

Appendix

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Appendix A: Fish Species List and Codes

Code	Common Name	Scientific Name
1226	Abyssal Grenadier	<i>Coryphaenoides armatus</i>
710	Albacore Tuna	<i>Thunnus alalunga</i>
1237	Aleutian Skate	<i>Bathyraja aleutica</i>
606	American Shad	<i>Alosa sapidissima</i>
605	Anchovy Unid	<i>Engraulididae</i>
10645	Anglerfish Unid	<i>Lophiiformes</i>
141	Arrowtooth Flounder	<i>Atheresthes stomias</i>
204	Atka Mackerel	<i>Pleurogrammus monoptyerygius</i>
334	Aurora Rockfish	<i>Sebastes aurora</i>
180	Banded Guitarfish	<i>Zapteryx exasperata</i>
337	Bank Rockfish	<i>Sebastes rufus</i>
770	Barracudina Unid	<i>Paralepididae</i>
475	Barred Sand Bass	<i>Paralabrax nebulifer</i>
264	Basketweave Cusk-eel	<i>Ophidion scrippsae</i>
480	Bass Unid	<i>Percichthyidae/Serranidae</i>
561	Bat Ray	<i>Myliobatis californica</i>
185	Bay Pipefish	<i>Syngnathus leptorhynchus</i>
252	Bearded Eelpout	<i>Lycinema barbatum</i>
453	Beardless spearnose Poacher	<i>Ganoideus vulsus</i>
1238	Bering Skate	<i>Bathyraja interrupta</i>
550	Big Skate	<i>Raja binoculata</i>
454	Bigeye starnose Poacher	<i>Asterotheca pentacantha</i>
575	Bigeye Thresher Shark	<i>Alopias superciliosus</i>
711	Bigeye Tuna	<i>Thunnus obesus</i>
254	Bigfin Eelpout	<i>Lycodes cortezianus</i>
119	Bigmouth Sole	<i>Hippoglossina stomata</i>
10646	Bigscale Unid	<i>Melamphaidae</i>
355	Black and Yellow Rockfish	<i>Sebastes chrysomelas</i>
725	Black Croaker	<i>Cheilotrema saturnum</i>
255	Black Eelpout	<i>Lycodes diapterus</i>
850	Black Hagfish	<i>Eptatretus deani</i>
306	Black Rockfish	<i>Sebastes melanops</i>
551	Black Skate	<i>Bathyraja trachura</i>
630	Black Surfperch	<i>Embiotoca jacksoni</i>
256	Blackbelly Eelpout	<i>Lycodopsis pacifica</i>
683	Blackchin Unid	<i>Neoscopelidae</i>
684	Blackdragon Unid	<i>Idiacanthidae</i>
455	Blackedge Poacher	<i>Xeneretmus latifrons</i>

Code	Common Name	Scientific Name
456	Blackfin starnose Poacher	<i>Bathyagonus nigripinnis</i>
319	Blackgill Rockfish	<i>Sebastes melanostomus</i>
257	Blackmouth Eelpout	<i>Lycodapus fierasfer</i>
685	Blacksmith	<i>Chromis punctipinnis</i>
856	Blob Sculpin	<i>Psychrolutes phrictus</i>
316	Blue Rockfish	<i>Sebastes mystinus</i>
69	Blue Shark	<i>Prionace glauca</i>
1241	Bluebarred Prickleback	<i>Plectobranthus evides</i>
712	Bluefin Tuna	<i>Thunnus thynnus</i>
457	Bluespotted Poacher	<i>Xeneretmus triacanthus</i>
302	Bocaccio Rockfish	<i>Sebastes paucispinus</i>
1219	Bonito (Shortfin Mako) Shark	<i>Isurus oxyrinchus</i>
687	Bristlemouth Unid	<i>Gonostomatidae</i>
356	Bronzespotted Rockfish	<i>Sebastes gilli</i>
68	Brown Cat Shark	<i>Apristurus brunneus</i>
408	Brown Irish Lord Sculpin	<i>Hemilepidotus spinosus</i>
332	Brown Rockfish	<i>Sebastes auriculatus</i>
576	Brown Smoothhound Shark	<i>Mustelus henlei</i>
409	Buffalo Sculpin	<i>Enophrys bison</i>
410	Bull Sculpin	<i>Enophrys taurina</i>
198	Bullet Mackerel	<i>Auxis rochei</i>
109	Butter Sole	<i>Pleuronectes isolepis</i>
1234	Butterfly Ray	<i>Gymnura marmorata</i>
689	Cabezon	<i>Scorpaenichthys marmoratus</i>
357	Calico Rockfish	<i>Sebastes dalli</i>
631	Calico Surfperch	<i>Amphistichus koelzi</i>
682	California Barracuda	<i>Sphyaena argentea</i>
692	California Corbina	<i>Menticirrhus undulatus</i>
1225	California Grenadier	<i>Nezumia stelgidolepis</i>
124	California Halibut	<i>Paralichthys californicus</i>
151	California Lizardfish	<i>Synodus lucioceps</i>
1212	California Moray	<i>Gymnothorax mordax</i>
423	California Scorpionfish	<i>Scorpaena guttata</i>
794	California Sheephead	<i>Semicossyphus pulcher</i>
552	California Skate	<i>Raja inornata</i>
160	California Slickhead	<i>Alepocephalus tenebrosus</i>
113	California Tonguefish	<i>Symphurus atricauda</i>
314	Canary Rockfish	<i>Sebastes pinniger</i>
604	Capelin	<i>Mallotus villosus</i>
870	Cat Unid Shark	<i>Scyliorhinidae</i>
358	Chameleon Rockfish	<i>Sebastes phillipsi</i>

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Code	Common Name	Scientific Name
325	Chilipepper Rockfish	<i>Sebastes goodei</i>
359	China Rockfish	<i>Sebastes nebulosus</i>
118	C-O (C-O Turbot) Sole	<i>Pleuronichthys coenosus</i>
1247	Cod Unid	<i>Gadidae</i>
1210	Combfish Unid	<i>Zaniolepididae</i>
577	Common Thresher Shark	<i>Alopias vulpinus</i>
327	Copper Rockfish	<i>Sebastes caurinus</i>
360	Cowcod Rockfish	<i>Sebastes levis</i>
1221	Crested Bigscale	<i>Poromitra crassiceps</i>
727	Croaker Unid	<i>Sciaenidae</i>
117	Curlfin Turbot	<i>Pleuronichthys decurrens</i>
262	Cusk-eel Unid	<i>Ophidiidae</i>
227	Cutthroat Trout	<i>Oncorhynchus clarkii</i>
679	Daggertooth	<i>Anotopterus pharao</i>
311	Darkblotched Rockfish	<i>Sebastes crameri</i>
899	Decomposed Fish	<i>Decomposed fish</i>
609	Deepbody Anchovy	<i>Anchoa compressa</i>
553	Deepsea Skate	<i>Bathyraja abyssicola</i>
693	Deepsea smelt Unid	<i>Bathylagidae</i>
110	Deepsea Sole	<i>Embassichthys bathybius</i>
559	Diamond Stingray	<i>Dasyatis dipterura</i>
121	Diamond Turbot	<i>Hypsopsetta guttulata</i>
221	Dog (Chum) Salmon	<i>Oncorhynchus keta</i>
578	Dogfish Shark Unid	<i>Squalus sp.</i>
228	Dolly Varden	<i>Salvelinus malma</i>
694	Dolphinfish	<i>Coryphaena hippurus</i>
107	Dover Sole	<i>Microstomus pacificus</i>
1101	Dragonfish, Unid	<i>Melanostomiidae</i>
1216	Dusky Sculpin	<i>Icelinus burchami</i>
783	Dwarf Wrymouth	<i>Cryptacanthodes aleutensis</i>
361	Dwarf-red Rockfish	<i>Sebastes rufianus</i>
250	Eelpout Unid	<i>Zoarcidae gnn.</i>
108	English Sole	<i>Pleuronectes vetulus</i>
601	Eulachon	<i>Thaleichthys pacificus</i>
855	Fangtooth	<i>Anoplogaster cornuta</i>
120	Fantail Sole	<i>Xystreurus liolepis</i>
1229	Filamented Grenadier	<i>Coryphaenoides filifer</i>
579	Filetail Cat Shark	<i>Parmaturus xaniurus</i>
854	Finescale Triggerfish	<i>Balistes polylepis</i>
1239	Fine-spined Skate	<i>Bathyraja microtrachys</i>
362	Flag Rockfish	<i>Sebastes rubrivinctus</i>

Code	Common Name	Scientific Name
258	Flatcheek Eelpout	<i>Embryx crotalina</i>
100	Flatfish Unid	<i>Pleuronectiformes</i>
1236	Flathead Skate	<i>Bathyraja rosispinis</i>
103	Flathead Sole	<i>Hippoglossoides elassodon</i>
858	Flying Fish Unid	<i>Exocoetidae</i>
363	Freckled Rockfish	<i>Sebastes lentiginosus</i>
197	Frigate Mackerel	<i>Auxis thazard</i>
411	Fringed Sculpin	<i>Icelinus fimbriatus</i>
853	Garibaldi	<i>Hypsypops rubicundus</i>
1227	Ghostly Grenadier	<i>Coryphaenoides leptolepis</i>
82	Giant Grenadier	<i>Albatrossia pectoralis</i>
740	Giant Kelpfish	<i>Heterostichus rostratus</i>
476	Giant Sea Bass	<i>Stereolepis gigas</i>
760	Giant Wrymouth	<i>Cryptacanthodes giganteus</i>
364	Gopher Rockfish	<i>Sebastes carnatus</i>
1202	Gorgonian Coral unid.	<i>Gorgonian</i>
365	Grass Rockfish	<i>Sebastes rastrelliger</i>
580	Gray Smoothhound Shark	<i>Mustelus californicus</i>
231	Green Sturgeon	<i>Acipenser medirostris</i>
366	Greenblotched Rockfish	<i>Sebastes rosenblatti</i>
102	Greenland Turbot	<i>Reinhardtius hippoglossoides</i>
390	Greenling Unid	<i>Hexagrammidae</i>
339	Greenspotted Rockfish	<i>Sebastes chlorostictus</i>
313	Greenstriped Rockfish	<i>Sebastes elongates</i>
80	Grenadier Unid	<i>Macrouridae</i>
412	Grunt Sculpin	<i>Rhamphocottus richardsoni</i>
430	Gunnel Unid	<i>Pholidae</i>
695	Hatchetfish Unid	<i>Sternoptychidae</i>
77	Hagfish Unid	<i>Myxinidae</i>
367	Halfbanded Rockfish	<i>Sebastes semicinctus</i>
697	Halfmoon	<i>Medialuna californiensis</i>
323	Harlequin Rockfish	<i>Sebastes variegatus</i>
368	Honeycomb Rockfish	<i>Sebastes umbrosus</i>
581	Horn Shark	<i>Heterodontus francisci</i>
122	Hornyhead Turbot	<i>Pleuronichthys verticalis</i>
155	Hundred fathom Mora	<i>Physiculus rastrelliger</i>
116	Hybrid Sole	<i>Inopsetta ischyra</i>
175	Jack Smelt	<i>Atherinops californiensis</i>
207	Jackmackerel	<i>Trachurus symmetricus</i>
477	Kelp Bass	<i>Paralabrax clathratus</i>
392	Kelp Greenling	<i>Hexagrammos decagrammus</i>

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Code	Common Name	Scientific Name
369	Kelp Rockfish	<i>Sebastes atrovirens</i>
632	Kelp Surfperch	<i>Brachyistius frenatus</i>
742	Kelpfish Unid	<i>Clinidae</i>
222	King (Chinook) Salmon	<i>Oncorhynchus tshawytscha</i>
608	King of the Salmon	<i>Trachipterus altivelis</i>
699	Lancetfish Unid	<i>Alepisauridae</i>
700	Laternfish Unid	<i>Myctophidae</i>
867	Lavender Sculpin	<i>Leiocottus hirundo</i>
1251	Leaf Like Eel	<i>Thalassenchelys cohen</i>
582	Leopard Shark	<i>Triakis semifasciata</i>
150	Lightfish Unid	<i>Photichthyidae</i>
603	Lingcod	<i>Ophiodon elongatus</i>
10647	Longfin Dragonfish	<i>Tactostoma macropus</i>
1249	Longfin Mako Shark	<i>Isurus paucus</i>
125	Longfin Sanddab	<i>Citharichthys xanthostigma</i>
1253	Longfin Smelt	<i>Spirinchus thaleichthys</i>
852	Longnose Cat Shark	<i>Apristurus kampae</i>
785	Longnose Lancetfish	<i>Alepisaurus ferox</i>
554	Longnose Skate	<i>Raja rhina</i>
690	Longspine Combfish	<i>Zaniolepis latipinnis</i>
352	Longspine Thornyhead	<i>Sebastobus altivelis</i>
152	Loosejaw Unid	<i>Malacosteidae</i>
153	Louvar	<i>Luvarus imperialis</i>
525	Lumpsucker Unid	<i>Cyclopteridae</i>
792	Lumptail Searobin	<i>Prionotus stephanophrys</i>
196	Mackerel Unid	<i>Scombridae</i>
774	Manefish	<i>Caristius macropus</i>
1231	Manta Ray	<i>Mata birostris</i>
154	Medusafish	<i>Icichthys lockingtoni</i>
370	Mexican Rockfish	<i>Sebastes macdonaldi</i>
869	Midshipman (Toadfish) Unid	<i>Batrachoididae</i>
259	Midwater Eelpout	<i>Melanostigma pammelas</i>
810	Mola Mola (Sunfish)	<i>Mola mola</i>
272	Monkeyface Prickleback	<i>Cebidichthys violaceus</i>
1262	Moridae Unid	<i>Moridae</i>
176	Night Smelt	<i>Spirinchus starksi</i>
1263	Non-euchalon Smelt, Unid	<i>Eulachon</i>
610	Northern Anchovy	<i>Engraulis mordax</i>
303	Northern Rockfish	<i>Sebastes polyspinis</i>
241	Northern Ronquil	<i>Ronquilis jordani</i>
458	Northern spearnose Poacher	<i>Agonopsis vulsa</i>

Code	Common Name	Scientific Name
798	Ocean Whitefish	<i>Caulolatilus princeps</i>
371	Olive Rockfish	<i>Sebastes serranoides</i>
435	Onespot Fringehead	<i>Neoclinus uninotatus</i>
297	Opah	<i>Lampris gattatus (regious)</i>
157	Opaleye	<i>Girella nigricans</i>
777	Other Id Fish	<i>Fish other id</i>
295	Oxeye Oreo	<i>Allocyttus folletti</i>
583	Pacific Angel Shark	<i>Squatina californica</i>
681	Pacific Argentine	<i>Argentina sialis</i>
1250	Pacific Black Dogfish	<i>Centroscyllium nigrum</i>
686	Pacific Bonito	<i>Sarda chiliensis</i>
688	Pacific Butterfish	<i>Peprilus simillimus</i>
202	Pacific Cod	<i>Gadus macrocephalus</i>
584	Pacific Dogfish Shark	<i>Squalus suckleyi</i>
562	Pacific Electric Ray	<i>Torpedo californica</i>
214	Pacific Flatnose	<i>Antimora microlepis</i>
83	Pacific Grenadier	<i>Coryphaenoides acrolepis</i>
79	Pacific Hagfish	<i>Eptatretus stouti</i>
206	Pacific Hake	<i>Merluccius productus</i>
101	Pacific Halibut	<i>Hippoglossus stenolepis</i>
611	Pacific Herring	<i>Clupea pallasii</i>
75	Pacific Lamprey	<i>Lampetra tridentata</i>
199	Pacific Mackerel	<i>Scomber japonicus</i>
301	Pacific Ocean Perch Rockfish	<i>Sebastes alutus</i>
158	Pacific Pomfret	<i>Brama japonica</i>
137	Pacific Sanddab	<i>Citharichthys sordidus</i>
239	Pacific Sandfish	<i>Trichodon trichodon</i>
670	Pacific Sandlance	<i>Ammodytes hexapterus</i>
614	Pacific Sardine	<i>Sardinops sagax</i>
607	Pacific Saury	<i>Cololabis saira</i>
1218	Pacific Scabbardfish	<i>Lepidopus xantusi</i>
62	Pacific Sleeper Shark	<i>Somniosus pacificus</i>
1261	Pacific Snake Eel	<i>Ophichthus triserialis</i>
530	Pacific Spiny Lumpsucker	<i>Eumicrotremus orbis</i>
413	Pacific Staghorn Sculpin	<i>Leptocottus armatus</i>
209	Pacific Tom Cod	<i>Microgadus proximus</i>
797	Pacific Viperfish	<i>Chauliodus macouni</i>
394	Painted Greenling	<i>Oxylebius pictus</i>
260	Pallid Eelpout	<i>Lycodapus mandibularis</i>
762	Paperbone Unid	<i>Notosudidae</i>
862	Pelagic Stingray	<i>Dasyatis violacea</i>

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Code	Common Name	Scientific Name
585	Pelagic Thresher Shark	<i>Alopias pelagicus</i>
112	Petrale Sole	<i>Eopsetta jordani</i>
633	Pile Surfperch	<i>Rhacochilus vacca</i>
225	Pink (Humpback) Salmon	<i>Oncorhynchus gorboscha</i>
372	Pink Rockfish	<i>Sebastes eos</i>
634	Pink Surfperch	<i>Zalemnius rosaceus</i>
373	Pinkrose Rockfish	<i>Sebastes simulator</i>
664	Plainfin Midshipman	<i>Porichthys notatus</i>
450	Poacher Unid	<i>Agonidae</i>
84	Popeye Grenadier	<i>Coryphaenoides cinereus</i>
750	Prickleback Unid	<i>Stichaeidae</i>
459	Pricklebreast Poacher	<i>Stellerina xyosterna</i>
586	Prickly Shark	<i>Echinorhinus cookei</i>
205	Prowfish	<i>Zaprora silenus</i>
374	Puget Sound Rockfish	<i>Sebastes emphaeus</i>
1242	Purple Brotula	<i>Oligopus diagrammus</i>
460	Pygmy Poacher	<i>Odontopyxis trispinosa</i>
335	Pygmy Rockfish	<i>Sebastes wilsoni</i>
159	Queenfish	<i>Seriphus politus</i>
343	Quillback Rockfish	<i>Sebastes maliger</i>
280	Ragfish	<i>Icosteus aenigmaticus</i>
1252	Rainbow Smelt	<i>Osmerus mordax</i>
635	Rainbow Surfperch	<i>Hypsurus caryi</i>
563	Ray Unid	<i>Myliobatoidea</i>
224	Red (Sockeye) Salmon	<i>Oncorhynchus nerka</i>
1215	Red Brotula	<i>Brosmophycis marginata</i>
407	Red Irish Lord Sculpin	<i>Hemilepidotus hemilepidotus</i>
308	Redbanded Rockfish	<i>Sebastes babcocki</i>
324	Redstripe Rockfish	<i>Sebastes proriger</i>
636	Redtail Surfperch	<i>Amphistichus rhodoterus</i>
105	Rex Sole	<i>Errex zachirus</i>
564	Ribbonfish Unid	<i>Trachipteridae</i>
393	Rock Greenling	<i>Hexagrammos lagocephalus</i>
104	Rock Sole	<i>Pleuronectes bilineatus</i>
1213	Rock Wrasse	<i>Halichoeres semicinctus</i>
300	Rockfish Unid	<i>Sebastes</i>
461	Rockhead Poacher	<i>Bothragonus swani</i>
240	Ronquil Unid	<i>Bathymasteridae</i>
309	Rosethorn Rockfish	<i>Sebastes helvomaculatus</i>
312	Rosy Rockfish	<i>Sebastes rosaceus</i>
414	Roughback Sculpin	<i>Chitonotus pugetensis</i>

Code	Common Name	Scientific Name
307	Rougheye Rockfish	<i>Sebastes aleutianus</i>
114	Roughscale Sole	<i>Clidoderma asperrimum</i>
1235	Roughshoulder/Broad Skate	<i>Amblyraja badia</i>
612	Round Herring	<i>Etrumeus teres</i>
560	Round Stingray	<i>Urolophus halleri</i>
200	Roundfish Unid	<i>Roundfish unid.</i>
637	Rubberlip Surfperch	<i>Rhacochilus toxotes</i>
203	Sablefish	<i>Anoplopoma fimbria</i>
1243	Salmon Shark	<i>Lamna ditropis</i>
220	Salmon Unid	<i>Oncorhynchus</i>
115	Sand Sole	<i>Psettichthys melanostictus</i>
136	Sanddab Unid	<i>Citharichthys</i>
555	Sandpaper Skate	<i>Bathyraja kincaidii</i>
436	Sarcastic Fringehead	<i>Neoclinus blanchardi</i>
1217	Sargo	<i>Anisotremus davidsonii</i>
790	Scaleless Dragonfish Unid	<i>Melanostomiidae</i>
791	Scaly Dragonfish Unid	<i>Stomiidae</i>
400	Sculpin Unid	<i>Cottidae</i>
375	Semaphore Rockfish	<i>Sebastes melanosema</i>
793	Senorita Seniorita	<i>Oxyjulis californica</i>
1220	Sevengill Shark	<i>Notorynchus cepedianus</i>
65	Shark Unid	<i>Squaliformes</i>
304	Sharpchin Rockfish	<i>Sebastes zacentrus</i>
415	Sharpnose Sculpin	<i>Clinocottus acuticeps</i>
638	Shiner Surfperch	<i>Cymatogaster aggregata</i>
318	Shortbelly Rockfish	<i>Sebastes jordani</i>
326	Shortraker Rockfish	<i>Sebastes borealis</i>
354	Shortraker/Rougheye Rockfish	<i>Sebastes Shortraker/Rougheye</i>
691	Shortspine Combfish	<i>Zaniolepis frenata</i>
350	Shortspine Thornyhead	<i>Sebastolobus alascanus</i>
349	Shortspine/ Longspine Thornyhead	<i>Sebastolobus</i>
1222	Shoulderspot Grenadier	<i>Coelorinchus scaphopsis</i>
181	Shovelnose Guitarfish	<i>Rhinobatos productus</i>
223	Silver (Coho) Salmon	<i>Oncorhynchus kisutch</i>
639	Silver Surfperch	<i>Hyperprosopon ellipticum</i>
310	Silvergray Rockfish	<i>Sebastes brevispinus</i>
416	Silverspotted Sculpin	<i>Blepsias cirrhosus</i>
78	Sixgill Shark	<i>Hexanchus griseus</i>
90	Skate Unid	<i>Rajidae</i>
713	Skipjack Tuna	<i>Euthynnus lineatus</i>
860	Slender Codling	<i>Halargyreus johnsonii</i>

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Code	Common Name	Scientific Name
111	Slender Sole	<i>Lyopsetta exilis</i>
162	Slickhead Unid	<i>Alepocephalidae</i>
417	Slim Sculpin	<i>Radulinus asprellus</i>
270	Smalleye Squaretail	<i>Tetragonurus cuvieri</i>
602	Smelt Unid	<i>Osmeridae</i>
1224	Smooth Grenadier	<i>Nezumia liolepis</i>
857	Smooth Stargazer	<i>Kathetostoma averruncus</i>
462	Smootheye Poacher	<i>Xeneretmus leiops</i>
1246	Smoothhound Shark Unid	<i>Mustelus Sp.</i>
1233	Smoothtail Mobula	<i>Mobula lucasana</i>
795	Snaggletooth Unid	<i>Astronesthidae</i>
500	Snailfish Unid	<i>Liparis</i>
868	Snakehead Eelpout	<i>Embryx crotalinus</i>
1214	Snipe Unid Eel	<i>Nemichthyidae</i>
186	Snubnose Pipefish	<i>Cosmocampus arctus</i>
263	Soft Eelpout	<i>Bothrocara molle</i>
1223	Softhead Grenadier	<i>Malacocephalus laevis</i>
64	Soupfin Shark	<i>Galeorhinus galeus</i>
463	Southern Spearnose Poacher	<i>Agonopsis sterletus</i>
376	Speckled Rockfish	<i>Sebastes ovalis</i>
126	Speckled Sanddab	<i>Citharichthys stigmaeus</i>
665	Specklefin Midshipman	<i>Porichthys myriaster</i>
1232	Spinetail Mobula	<i>Mobula japanica</i>
66	Spiny Dogfish Shark	<i>Squalus acanthias</i>
464	Spinycheek Starnose Poacher	<i>Asterotheca infraspinata</i>
418	Spinyhead Sculpin	<i>Dasycottus setiger</i>
315	Splitnose Rockfish	<i>Sebastes diploproa</i>
796	Spookfish Unid	<i>Opisthoproctidae</i>
726	Spotfin Croaker	<i>Roncador stearnsi</i>
419	Spotfin Sculpin	<i>Icelinus tenuis</i>
640	Spotfin Surfperch	<i>Hyperprosopon anale</i>
261	Spotted Cusk-eel	<i>Chilara taylori</i>
99	Spotted Ratfish	<i>Hydrolagus colliei</i>
1245	Spotted Rockfish Unid	<i>Sebastomus</i>
478	Spotted Sand Bass	<i>Paralabrax maculatofasciatus</i>
123	Spotted Turbot	<i>Pleuronichthys ritteri</i>
377	Squarespot Rockfish	<i>Sebastes hopkinsi</i>
142	Starry Flounder	<i>Platichthys stellatus</i>
378	Starry Rockfish	<i>Sebastes constellatus</i>
556	Starry Skate	<i>Raja stellulata</i>
226	Steelhead (Rainbow Trout)	<i>Oncorhynchus mykiss</i>

