

TABLES

Table 1.--Amount of wire to pay out by depth range using the West Coast upper continental slope Poly 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 (km²), and sampling densities by International North Pacific Fisheries Commission (INPFC) statistical area based on successful tows during the 1999 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 ²)	No. Hauls	Hauls/ 1,000km ²	Area (km ²)	No. Hauls	Hauls/ 1,000km ²	Area (km ²)	No. Hauls	Hauls/ 1,000km ²	Area (km ²)	No. Hauls	Hauls/ 1,000km ²
U.S.-Vancouver 47°30' - Border	1,181	3	2.5	412	3	7.3	517	3	5.8	611	4	6.5
Columbia 43°00' - 47°30'	4,025	13	3.2	3,741	12	3.2	2,610	11	4.2	2,354	10	4.2
Eureka 40°30' - 43°00'	1,076	5	4.6	1,103	5	4.5	1,671	5	3.0	1,719	5	2.9
Monterey 36°00' - 40°30'	1,771	9	5.1	1,727	9	5.2	2,010	9	4.5	2,074	8	3.9
Conception 34°30' - 36°00'	1,198	4	3.3	2,288	6	2.6	2,417	5	2.1	1,547	4	2.6
Entire Survey Area 34°30' - Border	9,250	34	3.7	9,272	35	3.8	9,224	33	3.6	8,305	31	3.7

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 ²)	No. Hauls	Hauls/ 1,000km ²	Area (km ²)	No. Hauls	Hauls/ 1,000km ²	Area (km ²)	No. Hauls	Hauls/ 1,000km ²
U.S.-Vancouver 47°30' - Border	668	3	4.5	529	3	5.7	3,919	19	4.8
Columbia 43°00' - 47°30'	2,383	11	4.6	2,393	10	4.2	17,506	67	3.8
Eureka 40°30' - 43°00'	1,951	5	2.6	1,399	6	4.3	8,918	31	3.5
Monterey 36°00' - 40°30'	2,250	8	3.6	2,359	10	4.2	12,191	53	4.3
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	32	3.5	7,957	34	4.3	53,130	199	3.7

Table 3.--Biological data collected during the 1999 West Coast upper continental slope groundfish trawl survey.

Common Name of Fish Species	Age Structures	Fish Weights	Maturity	Ovary Samples	DNA Tissue Samples	Stomach Samples	Blood Samples
Brown cat shark	-	81	-	-	-	-	-
Filetail cat shark	-	5	-	-	-	-	-
Deepsea skate	-	16	-	-	-	-	-
Big skate	-	3	-	-	-	-	-
Bering skate	-	314	-	-	-	-	-
Longnose skate	-	461	-	-	-	-	-
Black skate	-	141	-	-	-	-	-
Arrowtooth flounder	247	247	-	23	-	-	-
Slender sole	-	35	-	-	-	-	-
Dover sole	1,628	1,628	-	-	-	-	-
Threadfin slickhead	-	46	-	-	-	-	-
Sablefish	1,395	1,395	1,176	-	-	-	-
Pacific grenadier	861	861	-	-	-	-	-
Giant grenadier	-	287	-	-	-	-	-
Pacific flatnose	-	186	-	-	-	-	-
Lingcod	-	-	-	-	25	-	-
Pacific hake	-	-	-	-	-	1,119	-
Shortspine thornyhead	1,938	1,938	-	234	-	-	-
Longspine thornyhead	1,513	1,513	-	79	-	-	-
Silvergray rockfish	-	-	-	-	1	-	-
Greenstriped rockfish	-	-	-	-	25	-	-
Widow rockfish	-	-	-	-	25	-	-
Shortbelly rockfish	-	-	-	-	4	-	-
Blackgill rockfish	128	128	-	-	1	-	-
Bocaccio	9	9	-	-	9	-	-
Canary rockfish	-	-	-	-	1	-	-
Redstripe rockfish	-	-	-	-	25	-	-
Redbanded rockfish	-	-	-	-	1	-	-
Sharpchin rockfish	-	-	-	-	25	-	-
True Tanner crab	-	-	-	-	-	-	248

Table 4.--Frequency of occurrence, depth, and latitude ranges for fish species caught during the 1999 West Coast upper continental slope bottom trawl survey.

Family and Scientific Name ^a	Common Name ^a	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) ^e	
			Min.	Max.	Mean	South	North
Myxinidae							
<i>Eptatretus</i> sp.	Hagfish unidentified	116	196	1,268	821	3429	4805
<i>Eptatretus deani</i>	Black hagfish	20	300	1,161	800	3430	4805
<i>Eptatretus stouti</i>	Pacific hagfish	1	454	454	454	4806	4806
Petromyzontidae							
<i>Lampetra tridentata</i>	Pacific lamprey	5	276	922	530	3552	4550
Chimeridae							
<i>Hydrolagus colliei</i>	Spotted ratfish	42	189	526	295	3432	4807
Scyliorhinidae							
<i>Apristurus brunneus</i>	Brown cat shark	152	189	1,268	693	3429	4807
<i>Parmaturus xaniurus</i>	Filetail cat shark	18	196	906	483	3429	3808
<i>Apristurus kampae</i> ^b	Longnose cat shark	25	242	1,268	961	3459	4617
Carcharinidae							
<i>Galeorhinus galeus</i>	Soupfin shark						
Squalidae							
<i>Squalus acanthias</i>	Spiny dogfish	56	189	1,161	425	3502	4807
<i>Somniosus pacificus</i>	Pacific sleeper shark	1	1034	1,034	1,034	4647	4647
Rajidae							
<i>Bathyraja abyssicola</i> ^b	Deepsea skate	12	971	1,268	1,150	3432	4458
<i>Bathyraja aleutica</i>	Aleutian skate	1	428	428	428	4210	4210
<i>Bathyraja interrupta</i>	Bering skate	70	189	832	373	3430	4807
<i>Bathyraja trachura</i>	Black skate	76	250	1,400	956	3431	4805
<i>Raja binocolata</i>	Big skate	2	198	242	220	4027	4207
<i>Raja rhina</i>	Longnose skate	87	189	1,066	425	3429	4807
Torpedinidae							
<i>Torpedo californica</i>	Pacific electric ray	6	190	906	441	3502	3648
Nemichthyidae							
<i>Avocettina infans</i> ^b	Blackline snipe eel	1	1161	1,161	1,161	4736	4736
<i>Avocettina</i> sp.		1	789	789	789	4746	4746
Nemichthyidae	Snipe eel unident.	13	750	1,237	1,046	3643	4548
<i>Nemichthys scolopaceus</i>	Slender snipe eel	8	339	1,125	833	3715	4746
Serrivomeridae^b							
<i>Serrivomer sector</i>	Sawtooth eel	11	871	1,268	1,099	3459	4026
Saccopharyngidae^b							
<i>Saccopharynx</i> sp.		1	971	971	971	3457	3457
Clupeidae							
<i>Alosa sapidissima</i>	American shad	3	190	300	228	3648	4750
Argentinidae							
<i>Argentina sialis</i>	Pacific argentine	7	190	1,072	333	3432	4209
Bathylagidae							
<i>Bathylagidae</i> unident.	Deepsea smelt unident.	45	496	1,239	921	3432	4521
<i>Bathylagus</i> sp.	Blacksmelt unident.	88	481	1,400	923	3429	4807
<i>Bathylagus ochotensis</i>	Popeye blacksmelt	1	1140	1,140	1,140	4619	4619
<i>Leuroglossus</i> sp.		7	486	1,177	660	3429	4331
<i>Leuroglossus schmidti</i>	Northern smoothtongue	2	569	1,116	843	3526	4716
<i>Leuroglossus stilbius</i>	California smoothtongue	1	596	596	596	3500	3500

Table 4.--Continued.

Family and Scientific Name ^a	Common Name ^a	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) ^e	
			Min.	Max.	Mean	South	North
Opisthoproctidae^b							
<i>Dolichopteryx</i> sp.		5	196	1,237	737	3525	4547
<i>Macropinna microstoma</i>	Barreleye						
Osmeridae							
<i>Thaleichthys pacificus</i>	Eulachon	2	242	339	291	4207	4617
Salmonidae							
<i>Oncorhynchus tshawytscha</i>	Chinook salmon	9	189	460	282	3930	4405
Alepocephalidae^b							
<i>Alepocephalus tenebrosus</i>	California slickhead	124	526	1,268	923	3429	4807
<i>Talismania bifurcata</i>	Threadfin slickhead	75	589	1,198	869	3431	4807
Searsiidae^b							
<i>Sagamichthys abei</i>	Shining tubeshoulder	26	570	1,400	897	3433	4647
Sternoptychidae							
<i>Argyropelecus lychnus</i>	Tropical hatchetfish	1	1047	1,047	1,047	3431	3431
<i>Argyropelecus</i> sp.		3	434	1,066	824	3457	3715
<i>Sternoptyx diaphana</i>	Longspine hatchetfish	6	788	1,268	1,030	3432	4617
<i>Sternoptyx</i> sp.		5	592	1,167	880	3457	4432
<i>Sternoptychidae</i> unident.	Hatchetfish unident.	2	799	1,268	1,034	3459	3708
Gonostomatidae							
<i>Cyclothone</i> sp. ^b		3	934	1,214	1,063	3547	4643
Stomiidae							
<i>Aristostomias scintillans</i>	Shining loosejaw	27	471	1,268	874	3429	4716
<i>Bathophilus flemingi</i>	Highfin dragonfish	1	592	592	592	3429	3429
<i>Chauliodus macouni</i>	Pacific viperfish	109	212	1,400	903	3431	4807
<i>Idiacanthus antrostomus</i>	Pacific blackdragon	4	765	1,171	914	3433	4548
Melanostomiidae	Scaleless dragonfish unident.	1	1152	1,152	1,152	3623	3623
<i>Tactostoma macropus</i>	Longfin dragonfish	104	366	1,400	908	3432	4807
Scopelarchidae							
<i>Benthalbella</i> sp.		1	592	592	592	3429	3429
<i>Benthalbella dentata</i>	Northern pearleye	4	666	940	859	4053	4805
Notosudidae^b							
<i>Scopelosaurus harrayi</i>	Scaly paperbone	3	661	1,268	1,048	3459	4645
<i>Scopelosaurus</i> unident.		1	799	799	799	3708	3708
Paralepididae							
<i>Notolepsis risso</i>	Ribbon barracudina	4	489	765	598	3503	4521
Alepisauridae							
<i>Alepisaurus ferox</i>	Longnose lancetfish	2	788	1,186	987	3954	4422
Myctophidae							
<i>Diaphus</i> sp.		1	1400	1,400	1,400	4537	4537
<i>Diaphus theta</i>	California headlightfish	1	1140	1,140	1,140	4619	4619
<i>Lampanyctus jordani^b</i>	Brokenline lampfish	2	813	955	884	3432	4738
<i>Lampanyctus regalis</i>	Pinpoint lampfish	2	1116	1,140	1,128	4619	4716
<i>Lampanyctus ritteri^d</i>	Broadfin lanternfish	1	465	465	465	3648	3648
<i>Lampanyctus</i> sp.		98	479	1,400	920	3431	4807
Myctophidae	Lanternfish unident.	102	212	1,268	799	3429	4805
<i>Stenobranchius leucopsarus</i>	Northern lampfish	1	1140	1,140	1,140	4619	4619
<i>Stenobranchius nannochir</i>	Garnet lampfish	1	366	366	366	3957	3957
<i>Stenobranchius</i> sp.		17	489	1,239	896	3431	4117
<i>Symbolophorus californiensis^b</i>	California lanternfish	1	922	922	922	4550	4550
<i>Tarletonbeania crenularis</i>	Blue lanternfish	7	460	1,198	759	3453	4550
<i>Tarletonbeania</i> sp.		16	198	1,177	723	3433	4805

Table 4.--Continued.

Family and Scientific Name ^a	Common Name ^a	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) ^e	
			Min.	Max.	Mean	South	North
Moridae							
<i>Antimora microlepis</i>	Pacific flatnose	138	250	1,400	898	3431	4807
<i>Halagyreus johnsoni</i> ^c		1	1152	1,152	1,152	3623	3623
Gadidae							
<i>Merluccius productus</i>	Pacific hake	126	189	1,400	562	3429	4807
<i>Microgadus proximus</i>	Pacific tomcod	1	276	276	276	4146	4146
<i>Gadus macrocephalus</i>	Pacific cod	3	193	250	218	4642	4807
<i>Theragra chalcogramma</i>	Walleye pollock	1	211	211	211	4807	4807
Macrouridae							
<i>Albatrossia pectoralis</i>	Giant grenadier	133	250	1,400	911	3431	4807
<i>Coryphaenoides acrolepis</i> ^b	Pacific grenadier	124	250	1,400	934	3431	4807
<i>Coryphaenoides cinereus</i>	Popeye grenadier	10	619	1,400	994	3951	4807
<i>Nezumia liolepis</i>	Smooth grenadier	8	788	1,047	900	3431	3708
<i>Nezumia stelgidolepis</i>	California grenadier	13	418	636	515	3430	4714
Ophidiidae							
<i>Chilara taylora</i>	Spotted cusk-eel	11	196	636	309	3429	4048
<i>Dicrolene filamentosa</i>	Threadfin cusk-eel						
<i>Lamprogrammus niger</i> ^b	Paperbone cusk-eel	3	497	920	700	3929	3929
Ophidiidae	Cusk-eel unident.	1	592	592	592	3429	3429
<i>Ophidion scrippsae</i>	Basketweave cusk-eel	1	832	832	832	4240	4240
Batrachoididae							
<i>Porichthys notatus</i>	Plainfin midshipman	1	214	214	214	3806	3806
Oneirodidae^c							
<i>Oneirodes</i> sp.		5	677	1,400	1,109	3646	4800
Oneirodidae	Dreamer unident.	2	1044	1,090	1,067	3622	4334
Melanocetidae^c							
<i>Melanocetus johnsonii</i>	Common blackdevil	4	789	1,072	923	4209	4805
Scomberesocidae							
<i>Cololabis saira</i>	Pacific saury	2	212	250	231	4048	4738
Trachipteridae							
<i>Trachipterus altivelis</i>	King-of-the-salmon	3	526	942	717	3454	3645
Anoplogastridae^b							
<i>Anoplogaster cornuta</i>	Fangtooth	19	799	1,239	1,021	3431	4427
Melamphidae^b							
<i>Melamphaes lugubris</i>	Highsnout bigscale	2	1078	1,116	1,097	4716	4805
Melamphidae	Bigscale unident.	11	592	1,239	987	3429	4552
<i>Poromitra crassiceps</i>	Crested bigscale	6	922	1,167	1,026	4209	4643
Scorpaenidae							
<i>Sebastolobus alascanus</i>	Shortspine thornyhead	196	189	1,400	743	3429	4807
<i>Sebastolobus altivelis</i>	Longspine thornyhead	152	250	1,400	865	3429	4807
<i>Sebastes aleutianus</i>	Rougheye rockfish	11	296	466	369	4306	4806
<i>Sebastes alutus</i>	Pacific ocean perch	21	211	466	346	3957	4807
<i>Sebastes aurora</i>	Aurora rockfish	44	189	597	420	3430	4806
<i>Sebastes babcocki</i>	Redbanded rockfish	23	193	1,055	349	3526	4807
<i>Sebastes borealis</i>	Shorthead rockfish	5	315	481	436	4711	4806
<i>Sebastes brevispinis</i>	Silvergray rockfish	4	211	366	287	3957	4807
<i>Sebastes chlorostictus</i>	Greenspotted rockfish	5	196	252	212	3432	4027
<i>Sebastes crameri</i>	Darkblotched rockfish	32	197	485	329	3833	4807
<i>Sebastes diploproa</i>	Splitnose rockfish	43	193	569	318	3432	4807
<i>Sebastes elongatus</i>	Greenstriped rockfish	16	189	257	215	3432	4807
<i>Sebastes entomelas</i>	Widow rockfish	17	193	765	292	3902	4807

Table 4.--Continued.

