Appendix C. Selection of the 19 Nearshore Fishery Species (click on title to return)

The 19 nearshore finfish fishery species were selected by using a matrix to indicate which ones were in greatest need of management attention, and then applying five criteria (explained below) to those species with high overall matrix scores. Initially, 266 species (those which occur in waters less than 100 fm; 183 m) were processed through the matrix. However, sufficient life history information for many of these species was not available. Also, the nearshore depth range was reduced from 100 fm (183 m) to 40 fm (73 m). In the final analysis, 124 species were run through the matrix. The following criteria were then applied to those species with scores falling within the highest third of the matrix scores:

•   ranks high in the 'live fish fishery' component of the matrix
•   is a species with minimum size limits as defined by the Nearshore Fisheries Act (FGC §8588)
•   is a species listed as nearshore groundfish by the Pacific Fisheries Management Council
•   is associated with essential nearshore habitat (e.g., kelp forests and rocky reefs)

Through this process, 19 finfish species were selected: cabezon, *Scorpaenichthys marmoratus*; California scorpionfish, *Scorpaena guttata*; California sheephead, *Semicossyphus pulcher;* kelp greenling, *Hexagrammos decagrammus*; rock greenling, *H. lagocephalus;* monkeyface prickleback, *Cebidichthys viola*ceus; black rockfish, *Sebastes melanops*; black-and-yellow rockfish, *S. chrysomelas*; blue rockfish, *S. mystinus*; brown rockfish, *S. auriculatus*; calico rockfish, *S. dalli*; China rockfish, *S. nebulosus;* copper rockfish, *S. caurinus*; gopher rockfish, *S. carnatus;* grass rockfish, *S. rastrelliger;* kelp rockfish, *S. atrovirens*; olive rockfish*, S. serranoides*; quillback rockfish, *S. maliger;* and treefish, *S. serriceps*.

These 19 species include all species with minimum size limits as defined by the Nearshore Fisheries Act and all species listed as nearshore groundfish by the Pacific Fisheries Management Council. These 19 species also have similar habitat associations.

C.1 Matrix

C.1.1 Background

The intent of the matrix was to provide an indication of species in greatest need of management attention. The criteria in the matrix were used to rank nearshore fish species in a quantifiable and reproduceable manner. By determining species rank, fisheries which impact these species can also be ranked for inclusion in management plans. The matrix was developed by John Ugoretz and Paul Reilly of the California Department of Fish and Game. The coordinator for the Nearshore Species Matrix scoring process was Kevin Walters.

C.1.2 Instructions

All criteria apply to the 20-yr period of 1980 through 1999, or the part of that period for which data were available, unless otherwise specified. This time span is intended to demonstrate trends which transcend short-term anomalous events such as El Niño. Each criterion was assessed based on the best available data. It is understood that new data may change future rankings.

These criteria were based on a synthesis of ideas developed by the Department's Nearshore Fishes Team and a paper by Weber (1998).

The term "species" is frequently used in this document. However, it should be noted that much of the fisheries-dependent data is based on information from "market categories" listed on Department's fish landing receipts, which do not necessarily equate to individual or specific species. For criteria 1a, 2a, 3a, and 4, estimated species landing data (based on market category sampling) should be used when possible to refine the market category data. If estimated species landing data are not available, the market category or categories for which a particular species is the primary component should be used and should be considered the best available data. Commercial landings data are reported in pounds of fish and recreational landing data are reported in numbers of fish.

Commercial fishing data (criteria 1a, 2a, 3a, and 4) were broken down by port or port region, depending on data availability. The nine port regions were: San Diego, Los Angeles, Santa Barbara, Morro Bay, Monterey, San Francisco, Bodega Bay, Fort Bragg, and Eureka/Crescent City. Each port region was given a share of the possible points. Thus, since there were nine port regions defined by the Department's Field Offices and a total of three available points for each of the criteria, each individual port region could contribute a maximum of 3/9 of a point for each criteria. If a particular species was not landed in a particular port region, zero points were given.

Each criterion was evaluated on a scale of 0 to 3, with greater points demonstrating species in greater need of immediate attention. If no data were available for each life history criterion (5, 6, and 7a through 7e), the species in question was given a rank of 1 for that criterion.

C.1.3 Fishery Criteria

1a) *Changes in ex-vessel prices in the commercial fishery*

This criterion is defined as average ex-vessel price per pound over the past 5 yrs (1995-1999), divided by the average ex-vessel price per pound over the past 20 yrs (1980-1999), expressed as a decimal fraction. Each value after the base year was adjusted for inflation by dividing by the Consumer Price Index (CPI) for the cumulative period (i.e., if CPI increased by 3.0% from base year to year two, the average value in year two would be divided by 1.03).