Code	Common Name	Scientific Name
479	Striped Bass	<i>Morone saxatilis</i>
741	Striped Kelpfish	<i>Gibbonsia metzi</i>
156	Striped Mullet	<i>Mugil cephalus</i>
641	Striped Surfperch	<i>Embiotoca lateralis</i>
242	Stripefin Ronquil	<i>Rathbunella hypoplecta</i>
328	Stripetail Rockfish	<i>Sebastes saxicola</i>
452	Sturgeon Poacher	<i>Podothecus acipenserinus</i>
230	Sturgeon Unid	<i>Acipenser</i>
177	Surf Smelt	<i>Hypomesus pretiosus</i>
642	Surfperch Unid	<i>Embiotocidae</i>
587	Swell Shark	<i>Cephaloscyllium ventriosum</i>
379	Swordspine Rockfish	<i>Sebastes ensifer</i>
420	Thornback Sculpin	<i>Paricelinus hopliticus</i>
557	Thornback Skate	<i>Platyrrhinioidis triseriata</i>
421	Threadfin Sculpin	<i>Icelinus filamentosus</i>
161	Threadfin Slickhead	<i>Talismania bifurcata</i>
329	Tiger Rockfish	<i>Sebastes nigrocinctus</i>
178	Top Smelt	<i>Atherinops affinis</i>
380	Treefish Rockfish	<i>Sebastes serriceps</i>
465	Tubenose Poacher	<i>Pallasina barbata</i>
807	Tubeshoulder Unid	<i>Searsiidae</i>
253	Twoline Eelpout	<i>Bothrocara brunneum</i>
331	Vermilion Rockfish	<i>Sebastes miniatus</i>
805	Viperfish Unid	<i>Chauliodontidae</i>
201	Walleye Pollock	<i>Theragra chalcogramma</i>
643	Walleye Surfperch	<i>Hyperprosopon argenteum</i>
466	Warty Poacher	<i>Ocella verrucosa</i>
251	Wattled Eelpout	<i>Lycodes palearis</i>
1248	Whiptail Gulper Unid	<i>Saccopharyngidae</i>
728	White Croaker	<i>Genyonemus lineatus</i>
481	White Sea Bass	<i>Atractoscion nobilis</i>
558	White Skate	<i>Bathyraja spinosissima</i>
232	White Sturgeon	<i>Acipenser transmontanus</i>
644	White Surfperch	<i>Phanerodon furcatus</i>
613	Whitebait Smelt	<i>Allosmesus elongatus</i>
273	Whitebarred Prickleback	<i>Poroclinus rothrocki</i>
391	Whitespotted Greenling	<i>Hexagrammos stelleri</i>
305	Widow Rockfish	<i>Sebastes entomelas</i>
780	Wolf-eel	<i>Anarrhichthys ocellatus</i>
799	Wrymouth Unid	<i>Cryptacanthodidae</i>
1228	Yaquina Grenadier	<i>Coryphaenoides yaquinae</i>

Appendix A: Fish Species List and Codes

Code	Common Name	Scientific Name
422	Yellowchin Sculpin	<i>Icelinus quadriseriatus</i>
322	Yelloweye Rockfish	<i>Sebastes ruberrimus</i>
729	Yellowfin Croaker	<i>Umbrina roncador</i>
714	Yellowfin Tuna	<i>Thunnus albacares</i>
320	Yellowmouth Rockfish	<i>Sebastes reedi</i>
698	Yellowtail Jack	<i>Seriola dorsalis</i>
321	Yellowtail Rockfish	<i>Sebastes flavidus</i>

Appendix B: Invertebrate Species List and Codes

Code	Common Name	Scientific Name
1206	Amiphpod Unid	<i>Amphipoda</i>
55	Anemone Unid	<i>Actiniaria</i>
19	Angulatus Tanner Crab	<i>Chionoecetes angulatus</i>
1207	Aplacophora Unid	<i>Aplacophora</i>
888	Arched Swimming Crab	<i>Callinectes arcuatus</i>
5	Armored Box Crab	<i>Mursia gaudichaudi</i>
4	Bairdi Tanner Crab	<i>Chionoecetes bairdi</i>
1260	Bamboo Coral	<i>Calaxonia</i>
48	Barnacles Unid	<i>Cirripedia</i>
27	Bivalves Unid	<i>Bivalvia</i>
1201	Black Coral	<i>Antipatharia</i>
866	Brachiopod Unid	<i>Brachiopoda</i>
22	Brittle/Basket Star Unid	<i>Ophiuroidea</i>
6	Brown Box Crab	<i>Lopholithodes foraminatus</i>
7	California King Crab	<i>Paralithodes californiensis</i>
10	Cancer Unid Crab	<i>Cancriidae</i>
28	Chiton Unid	<i>Neoloricata</i>
32	Corals Unid	<i>Anthozoa</i>
1	Crab Unid	<i>Brachyura/Anomura</i>
53	Crinoids Unid	<i>Crinoidea</i>
892	Crustacean Unid	<i>Crustacea</i>
39	Decorator/Spider Unid Crab	<i>Majidae</i>
871	Deep-sea Rock Crab	<i>Glyptolithodes cristatipes</i>
872	Deep-sea Spider Crab	<i>Paralomis manningi</i>
12	Dungeness Crab	<i>Cancer magister</i>
38	Flat-legged Spider Crab	<i>Paralomis verrilli</i>
873	Furrowed Rock Crab	<i>Cancer branneri</i>
1202	Gorgonian Coral unid.	<i>Gorgonian</i>
44	Graceful Crab	<i>Cancer gracilis</i>
874	Green Crab	<i>Carcinus maenus</i>
17	Hair Crab	<i>Paralomis multispina</i>
875	Heart Crab	<i>Phyllolithodes papillosus</i>
15	Hermit Unid Crab	<i>Paguridae</i>
1258	Horny Gorgonian Coral	<i>Holaxonia</i>
1205	Hydrocoral	<i>Hydroida</i>
13	Invertebrate Unid	<i>Animalia</i>
1240	Irregular Echinoids	<i>Echinoidea</i>
33	Isopod Unid	<i>Isopoda</i>

Appendix B: Invertebrate Species List and Codes

Code	Common Name	Scientific Name
35	Jellyfish Unid	<i>Scyphozoa</i>
876	Kelp Unid Crab	<i>Pugettia ssp</i>
2	King Unid Crab	<i>Lithode</i>
877	Long-armed Spider Crab	<i>Macroregonia macrochiera</i>
840	Lyre Unid Crab	<i>Hyas spp.</i>
878	Masking Crab	<i>Loxorhynchus crispatus</i>
34	Mollusk Unid	<i>Mollusca</i>
25	Nudibranch Unid	<i>Nudibranchia</i>
60	Octopus Unid	<i>Octopoda</i>
879	Pacific Rock Crab	<i>Cancer antennarius</i>
1208	Peanut Worm Unid	<i>Sipuncula</i>
880	Porcelain Unid Crab	<i>Porcellanidae</i>
881	Puget Sound King Crab	<i>Lopholithodes mandtii</i>
882	Purple Globe Crab	<i>Randallia ornata</i>
9	Red Rock Crab	<i>Cancer productus</i>
883	Rhinoceros Crab	<i>Rhinolithodes wosnessenskii</i>
16	Scarlet King Crab	<i>Lithodes couesi</i>
41	Sea Cucumber Unid	<i>Holothuroidea</i>
1259	Sea Fans	<i>Calaxonia</i>
1256	Sea Pen	<i>Pennatulacea</i>
1255	Sea Pansies	<i>Pennatulacea</i>
30	Sea Snail Unid	<i>Gastropoda</i>
889	Sea Spider Unid	<i>Pycnogonida</i>
47	Sea Squirts Unid	<i>Tunicata Tunicate</i>
20	Sea Star Unid	<i>Asteroidea</i>
1254	Sea Whip	<i>Pennatulacea</i>
884	Sheep Crab	<i>Loxorhynchus grandis</i>
70	Shrimp Unid	<i>Caridea</i>
1203	Soft Coral	<i>Alcyonacea</i>
885	Spiky King Crab	<i>Neolithodes diomedeeae</i>
8	Spiny King Crab	<i>Paralithodes rathbuni</i>
1230	Spiny Lithode Crab	<i>Acantholithodes hispidus</i>
891	Spiny Lobster Unid	<i>Palinura</i>
26	Sponge Unid	<i>Porifera</i>
1257	Spongy Gorgonian Coral	<i>Scleraxonia</i>
890	Squat Lobster Unid	<i>Galatheidae</i>
50	Squid Unid	<i>Teuthoidea</i>
1204	Stony Coral	<i>Scleractinia</i>
3	Tanner Unid Crab	<i>Chionoecetes spp.</i>
18	Tanneri Tanner Crab	<i>Chionoecetes tanneri</i>
886	Umbrella Unid Crab	<i>Cryptolithodes ssp</i>

Appendix B: Invertebrate Species List and Codes

Code	Common Name	Scientific Name
54	Urchin Unid	<i>Echinoidea</i>
49	Urochordate Unid	<i>Urochordata</i>
1209	Worm Unid	<i>Annelida</i>
887	Xantus Swimming Crab	<i>Portunus xantusii</i>
11	Yellow Rock Crab	<i>Cancer anthonyi</i>

Appendix C: Marine Mammal and Sea Turtle Species List and Codes

See Sea Turtles at end of this appendix.

Code	Common Name	Scientific Name
1001	Bairds Beaked Whale	<i>Berardius bairdii</i>
1008	Beaked Whale Unid	<i>Ziphiidae</i>
1002	Blainevilles Beaked Whale	<i>Mesoplodon densirostris</i>
1031	Blue Whale	<i>Balaenoptera musculus</i>
1009	Bottlenose Dolphin	<i>Tursiops truncatus</i>
1024	California Sea Lion	<i>Zalophus californianus</i>
1044	Common Unid Dolphin	<i>Delphinus</i>
1003	Cuviers Beaked Whale	<i>Ziphius cavirostris</i>
1021	Dalls Porpoise	<i>Phocoenoides dalli</i>
1016	Dolphin Unid	<i>Delphinidae</i>
1032	Dwarf Sperm Whale	<i>Kogia breviceps</i>
1033	Fin Whale	<i>Balaenoptera physalus</i>
1019	Fur Seal Unid	<i>Arctocephalinae</i>
1004	Gingko-toothed Beaked Whale	<i>Mesoplodon ginkgodens</i>
1034	Gray Whale	<i>Eschrichtius robustus</i>
1017	Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>
1022	Harbor Porpoise	<i>Phocoena phocoena</i>
1028	Harbor Seal	<i>Phoca vitulina</i>
1005	Hectors Beaked Whale	<i>Mesoplodon hectori</i>
1006	Hubbs Beaked Whale	<i>Mesoplodon carlhubbsi</i>
1035	Humpback Whale	<i>Megaptera novaeangliae</i>
1036	Killer Whale	<i>Orcinus orca</i>
1010	Long-beaked Common Dolphin	<i>Delphinus capensis</i>
1000	Marine mammal Unid	<i>Marine mammal, Unid</i>
1037	Minke Whale	<i>Balaenoptera acutorostrata</i>
1029	Northern Elephant Seal	<i>Mirounga angustirostris</i>
1018	Northern Fur Seal	<i>Callorhinus ursinus</i>
1038	Northern Right Whale	<i>Eubalaena glacialis</i>
1011	Northern Right Whale Dolphin	<i>Lissodelphis borealis</i>
1012	Pacific White-sided Dolphin	<i>Lagenorhynchus obliquidens</i>
1020	Pinniped Unid	<i>Caniformia</i>
1023	Porpoise Unid	<i>Phocoenidae</i>
1039	Pygmy Sperm Whale	<i>Kogia breviceps</i>
1013	Rissos Dolphin	<i>Grampus griseus</i>
1026	Sea Lion Unid	<i>Otariinae</i>

Code	Common Name	Scientific Name
1027	Sea Otter	<i>Enhydra lutris</i>
1030	Seal Unid	<i>Phocidae</i>
1040	Sei Whale	<i>Balaenoptera borealis</i>
1014	Short-beaked Common Dolphin	<i>Delphinus delphis</i>
1041	Short-finned Pilot Whale	<i>Globicephala macrorhynchus</i>
1042	Sperm Whale	<i>Physeter catodon</i>
1007	Stejnegers Beaked Whale	<i>Mesoplodon stejnegeri</i>
1025	Steller Sea Lion	<i>Eumetopias jubatus</i>
1015	Striped Dolphin	<i>Stenella coeruleoalba</i>
1043	Whale Unid	<i>Whale unid.</i>

Sea Turtle Species Codes

Code	Common Name	Scientific Name
1071	Green/Black Turtle	<i>Chelonia mydas/agassizii</i>
1072	Hawksbill Turtle	<i>Eretmochelys imbricata</i>
1073	Leatherback Turtle	<i>Dermochelys coriacea</i>
1074	Loggerhead Turtle	<i>Caretta caretta</i>
1075	Olive Ridley Turtle	<i>Lepidochelys olivacea</i>
1070	Turtle Unid	<i>Chelonidae</i>

Appendix D: Seabird Species List and Codes

Code	Common Name	Scientific Name
949	Albatross Unid	<i>Diomedeidae</i>
983	Alcid Unid	<i>Alcidae</i>
912	American Coot	<i>Fulica americana</i>
993	Ancient Murrelet	<i>Synthliboramphus antiquus</i>
900	Bird Unid	<i>Aves</i>
959	Black Storm-Petrel	<i>Oceanodroma melania</i>
952	Black-footed Albatross	<i>Diomedea nigripes</i>
976	Black-legged Kittiwake	<i>Rissa tridactyla</i>
953	Black-vented Shearwater	<i>Puffinus opisthomelas</i>
962	Brandts Cormorant	<i>Phalacrocorax penicillatus</i>
998	Brown Booby	<i>Sula leucogaster</i>
910	Brown Pelican	<i>Pelecanus occidentalis</i>
975	California Gull	<i>Larus californicus</i>
911	Caspian Tern	<i>Sterna caspia</i>
996	Cassins Auklet	<i>Ptychoramphus aleuticus</i>
989	Common (Guillemot) Murre	<i>Uria aalge</i>
941	Common Loon	<i>Gavia immer</i>
961	Cormorant Unid	<i>Phalacrocoracidae</i>
963	Double-crested Cormorant	<i>Phalacrocorax auritus</i>
960	Fork-tailed Storm-Petrel	<i>Oceanodroma furcata</i>
979	Glaucous-winged Gull	<i>Larus glaucescens</i>
946	Grebe Unid	<i>Podicipedidae</i>
948	Guillemot Unid	<i>Cephus</i>
974	Gull Unid	<i>Larinae</i>
978	Heermanns Gull	<i>Larus heermanni</i>
977	Herring Gull	<i>Larus argentatus</i>
945	Horned Grebe	<i>Podiceps auritus</i>
951	Laysan Albatross	<i>Diomedea immutabilis</i>
965	Leachs Storm-Petrel	<i>Oceanodroma leucorhoa</i>
966	Least Storm-Petrel	<i>Oceanodroma microsoma</i>
944	Loon Unid	<i>Gaviidae</i>
994	Marbled Murrelet	<i>Brachyramphus marmoratus</i>
980	Mew Gull	<i>Larus canus</i>
987	Murre Unid	<i>Uria</i>
954	Northern Fulmar	<i>Fulmarus glacialis</i>
940	Pacific Loon	<i>Gavia pacifica</i>
964	Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>
947	Pigeon Guillemot	<i>Cephus columba</i>

Code	Common Name	Scientific Name
955	Pink-footed Shearwater	<i>Puffinus creatopus</i>
942	Red-necked Grebe	<i>Podiceps grisegena</i>
939	Red-throated Loon	<i>Gavia stellata</i>
995	Rhinoceros Auklet	<i>Cerorhinca monocerata</i>
981	Ring-billed Gull	<i>Larus delawarensis</i>
997	Shearwater Unid	<i>Puffinus</i>
950	Short-tailed Albatross	<i>Diomedea albatrus</i>
957	Short-tailed Shearwater	<i>Puffinus tenuirostris</i>
956	Sooty Shearwater	<i>Puffinus griseus</i>
958	Storm-Petrel Unid	<i>Hydrobatidae</i>
992	Tufted Puffin	<i>Fratercula cirrhata</i>
943	Western Grebe	<i>Aechmophorus occidentalis</i>
982	Western Gull	<i>Larus occidentalis</i>

Appendix E: Miscellaneous List and Codes

Code	Common Name	Scientific Name
91	Egg case Unid	<i>Egg case unid</i>
667	Garbage/ Trash	<i>Cans, bottles, old line, etc.</i>
666	Kelp, Rocks, Wood, etc Mud	<i>Mud</i>

Appendix F: NCS Catch Categories List and Target Strategies

Below are three tables of catch category codes; 1) Species Specific CC, 2) Species Grouping CC, 3) Other CC. All catch categories may be used as a target strategy. Do not use target strategies as catch categories. Use Species Specific Catch Categories when ever possible.

Species Specific Catch Categories Codes		Species Specific Catch Categories Codes		Species Grouping Catch Categories Codes	
Code	Species Name	Code	Species Name	Code	Species Name
ALBC	Albacore Tuna	OWFS	Ocean whitefish	OCRB	Crab Other
ARTH	Arrowtooth Flounder	OWFS	Ocean Whitefish	OFLT	Flatfish Other
ARRA	Aurora rockfish	OLVE	Olive rockfish	GRDR	Grenadier Unspecified
BANK	Bank Rockfish	ASRK	Pacific Angel Shark	UHAG	Hagfish, Unid
BTRY	Bat ray	PBNT	Pacific Bonita	UJEL	Jellyfish, Unid
BSKT	Big skate	PCOD	Pacific Cod	LGRK	Large Rockfish (OR)
ISRK	Bigeye thresher shark	GREN	Pacific grenadier	UMCK	Mackerel Unspecified
BYEL	Black and Yellow rockfish	PWHT	Pacific Hake	ZMRM	Marine Mammal
BLCK	Black rockfish	PHLB	Pacific Halibut	NSHR	Nearshore Rockfish N
BLSK	Black skate	PMCK	Pacific Mackerel	SSHR	Nearshore Rockfish S
BLGL	Blackgill rockfish	POP	Pacific Ocean Perch	OCTP	Octopus Unspecified
BLUR	Blue rockfish	PSRK	Pelagic thresher shark	URCK	Rockfish Unspecified
BSRK	Blue shark	PTRL	Petrale Sole	ROCK	Rockfish WA or CA
BCAC	Boccacio Rockfish	PNKR	Pink rockfish	SAMN	Salmon Unspecified
BRNZ	Bronzespotted rockfish	PINK	Pink Salmon	SDAB	Sanddabs Unspecified
CSRK	Brown cat shark	PLCK	Pollock	USCU	Sea cucumber, Unid
BRWN	Brown rockfish	QLBK	Quillback rockfish	XBRD	Seabird
BSOL	Butter Sole	RDBD	Redbanded rockfish	OSRK	Shark Other
LOBS	CA spiny lobster	REDS	Redstripe rockfish	NSLF	Shelf Rockfish N
CBZN	Cabazon	REX	Rex Sole	SSLF	Shelf Rockfish S
CLCO	Calico rockfish	RCRB	Rock crab	UDW1	Shortraker/Rougheye rockfish
CHLB	California Halibut	RCKG	Rock Greenling	SRMP	Shrimp and Prawns
SCOR	California scorpionfish	RSOL	Rock Sole	SKAT	Skates and Rays
CSKT	California skate	RSTN	Rosethorn rockfish	NSLP	Slope Rockfish N
CNRY	Canary Rockfish	ROSY	Rosy rockfish	SSLP	Slope Rockfish S
CLPR	Chilipepper Rockfish	REYE	Rougheye rockfish	SMRK	Small Rockfish (OR)
CHNA	China rockfish	SABL	Sablefish	TCRB	Tanner Crab
CHNK	Chinook salmon	SSOL	Sand Sole	THDS	Thornyhead Unspecified
CHUM	Chum salmon	SPSK	Sandpaper skate	SQID	Unidentified Squid
COHO	Coho salmon	SHPD	Sheepshead	USTG	Unidentified Sturgeon
MOLA	Common mola	SRKR	Shortraker Rockfish	UURC	Urchin, Unid
TSRK	Common thresher shark	SSPN	Shortspine Thornyhead		
COPP	Copper rockfish	SLGR	Silvergray rockfish		
CWCD	Cowcod Rockfish	SOCK	Sockeye salmon		
CSOL	Curfin Sole	SSRK	Soupin Shark		
DBRK	Darkblotched Rockfish	SPKL	Speckled rockfish		
DVR	Dover Sole	DSRK	Spiny Dogfish Shark		
DCRB	Dungeness Crab	SNOS	Splitnose Rockfish		
EGLS	English Sole	RATF	Spotted ratfish		
FLAG	Flag rockfish	STRY	Starry Flounder		
FSOL	Flathead Sole	STAR	Starry rockfish		
GBAS	Giant sea bass	SSKT	Starry skate		
GPHR	Gopher rockfish	TIGR	Tiger rockfish		
GRAS	Grass rockfish	TREE	Treefish rockfish		
GSTG	Green Sturgeon	VRML	Vermilion rockfish		
GSPT	Greenspotted rockfish	WCRK	White Croaker		
GSRK	Greenstriped rockfish	WBAS	White seabass		
HNYC	Honeycomb rockfish	WSTG	White Sturgeon		
KLPG	Kelp Greenling	WDOW	Widow Rockfish		
KLPR	Kelp rockfish	WEEL	Wolf-eel		
LSRK	Leopard shark	YEYE	Yelloweye Rockfish		
LCOD	Lingcod	YTRK	Yellowtail Rockfish		
LSKT	Longnose skate				
LSPN	Longspine Thornyhead				

Other Catch Categories Codes	
Code	Species Name
FISH	Fish species
INVT	Invertebrates
ZMIS	Miscellaneous
MBOT	Miscellaneous bottom items

Target Strategies	
Code	Species Name
BRSH	Bottom Rockfish Shelf - Target
BRSL	Bottom Rockfish Slope - Target
DTS	Dover/Thornyheads/Sablefish - Target
DWD	Deepwater Dover - Target
MSC2	Miscellaneous - Target
NSM	Nearshore Mix - Target
UNKN	Unknown - Target

Appendix G: Minor Rockfish Species

Rockfish Categories

Currently, many regulations are designed to lessen the impacts of fishing on certain species of rockfish. Rockfish (except thornyheads) are divided into categories north and south of 40°10' N. latitude, depending on the depth where they are often caught: nearshore, shelf, or slope.

“Nearshore” is defined (by the California Nearshore Fishery Management Plan) as the area from the high-tide line offshore to a depth of 120 ft (20 fm). “Shelf” refers to the continental shelf, while “slope” refers to the continental slope.

Note: Species listed in bold have their own catch category names when caught in the opposite region. For example, bocaccio rockfish is listed in bold in the Shelf rockfish list North of 40°10' N. lat., therefore north of 40°10' N. lat., bocaccio rockfish is listed under the catch category NSLF, and south of 40°10' N. lat., bocaccio is in its own catch category: BCAC.