Family and Scientific Name ^a	Common Name ^a	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm) ^e	
			Min.	Max.	Mean	South	North
Scorpaenidae (continued)							
<i>Sebastes flavidus</i>	Yellowtail rockfish	3	190	388	257	3648	4642
<i>Sebastes goodei</i>	Chilipepper	11	190	291	221	3432	4207
<i>Sebastes helvomaculatus</i>	Rosethorn rockfish	11	193	454	287	3620	4807
<i>Sebastes jordani</i>	Shortbelly rockfish	15	190	392	254	3432	4547
<i>Sebastes levis</i>	Cowcod	4	190	252	214	3432	3836
<i>Sebastes melanostomus</i>	Blackgill rockfish	15	242	659	442	3430	4207
<i>Sebastes paucispinis</i>	Bocaccio	7	190	252	218	3432	4240
<i>Sebastes pinniger</i>	Canary rockfish	5	190	315	222	3648	4711
<i>Sebastes proriger</i>	Redstripe rockfish	10	189	356	236	4027	4807
<i>Sebastes reedi</i>	Yellowmouth rockfish	2	257	356	307	4405	4454
<i>Sebastes rufus</i>	Bank rockfish	4	333	418	357	3552	3958
<i>Sebastes saxicola</i>	Stripetail rockfish	21	189	356	240	3432	4642
<i>Sebastes</i> sp.	Rockfish unident.	2	250	847	549	4455	4547
<i>Sebastes wilsoni</i>	Pygmy rockfish	2	189	242	216	4207	4307
<i>Sebastes zacentrus</i>	Sharpchin rockfish	22	193	454	266	3714	4807
Anoplopomatidae							
<i>Anoplopoma fimbria</i>	Sablefish	199	190	1,400	727	3429	4807
Hexagrammidae							
<i>Hexagrammos decagrammus</i>	Kelp greenling	1	242	242	242	4207	4207
<i>Ophiodon elongatus</i>	Lingcod	18	190	408	254	3432	4738
Cottidae							
<i>Icelinus filamentosus</i>	Threadfin sculpin	11	197	1,161	359	3836	4738
<i>Icelinus oculatus</i>	Frogmouth sculpin	2	209	257	233	3836	4454
<i>Malacocottus zonurus</i>	Darkfin sculpin	1	257	257	257	4454	4454
<i>Paricelinus hopliticus</i>	Thornback sculpin	1	198	198	198	4027	4027
<i>Psychrolutes phrictus</i>	Blob sculpin	11	1045	1,400	1,168	3459	4619
<i>Radulinus asprellus</i>	Slim sculpin	4	211	242	223	4048	4807
Agonidae							
<i>Bathyagonus nigripinnis</i>	Blackfin poacher	6	466	813	636	4334	4751
<i>Bathyagonus pentacanthus</i>	Bigeye poacher	9	193	454	303	4048	4806
<i>Bathyagonus</i> sp.	Starsnout poacher unident.	6	189	589	300	4115	4426
<i>Xeneretmus latifrons</i>	Blacktip poacher	10	197	418	260	3432	4711
<i>Xeneretmus leiops</i>	Smootheye poacher	2	257	408	333	3833	4454
Cyclopteridae							
<i>Careproctus colletti</i>	Alaska snailfish	14	813	1,400	1,135	3842	4800
<i>Careproctus cypselurus</i>	Blackfin snailfish	4	817	1,400	1,036	3929	4800
<i>Careproctus gilberti</i>	Smalldisk snailfish	1	339	339	339	4617	4617
<i>Careproctus melanurus</i>	Blacktail snailfish	99	197	1,237	623	3429	4807
<i>Careproctus</i> sp.		42	334	1,239	796	3429	4738
Liparidinae	Snailfish unident.						
<i>Liparis</i> sp.		1	1040	1,040	1,040	3547	3547
<i>Paraliparus rosaceus</i>		2	1034	1,198	1,116	4647	4807
<i>Paraliparus</i> sp.		3	1047	1,211	1,148	3431	4051
Carangidae							
<i>Trachurus symmetricus</i>	Jack mackerel	7	193	563	350	4521	4807
Embiotocidae							
<i>Cymatogaster aggregata</i>	Shiner perch	1	212	212	212	4048	4048
Bathymasteridae							
<i>Ronquilus jordani</i>	Northern ronquil	1	683	683	683	3454	3454

Table 4.--Continued.

Family and Scientific Name ^a	Common Name ^a	Frequency of Occurrence	Depth (m)			Latitude Range (dmm) ^e	
			Min.	Max.	Mean	South	North
Zoarcidae							
<i>Bothrocara brunneum</i>	Twoline eelpout	119	466	1,268	874	3429	4807
<i>Bothrocara remigerum</i>	Longfin eelpout	2	1186	1,400	1,293	4458	4537
<i>Embryx crotalinus</i>	Snakehead eelpout	79	583	1,268	932	3431	4807
<i>Lycenchelys camchatica</i>	Kamchatka eelpout	1	611	611	611	4051	4051
<i>Lycodes cortezianus</i>	Bigfin eelpout	76	189	636	386	3430	4807
<i>Lycodes diapterus</i>	Black eelpout	53	300	983	548	3430	4760
<i>Lycodes pacificus</i>	Blackbelly eelpout	6	198	346	272	3432	4738
<i>Lycodapus fierasfer</i>	Blackmouth eelpout	11	336	1,400	987	3526	4807
<i>Lycodapus mandibularis</i>	Pallid eelpout	2	800	1,237	1,019	3433	4025
<i>Lycodapus</i> sp.		3	300	1,090	691	3454	4750
<i>Melanostigma pammelas</i>	Midwater eelpout	1	1090	1,090	1,090	3622	3622
Zoarcidae	Eelpout unident.	2	526	569	548	3526	3552
Chiasmodontidae^b							
Chiasmodontidae	Swallowers						
<i>Chiasmodon niger</i>		2	1040	1,090	1,065	3547	3622
<i>Pseudoscopelus</i> sp.							
Icosteidae							
<i>Icosteus aenigmaticus</i>	Ragfish	4	432	1,214	851	3527	4426
Trichiuridae							
<i>Benthodesmus</i> sp.		3	822	1,116	923	3929	4240
Centrolophidae							
<i>Icichthys lockingtoni</i>	Medusafish	13	468	1,133	877	3429	4544
Bothidae							
<i>Citharichthys sordidus</i>	Pacific sanddab	7	189	227	201	3502	4307
Pleuronectidae							
<i>Atheresthes stomias</i>	Arrowtooth flounder	43	189	589	359	4026	4807
<i>Embassichthys bathybius</i>	Deepsea sole	126	418	1,400	920	3431	4807
<i>Eopsetta exilis</i>	Slender sole	61	189	500	336	3432	4807
<i>Eopsetta jordani</i>	Petrable sole	38	189	465	286	3432	4807
<i>Glyptocephalus zachirus</i>	Rex sole	82	189	750	391	3430	4807
<i>Hippoglossoides elassodon</i>	Flathead sole	1	339	339	339	4617	4617
<i>Hippoglossus stenolepis</i>	Pacific halibut	6	257	481	393	4454	4806
<i>Microstomus pacificus</i>	Dover sole	170	189	1,268	650	3429	4807
<i>Parophrys vetulus</i>	English sole	28	189	408	255	3432	4807
<i>Pleuronichthys decurrens</i>	Curlfin sole	3	190	214	200	3648	3806
Molidae							
<i>Mola mola</i>	Ocean sunfish						

^a Nomenclature from Robins (1990) unless otherwise noted.

^b Nomenclature from Eschmeyer and Herald (1983).

^c Nomenclature from Nelson (1984).

^d Nomenclature from Hart (1973).

^e 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
Porifera							
	Porifera unident.	18	198	1,185	629	3457	4806
	<i>Aphrocallistes vastus</i>	36	296	1,268	647	3457	4806
	Hexactinellida unident.	4	418	1,185	822	3619	4743
	<i>Hylonema</i> sp.	10	661	1,186	1,014	4458	4741
Cnidaria							
Scyphozoa							
	<i>Chrysaora melanaster</i>	31	196	1,216	869	3524	4736
	<i>Cyanea capillata</i>	1	1,116	1,116	1,116	4716	4716
	<i>Periphylla periphylla</i>	19	212	1,167	741	3432	4805
	<i>Periphylla</i> sp.	25	468	1,177	872	3432	4760
	<i>Phacellophora camtchatica</i>	2	661	1,116	889	4645	4716
	Scyphozoa unident.	40	197	1,239	817	3431	4806
Anthozoa							
	<i>Actinauge verrillii</i>	43	297	1,400	851	3457	4806
	<i>Actinernus</i> sp.	7	257	1,115	766	3432	4454
	Actiniaria unident.	35	300	1,268	817	3431	4806
	Actinostolidae unident.	92	257	1,400	840	3429	4805
	<i>Actinostola</i> sp.	33	315	1,200	828	4117	4807
	<i>Anthomastus</i> sp.	10	257	1,237	564	3457	4617
	<i>Antipathes</i> sp.	9	651	1,400	1,048	4357	4736
	<i>Bathypathes</i> sp.	8	250	1,198	800	4458	4807
	<i>Calciogorgia</i> sp.	2	471	1,400	936	4306	4800
	<i>Corallimorphus</i> sp.	4	257	1,088	634	3708	4454
	<i>Euplexaura marki</i>	2	1,088	1,200	1,144	3903	4145
	Gorgonacea unident.	2	1,185	1,400	1,293	4537	4648
	Hormathiidae unident.	38	206	1,400	675	3429	4807
	<i>Liponema brevicorne</i>	99	189	1,400	675	3429	4807
	<i>Metridium giganteum</i>	10	212	460	303	3526	4617
	<i>Metridium</i> sp.	6	198	485	295	3432	4027
	<i>Paractinostola faeculenta</i>	182	250	1,400	770	3429	4807
	<i>Parantipathes</i> sp.	1	1,120	1,120	1,120	4520	4520
	<i>Paraphelliactis pabista</i>	1	471	471	471	3430	3430
	Pennatulacea unident.	31	389	1,239	878	3431	4746
	<i>Ptilosarcus gurneyi</i>	2	206	922	564	3714	4550
	<i>Stylatula</i> sp.	86	206	1,400	826	3429	4806
	<i>Stomphia</i> sp.	3	198	764	390	3502	3838
	<i>Stomphia coccinea</i>	5	198	471	318	4027	4330
	<i>Swiftia</i> sp.	5	465	1,400	1,013	4647	4800
	<i>Urticina coriacea</i>	2	212	227	220	4048	4115
	<i>Urtinca crassicornis</i>	1	212	212	212	4048	4048
	<i>Umbellula</i> sp.	29	427	1,214	913	3500	4805
	<i>Virgularia</i> sp.	8	400	1,161	875	4643	4741
	Virgularidae unident.	2	558	1,400	979	4305	4537
Ctenophora							
	<i>Beroe</i> sp.	10	190	1,118	479	3648	4426
	Ctenophora unident.	4	592	1,198	889	3524	3646

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
Platyhelminthes	Platyhelminthes unident.	1	242	242	242	4207	4207
Nemertea	Nemertea unident.	1	1,098	1,098	1,098	4358	4358
Annelida							
Polychaeta	Aphroditidae unident.	61	189	1,400	608	3429	4807
	<i>Aphrodita</i> sp.	3	300	1,078	772	4735	4805
	Polychaeta unident.	15	198	1,237	721	3433	4712
Sipuncula	Sipuncula unident.	2	356	485	421	4026	4405
Arthropoda							
Cirripedia	Thoracica unident.	4	198	947	756	3502	4517
Malacostraca							
	<i>Acanthephyra</i> sp.	1	940	940	940	4053	4053
	<i>Acanthephyra curtirostris</i>	3	1,149	1,400	1,234	4117	4800
	<i>Callianassa</i> sp.	3	336	1,185	732	3526	4748
	<i>Cancer magister</i>	10	189	832	342	3714	4738
	<i>Cancer productus</i>	3	190	224	203	3648	3930
	<i>Chionoecetes angulatus</i>	4	830	1,400	1,177	4521	4805
	<i>Chionoecetes tanneri</i>	152	214	1,400	836	3429	4807
	<i>Chorilia longipes</i>	28	196	1,130	651	3453	4738
	<i>Crangon communis</i>	9	189	428	290	4048	4750
	<i>Crangon</i> sp.	1	198	198	198	3502	3502
	<i>Eualus macrophthalmus</i>	14	400	1,149	717	4051	4806
	<i>Eualus</i> sp.	19	356	1,186	776	3433	4737
	<i>Gnathophausia ingens</i>	20	471	1,268	981	3430	4648
	<i>Hyas lyratus</i>	10	418	1,268	879	3430	3646
	Isopoda unident.	10	190	1,268	900	3459	4645
	<i>Lithodes couesi</i>	20	661	1,186	929	3622	4805
	<i>Lopholithodes foraminatus</i>	12	189	983	326	3526	4738
	<i>Munida quadrispina</i>	5	198	1,115	514	3432	4746
	<i>Mursia gaudichaudii</i>	4	190	214	202	3648	3806
	<i>Neolithodes diomedea</i>	3	1,216	1,268	1,241	3459	3713
	<i>Neotypaera giga</i>	1	432	432	432	3527	3527
	<i>Notostomus japonicus</i>	9	731	1,400	1,026	3713	4800
	Paguridae unident.	6	291	1,216	661	3429	4023
	<i>Paguristes turgidus</i>	1	300	300	300	4750	4750
	<i>Pagurus aleuticus</i>	2	300	388	344	4617	4750
	<i>Pagurus capillatus</i>	3	212	460	300	4048	4118
	<i>Pagurus kennerlyi</i>	1	388	388	388	4617	4617
	<i>Pagurus</i> sp.	70	198	1,400	719	3432	4800
	<i>Pagurus tanneri</i>	35	212	1,237	641	3929	4737
	Pandalidae unident.	3	663	1,200	893	3552	4145
	<i>Pandalopsis ampla</i>	15	1,040	1,400	1,159	3431	4800
	<i>Pandalopsis dispar</i>	2	242	334	288	4207	4330
	<i>Pandalus jordani</i>	8	189	276	225	3502	4807
	<i>Pandalus platyceros</i>	11	193	408	266	3502	4750
	<i>Pandalus</i> sp.	3	212	650	441	4048	4211
	<i>Pandalus tridens</i>	2	257	454	356	4454	4806
	<i>Paralithodes californiensis</i>	4	190	252	209	3432	3648

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
Malacostraca (continued)							
	<i>Paralithodes rathbuni</i>	5	190	336	237	3432	3836
	<i>Paralomis multispina</i>	37	333	1,400	1,119	3431	4800
	<i>Paralomis verrilli</i>	3	1,177	1,237	1,210	3549	4025
	<i>Pasiphaea pacifica</i>	32	212	827	509	3429	4760
	<i>Pasiphaea tarda</i>	114	366	1,400	917	3429	4805
	<i>Pasiphaeidae</i> unident.	2	596	696	646	3500	3714
	<i>Sclerocrangon sculptus</i>	1	980	980	980	4712	4712
	<i>Stereomastus sculpta</i>	17	788	1,198	1,059	3432	4358
Pycnogonida							
	<i>Pycnogonida</i> unident.	1	1,040	1,040	1,040	3547	3547
Brachipoda							
Inarticulata							
	<i>Brachiopod</i> unident.	2	379	387	383	4428	4500
	<i>Laqueus californianus</i>	3	209	465	330	3836	4714
Mollusca							
Aplacophora							
	<i>Aplacophora</i> unident.	6	335	827	645	3454	4458
	<i>Neomenia</i> sp.	29	212	1,115	661	3432	4806
Gastropoda							
	<i>Antiplanes</i> sp.	5	411	1,149	861	3808	4307
	<i>Bathybembix bairdii</i>	105	378	1,400	883	3429	4807
	<i>Bivalvia</i> unident.	5	463	1,237	998	3432	4358
	<i>Buccinum oedematum</i>	1	922	922	922	4550	4550
	<i>Buccinum</i> sp.	2	339	1,072	706	4209	4617
	<i>Buccinum strigillatum</i>	13	212	1,055	542	3646	4523
	<i>Buccinum viridum</i>	64	250	1,268	957	3431	4807
	<i>Calinaticina oldroyi</i>	5	189	291	228	3502	4307
	<i>Calliostoma platinum</i>	5	379	871	649	3454	4428
	<i>Colus aphelus</i>	9	918	1,152	1,077	3547	4647
	<i>Colus</i> sp.	7	434	1,216	870	3549	4145
	<i>Colus tahwitanus</i>	3	465	1,149	896	3648	4117
	<i>Colus trophius</i>	3	300	1,268	882	3459	4805
	<i>Fusitriton oregonensis</i>	9	257	481	398	4049	4806
	<i>Gastropod</i> unident.	4	198	955	594	3432	4405
	<i>Heteropoda</i> unident.	11	333	1,133	751	3429	4614
	<i>Natica</i> sp.	2	1,152	1,237	1,195	4025	4117
	<i>Neptunea amianta</i>	146	315	1,400	858	3429	4807
	<i>Neptunea ithia</i>	1	366	366	366	3957	3957
	<i>Neptunea lyrata</i>	3	392	597	491	4023	4405
	<i>Neptunea pribiloffensis</i>	36	356	1,198	620	3901	4807
	<i>Neptunea</i> sp.	10	212	597	419	3619	4405
	<i>Neptunea tabulata</i>	2	252	276	264	3432	4146
	<i>Nudibranchia</i> unident.	15	189	1,186	687	3429	4735
	<i>Pleurobranchaea californica</i>	16	189	418	258	3432	4307
	<i>Plicifusus griseus</i>	7	659	940	828	3621	4427
	<i>Plicifusus</i> sp.	1	454	454	454	4806	4806
	<i>Polinices pallidus</i>	2	463	1,034	749	4049	4647
	<i>Polinices</i> sp.	5	189	1,098	699	3713	4358
	<i>Solariella nuda</i>	4	486	830	647	3454	4521
	<i>Tritonia diomedea</i>	36	189	1,400	893	3620	4805
	<i>Tritonia</i> sp.	20	211	1,186	803	3500	4807