0 - decrease, no change, or not taken   **1** - increase by 1.01 to 1.20
2 - increase by 1.21 to 1.50   **3** - increase by more than 1.50

Example: adjusted average price 1995-1999: $3.50
adjusted average price 1980-1999: $2.75   = 1.27 = 2 points

1b) *Rank in the sport fishery*
This criterion is defined as the average rank in the recreational/sport harvest for the past 20 yrs.

0 - not taken   **1** - bottom 1/3 of the ranks
2 - middle 1/3 of the ranks   **3** - top 1/3 of the ranks

2a) *Increases in commercial landings*
This criterion is defined as average commercial landings over the past 5 yrs divided by the average over the past 20 yrs, expressed as a percent.

0 - no increase or not taken   **1** - 101 to 120%
2 - 121 to 150%   **3** - greater than 150% increase

2b) *Increases in sport landings*
This criterion is defined as the average sport landings over the past 5 yrs divided by the average sport landings over the past 20 yrs, expressed as a percent.

0 - no increase or not taken   **1** - 101 to 120%
2 - 121 to 150%   **3** - greater than 150% increase

3a) *Decreases in commercial landings*
This criterion is defined as average commercial landings over the past 5 yrs divided by the average commercial landings over the past 20 yrs, expressed as a percent.

0 - no decrease or not taken   **1** - 80 to 99%
2 - 50 to 79%   **3** - less than 50%

3b) *Decreases in sport landings*
This criterion is defined as the average sport landings over the past 5 yrs divided by the average sport landings over the past 20 yrs, expressed as a percent.

0 - no decrease or not taken   **1** - 80 to 99%
2 - 50 to 79%   **3** - less than 50%

4) *Live fish take in the commercial fishery*
This criterion is defined as total live landings for the past 5 yrs divided by total landings for the past 5 yrs, expressed as a percent.

0 - no live landings   **1** - live landings 1 to 20% of total
2 - live landings 21 to 50% of total   **3** - live landings over 50% of total

C.1.4 Life History Criteria

5) *Special Habitat Need*

Does the species depend on habitats that are especially susceptible to damage or loss at any life stage? If not, zero points should be assigned for this criterion. If so, is that habitat subject to episodic variability (e.g., kelp habitat loss during El Niño events), long-term damage (e.g., human disturbance of intertidal areas, pollution), or permanent loss (e.g., filling of bays and estuaries, etc.)? If the species has a special habitat need but that habitat has not been altered, zero points should be assigned. If the habitat has been altered, points should be assigned as specified below:

0 - no special need   **1** - episodic variability (1 to 5 yrs)
2 - long term damage (over 5 yrs) **3** - permanent loss

6) *Migrational vulnerability*

Does the species aggregate in or migrate to areas where it is more vulnerable to harvest? This could include spawning aggregations or returns to predictable areas (i.e., lingcod returning to nearshore areas to spawn).

0 - no special vulnerability **3** - vulnerability exists at some life stage

7) *Special characteristics*

Does the species possess certain characteristics that make it more vulnerable to over-fishing? Each category is scored separately as shown below. A *yes* means the species possesses the characteristic, a *no* means the species does not possess the characteristic.

a) Susceptible to barotrauma (damage due to pressure changes from being brought to the surface from deep water) on capture, making live releases difficult

0 - no   **3** - yes

b) Sequential hermaphrodites and/or sexual dimorphism by size (i.e., removing larger, older individuals changes the sex ratio of the population)

0 - no   **3** - yes

c) Low fecundity as defined by having less than 100 embryos per spawning event

0 - no   **3** - yes

d) Late maturation (based on age at 50% maturity for females)

0 - 0 to 2 yrs   **1** - 3 to 5 yrs
2 - 6 to 10 yrs   **3** - over 10 yrs

e) Longevity (relatively high maximum age indicates longer generation time, adding to vulnerability)

0 - 0 to 2 yrs   **1** - 3 to 10 yrs
2 - 11 to 20 yrs   **3** - over 20 yrs

C.1.5 Other Factors
8a) *Special commercial harvest limitations*
     Does the species have a commercial quota, trip limit, or zero take commercial limitation? (For example, all nearshore rockfish species as defined by the Pacific Fisheries Management Council have trip limits.)

0 - no special limit exists   **3** - special limit does exist

8b) *Special sport harvest limitations*
     Is there a sport fishing bag limit less than the standard 10 fish of a single species limit?

0 - no special limit exists   **3** - special limit does exist

9) *Additive take*
     How many fishery classes actively take the species? Fishery classes include sport, commercial, and scientific/aquaria collections. The term "actively" is defined as having occurred within the last 3 yr.