North of 40°10' N. lat.		South of 40°10' N. lat.
	NEARSHORE	
black- <i>Sebastes melanops</i>		black- <i>Sebastes melanops</i>
black and yellow- <i>S. chrysomelas</i>		black and yellow- <i>S. chrysomelas</i>
blue- <i>S. mystinus</i>		blue- <i>S. mystinus</i>
brown- <i>S. auriculatus</i>		brown- <i>S. auriculatus</i>
calico- <i>S. dalli</i>		California scorpionfish- <i>Scorpaena guttata</i>
china- <i>S. nebulosus</i>		calico- <i>S. dalli</i>
copper- <i>S. caurinus</i>		china- <i>S. nebulosus</i>
gopher- <i>S. carnatus</i>		copper- <i>S. caurinus</i>
grass- <i>S. rastrelliger</i>		gopher- <i>S. carnatus</i>
kelp- <i>S. atrovirens</i>		grass- <i>S. rastrelliger</i>
olive- <i>S. serranoides</i>		kelp- <i>S. atrovirens</i>
quillback- <i>S. maliger</i>		olive- <i>S. serranoides</i>
reef- <i>S. serriceps</i>		quillback- <i>S. maliger</i>
		reef- <i>S. serriceps</i>
	SHELF	
bronzespotted- <i>S. gilli</i>		bronzespotted- <i>S. gilli</i>
bocaccio- <i>S. paucispinis</i>		chameleon- <i>S. phillipsi</i>
chameleon- <i>S. phillipsi</i>		dwarf-red- <i>S. refianus</i>
chilipepper- <i>S. goodie</i>		flag- <i>S. rubrivinctus</i>
cowcod- <i>S. levis</i>		freckled- <i>S. lentiginosus</i>
dwarf-red- <i>S. refianus</i>		greenblotched- <i>S. rosenblatti</i>
flag- <i>S. rubrivinctus</i>		greenspotted- <i>S. chlorostictus</i>
freckled- <i>S. lentiginosus</i>		greenstriped- <i>S. elongates</i>
greenblotched- <i>S. rosenblatti</i>		halfbanded- <i>S. semicinctus</i>
greenspotted- <i>S. chlorostictus</i>		honeycomb- <i>S. umbrosus</i>
greenstriped- <i>S. elongates</i>		mexican- <i>S. macdonaldi</i>

North of 40°10' N. lat.		South of 40°10' N. lat.	
halfbanded- <i>S. semicinctus</i>	<i>SHELF CONT.</i>	pink- <i>S. eos</i>	
honeycomb- <i>S. umbrosus</i>		pinkrose- <i>S. simulator</i>	
mexican- <i>S. macdonaldi</i>		pygmy- <i>S. wilsoni</i>	
pink- <i>S. eos</i>		redstriped- <i>S. proriger</i>	
pinkrose- <i>S. simulator</i>		rosethorn- <i>S. helvomaculatus</i>	
pygmy- <i>S. wilsoni</i>		rosy- <i>S. rosaceus</i>	
redstriped- <i>S. proriger</i>		silvergry- <i>S. brevispinus</i>	
rosethorn- <i>S. helvomaculatus</i>		speckled- <i>S. ovalis</i>	
rosy- <i>S. rosaceus</i>		squarespot- <i>S. hopkinsi</i>	
silvergry- <i>S. brevispinus</i>		starry- <i>S. constellatus</i>	
speckled- <i>S. ovalis</i>		stripetail- <i>S. saxicola</i>	
squarespot- <i>S. hopkinsi</i>		swordspine- <i>S. ensifer</i>	
starry- <i>S. constellatus</i>		tiger- <i>S. nigorcinctus</i>	
stripetail- <i>S. saxicola</i>		vermilion- <i>S. miniatus</i>	
swordspine- <i>S. ensifer</i>		yelloweye- <i>S. ruberrimus</i>	
tiger- <i>S. nigorcinctus</i>		yellowtail- <i>S. flavidus</i>	
vermilion- <i>S. miniatus</i>			
yelloweye- <i>S. ruberrimus</i>			
	<i>SLOPE</i>		
aurora- <i>S. aurora</i>		aurora- <i>S. aurora</i>	
bank- <i>S. rufus</i>		bank- <i>S. rufus</i>	
blackgill- <i>S. melanostomus</i>		blackgill- <i>S. melanostomus</i>	
darkblotched- <i>S. cramerii</i>		darkblotched- <i>S. cramerii</i>	
redbanded- <i>S. babcocki</i>		pacific ocean perch- <i>S. alutus</i>	
roughey- <i>S. aleutianus</i>		redbanded- <i>S. babcocki</i>	
sharpchin- <i>S. zacentrus</i>		roughey- <i>S. aleutianus</i>	
shortraker- <i>S. borealis</i>		sharpchin- <i>S. zacentrus</i>	
splitnose- <i>S. diploproa</i>		shortraker- <i>S. borealis</i>	
yellowmouth- <i>S. reedi</i>		yellowmouth- <i>S. reedi</i>	

11 - Retained + Discard	Longline	DO-Mostly Released at depth- other
13 - Tally Sample	MI - Minor	OM-Other method of release
14 - Visual Experience	MO - Moderate	NC-Not Collected
15 - Visual Spatial	S - Severe	
19-P. Halibut Length/Weight Conversion Extrapolation	D - Dead	
Vessel Logbook Names		
WOC Trawl- <i>used in the the LE Trawl fishery</i>		Catch Shares- <i>used only in Catch Shares fishery</i>
CBFA- <i>used in the the CA Halibut fishery</i>		
CA Shrimp/Prawn Trawl- <i>used in the CA Pink Shrimp fishery</i>		
Daily Trap Fishing- <i>used in the CA trap fishing</i>		
OR Nearshore- <i>used in the OR Black/Blue Rockfish & Nearsshore fishery</i>		
OR Scallop/Shrimp- <i>used in the OR Pink Shrimp fishery</i>		
OR Fixed Gear- <i>used in the WOC OA FG (Oregon only) fishery</i>		

Appendix I: WCGOP Mailing Addresses

West Coast Groundfish Observer Program

Northwest Fisheries Science Center (NWFSC)

2725 Montlake Boulevard East

Seattle, WA 98112

Email: nwfsc.observerprogram@noaa.gov

Washington

NWFSC

2725 Montlake Boulevard East

Seattle, WA 98112

(206) 860-3293 Office

(206) 860-3394 Fax

Oregon

Hatfield Marine Science Center

2032 SE OSU Dr.

Newport, OR 97365

(541) 867-0527 Office

(541) 867-0505 Fax

Port Adams Research Station

PO Box 155 (520 Heceta Place)

Hammond, OR 97121

(503) 861-7537 Office

(503) 861-2589 Fax

California

Eureka Office

427 "F" St. Suite 217

Eureka, CA 95501

(707) 443-3228 Office

(707) 443-3002 Fax

Morro Bay Office

1187 Main Street

Morro Bay, CA 93442

(805) 772-1131 Office

(805) 772-1136 Fax

To reach any of the WCGOP Coordinators, call toll-free 1-866-780-8064

Appendix J: WCGOP Contact Phone Numbers

To reach any of the NMFS Coordinators, please call toll-free 1-866-780-8064.

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Debriefers

<p>Jon McVeigh Lead Debriefer NW Fisheries Science Center Seattle, WA c: 206.327.2851 w: 206.302.2423 f: 206.860.3394 e: Jon.McVeigh@noaa.gov</p>	<p>Eli Coplen Debriefer Morro Bay, CA c: 805.400.7992 w: 805.772.1131 f: 805.772.1136 e: Eli.Coplen@noaa.gov</p>	<p>Ryan Shama Debriefer Pt Adams Research Station Hammond, OR c: 206.437.1629 w: 503.861.7537 ext. 33 f: 503.861.2589 e: Ryan.Shama@noaa.gov</p>
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<p>John Bieraugal Debriefer Eureka, CA c: 707.218.7390 w: 707.443.1884 f: 707.443.3002 e: John.Bieraugal@noaa.gov</p>	<p>Jason Eibner Debriefer HM Science Center Newport, OR c: 541.961.1321 w: 541.867.0592 ext 563 f: 541.867.0505 e: Jason.Eibner@noaa.gov</p>	<p>Jason Vestre Debriefer Morro Bay, CA c: 805.305.8757 w: 805.772.1131 f: 805.772.1136 e: Jason.Vestre@noaa.gov</p>
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<p>Phillip Bizzell Debriefer Pt. Adams Research Station Hammond, OR c: 360.783.2369 w: 503.861.7537 ext. 21 f: 503.861.2589 e: Phillip.Bizzell@noaa.gov</p>	<p>Kate Guthrie Debriefer/Program Assistant NW Fisheries Science Center Seattle, WA w: 206.860.3476 f: 206.860.3394 e: Kate.Guthrie@noaa.gov</p>	<p>Bo Whiteside Debriefer HM Science Center Newport, OR c: 541.270.1805 w: 541.867.0528 f: 541.867.0505 e: Bo.Whiteside@noaa.gov</p>
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<p>Jennifer Cramer Trainer Coordinator/Debrifer HM Science Center Newport, OR c: 503.791.2706 w: 541.867.0561 f: 541.867.0505 e: Jennifer.Cramer@noaa.gov</p>	<p>Toby Mitchell Debriefer HM Science Center Newport, OR c: 541.961.5428 w: 541.867.0592 ext 563 f: 541.867.0505 e: Toby.Mitchell@noaa.gov</p>
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<p>Christa Colway Debriefer HM Science Center Newport, OR c: 206.437.2349 w: 541.867.0520 f: 541.867.0505 e: Christa.Colway@noaa.gov</p>	<p>Tim Peretti Debriefer Eureka, CA c: 707.845.0077 w: 707.443.1884 f: 707.443.3002 e: Timothy.Peretti@noaa.gov</p>
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PSMFC State Liasons

<p>Mike Fukushima California Dept. of Fish and Game w: 707.441.5797</p>	<p>Steve Kupillas Oregon Dept. of Fish and Wildlife w: 541.265.8306 ext. 262</p>	<p>Carol Henry Washington Fish and Wildlife w: 360.249.4628</p>
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Appendix K: Random Number Table

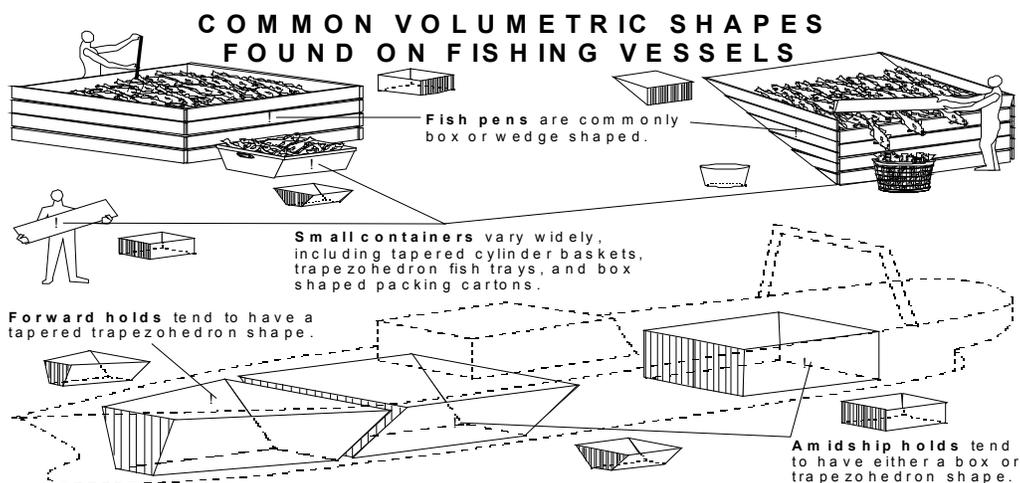
8	3	7	9	7	2	1	9	6	7	0	5	4	1	4	7	3	5	5	0	7
8	6	3	6	2	0	7	1	8	8	2	8	1	4	6	3	6	7	3	8	4
7	5	5	5	9	2	6	2	6	5	7	1	9	6	4	1	2	4	3	6	9
1	5	9	2	3	6	3	8	7	1	0	8	2	1	4	9	0	9	8	0	1
3	5	0	6	2	9	0	6	7	6	6	5	3	8	5	6	2	5	1	0	6
4	2	1	2	6	3	5	3	6	4	8	9	2	2	9	7	8	5	7	0	3
5	0	3	1	1	4	2	5	2	3	2	6	3	3	4	9	5	4	2	5	2
5	0	6	0	9	4	9	3	4	9	8	7	7	2	4	2	3	5	8	1	3
0	1	6	1	4	7	4	9	7	6	7	9	6	3	4	5	6	7	8	5	9
1	0	6	7	3	4	8	1	2	3	7	1	1	0	8	4	2	1	9	3	8
3	1	7	0	8	0	0	9	7	2	3	0	8	5	5	4	8	7	9	9	1
0	6	2	0	6	6	2	5	1	8	7	6	2	6	3	0	1	4	1	4	8
4	2	1	9	4	2	2	6	7	6	0	0	3	3	9	9	3	7	4	2	4
6	2	1	2	6	1	6	9	8	2	0	6	6	4	1	5	0	5	2	9	6
0	8	7	9	6	0	7	1	4	5	8	8	5	3	2	2	5	3	8	8	7
0	0	2	2	5	5	0	9	3	8	6	1	0	6	7	4	3	9	9	4	1
4	8	4	8	9	3	3	5	9	2	3	8	5	5	7	3	9	5	2	3	4
8	2	8	2	8	6	6	8	6	1	6	0	0	4	8	8	9	6	5	6	8
0	2	6	8	8	3	7	2	6	6	8	8	7	4	2	4	1	2	0	3	4
1	9	9	4	8	3	6	0	4	8	9	6	1	5	8	2	5	0	8	2	4

How to Use the Random Number Table

To use the random number table, enter the table at a random point. The easiest way to do this is by closing your eyes and placing your finger on the table. The column and row nearest your finger is the starting point. Determine how many digits in the row you are using: if you need numbers between 1 and 250, use three digits in the row. If you need numbers between 1 and 25, use two digits in the row, and so on. Decide in which direction you will move through the table. Then proceed in any direction through the table (even diagonally), recording appropriate numbers and skipping numbers too high or repeated, until you have enough random numbers. You should decide on a direction and enter the table at a different random starting point every time you use it.

For example, if you need to choose 3 numbers between 1 and 25, you could enter the table by placing your finger on the table to choose a column and row. Your criterion is two digit numbers between 01 and 25 (inclusive). For this example, you decided to work up the column from your starting point. As you move up the column, the first number you encounter is 14. This is a two-digit number between 01 and 25; it fits the criterion, so you write it down. The next number is 09; it also fits the criterion, so you write it down. The next number is 58 and does not fit the criterion so you skip this number. Keep moving up the column, skipping the numbers that do not fit the criterion, until you choose the all the numbers you need.

Appendix L: Weights, Measures, and Conversions



Abbreviations

inch (in)	millimeter (mm)	kilograms (kg)	minute (min)	foot (ft)
centimeter (cm)	metric ton (mt)	pounds (lbs)	meter (m)	liter (L)
ton (t)	kilometer (km)	quart (qt)	mile (mi)	celcius ©
latitude (lat)	fahrenheit (F)	grams (g)	longitude (lon)	

Weights and Measures

1 in = 2.540 cm 1cm = 10 mm = 0.3937 in

1 ft = 0.3048 m = 0.1667 fathoms 1m = 100 cm = 3.2808 ft = 0.5468 fathoms

1 fathom = 6 ft = 1.829 m 1000 m = 1 km = 0.6214 statute mi

1 L = 1.0567 U.S. qt

$F^{\circ} = (1.8 \times C^{\circ}) + 32$ $C^{\circ} = 5/9(F^{\circ} - 32)$

1 statute m = 5,280 ft = 1.609 km = 0.86899 nautical mi = 880 fathoms

1 nautical mi = 1.15078 statute mi = 1 min lat = 1.852 km = 1,012.6859 fathoms = 1,852 m

1 fathom = 0.0009875 nautical mi = 0.0011364 statute mi

1 lb = 0.4536 kg

total catch wt. in lbs \div 2.2046 = total catch wt. in kg

1 mt = 1,000 kg = 2204.6 lbs.

Area, Volume and Product Formulas

Number of Product Units x Average Unit Weight = Total Weight of Product

Area of a circle = πr^2 Circumference = $2 \pi r$ ($\pi = 3.1416$)

Area of a square or rectangle = length \times width

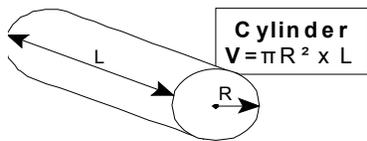
Area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$

Volume of a right angle cone = $\frac{1}{3} \times \pi \times r^2 \times h$

Volume of a Sphere = $\frac{4}{3} \times \pi \times r^3$

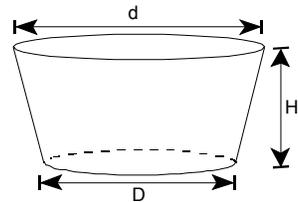
Length of the triangle hypotenuse "C" where A and B equal the length of the opposite two sides:

$$A^2 + B^2 = C^2$$

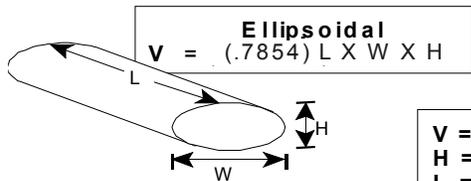


Cylinder
 $V = \pi R^2 \times L$

Tapered Cylinder
 $V = 0.2618 H (d^2 + D^2 + dD)$

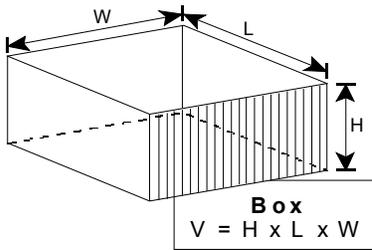


VOLUMETRIC FORMULAS

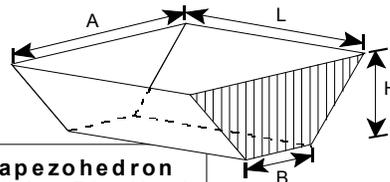


Ellipsoidal
 $V = (.7854) L \times W \times H$

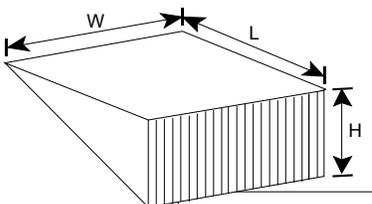
V = Volume
 H = Height
 L = Length
 W = Width
 $\pi = 3.1416$
 D = Diameter
 d = diameter
 R = Radius



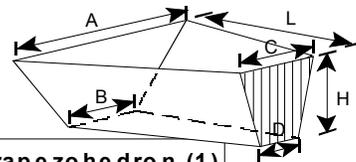
Box
 $V = H \times L \times W$



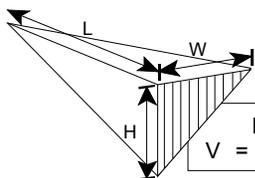
Trapezohedron
 $V = \frac{1}{2}(A + B) \times H \times L$



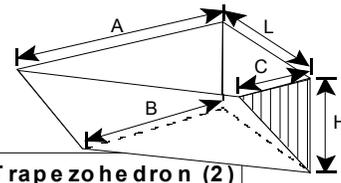
Wedge
 $V = \frac{1}{2}(H \times L \times W)$



Tapered Trapezohedron (1)
 $V = \frac{1}{4}(A + B + C + D) \times H \times L$



Pyramidal
 $V = (W \times L \times H) \div 6$



Tapered Trapezohedron (2)
 $V = \frac{1}{4}(A + B + C) \times H \times L$

Appendix M: Pacific Halibut Length/Weight Table

Centimeter	Pounds
10	0.02
11	0.02
12	0.02
13	0.04
14	0.04
15	0.07
16	0.07
17	0.09
18	0.11
19	0.13
20	0.15
21	0.18
22	0.20
23	0.24
24	0.26
25	0.31
26	0.35
27	0.40
28	0.46
29	0.51
30	0.57
31	0.62
32	0.71
33	0.77
34	0.84
35	0.93
36	1.01
37	1.10
38	1.21
39	1.32
40	1.43
41	1.59
42	1.68
43	1.81
44	1.94
45	2.09
46	2.25
47	2.43
48	2.58
49	2.76

Centimeter	Pounds
50	2.95
51	3.15
52	3.35
53	3.57
54	3.79
55	4.01
56	4.25
57	4.52
58	4.76
59	5.05
60	5.31
61	5.62
62	5.93
63	6.24
64	6.57
65	6.90
66	7.25
67	7.61
68	7.98
69	8.38
70	8.77
71	9.19
72	9.61
73	10.05
74	10.49
75	10.98
76	11.44
77	11.95
78	12.46
79	12.99
80	13.51
81	14.07
82	14.64
83	15.23
84	15.83
85	16.45
86	17.09
87	17.75
88	18.41
89	19.09

Centimeter	Pounds
90	19.80
91	20.53
92	21.25
93	22.02
94	22.80
95	23.59
96	24.41
97	25.24
98	26.08
99	26.96
100	27.87
101	28.77
102	29.70
103	30.67
104	31.64
105	32.63
106	33.64
107	34.68
108	35.74
109	36.84
110	37.94
111	39.07
112	40.21
113	41.38
114	42.59
115	43.81
116	45.06
117	46.32
118	47.62
119	48.94
120	50.29
121	51.65
122	53.07
123	54.48
124	55.93
125	57.41
126	58.91
127	60.43
128	61.99
129	63.56

Appendix M: Pacific Halibut Length/Weight Table

Centimeter	Pounds
130	65.17
131	66.82
132	68.48
133	70.17
134	71.89
135	73.66
136	75.44
137	77.25
138	79.08
139	80.95
140	82.87
141	84.79
142	86.75
143	88.76
144	90.79
145	92.84
146	94.93
147	97.05
148	99.21
149	101.39
150	103.62
151	105.87
152	108.16
153	110.50
154	112.83
155	115.24
156	117.66
157	120.13
158	122.62
159	125.16
160	127.71
161	130.32
162	132.96
163	135.65
164	138.36
165	141.12
166	143.90
167	146.72
168	149.54
169	152.49

Centimeter	Pounds
170	155.45
171	158.42
172	161.44
173	164.51
174	167.60
175	170.75
176	173.92
177	177.14
178	180.40
179	183.71
180	187.06
181	190.46
182	193.87
183	197.36
184	200.86
185	204.43
186	208.03
187	211.67
188	214.71
189	218.50
190	222.89
191	226.70
192	230.56
193	234.48
194	238.45
195	242.44
196	246.50
197	250.60
198	255.74
199	258.93
200	263.17
201	267.46
202	271.79
203	276.17
204	280.60
205	285.10
206	289.62
207	294.21
208	298.84
209	303.51

Centimeter	Pounds
210	308.25
211	313.03
212	317.86
213	322.73
214	327.67
215	332.65
216	337.70
217	342.79
218	347.93
219	353.13
220	358.38
221	363.69
222	369.05
223	374.45
224	379.92
225	385.45
226	391.03
227	396.67
228	402.36
229	408.09
230	413.91
231	419.76
232	425.69
233	431.66
234	437.68
235	443.76
236	449.91
237	456.13
238	462.39
239	468.72
240	475.09
241	481.55
242	488.05
243	494.60
244	501.24
245	507.92
246	514.66
247	521.48
248	528.36
249	535.28
250	542.29

Appendix N: Injury Key for Trawl Caught Pacific Halibut

Key to Injury Codes for Trawl Caught Pacific Halibut

- 1a. Fish is alive..... **Go to 2a**
1b. Fish is dead when sorted from the catch..... **Code DEAD**
Fish is in rigor and lifeless, even if no apparent injuries. Gills appear washed out, i.e., dull red, pink, or white in color. Mouth may contain sediment.
- 2a. Body of fish appears uninjured, or has only minor injuries **Go to 3a**
2b. Injuries to fish are significant and obvious **Code DEAD**
Body cavity is ripped open, exposing internal organs. Body tissue may be torn or ripped in a rough, ragged manner. Red hemorrhaging observed on 25% or more of the white side of fish.
- 3a. Fish is able to close operculum when stimulated **Go to 4a**
Operculum is closed strongly or weakly, but pressure is evident. Operculum may not stay closed for long, though pressure may last up to 5 seconds or longer.
3b. Fish cannot close operculum, even when stimulated **Code DEAD**
- 4a. Fish displays activity and has muscle tone **Go to 5a**
Fish displays a minimal amount of activity, especially when stimulated. May be able to clench jaw tightly.
4b. Fish exhibits no muscle tone **Code DEAD**
- 5a. Fish is not bleeding, or only slightly bleeding, if at all..... **Go to 6a**
5b. Blood is flowing freely and continuously in large quantities (profusely) **Code DEAD**
Bleeding is coming from a torn or severed gill arch, or a body injury.
- 6a. Body injuries are minimal, perhaps difficult to find **Go to 7a**
May consist of superficial nicks or cuts on body. Less than 10% of dorsal and anal fin area is frayed.
6b. Body injuries are readily apparent **Code POOR**
Skin is damaged with abrasions. Cuts and lacerations in body extend through the skin and just barely into the flesh (not deeply). Dorsal and anal fin area is frayed between 10-50%. Fin edges may be bleeding. Roughly 10-25% of the white side of fish shows red hemorrhaging.
- 7a. Operculum pressure is strong and sustained..... **Go to 8a**
7b. Operculum pressure is weak and not sustained..... **Code POOR**
- 8a. Fish is strong and lively, displaying good muscle tone **Go to 9a**
Fish is flopping around the deck, hard to control. Jaw may be tightly clenched, difficult to open.
8b. Fish appears weak..... **Code POOR**
Movement is intermittent, perhaps occurring when provoked or stimulated. Body is limp.
- 9a. Fish is bleeding from gills..... **Code POOR**
Blood is flowing continuously, slow and steadily, but not profusely. Gills are deep to bright red in color.
9b. No bleeding observed **Code EXCELLENT**
Gills are deep red in color.