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
Bivalvia							
	<i>Acharax johnsoni</i>	6	844	1,237	1,105	4025	4358
	<i>Delectopecten vancouverensis</i>	8	418	1,140	902	3547	4741
	Pectinid unident.	1	955	955	955	3432	3432
	<i>Yoldia</i> sp.	1	339	339	339	4617	4617
Cephalopoda							
	<i>Benthoctopus</i> sp.	19	242	1,400	818	3431	4800
	<i>Berryteuthis magister</i>	29	209	1,268	777	3454	4736
	Cephalopoda unident.	14	209	1,400	777	3429	4716
	<i>Chiroteuthis</i> sp.	21	214	1,239	892	3526	4807
	<i>Chiroteuthis calyx</i>	8	197	1,198	863	3524	4521
	<i>Cranchia scabra</i>	5	799	1,198	974	3432	3904
	<i>Galiteuthis phyllura</i>	2	588	844	716	4145	4145
	<i>Gonatus onyx</i>	17	526	1,177	793	3547	4614
	<i>Gonatus</i> sp.	2	798	1,198	998	3524	4644
	<i>Grimpoteuthis albatrossi</i>	8	583	1,211	755	4051	4240
	<i>Histioteuthis dofleini</i>	19	356	1,268	739	3430	4805
	<i>Histioteuthis heteropsis</i>	1	583	583	583	4117	4117
	<i>Histioteuthis</i> sp.	14	366	663	504	3500	4547
	<i>Loligo opalescens</i>	25	190	1,268	669	3432	4548
	<i>Moroteuthis robusta</i>	4	411	1,161	605	3619	4736
	<i>Octopoteuthis deletron</i>	19	498	1,400	926	3646	4537
	<i>Octopus californicus</i>	6	214	1,152	502	3430	4117
	<i>Octopus dofleini</i>	14	366	813	502	3713	4738
	<i>Octopus leioderma</i>	26	189	1,167	589	3552	4805
	<i>Octopus</i> sp.	23	190	1,400	714	3432	4807
	Onychoteuthidae unident.	1	227	227	227	4115	4115
	<i>Onychoteuthis borealijaponicus</i>	3	198	906	512	3525	4027
	<i>Opisthoteuthis californiana</i>	45	335	1,216	742	3429	4806
	<i>Rossia pacifica</i>	5	189	252	216	3432	4307
	<i>Taningia danae</i>	48	418	1,268	869	3429	4807
	Taoniinae unident.	1	1,149	1,149	1,149	4117	4117
	<i>Taonius pavo</i>	1	844	844	844	4145	4145
	<i>Vampyroteuthis infernalis</i>	81	197	1,400	949	3431	4805
Scaphopoda							
	Scaphopoda unident.	3	339	471	407	3430	4617
Echinodermata							
Crinoidea							
	Crinoid unident.	4	651	1,130	938	4647	4741
Asteroidea							
	<i>Ampheraster marianus</i>	35	378	1,120	733	3454	4806
	<i>Ampheraster</i> sp.	2	418	696	557	3619	3714
	Asteroidea unident.	9	434	1,400	722	3429	4748
	<i>Astropecten californicus</i>	1	206	206	206	3714	3714
	<i>Brisingella exilis</i>	5	611	774	697	4051	4458
	<i>Brisingella</i> sp.	7	556	906	679	3525	4432
	<i>Ceramaster leptoceramus</i>	8	190	865	656	3453	3958
	<i>Ceramaster patagonicus</i>	2	250	871	561	3549	4738
	<i>Crossaster borealis</i>	124	189	1,400	875	3429	4807
	<i>Crossaster papposus</i>	4	198	465	307	3648	4738
	<i>Cryptopeltaster lepidonotus</i>	3	418	1,177	674	3500	3643
	<i>Ctenodiscus crispatus</i>	13	193	1,171	505	4143	4750
	<i>Diplopteraster multipes</i>	6	257	1,239	631	3713	4806

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
Asteroidea (continued)							
	<i>Dipsacaster anoplus</i>	2	592	865	729	3453	3619
	<i>Dipsacaster</i> sp.	26	291	1,216	869	3431	4648
	<i>Henricia aspera</i>	1	696	696	696	3714	3714
	<i>Henricia leviuscula</i>	5	198	983	681	4026	4805
	<i>Henricia</i> sp.	4	387	1,140	733	4500	4736
	<i>Heterozonias alternatus</i>	149	193	1,400	841	3431	4807
	<i>Hippasteria californica</i>	109	196	1,400	819	3453	4807
	<i>Hippasteria</i> sp.	1	343	343	343	3552	3552
	<i>Hippasteria spinosa</i>	31	198	1,400	738	3432	4807
	<i>Leptychaster pacificus</i>	1	1,098	1,098	1,098	4358	4358
	<i>Lophaster furcilliger</i>	42	214	1,400	990	3459	4806
	<i>Luidia foliolata</i>	37	189	1,186	353	3648	4807
	<i>Luidiaster dawsoni</i>	7	250	427	363	3500	4711
	<i>Mediaster aequalis</i>	9	190	764	364	3620	4643
	<i>Mediaster</i> sp.	2	343	1,171	757	3552	4548
	<i>Mediaster tenellus</i>	3	427	764	552	3500	3838
	<i>Myoxoderma platyacanthum</i>	45	189	1,098	589	3453	4617
	<i>Myoxoderma sacculatum</i>	64	214	1,268	969	3431	4736
	<i>Nearchaster aciculosus</i>	52	563	1,237	959	3453	4807
	<i>Nearchaster</i> sp.	21	481	1,200	1,025	3526	4743
	<i>Ophiacanthus</i> sp.	4	252	666	479	3432	4432
	<i>Orthasterias koehleri</i>	2	198	983	591	4026	4027
	<i>Poraniopsis inflata</i>	7	257	1,032	712	3457	4805
	<i>Pseudarchaster dissonus</i>	5	336	1,268	593	3459	3833
	<i>Pseudarchaster parelii</i>	33	189	1,177	528	3431	4806
	<i>Pseudarchaster parelii alascensis</i>	13	251	1,214	645	3547	4521
	<i>Pseudarchaster pussillus</i>	3	297	1,268	892	3459	4523
	<i>Pseudarchaster</i> sp.	4	411	1,216	845	3432	3808
	<i>Pteraster coscinopeplus</i>	36	315	1,400	789	3524	4800
	<i>Pteraster militaris</i>	2	789	1,198	994	3524	4746
	<i>Pteraster</i> sp.	7	683	1,400	1,057	3454	4741
	<i>Pteraster tessellatus</i>	7	250	1,400	542	3714	4806
	<i>Pycnopodia helianthoides</i>	3	198	774	395	4027	4116
	<i>Rathbunaster californicus</i>	32	190	983	389	3457	4807
	<i>Solaster paxillatus</i>	2	315	400	358	4643	4711
	<i>Solaster</i> sp.	7	663	1,268	1,033	3431	3552
	<i>Stylasterias forreri</i>	17	193	1,098	509	3432	4806
	<i>Thrissacanthias penicillatus</i>	146	193	1,400	825	3429	4807
	<i>Zoraster evermanni</i>	90	250	1,400	868	3431	4807
Echinoidea							
	<i>Allocentrotus fragilis</i>	86	189	1,066	475	3432	4807
	<i>Allocentrotus</i> sp.	1	1,115	1,115	1,115	3432	3432
	<i>Brisaster latifrons</i>	61	189	1,237	593	3429	4807
	<i>Brisaster</i> sp.	5	198	592	376	3432	3902
	Echinoidea unident.	2	418	800	609	3433	3619
Ophiuroidea							
	<i>Amphiophiura ponderosa</i>	19	378	1,118	825	3432	4760
	<i>Amphiophiura</i> sp.	2	1,118	1,216	1,167	3549	3904
	<i>Asteronyx loveni</i>	35	400	1,400	852	3429	4748
	<i>Asteronyx</i> sp.	18	333	1,400	910	3552	4800
	<i>Gorgonocephalus eucnemis</i>	2	333	942	638	3620	3645

Table 5.--Continued.

Phylum and Class	Scientific Name	Frequency of Occurrence	Depth (m)			Latitude Range (ddmm)*	
			Min.	Max.	Mean	South	North
Ophiuroidea (continued)							
	<i>Ophiopholis</i> sp.	7	198	1,120	507	3457	4520
	<i>Ophiura sarsi</i>	34	189	1,189	447	3713	4751
	Ophiuroid unident.	24	212	1,198	805	3429	4807
Holothuroidea							
	<i>Holothuroidea</i> unident.	18	300	1,237	725	3429	4750
	<i>Molpadia intermedia</i>	22	189	1,237	677	3431	4807
	<i>Pannychia moseleyi</i>	59	224	1,268	826	3453	4805
	<i>Parastichopus californicus</i>	4	190	597	315	3648	4146
	<i>Parastichopus leucothele</i>	33	196	1,118	462	3432	4751
	<i>Parastichopus</i> sp.	3	206	500	332	3714	3905
	<i>Pentamera</i> sp.	1	252	252	252	3432	3432
	Pineapple cucumber	11	252	636	457	3429	3958
	<i>Pseudostichopus mollis</i>	34	193	1,400	628	3431	4807
	<i>Pseudostichopus</i> sp.	2	296	1,400	848	4458	4537
	<i>Psolus</i> sp.	7	379	1,046	541	3500	4736
	<i>Scotoplanes theeli</i>	38	942	1,400	1,135	3524	4805
Urochordata							
Ascidiacea							
	Ascidian unident.	7	257	1,130	665	3429	4741
Thaliacea							
	<i>Pyrosoma atlanticum</i>	34	190	1,268	704	3431	4115
	Thaliacea unident.	99	189	1,400	752	3429	4805
	<i>Thetys vagina</i>	95	190	1,268	728	3429	4358

* Degrees and minutes of latitude.

Table 6.--Number of length frequency measurements collected by stratum during the 1999 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	196	1,030	1,017	572	178	45
Filetail cat shark	245	157	99	0	0	0
Longnose cat shark	2	4	8	26	24	27
Spiny dogfish	1,263	677	25	10	8	1
Deepsea skate	0	0	0	0	6	19
Big skate	3	0	0	0	0	0
Bering skate	518	344	11	4	0	0
Longnose skate	644	333	43	5	1	0
Black skate	1	1	37	28	78	158
Spotted ratfish	18	59	0	0	0	0
Pacific sanddab	145	0	0	0	0	0
Arrowtooth flounder	161	279	1	0	0	0
Pacific halibut	3	12	0	0	0	0
Flathead sole	1	0	0	0	0	0
Slender sole	2,803	1,067	0	0	0	0
Petrale sole	407	17	0	0	0	0
English sole	776	5	0	0	0	0
Dover sole	2,775	3,372	1,942	1,436	584	389
Deepsea sole	0	18	126	501	556	359
Rex sole	2,661	2,487	355	2	0	0
Bigeye poacher	3	18	0	0	0	0
California slickhead	0	0	819	1,250	1,053	795
Threadfin slickhead	0	0	96	430	116	7
Sablefish	696	397	695	667	521	643
Spotted cusk-eel	8	0	0	0	0	0
Jack mackerel	37	14	1	0	0	0
California grenadier	0	12	17	0	0	0
Smooth grenadier	0	0	0	56	5	0
Pacific grenadier	0	10	664	713	2,438	3,705
Giant grenadier	0	38	388	420	750	1,523
Popeye grenadier	0	0	2	4	2	54
Threadfin sculpin	14	0	0	0	0	0
Pacific cod	7	0	0	0	0	0
Pacific flatnose	17	206	1,049	575	1,466	1,743
Lingcod	30	1	0	0	0	0
Blacktail snailfish	14	57	113	28	3	0
Pacific hake	3,688	3,699	567	97	15	20
Chinook salmon	108	1	0	0	0	0
Twoline eelpout	0	39	161	420	345	400
Snakehead eelpout	0	0	30	233	322	80
Bigfin eelpout	1,297	1,191	117	0	0	0
Black eelpout	229	680	653	73	25	0
Blackbelly eelpout	165	0	0	0	0	0
Shortspine thornyhead	1,518	3,020	1,018	430	427	339
Longspine thornyhead	42	1,424	5,467	6,051	5,525	5,374
Rougheye rockfish	13	12	0	0	0	0
Pacific ocean perch	450	112	0	0	0	0
Aurora rockfish	34	1,085	12	0	0	0
Silvergray rockfish	4	1	0	0	0	0
Greenspotted rockfish	9	0	0	0	0	0
Darkblotched rockfish	222	37	0	0	0	0
Splitnose rockfish	1,833	447	10	0	0	0
Greenstriped rockfish	412	0	0	0	0	0
Widow rockfish	88	1	0	0	0	0
Yellowtail rockfish	166	1	0	0	0	0
Chilipepper	176	0	0	0	0	0
Rosethorn rockfish	72	16	0	0	0	0
Shortbelly rockfish	359	1	0	0	0	0
Cowcod	7	0	0	0	0	0
Blackgill rockfish	21	315	3	0	0	0
Bocaccio	29	0	0	0	0	0
Canary rockfish	9	0	0	0	0	0
Redstripe rockfish	163	0	0	0	0	0
Redbanded rockfish	41	14	0	0	1	0
Stripetail rockfish	1,228	0	0	0	0	0
Pygmy rockfish	6	0	0	0	0	0
Sharpchin rockfish	577	4	0	0	0	0
Bank rockfish	18	5	0	0	0	0
Shortraker rockfish	1	7	0	0	0	0
Yellowmouth rockfish	34	0	0	0	0	0

Table 7.--Number of length frequency measurements collected by stratum during the 1999 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	41	220	198	54	16	26
Filetail cat shark	245	131	91	0	0	0
Longnose cat shark	0	0	0	0	0	1
Spiny dogfish	7	0	1	0	0	0
Deepsea skate	0	0	0	0	1	7
Bering skate	64	36	0	0	0	0
Longnose skate	303	118	14	1	0	0
Black skate	0	0	0	3	9	5
Spotted ratfish	0	11	0	0	0	0
Pacific sanddab	31	0	0	0	0	0
Slender sole	297	8	0	0	0	0
Petrable sole	10	1	0	0	0	0
English sole	38	0	0	0	0	0
Dover sole	424	678	369	239	127	33
Deepsea sole	0	0	3	79	45	9
Rex sole	239	321	0	0	0	0
California slickhead	0	0	224	233	189	174
Threadfin slickhead	0	0	7	76	59	2
Sablefish	279	109	101	153	135	27
Spotted cusk-eel	3	0	0	0	0	0
California grenadier	0	7	16	0	0	0
Smooth grenadier	0	0	0	19	4	0
Pacific grenadier	0	0	0	15	139	399
Giant grenadier	0	0	1	30	138	118
Pacific flatnose	0	0	11	61	132	236
Lingcod	3	0	0	0	0	0
Blacktail snailfish	1	0	0	4	2	0
Pacific hake	924	1,034	103	3	2	3
Twoline eelpout	0	0	7	161	118	31
Snakehead eelpout	0	0	0	21	7	3
Bigfin eelpout	233	132	6	0	0	0
Black eelpout	226	134	10	0	0	0
Blackbelly eelpout	156	0	0	0	0	0
Shortspine thornyhead	37	345	240	131	146	32
Longspine thornyhead	0	712	672	543	903	476
Aurora rockfish	23	420	7	0	0	0
Greenspotted rockfish	1	0	0	0	0	0
Splitnose rockfish	318	122	10	0	0	0
Greenstriped rockfish	1	0	0	0	0	0
Chilipepper	46	0	0	0	0	0
Shortbelly rockfish	2	0	0	0	0	0
Cowcod	1	0	0	0	0	0
Blackgill rockfish	3	92	0	0	0	0
Bocaccio	8	0	0	0	0	0
Redbanded rockfish	7	0	0	0	0	0
Stripetail rockfish	131	0	0	0	0	0
Bank rockfish	2	0	0	0	0	0

Table 8.--Number of length frequency measurements collected by stratum during the 1999 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	22	330	385	204	52	9
Filetail cat shark	0	26	8	0	0	0
Longnose cat shark	0	4	6	25	17	13
Spiny dogfish	150	41	14	0	0	0
Deepsea skate	0	0	0	0	5	10
Big skate	1	0	0	0	0	0
Bering skate	51	191	7	0	0	0
Longnose skate	120	108	18	3	1	0
Black skate	0	0	1	14	23	20
Spotted ratfish	0	48	0	0	0	0
Pacific sanddab	103	0	0	0	0	0
Arrowtooth flounder	0	2	0	0	0	0
Slender sole	536	98	0	0	0	0
Petrable sole	320	13	0	0	0	0
English sole	347	4	0	0	0	0
Dover sole	688	816	700	607	295	310
Deepsea sole	0	13	22	134	229	139
Rex sole	717	772	58	0	0	0
California slickhead	0	0	439	526	533	338
Threadfin slickhead	0	0	20	55	11	0
Sablefish	253	81	91	192	221	151
Spotted cusk-eel	5	0	0	0	0	0
California grenadier	0	5	0	0	0	0
Smooth grenadier	0	0	0	37	1	0
Pacific grenadier	0	9	29	210	668	974
Giant grenadier	0	4	28	112	204	538
Popeye grenadier	0	0	0	0	0	1
Threadfin sculpin	14	0	0	0	0	0
Pacific flatnose	0	57	253	224	443	587
Lingcod	15	1	0	0	0	0
Blacktail snailfish	1	37	83	0	0	0
Pacific hake	1,058	1,121	313	80	9	14
Chinook salmon	1	0	0	0	0	0
Twoline eelpout	0	4	73	130	132	69
Snakehead eelpout	0	0	8	54	102	50
Bigfin eelpout	173	443	71	0	0	0
Black eelpout	0	33	86	71	25	0
Shortspine thornyhead	187	289	197	176	162	165
Longspine thornyhead	0	478	945	1,499	1,190	1,405
Pacific ocean perch	1	1	0	0	0	0
Aurora rockfish	7	442	5	0	0	0
Silvergray rockfish	0	1	0	0	0	0
Greenspotted rockfish	8	0	0	0	0	0
Darkblotched rockfish	15	16	0	0	0	0
Splitnose rockfish	320	302	0	0	0	0
Greenstriped rockfish	139	0	0	0	0	0
Widow rockfish	12	0	0	0	0	0
Yellowtail rockfish	1	0	0	0	0	0
Chilipepper	124	0	0	0	0	0
Rosethorn rockfish	15	0	0	0	0	0
Shortbelly rockfish	348	0	0	0	0	0
Cowcod	6	0	0	0	0	0
Blackgill rockfish	17	223	3	0	0	0
Bocaccio	11	0	0	0	0	0
Canary rockfish	3	0	0	0	0	0
Redstripe rockfish	111	0	0	0	0	0
Redbanded rockfish	1	6	0	0	0	0
Stripetail rockfish	630	0	0	0	0	0
Sharpchin rockfish	115	0	0	0	0	0
Bank rockfish	16	5	0	0	0	0