0 - not actively taken in any fishery   **1** - taken actively by only one fishery
2 - taken actively by two fisheries   **3** - taken actively by all three fisheries

Species	Scientific Name	Spp. ID	1a	1b	2a	2b	3a	3b	4	5	6	7a	7b	7c	7d	7e	8a	8b	9	total score
rockfish, brown	*Sebastes auriculatus*	267	3	3	1	0	3	2	2	3	3	1	0	0	1	3	3	0	2	30
shark, spiny dogfish	*Ophiodon elongatus*	195	2	3	0	0	3	2	1	1	3	1	0	0	1	2	3	3	2	27
shark, leopard	*Squalus acanthias*	152	2	2	1	0	1	3	0	3	3	0	0	3	3	3	0	0	2	26
lingcod	*Triakis semifasciata*	153	1	2	0	0	2	2	1	3	3	0	0	3	1	3	0	3	2	26
halibut, California	*Paralichthys californicus*	222	0	3	1	3	1	0	1	3	3	0	0	0	1	3	0	3	2	24
rockfish, grass	*Sebastes nebulosus*	258	3	3	2	0	1	2	2	1	0	1	0	0	1	3	3	0	2	24
rockfish, gopher	*Sebastes carnatus*	263	2	3	3	0	1	2	2	1	0	1	0	0	1	3	3	0	2	24
rockfish, China	*Sebastes serranoides*	651	3	3	1	0	1	2	1	1	0	1	0	0	2	3	3	0	2	23
rockfish, olive	*Sebastes rastrelliger*	652	3	2	2	0	0	3	2	1	0	1	0	0	1	3	3	0	2	23
rockfish, black and yellow	*Platichthys stellatus*	231	0	3	0	0	3	3	1	3	3	1	0	0	1	3	0	0	2	23
rockfish, black	*Sebastes melanops*	252	1	3	2	0	1	3	1	1	0	1	0	0	2	3	3	0	2	23
rockfish, copper	*Sebastes chrysomelas*	251	3	2	2	0	0	2	2	1	0	1	0	0	1	3	3	0	2	22
shark, soupfin	*Sebastes caurinus*	655	2	3	2	0	0	2	1	1	0	1	0	0	2	3	3	0	2	22
flounder, starry	*Stereolepis gigas*	280	0	1	0	1	3	0	0	1	3	1	0	0	1	3	3	3	2	22
bass, giant sea	*Paralabrax nebulifer*	278	0	3	0	0	2	1	0	3	3	1	1	0	1	3	3	0	1	22
shark, brown smoothhound	*Scorpaena guttata*	260	1	3	1	2	2	0	3	1	3	1	0	0	0	3	0	0	2	22
bass, barred sand	*Atherinopsis californiensis*	184	2	3	1	2	2	0	0	3	3	1	0	0	1	2	0	0	2	22
scorpionfish, California	*Sebastes mystinus*	665	2	3	1	0	1	1	1	1	0	1	0	0	2	3	3	0	2	21
jacksmelt	*Galeorhinus zyopterus*	159	0	1	0	2	2	0	0	3	3	0	0	3	1	1	0	3	2	21
rockfish, blue	*Hexagrammos decagrammus*	290	3	3	2	0	0	3	3	1	0	1	0	0	1	2	0	0	2	21
greenling, kelp	*Sebastes atrovirens*	659	2	2	2	0	1	1	2	1	0	1	0	0	1	3	3	0	2	21
rockfish, quillback	*Sebastes maliger*	970	1	2	2	0	0	3	1	1	0	1	0	0	2	3	3	0	2	21
sanddab, Pacific	*Citharichthys sordidus*	227	0	3	2	0	1	1	0	3	0	1	0	3	1	1	3	0	2	21
sheephead, California	*Semicossyphus pulcher*	145	2	2	3	0	0	1	1	1	0	1	3	0	1	3	0	0	2	20
rockfish, kelp	*Mustelus henlei*	154	0	2	0	0	2	2	0	3	3	0	0	3	1	2	0	0	2	20
surfperch, white	*Paralabrax clathratus*	277	0	3	1	0	2	1	0	0	3	1	0	0	1	3	3	0	2	20
surfperch, black	*Embiotoca jacksoni*	552	3	2	0	2	2	0	1	3	0	1	0	3	0	1	0	0	2	20
cabezon	*Scorpaenichthys marmoratus*	261	3	3	2	0	0	1	3	1	0	1	0	0	1	2	0	0	2	19

Table C-1. Nearshore Species Matrix Scoring Table: Re-score with Matrix version 8