Appendix O: Injury Key for Pot Caught Pacific Halibut

Key to Injury codes for Pot Caught Pacific Halibut

- 1a. Fish is alive..... **Go to 2a**
- 1b. Fish is dead when sorted from the catch..... **Code DEAD**
Fish is in rigor and lifeless, even if no apparent injuries. Gills appear washed out, i.e., dull red, pink, or white in color.
- 2a. No penetration of the body or head by sand fleas..... **Go to 3a**
Membranes surrounding eyes and anus are intact, without any holes from sand fleas. A few sand fleas may be seen on body and can be wiped off with your hand. Typically, no penetration has occurred when only a few (e.g., <10) sand fleas are found on the body.
- 2b. Sand fleas have penetrated the body via the eyes, fins, or anus **Code DEAD**
Membrane surrounding eye may be partially or completely missing. Dorsal and/or anal fin membranes may be eaten away, leaving fin rays exposed. Skin on the body is separated from tissue where sand fleas have eaten.
- 3a. No predation of the fish's body by crabs in the pot is noted..... **Go to 4a**
- 3b. Predation by crabs has occurred **CODE DEAD**
Crabs in the pot may have attacked and eaten the fish.
- 4a. Body of fish appears uninjured, or has only minor injuries **Go to 5a**
- 4b. Injuries to fish are obvious and significant **Code DEAD**
Body cavity is ripped open, exposing internal organs. Body tissue may be torn or ripped in a rough, ragged manner. Red hemorrhaging observed on 25% or more of the white side of fish.
- 5a. Fish is able to close operculum when stimulated **Go to 6a**
Operculum is closed strongly or weakly, but pressure is evident. Operculum may not stay closed for long, though pressure may last up to 5 seconds or longer.
- 5b. Fish cannot close operculum, even when stimulated **Code DEAD**
- 6a. Fish displays activity and has muscle tone **Go to 7a**
Fish displays a minimal amount of activity, especially when stimulated. May be able to clench jaw, perhaps tightly.
- 6b. Fish exhibits no muscle tone **Code DEAD**
Physical activity absent or limited to fin ripples or twitches. Little, if any, response to stimuli. Jaw is hanging open and is slack.
- 7a. Fish is not bleeding, or only slightly bleeding, if at all **Go to 8a**
- 7b. Blood is flowing freely and continuously in large quantity (profusely) **Code DEAD**
Bleeding is coming from fin edges or a body injury.
- 8a. Body injuries are minimal, perhaps difficult to find **Go to 9a**
May consist of superficial nicks or cuts on body. Less than 10% of dorsal and anal fin area is frayed. Hemorrhaging of skin on white side limited to 5-10% of surface area.
- 8b. Body injuries are readily apparent **Code POOR**
Skin is damaged with abrasions. Cuts and lacerations in body extend through the skin and just barely into the flesh (not deeply). Dorsal and anal fin area is frayed between 10-50%. Fin edges may be bleeding slightly. Roughly 10-25% of the white side of fish shows red hemorrhaging.
- 9a. Operculum pressure is strong and sustained..... **Go to 10a**
Fish should be able to close operculum for at least 5-10 seconds.
- 9b. Operculum pressure is weak and not sustained..... **Code POOR**
- 10a. Fish is strong and lively, displaying good muscle tone **Go to 11a**
Fish is flopping around the deck, hard to control. Jaw may be tightly clenched, difficult to open.
- 10b. Fish appears weak..... **Code POOR**

Movement is intermittent and of short duration. Perhaps occurring when provoked or stimulated. Body appears limp, not in rigor mortis.

11a. Fish is bleeding from fin edges or body..... **Code POOR**
Blood is oozing continuously from fin edges or body wounds. Gills are deep to bright red in color.

11b. No bleeding observed..... **Code EXCELLENT**
Gills are deep red in color. Fins are not bleeding.

Appendix P: Injury Key for Hook & Line Caught Pacific Halibut

Key to Injury Codes for Hook & Line Caught Pacific Halibut

- 1a. Fish is alive..... **Go to 2a**
- 1b. Fish is dead when brought to the surface on the gear **Code DEAD**
Fish is in rigor and lifeless, even if no apparent injuries. Gills appear completely devoid of blood (light pink or white in color).
- 2a. Body shows no signs of marine mammal predation..... **Go to 3a**
Fish's body is intact. Flesh may be torn, but no missing tissue.
- 2b. Body is missing pieces of flesh..... **Code DEAD**
Pieces of tissue are missing from predation by marine mammals. Missing pieces are typical of bites from sea lions or other large marine mammals.
- 3a. No penetration of the body or head by sand fleas..... **Go to 4a**
Membranes surrounding eyes and anus are intact, without any holes from sand fleas. A few sand fleas may be seen on body and can be wiped off with your hand. Typically, no penetration occurs when only a few (e.g., <10) sand fleas are found on the body.
- 3b. Sand fleas have penetrated the body via the eyes, fins, or anus **Code DEAD**
Membrane surrounding eye may be partially or completely missing. Dorsal and/or anal fin membranes may be eaten away, leaving finrays exposed. Skin on the body is separated from tissue where sand fleas have eaten.
- 4a. No wounds of any kind to abdominal organs. Abdominal wall not punctured..... **Go to 5a**
- 4b. Abdominal organs are damaged, possibly by a gaff **Code DEAD**
Abdominal cavity wall is punctured or torn. Viscera are visible and exposed, and may be protruding.
- 5a. Fish is not bleeding from gills (but may be bleeding from elsewhere)..... **Go to 6a**
- 5b. Fish is bleeding from gills..... **Code DEAD**
Bleeding is occurring from a torn or severed gill arch.
- 6a. Fish is not bleeding at all, or bleeding is minor to moderate (not from gills) **Go to 7a**
Blood may be seen around mouth and/or jaw. Blood may be oozing continuously, or bleeding may be continuing very slowly a few drops at a time, or bleeding may have stopped.
- 6b. Bleeding is severe..... **Code DEAD**
Blood from any source is flowing freely and continuously in large quantity.
- 7a. Injuries to head and/ or jaw are minor to moderate. **Go to 8a**
No structures are missing
- 7b. Major injuries to head and jaw, resulting in missing pieces **Code SEVERE**
Side of the head, possibly including the jaw, has been torn loose and missing from the fish, and/or lower jaw has been torn away and is missing.
- 8a. Wounds to the head (forward of preopercle and above cheek and jaw) are only surface scratches on the skin **Go to 9a**
- 8b. Skin on head (forward of preopercle) is ripped and torn deeply **Code SEVERE**
Internal organs are likely exposed.
- 9a. Eye or eye socket is not punctured..... **Go to 10a**
- 9b. Eye or eye socket is punctured..... **Code MODERATE**
- 10a. No wounds to the body are evident **Go to 11a**
- 10b. Wounds in body consist of puncture holes in skin, with possibly a flesh tear **Code MODERATE**

11a. Lower jaw is significantly damage..... **Code MODERATE**
Lower jaw may be broken into 2 pieces at the snout, but each is still attached at the base of the jaw. Jaw may be torn on one side or the other, possibly extending through the cheek.

11b. Damage to lower jaw, if any, is slight **Code MINOR**
Injuries include the hook entrance/exit hole around the jaw or in the cheek, or a tear in the cheek. A piece of the lip may be torn and hanging from the jaw. If gangion was cut, the hook and some length of residual gangion may be hanging from the mouth.

Appendix Q: 50 CFR Part 660.314 Observer Program Regulations

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660.335(a)(2). Owners of vessels registered to limited entry permits that did not receive instructions by mail are responsible for contacting NMFS OLE during business hours at least 3 days before the exemption is required to obtain information needed to make exemption reports. NMFS OLE must be contacted during business hours (Monday through Friday between 0800 and 1700 Pacific Standard Time).

(iv) Exemption reports must be received by NMFS at least 2 hours and not more than 24 hours before the exempted activities defined at paragraph (d)(4)(i) and (ii) of this section occur. An exemption report is valid until NMFS receives a report canceling the exemption. An exemption cancellation must be received at least 2 hours before the vessel re-enters the EEZ following an outside areas exemption or at least 2 hours before the vessel is placed back in the water following a haul out exemption.

(5) When aware that transmission of automatic position reports has been interrupted, or when notified by NMFS OLE that automatic position reports are not being received, contact NMFS OLE at 7600 Sand Point Way NE, Seattle, WA 98115-6349, phone: (206)526-6133 and follow the instructions provided to you. Such instructions may include, but are not limited to, manually communicating to a location designated by NMFS OLE the vessel's position or returning to port until the VMS is operable.

(6) After a fishing trip during which interruption of automatic position reports has occurred, the vessel's owner or operator must replace or repair the mobile transceiver unit prior to the vessel's next fishing trip. Repair or reinstallation of a mobile transceiver unit or installation of a replacement, including change of communications service provider shall be in accordance with the instructions provided by NMFS OLE and require the same certification.

(7) Make the mobile transceiver units available for inspection by NMFS OLE personnel, USCG personnel, state enforcement personnel or any authorized officer.

(8) Ensure that the mobile transceiver unit is not tampered with, dis-

abled, destroyed or operated improperly.

(9) Pay all charges levied by the communication service provider as necessary to ensure continuous operation of the VMS transceiver units.

[68 FR 62384, Nov. 4, 2003. Redesignated and amended at 69 FR 42350, July 15, 2004]

§ 660.314 Groundfish observer program.

(a) *General.* Vessel owners, operators, and managers are jointly and severally responsible for their vessel's compliance with this section.

(b) *Purpose.* The purpose of the Groundfish Observer Program is to allow observers to collect fisheries data deemed by the Northwest Regional Administrator, NMFS, to be necessary and appropriate for management, compliance monitoring, and research in the groundfish fisheries and for the conservation of living marine resources and their habitat.

(c) *Observer coverage requirements—(1) At-sea processors.* A catcher-processor or mothership 125 ft (38.1 m) LOA or longer must carry two NMFS-certified observers, and a catcher-processor or mothership shorter than 125 ft (38.1 m) LOA must carry one NMFS-certified observer, each day that the vessel is used to take, retain, receive, land, process, or transport groundfish.

(2) *Catcher vessels.* For the purposes of this section, catcher vessels include all vessels, using open access or limited entry gear (including exempted gear types) that take and retain, possess or land groundfish at a processor(s) as defined at §660.302. When NMFS notifies the vessel owner, operator, permit holder, or the vessel manager of any requirement to carry an observer, the vessel may not take and retain, possess, or land any groundfish without carrying an observer.

(i) *Notice of departure—Basic rule.* At least 24 hours (but not more than 36 hours) before departing on a fishing trip, a vessel that has been notified by NMFS that it is required to carry an observer, or that is operating in an active sampling unit, must notify NMFS (or its designated agent) of the vessel's intended time of departure. Notice will be given in a form to be specified by NMFS.

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(A) *Optional notice—Weather delays.* A vessel that anticipates a delayed departure due to weather or sea conditions may advise NMFS of the anticipated delay when providing the basic notice described in paragraph (c)(2)(i) of this section. If departure is delayed beyond 36 hours from the time the original notice is given, the vessel must provide an additional notice of departure not less than 4 hours prior to departure, in order to enable NMFS to place an observer.

(B) *Optional notice—Back-to-back fishing trips.* A vessel that intends to make back-to-back fishing trips (i.e., trips with less than 24 hours between off-loading from one trip and beginning another), may provide the basic notice described in paragraph (c)(2)(i) of this section for both trips, prior to making the first trip. A vessel that has given such notice is not required to give additional notice of the second trip.

(ii) *Cease fishing report.* Not more than 24 hours after ceasing the taking and retaining of groundfish with limited entry or open access gear in order to leave the fishery management area or to fish for species not managed under the PCGFMP, the owner, operator, or vessel manager of each vessel that is required to carry an observer or that is operating in a segment of the fleet that NMFS has identified as an active sampling unit must provide NMFS or its designated agent with notification as specified by NMFS.

(3) *Vessels engaged in recreational fishing.* [Reserved]

(4) *Waiver.* The Northwest Regional Administrator may provide written notification to the vessel owner stating that a determination has been made to temporarily waive coverage requirements because of circumstances that are deemed to be beyond the vessel's control.

(d) *Vessel responsibilities.* An operator of a vessel required to carry one or more observer(s) must provide:

(1) *Accommodations and food.* Provide accommodations and food that are:

(i) *At-sea processors.* Equivalent to those provided for officers, engineers, foremen, deck-bosses or other management level personnel of the vessel.

(ii) *Catcher vessels.* Equivalent to those provided to the crew.

(2) *Safe conditions.* Maintain safe conditions on the vessel for the protection of observer(s) including adherence to all USCG and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel, and provisions at §§ 600.725 and 600.746 of this chapter.

(3) *Observer communications.* Facilitate observer communications by:

(i) *Observer use of equipment.* Allowing observer(s) to use the vessel's communication equipment and personnel, on request, for the entry, transmission, and receipt of work-related messages, at no cost to the observer(s) or the U.S. or designated agent.

(ii) *Functional equipment.* Ensuring that the vessel's communications equipment, used by observers to enter and transmit data, is fully functional and operational.

(iii) *Hardware and software.* At-sea processing vessels must provide hardware and software pursuant to regulations at 50 CFR 679.50(f)(1)(iii)(B)(1) and 50 CFR 679.50(f)(2), as follows:

(A) Providing for use by the observer a personal computer in working condition that contains a full Pentium 120 Mhz or greater capacity processing chip, at least 32 megabytes of RAM, at least 75 megabytes of free hard disk storage, a Windows 9x or NT compatible operating system, an operating mouse, and a 3.5-inch (8.9 cm) floppy disk drive. The associated computer monitor must have a viewable screen size of at least 14.1 inches (35.8 cm) and minimum display settings of 600×800 pixels. The computer equipment specified in this paragraph (A) must be connected to a communication device that provides a modem connection to the NMFS host computer and supports one or more of the following protocols: ITU V.22, ITU V.22bis, ITU V.32, ITU V.32bis, or ITU V.34. Processors that use a modem must have at least a 28.8kbs Hayes-compatible modem. The above-specified hardware and software requirements do not apply to processors that do not process groundfish.

(B) *NMFS-supplied software.* Ensuring that each at-sea processing ship that is required to have two observers aboard obtains the data entry software provided by the Regional Administrator for use by the observer.

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(4) *Vessel position.* Allow observer(s) access to, and the use of, the vessel's navigation equipment and personnel, on request, to determine the vessel's position.

(5) *Access.* Allow observer(s) free and unobstructed access to the vessel's bridge, trawl or working decks, holding bins, processing areas, freezer spaces, weight scales, cargo holds, and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

(6) *Prior notification.* Notify observer(s) at least 15 minutes before fish are brought on board, or fish and fish products are transferred from the vessel, to allow sampling the catch or observing the transfer, unless the observer specifically requests not to be notified.

(7) *Records.* Allow observer(s) to inspect and copy any state or Federal logbook maintained voluntarily or as required by regulation.

(8) *Assistance.* Provide all other reasonable assistance to enable observer(s) to carry out their duties, including, but not limited to:

(i) Measuring decks, codends, and holding bins.

(ii) Providing the observer(s) with a safe work area.

(iii) Collecting bycatch when requested by the observer(s).

(iv) Collecting and carrying baskets of fish when requested by the observer(s).

(v) Allowing the observer(s) to collect biological data and samples.

(vi) Providing adequate space for storage of biological samples.

(9) *At-sea transfers to or from processing vessels.* Processing vessels must:

(i) Ensure that transfers of observers at sea via small boat or raft are carried out during daylight hours, under safe conditions, and with the agreement of observers involved.

(ii) Notify observers at least 3 hours before observers are transferred, such that the observers can collect personal belongings, equipment, and scientific samples.

(iii) Provide a safe pilot ladder and conduct the transfer to ensure the safety of observers during transfers.

(iv) Provide an experienced crew member to assist observers in the

small boat or raft in which any transfer is made.

(e) *Procurement of observer services by at-sea processing vessels.* Owners of vessels required to carry observers under paragraph (c)(1) of this section must arrange for observer services from an observer provider permitted by the North Pacific Groundfish Observer Program under 50 CFR 679.50(i), except that:

(1) Vessels are required to procure observer services directly from NMFS when NMFS has determined and given notification that the vessel must carry NMFS staff or an individual authorized by NMFS in lieu of an observer provided by a permitted observer provider.

(2) Vessels are required to procure observer services directly from NMFS and a permitted observer provider when NMFS has determined and given notification that the vessel must carry NMFS staff or individuals authorized by NMFS, in addition to an observer provided by a permitted observer provider.

(f) *Observer certification and responsibilities—(1) Observer Certification—(i) Applicability.* Observer certification authorizes an individual to fulfill duties as specified in writing by the NMFS Observer Program Office while under the employ of a NMFS-permitted observer provider and according to certification endorsements as designated under paragraph (f)(1)(v) of this section.

(ii) *Observer certification official.* The Regional Administrator will designate a NMFS observer certification official who will make decisions for the Observer Program Office on whether to issue or deny observer certification.

(iii) *Certification requirements.* NMFS will certify individuals who:

(A) Are employed by an observer provider company permitted pursuant to 50 CFR 679.50 at the time of the issuance of the certification;

(B) Have provided, through their observer provider:

(1) Information identified by NMFS at 50 CFR 679.50(i)(2)(x)(A)(1)(iii) and (iv); and

(2) Information identified by NMFS at 50 CFR 679.50(i)(2)(x)(C) regarding the observer candidate's health and physical fitness for the job;

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(C) Meet all education and health standards as specified in 50 CFR 679.50(i)(2)(i)(A) and (1)(2)(x)(C), respectively; and

(D) Have successfully completed NMFS-approved training as prescribed by the Observer Program.

(1) Successful completion of training by an observer applicant consists of meeting all attendance and conduct standards issued in writing at the start of training; meeting all performance standards issued in writing at the start of training for assignments, tests, and other evaluation tools; and completing all other training requirements established by the Observer Program.

(2) If a candidate fails training, he or she will be notified in writing on or before the last day of training. The notification will indicate: the reasons the candidate failed the training; whether the candidate can retake the training, and under what conditions, or whether, the candidate will not be allowed to retake the training. If a determination is made that the candidate may not pursue further training, notification will be in the form of an IAD denying certification, as specified under paragraph (f)(1)(iv)(A) of this section.

(E) Have not been decertified under paragraph (f)(3) of this section, or pursuant to 50 CFR 679.50.

(iv) Agency determinations on observer certification (A) *Denial of a certification*. The NMFS observer certification official will issue a written IAD denying observer certification when the observer certification official determines that a candidate has unresolvable deficiencies in meeting the requirements for certification as specified in paragraph (f)(1)(iii) of this section. The IAD will identify the reasons certification was denied and what requirements were deficient.

(B) *Appeals*. A candidate who receives an IAD that denies his or her certification may appeal pursuant to paragraph (f)(4) of this section. A candidate who appeals the IAD will not be issued an interim observer certification, and will not receive a certification unless the final resolution of that appeal is in the candidate's favor.

(C) *Issuance of an observer certification*. An observer certification will be issued upon determination by the ob-

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server certification official that the candidate has successfully met all requirements for certification as specified in paragraph (f)(1)(iii) of this section.

(v) *Endorsements*. The following endorsements must be obtained, in addition to observer certification, in order for an observer to deploy.

(A) *Certification training endorsement*. A certification training endorsement signifies the successful completion of the training course required to obtain observer certification. This endorsement expires when the observer has not been deployed and performed sampling duties as required by the Observer Program Office for a period of time, specified by the Observer Program, after his or her most recent debriefing. The observer can renew the endorsement by successfully completing certification training once more.

(B) *Annual general endorsements*. Each observer must obtain an annual general endorsement to their certification prior to his or her first deployment within any calendar year subsequent to a year in which a certification training endorsement is obtained. To obtain an annual general endorsement, an observer must successfully complete the annual briefing, as specified by the Observer Program. All briefing attendance, performance, and conduct standards required by the Observer Program must be met.

(C) *Deployment endorsements*. Each observer who has completed an initial deployment after certification or annual briefing must receive a deployment endorsement to their certification prior to any subsequent deployments for the remainder of that year. An observer may obtain a deployment endorsement by successfully completing all pre-cruise briefing requirements. The type of briefing the observer must attend and successfully complete will be specified in writing by the Observer Program during the observer's most recent debriefing.

(D) *Pacific whiting fishery endorsements*. A Pacific whiting fishery endorsement is required for purposes of performing observer duties aboard vessels that process groundfish at sea in the Pacific whiting fishery. A Pacific

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whiting fishery endorsement to an observer's certification may be obtained by meeting the following requirements:

(1) Be a prior NMFS-certified observer in the groundfish fisheries off Alaska or the Pacific Coast, unless an individual with this qualification is not available;

(2) Receive an evaluation by NMFS for his or her most recent deployment (if any) that indicated that the observer's performance met Observer Program expectations for that deployment;

(3) Successfully complete a NMFS-approved observer training and/or whiting briefing as prescribed by the Observer Program; and

(4) Comply with all of the other requirements of this section.

(2) *Standards of observer conduct*—(i) Limitations on conflict of interest.

(A) Observers:

(1) Must not have a direct financial interest, other than the provision of observer services, in a North Pacific fishery managed pursuant to an FMP for the waters off the coast of Alaska, or in a Pacific Coast fishery managed by either the state or Federal governments in waters off Washington, Oregon, or California, including but not limited to:

(i) Any ownership, mortgage holder, or other secured interest in a vessel, shoreside or floating stationary processor facility involved in the catching, taking, harvesting or processing of fish,

(ii) Any business involved with selling supplies or services to any vessel, shoreside or floating stationary processing facility; or

(iii) Any business involved with purchasing raw or processed products from any vessel, shoreside or floating stationary processing facilities.

(2) Must not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from anyone who either conducts activities that are regulated by NMFS or has interests that may be substantially affected by the performance or nonperformance of the observers' official duties.

(3) May not serve as observers on any vessel or at any shoreside or floating stationary processing facility owned or

operated by a person who previously employed the observers.

(4) May not solicit or accept employment as a crew member or an employee of a vessel, shoreside processor, or stationary floating processor while employed by an observer provider.

(B) Provisions for remuneration of observers under this section do not constitute a conflict of interest.

(ii) *Standards of behavior*. Observers must avoid any behavior that could adversely affect the confidence of the public in the integrity of the Observer Program or of the government, including but not limited to the following:

(A) Observers must perform their assigned duties as described in the Observer Manual or other written instructions from the Observer Program Office.

(B) Observers must accurately record their sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

(C) Observers must not disclose collected data and observations made on board the vessel or in the processing facility to any person except the owner or operator of the observed vessel or processing facility, an authorized officer, or NMFS.

(D) Observers must refrain from engaging in any illegal actions or any other activities that would reflect negatively on their image as professional scientists, on other observers, or on the Observer Program as a whole. This includes, but is not limited to:

(1) Violating the drug and alcohol policy established by and available from the Observer Program;

(2) Engaging in the use, possession, or distribution of illegal drugs; or

(3) Engaging in physical sexual contact with personnel of the vessel or processing facility to which the observer is assigned, or with any vessel or processing plant personnel who may be substantially affected by the performance or non-performance of the observer's official duties.

(3) *Suspension and decertification*—(i) *Suspension and decertification review official*. The Regional Administrator (or a designee) will designate an observer suspension and decertification review

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official(s), who will have the authority to review observer certifications and issue initial administrative determinations of observer certification suspension and/or decertification.

(ii) *Causes for suspension or decertification.* The suspension/decertification official may initiate suspension or decertification proceedings against an observer:

(A) When it is alleged that the observer has committed any acts or omissions of any of the following:

(1) Failed to satisfactorily perform the duties of observers as specified in writing by the NMFS Observer Program; or

(2) Failed to abide by the standards of conduct for observers as prescribed under paragraph (f)(2) of this section;

(B) Upon conviction of a crime or upon entry of a civil judgment for:

(1) Commission of fraud or other violation in connection with obtaining or attempting to obtain certification, or in performing the duties as specified in writing by the NMFS Observer Program;

(2) Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Commission of any other offense indicating a lack of integrity or honesty that seriously and directly affects the fitness of observers.