Table 9.--Number of length frequency measurements collected by stratum during the 1999 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	50	250	237	117	25	0
Longnose cat shark	2	0	2	1	5	0
Spiny dogfish	40	10	0	1	0	0
Big skate	2	0	0	0	0	0
Bering skate	205	39	0	4	0	0
Longnose skate	97	42	6	1	0	0
Black skate	0	0	15	1	18	37
Pacific sanddab	2	0	0	0	0	0
Arrowtooth flounder	11	17	0	0	0	0
Slender sole	634	61	0	0	0	0
Petrable sole	33	0	0	0	0	0
English sole	74	0	0	0	0	0
Dover sole	429	495	358	387	80	45
Deepsea sole	0	0	10	72	72	141
Rex sole	574	462	231	2	0	0
California slickhead	0	0	106	128	100	55
Threadfin slickhead	0	0	10	19	5	2
Sablefish	9	36	54	56	69	271
Pacific grenadier	0	1	204	131	460	655
Giant grenadier	0	0	70	68	101	225
Pacific flatnose	0	33	127	138	338	252
Lingcod	5	0	0	0	0	0
Blacktail snailfish	1	12	21	7	1	0
Pacific hake	373	467	36	4	2	1
Chinook salmon	76	1	0	0	0	0
Twoline eelpout	0	9	16	9	11	11
Snakehead eelpout	0	0	8	65	94	6
Bigfin eelpout	316	156	4	0	0	0
Black eelpout	0	297	250	0	0	0
Shortspine thornyhead	218	480	40	23	13	66
Longspine thornyhead	0	55	850	1,080	904	1,218
Pacific ocean perch	0	1	0	0	0	0
Aurora rockfish	0	107	0	0	0	0
Darkblotched rockfish	33	3	0	0	0	0
Splitnose rockfish	406	0	0	0	0	0
Greenstriped rockfish	76	0	0	0	0	0
Widow rockfish	6	1	0	0	0	0
Chilipepper	6	0	0	0	0	0
Shortbelly rockfish	5	0	0	0	0	0
Blackgill rockfish	1	0	0	0	0	0
Bocaccio	10	0	0	0	0	0
Canary rockfish	1	0	0	0	0	0
Redstripe rockfish	16	0	0	0	0	0
Redbanded rockfish	4	0	0	0	0	0
Stripetail rockfish	410	0	0	0	0	0
Pygmy rockfish	2	0	0	0	0	0
Sharpchin rockfish	163	0	0	0	0	0

Table 10.--Number of length frequency measurements collected by stratum during the 1999 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	78	151	155	158	83	8
Longnose cat shark	0	0	0	0	2	13
Spiny dogfish	785	578	10	9	3	0
Deepsea skate	0	0	0	0	0	2
Bering skate	174	71	4	0	0	0
Longnose skate	95	47	5	0	0	0
Black skate	0	1	19	5	22	63
Pacific sanddab	9	0	0	0	0	0
Arrowtooth flounder	75	165	1	0	0	0
Pacific halibut	3	6	0	0	0	0
Flathead sole	1	0	0	0	0	0
Slender sole	1,012	668	0	0	0	0
Petralse sole	17	3	0	0	0	0
English sole	247	1	0	0	0	0
Dover sole	956	1,146	444	182	82	1
Deepsea sole	0	3	66	149	162	55
Rex sole	930	858	66	0	0	0
Bigeye poacher	3	10	0	0	0	0
California slickhead	0	0	49	303	197	221
Threadfin slickhead	0	0	56	209	39	2
Sablefish	127	147	305	206	63	174
Jack mackerel	7	14	1	0	0	0
California grenadier	0	0	1	0	0	0
Pacific grenadier	0	0	349	226	915	1,199
Giant grenadier	0	5	250	166	263	462
Popeye grenadier	0	0	2	0	1	0
Pacific cod	1	0	0	0	0	0
Pacific flatnose	0	58	583	127	486	600
Lingcod	4	0	0	0	0	0
Blacktail snailfish	9	8	6	17	0	0
Pacific hake	1,207	922	111	9	2	2
Chinook salmon	31	0	0	0	0	0
Twoline eelpout	0	9	55	42	58	118
Snakehead eelpout	0	0	14	66	107	7
Bigfin eelpout	565	393	36	0	0	0
Black eelpout	0	161	210	0	0	0
Blackbelly eelpout	4	0	0	0	0	0
Shortspine thornyhead	973	1,545	433	58	72	45
Longspine thornyhead	26	179	2,365	2,198	2,049	1,844
Rougheye rockfish	7	3	0	0	0	0
Pacific ocean perch	263	34	0	0	0	0
Aurora rockfish	4	100	0	0	0	0
Silvergray rockfish	2	0	0	0	0	0
Darkblotched rockfish	100	16	0	0	0	0
Splitnose rockfish	443	21	0	0	0	0
Greenstriped rockfish	106	0	0	0	0	0
Widow rockfish	33	0	0	0	0	0
Yellowtail rockfish	165	1	0	0	0	0
Rosethorn rockfish	51	9	0	0	0	0
Shortbelly rockfish	4	1	0	0	0	0
Canary rockfish	5	0	0	0	0	0
Redstripe rockfish	25	0	0	0	0	0
Redbanded rockfish	17	8	0	0	1	0
Stripetail rockfish	57	0	0	0	0	0
Pygmy rockfish	4	0	0	0	0	0
Sharpchin rockfish	286	3	0	0	0	0
Shortraker rockfish	1	2	0	0	0	0
Yellowmouth rockfish	34	0	0	0	0	0

Table 11.--Number of length frequency measurements collected by stratum during the 1999 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	5	79	42	39	2	2
Spiny dogfish	281	48	0	0	5	1
Bering skate	24	7	0	0	0	0
Longnose skate	29	18	0	0	0	0
Black skate	1	0	2	5	6	33
Spotted ratfish	18	0	0	0	0	0
Arrowtooth flounder	75	95	0	0	0	0
Pacific halibut	0	6	0	0	0	0
Slender sole	324	232	0	0	0	0
Petrable sole	27	0	0	0	0	0
English sole	70	0	0	0	0	0
Dover sole	278	237	71	21	0	0
Deepsea sole	0	2	25	67	48	15
Rex sole	201	74	0	0	0	0
Bigeye poacher	0	8	0	0	0	0
California slickhead	0	0	1	60	34	7
Threadfin slickhead	0	0	3	71	2	1
Sablefish	28	24	144	60	33	20
Jack mackerel	30	0	0	0	0	0
Pacific grenadier	0	0	82	131	256	478
Giant grenadier	0	29	39	44	44	180
Popeye grenadier	0	0	0	4	1	53
Pacific cod	6	0	0	0	0	0
Pacific flatnose	17	58	75	25	67	68
Lingcod	3	0	0	0	0	0
Blacktail snailfish	2	0	3	0	0	0
Pacific hake	126	155	4	1	0	0
Twoline eelpout	0	17	10	78	26	171
Snakehead eelpout	0	0	0	27	12	14
Bigfin eelpout	10	67	0	0	0	0
Black eelpout	3	55	97	2	0	0
Blackbelly eelpout	5	0	0	0	0	0
Shortspine thornyhead	103	361	108	42	34	31
Longspine thornyhead	16	0	635	731	479	431
Rougheye rockfish	6	9	0	0	0	0
Pacific ocean perch	186	76	0	0	0	0
Aurora rockfish	0	16	0	0	0	0
Silvergray rockfish	2	0	0	0	0	0
Darkblotched rockfish	74	2	0	0	0	0
Splitnose rockfish	346	2	0	0	0	0
Greenstriped rockfish	90	0	0	0	0	0
Widow rockfish	37	0	0	0	0	0
Rosethorn rockfish	6	7	0	0	0	0
Redstripe rockfish	11	0	0	0	0	0
Redbanded rockfish	12	0	0	0	0	0
Sharpchin rockfish	13	1	0	0	0	0
Shortraker rockfish	0	5	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 1999 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
Spiny dogfish	39.57	Spiny dogfish	30.85	Longspine thornyhead	22.54
Pacific hake	17.00	Dover sole	15.78	Dover sole	10.98
Longspine thornyhead	16.18	Longspine thornyhead	15.38	Sablefish	8.99
Sablefish	11.56	Pacific hake	11.71	True Tanner crab	8.56
Dover sole	8.08	Sablefish	7.87	Rex sole	7.16
Pacific ocean perch	5.81	Giant grenadier	6.35	Pacific grenadier	5.20
Giant grenadier	5.74	True Tanner crab	5.19	Giant grenadier	4.92
Shortspine thornyhead	4.04	Rex sole	5.11	Pacific hake	4.56
True Tanner crab	3.94	Shortspine thornyhead	4.25	Shortspine thornyhead	2.70
Pacific grenadier	3.30	Pacific grenadier	3.08	Stripetail rockfish	2.38
Arrowtooth flounder	3.02	Pacific ocean perch	2.95	Longnose skate	2.04
Longnose skate	2.71	Yellowtail rockfish	2.02	Slender sole	1.58
Spotted ratfish	2.39	Longnose skate	1.92	Deepsea sole	1.24
Slender sole	2.38	Splitnose rockfish	1.65	Brown cat shark	1.12
Twoline eelpout	1.76	Arrowtooth flounder	1.32	Pacific flatnose	1.04
Rex sole	1.48	Sharpchin rockfish	1.23	Black eelpout	1.03
Darkblotched rockfish	1.33	Slender sole	1.21	Splitnose rockfish	1.02
Deepsea sole	1.03	Pacific flatnose	0.97	California slickhead	0.86
Black skate	0.97	Bigfin eelpout	0.97	Bigfin eelpout	0.84
English sole	0.73	Darkblotched rockfish	0.92	Chinook salmon	0.84
Number of hauls	19	Number of hauls	67	Number of hauls	31

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	34.86	Longspine thornyhead	18.54	Dover sole	19.77
Shortbelly rockfish	19.45	Dover sole	18.50	Longspine thornyhead	17.95
Longspine thornyhead	18.82	Pacific hake	14.93	Spiny dogfish	15.94
Pacific hake	13.12	Sablefish	8.89	Pacific hake	11.94
Sablefish	8.67	Shortspine thornyhead	7.34	Sablefish	8.76
Pacific grenadier	7.72	Pacific grenadier	6.74	Pacific grenadier	5.20
Spiny dogfish	6.47	Longnose skate	4.89	Shortbelly rockfish	5.18
Rex sole	6.19	<i>Neolithodes diomedea</i>	4.71	Giant grenadier	5.13
Shortspine thornyhead	5.47	Splitnose rockfish	3.86	Rex sole	4.87
Giant grenadier	4.75	California slickhead	3.05	Shortspine thornyhead	4.76
Stripetail rockfish	4.39	Giant grenadier	2.87	True Tanner crab	4.52
California slickhead	4.35	Aurora rockfish	2.17	Longnose skate	2.52
Spotted ratfish	3.98	Rex sole	1.68	Splitnose rockfish	2.30
True Tanner crab	3.76	Brown cat shark	1.32	California slickhead	2.03
Splitnose rockfish	3.71	Filetail cat shark	1.29	Stripetail rockfish	1.71
Pacific sanddab	3.01	Stripetail rockfish	1.00	Spotted ratfish	1.66
Petrale sole	2.21	Spotted ratfish	0.98	Pacific ocean perch	1.55
Longnose skate	2.17	Twoline eelpout	0.94	Slender sole	1.14
Bigfin eelpout	1.80	Bering skate	0.80	Bigfin eelpout	1.07
English sole	1.67	Deepsea sole	0.78	Pacific flatnose	1.04
Number of hauls	53	Number of hauls	29	Number of hauls	199

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 1999 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
Spiny dogfish	84.53	Dover sole	40.07	Dover sole	20.12
Pacific hake	39.88	Pacific hake	27.34	Longspine thornyhead	19.21
Shortbelly rockfish	30.34	Rex sole	13.88	Sablefish	11.32
Dover sole	15.07	Spiny dogfish	8.21	True Tanner crab	9.41
Rex sole	13.69	Shortspine thornyhead	6.08	Shortspine thornyhead	5.13
Splitnose rockfish	10.91	Longnose skate	5.88	Giant grenadier	2.75
Stripetail rockfish	9.99	Sablefish	5.49	Pacific hake	1.62
Spotted ratfish	9.17	Bigfin eelpout	3.79	Brown cat shark	1.49
Longnose skate	8.10	Aurora rockfish	3.20	Black eelpout	0.90
Pacific ocean perch	7.04	Arrowtooth flounder	3.00	California slickhead	0.84
Slender sole	5.76	Longspine thornyhead	2.50	Pacific flatnose	0.81
Sablefish	5.40	Splitnose rockfish	2.44	Twoline eelpout	0.55
Pacific sanddab	4.70	Brown cat shark	2.16	Pacific grenadier	0.54
English sole	4.20	Pacific ocean perch	1.98	Rex sole	0.53
Yellowtail rockfish	3.99	Blackgill rockfish	1.96	Longnose skate	0.53
Petrals sole	3.95	Bering skate	1.88	Deepsea sole	0.47
Sharpchin rockfish	2.82	Pacific halibut	0.91	Filetail cat shark	0.41
Shortspine thornyhead	2.80	Slender sole	0.89	Black skate	0.40
Darkblotched rockfish	2.57	Black eelpout	0.76	Bigfin eelpout	0.24
Bering skate	2.18	Longhand hermit	0.58	Blacktail snailfish	0.22
Number of hauls	34	Number of hauls	35	Number of hauls	33

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Longspine thornyhead	39.52	Longspine thornyhead	29.97	Pacific grenadier	20.74
Dover sole	19.73	Dover sole	12.57	Longspine thornyhead	19.57
Sablefish	9.92	Pacific grenadier	9.12	Giant grenadier	17.37
True Tanner crab	9.22	Sablefish	8.69	Sablefish	12.00
Shortspine thornyhead	3.70	Giant grenadier	6.82	Dover sole	10.08
Giant grenadier	3.57	Shortspine thornyhead	5.77	Shortspine thornyhead	5.03
California slickhead	2.77	True Tanner crab	5.62	<i>Neolithodes diomedea</i>	4.02
Deepsea sole	1.61	California slickhead	5.22	Pacific flatnose	3.75
Twoline eelpout	1.10	Deepsea sole	2.53	California slickhead	3.65
Brown cat shark	1.05	Pacific flatnose	1.26	True Tanner crab	3.32
Pacific grenadier	0.64	Twoline eelpout	0.93	Black skate	1.67
Threadfin slickhead	0.57	Black skate	0.85	Deepsea sole	1.62
Black skate	0.35	Snakehead eelpout	0.40	Twoline eelpout	1.31
Pacific flatnose	0.27	Brown cat shark	0.37	Deepsea skate	0.83
Hagfish unident.	0.24	Hagfish unident.	0.23	<i>Paralomis multispina</i>	0.66
Snakehead eelpout	0.20	Deepsea skate	0.22	Blob sculpin	0.26
Pacific hake	0.18	Spiny dogfish	0.16	Brown cat shark	0.21
Black eelpout	0.15	Blob sculpin	0.15	Popeye grenadier	0.13
Triangle Tanner crab	0.10	Threadfin slickhead	0.15	Blacksmelt unident.	0.11
Blacksmelt unident.	0.09	Blacksmelt unident.	0.11	Longnose cat shark	0.09
Number of hauls	31	Number of hauls	32	Number of hauls	34

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 1999 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 hake	77.57	Dover sole	27.76	Dover sole	28.71
Splitnose rockfish	23.79	Pacific hake	18.89	Longspine thornyhead	26.62
Longnose skate	19.04	Aurora rockfish	10.20	Shortspine thornyhead	11.37
Dover sole	10.70	Longnose skate	10.09	Sablefish	7.78
Stripetail rockfish	7.25	Shortspine thornyhead	8.90	Filetail cat shark	2.47
Spotted ratfish	6.73	Longspine thornyhead	8.90	California slickhead	2.03
Sablefish	6.15	Sablefish	6.74	Brown cat shark	1.66
Rex sole	5.42	Rex sole	4.48	Pacific hake	1.59
Bering skate	3.40	Blackgill rockfish	3.66	Longnose skate	0.92
Filetail cat shark	3.30	Splitnose rockfish	2.67	True Tanner crab	0.78
Chilipepper	1.96	Brown cat shark	2.20	Splitnose rockfish	0.16
Slender sole	1.94	Bigfin eelpout	2.05	Deepsea sole	0.13
Blackbelly eelpout	1.89	Filetail cat shark	1.96	Threadfin slickhead	0.13
Bigfin eelpout	1.78	Bering skate	1.60	Aurora rockfish	0.10
Brown cat shark	1.56	Black eelpout	0.95	Hagfish unident.	0.10
English sole	1.25	Spotted ratfish	0.28	Spiny dogfish	0.10
Bocaccio	1.04	True Tanner crab	0.08	King-of-the-salmon	0.07
Pacific electric ray	0.89	Giant grenadier	0.02	California grenadier	0.04
Shortspine thornyhead	0.84	California grenadier	0.02	Twoline eelpout	0.04
Black eelpout	0.73	Petrale sole	0.02	Giant grenadier	0.04
Number of hauls	4	Number of hauls	6	Number of hauls	5

