,449	0.008100	3.121800	10.7	99.3	330.9	
Pacific grenadier	M	371	0.164000	2.878100	123.9	910.6	2925.1
	F	324	0.222000	2.766800	129.8	883.2	2711.8
	U	66	0.175300	2.734100	95.0	632.3	-
T	761	0.160400	2.885600	123.3	910.9	2934.8	
Splitnose rockfish	M	246	0.017300	3.016700	18.0	145.5	1177.6
	F	243	0.028200	2.842600	19.6	140.8	1009.9
	U	35	0.025300	2.838700	17.5	124.8	-
T	524	0.022200	2.920300	18.5	139.9	1058.9	