(iii) *Issuance of initial administrative determination.* Upon determination that suspension or decertification is warranted under paragraph (f)(3)(ii) of this section, the suspension/decertification official will issue a written IAD to the observer via certified mail at the observer's most current address provided to NMFS. The IAD will identify whether a certification is suspended or revoked and will identify the specific reasons for the action taken. If the IAD issues a suspension for an observer certification, the terms of the suspension will be specified. Suspension or decertification is effective immediately as of the date of issuance, unless the suspension/decertification official notes a compelling reason for maintaining certification for a specified period and under specified conditions.

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(iv) *Appeals.* A certified observer who receives an IAD that suspends or revokes his or her observer certification may appeal pursuant to paragraph (f)(4) of this section.

(4) *Appeals.* (i) Decisions on appeals of initial administrative decisions denying certification to, or suspending, or decertifying, an observer, will be made by the Regional Administrator (or designated official).

(ii) Appeals decisions shall be in writing and shall state the reasons therefor.

(iii) An appeal must be filed with the Regional Administrator within 30 days of the initial administrative decision denying, suspending, or revoking the observer's certification.

(iv) The appeal must be in writing, and must allege facts or circumstances to show why the certification should be granted, or should not be suspended or revoked, under the criteria in this section.

(v) Absent good cause for further delay, the Regional Administrator (or designated official) will issue a written decision on the appeal within 45 days of receipt of the appeal. The Regional Administrator's decision is the final administrative decision of the Department as of the date of the decision.

(g) *Sample station and operational requirements—(1) Observer sampling station.* This paragraph contains the requirements for observer sampling stations. The vessel owner must provide an observer sampling station that complies with this section so that the observer can carry out required duties.

(i) *Accessibility.* The observer sampling station must be available to the observer at all times.

(ii) *Location.* The observer sampling station must be located within 4 m of the location from which the observer samples unsorted catch. Unobstructed passage must be provided between the observer sampling station and the location where the observer collects sample catch.

(iii) *Minimum work space aboard at-sea processing vessels.* The observer must have a working area of 4.5 square meters, including the observer's sampling table, for sampling and storage of fish to be sampled. The observer must be able to stand upright and have a work

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area at least 0.9 m deep in the area in front of the table and scale.

(iv) *Table aboard at-sea processing vessels.* The observer sampling station must include a table at least 0.6 m deep, 1.2 m wide and 0.9 m high and no more than 1.1 m high. The entire surface area of the table must be available for use by the observer. Any area for the observer sampling scale is in addition to the minimum space requirements for the table. The observer's sampling table must be secured to the floor or wall.

(v) *Diverter board aboard at-sea processing vessels.* The conveyor belt conveying unsorted catch must have a removable board (diverter board) to allow all fish to be diverted from the belt directly into the observer's sampling baskets. The diverter board must be located downstream of the scale used to weigh total catch. At least 1 m of accessible belt space, located downstream of the scale used to weight total catch, must be available for the observer's use when sampling.

(vi) *Other requirement for at-sea processing vessels.* The sampling station must be in a well-drained area that includes floor grating (or other material that prevents slipping), lighting adequate for day or night sampling, and a hose that supplies fresh or sea water to the observer.

(vii) *Observer sampling scale.* The observer sample station must include a NMFS-approved platform scale (pursuant to requirements at 50 CFR 679.28(d)(5)) with a capacity of at least 50 kg located within 1 m of the observer's sampling table. The scale must be mounted so that the weighing surface is no more than 0.7 m above the floor.

(2) *Requirements for bins used to make volumetric estimates on at-sea processing vessels.* [Reserved]

(3) *Operational requirements for at-sea processing vessels.* [Reserved]

[66 FR 20613, Apr. 24, 2001, as amended at 69 FR 31755, June 7, 2004. Redesignated and amended at 69 FR 42350, July 15, 2004; 69 FR 57881, Sept. 28, 2004]

§ 660.320 Allocations.

(a) *General.* The commercial portion of the Pacific Coast groundfish fishery, excluding the treaty Indian fishery, is divided into limited entry and open ac-

cess fisheries. Separate allocations for the limited entry and open access fisheries will be established biennially or annually for certain species and/or areas using the procedures described in this subpart or the PCGFMP.

(1) *Limited entry allocation.* The allocation for the limited entry fishery is the allowable catch (harvest guideline or quota excluding set asides for recreational or tribal Indian fisheries) minus the allocation to the open access fishery.

(2) *Open access allocation.* The allocation for the open access fishery is derived by applying the open access allocation percentage to the annual harvest guideline or quota after subtracting any set asides for recreational or tribal Indian fisheries. For management areas where quotas or harvest guidelines for a stock are not fully utilized, no separate allocation will be established for the open access fishery until it is projected that the allowable catch for a species will be reached.

(b) *Open access allocation percentage.* For each species with a harvest guideline or quota, the initial open access allocation percentage is calculated by:

(1) Computing the total catch for that species during the window period by any vessel that does not initially receive a limited entry permit.

(2) Dividing that amount by the total catch during the window period by all gear.

(3) The guidelines in this paragraph (b)(3) apply to recalculation of the open access allocation percentage. Any recalculated allocation percentage will be used in calculating the following biennial fishing period's open access allocation.

(c) *Catch accounting between the limited entry and open access fisheries.* Any groundfish caught by a vessel with a limited entry permit will be counted against the limited entry allocation while the limited entry fishery for that vessel's limited entry gear is open. When the fishery for a vessel's limited entry gear has closed, groundfish caught by that vessel with open access gear will be counted against the open access allocation. All groundfish caught by vessels without limited entry permits will be counted against the open access allocation.

Appendix R: 50 CFR Part 600.506 Observer Health and Safety Regulations

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discard an observer's collected samples, equipment, records, photographic film, papers, or effects without the express consent of the observer;

(16) Prohibit or bar by command, impediment, threat, coercion, or refusal of reasonable assistance, an observer from collecting samples, conducting product recovery rate determinations, making observations, or otherwise performing the observer's duties;

(17) Harass or sexually harass an authorized officer or observer;

(18) Fail to provide the required assistance to an observer as described at § 600.506 (c) and (e);

(19) Fail to identify, falsely identify, fail to properly maintain, or obscure the identification of the FFV or its gear as required by this subpart;

(20) Falsify or fail to make, keep, maintain, or submit any record or report required by this subpart;

(21) Fail to return to the sea or fail to otherwise treat prohibited species as required by this subpart;

(22) Fail to report or falsely report any gear conflict;

(23) Fail to report or falsely report any loss, jettisoning, or abandonment of fishing gear or other article into the EEZ that might interfere with fishing, obstruct fishing gear or vessels, or cause damage to any fishery resource or marine mammals;

(24) Continue Activity Codes 1 through 4 after those activity codes have been canceled under § 600.511;

(25) Fail to maintain health and safety standards set forth in § 600.506(d);

(26) Violate any provisions of regulations for specific fisheries of this subpart;

(27) On a scientific research vessel, engage in fishing other than recreational fishing authorized by applicable state, territorial, or Federal regulations;

(28) Violate any provision of this subpart, the Magnuson-Stevens Act, the applicable GIFA, any notice issued under this subpart or any permit issued under this subpart; or

(29) Attempt to do any of the foregoing.

(b) It is unlawful for any FFV, and for the owner or operator of any FFV except an FFV engaged only in recreational fishing, to fish—

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(1) Within the boundaries of any state, unless:

(i) The fishing is authorized by the Governor of that state as permitted by section 306(c) of the Magnuson-Stevens Act to engage in a joint venture for processing and support with U.S. fishing vessels in the internal waters of that state; or

(ii) The fishing is authorized by, and conducted in accordance with, a valid permit issued under § 600.501, and the Governor of that state has indicated concurrence to allow fishing consisting solely of transporting fish or fish products from a point within the boundaries of that state to a point outside the United States; or

(2) Within the EEZ, or for any anadromous species or continental shelf fishery resources beyond the EEZ, unless the fishing is authorized by, and conducted in accordance with, a valid permit issued under § 600.501.

[61 FR 32540, June 24, 1996, as amended at 63 FR 7075, Feb. 12, 1998; 64 FR 39020, July 21, 1999]

§ 600.506 Observers.

(a) *General.* To carry out such scientific, compliance monitoring, and other functions as may be necessary or appropriate to carry out the purposes of the Magnuson-Stevens Act, the appropriate Regional Administrator or Science and Research Director (see table 2 to § 600.502) may assign U.S. observers to FFV's. Except as provided for in section 201(h)(2) of the Magnuson-Stevens Act, no FFV may conduct fishing operations within the EEZ unless a U.S. observer is aboard.

(b) *Effort plan.* To ensure the availability of an observer as required by this section, the owners and operators of FFV's wanting to fish within the EEZ will submit to the appropriate Regional Administrator or Science and Research Director and also to the Chief, Financial Services Division, NMFS, 1315 East West Highway, Silver Spring, MD 20910 a schedule of fishing effort 30 days prior to the beginning of each quarter. A quarter is a time period of 3 consecutive months beginning January 1, April 1, July 1, and October 1 of each year. The schedule will contain the name and IRCS of each FFV

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intending to fish within the EEZ during the upcoming quarter, and each FFV's expected date of arrival and expected date of departure.

(1) The appropriate Regional Administrator or Science and Research Director must be notified immediately of any substitution of vessels or any cancellation of plans to fish in the EEZ for FFV's listed in the effort plan required by this section.

(2) If an arrival date of an FFV will vary more than 5 days from the date listed in the quarterly schedule, the appropriate Regional Administrator or Science and Research Director must be notified at least 10 days in advance of the rescheduled date of arrival. If the notice required by this paragraph (b)(2) is not given, the FFV may not engage in fishing until an observer is available and has been placed aboard the vessel or the requirement has been waived by the appropriate Regional Administrator or Science and Research Director.

(c) *Assistance to observers.* To assist the observer in the accomplishment of his or her assigned duties, the owner and operator of an FFV to which an observer is assigned must—

(1) Provide, at no cost to the observer or the United States, accommodations for the observer aboard the FFV that are equivalent to those provided to the officers of that vessel.

(2) Cause the FFV to proceed to such places and at such times as may be designated by the appropriate Regional Administrator or Science and Research Director for the purpose of embarking and debarking the observer.

(3) Allow the observer to use the FFV's communications equipment and personnel upon demand for the transmission and receipt of messages.

(4) Allow the observer access to and use of the FFV's navigation equipment and personnel upon demand to determine the vessel's position.

(5) Allow the observer free and unobstructed access to the FFV's bridge, trawl, or working decks, holding bins, processing areas, freezer spaces, weight scales, cargo holds and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

(6) Allow the observer to inspect and copy the FFV's daily log, communications log, transfer log, and any other log, document, notice, or record required by these regulations.

(7) Provide the observer copies of any records required by these regulations upon demand.

(8) Notify the observer at least 15 minutes before fish are brought on board or fish or fish products are transferred from the FFV to allow sampling the catch or observing the transfer, unless the observer specifically requests not to be notified.

(9) Provide all other reasonable assistance to enable the observer to carry out his or her duties.

(d) *Health and safety standards.* All foreign fishing vessels to which an observer is deployed must maintain, at all times that the vessel is in the EEZ, the following:

(1) At least one working radar.

(2) Functioning navigation lights as required by international law.

(3) A watch on the bridge by appropriately trained and experienced personnel while the vessel is underway.

(4) Lifeboats and/or inflatable life rafts with a total carrying capacity equal to or greater than the number of people aboard the vessel. Lifeboats and inflatable life rafts must be maintained in good working order and be readily available.

(5) Life jackets equal or greater in number to the total number of persons aboard the vessel. Life jackets must be stowed in readily accessible and plainly marked positions throughout the vessel, and maintained in a state of good repair.

(6) At least one ring life buoy for each 25 ft (7.6 m) of vessel length, equipped with automatic water lights. Ring life buoys must have an outside diameter of not more than 32 inches (81.3 cm) nor less than 30 inches (76.2 cm), and must be maintained in a state of good repair. Ring life buoys must be readily available, but not positioned so they pose a threat of entanglement in work areas. They must be secured in such a way that they can be easily cast loose in the event of an emergency.

(7) At least one VHF-FM radio with a functioning channel 16 (156.8 MHz),

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International Distress, Safety and Calling Frequency, and one functioning AM radio (SSB-Single Side Band) capable of operating at 2182 kHz (SSB). Radios will be maintained in a radio room, chartroom, or other suitable location.

(8) At least one Emergency Position Indicating Radio Beacon (EPIRB), approved by the USCG for offshore commercial use, stowed in a location so as to make it readily available in the event of an emergency.

(9) At least six hand-held, rocket-propelled, parachute, red-flare distress signals, and three orange-smoke distress signals stowed in the pilothouse or navigation bridge in portable watertight containers.

(10) All lights, shapes, whistles, foghorns, fog bells and gongs required by and maintained in accordance with the International Regulations for Preventing Collisions at Sea.

(11) Clean and sanitary conditions in all living spaces, food service and preparation areas and work spaces aboard the vessel.

(e) *Observer transfers.* (1) The operator of the FFV must ensure that transfers of observers at sea via small boat or raft are carried out during daylight hours as weather and sea conditions allow, and with the agreement of the observer involved. The FFV operator must provide the observer 3 hours advance notice of at-sea transfers, so that the observer may collect personal belongings, equipment, and scientific samples.

(2) The FFV's involved must provide a safe pilot ladder and conduct the transfer according to the procedures of §600.504(d) to ensure the safety of the during the transfer.

(3) An experienced crew member must assist the observer in the small boat or raft in which the transfer is made.

(f) *Supplementary observers.* In the event funds are not available from Congressional appropriations of fees collected to assign an observer to a foreign fishing vessel, the appropriate Regional Administrator or Science and Research Director will assign a supplementary observer to that vessel. The costs of supplementary observers will be paid for by the owners and operators

of foreign fishing vessels as provided for in paragraph (h) of this section.

(g) *Supplementary observer authority and duties.* (1) A supplementary observer aboard a foreign fishing vessel has the same authority and must be treated in all respects as an observer who is employed by NMFS, either directly or under contract.

(2) The duties of supplementary observers and their deployment and work schedules will be specified by the appropriate Regional Administrator or Science and Research Director.

(3) All data collected by supplementary observers will be under the exclusive control of the Assistant Administrator.

(h) *Supplementary observer payment—*

(1) *Method of payment.* The owners and operators of foreign fishing vessels must pay directly to the contractor the costs of supplementary observer coverage. Payment must be made to the contractor supplying supplementary observer coverage either by letter of credit or certified check drawn on a federally chartered bank in U.S. dollars, or other financial institution acceptable to the contractor. The letter of credit used to pay supplementary observer fees to contractors must be separate and distinct from the letter of credit required by §600.518(b)(2). Billing schedules will be specified by the terms of the contract between NOAA and the contractors. Billings for supplementary observer coverage will be approved by the appropriate Regional Administrator or Science and Research Director and then transmitted to the owners and operators of foreign fishing vessels by the appropriate designated representative. Each country will have only one designated representative to receive observer bills for all vessels of that country, except as provided for by the Assistant Administrator. All bills must be paid within 10 working days of the billing date. Failure to pay an observer bill will constitute grounds to revoke fishing permits. All fees collected under this section will be considered interim in nature and subject to reconciliation at the end of the fiscal year in accordance with paragraph (h)(4) of this section and §600.518(d).

(2) *Contractor costs.* The costs charged for supplementary observer coverage to

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the owners and operators of foreign fishing vessels may not exceed the costs charged to NMFS for the same or similar services, except that contractors may charge to the owners and operators of foreign fishing vessels an additional fee to cover the administrative costs of the program not ordinarily part of contract costs charged to NMFS. The costs charged foreign fishermen for supplementary observers may include, but are not limited to the following:

(i) Salary and benefits, including overtime, for supplementary observers.

(ii) The costs of post-certification training required by paragraph (j)(2) of this section.

(iii) The costs of travel, transportation, and per diem associated with deploying supplementary observers to foreign fishing vessels including the cost of travel, transportation, and per diem from the supplementary observer's post of duty to the point of embarkation to the foreign fishing vessel, and then from the point of disembarkation to the post of duty from where the trip began. For the purposes of these regulations, the appropriate Regional Administrator or Science and Research Director will designate posts of duty for supplementary observers.

(iv) The costs of travel, transportation, and per diem associated with the debriefing following deployment of a supplementary observer by NMFS officials.

(v) The administrative and overhead costs incurred by the contractor and, if appropriate, a reasonable profit.

(3) *NMFS costs.* The owners and operators of foreign fishing vessels must also pay to NMFS as part of the surcharge required by section 201(i)(4) of the Magnuson-Stevens Act, the following costs:

(i) The costs of certifying applicants for the position of supplementary observer.

(ii) The costs of any equipment, including safety equipment, sampling equipment, operations manuals, or other texts necessary to perform the duties of a supplementary observer. The equipment will be specified by the appropriate Regional Administrator or Science and Research Director according to the requirements of the fishery

to which the supplementary observer will be deployed.

(iii) The costs associated with communications with supplementary observers for transmission of data and routine messages.

(iv) For the purposes of monitoring the supplementary observer program, the costs for the management and analysis of data.

(v) The costs for data editing and entry.

(vi) Any costs incurred by NMFS to train, deploy or debrief a supplementary observer.

(vii) The cost for U.S. Customs inspection for supplementary observers disembarking after deployment.

(4) *Reconciliation.* Fees collected by the contractor in excess of the actual costs of supplementary observer coverage will be refunded to the owners and operators of foreign fishing vessels, or kept on deposit to defray the costs of future supplementary observer coverage. Refunds will be made within 60 days after final costs are determined and approved by NMFS.

(i) *Supplementary observer contractors—(1) Contractor eligibility.* Supplementary observers will be obtained by NMFS from persons or firms having established contracts to provide NMFS with observers. In the event no such contract is in place, NMFS will use established, competitive contracting procedures to select persons or firms to provide supplementary observers. The services supplied by the supplementary observer contractors will be as described within the contract and as specified below.

(2) Supplementary observer contractors must submit for the approval of the Assistant Administrator the following:

(i) A copy of any contract, including all attachments, amendments, and enclosures thereto, between the contractor and the owners and operators of foreign fishing vessels for whom the contractor will provide supplementary observer services.

(ii) All application information for persons whom the contractor desires to employ as certified supplementary observers.

(iii) Billing schedules and billings to the owners and operators of foreign

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fishing vessels for further transmission to the designated representative of the appropriate foreign nation.

(iv) All data on costs.

(j) *Supplementary observers—certification, training*—(1) *Certification*. The appropriate Regional Administrator or Science and Research Director will certify persons as qualified for the position of supplementary observer once the following conditions are met:

(i) The candidate is a citizen or national of the United States.

(ii) The candidate has education or experience equivalent to the education or experience required of persons used as observers by NMFS as either Federal personnel or contract employees. The education and experience required for certification may vary according to the requirements of managing the foreign fishery in which the supplementary observer is to be deployed. Documentation of U.S. citizenship or nationality, and education or experience will be provided from personal qualification statements on file with NMFS contractors who provide supplementary observer services, and will not require the submission of additional information to NMFS.

(2) *Training*. Prior to deployment to foreign fishing vessels, certified supplementary observers must also meet the following conditions:

(i) Each certified supplementary observer must satisfactorily complete a course of training approved by the appropriate Regional Administrator or Science and Research Director as equivalent to that received by persons used as observers by NMFS as either Federal personnel or contract employees. The course of training may vary according to the foreign fishery in which the supplementary observer is to be deployed.

(ii) Each certified supplementary observer must agree in writing to abide by standards of conduct as set forth in Department of Commerce Administrative Order 202-735 (as provided by the contractor).

(k) *Supplementary observer certification suspension or revocation*. (1) Certification of a supplementary observer may be suspended or revoked by the Assistant Administrator under the following conditions:

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(i) A supplementary observer fails to perform the duties specified in paragraph (g)(2) of this section.

(ii) A supplementary observer fails to abide by the standards of conduct described by Department of Commerce Administrative Order 202-735.

(2) The suspension or revocation of the certification of a supplementary observer by the Assistant Administrator may be based on the following:

(i) Boarding inspection reports by authorized officers of the USCG or NMFS, or other credible information, that indicate a supplementary observer has failed to abide by the established standards of conduct; or

(ii) An analysis by NMFS of the data collected by a supplementary observer indicating improper or incorrect data collection or recording. The failure to properly collect or record data is sufficient to justify decertification of supplementary observers; no intent to defraud need be demonstrated.

(3) The Assistant Administrator will notify the supplementary observer, in writing, of the Assistant Administrator's intent to suspend or revoke certification, and the reasons therefor, and provide the supplementary observer a reasonable opportunity to respond. If the Assistant Administrator determines that there are disputed questions of material fact, then the Assistant Administrator may in this respect appoint an examiner to make an informal fact-finding inquiry and prepare a report and recommendations.

[61 FR 32540, June 24, 1996, as amended at 63 FR 7074, 7075, Feb. 12, 1998; 64 FR 39020, July 21, 1999]

§ 600.507 Recordkeeping.

(a) *General*. The owner and operator of each FFV must maintain timely and accurate records required by this section as modified by the regulations for the fishery in which the FFV is engaged.

(1) The owner and operator of each FFV must maintain all required records in English, based on Greenwich mean time (GMT) unless otherwise specified in the regulation, and make them immediately available for inspection upon the request of an authorized officer or observer.

Appendix S: Radio Communications

The radios that you will encounter most often are VHF-FM (Very High Frequency Modulation), used for short-range vessel-to-vessel and vessel-to-shore communication, and HF-SSB (High Frequency-Single Side Band), used for communication when the stations are out of VHF range with each other. Both types offer certain special advantages, and each requires a specific operating procedure. The use of radio communication equipment requires a licensed operator. If your vessel has given you permission to use the radio, you must follow the FCC rules for calling and speaking on the type of radio (VHF or SSB) you use. Ask first how to operate the radio and use these pages as a guide for calling. Be aware that obstructing others' transmissions with your call (by conversing for too long), using profanities or making false distress calls can cost the permit holder and/or you a heavy fine and/or prison sentence.

VHF-FM Radios

In the United States, the VHF Band is broken up into 71 channels, with a frequency range of from 156.000 to 163.000 MHz, including six WX (Weather) channels. By law, all operating VHF stations are required to have at least three of these channels: channel 6, channel 16, and at least one other working channel.

Channel 6 (156.300 MHz) is the Intership Safety Channel, used for intership safety purposes, search-and-rescue (SAR) communications with ships and aircraft of the U.S. Coast Guard, and vessel movement reporting within ports and inland waterways. This channel must not be used for non-safety communications.

Channel 16 (156.800 MHz) is the International Distress, Safety, and Calling Channel (Intership and Ship-to-Coast). This channel must be monitored at all times the station is in operation (except when actually communicating on another channel). This channel is also monitored by the U.S. Coast Guard, Public Coastal Stations, and many Limited Coastal Stations. Calls to vessels are normally initiated on this channel. Then, except in an emergency, you must switch to a working channel. It is against FCC regulations to conduct business on this channel. In addition, vessels calling must use their assigned call sign at the beginning and end of each transmission.

Channel 22A (157.100 MHz) is the U.S. Coast Guard Liaison Channel. This channel is used for communications with U.S. Coast Guard ships, aircraft, and coastal stations after first establishing contact on channel 16. Navigational warnings and, where not available on WX channels, Marine Weather forecasts are also broadcast on this frequency.

Channels 24, 25, 26, 27 and 28 (also 84, 85, 86 and 87) are the Public Correspondence channels (ship-to-coast). These are available to all vessels to communicate with Public Coastal stations (Marine Operator).

Channels 26 and 28 are the primary public correspondence channels.

Channels 1, 3, 5, 12, 13, 14, 15, 17, 65, 66, 73, 74, 77, 81, 82 and 83 are channels with special designations (port traffic communications, U.S. government communications, locks and bridges, environmental, etc.), and their use close to shore or to ports should be minimized.

Channels 7, 8, 9, 10, 11, 18, 19, 67, 68, 69, 70, 71, 72, 78, 79, 80 and 88 are commercial and non-commercial working channels that are available for conducting business. The abbreviated format (no call signs) is acceptable on these frequencies. It should be noted that some of these channels may be locally restricted (off the Washington Coast, for example, channel 11 is Tofino Coast Guard Traffic Control for the entry into Juan de Fuca Strait, used for reporting ship locations), in which case their use for business should be avoided.

HF-SSB Radios

To communicate over distances of beyond twenty miles, you will need to use satellite communication or a medium to high frequency radiotelephone referred to as Single Side Band (SSB) radio. The signal is poorer in quality than VHF and susceptible to slight atmospheric shifts. Lower frequencies are used for medium distances and higher frequencies for greater distances. The general rule for single sideband frequency selection is: multiply the frequency in MHz by 100 to obtain the approximate coverage distance in miles. At night however, the ranges of SSB radio wave travel are from 2-3 times greater. Therefore, use a lower frequency at night to cover the same distance.