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Longspine thornyhead	55.74	Longspine thornyhead	18.31	Pacific grenadier	34.51
Dover sole	32.96	Sablefish	13.27	<i>Neolithodes diomedea</i>	27.30
Sablefish	17.45	Shortspine thornyhead	10.73	Longspine thornyhead	7.36
Shortspine thornyhead	8.21	Giant grenadier	9.00	Giant grenadier	6.09
California slickhead	5.22	Dover sole	8.50	California slickhead	5.73
Twoline eelpout	3.61	California slickhead	5.75	Sablefish	3.55
Deepsea sole	2.88	Pacific grenadier	4.49	Pacific flatnose	3.32
Giant grenadier	1.85	Twoline eelpout	2.14	Shortspine thornyhead	2.56
Brown cat shark	1.17	Deepsea sole	1.79	Dover sole	1.88
True Tanner crab	0.88	Black skate	0.68	Deepsea skate	1.07
Threadfin slickhead	0.77	Pacific flatnose	0.55	Brown cat shark	0.93
Black skate	0.43	True Tanner crab	0.52	<i>Paralomis multispina</i>	0.45
Blacksmelt unident.	0.34	Threadfin slickhead	0.47	Twoline eelpout	0.40
Hagfish unident.	0.31	Deepsea skate	0.42	Blob sculpin	0.34
Snakehead eelpout	0.14	Blacksmelt unident.	0.29	Deepsea sole	0.30
Longnose skate	0.14	Hagfish unident.	0.27	True Tanner crab	0.25
Pacific grenadier	0.12	Brown cat shark	0.26	Deepsea smelt unident.	0.22
Pacific flatnose	0.12	<i>Paralomis multispina</i>	0.19	Blacksmelt unident.	0.19
Black hagfish	0.12	Pacific hake	0.07	Black skate	0.19
Pacific hake	0.11	Snakehead eelpout	0.06	Pacific hake	0.09
Number of hauls	4	Number of hauls	5	Number of hauls	5

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 1999 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
Shortbelly rockfish	114.56	Dover sole	53.12	Dover sole	27.75
Spiny dogfish	37.28	Pacific hake	37.26	Longspine thornyhead	17.56
Pacific hake	36.68	Rex sole	25.03	Sablefish	4.59
Stripetail rockfish	25.84	Splitnose rockfish	7.50	Shortspine thornyhead	3.99
Spotted ratfish	21.92	Longnose skate	6.94	Pacific hake	2.68
Dover sole	20.67	Bigfin eelpout	6.45	Brown cat shark	2.48
Pacific sanddab	17.73	Blackgill rockfish	5.17	True Tanner crab	2.15
Splitnose rockfish	14.37	Sablefish	4.15	California slickhead	1.31
Petrале sole	12.57	Brown cat shark	3.85	Pacific flatnose	0.87
Rex sole	11.09	Bering skate	3.68	Twoline eelpout	0.85
English sole	9.80	Longspine thornyhead	3.42	Giant grenadier	0.77
Sablefish	7.18	Aurora rockfish	3.09	Longnose skate	0.76
Longnose skate	4.88	Shortspine thornyhead	2.49	Bigfin eelpout	0.56
Slender sole	4.60	Spotted ratfish	1.54	Blacktail snailfish	0.38
Chilipepper	3.78	Soupyfin shark	0.84	Hagfish unident.	0.36
Bigfin eelpout	3.58	Spiny dogfish	0.66	Rex sole	0.35
Shortspine thornyhead	1.77	Petrале sole	0.46	Deepsea sole	0.32
Redstripe rockfish	1.38	Filetail cat shark	0.45	Spiny dogfish	0.18
Bocaccio	1.31	Darkblotched rockfish	0.29	Black eelpout	0.15
Greenstriped rockfish	1.26	Deepsea sole	0.21	Bering skate	0.14
Number of hauls	9	Number of hauls	9	Number of hauls	9

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280m
Longspine thornyhead	53.26	Dover sole	37.42	Dover sole	32.05
Dover sole	39.21	Longspine thornyhead	31.41	Pacific grenadier	25.81
True Tanner crab	12.43	Pacific grenadier	18.07	Giant grenadier	15.90
Sablefish	11.28	Sablefish	15.04	Longspine thornyhead	13.11
Shortspine thornyhead	6.16	California slickhead	13.39	Sablefish	10.54
California slickhead	5.06	Shortspine thornyhead	9.15	Shortspine thornyhead	9.29
Giant grenadier	3.34	Giant grenadier	7.19	California slickhead	7.09
Deepsea sole	1.44	True Tanner crab	5.27	Pacific flatnose	5.51
Twoline eelpout	1.36	Deepsea sole	4.61	True Tanner crab	3.75
Brown cat shark	1.21	Pacific flatnose	1.72	Deepsea sole	2.38
Pacific grenadier	0.72	Black skate	1.24	Deepsea skate	1.45
Black skate	0.61	Twoline eelpout	1.09	Black skate	1.17
Threadfin slickhead	0.59	Deepsea skate	0.63	<i>Paralomis multispina</i>	0.76
Black eelpout	0.57	Brown cat shark	0.43	Twoline eelpout	0.59
Hagfish unident.	0.41	Snakehead eelpout	0.43	Longnose cat shark	0.23
Pacific flatnose	0.39	Hagfish unident.	0.42	Pacific hake	0.18
Pacific hake	0.32	Longnose cat shark	0.34	Snakehead eelpout	0.15
Longnose cat shark	0.23	Ocean sunfish	0.22	Brown cat shark	0.14
Snakehead eelpout	0.19	<i>Paralomis multispina</i>	0.15	<i>Paralomis verrilli</i>	0.12
Longnose skate	0.18	Pacific hake	0.14	Blacksmelt unident.	0.10
Number of hauls	8	Number of hauls	8	Number of hauls	10

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 1999 West Coast upper continental slope groundfish survey.

Species	Stratum 1	Species	Stratum 2	Species	Stratum 3
	183-366 m		367-549 m		550-732 m
Rex sole	30.25	Dover sole	15.64	Longspine thornyhead	22.19
Pacific hake	14.86	Pacific hake	12.31	True Tanner crab	21.15
Stripetail rockfish	14.76	Rex sole	12.27	Dover sole	17.11
Slender sole	9.68	Longnose skate	5.63	Sablefish	4.80
Longnose skate	6.64	Longhand hermit	4.03	Black eelpout	4.00
Dover sole	6.36	Bigfin eelpout	3.39	Giant grenadier	3.13
Splitnose rockfish	6.35	Aurora rockfish	3.08	Shortspine thornyhead	2.02
Chinook salmon	5.07	Sablefish	3.01	Rex sole	1.83
Bering skate	3.01	Brown cat shark	2.65	Pacific grenadier	1.49
Bocaccio	2.15	Shortspine thornyhead	2.46	Brown cat shark	1.33
Bigfin eelpout	1.78	Black eelpout	2.41	Pacific hake	0.91
Sharpchin rockfish	1.63	Arrowtooth flounder	1.20	California slickhead	0.90
Lingcod	1.49	Bering skate	0.96	Pacific flatnose	0.59
English sole	1.47	Spiny dogfish	0.50	Twoline eelpout	0.42
Shortspine thornyhead	1.39	Hagfish unident.	0.33	Longnose skate	0.39
Arrowtooth flounder	1.19	Aleutian skate	0.30	Deepsea sole	0.30
Brown cat shark	1.13	Longspine thornyhead	0.28	Black skate	0.25
Spiny dogfish	1.09	Twoline eelpout	0.28	Hagfish unident.	0.11
Sablefish	1.04	Darkblotched rockfish	0.24	Blacktail snailfish	0.10
Petrale sole	1.02	True Tanner crab	0.20	Threadfin slickhead	0.08
Number of hauls	5	Number of hauls	5	Number of hauls	5

Species	Stratum 4	Species	Stratum 5	Species	Stratum 6
	733-914 m		915-1,097 m		1,098-1,280m
Longspine thornyhead	41.85	Longspine thornyhead	34.06	Longspine thornyhead	34.49
Dover sole	18.99	True Tanner crab	11.28	Sablefish	28.77
True Tanner crab	13.46	Pacific grenadier	10.42	Pacific grenadier	16.18
Sablefish	5.38	Dover sole	7.42	Giant grenadier	15.68
Giant grenadier	3.29	Sablefish	6.98	Shortspine thornyhead	6.05
Shortspine thornyhead	1.70	Giant grenadier	5.27	True Tanner crab	5.83
Brown cat shark	1.55	Shortspine thornyhead	1.89	Deepsea sole	3.54
Deepsea sole	1.33	Deepsea sole	1.83	Pacific flatnose	2.98
California slickhead	1.14	Pacific flatnose	1.82	Black skate	2.34
Pacific grenadier	0.89	California slickhead	1.77	Dover sole	2.12
Pacific flatnose	0.41	Snakehead eelpout	1.01	California slickhead	1.25
Snakehead eelpout	0.34	Black skate	0.51	<i>Paralomis multispina</i>	1.03
Twoline eelpout	0.21	Brown cat shark	0.26	Blob sculpin	0.64
Hagfish unident.	0.12	Twoline eelpout	0.25	Twoline eelpout	0.27
Spiny dogfish	0.11	<i>Paralomis multispina</i>	0.11	Hagfish unident.	0.09
Threadfin slickhead	0.08	Hagfish unident.	0.11	Blacksmelt unident.	0.08
Pacific hake	0.08	Pacific hake	0.06	Alaska snailfish	0.05
Deepsea smelt unident.	0.04	Blacksmelt unident.	0.05	Deepsea smelt unident.	0.04
Blacktail snailfish	0.03	Threadfin slickhead	0.03	Snakehead eelpout	0.04
Black skate	0.03	Deepsea smelt unident.	0.02	Pacific hake	0.03
Number of hauls	5	Number of hauls	5	Number of hauls	6

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 1999 West Coast upper continental slope groundfish survey.

Species	Stratum 1	Species	Stratum 2	Species	Stratum 3
	183-366 m		367-549 m		550-732 m
Spiny dogfish	138.38	Dover sole	50.02	Longspine thornyhead	17.04
Pacific hake	27.01	Pacific hake	34.59	Dover sole	14.67
Dover sole	15.80	Spiny dogfish	21.92	True Tanner crab	13.91
Pacific ocean perch	14.76	Rex sole	14.11	Sablefish	12.97
Rex sole	12.90	Shortspine thornyhead	8.53	Giant grenadier	5.08
Yellowtail rockfish	10.40	Sablefish	6.69	Shortspine thornyhead	4.54
Splitnose rockfish	8.36	Arrowtooth flounder	5.14	Pacific hake	1.41
Longnose skate	6.33	Longnose skate	3.55	Pacific flatnose	1.22
Sharpchin rockfish	6.31	Bigfin eelpout	3.33	Black skate	0.88
Sablefish	5.79	Pacific halibut	1.61	Brown cat shark	0.81
Slender sole	5.01	Bering skate	1.38	Deepsea sole	0.73
Shortspine thornyhead	4.82	Slender sole	1.35	Pacific grenadier	0.62
Darkblotched rockfish	4.52	Brown cat shark	0.72	Twoline eelpout	0.59
Spotted ratfish	2.92	Aurora rockfish	0.59	Black eelpout	0.55
Bering skate	2.58	Black eelpout	0.59	Rex sole	0.48
English sole	2.17	Pacific ocean perch	0.50	Longnose skate	0.36
Arrowtooth flounder	2.05	Jack mackerel	0.37	Blacktail snailfish	0.26
Bigfin eelpout	1.74	Spotted ratfish	0.33	Spiny dogfish	0.24
Yellowmouth rockfish	1.02	True Tanner crab	0.30	Bigfin eelpout	0.23
Chinook salmon	0.91	Darkblotched rockfish	0.24	Threadfin slickhead	0.23
Number of hauls	13	Number of hauls	12	Number of hauls	11

Species	Stratum 4	Species	Stratum 5	Species	Stratum 6
	733-914 m		915-1,097 m		1,098-1,280m
Longspine thornyhead	26.79	Longspine thornyhead	33.79	Giant grenadier	24.62
Sablefish	9.26	Giant grenadier	6.91	Longspine thornyhead	20.10
True Tanner crab	8.72	True Tanner crab	6.03	Pacific grenadier	13.59
Dover sole	6.69	Pacific grenadier	5.24	Sablefish	9.84
Giant grenadier	4.62	Sablefish	3.45	True Tanner crab	3.78
California slickhead	1.54	Shortspine thornyhead	3.26	Pacific flatnose	3.54
Shortspine thornyhead	1.29	Dover sole	2.12	Shortspine thornyhead	2.09
Deepsea sole	1.27	California slickhead	1.81	Black skate	1.99
Brown cat shark	0.76	Deepsea sole	1.67	California slickhead	1.62
Threadfin slickhead	0.75	Pacific flatnose	1.17	Twoline eelpout	1.35
Pacific grenadier	0.61	Black skate	0.74	Deepsea skate	0.84
Triangle Tanner crab	0.31	Twoline eelpout	0.66	Deepsea sole	0.64
Twoline eelpout	0.25	Brown cat shark	0.51	<i>Paralomis multispina</i>	0.64
Pacific flatnose	0.21	Blob sculpin	0.44	Blob sculpin	0.32
Pacific hake	0.21	Snakehead eelpout	0.33	Blacksmelt unident.	0.12
Snakehead eelpout	0.17	Hagfish unident.	0.16	Brown cat shark	0.08
Spiny dogfish	0.13	Threadfin slickhead	0.16	Pacific viperfish	0.07
Black skate	0.13	Blacksmelt unident.	0.11	Hagfish unident.	0.06
Hagfish unident.	0.10	Black hagfish	0.10	Deepsea smelt unident.	0.04
Blacksmelt unident.	0.07	Pacific viperfish	0.07	Longnose cat shark	0.04
Number of hauls	10	Number of hauls	11	Number of hauls	10

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 1999 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
Spiny dogfish	243.85	Dover sole	26.43	Sablefish	42.19
Pacific hake	96.66	Pacific ocean perch	21.04	Longspine thornyhead	14.85
Pacific ocean perch	15.72	Arrowtooth flounder	12.05	True Tanner crab	9.54
Dover sole	15.43	Pacific hake	10.49	Dover sole	7.88
Spotted ratfish	15.11	Shortspine thornyhead	7.48	Shortspine thornyhead	5.48
Longnose skate	13.21	Sablefish	6.33	Giant grenadier	4.04
Slender sole	11.02	Spiny dogfish	5.30	Brown cat shark	1.03
Rex sole	8.36	Pacific halibut	4.17	Pacific grenadier	0.95
Darkblotched rockfish	8.16	Slender sole	4.08	Deepsea sole	0.82
Arrowtooth flounder	7.10	Longnose skate	3.96	Pacific flatnose	0.79
Sablefish	4.66	Giant grenadier	2.89	Black eelpout	0.75
English sole	4.65	Brown cat shark	1.99	Twoline eelpout	0.55
Petrale sole	2.84	Bigfin eelpout	1.78	Black skate	0.51
Widow rockfish	2.72	Shortraker rockfish	1.69	Pacific hake	0.45
Jack mackerel	2.59	True Tanner crab	1.36	Black hagfish	0.13
Greenstriped rockfish	2.25	Rougheye rockfish	1.21	Blacktail snailfish	0.10
Shortspine thornyhead	2.06	Twoline eelpout	1.07	Threadfin slickhead	0.05
Splitnose rockfish	1.95	Rex sole	1.01	Blacksmelt unident.	0.03
Bering skate	1.60	Bering skate	0.53	Hagfish unident.	0.03
Lingcod	1.11	Pacific flatnose	0.41	Pacific viperfish	0.03
Number of hauls	3	Number of hauls	3	Number of hauls	3

Species	Stratum 4 733-914 m	Species	Stratum 5 915-1,097 m	Species	Stratum 6 1,098-1,280 m
Longspine thornyhead	24.71	Longspine thornyhead	24.73	Longspine thornyhead	29.83
True Tanner crab	7.12	Sablefish	6.14	Giant grenadier	20.24
Sablefish	6.98	Pacific grenadier	5.05	Pacific grenadier	13.81
Giant grenadier	3.50	Giant grenadier	4.49	Twoline eelpout	7.12
Shortspine thornyhead	2.75	Shortspine thornyhead	4.09	Sablefish	4.59
Deepsea sole	1.85	True Tanner crab	4.08	Black skate	3.33
Twoline eelpout	1.32	Deepsea sole	2.51	Shortspine thornyhead	2.79
Dover sole	1.07	Spiny dogfish	1.43	Popeye grenadier	1.46
California slickhead	0.88	Black skate	1.05	Pacific flatnose	0.81
Pacific grenadier	0.80	California slickhead	0.84	Deepsea sole	0.75
Black skate	0.74	Twoline eelpout	0.66	True Tanner crab	0.46
Brown cat shark	0.70	Pacific flatnose	0.62	California slickhead	0.23
Threadfin slickhead	0.47	Hagfish unident.	0.14	Snakehead eelpout	0.20
Hagfish unident.	0.34	Black hagfish	0.13	Blacksmelt unident.	0.09
Snakehead eelpout	0.20	<i>Lithodes couesi</i>	0.11	Brown cat shark	0.09
<i>Lithodes couesi</i>	0.16	Snakehead eelpout	0.10	Black hagfish	0.06
Pacific flatnose	0.13	Triangle Tanner crab	0.05	Pacific viperfish	0.04
Pacific hake	0.05	Blacktail snailfish	0.04	Spiny dogfish	0.03
Blacktail snailfish	0.05	Pacific viperfish	0.03	<i>Lithodes couesi</i>	0.03
Blacksmelt unident.	0.03	Blacksmelt unident.	0.03	<i>Lampanyctus</i> sp.	0.03
Number of hauls	4	Number of hauls	3	Number of hauls	3