All ship SSB radiotelephones must be capable of operating on 2182 kHz, the international distress and calling frequency, and at least 2 other frequencies. Numerous channels are available for your use; which ones are available varies from place to place. However, channel 2670 kHz is only used for communicating with the Coast Guard and should not be used for other purposes.

When using SSB radiotelephone, you must observe radio silence on channel 2182 kHz, the emergency channel, for 3 minutes immediately after the hour and the half hour. The purpose of radio silence on the emergency hailing channel is to clear the airwave for weak or distant distress signals. No radio silence is used on the VHF emergency channel: channel 16.

Radio Procedure

In as much as the airwaves are in the public domain, it is the responsibility of the radio station operator to conduct business according to established guidelines and procedures. While on the air, the operator should follow the following format outline:

1. Listen before beginning transmission in order to ensure that you are not interfering with other stations or with emergency radio traffic.
2. Identify your station when calling. On the SSB, a calling station must limit the duration of the hail to not more than 30 seconds. If there is no reply, the hail may be repeated at 2 minute intervals up to a maximum of three times, at which time the calling station must sign off and wait a minimum of 15 minutes before making another attempt. This requirement does not apply in emergency situations.
3. Keep transmissions short and concise, giving the other station a chance to respond, ask questions, or reconfirm an unclear message. A long, complicated message can best be effected in short segments with breaks in between to ensure that the receiving station has copied each portion of the message correctly.
4. Follow correct radio procedure while on the air. The phonetic alphabet should be learned and used spelling unclear words with an extemporaneous phonetic alphabet can lead to misunderstood messages. You should also know and use the radio "punctuation" words ("over", "clear", "out", "roger", "words twice", "say again", "standing by", and "break"). Since most radio communication is only one way at a time, these words can be invaluable for signaling your intentions to the receiving station. Make sure to speak directly into the microphone; speaking loudly, slowly, and distinctly-but not shouting-can significantly improve the legibility of radio broadcasts. The use of profanity on the public airwaves is strictly forbidden.
5. Upon completing a transmission, you must sign off by identifying your station and using the words "clear" or "out" (or, if you expect to soon resume contact with the same station, by using the phrase "standing by").

Radios are different from telephones in that they cannot transmit and receive simultaneously. Therefore when you have temporarily finished talking and are ready to listen, say "over," and release the button on your microphone. When the other party is ready to listen they will say "over." At the end of your entire message, say "out" rather than "over." Keep in mind that people on other ships can overhear your conversation, so watch what you say.

Sounds are easily garbled on marine radios so the phonetic alphabet is used when sailors want to spell something. Here are the words that the Coast Guard will recognize as letters:

A - alpha	I - indigo	Q - quebec	Y - yankee
B - bravo	J - juliet	R - romeo	Z - zulu
C - charlie	K - kilo (keeloes)	S - sierra	
D - delta	L - lima (Leema)	T - tango	
E - echo	M - mike	U - uniform	
F - foxtrot	N - november	V - victor	
G - gulf	O - oscar	W - whiskey	
H - hotel	P - papa	X - x-ray	

Every ship and all Coast Guard stations continually listen to the emergency frequencies. Therefore when you want to talk to someone, call on an emergency frequency. As soon as you contact them, arrange to switch to another channel. It is illegal, impolite, unfair, and dangerous to talk on emergency channels. Sometimes atmospheric conditions are such that the emergency frequencies are the only ones that work. At those times you simply cannot communicate via radio except to report emergencies.

Emergency frequencies are:

- FM Channel 16, international distress
- FM Channel 13, for ships to use to avoid collisions. You can contact other ships on 13, but not Coast Guard shore stations.
- AM 2182, international distress (Almost certainly as an observer you will only be using FM frequencies.)
- When you initially contact another station make sure you state what channel you are broadcasting on, since all ships and stations constantly listen to several.
- Speak in normal tones, using normal conversational pauses and emphasis.
- Ensure that your messages are brief and businesslike. No chatter.
- When trying to establish communications repeat the other station's name, and your name, at least twice.
- A typical message may be as follows:

You: Coast Guard Station San Francisco Coast Guard Station San Francisco; this is the fishing vessel Starry Flounder, Whiskey Tango Zulu four, one, nine, zero; this is the fishing vessel Starry Flounder, Whiskey Tango Zulu four, one, nine, zero on channel sixteen, over.

C.G.: Fishing vessel Starry Flounder this is Coast Guard Station San Francisco shift and answer on channel eleven, out.

You: Coast Guard Station San Francisco Coast Guard Station San Francisco this is the Starry Flounder on channel eleven, over.

C.G.: Fishing vessel Starry Flounder, this is Coast Guard Station Kodiak send your traffic, over.

You: San Francisco this is the Starry Flounder, I am an observer talking for the captain. A crewman has a badly crushed arm and needs hospitalization. Can you evacuate the crewman? Over. "

C.G.: Vessel Starry Flounder, this is San Francisco. Affirmative. What is your current position? Over.

You: San Francisco this is the Starry Flounder. Position is fifty-five degrees fifty minutes north, 157 degrees, twenty-four minutes west, over..A-55

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

SECTION 16 OTHER INFORMATION

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results in your logbook. If the scale does not test out within the approved NMFS accuracy range, please alert your debriefer when you return for your final debriefing.

Appendix T: Processors

Plant	City	Phone
California		
Murphys Sunnybrae	Arcata	(707) 822-1157
Murphys Glendale	Arcata	(707) 822-2271
Unknown	Arcata	(707) 826-8670
Shin Fish	Artesia	(562) 402-4747
Central Coast Seafood	Atascadero	(805) 772-1280
Armstrongs Fish Market & Seafood	Avalon	(310) 510-0113
Petes Pierside Cafe	Avila Beach	(805) 595-7627
Olde Port Fisheries Inc	Avila Beach	(805) 595-9456
Del Mar Seafoods Inc	Avila Beach	(805) 595-9456
Bj Enterprizes	Avila Beach	(805) 929-5757
The Tides	Bodega Bay	(707) 875-3560
The Tides Wharf	Bodega Bay	(707) 875-2777
Lucas Wharf Inc	Bodega Bay	(707) 875-3571
Paisano Bros	Bodega Bay	(707) 875-3576
Fresh Fish	Bodega Bay	(707) 875-9633
Drews Fish	Bolinas	(415) 868-1320
Moores Seafood Inc	Camarillo	(805) 384-9277
Pellys Fish Market And Deli	Carlsbad	(760) 431-8454
Sea Harvest	Carmel	(408) 626-3626
Pacific Fish & Crab Market	Carson	(310) 518-4042
Mr Lee Bbq House	Cerritos	(562) 809-1339
Fresh Daily Fish Co	Costa Mesa	
Pacific Choice Seafood Company	Crescent City	(707) 464-5558
Caito Fisheries Inc	Crescent City	(707) 464-9483
Crescent City Hook & Line Group	Crescent City	(707) 465-6857
Alber Seafoods Inc	Crescent City	(707) 464-8122
Tin Tin Oriental Market	Cupertino	(408) 255-7804
West Basin Trap & Lobster	Dana Point	(760) 868-5713
Morning Star Fisheries	El Granada	(415) 728-3729
Exclusive Freshness	El Granada	(415) 728-7321
Three Captains Sea Products	El Granada	(650) 726-3111
Three Captains Sea Products Inc	El Granada	(650) 726-3111
Pemberton Fish	El Granada	(650) 740-0615
Pacific Choice Seafood Company	Eureka	(707) 442-2981
Mr Fish Seafood	Eureka	(707) 443-2661
Caito Fisheries Inc	Eureka	(707) 443-0550
Murphys Markets Inc	Eureka	(707) 822-7665
Eureka Co-op	Eureka	(707) 443-6027
Caito Fisheries Inc	Fort Bragg	(707) 964-6368
Bassler Fisheries	Fort Bragg	(707) 964-0597
Empress Seafood Llc	Fort Bragg	(707) 964-3557
North Coast Fishing Adventures Inc	Fort Bragg	(707) 964-3000
The Fish Market	Fort Bragg	(707) 964-1600

Appendix T: Processors

Plant	City	Phone
Ocean Fresh Seafood Products Jv	Fort Bragg	(707) 964-1394
Ocean Fresh Seafood Products Jv	Fort Bragg	(707) 964-1652
P Seafood	Fort Bragg	(415) 203-5155
Voyatzis Fish Company	Fountain Valley	(949) 673-1833
Central Fish Company	Fresno	(209) 237-2049
Pacific Fresh Seafood Company	Fresno	(209) 264-3474
Empress Seafood Llc	Ft Bragg	(707) 964-3557
Crystal Food Inc	Fullerton	(714) 447-3610
Princeton Seafood Company	Half Moon Bay	(650) 726-2722
Fitz Buskirk Inc	Half Moon Bay	(650) 726-6953
Ma Seafood	Hawaiian Gardens	(562) 421-1698
C J Seafood	Huntington Beach	(714) 960-7733
Yale Fish Company	La Crescenta	(213) 324-9577
Fukushima	Lemon Grove	(619) 461-2443
Del Mar Seafoods Inc	Long Beach	(562) 628-1800
Lb Seafood	Long Beach	(562) 426-8353
Pacific Fresh Fish Company Inc	Los Angeles	(213) 623-6220
American Fish And Seafood Company	Los Angeles	(213) 612-0350
Los Angeles Fish	Los Angeles	(213) 612-0350
Showa Marine Inc	Los Angeles	(213) 627-4091
Dy Fish Trading Co	Los Angeles	(213) 447-1622
Capn Zachs Crabhouse Inc	Mckinleyville	(707) 839-9050
T & L Trading Inc	Montebello	(323) 887-8838
Monterey Fish Company Inc	Monterey	(831) 375-3511
Royal Seafoods Inc	Monterey	(831) 373-7920
Deyerle Brothers Seafood Inc	Monterey	(831) 632-2574
	Monterey	(831) 372-2636
Central Coast Seafoods	Morro Bay	(805) 462-3474
Bayshores Fish Company	Morro Bay	(805) 772-8411
Giovannis Wholesale Fish	Morro Bay	(805) 772-1276
Tognazzinis Dockside Restaurant	Morro Bay	(805) 772-8100
Bay Fresh	Moss Landing	(831) 633-5160
Bay Fresh Seafood	Moss Landing	(831) 633-5160
Monterey Fish Company Inc	Moss Landing	(831) 633-4808
Phils Fish Market & Eatery	Moss Landing	(831) 633-2152
Sea Harvest	Moss Landing	(831) 633-6300
Sea Harvest	Moss Landing	(831) 632-2574
Solomon Live Fish	Moss Landing	(831) 632-0304
Del Mar Seafoods Inc	Moss Landing	(831) 753-5100
Del Mar Seafoods Inc	Moss Landing	(831) 753-5100
Bay Fresh Seafoods	Moss Landing	(408) 633-5160
Beticia	Moss Landing	(831) 671-9261
Newport Dory Fleet Co Op	Newport Beach	(714) 754-0915
Woods Ocean Products	Oak View	(805) 708-0483
New Sang Chong Market	Oakland	(510) 451-2018
Yet Sun Market	Oakland	(510) 451-3625
Nor Cal Seafood Inc	Oakland	(510) 532-7823
New Tins Market	Oakland	(510) 832-6256
Ken S Sio Inc	Oakland	(510) 390-2549

Plant	City	Phone
Ma Seafood	Oakland	(510) 865-3381
Lucky Seafood Market	Oakland	(510) 436-6068
Lucky Seafood Mkt 2	Oakland	(510) 436-6068
Juan Vazquez Company	Orange	(714) 997-9061
Fishermans House	Oxnard	(805) 984-3443
Del Mar Seafoods Inc	Oxnard	(831) 753-5100
Hc Seafoods Inc	Oxnard	(805) 382-8173
Sunrise Ii	Oxnard	(805) 231-0205
Fisherman Fresh Seafood	Oxnard	(805) 701-0018
Cactus Cove	Palm Desert	(760) 340-1418
Pacific West Seafood Company Inc	Petaluma	(707) 763-2917
Lemons Philo Mkt Inc	Philo	(707) 895-3552
Pemberton Fish	Pillar Point Harbor	(650) 740-0615
Stacey Joanne	Pillar Point Harbor	(650) 740-0615
Monterey Fish Company Inc	Port Hueneme	(805) 488-1151
Ocean Fresh Seafood Products Jv	Pt Arena	(707) 882-1662
Captain Kidds Fish Market	Redondo Beach	(310) 372-7703
Kingfisher Trading Company Inc	S El Monte	(626) 448-9222
Ocean Harvestors Company	S El Monte	(626) 705-8198
Ly North Star Seafood Inc	S El Monte	(626) 582-8188
Pacific Fresh Sea Food Company	Sacramento	(916) 419-5500
Sachiko Fish	Sacramento	(916) 429-6604
Monterey Fish Company Inc	Salinas	(831) 775-0522
Monterey Fish Company Inc	Salinas	(831) 769-9155
Franks Fish Market	Salinas	(408) 422-0879
Marina Fish & Poultry	Sam Leandro	(510) 357-0421
Sportsmens Seafoods Inc	San Diego	(619) 224-3551
Catalina Offshore Products	San Diego	(619) 297-9797
Chesapeake Fish Company Inc	San Diego	(619) 238-0526
Mrs Kellys Inc/dba Pt Loma Seafoods	San Diego	(619) 223-1109
Andys Fish	San Diego	(619) 417-5097
Madruga Fish	San Diego	(619) 225-9247
Wild West	San Diego	(858) 272-6958
All Ways Fishing	San Diego	(619) 840-7375
Johnnys	San Diego	(619) 218-8242
Caito Fisheries Inc	San Francisco	(415) 441-2121
Osprey Seafood Of California Inc	San Francisco	(415) 291-0156
Pacific San Francisco	San Francisco	(415) 474-0150
23rd Irving Supermarket Inc	San Francisco	(415) 682-0926
Wah Lian Supermarket Inc	San Francisco	(415) 681-3982
C & L Sea Food Wholesale Inc	San Francisco	(415) 816-1472
New Lun Wah Company Inc	San Francisco	(415) 986-0756
Costarella Seafoods	San Francisco	(415) 674-0175
W F Alber Inc	San Francisco	(415) 292-1640
Wah Lian Super Market	San Francisco	(415) 665-7598
Jamie Supermarket	San Francisco	(415) 956-5398
New Sang Sang Market Inc	San Francisco	(415) 433-0403
P & T Flannery Seafoods Inc	San Francisco	(415) 346-1303
Robalo	San Francisco	(415) 982-7903

Appendix T: Processors

Plant	City	Phone
New Luen Sing Fish Market Inc	San Francisco	(415) 566-6299
Royal Hawaiian Seafood	San Francisco	(415) 824-1177
Next Seafood Company Inc	San Francisco	(415) 929-1803
San Pedro Fish Market & Restaurant	San Pedro	(310) 832-4251
Np Seafood	San Pedro	(310) 832-4119
Mus Seafood Company	Santa Barbara	(805) 963-1266
Santa Barbara Fishermens Market	Santa Barbara	(805) 965-9564
Far West Marine Seafood	Santa Cruz	(408) 287-5524
Stagnaro Bros Seafood Inc	Santa Cruz	(408) 423-1188
Stagnaro Bros Seafood Inc	Santa Cruz	(408) 423-1188
	Santa Cruz	(831) 234-8571
Hans Fish	Santa Cruz	(831) 588-7338
North Coast Fisheries Inc	Santa Rosa	(707) 579-0679
Young Brothers Fish	Scotts Valley	(831) 818-4428
The Cove Restaurant	Shelter Cove	(707) 986-1197
Del Mar Seafoods Inc	Terminal Island	(831) 753-5100
Seascape Restaurant	Trinidad	(707) 677-0211
Murphys Trinidad	Trinidad	(707) 677-3643
Katys Smokehouse	Trinidad	(707) 677-0151
Del Mar Seafoods	Ventura	(831) 763-3000
Pierpont Seafood	Ventura	(805) 658-2069
American Fish - Sacramento	W Sacramento	(213) 612-0350
Monterey Fish Company Inc	Watsonville	(831) 761-5579
Del Mar Seafoods Inc	Watsonville	(831) 763-3000
Del Mar Seafoods Inc	Watsonville	(831) 753-5100
Marios Restaurant & Bar	Whitethorn	(707) 986-1401
Oregon		
Morlock, Randy Morlock	Aloha	(503) 310-2655
Allen, Benji	Astoria	(503) 244-3010
American Canadian Fisheries	Astoria	(360) 398-1117
Astoria Holdings Inc	Astoria	(503) 338-1288
Astoria Pacific Seafoods	Astoria	(503) 325-3156
Astoria Seafoods Llc	Astoria	(503) 741-7264
Bornstein Seafoods Of Oregon	Astoria	(503) 325-6164
Bruski's Dock	Astoria	(503) 338-8072
Custom Freezers Llc	Astoria	(503) 325-3419
Da Yang Seafoods Inc	Astoria	(425) 971-6596
Evans, Randall C	Astoria	(503) 338-8405
Fish Landing Llc	Astoria	(503) 325-1067
Fishhawk Fisheries	Astoria	(503) 325-5252
Ocean Crest Seafoods Inc	Astoria	(253) 861-3273
Tarabochia, Brian	Astoria	(503) 325-8516
Uniontown Fish Market	Astoria	(503) 325-9592
West Bay Marketing	Astoria	(503) 325-6636
Pacific Oyster Co	Bay City	(503) 377-2330
Ihander, Kirk	Bend	(541) 390-9516
Angler Seafood	Brookings	(541) 469-5900
Caito Fisheries Inc	Brookings	(541) 469-7628
Johns Fresh Seafood	Brookings	(541) 469-7671

Plant	City	Phone
Little J Live Crab	Brookings	(541) 469-6934
Pacific Choice Seafoods	Brookings	(541) 412-7072
Pratco	Brookings	(541) 469-4166
Sio Inc	Brookings	(510) 912-4960
Wild Bill Fisheries	Brookings	(541) 469-3109
Ecola Seafoods Inc	Cannon Beach	(503) 436-9130
Keller, William M	Cannon Beach	(503) 436-0248
Supreme Seafood Co	Cave Junction	(541) 592-4987
Bandon Pacific Inc	Charleston	(541) 888-9626
Chucks Seafoods Inc	Charleston	(541) 888-5525
Fishermens Wharf	Charleston	(541) 888-8862
Hallmark Fisheries	Charleston	(541) 888-3253
K Lyn Fisheries	Charleston	(541) 888-0267
Noyes, Mary C	Charleston	(541) 888-3122
Seahawk Seafood	Charleston	(541) 888-6645
Starvin Marvin's Seafood	Charleston	(541) 888-5808
Pacific Seafood Co Inc	Clackamas	(503) 657-1101
Klam King Clams Llc	Coos Bay	(541) 266-7707
Oregon Brand Seafood Llc	Coos Bay	(541) 888-1748
Penningtons Crab Co	Coos Bay	(541) 888-9018
Young Shin Fisheries Corp	Coquille	(541) 396-6979
Scott's Smokehouse	Corbett	(503) 667-4836
Seals, Carroll	Cottage Grove	(541) 942-5048
Tucker Industries Inc	Cottage Grove	(541) 942-6465
Jim's Seafood	Depoe Bay	(541) 994-6276
Neptunes Choice Llc	Depoe Bay	(541) 765-4000
Ocean Brite Seafood	Depoe Bay	(541) 270-7714
Henry H Pelfrey	Fairview	(503) 661-5093
Almendinger, Gary	Florence	(541) 902-1922
F/v Lassie	Florence	(541) 997-2664
International C Food Marketing	Florence	(541) 997-7978
Krab Kettle Fisheries Inc	Florence	(541) 997-8996
Weber's Fish Market	Florence	(541) 997-8886
Bay Ocean Seafood Co	Garibaldi	(503) 322-9629
Brothers Three Fisheries Inc	Garibaldi	(503) 791-8636
Deep Water Seafoods Llc	Garibaldi	(503) 755-9122
Dougs Diving, Doug Alm DbA	Garibaldi	(503) 322-2200
Network Fisheries	Garibaldi	(503) 791-0227
Oregon Gourmet Crab	Garibaldi	(503) 322-2544
Tillamook Bay Boathouse Llc	Garibaldi	(503) 322-3600
Nor-cal Seafoods Inc	Gold Beach	(541) 247-0773
Rogue King Seafood	Gold Beach	(541) 247-9494
Point Adams Packing Co - Hammond	Hammond	(503) 861-2226
Chetco Seafood Co	Harbor	(541) 469-9251
Dick & Casey's Gourmet Seafood	Harbor	(541) 469-9494
Fox, Bingham	Harbor	(541) 661-4774
Great Amer Smkhse & Seafood	Harbor	(541) 469-6903
North Coast Fisheries Inc	Harbor	(707) 579-0679
Lawler, David	Hillsboro	(503) 440-3061

Appendix T: Processors

Plant	City	Phone
Barnacle Bills Seafood	Lincoln City	(541) 994-3022
Bills Seafood, Ii	Lincoln City	(541) 994-8110
Granville Fisheries Inc	Logsdon	(541) 444-2460
Wild Planet	Mckinleyville	(707) 839-3170
Sausage Kitchen Inc	Milwaukie	(503) 656-9766
Adams, Charles	Newport	(541) 574-7863
Bay Street Crab Company	Newport	(541) 752-1822
Carvalho Fisheries Inc	Newport	(707) 839-3270
Caught In Oregon	Newport	(541) 961-8333
Codys Sea To You Seafoods	Newport	(541) 574-0284
Eder Fish Company	Newport	(541) 265-6650
F/v Judy, Robert Kemp, Ii	Newport	(541) 270-3752
Local Ocean Seafoods Inc	Newport	(541) 574-7959
Newell Seafoods	Newport	(541) 336-5615
Ocean Beauty Seafoods Inc Nwf	Newport	(503) 325-0656
Pacific Shrimp Company	Newport	(541) 265-4215
Pfister, Tom	Newport	(541) 265-9143
Robinson (R And S Seafood), Jim	Newport	(541) 961-1946
Roles, Dallas	Newport	(541) 270-1482
Sawyer's Landing	Newport	(541) 265-3907
Trident Seafoods Corp	Newport	(541) 265-7279
Yaquina Bay Fruit Processors	Newport	(541) 867-3314
Seafood Services Inc	North Bend	(541) 756-5139
Superior Seafood	North Bend	(541) 267-4423
Tony's Smoke House & Cannery Inc	Oregon City	(503) 656-7512
Pastime Fisheries	Otis	(541) 994-3440
Sea Star Enterprise	Otter Rock	(541) 765-2111
Cape Kiwanda Rv Park	Pacific City	(541) 921-0281
Sea Q Fish Ltd	Pacific City	(503) 965-6352
D S Seafoods	Port Orford	(541) 332-2245
Oregon Bait Co	Port Orford	(541) 332-0848
Happy Crab Seafoods Inc	Portland	(503) 285-7154
Hongland Market	Portland	(503) 252-3000
Jessica Dressel Llc	Portland	(503) 866-8082
O M Seafood Co	Portland	(503) 788-1984
Ocean Beauty Seafoods Inc	Portland	(503) 224-1611
Cowlitz River Smelt Co	Rainier	(360) 273-7354
George And Barker Fish Co	Redmond	(503) 741-0240
Jetty Fishery Llc	Rockaway	(503) 368-5746
Coastwide Seafood	Salem	(503) 947-6178
Mikes Custom Seafood	Salem	(503) 588-0302
Murtle Bee Tuna Llc	Salem	(503) 302-8431
Native Fish	Seal Rock	(541) 270-7889
Cox, Paul & Ilene	South Beach	(541) 961-3939
Donald Snow DbA Fv Summer Place	South Beach	(541) 867-7419
Lighthse Deli/fish Co, James Ive	South Beach	(541) 867-6800
Newport Bay Fish Co	South Beach	(541) 270-8023
Reinholdt Fishing Ent	St Helens	(503) 397-3369
Gilson Marine Farms	Tillamook	(503) 842-2955

Plant	City	Phone
Netarts Seafood Company	Tillamook	(503) 842-3698
Tillamook Bait Company	Tillamook	(503) 842-5031
Aue, Robert	Toledo	(541) 336-8107
Signature Salmon Llc	Tualatin	(503) 638-2943
Barto, James J	Veneta	(541) 935-3106
Cold Creek	Waldport	(541) 563-2146
Leland Arce Dba Seafood	Waldport	(541) 563-2835
Paulson, Keith	Waldport	(541) 563-4656
Waldport Seafood Company Llc	Waldport	(541) 563-4107
Heuker Brothers Inc	Warrendale	(541) 374-8255
Jessie's Ilwaco Fish Co	Warrenton	(360) 642-3773
Oregon Ocean Seafoods	Warrenton	(503) 861-1434
Pacific Coast Seafoods Company	Warrenton	(503) 861-2201
Sliders Select Seafoods	Warrenton	(503) 791-4762
Griff's Bayside Rest And Seafood	Winchester Bay	(541) 271-2512
Sloan's Wharf	Winchester Bay	(541) 271-1331
Sportsmen's Cannery & Smokehouse	Winchester Bay	(541) 271-3293
Washington		
Arrowac	Bellingham	(360) 676-1606
Bcs (Fish House)	Bellingham	(360) 733-1640
Bornstein Seafoods	Bellingham	(360) 734-7990
Dakota Fisheries	Blaine	(360) 332-4131
K-c Fish Co.	Blaine	(360) 332-5121
Boundary Fish Co.	Blaine	(360) 332-6715
Jessie's	Ilwaco	(360) 642-3362
High Tide	La Push	(360) 374-9494
High Tide	Neah Bay	(360) 645-2016
High Tide	Port Angeles	(360) 452-8488
Besecker, Inc.	Seattle	(206) 232-5040
South Bend Packer	South Bend	(360) 875-6570
D & M Live	Westport	(360) 268-3919
Washington Crab	Westport	(360) 268-9234
Merino Seafood	Westport	(360) 268-9286
Washington Crab	Westport	(360) 268-9410

Appendix U: Loran Information

LORAN Conversion Program

Background

LORAN positions are determined through the triangulation of signals sent out by LORAN stations. Two LORAN numbers, each originating at a different station, must be recorded for each location. These numbers can be converted to Lat/Long positions.