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 1999 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	688	30%	2,005	17%	1,377	14%	870	20%
Spiny dogfish	78,188	43%	7,615	35%	132	51%	50	76%
Bering skate	2,017	22%	1,741	18%	67	61%	3	-
Longnose skate	7,490	16%	5,448	17%	486	24%	56	66%
Black skate	23	-	-	-	370	31%	294	38%
Pacific whiting	36,885	22%	25,347	21%	1,494	22%	151	38%
Pacific grenadier	-	-	9	-	499	35%	536	21%
Giant grenadier	-	-	302	-	2,537	25%	2,968	16%
Shortspine thornyhead	2,589	25%	5,641	13%	4,730	19%	3,070	20%
Longspine thornyhead	26	-	2,322	32%	17,721	15%	32,821	9%
Pacific ocean perch	6,510	60%	1,839	91%	-	-	-	-
Aurora rockfish	41	54%	2,970	27%	33	52%	-	0%
Darkblotched rockfish	2,381	66%	196	30%	-	-	-	0%
Splitnose rockfish	10,088	34%	2,259	56%	23	100%	-	-
Redbanded rockfish	202	41%	52	39%	-	-	-	-
Sablefish	4,997	19%	5,089	16%	10,437	30%	8,238	18%
Twoline eelpout	-	-	184	40%	507	22%	914	30%
Bigfin eelpout	-	-	-	0%	25	46%	169	14%
Black eelpout	110	57%	701	32%	832	33%	124	99%
<i>Lycenchelys</i> spp.	1,950	36%	3,511	19%	222	42%	-	-
Arrowtooth flounder	1,467	28%	2,782	29%	4	100%	-	-
Slender sole	5,324	16%	821	36%	-	0%	-	-
Dover sole	13,940	24%	37,150	19%	18,556	21%	16,387	21%
Deepsea sole	-	-	67	73%	431	20%	1,334	11%
Rex sole	12,663	23%	12,870	23%	493	44%	3	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	336	23%	166	53%	5,442	9%
Spiny dogfish	142	86%	2	-	86,129	39%
Bering skate	-	0%	-	-	3,829	14%
Longnose skate	13	100%	-	-	13,493	11%
Black skate	776	19%	1,325	19%	2,789	12%
Pacific whiting	59	37%	64	46%	64,000	15%
Pacific grenadier	8,319	17%	16,502	12%	25,865	9%
Giant grenadier	6,222	15%	13,819	16%	25,848	10%
Shortspine thornyhead	5,260	17%	4,006	20%	25,295	8%
Longspine thornyhead	27,335	6%	15,572	11%	95,795	5%
Pacific ocean perch	-	-	-	-	8,350	51%
Aurora rockfish	-	-	-	-	3,044	27%
Darkblotched rockfish	-	-	-	-	2,578	61%
Splitnose rockfish	-	-	-	-	12,369	29%
Redbanded rockfish	1	-	-	-	256	33%
Sablefish	7,922	17%	9,547	22%	46,230	10%
Twoline eelpout	852	23%	1,039	46%	3,495	17%
Bigfin eelpout	363	25%	63	47%	620	16%
Black eelpout	17	100%	-	-	1,783	21%
<i>Lycenchelys</i> spp.	-	-	-	-	5,683	17%
Arrowtooth flounder	-	-	-	-	4,253	22%
Slender sole	-	-	-	-	6,145	15%
Dover sole	11,464	35%	8,022	59%	105,520	11%
Deepsea sole	2,305	14%	1,292	22%	5,429	9%
Rex sole	-	-	-	-	26,028	16%

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 1999 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	187	68%	526	47%	391	39%	181	22%
Spiny dogfish	73	39%	-	0%	30	100%	-	0%
Bering skate	407	64%	368	45%	-	0%	-	0%
Longnose skate	2,281	32%	1,932	38%	164	82%	21	100%
Black skate	-	0%	-	0%	-	0%	67	100%
Pacific whiting	9,289	11%	4,387	18%	474	54%	18	58%
Pacific grenadier	-	0%	-	0%	-	0%	19	100%
Giant grenadier	-	0%	7	100%	12	100%	286	22%
Shortspine thornyhead	101	61%	1,732	24%	1,456	15%	1,270	13%
Longspine thornyhead	-	0%	1,993	27%	6,800	47%	8,623	10%
Pacific ocean perch	-	0%	-	0%	-	0%	-	0%
Aurora rockfish	36	53%	2,345	42%	31	100%	-	0%
Darkblotched rockfish	-	0%	-	0%	-	0%	-	0%
Splitnose rockfish	2,850	42%	733	100%	49	100%	-	0%
Redbanded rockfish	53	87%	-	0%	-	0%	-	0%
Sablefish	736	37%	1,587	34%	1,886	37%	2,700	37%
Twoline eelpout	-	0%	-	0%	11	96%	559	48%
Bigfin eelpout	-	0%	-	0%	-	0%	22	47%
Black eelpout	87	61%	211	80%	7	92%	-	0%
<i>Lycenchelys</i> spp.	213	30%	450	68%	9	100%	-	0%
Arrowtooth flounder	-	0%	-	0%	-	0%	-	0%
Slender sole	233	43%	4	97%	-	0%	-	0%
Dover sole	1,282	39%	6,975	25%	6,564	43%	5,099	55%
Deepsea sole	-	0%	-	0%	40	100%	446	25%
Rex sole	649	45%	1,220	28%	-	0%	-	0%

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	48	100%	119	76%	1,452	23%
Spiny dogfish	-	0%	-	0%	103	40%
Bering skate	-	0%	-	0%	775	40%
Longnose skate	-	0%	-	0%	4,398	24%
Black skate	128	65%	24	100%	218	50%
Pacific whiting	12	66%	12	69%	14,191	9%
Pacific grenadier	839	39%	4,413	29%	5,270	25%
Giant grenadier	1,683	35%	779	41%	2,766	24%
Shortspine thornyhead	2,007	29%	328	37%	6,893	11%
Longspine thornyhead	3,422	18%	941	26%	21,779	16%
Pacific ocean perch	-	0%	-	0%	-	0%
Aurora rockfish	-	0%	-	0%	2,412	41%
Darkblotched rockfish	-	0%	-	0%	-	0%
Splitnose rockfish	-	0%	-	0%	3,631	38%
Redbanded rockfish	-	0%	-	0%	53	87%
Sablefish	2,480	27%	454	32%	9,843	15%
Twoline eelpout	400	48%	51	61%	1,021	33%
Bigfin eelpout	12	39%	2	100%	35	32%
Black eelpout	-	0%	-	0%	305	58%
<i>Lycenchelys</i> spp.	-	0%	-	0%	672	46%
Arrowtooth flounder	-	0%	-	0%	-	0%
Slender sole	-	0%	-	0%	237	42%
Dover sole	1,588	62%	240	64%	21,747	21%
Deepsea sole	335	21%	39	41%	859	16%
Rex sole	-	0%	-	0%	1,869	24%

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 1999 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	28	62%	665	24%	499	16%	251	41%
Spiny dogfish	6,601	100%	115	68%	35	100%	-	0%
Bering skate	141	41%	636	21%	28	96%	-	0%
Longnose skate	865	37%	1,199	32%	153	29%	38	87%
Black skate	-	0%	-	0%	18	100%	126	51%
Pacific whiting	6,496	32%	6,436	38%	539	33%	66	40%
Pacific grenadier	-	0%	7	100%	15	57%	148	53%
Giant grenadier	-	0%	27	76%	155	43%	693	34%
Shortspine thornyhead	313	74%	431	32%	803	26%	1,277	35%
Longspine thornyhead	-	0%	591	57%	3,528	42%	11,047	20%
Pacific ocean perch	4	100%	3	100%	-	0%	-	0%
Aurora rockfish	1	68%	534	35%	15	50%	-	0%
Darkblotched rockfish	21	74%	50	58%	-	0%	-	0%
Splitnose rockfish	2,545	60%	1,296	64%	-	0%	-	0%
Redbanded rockfish	-	100%	13	56%	-	0%	-	0%
Sablefish	1,272	47%	716	46%	923	19%	2,339	45%
Twoline eelpout	-	0%	13	73%	171	39%	282	42%
Bigfin eelpout	-	0%	-	0%	4	100%	39	26%
Black eelpout	-	0%	10	88%	30	41%	119	100%
<i>Lycenchelys</i> spp.	634	80%	1,113	25%	113	54%	-	0%
Arrowtooth flounder	-	0%	23	100%	-	0%	-	0%
Slender sole	815	34%	33	45%	-	0%	-	0%
Dover sole	3,660	58%	9,175	37%	5,576	43%	8,132	19%
Deepsea sole	-	0%	36	93%	63	32%	298	20%
Rex sole	1,963	34%	4,324	30%	71	98%	-	0%

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	98	19%	33	43%	1,573	13%
Spiny dogfish	-	0%	-	0%	6,752	98%
Bering skate	-	0%	-	0%	805	18%
Longnose skate	13	100%	-	0%	2,269	22%
Black skate	279	33%	277	43%	699	23%
Pacific whiting	32	55%	42	65%	13,611	24%
Pacific grenadier	4,066	19%	6,087	18%	10,323	13%
Giant grenadier	1,618	47%	3,750	24%	6,244	19%
Shortspine thornyhead	2,060	22%	2,190	29%	7,074	14%
Longspine thornyhead	7,069	11%	3,093	24%	25,328	11%
Pacific ocean perch	-	0%	-	0%	6	72%
Aurora rockfish	-	0%	-	0%	550	34%
Darkblotched rockfish	-	0%	-	0%	71	47%
Splitnose rockfish	-	0%	-	0%	3,841	45%
Redbanded rockfish	-	0%	-	0%	13	55%
Sablefish	3,385	28%	2,486	31%	11,122	16%
Twoline eelpout	246	33%	139	33%	850	19%
Bigfin eelpout	96	31%	36	76%	175	24%
Black eelpout	16	100%	-	0%	175	69%
<i>Lycenchelys</i> spp.	-	0%	-	0%	1,860	31%
Arrowtooth flounder	-	0%	-	0%	23	100%
Slender sole	-	0%	-	0%	848	33%
Dover sole	8,420	38%	7,560	60%	42,523	17%
Deepsea sole	1,038	20%	562	35%	1,998	15%
Rex sole	-	0%	-	0%	6,358	23%

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 1999 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	122	44%	292	21%	223	29%	266	67%
Spiny dogfish	118	73%	55	85%	-	0%	19	100%
Bering skate	324	32%	106	59%	-	0%	4	100%
Longnose skate	715	34%	621	35%	65	68%	3	100%
Black skate	-	0%	-	0%	42	100%	5	100%
Pacific whiting	1,598	36%	1,359	14%	152	63%	13	76%
Pacific grenadier	-	0%	-	100%	250	75%	152	48%
Giant grenadier	-	0%	-	0%	522	78%	566	30%
Shortspine thornyhead	150	38%	272	42%	337	25%	293	41%
Longspine thornyhead	-	0%	31	100%	3,706	19%	7,192	9%
Pacific ocean perch	-	0%	4	100%	-	0%	-	0%
Aurora rockfish	-	0%	340	44%	-	0%	-	0%
Darkblotched rockfish	68	64%	26	88%	-	0%	-	0%
Splitnose rockfish	683	45%	-	0%	-	0%	-	0%
Redbanded rockfish	40	80%	-	0%	-	0%	-	0%
Sablefish	111	33%	332	27%	801	27%	924	14%
Twoline eelpout	-	0%	31	100%	71	47%	37	34%
Bigfin eelpout	-	0%	-	0%	13	80%	59	27%
Black eelpout	-	0%	266	34%	668	26%	-	0%
<i>Lycenchelys</i> spp.	192	33%	374	52%	8	73%	-	0%
Arrowtooth flounder	128	30%	133	30%	-	0%	-	0%
Slender sole	1,041	24%	16	48%	-	0%	-	0%
Dover sole	684	48%	1,725	26%	2,859	51%	3,263	30%
Deepsea sole	-	0%	-	0%	49	24%	228	17%
Rex sole	3,254	35%	1,353	28%	306	64%	3	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	51	31%	-	0%	954	22%
Spiny dogfish	-	0%	-	0%	192	52%
Bering skate	-	0%	-	0%	434	28%
Longnose skate	-	0%	-	0%	1,403	23%
Black skate	100	51%	327	27%	474	24%
Pacific whiting	12	100%	4	100%	3,138	20%
Pacific grenadier	2,032	44%	2,264	19%	4,697	21%
Giant grenadier	1,027	23%	2,193	22%	4,309	16%
Shortspine thornyhead	369	35%	846	37%	2,266	17%
Longspine thornyhead	6,644	8%	4,823	16%	22,397	6%
Pacific ocean perch	-	0%	-	0%	4	100%
Aurora rockfish	-	0%	-	0%	340	44%
Darkblotched rockfish	-	0%	-	0%	94	52%
Splitnose rockfish	-	0%	-	0%	683	45%
Redbanded rockfish	-	0%	-	0%	40	80%
Sablefish	1,361	38%	4,024	40%	7,555	23%
Twoline eelpout	48	44%	38	59%	224	25%
Bigfin eelpout	196	49%	5	100%	274	36%
Black eelpout	-	0%	-	0%	934	21%
<i>Lycenchelys</i> spp.	-	0%	-	0%	574	36%
Arrowtooth flounder	-	0%	-	0%	260	21%
Slender sole	-	0%	-	0%	1,058	24%
Dover sole	1,448	69%	296	40%	10,276	21%
Deepsea sole	356	46%	495	24%	1,129	18%
Rex sole	-	0%	-	0%	4,917	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 1999 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	365	48%	270	28%	210	37%	178	25%
Spiny dogfish	55,696	58%	8,201	31%	63	67%	32	100%
Bering skate	1,038	38%	515	41%	28	76%	-	0%
Longnose skate	2,550	24%	1,328	41%	93	55%	-	0%
Black skate	-	0%	1	100%	229	33%	30	65%
Pacific whiting	10,870	28%	12,940	35%	367	40%	48	90%
Pacific grenadier	-	0%	-	0%	162	24%	145	31%
Giant grenadier	-	0%	36	100%	1,325	29%	1,087	32%
Shortspine thornyhead	1,941	29%	3,190	17%	1,184	20%	305	29%
Longspine thornyhead	19	100%	65	77%	4,446	20%	6,307	8%
Pacific ocean perch	5,943	71%	187	53%	-	0%	-	0%
Aurora rockfish	7	66%	221	47%	-	0%	-	0%
Darkblotched rockfish	1,820	91%	90	37%	-	0%	-	0%
Splitnose rockfish	3,364	83%	48	58%	-	0%	-	0%
Redbanded rockfish	42	35%	41	48%	-	0%	-	0%
Sablefish	2,331	15%	2,502	24%	3,384	26%	2,180	23%
Twoline eelpout	-	0%	51	69%	155	36%	58	32%
Bigfin eelpout	-	0%	-	0%	8	63%	41	31%
Black eelpout	33	100%	221	75%	143	57%	-	0%
<i>Lycenchelys</i> spp.	699	23%	1,244	41%	59	71%	-	0%
Arrowtooth flounder	826	32%	1,923	16%	3	100%	-	0%
Slender sole	2,015	25%	503	45%	-	0%	-	0%
Dover sole	6,361	29%	18,714	29%	3,828	40%	1,575	58%
Deepsea sole	-	0%	19	100%	189	31%	300	20%
Rex sole	5,191	48%	5,278	44%	125	70%	-	0%

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	122	40%	19	40%	1,164	19%
Spiny dogfish	15	84%	-	0%	64,007	50%
Bering skate	-	0%	-	0%	1,581	28%
Longnose skate	-	0%	-	0%	3,971	21%
Black skate	177	28%	477	29%	913	18%
Pacific whiting	6	70%	7	67%	24,239	22%
Pacific grenadier	1,249	19%	3,253	14%	4,808	11%
Giant grenadier	1,645	17%	5,891	32%	9,985	20%
Shortspine thornyhead	777	31%	499	22%	7,897	11%
Longspine thornyhead	8,050	8%	4,810	14%	23,697	6%
Pacific ocean perch	-	0%	-	0%	6,129	69%
Aurora rockfish	-	0%	-	0%	228	46%
Darkblotched rockfish	-	0%	-	0%	1,911	87%
Splitnose rockfish	-	0%	-	0%	3,413	82%
Redbanded rockfish	1	100%	-	0%	85	29%
Sablefish	822	16%	2,353	27%	13,573	10%
Twoline eelpout	157	33%	323	50%	744	25%
Bigfin eelpout	79	29%	6	39%	134	20%
Black eelpout	-	0%	-	0%	397	47%
<i>Lycenchelys</i> spp.	-	0%	-	0%	2,002	27%
Arrowtooth flounder	-	0%	-	0%	2,752	14%
Slender sole	-	0%	-	0%	2,519	22%
Dover sole	504	51%	5	100%	30,987	20%
Deepsea sole	397	20%	153	41%	1,058	12%
Rex sole	-	0%	-	0%	10,594	32%