In order to do the conversion, the specific stations from which the signals originated must be known. Different sets of stations are known as 'chains'. Specific chains can be determined from recorded LORAN numbers. Most vessels on the West Coast will be using 9940.

Instructions

1. Determine which chain needs to be used to convert the LORAN positions to Lat/Long. Typically this will be 9940, but may be 5990 for vessels in Northern Oregon and Washington. If you are fishing north of the California border and one of the TD numbers (one of the two numbers that you should have recorded) is between 14400 and 15000, you are using chain 5990.
2. To do the conversion, you need to download a program from the USCG web site: <http://www.navcen.uscg.gov/?pageName=loranConvert>. Download the POSAID program. You can save the program to any folder on your desktop. The download includes POSAID, POSAID2, a test file (README), and a set-up program (CHAIN). Do not delete any of them or the program may not run.
3. Open POSAID2. A notice to all users will appear. Press any key to start the program. The **Main Menu** will appear.
4. Select option C (Change Defaults) by pressing the C key on your keyboard. The **Change Defaults Menu** will appear. Verify that the latitude / longitude display mode (item 2) is degrees minutes (dd mm.mmmm), not degrees minutes seconds (dd mm ss.sss). If it is not, select item 2 by pressing the 2 key on your keyboard. On the menu that appears select dd mm.mmmm as a display mode by pressing the 3 key on your keyboard. This will return you to the **Change Defaults Menu** where dd mm.mmmm should now appear to the right of item 2.
5. Select option 6 (LORAN C chain used) on the **Change Defaults Menu** by pressing the 6 key on your keyboard. You will be asked to "Input GRI of new Loran C chain". The default chain is 9960 - Northeast US chain. This should be changed to 9940 - West Coast US chain, unless you have a TC between 14400 and 15000 and were fishing north of California. Then you would change it to 5990 - Canadian West Coast. This will bring you back to the **Change Defaults Menu** with the appropriate chain now listed to the right of item 6.
6. Select item 1 (Work area position) by pressing the 1 key on your keyboard. This will move the cursor to the field to the right of Latitude on the **Change Defaults Menu**. Here you must enter a 'seed position', a position near where the vessel was fishing (+ one degree). You may have to refer to a chart or call your coordinator to get this. These numbers **MUST** be entered in the following format with all spaces and punctuation present: Press the enter key after entering each number. Make sure you enter the W (west)

Latitude ## ##.####'

Longitude ### ##.####' W

for the longitude (program is not case sensitive) as the default for this program is east (e.g. 124 40.0000' W). You do not need to enter an N for the latitude as north is the default setting. If all locations to be converted are in the same general area this number will not need to be changed again. If you are converting positions from widely dispersed areas, the seed position may need to be changed.

7. Verify that other default settings are correct. Values for the items listed should be:
 - 3 - Coordinate system for Lat/ Lon = WGS84
 - 4 - Units for displaying distance = meters
 - 5 - Decimal places displayed = 4
 - 6 - Name of defaults file = Posaid.def.
8. Press the 8 key on your keyboard to save the current defaults. The text will turn blue. Press the R key on your keyboard to return to the **Main Menu**.
9. Select option 3 (Convert TD's to Lat/Long) by pressing the 3 key on your keyboard. The **TD to Lat/Lon Input Verification Menu** will appear.
10. Select option 4 (list LORAN-C TD's of unknown position) by pressing the 4 key on your keyboard. A screen with the names of two of the four stations will appear (X-ray, Whiskey, Yankee and Zulu). Disregard the station "names" and simply enter one of the two TD numbers and hit return. Do the same for the second number. The **TD to Lat/Lon Input Verification Menu** will reappear with the LORAN positions to the right of item 4.
11. To continue press C on your keyboard. This will bring up the **Changing TD's to Lat/Lon Display screen** with the converted Lat/Long position displayed at the bottom of the screen. Record this position.
12. To continue converting LORAN positions press I (Input TD's on your keyboard. This brings up a screen where LORAN positions for the same chain may be entered. There are no station names displayed here and it does not matter in what order the position numbers are entered, the correct stations will be automatically pulled up (hit the enter key after each number). After the second number is entered, the program will ask if this is the correct position. Verify that the numbers and stations are correct and then press Y. This will bring up the **Changing TD's to Lat/Lon Display screen** with the converted Lat/Long position displayed at the bottom of the screen. Record this position. Repeat these steps for each set of LORAN numbers.
13. Example. Enter 9940 for the chain. Use a seed position of 45 00.0000' N, 125 00.0000' W. Enter the TD coordinates of 13200.0906 and 27889.0745. You will be brought back to the TD to Lat/Long conversion menu once both TD numbers are entered. Enter C- Continue with current values and hit enter. This will give you the Lat/Long. It should be 44 00.0000' N, 124 00.0000' W. If you have any questions, contact your coordinator.

Appendix V: Latitudinal and depth distribution of groundfish adult species

Table 1: Latitudinal and depth distributions of groundfish species (adults) managed under the Pacific Coast Groundfish Fishery Management Plan^a

Common Name	Scientific Name	Overall Latitudinal Distribution	Highest Density Latitudinal Distribution	Overall Depth Distribution (fm)	Highest Density Depth Distribution (fm)
Arrowtooth flounder	<i>Atheresthes stomias</i>	N. 34° N lat.	N. 40° N lat.	10 - 400	27 - 270
Butter sole	<i>Isopsetta isolepis</i>	N. 34° N lat.	N. 34° N. lat	0 - 200	0 - 100
Curlfin sole	<i>Pleuronichthys decurrens</i>	Coastwide	Coastwide	4 - 291	4 - 50
Dover sole	<i>Microstomus pacificus</i>	Coastwide	Coastwide	10 - 500	110 - 270
English sole	<i>Parophrys vetulus</i>	Coastwide	Coastwide	0 - 300	40 - 200
Flathead sole	<i>Hippoglossoides elassodon</i>	N. 38° N lat	N. 40° N lat	3 - 300	100 - 200
Pacific Sanddab	<i>Citharichthys sordidus</i>	Coastwide	Coastwide	0 - 300	0 - 82
Petrale sole	<i>Eopsetta jordani</i>	Coastwide	Coastwide	10 - 250	160 - 250
Rex sole	<i>Glyptocephalus zachirus</i>	Coastwide	Coastwide	10 - 350	27 - 250
Rock sole	<i>Lepidopsetta bilineata</i>	Coastwide	N. 32°30' N. lat	0 - 200	summer 10 - 44 winter 70 - 150
Sand sole	<i>Psettichthys melanostictus</i>	Coastwide	N. 33°50' N. lat	0 - 100	0 - 44
Starry flounder	<i>Platichthys stellatus</i>	Coastwide	N. 34°20' N. lat	0 - 150	0 - 82
Aurora rockfish	<i>Sebastes aurora</i>	Coastwide	Coastwide	100 - 420	82 - 270
Bank rockfish	<i>Sebastes rufus</i>	S. 39°30' N lat	S. 39°30' N lat	17 - 135	115 - 140
Black rockfish	<i>Sebastes melanops</i>	N. 34° N lat	N. 34° N lat	0 - 200	0 - 30
Black-and-yellow rockfish	<i>Sebastes chrysomelas</i>	S. 40° N lat	S. 40° N lat	0 - 20	0 - 10
Blackgill rockfish	<i>Sebastes melanostomus</i>	Coastwide	S. 40° N lat	48 - 420	125 - 300
Blue rockfish	<i>Sebastes mystinus</i>	Coastwide	Coastwide	0 - 300	13 - 21
Bocaccio rockfish	<i>Sebastes paucispinis</i>	Coastwide	S. 40° N lat, N. 48° N lat	15 - 180	54 - 82
Bronzespotted rockfish	<i>Sebastes gilli</i>	S. 37° N lat	S. 37° N lat	41 - 205	110 - 160

Table 1: Latitudinal and depth distributions of groundfish species (adults) managed under the Pacific Coast Groundfish Fishery Management Plan^a

Common Name	Scientific Name	Overall Latitudinal Distribution	Highest Density Latitudinal Distribution	Overall Depth Distribution (fm)	Highest Density Depth Distribution (fm)
Brown rockfish	<i>Sebastes auriculatus</i>	Coastwide	S. 40° N lat	0 - 70	0 - 50
Calico rockfish	<i>Sebastes dallii</i>	S. 38° N lat	S. 33° N lat	10 - 140	33 - 50
California scorpionfish	<i>Scorpaena gutatta</i>	S. 37° N lat	S. 34°27' N lat	0 - 100	0 - 100
Canary rockfish	<i>Sebastes pinniger</i>	Coastwide	Coastwide	27 - 460	50 - 100
Chameleon rockfish	<i>Sebastes phillipsi</i>	37° - 33° N lat	37° - 33° N lat	95 - 150	95 - 150
Chilipepper rockfish	<i>Sebastes goodei</i>	Coastwide	34° - 40° N lat	27 - 190	27 - 190
China rockfish	<i>Sebastes nebulosus</i>	N. 34° N lat	N. 35° N lat	0 - 70	2 - 50
Copper rockfish	<i>Sebastes caurinus</i>	Coastwide	S. 40° N lat	0 - 100	0 - 100
Cowcod	<i>Sebastes levis</i>	S. 40° N lat	S. 34°27' N lat	22 - 270	100 - 130
Darkblotched rockfish	<i>Sebastes crameri</i>	N. 33° N lat	N. 38° N lat	16 - 300	96 - 220
Dusky rockfish	<i>Sebastes ciliatus</i>	N. 55° N lat	N. 55° N lat	0 - 150	0 - 150
Dwarf-red rockfish	<i>Sebastes rufinanus</i>	33° N lat	33° N lat	>100	>100
Flag rockfish	<i>Sebastes rubrivinctus</i>	S. 38° N lat	S. 37° N lat	17 - 100	shallow
Freckled rockfish	<i>Sebastes lengtingnosus</i>	S. 33° N lat	S. 33° N lat	22 - 92	22 - 92
Gopher rockfish	<i>Sebastes carnatus</i>	S. 40° N lat	S. 40° N lat	0 - 30	0 - 16
Grass rockfish	<i>Sebastes rastrelliger</i>	S. 44°40' N lat	S. 40° N lat	0 - 25	0 - 8
Greenblotched rockfish	<i>Sebastes rosenblatti</i>	S. 38° N lat	S. 38° N lat	33 - 217	115 - 130
Greenspotted rockfish	<i>Sebastes chlorostictus</i>	S. 47° N lat	S. 40° N lat	27 - 110	50 - 100
Greenstriped rockfish	<i>Sebastes elongatus</i>	Coastwide	Coastwide	33 - 220	27 - 136
Halfbanded rockfish	<i>Sebastes semicinctus</i>	S. 36°40' N lat	S. 36°40' N lat	32 - 220	32 - 220
Harlequin rockfish	<i>Sebastes variegatus</i>	N. 40° N lat	N. 51° N lat	38 - 167	38 - 167
Honeycomb rockfish	<i>Sebastes umbrosus</i>	S. 36°40' N lat	S. 34°27' N lat	16 - 65	16 - 38
Kelp rockfish	<i>Sebastes atrovirens</i>	S. 39° N lat	S. 37° N lat	0 - 25	3 - 4
Longspine thornyhead	<i>Sebastolobus altivelis</i>	Coastwide	Coastwide	167 - >833	320 - 550
Mexican rockfish	<i>Sebastes macdonaldi</i>	S. 36°20' N lat	S. 36°20' N lat	50 - 140	50 - 140
Olive rockfish	<i>Sebastes serranoides</i>	S. 41°20' N lat	S. 40° N lat	0 - 80	0 - 16

Appendix V: Latitudinal and depth distribution of groundfish adult species

Table 1: Latitudinal and depth distributions of groundfish species (adults) managed under the Pacific Coast Groundfish Fishery Management Plan^a

Common Name	Scientific Name	Overall Latitudinal Distribution	Highest Density Latitudinal Distribution	Overall Depth Distribution (fm)	Highest Density Depth Distribution (fm)
Pacific ocean perch	<i>Sebastes alutus</i>	Coastwide	N. 42° N lat	30 - 350	110 - 220
Pink rockfish	<i>Sebastes eos</i>	S. 37° N lat	S. 35° N lat	40 - 200	40 - 200
Pinkrose rockfish	<i>Sebastes simulator</i>	S. 34° N lat	S. 34° N lat	54 - 160	108
Puget Sound rockfish	<i>Sebastes emphaeus</i>	N. 40° N lat	N. 40° N lat	6 - 200	6 - 200
Pygmy rockfish	<i>Sebastes wilsoni</i>	N. 32°30' N lat	N. 32°30' N lat	17 - 150	17 - 150
Quillback rockfish	<i>Sebastes maliger</i>	N. 36°20' N lat	N. 40° N lat	0 - 150	22 - 33
Redbanded rockfish	<i>Sebastes babcocki</i>	Coastwide	N. 37° N lat	50 - 260	82 - 245
Redstripe rockfish	<i>Sebastes proriger</i>	N. 37° N lat	N. 37° N lat	7 - 190	55 - 190
Rosethorn rockfish	<i>Sebastes helvomaculatus</i>	Coastwide	N. 38° N lat	65 - 300	55 - 190
Rosy rockfish	<i>Sebastes rosaceus</i>	S. 42° N lat	S. 40° N lat	8 - 70	30 - 58
Rougheye rockfish	<i>Sebastes aleutianus</i>	Coastwide	N. 40° N lat	27 - 400	27 - 250
Semaphore rockfish	<i>Sebastes melanosema</i>	S. 34°27' N lat	S. 34°27' N lat	75 - 100	75 - 100
Sharpchin rockfish	<i>Sebastes zacentrus</i>	Coastwide	Coastwide	50 - 175	50 - 175
Shortbelly rockfish	<i>Sebastes jordani</i>	Coastwide	S. 36° N lat	50 - 175	50 - 155
Shorttraker rockfish	<i>Sebastes borealis</i>	N. 39°30' N lat	N. 44° N lat	110 - 220	110 - 200
Shortspine thornyhead	<i>Sebastolobus alascanus</i>	Coastwide	Coastwide	14 - >833	55 - 550
Silvergray rockfish	<i>Sebastes brevispinis</i>	Coastwide	N. 40° N lat	17 - 200	55 - 160
Speckled rockfish	<i>Sebastes ovalis</i>	S. 38° N lat	S. 37° N lat	17 - 200	41 - 83
Splitnose rockfish	<i>Sebastes diploproa</i>	Coastwide	Coastwide	50 - 317	55 - 250
Squarespot rockfish	<i>Sebastes hopkinsi</i>	S. 38° N lat	S. 36° N lat	10 - 100	10 - 100
Starry rockfish	<i>Sebastes constellatus</i>	S. 38° N lat	S. 37° N lat	13 - 150	13 - 150
Stripetail rockfish	<i>Sebastes saxicola</i>	Coastwide	Coastwide	5 - 230	5 - 190
Swordspine rockfish	<i>Sebastes ensifer</i>	S. 38° N lat	S. 38° N lat	38 - 237	38 - 237
Tiger rockfish	<i>Sebastes nigrocinctus</i>	N. 35° N lat	N. 35° N lat	30 - 170	35 - 170
Treefish	<i>Sebastes serriceps</i>	S. 38° N lat	S. 34°27' N lat	0 - 25	3 - 16
Vermillion rockfish	<i>Sebastes miniatus</i>	Coastwide	Coastwide	0 - 150	4 - 130

Table 1: Latitudinal and depth distributions of groundfish species (adults) managed under the Pacific Coast Groundfish Fishery Management Plan^a

Common Name	Scientific Name	Overall Latitudinal Distribution	Highest Density Latitudinal Distribution	Overall Depth Distribution (fm)	Highest Density Depth Distribution (fm)
Widow rockfish	<i>Sebastes entomelas</i>	Coastwide	N. 37° N lat	13 - 200	55 - 160
Yelloweye rockfish	<i>Sebastes ruberrimus</i>	Coastwide	N. 36° N lat	25 - 300	27 - 220
Yellowmouth rockfish	<i>Sebastes reedi</i>	N. 40° N lat	N. 40° N lat	77 - 200	150 - 200
Yellowtail rockfish	<i>Sebastes flavidus</i>	Coastwide	N. 37° N lat	27 - 300	27 - 160
Cabezon	<i>Scorpaenichthys marmoratus</i>	Coastwide	Coastwide	0 - 42	0 - 27
Kelp greenling	<i>Hexagrammos decagrammus</i>	Coastwide	N. 40° N lat	0 - 25	0 - 10
Lingcod	<i>Ophiodon elongatus</i>	Coastwide	Coastwide	0 - 233	0 - 40
Pacific cod	<i>Gadus macrocephalus</i>	N. 34° N lat	N. 40° N lat	7 - 300	27 - 160
Pacific whiting	<i>Merluccius productus</i>	Coastwide	Coastwide	20 - 500	27 - 270
Sablefish	<i>Anoplopoma fimbria</i>	Coastwide	Coastwide	27 - >1,000	110 - 550
Big Skate	<i>Raja binoculata</i>	Coastwide	S. 46° N lat	2 - 110	27 - 110
California skate	<i>Raja inornata</i>	Coastwide	S. 39° N lat	0 - 367	0 - 10
Leopard shark	<i>Triakis semifasciata</i>	S. 46° N lat	S. 46° N lat	0 - 50	0 - 2
Longnose skate	<i>Raja rhina</i>	Coastwide	N. 46° N lat	30 - 410	30 - 340
Soupfin shark	<i>Galeorhinus zyopterus</i>	Coastwide	Coastwide	0 - 225	0 - 225
Spiny dogfish shark	<i>Squalus acanthias</i>	Coastwide	Coastwide	0 - >640	0 - 190
Finescale codling	<i>Antimora microlepis</i>	Coastwide	N. 38° N lat	190 - 1,588	190 - 470
Pacific rattail	<i>Coryphaenoides acrolepis</i>	Coastwide	N. 38° N lat	85 - 1,350	500 - 1,350
Ratfish	<i>Hydrolagus coliei</i>	Coastwide	Coastwide	0 - 499	55 - 82

^aData from (Casillas, et al. 1998), (Eschmeyer, et. al 1983), (Hart 1988), (Miller and Lea 1972), (Love, et. al 2002), and NMFS Survey data. Depth distributions refer to offshore distributions, not vertical distributions in the water column.

Appendix W: Paperwork Reduction Act

The PRA requires federal agencies to obtain clearance in order to ask questions of members of the public. All questions asked by west coast groundfish observers have been approved under OMB Control No. 0648-0593 through 09/30/2012. Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and implementing regulations, vessels are required to answer any question related to observer and vessel safety. However, vessels are not required to answer any other question asked by the observer. Vessel's willingness to answer all questions asked by observers is voluntary and this willingness is appreciated as it will ensure observer data collected on the vessel can be used in future analyzes.

The observer program can be contacted toll free at (866) 780-8064 or by the program's email address at NWFSC.observerprogram@noaa.gov if anyone has any questions.

A "Paperwork Reduction Act Information" sheet is mailed to all selected vessels for observer coverage and is included with their selection letter.

Paperwork Reduction Act Information

Information collected through the observer program is used to: (1) monitor catch and bycatch; (2) understand the population status and trends of fish stocks and protected species, as well as the interactions between them; (3) determine the quantity and distribution of net benefits derived from living marine resources; (4) predict the biological, ecological, and economic impacts of existing management actions and proposed management options; and (5) ensure that the observer programs can safely and efficiently collect the information required for the previous four uses. In particular, these biological and economic data collection programs contribute to legally mandated analyses required under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), Executive Order 12866 (EO 12866), and other applicable law.

Most of the information collected by observers is obtained through "direct observation by an employee or agent of the sponsoring agency or through non-standardized oral communication in connection with such direct observations". Under the Paperwork Reduction Act (PRA) regulations at 5 C.F.R. 1320.3(h)(3), facts or opinions obtained through such observations and communications are not considered to be "information" subject to the PRA. The public reporting burden for responding to the questions that observers ask and that are subject to the PRA is estimated to average 34 minutes per trip, including the time for hearing and understanding the questions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: West Coast Groundfish Observer Program, 2725 Montlake Blvd. East, Seattle, WA 98112.

Providing information related to observer and vessel safety is mandatory under regulations at 50 C.F.R. 600.746. However, all other requested information is voluntary. Although you are under no legal obligation to answer non-safety related observer questions, we would appreciate your support as it ensures observer data can be used for its intended purpose.

The information collected will be kept confidential as required under Section 402(b) of the MSA (18 U.S.C. 1881a(b)) and regulations at 50 C.F.R. Part 600, Subpart E. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

Appendix X: Bedbug Protocol

Prior to Trip

If you think bed bugs are present on a vessel notify your coordinator and contractor.

Try to verify visually. Look under mattresses, pads, bunks, etc for bed bugs.

Ask crew about any measures they have taken to exterminate the bed bugs. Document what was done and when in your logbook.

Before Departing on Trip

If the boat you have been assigned has bed bugs, make sure that you have flying insect repellent, caladryl lotion, plenty of garbage bags, and a mattress cover that can be zipped around the mattress. It is a good idea to take a thermarest mattress as well in case the cover doesn't work and you don't want to sleep on that mattress. Even if the vessel fumigated it doesn't mean the bedbugs are completely gone. Continue to watch for them and keep your mattress covered. Make sure to keep a clean set of clothes in a zip lock bag so you have bed bug free clothes to wear home.

Bed Bugs Spotted During Trip

Bed bugs are active at night so this is when they will be more likely to be spotted. They do not like extreme heat or extreme cold so there are some steps that you can take while you are out there to try to get rid of them. One observer noticed that when the air conditioner was cranked up they did not come out. Another possibility is to bag your mattress in garbage bags and put it in the freezer for at least 12 hours or put it in a dry area on deck where it can cook in the sun. Another option is to spray the mattress with the bug spray; make sure that you give it plenty of time to air out before sleeping on it and follow all warnings and precautions listed on the can of spray. In order to keep the bugs from getting in your clothes you should keep your clothes in garbage bags. Make sure that you call your coordinator and contractor to report that you witnessed bed bugs on the vessel.

After Trip

- **FREEZE GEAR** for at least 24 hours. Put gear in garbage bags.
IMPORTANT: Do not freeze electronic gear, except for EPIRB. Your EPIRB can go into the freezer with your survival suit.
- **BAG GEAR:** Everything that comes off the vessel should be in sealed garbage bags.. When you take infected gear back to you house make sure you treat it right away to avoid getting bed bugs in your house. Wash all clothes right away in hot water and dry them with high heat in the dryer. Personal bags and stuff that cannot be washed in a machine can be treated by freezing or leaving it in a plastic bag and letting it bake in the hot sun. If for some reason you cannot take care of gear immediately then place it somewhere far away from furniture and carpeting. A garage would be an ideal place but if not possible a tiled bathroom or in the tub would also work.

Bed bug bites



Appendix Y: Useful Websites

WCGOP Observer Related Sites

West Coast Groundfish Observer Program

<http://www.nwfsc.noaa.gov/research/divisions/fram/observer/index.cfm>

West Coast Groundfish Regulations

http://listserver.afsc.noaa.gov/read/all_forums/subscribe?name=wcgroundfish

This site will subscribe you to receive email updates on West Coast groundfish regulations as they occur.

NMFS (National Marine Fisheries Service)

<http://www.nmfs.noaa.gov/fishnews.htm>

This site subscribes you to updates on anything to do with fish nationally.