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	9	48%	82	51%	53	9%	43	29%
Spiny dogfish	28,796	71%	218	86%	-	0%	-	0%
Bering skate	189	15%	22	42%	-	0%	-	0%
Longnose skate	1,559	34%	163	19%	-	0%	-	0%
Black skate	33	100%	-	0%	27	88%	45	100%
Pacific whiting	11,415	93%	432	46%	23	100%	3	100%
Pacific grenadier	-	0%	-	0%	49	43%	49	15%
Giant grenadier	-	0%	119	54%	209	36%	214	18%
Shortspine thornyhead	244	45%	308	18%	284	16%	168	44%
Longspine thornyhead	13	100%	-	0%	768	28%	1,511	18%
Pacific ocean perch	1,857	71%	867	100%	-	0%	-	0%
Aurora rockfish	-	0%	8	100%	-	0%	-	0%
Darkblotched rockfish	963	94%	10	100%	-	0%	-	0%
Splitnose rockfish	231	44%	3	100%	-	0%	-	0%
Redbanded rockfish	96	91%	-	0%	-	0%	-	0%
Sablefish	550	63%	261	64%	2,183	82%	427	30%
Twoline eelpout	-	0%	44	51%	28	18%	81	50%
Bigfin eelpout	-	0%	-	0%	-	0%	12	20%
Black eelpout	2	100%	15	61%	39	73%	1	100%
<i>Lycenchelys</i> spp.	35	32%	73	42%	-	0%	-	0%
Arrowtooth flounder	838	29%	496	67%	-	0%	-	0%
Slender sole	1,301	54%	168	51%	-	0%	-	0%
Dover sole	1,823	34%	1,089	36%	408	72%	65	80%
Deepsea sole	-	0%	1	100%	42	35%	113	29%
Rex sole	987	66%	42	36%	-	0%	-	0%

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	2	100%	5	100%	193	23%
Spiny dogfish	95	100%	2	100%	29,111	70%
Bering skate	-	0%	-	0%	211	15%
Longnose skate	-	0%	-	0%	1,722	31%
Black skate	70	69%	176	51%	351	34%
Pacific whiting	-	0%	-	0%	11,873	90%
Pacific grenadier	338	35%	730	42%	1,166	29%
Giant grenadier	300	27%	1,070	12%	1,913	10%
Shortspine thornyhead	273	50%	147	20%	1,424	14%
Longspine thornyhead	1,652	24%	1,577	19%	5,521	11%
Pacific ocean perch	-	0%	-	0%	2,724	58%
Aurora rockfish	-	0%	-	0%	8	100%
Darkblotched rockfish	-	0%	-	0%	973	93%
Splitnose rockfish	-	0%	-	0%	233	43%
Redbanded rockfish	-	0%	-	0%	96	91%
Sablefish	410	12%	243	16%	4,074	45%
Twoline eelpout	44	39%	377	90%	574	60%
Bigfin eelpout	7	57%	11	69%	30	29%
Black eelpout	-	0%	-	0%	57	52%
<i>Lycenchelys</i> spp.	-	0%	-	0%	109	30%
Arrowtooth flounder	-	0%	-	0%	1,335	31%
Slender sole	-	0%	-	0%	1,470	48%
Dover sole	-	0%	-	0%	3,384	24%
Deepsea sole	167	46%	39	43%	363	24%
Rex sole	-	0%	-	0%	1,029	63%

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 1999 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	1,557,467	28%	8,594,416	17%	7,895,548	16%	4,441,934	24%
Spiny dogfish	87,694,373	42%	8,982,686	35%	193,857	62%	68,357	91%
Bering skate	4,463,283	20%	2,627,103	19%	83,290	62%	26,527	100%
Longnose skate	5,782,384	24%	2,408,990	19%	313,117	28%	35,970	51%
Black skate	7,942	100%	7,055	100%	276,084	43%	196,925	32%
Pacific whiting	237,670,878	41%	55,165,973	22%	6,573,103	47%	678,096	57%
Pacific grenadier	0	0%	70,651	91%	6,033,265	30%	4,959,830	17%
Giant grenadier	0	0%	277,991	52%	2,934,238	24%	2,907,941	15%
Shortspine thornyhead	19,972,854	26%	40,369,355	19%	8,541,053	21%	2,987,902	20%
Longspine thornyhead	307,501	71%	20,874,031	34%	199,031,677	13%	366,990,990	9%
Pacific ocean perch	10,956,849	60%	2,510,099	89%	0	0%	-	0%
Aurora rockfish	310,423	48%	9,895,170	25%	88,912	61%	-	0%
Darkblotched rockfish	5,732,480	65%	268,896	32%	0	0%	-	0%
Splitnose rockfish	96,184,614	31%	6,219,007	56%	71,843	100%	-	0%
Redbanded rockfish	350,953	28%	105,260	39%	0	0%	-	0%
Sablefish	10,591,486	47%	3,084,658	21%	5,855,375	27%	4,611,942	17%
Twoline eelpout	0	0%	265,754	40%	1,236,713	23%	2,997,482	29%
Bigfin eelpout	0	0%	0	0%	239,558	43%	1,642,658	13%
Black eelpout	2,514,540	60%	11,425,289	30%	13,373,485	36%	1,577,268	99%
<i>Lycenchelys</i> spp.	18,479,841	29%	22,476,950	23%	878,265	43%	-	0%
Arrowtooth flounder	1,386,330	32%	2,398,544	36%	6,979	100%	-	0%
Slender sole	106,115,063	17%	16,721,442	36%	0	0%	-	0%
Dover sole	56,867,207	27%	110,597,039	20%	31,623,357	22%	25,524,739	23%
Deepsea sole	0	0%	137,875	62%	963,479	25%	3,451,802	12%
Rex sole	109,606,837	25%	86,517,011	21%	3,699,109	46%	12,533	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	1,365,589	26%	283,295	46%	24,138,249	9%
Spiny dogfish	81,346	70%	5,643	100%	97,026,262	38%
Bering skate	0	0%	0	0%	7,200,203	15%
Longnose skate	7,131	100%	0	0%	8,547,592	17%
Black skate	573,372	17%	928,802	22%	1,990,181	13%
Pacific whiting	104,988	37%	117,509	46%	300,310,546	33%
Pacific grenadier	23,919,053	11%	37,532,645	9%	72,515,444	7%
Giant grenadier	6,238,230	16%	10,903,488	14%	23,261,888	8%
Shortspine thornyhead	3,220,216	18%	1,986,976	17%	77,078,357	12%
Longspine thornyhead	270,936,244	7%	167,997,070	12%	1,026,137,515	5%
Pacific ocean perch	0	0%	0	0%	13,466,947	51%
Aurora rockfish	0	0%	0	0%	10,294,505	24%
Darkblotched rockfish	0	0%	0	0%	6,001,376	62%
Splitnose rockfish	0	0%	0	0%	102,475,465	29%
Redbanded rockfish	6,936	100%	0	0%	463,149	23%
Sablefish	3,756,244	17%	3,777,556	22%	31,677,261	17%
Twoline eelpout	2,575,590	26%	2,660,754	47%	9,736,294	17%
Bigfin eelpout	3,153,098	27%	484,044	48%	5,519,357	17%
Black eelpout	174,266	100%	0	0%	29,064,847	22%
<i>Lycenchelys</i> spp.	0	0%	0	0%	41,835,056	18%
Arrowtooth flounder	0	0%	0	0%	3,791,853	25%
Slender sole	0	0%	0	0%	122,836,505	16%
Dover sole	12,224,548	37%	6,781,939	60%	243,618,829	12%
Deepsea sole	4,166,412	12%	2,095,940	20%	10,815,507	7%
Rex sole	0	0%	0	0%	199,835,490	17%

Table 26.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Conception area from the 1999 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	361,067	73%	3,076,403	42%	2,684,776	45%	567,458	41%
Spiny dogfish	60,426	48%	0	0%	15,529	100%	-	0%
Bering skate	574,044	59%	360,527	42%	0	0%	-	0%
Longnose skate	2,713,761	34%	1,032,908	51%	170,320	89%	11,251	100%
Black skate	0	0%	0	0%	0	0%	29,735	100%
Pacific whiting	129,922,282	69%	14,222,155	23%	1,576,344	41%	29,201	63%
Pacific grenadier	0	0%	0	0%	0	0%	144,668	100%
Giant grenadier	0	0%	12,509	100%	16,173	100%	296,865	19%
Shortspine thornyhead	323,850	71%	3,779,463	36%	2,100,684	11%	1,339,754	21%
Longspine thornyhead	0	0%	18,262,846	41%	50,421,401	45%	61,918,136	8%
Pacific ocean perch	0	0%	0	0%	0	0%	-	0%
Aurora rockfish	204,994	58%	6,733,721	37%	108,706	100%	-	0%
Darkblotched rockfish	0	0%	0	0%	0	0%	-	0%
Splitnose rockfish	29,353,138	57%	2,365,468	99%	155,294	100%	-	0%
Redbanded rockfish	60,496	66%	0	0%	0	0%	-	0%
Sablefish	3,194,278	51%	1,123,229	37%	1,281,018	41%	1,501,324	34%
Twoline eelpout	0	0%	0	0%	110,041	59%	1,675,971	41%
Bigfin eelpout	0	0%	0	0%	0	0%	204,614	40%
Black eelpout	2,012,685	68%	3,549,338	78%	186,997	89%	-	0%
<i>Lycenchelys</i> spp.	2,184,026	49%	2,757,362	60%	90,154	100%	-	0%
Arrowtooth flounder	0	0%	0	0%	0	0%	-	0%
Slender sole	5,510,417	46%	99,036	86%	0	0%	-	0%
Dover sole	6,479,702	28%	15,931,152	26%	9,500,243	46%	6,971,962	65%
Deepsea sole	0	0%	0	0%	48,519	100%	779,903	34%
Rex sole	6,167,603	54%	4,986,699	29%	0	0%	-	0%

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	146,335	100%	173,563	78%	7,009,602	26%
Spiny dogfish	0	0%	0	0%	75,956	43%
Bering skate	0	0%	0	0%	934,571	40%
Longnose skate	0	0%	0	0%	3,928,241	28%
Black skate	87,944	57%	33,640	100%	151,319	45%
Pacific whiting	19,122	61%	20,153	67%	145,789,257	61%
Pacific grenadier	1,688,233	35%	6,258,313	27%	8,091,214	22%
Giant grenadier	1,740,957	37%	765,169	41%	2,831,672	25%
Shortspine thornyhead	1,455,184	32%	211,709	29%	9,210,644	16%
Longspine thornyhead	29,843,685	11%	6,362,604	29%	166,808,672	15%
Pacific ocean perch	0	0%	0	0%	0	0%
Aurora rockfish	0	0%	0	0%	7,047,421	35%
Darkblotched rockfish	0	0%	0	0%	0	0%
Splitnose rockfish	0	0%	0	0%	31,873,901	53%
Redbanded rockfish	0	0%	0	0%	60,496	66%
Sablefish	1,298,382	25%	177,646	34%	8,575,877	22%
Twoline eelpout	1,182,951	42%	201,338	61%	3,170,301	27%
Bigfin eelpout	78,803	33%	19,181	100%	302,598	29%
Black eelpout	0	0%	0	0%	5,749,019	54%
<i>Lycenchelys</i> spp.	0	0%	0	0%	5,031,542	39%
Arrowtooth flounder	0	0%	0	0%	0	0%
Slender sole	0	0%	0	0%	5,609,452	45%
Dover sole	1,879,965	69%	218,347	67%	40,981,371	19%
Deepsea sole	447,293	7%	59,400	41%	1,335,115	20%
Rex sole	0	0%	0	0%	11,154,301	33%

Table 27.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Monterey area from the 1999 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	152,201	63%	2,366,414	28%	2,686,428	25%	1,379,617	34%
Spiny dogfish	12,145,507	100%	221,832	65%	86,743	100%	-	0%
Bering skate	345,762	39%	1,063,790	20%	42,670	86%	-	0%
Longnose skate	1,031,450	39%	587,477	31%	106,944	31%	20,928	70%
Black skate	0	0%	0	0%	5,967	100%	93,657	48%
Pacific whiting	63,296,249	45%	15,867,062	43%	3,736,732	63%	531,779	67%
Pacific grenadier	0	0%	46,466	100%	168,734	47%	1,416,681	33%
Giant grenadier	0	0%	25,735	80%	171,318	42%	764,205	33%
Shortspine thornyhead	2,169,964	84%	1,565,150	38%	1,208,695	31%	1,177,024	32%
Longspine thornyhead	0	0%	5,124,592	58%	30,408,967	52%	117,893,686	21%
Pacific ocean perch	4,956	100%	5,084	100%	0	0%	-	0%
Aurora rockfish	68,461	83%	2,405,442	38%	30,853	54%	-	0%
Darkblotched rockfish	93,644	71%	82,555	63%	0	0%	-	0%
Splitnose rockfish	16,270,331	61%	3,390,849	66%	0	0%	-	0%
Redbanded rockfish	5,546	100%	31,759	56%	0	0%	-	0%
Sablefish	4,554,543	74%	438,773	42%	552,085	16%	1,288,575	45%
Twoline eelpout	0	0%	20,999	75%	439,948	43%	892,312	54%
Bigfin eelpout	0	0%	0	0%	45,776	100%	399,187	20%
Black eelpout	0	0%	163,887	89%	509,445	44%	1,512,813	100%
<i>Lycenchelys</i> spp.	4,575,415	78%	6,382,089	24%	425,134	55%	-	0%
Arrowtooth flounder	0	0%	10,326	100%	0	0%	-	0%
Slender sole	10,753,403	32%	526,013	43%	0	0%	-	0%
Dover sole	18,146,893	57%	28,201,765	34%	9,415,771	43%	13,363,295	24%
Deepsea sole	0	0%	72,258	82%	133,214	46%	902,926	31%
Rex sole	15,848,340	31%	25,512,803	27%	436,136	97%	-	0%

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	378,219	32%	58,895	33%	7,021,774	15%
Spiny dogfish	0	0%	0	0%	12,454,081	98%
Bering skate	0	0%	0	0%	1,452,221	18%
Longnose skate	7,037	100%	0	0%	1,753,836	25%
Black skate	164,535	33%	116,530	43%	380,689	23%
Pacific whiting	61,326	52%	81,613	63%	83,574,762	35%
Pacific grenadier	7,490,801	16%	10,738,768	17%	19,861,450	11%
Giant grenadier	1,736,648	44%	3,504,928	23%	6,202,834	18%
Shortspine thornyhead	1,123,381	19%	948,502	29%	8,192,716	25%
Longspine thornyhead	59,247,603	11%	29,775,747	24%	242,450,595	13%
Pacific ocean perch	0	0%	0	0%	10,040	71%
Aurora rockfish	0	0%	0	0%	2,504,757	37%
Darkblotched rockfish	0	0%	0	0%	176,198	48%
Splitnose rockfish	0	0%	0	0%	19,661,180	52%
Redbanded rockfish	0	0%	0	0%	37,305	50%
Sablefish	1,518,724	29%	876,901	27%	9,229,600	37%
Twoline eelpout	929,949	50%	409,027	28%	2,692,235	26%
Bigfin eelpout	781,999	32%	290,579	75%	1,517,540	23%
Black eelpout	171,977	100%	0	0%	2,358,123	66%
<i>Lycenchelys</i> spp.	0	0%	0	0%	11,382,638	34%
Arrowtooth flounder	0	0%	0	0%	10,326	100%
Slender sole	0	0%	0	0%	11,279,416	31%
Dover sole	8,967,591	41%	6,364,034	62%	84,459,350	19%
Deepsea sole	1,602,217	16%	784,583	34%	3,495,198	14%
Rex sole	0	0%	0	0%	41,797,280	20%

Table 28.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Eureka area from the 1999 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	289,787	57%	1,412,358	22%	1,965,597	25%	1,573,822	71%
Spiny dogfish	240,809	65%	58,760	79%	0	0%	8,509	100%
Bering skate	1,378,548	32%	216,003	62%	0	0%	34,034	100%
Longnose skate	621,410	30%	247,571	20%	49,688	61%	8,401	100%
Black skate	0	0%	0	0%	131,074	100%	8,509	100%
Pacific whiting	5,647,724	74%	3,146,182	15%	294,084	66%	34,376	72%
Pacific grenadier	0	0%	5,419	100%	3,021,754	59%	1,130,993	38%
Giant grenadier	0	0%	0	0%	617,929	75%	585,797	30%
Shortspine thornyhead	1,442,951	36%	2,774,150	39%	332,217	25%	193,245	28%
Longspine thornyhead	0	0%	295,416	100%	44,649,393	22%	97,495,185	10%
Pacific ocean perch	0	0%	5,990	100%	0	0%	-	0%
Aurora rockfish	0	0%	835,850	43%	0	0%	-	0%
Darkblotched rockfish	254,473	63%	19,689	69%	0	0%	-	0%
Splitnose rockfish	17,690,107	53%	0	0%	0	0%	-	0%
Redbanded rockfish	30,732	50%	0	0%	0	0%	-	0%
Sablefish	62,455	34%	209,955	25%	456,832	32%	477,461	13%
Twoline eelpout	0	0%	48,341	100%	132,376	53%	76,236	48%
Bigfin eelpout	0	0%	0	0%	96,493	80%	549,514	26%
Black eelpout	0	0%	4,339,637	31%	11,067,861	31%	-	0%
<i>Lycenchelys</i> spp.	2,383,314	37%	2,616,183	64%	33,005	73%	-	0%
Arrowtooth flounder	91,181	27%	96,682	32%	0	0%	-	0%
Slender sole	27,906,503	26%	351,103	39%	0	0%	-	0%
Dover sole	4,440,092	38%	5,328,630	32%	5,803,760	55%	5,212,665	29%
Deepsea sole	0	0%	0	0%	85,467	29%	615,534	19%
Rex sole	42,172,688	36%	13,355,279	30%	2,739,837	58%	16,079	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	261,794	59%	0	0%	5,503,358	23%
Spiny dogfish	0	0%	0	0%	308,077	53%
Bering skate	0	0%	0	0%	1,628,585	28%
Longnose skate	0	0%	0	0%	927,071	21%
Black skate	171,770	54%	214,828	35%	526,181	34%
Pacific whiting	18,562	100%	5,865	100%	9,146,793	46%
Pacific grenadier	7,269,283	33%	5,882,486	25%	17,309,936	19%
Giant grenadier	979,933	24%	1,772,531	26%	3,956,189	18%
Shortspine thornyhead	144,710	28%	383,043	36%	5,270,316	23%
Longspine thornyhead	80,312,685	11%	56,754,153	14%	279,506,831	7%
Pacific ocean perch	0	0%	0	0%	5,990	100%
Aurora rockfish	0	0%	0	0%	835,850	43%
Darkblotched rockfish	0	0%	0	0%	274,162	59%
Splitnose rockfish	0	0%	0	0%	17,690,107	53%
Redbanded rockfish	0	0%	0	0%	30,732	50%
Sablefish	672,604	42%	1,581,729	41%	3,461,036	21%
Twoline eelpout	109,183	35%	64,363	69%	430,499	26%
Bigfin eelpout	1,810,185	54%	35,189	100%	2,491,381	40%
Black eelpout	0	0%	0	0%	15,407,499	24%
<i>Lycenchelys</i> spp.	0	0%	0	0%	5,032,502	38%
Arrowtooth flounder	0	0%	0	0%	187,862	21%
Slender sole	0	0%	0	0%	28,257,606	25%
Dover sole	1,495,334	65%	260,689	34%	22,541,171	19%
Deepsea sole	699,311	44%	819,709	25%	2,220,021	17%
Rex sole	0	0%	0	0%	58,283,883	27%