WCGOP Database Log-on

<http://nwcoa3.nwfsc.noaa.gov/obsprod/logon.display>

Pacific States Marine Fisheries Commission (PSMFC)

<http://www.psmfc.org/index.html>

Alaskan Observers, Inc. (AOI)

<http://www.alaskanobservers.com/>

Fisheries Management on the West Coast

Pacific Fishery Management Council (PFMC)

<http://www.pcouncil.org/>

NOAA Fisheries Northwest Regional Office (groundfish management)

<http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/index.cfm>

International Pacific Halibut Commission

<http://www.iphc.washington.edu/halcom/default.htm>

State Agencies

California Department of Fish and Game (DFG)

<http://www.dfg.ca.gov/>

Oregon Department of Fish and Wildlife (ODFW)

<http://www.dfw.state.or.us/>

Washington Department of Fish and Wildlife (WDFW)

<http://wdfw.wa.gov/>

Fisheries Research on the West Coast

NOAA Northwest Fisheries Science Center

<http://www.nwfsc.noaa.gov/research/divisions/fram/index.cfm>

Pacific Marine Conservation Council

<http://www.pmcc.org/news.html>

Fisheries News

Heads up: News connecting the West Coast Fishing Community

<http://www.heads-up.net/>

Fish Identification

Fish Base: Database of over 28,000 species with images.

<http://www.fishbase.org/search.cfm>

Fisheries Regulations

NOAA Groundfish Management Regs and Public Notices

<http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/index.cfm>

Marine Regulations

Washington: <http://wdfw.wa.gov/fishing/commercial.html>,

Oregon: http://www.dfw.state.or.us/MRP/regulations/commercial_fishing/index.asp

California: <http://www.dfg.ca.gov/marine/fishing.asp#Commercial>

Marine Safety

The Alaska Marine Safety Education Council

<http://www.amsea.org/>

EPIRB On-line registration and forms

<http://www.sarsat.noaa.gov/beacon.html>

Vessel Information

U.S. Coast Guard Vessel Search

<http://www.st.nmfs.noaa.gov/st1/CoastGuard/VesselByName.html>

NW Region List of LE permits

<http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Permits/index.cfm>

Marine Weather

NOAA: National Weather Service

<http://www.nws.noaa.gov/>

Independent Service (iwindsurf.com)

<http://www.iwindsurf.com/windandwhere.iws>

Observer Associations, Interest Groups

Association for Professional Observers

<http://www.apo-observers.org>

Observer net

<http://www.observersnet.org/obsforum/index.php>

International Fisheries Observer Conference

<http://www.fisheriesobserverconference.com/>

Observer Programs worldwide**Domestic****North Pacific Groundfish Observer Program**

<http://www.afsc.noaa.gov/FMA/default.htm>

Alaska Marine Mammal Observer Program

<http://www.fakr.noaa.gov/protectedresources/observers/mmop.htm>

California/ Oregon Drift Gillnet Observer Program

<http://swr.ucsd.edu/psd/codgftac.htm>

Northeast Fisheries Observer Program

www.nefsc.noaa.gov/sos/fishobs/fishobs.html

Florida Museum of Natural History- Shark Fishery Observer Program:

<http://www.flmnh.ufl.edu/fish/sharks/csop/csopjob.htm>

Southeast Pelagic Observer Program

<http://www.sefsc.noaa.gov/pop.jsp>

Gulf of Mexico Shrimp Fishery Observer Program

<http://galveston.ssp.nmfs.gov/research/fisherymanagement/index.html> - observer_program

Hawaii Longline Observer Program

http://www.fpir.noaa.gov/OBS/obs_index.html

National Observer Program

<http://www.st.nmfs.gov/st4/nop/index.html>

Foreign**Canadian at-sea fisheries observer program**

<http://www.archipelago.ca/services.aspx#TOP>

Canadian observer provider

<http://www.archipelago.ca/fm-overview.aspx>

Marine Resources Assessment Group (MRAG) (multiple programs)

<http://p15166578.pureserver.info/MRAG/Home.htm>

Antarctica CCAMLR:

<http://www.ccamlr.org/pu/E/sc/fish-monit/fm-intro.htm>

Australia

<http://www.afma.gov.au/research/observer/default.htm>

Appendix Z: Vessel Monitoring System (VMS)

Why does the Pacific coast groundfish fishery need a vessel monitoring program?

A vessel monitoring program is an enforcement tool that can be used to monitor compliance with areas closed to fishing. Since the vessel monitoring pilot program was implemented on January 1, 2004, new closed areas have gone into effect and the Council has prioritized expanding the original requirements to the Open Access commercial groundfish fleet in order to monitor compliance with groundfish conservation areas. The groundfish conservation areas include Rockfish Conservation Areas (RCAs), Cowcod Conservation Areas (CCAs), Cordell Banks Closed Area, Farallon Islands Closed Areas, Essential Fish Habitat Conservation Areas (EFHCAs), and Yelloweye Rockfish Conservation Areas (YRCAs). A complete description of these closed areas, including detailed location information and to which sectors and gears they apply, is available on the NMFS Northwest Region website by clicking on "Groundfish & Halibut", "Groundfish Fishery Management", then "Groundfish Closed Areas". Over time, the groundfish conservation areas will likely change. The National Marine Fisheries Service (NMFS) will keep the fishing fleet informed as these changes are made.

Parts of the Vessel Monitoring Program

The Pacific Coast vessel monitoring program consists of a vessel monitoring system and declaration reports. The vessel monitoring system (VMS) consists of equipment that tracks a vessel's geographic position through a satellite communication system. A VMS transceiver unit is installed aboard the vessel that communicates via a satellite to a processing center. For the Pacific Coast program, a basic VMS system with 1-way communication will be used to track vessel activity in relation to closed areas within 200 nautical miles along the Pacific coast. The declaration reports are reports given by fishermen before a fishing trip to identify which gear type will be used for fishing, which fishery they are participating in, and if the vessel operator intends to fish within an RCA. Declaration reports are necessary for all fisheries required to have VMS and reports must be provided to NMFS Office of Law Enforcement (OLE) before a vessel leaves port.

Commonly Asked Questions

Q: Who is required to have VMS?

A: Any vessel registered to a limited entry groundfish permit must have VMS to fish in state or federal waters (0-200 nautical miles offshore). Non-groundfish trawl vessels, vessels that use trawl gear but are not registered to limited entry groundfish permits, must have VMS to fish in state or federal waters (0-200 nautical miles offshore). Any vessel using non-trawl gear, that is not registered to a limited entry groundfish permit, must have VMS on trips in which groundfish are taken and retained, possessed or landed in federal waters (3-200 nautical miles offshore).

Q: Does a non-trawl vessel that is not registered to a limited entry groundfish permit need to have VMS if the vessel is used to fish in state waters and only transits through Federal waters with groundfish onboard?

A: Yes, VMS is required.

Q: *Does a non-trawl vessel that is not registered to a limited entry groundfish permit need to have VMS to fish in both state and federal waters on the same trip when only groundfish from state waters are retained?*

A: Yes, VMS is required.

Q: *What are the vessel owner's responsibilities?*

A: The vessel owner must install and use (according to NMFS OLE installation and operation instructions) a type-approved VMS transceiver unit 24 hours per day; establish a service agreement with a type-approved communication service provider; send an activation report at least 72 hours prior to leaving port on the first trip that requires VMS and maintain a valid declaration report with NMFS OLE.

Q: *Who pays for the costs associated with VMS?*

A: The vessel owner or operator is responsible for purchasing the VMS equipment and paying all charges from the communication service provider to ensure continuous operation of the VMS transceiver units. Vessel owners may be reimbursed for the cost of some VMS units.

For more information or go to: www.nmfs.noaa.gov/ole/nw_vms.html or call: **Northwest Division Office for Law Enforcement (206) 526.6133**

*From the Compliance Guide for the Pacific Coast Groundfish Fishery Vessel Monitoring Program, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

Appendix AA: Glossary

A - B

ABC: "Acceptable Biological Catch" - the annual harvest level for each species based only on biological considerations

Aft: Towards the stern or back end of a vessel

Amidships: Midway between the bow and stern of a ship, or on the centerline

Anchor/Buoy lines: Sections of line that join the groundline and anchors on the bottom of the ocean to the buoys or "bags" on the surface.

Athwart ships: Side-to-side across a ship, perpendicular to the centerline

Bag: The codend or another name for a buoy.

Bait bags/jars: Containers filled with ground bait that are hung inside pots to attract fish.

Beam: Width of a ship

Benthic: Living in direct relation with the bottom

Bias: Tending to yield one outcome more frequently than others. Factors affecting the randomness of a sample, including possible mechanical sorting of catch by an incline belt, or purposeful presorting by a crew member, will introduce bias.

Bight: Aloop or turn in a line

Bleeder/Sorter: Crewman assigned to sort bycatch out of the catch, and to cut the "throat" of the cod.

Block/Hydro/Hauler: Hydraulically driven wheel into which the groundline is placed during gear retrieval. As the wheel spins the groundline is drawn on board.

Boat Share: The percentage of the gross which goes to the vessel owner

Bobbin: A round, rubber or steel roller used in the footrope of a bottom net to protect the net from damage

Bosun: Person in charge of a ship's rigging, anchors, cables and deck crew

Bottom: (1) ocean floor, (2) fishing depth, or (3) a ship hull. Which meaning to apply must be taken from context.

Bow: The front section of a boat or ship

Bowline: A type of knot used to form an eye in the end of a rope.

Brailer: A type of netting that is attached to a crane and used to transport fish and other materials from one vessel to the dock or to another vessel

Breech: A behavioral characteristic of some marine mammals such as humpback whales, where they rise vertically out of the water, and then with most of their body above the surface, they fall to their back or side

Bridge: The control center of a ship

Bridle: Wire attached to the headrope, footrope or side panel of a net, by which the net is towed

Bulkhead: A wall separating compartments of a ship

Bulwarks: The upper section of the side plating of a ship, which extends above and around the upper deck

C

Capstan (gypsy): An upright, spool-shaped, power rotational cylinder around which cables or hawsers are wound

Catch Category: Categories comprised of one or more species for management purposes.

Catcher boat: Vessel that is used for catching fish and that does not process (freeze) fish on board

Chaffing gear: Protective carpeting (or strands of nylon forming a carpet pile) on the outer, underside of the trawl net to keep it from catching and ripping on obstacles on the bottom

Chief: The engineer; responsible for care of engines and deck machinery

Choker, choke strap: Aloop of wire or rope used to cinch off the net or codend

Chopper: Machine used to grind frozen herring or squid for bait or the person assigned this duty.

Cleat: A heavy piece of wood or metal having two horns around which ropes may be made fast or belayed, usually secured to a fixed object such as the dock or deck

Coded wire tag: Small tag (3mm) etched with binary code that are inserted into the snout of fishes for later identification

Codend: The end "bag" of a trawl net where the majority of the fish are collected and held

Coiler: Person or machine that is designated to coil line as it is retrieved by the block.

Combing: A low partition that separates the trawl deck from the side pockets

Companionway: Entrance/stairway from deck to fo'c'sle and engine room

Compliance: Being in accordance with the fishing regulations

Composition: In the groundfish Observer Program, this refers to the makeup of harvested species in a catch, and the sample you collect.

Cookie (disc): A flat, round piece of rubber with a hole in the center strung on a wire rope or chain to protect it from abrasion and to stir up a mud cloud. Used on non-pelagic trawl gear.

Crucifier A pair of rollers or steel pegs which stand vertically with only enough room for the groundline to pass between. During gear retrieval the groundline passes between the rollers and the hooks are pulled out of the fish.

D - E

Demersal: Dwelling at or near the bottom

Discard: Everything that is not retained.

Disembark: To get off a vessel

Diver/Trailer buoys: A small buoy attached to the main buoy with a length of line. The diver buoy "trails" behind the main buoy and allows a larger target for grappling.

Dogs: Metal hooks that are hydraulically controlled to secure a pot to a launcher.

Door: A large steel or alloy structure attached to each main wire (in front of the net) to spread the net horizontally by means of hydrodynamic and friction forces

Draft: Vertical distance from keel to waterline of a ship

Drop-off: Those organisms that fall or are knocked off of a hook prior to their being landed.

Drum: A metal spool or cylinder around which cable, etc. is wound

Drumhead: The top of a capstan, into which bars are inserted for leverage in turning it

Ebb tide: Outgoing tide

EEZ: "Exclusive Economic Zone" - the term for the 200 mile jurisdiction zone, in which a nation has exclusive fishing rights, formerly called the FCZ

Embarkation: To board a vessel

EPIRB: "Emergency Position Indicator Radio Beacon"

Expansion straps (container lines): A series of lines running around the circumference of a codend to provide strength and help maintain the shape of the bag

F

Fathom: A measure of length or depth equal to six feet

Fingers/Triggers: Small plastic strips located in the tunnel of a pot which allow fish to enter a pot but not exit.

Fishfinder: An electronic device for locating schools of fish under a vessel

Fishing line: A length of chain or wire in the bottom, front end of a net between the footrope and the bolsh line

Fishing mortality: Removal (deaths) of fish from a population due to fishing activity.

Flatfish: Fish which are laterally compressed and orient themselves in the water with their lateral surfaces or sides towards the surface and bottom.

Flatlink: A piece of cut or cast hardware, generally oblong in shape, with leg diameter smaller in certain areas to allow attachment of a G-hook; used where wires must be connected and disconnected frequently

Flood tide: Incoming tide

Fo'c'sle (from: forecastle): The forward part of a ship where sailor's quarters are located

Footrope: On a non-pelagic net, a series of bobbins, tires or discs strung on chain or wire rope attached to the bottom front of a bottom net to protect the net from damage. On a midwater net, the rope or wire running along the front, bottom edge of the net.

Forward: Towards the bow of a vessel

Fresh weight: The weight of the whole fish (or animal) as it was when alive. Also called round weight, whole weight.

G

Galley: Ship's kitchen and/or mess hall

Gallows: Structure from which trawl blocks are hung; separate units port and starboard

Gangion: The length of line that connects the hook to the groundline. It is often only two to three feet long.

Gantry: A frame structure, usually at the aft of a vessel, which supports pulleys (blocks) used in setting and retrieving trawl nets

Gas bladder: A sac filled with air or similar gases in the body cavity of a fish. May or may not be attached to the throat by a duct.

G-hook: A piece of cut or cast iron hardware in the shape of a "G", used with a flatlink where wires must be connected and disconnected frequently

Gill rakers: Bony tooth like structures on the anterior edges of the gill arches. For protection or straining out food.

Gilson: A single hookline (as distinguished from a multiple block) used to assist in setting, hauling and moving gear on deck

Groundline/Mainline: The length of line to which all of the hooks are attached. This line is the "backbone" of the gear

Gunnel or Gunwale: The upper edge of the side of a boat

Gurdy: Special winch for hauling of longlines or trolling lines

Gypsyhead: A metal drum with a smooth concave surface, usually mounted on a winch. Several wraps of line around the gypsy provide enough friction while it is turning to raise heavy loads smoothly because the line slips and is easily controlled, like the friction on a clutch plate.

H - K

Halibut excluder: A divider located in the tunnel of a pot that restricts the size of the opening.

Hatch: An opening in a deck or bulkhead of a ship.

Haul: A catch of fish from one tow of a net or longline

Haulback: When the vessel lifts the net out of the fishing depth

Hawser: Any large rope (generally five inches or more in circumference) used primarily for towing, mooring or hauling

High grading: When a vessel puts up product but later discards it overboard in favor of a more valuable product

Hook: Usually a three pronged grappling hook used to snag the trailer buoy line.

Hook Counts: The average number of hooks per segment of gear.

Horn Off: To knock organisms off of a hook using the butt of a gaff.

I-beam: A steel beam shaped like an "I" in cross section

Intermediate: A gradually tapered section, generally of small mesh, between the back body of a trawl and the codend.

Joint Venture: A cooperative fishing/processing effort between vessels of different nationalities

Knot: A measure of time multiplied by distance, equaling speed. One knot equals one nautical mile (6080 feet) in one hour.

L - O

Launcher: Hydraulic lift, usually located on the port side of a vessel, used to "launch" pots over the side of the vessel and to adjust the angle of the pot when it is being emptied.

Lay: The direction in which the strands of a rope are twisted (right or left) or the degree of tightness with which they are twisted (soft, medium, hard, etc.)

Lazaret: A storage place between the decks of a ship

Lee, Leeward: The side protected from the wind, opposite the "windward" side

Live Tanks: Tanks or bins on factory trawler vessels where the catch is dumped prior to sorting or processing

Lobby: Another name for a fish bin on a catcher/processor

Main Wires: The two large cables used to connect the trawl net to the vessel while fishing

Master: Fishing master and/or captain

Mustang suit: Insulated and waterproof coveralls worn in the cold months while sampling on deck.

Net reel: A hydraulic drum on the deck on which the net and most of the rigging are wound

Otter trawl: The type of net gear used on stern trawlers

Otterboard: Another name for a trawl door

Optimum Yield (OY): A range within which summed Total Allowable Catches must fall

P

Panel: Mesh netting attached to a square metal frame. Two large panels and four smaller panels are attached to a heavy steel frame box to form the six sides of a pot.

Pelagic: Midwater

Peritoneum: The lining of the gut cavity

Pew, Pew stick: A sharp-ended pole, which is used to skewer fish and toss them to another location

Pick/"Running the hook": Hook connected to the end of the boom which is attached to the bridle and is used to lift a pot onto the launcher as the pot is being retrieved.

Plotter: Electronic mapping device that displays the local area and the vessel's position on it. The plotter allows skippers to record the area of a string and also the number of pots in a string on a digital map display.

Pod: A school of marine mammals; such as seals, whales or dolphins

Population: The total of individuals occupying an area or making up a whole. When sampling aboard a trawler, a population is defined as the catch from a single haul.

Porthole: A window in the hull or the outside bulkhead of a ship

Pot Tie: A short piece of line used to tie pots together when they are stacked on deck.

Predominant species: Species that are the most abundant in the catch - not necessarily the target species

Presorting: The segregation and/or removal of any item(s) or organism(s) from the catch prior to the point where an Observer is collecting a sample.

Prohibited species or prohibited species groups: Species whose allowable retention is zero. Salmon, Pacific Halibut, and Dungeness crab are prohibited species.

Prohibited species sampling: The weight of groundfish catch sorted by the Observer to determine only the numbers and weights of salmon, herring, halibut, king crab, and tanner crab present

Prohibited Species Catch (PSC): A harvest limit usually placed on halibut, salmon, crabs or other species which must be discarded in the groundfish fisheries

R

R.D.F.: Radio direction finder

Radio Call Sign: Four letters and/or numbers, which are an international identifier of a vessel. The International Radio Call Sign (IRCS) is painted in large letters on the side of each vessel and on the deck of the flying bridge.

Random: Relating to a set, each of whose elements have an equal probability of occurring in a sample. These elements are chosen as sample units in a manner, which eliminates subjectivity.

Random sample frame: The population divided into independent countable units.

Regenerated scale: A fish scale that has grown in to replace one that was lost. Regenerated scales are useless for aging a salmon, but can be used to identify it to species.

Reserve: A portion of quota set aside at the beginning of the fishing year to allow for uncertainties in preseason estimates of DAP catch

Riblines: Heavy lines or chains that run down the length of the trawl net to strengthen it

Roller: A device made up of one or more metal pins that spin allowing the groundline to be pulled up and over the rail of a vessel during retrieval such that tension and friction on the line is reduced.

Roller station/pit: Term used to describe the area where fishermen stand while retrieving the line and gaffing fish coming in over the roller.

Rollerman: A crewman who stands in the roller station and monitors the retrieval of the gear. The rollerman lands any commercially valuable fish and excludes any non-commercially valuable fish from being landed.

Rostrum: A pointed, calcareous, median extension on the anterior end of crab carapaces

Round weight: The weight of the whole fish (or animal) as it was when alive, synonymous with fresh weight and whole weight

Roundfish: Fish that orient themselves in the water with the dorsal side towards the surface and ventral side towards the bottom

"Run pots": A phrase used interchangeably with "retrieve pots". It is the phrase used in the vessel logbook to indicate the number of pots that have been retrieved from a string.

S

Sample size: The portion of the population that is sampled.

Sample type: The method used to select part of a population. This includes basket, whole haul, partial haul, and the pre-sorted "X" sample types.

Sample weight: The actual weight in kilograms of a composition sample.

Sampling: The process of selecting part of a population for the purpose of determining the parameters, or characteristics, of the whole population. Composition sampling refers to taking samples of a haul in order to determine the fishing mortality of species occurring in the sample.

Scupper: A hole in the bulwarks which allows water to drain from the deck

Segment of Gear: In this manual a segment of gear refers to the standard unit the vessel uses for measuring gear. This could refer to a mag, skate, tub, or coil of gear.

Set: The entire length of groundline from the first hook to the last hook, also referred to as a "string" of gear.

Sheave: A wheel with a grooved rim, such as is mounted in a pulley block to guide the rope or cable

Shot: A pre-measured length of buoy line, usually 10 to 20 fathoms long. Normally there are two set lengths, a "Long" shot and a "Short" shot. When setting a string, the skipper will tell the crew how many shots to tie to a pot for various bottom depths.

Skate: A length of longline gear, usually 100 fathoms or 600 feet long

Skate bottom: A fabric square with lines on the corners to tie it into a bundle once a longline "skate" has been coiled onto it.

Skate or Mag markers: Markers in the groundline that separate the sections of gear. These may be fluorescent tape woven onto the line, knots, line splices, carabineers, or magazine (mag) clips.

Skates/Tubs/Coils: Terms used to describe the smaller segments of gear within a set or a magazine.

Spatial: Referring to a unit of space used in random sampling. For example: a third of a bin, or a section of trawl alley, are spatial units.

Species composition sample: To sort a defined weight of catch such that each organism sampled for is grouped by family or by species and to determine the number and weight of the organisms in each group

Spring line: A mooring line attached amidships

SSB: "Single Side Band" radio used for long distance contact

Stack: This term is used on pot vessels to refer to pots stacked on the back deck.

Starboard: The right side of a ship (when one is looking forward)

Stern: The aft or back end of a vessel

Stern ramp (slip): A sloping ramp in the stern of a trawler between the deck and the water line, through which the net is set and hauled.

Stern trawler: Any of various sized fishing vessels which trawl a conical shaped mesh net through the water, haul it up a ramp through the stern of the ship, empty, and process the catch to make a wholesale fish product. These vessels may fish for a month or more at sea without support.

String: Pots deployed individually and are not attached to one another in any way. This term refers to pots set at a similar time in a similar area and depth. What a skipper calls a string varies considerably between vessels. Strings are analogous to sets.

Sub-sample: The weight of catch designated by the Observer which weighs less than the sample weight and is processed for a supplemental task to determining the composition of a haul, such as sampling for average weight.

T - Z

Table: Some vessels have a sorting table on the back deck that pivots on one axis. The contents of a pot are dumped onto the table, and the table is swung out of the way to re-launch the pot.

Total Allowable Catch(TAC): Annual harvest levels based on biological, economic and social factors

Taper: To cut webbing according to a given formula for fitting into a trawl

Tare: A deduction from gross weight to obtain net weight. Usually made to allow for the weight of a container.

Temporal: Referring to a unit of time used in random sampling. For example: one hour of processing time, or systematic intervals of ten minutes, are examples of temporal units.

Trawl: A cone shaped net, towed through the water to catch fish

Trawl Alley: The central passage on a trawl vessel where the codend is placed after haulback

Trawl Doors: Often referred to as "doors," these are two metal plates, each attached to a main wire, designed to keep the mouth of the net open while fishing

Trip: The time period from when the vessel leaves harbor until it returns to harbor to offload product or catch

Trip Limit: The amount of a catch category that a vessel is allowed to retain by trip.

Tuning/Overhauling gear: Term used to describe the work involved in straightening hooks, replacing gangions, or splicing the damaged groundlines.

Tunnel: Short mesh-lined openings on two or three sides of a pot. These are the entrances to the trap. Fish and crab are able to swim in but are unable to make their way back out due to the fingers/triggers.

Under way: Vessel in forward motion, running. According to Coast Guard regulation, a vessel is under way if it is not at anchor or at dock, so a vessel adrift is technically under way.

Warp (main wire): The cables on a trawler which run from the main winches to the trawl doors on the net

Weighed sample: A "basket" sample. The catch sampled by the Observer is weighed on a scale.

Winch: A hydraulic machine with one or more drums on which to coil rope, chain, or cable for hauling or hoisting

Wing: The sides off a trawl net near the opening, usually with larger mesh than the rest off the net

Wrister: A coated cloth tube worn on the arm, extending from the elbow and covering the wrists. Keeps arms warm and dry. Fish blood and slime are more easily washed out from these than from shirtsleeves.

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