Table 29.--Estimates of fish population and coefficient of variation (CV) by stratum for the International North Pacific Fisheries Commission Columbia area from the 1999 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	688,166	47%	1,319,926	33%	959,268	31%	986,637	33%
Spiny dogfish	49,635,997	53%	9,737,178	30%	66,281	68%	54,241	100%
Bering skate	1,718,116	27%	704,976	38%	25,359	78%	-	0%
Longnose skate	943,741	17%	409,366	28%	30,756	54%	-	0%
Black skate	0	0%	8,303	100%	116,935	31%	32,473	45%
Pacific whiting	16,430,327	24%	21,560,838	37%	721,814	41%	65,758	73%
Pacific grenadier	0	0%	0	0%	2,175,356	29%	1,392,551	33%
Giant grenadier	0	0%	43,281	100%	1,531,828	27%	1,009,171	28%
Shortspine thornyhead	15,796,242	28%	29,742,808	21%	2,764,271	31%	348,736	34%
Longspine thornyhead	205,337	100%	1,408,192	78%	66,871,996	16%	84,701,438	12%
Pacific ocean perch	9,895,996	73%	283,158	50%	0	0%	-	0%
Aurora rockfish	33,544	57%	831,024	42%	0	0%	-	0%
Darkblotched rockfish	4,303,056	92%	135,615	37%	0	0%	-	0%
Splitnose rockfish	24,625,736	81%	179,844	62%	0	0%	-	0%
Redbanded rockfish	184,598	37%	72,281	51%	0	0%	-	0%
Sablefish	1,239,036	17%	1,501,110	42%	1,916,315	26%	1,265,581	24%
Twoline eelpout	0	0%	73,090	70%	352,832	33%	257,767	23%
Bigfin eelpout	0	0%	0	0%	86,174	60%	412,497	28%
Black eelpout	742,884	100%	3,454,887	69%	2,242,113	61%	-	0%
<i>Lycenchelys</i> spp.	8,036,665	24%	9,598,219	52%	234,916	80%	-	0%
Arrowtooth flounder	755,181	37%	1,494,762	17%	5,924	100%	-	0%
Slender sole	44,050,374	25%	11,947,576	44%	0	0%	-	0%
Dover sole	18,740,481	28%	59,444,260	31%	7,107,292	44%	2,355,558	59%
Deepsea sole	0	0%	25,969	100%	416,971	39%	900,611	20%
Rex sole	28,766,261	35%	37,427,725	42%	730,719	74%	-	0%

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	505,850	44%	51,653	41%	4,511,501	16%
Spiny dogfish	20,762	69%	0	0%	59,514,459	45%
Bering skate	0	0%	0	0%	2,448,452	22%
Longnose skate	0	0%	0	0%	1,383,863	14%
Black skate	130,676	19%	389,314	34%	677,702	21%
Pacific whiting	11,174	67%	12,473	67%	38,802,385	23%
Pacific grenadier	5,764,539	11%	11,138,511	10%	20,470,958	7%
Giant grenadier	1,564,693	18%	3,884,213	29%	8,033,186	16%
Shortspine thornyhead	431,251	23%	288,769	25%	49,372,076	16%
Longspine thornyhead	80,122,030	8%	56,473,943	13%	289,782,936	6%
Pacific ocean perch	0	0%	0	0%	10,179,154	71%
Aurora rockfish	0	0%	0	0%	864,568	41%
Darkblotched rockfish	0	0%	0	0%	4,438,671	89%
Splitnose rockfish	0	0%	0	0%	24,805,580	81%
Redbanded rockfish	5,271	100%	0	0%	262,150	30%
Sablefish	372,432	15%	1,054,521	24%	7,348,995	13%
Twoline eelpout	354,641	33%	722,865	53%	1,761,195	24%
Bigfin eelpout	679,771	27%	43,869	38%	1,222,311	18%
Black eelpout	0	0%	0	0%	6,439,883	44%
<i>Lycenchelys</i> spp.	0	0%	0	0%	17,869,800	30%
Arrowtooth flounder	0	0%	0	0%	2,255,866	17%
Slender sole	0	0%	0	0%	55,997,950	21%
Dover sole	464,843	49%	6,231	100%	88,118,664	22%
Deepsea sole	966,689	17%	355,038	38%	2,665,278	12%
Rex sole	0	0%	0	0%	66,924,705	28%

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 1999 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	69,179	53%	297,881	44%	201,959	33%	156,139	32%
Spiny dogfish	38,955,128	86%	172,200	81%	0	0%	-	0%
Bering skate	305,117	20%	25,528	36%	0	0%	-	0%
Longnose skate	398,118	51%	67,125	24%	0	0%	-	0%
Black skate	11,490	100%	0	0%	13,072	56%	20,516	100%
Pacific whiting	15,203,502	95%	917,118	54%	33,758	100%	3,822	100%
Pacific grenadier	0	0%	0	0%	451,062	34%	530,293	16%
Giant grenadier	0	0%	102,866	51%	241,003	33%	175,478	13%
Shortspine thornyhead	1,407,990	58%	3,457,803	37%	591,762	6%	168,854	47%
Longspine thornyhead	183,839	100%	0	0%	10,955,309	21%	17,051,464	3%
Pacific ocean perch	3,261,188	52%	1,169,041	100%	0	0%	-	0%
Aurora rockfish	0	0%	66,598	100%	0	0%	-	0%
Darkblotched rockfish	2,170,267	92%	8,325	100%	0	0%	-	0%
Splitnose rockfish	4,352,775	47%	8,325	100%	0	0%	-	0%
Redbanded rockfish	126,223	74%	0	0%	0	0%	-	0%
Sablefish	323,321	57%	94,030	50%	1,098,809	81%	244,141	33%
Twoline eelpout	0	0%	60,451	53%	53,064	14%	320,405	56%
Bigfin eelpout	0	0%	0	0%	0	0%	108,790	20%
Black eelpout	47,364	100%	196,188	68%	461,477	70%	7,944	100%
<i>Lycenchelys</i> spp.	135,225	44%	262,375	49%	0	0%	-	0%
Arrowtooth flounder	878,865	38%	517,376	74%	0	0%	-	0%
Slender sole	17,721,100	59%	2,780,746	62%	0	0%	-	0%
Dover sole	5,506,437	17%	2,526,492	35%	615,393	70%	80,746	87%
Deepsea sole	0	0%	8,325	100%	130,513	48%	270,327	34%
Rex sole	5,052,610	48%	275,652	47%	0	0%	-	0%

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	10,812	100%	11,663	100%	747,633	21%
Spiny dogfish	42,223	100%	4,250	100%	39,173,801	85%
Bering skate	0	0%	0	0%	330,645	19%
Longnose skate	0	0%	0	0%	465,243	44%
Black skate	32,931	77%	139,972	52%	217,981	37%
Pacific whiting	0	0%	0	0%	16,158,200	89%
Pacific grenadier	1,676,115	23%	3,274,492	51%	5,931,962	29%
Giant grenadier	293,947	28%	863,360	15%	1,676,655	11%
Shortspine thornyhead	233,809	42%	139,364	21%	5,999,582	25%
Longspine thornyhead	18,783,429	24%	15,365,639	5%	62,339,680	8%
Pacific ocean perch	0	0%	0	0%	4,430,229	46%
Aurora rockfish	0	0%	0	0%	66,598	100%
Darkblotched rockfish	0	0%	0	0%	2,178,592	92%
Splitnose rockfish	0	0%	0	0%	4,361,100	47%
Redbanded rockfish	0	0%	0	0%	126,223	74%
Sablefish	192,138	25%	94,332	10%	2,046,770	45%
Twoline eelpout	144,487	47%	978,152	92%	1,556,558	59%
Bigfin eelpout	65,269	57%	75,257	67%	249,316	27%
Black eelpout	0	0%	0	0%	712,973	50%
<i>Lycenchelys</i> spp.	0	0%	0	0%	397,600	36%
Arrowtooth flounder	0	0%	0	0%	1,396,241	36%
Slender sole	0	0%	0	0%	20,501,846	52%
Dover sole	0	0%	0	0%	8,729,068	16%
Deepsea sole	327,331	36%	69,883	47%	806,377	21%
Rex sole	0	0%	0	0%	5,328,262	46%

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 1999 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 = 34			Total hauls = 35			Total hauls = 33		
	Hauls with:			Hauls with:			Hauls with:		
	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.
Brown cat shark	20	20	19	29	29	29	33	33	33
Spiny dogfish	25	25	25	21	21	21	4	4	4
Bering skate	32	32	32	32	32	32	4	4	4
Longnose skate	33	33	33	21	21	21	15	15	15
Black skate	1	1	1	26	26	26	11	11	11
Pacific whiting	33	33	33	35	35	34	25	25	24
Pacific grenadier	0	0	0	2	2	2	22	22	22
Giant grenadier	0	0	0	6	6	5	23	23	23
Shortspine thornyhead	26	26	26	35	35	35	33	33	33
Longspine thornyhead	2	2	2	14	14	14	33	33	33
Pacific ocean perch	11	11	11	10	10	10	0	0	0
Aurora rockfish	8	8	8	30	30	30	4	4	4
Darkblotched rockfish	20	20	20	12	12	12	0	0	0
Splitnose rockfish	29	29	29	12	12	12	1	1	1
Redbanded rockfish	15	15	15	7	7	7	0	0	0
Sablefish	30	30	30	35	35	35	33	33	33
Twoline eelpout	0	0	0	7	7	7	28	28	27
Bigfin eelpout	0	0	0	0	0	0	7	7	7
Black eelpout	4	4	3	22	22	20	24	24	22
<i>Lycenchelys</i> spp.	32	32	30	33	33	32	10	10	10
Arrowtooth flounder	21	21	20	21	21	21	1	1	1
Slender sole	34	34	34	26	26	26	0	0	0
Dover sole	33	33	33	35	35	35	32	32	32
Deepsea sole	0	0	0	4	4	4	24	24	24
Rex sole	34	34	34	33	33	33	12	12	12

Species	Stratum 4 733-914 m			Stratum 5 915-1,097 m			Stratum 6 1,098-1,280 m		
	Total hauls = 31			Total hauls = 32			Total hauls = 34		
	Hauls with:			Hauls with:			Hauls with:		
	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.
Brown cat shark	30	30	30	23	23	23	15	15	14
Spiny dogfish	2	2	2	3	3	3	1	1	1
Bering skate	1	1	1	0	0	0	0	0	0
Longnose skate	4	4	4	1	1	1	0	0	0
Black skate	12	12	12	26	26	25	22	22	22
Pacific whiting	12	12	11	9	9	9	9	9	9
Pacific grenadier	28	28	28	32	32	32	34	34	34
Giant grenadier	31	31	31	32	32	32	34	34	34
Shortspine thornyhead	29	29	29	32	32	31	34	34	34
Longspine thornyhead	31	31	31	32	32	32	34	34	34
Pacific ocean perch	0	0	0	0	0	0	0	0	0
Aurora rockfish	0	0	0	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	1	1	1	0	0	0
Sablefish	31	31	31	31	31	31	33	33	33
Twoline eelpout	29	29	29	29	29	28	23	23	23
Bigfin eelpout	28	28	26	28	28	25	13	13	13
Black eelpout	2	2	2	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	29	29	28	22	22	22	16	16	16
Deepsea sole	30	30	30	32	32	32	32	32	32
Rex sole	1	1	1	0	0	0	0	0	0

Table 34.--Total number of hauls and hauls with weight, number and length data by stratum for the International North Pacific Fisheries Commission Eureka area from the 1999 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 = 5			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	5	5	5
Spiny dogfish	5	5	5	2	2	2	0	0	0
Bering skate	5	5	5	4	4	4	0	0	0
Longnose skate	5	5	5	5	5	5	2	2	2
Black skate	0	0	0	4	4	4	1	1	1
Pacific whiting	5	5	5	5	5	5	4	4	4
Pacific grenadier	0	0	0	1	1	1	4	4	4
Giant grenadier	0	0	0	0	0	0	4	4	4
Shortspine thornyhead	4	4	4	5	5	5	5	5	5
Longspine thornyhead	0	0	0	1	1	1	5	5	5
Pacific ocean perch	0	0	0	1	1	1	0	0	0
Aurora rockfish	0	0	0	5	5	5	0	0	0
Darkblotched rockfish	5	5	5	2	2	2	0	0	0
Splitnose rockfish	5	5	5	0	0	0	0	0	0
Redbanded rockfish	3	3	3	0	0	0	0	0	0
Sablefish	4	4	4	5	5	5	5	5	5
Twoline eelpout	0	0	0	1	1	1	5	5	5
Bigfin eelpout	0	0	0	0	0	0	2	2	2
Black eelpout	0	0	0	5	5	5	5	5	4
<i>Lycenchelys</i> spp.	5	5	5	5	5	5	2	2	2
Arrowtooth flounder	5	5	4	5	5	5	0	0	0
Slender sole	5	5	5	4	4	4	0	0	0
Dover sole	5	5	5	5	5	5	5	5	5
Deepsea sole	0	0	0	0	0	0	5	5	5
Rex sole	5	5	5	5	5	5	4	4	4

Species	Stratum 4 733-914 m			Stratum 5 915-1,097 m			Stratum 6 1,098-1,280 m		
	Total hauls = 5			Total hauls = 5			Total hauls = 6		
	Hauls with:			Hauls with:			Hauls with:		
	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.
Brown cat shark	5	5	5	5	5	5	0	0	0
Spiny dogfish	1	1	1	0	0	0	0	0	0
Bering skate	1	1	1	0	0	0	0	0	0
Longnose skate	1	1	1	0	0	0	0	0	0
Black skate	1	1	1	4	4	4	6	6	6
Pacific whiting	2	2	2	1	1	1	1	1	1
Pacific grenadier	5	5	5	5	5	5	6	6	6
Giant grenadier	5	5	5	5	5	5	6	6	6
Shortspine thornyhead	4	4	4	5	5	4	6	6	6
Longspine thornyhead	5	5	5	5	5	5	6	6	6
Pacific ocean perch	0	0	0	0	0	0	0	0	0
Aurora rockfish	0	0	0	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	5	5	5	5	5	5	6	6	6
Twoline eelpout	4	4	4	4	4	4	3	3	3
Bigfin eelpout	5	5	5	4	4	4	1	1	1
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	5	5	5	5	5	5	6	6	6
Deepsea sole	5	5	5	5	5	5	6	6	6
Rex sole	1	1	1	0	0	0	0	0	0

Table 37.--The length-weight relationships for all the International North Pacific Fisheries Commission areas combined from the 1999 West Coast upper continental slope survey using nonlinear regression fit for the equation:

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

Species	Sex	Number Sampled	Length-Weight Coefficients		Predicted Weight at Length (g)		
			a	b	20 cm	40 cm	60 cm
Arrowtooth flounder	M	79	0.005871	3.112847	569.7	2012.9	4928.8
	F	168	0.002845	3.317943	588.3	2258.8	5867.1
	T	247	0.002619	3.336551	580.1	2244.0	5859.9
Dover sole	M	713	0.003557	3.273759	64.6	624.9	2356.8
	F	947	0.003767	3.259644	65.6	628.3	2355.8
	T	1,662	0.003651	3.267505	65.1	626.8	2357.9
Sablefish	M	659	0.004586	3.191836	40 cm	60 cm	80 cm
	F	736	0.003781	3.244308	595.6	2172.7	5442.3
	T	1,395	0.003962	3.230940	595.9	2220.6	5647.0
Shortspine thornyhead	M	871	0.004988	3.243471	20 cm	40 cm	60 cm
	F	946	0.004487	3.274172	82.8	783.7	2919.5
	U	85	0.012948	2.884807	81.6	789.5	2978.0
	T	1,902	0.004983	3.244861	73.4	-	-
Longspine thornyhead	M	596	0.004264	3.308388	83.0	787.0	2933.2
	F	618	0.004731	3.275240	10 cm	20 cm	30 cm
	U	296	0.014765	2.825483	8.7	85.9	328.6
	T	1,510	0.006170	3.188099	8.9	86.3	325.7
Pacific grenadier	M	382	0.099064	3.008163	9.9	70.0	-
	F	417	0.112332	2.965863	9.5	86.7	315.9
	U	60	0.204215	2.513662	10 cm	20 cm	30 cm
	T	859	0.160400	2.885600	100.9	812.1	2750.0
				103.8	811.3	2700.5	
				66.6	380.6	-	
				123.3	910.9	2934.8	