Arranged by species score

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Arranged by species score

Species	Scientific Name	Spp. ID	1a	1b	2a	2b	3a	3b	4	5	6	7a	7b	7c	7d	7e	8a	8b	9	total score
bass, kelp	*Amphistichus rhodoterus*	553	0	3	1	0	1	3	0	3	0	1	0	3	1	1	0	0	2	19
ratfish, spotted	*Phanerodon furcatus*	556	2	3	0	0	2	2	0	3	0	1	0	3	0	1	0	0	2	19
shark, grey smoothhound	*Hypomesus pretiosus*	182	0	3	2	0	1	2	0	3	3	1	0	0	1	1	0	0	2	19
surfperch, redtail	*Cymatogaster aggregata*	554	1	3	0	0	2	2	1	3	0	1	0	3	0	1	0	0	2	19
smelt, surf	*Hypsypops rubicundus*	482	2	1	0	3	1	0	0	1	0	1	0	0	1	2	3	3	1	19
surfperch, pile	*Amphistichus argenteus*	551	0	3	2	3	1	0	0	3	0	1	0	3	0	1	0	0	2	19
surfperch, shiner	*Hydrolagus colliei*	166	0	1	2	0	0	3	0	3	3	0	0	3	1	1	0	0	1	18
garibaldi	*Mustelus californicus*	179	0	1	1	0	1	1	0	3	3	0	0	3	1	2	0	0	2	18
surfperch, barred	*Damalichthys vacca*	559	0	3	0	0	1	3	0	3	0	1	0	3	1	1	0	0	2	18
ray, bat	*Hypsurus caryi*	562	2	2	1	1	1	0	1	3	0	1	0	3	0	1	0	0	2	18
shark, sevengill	*Seriola dorsalis*	40	1	2	1	3	2	0	0	0	0	1	0	0	1	2	3	0	2	18
surfperch, rainbow	*Anarrhichthys ocellatus*	454	2	1	0	0	3	3	1	0	0	1	0	0	1	1	3	0	2	18
yellowtail	*Myliobatis californica*	171	0	1	1	0	1	2	0	3	0	0	0	3	1	3	0	0	2	17
eel, wolf	*Notorynchus maculatus*	162	0	1	1	0	1	1	0	3	0	0	0	3	1	1	0	3	2	17
sculpin, staghorn	*Leptocottus armatus*	272	0	2	0	0	2	3	2	3	0	1	0	0	1	1	0	0	2	17
bass, spotted sand	*Paralabrax maculatofasciatus*	276	0	2	0	0	0	2	0	3	0	1	3	0	0	2	3	0	1	17
sole, rock	*Caulolatilus princeps*	490	1	3	1	2	1	0	1	0	0	1	0	0	3	2	0	0	2	17
stingray, round	*Mugil cephalus*	135	0	1	1	1	1	0	0	3	3	1	1	0	1	2	0	0	2	17
ray, Pacific electric	*Spirinchus starksi*	187	0	1	1	0	2	3	0	3	3	1	0	0	1	1	0	0	1	17
smelt, night	*Lepidopsetta bilineata*	203	0	2	1	0	1	3	0	3	0	0	0	0	1	3	0	0	2	16
whitefish, ocean	*Cebidichthys violaceus*	456	2	1	2	0	0	1	2	2	0	1	0	0	1	2	0	0	2	16
mullet, striped	*Sebastes serriceps*	658	0	2	1	3	0	0	1	1	0	1	0	0	1	1	3	0	2	16
eel, monkeyface	*Rhacochilus toxotes*	558	1	2	1	1	1	0	1	1	0	1	0	3	1	1	0	0	2	16
guitarfish, shovelnose	*Urolophus halleri*	173	0	1	1	3	1	0	0	3	0	0	0	3	1	1	0	0	2	16
rockfish, treefish	*Squatina californica*	165	1	1	0	3	3	0	1	0	0	0	0	3	1	1	0	0	2	16
shark, Pacific angel	*Leuresthes tenuis*	181	0	1	0	3	2	0	0	3	3	1	0	0	1	1	0	0	1	16
shark, sixgill	*Hyperprosopon argenteum*	557	1	3	1	0	2	1	0	1	0	1	0	3	0	1	0	0	2	16
surfperch, rubberlip	*Torpedo californica*	172	0	1	1	0	1	3	0	1	3	0	0	3	1	1	0	0	1	16

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Arranged by species score

Species	Scientific Name	Spp. ID	1a	1b	2a	2b	3a	3b	4	5	6	7a	7b	7c	7d	7e	8a	8b	9	total score
grunion, California	*Chromis punctipinnis*	479	3	2	1	3	0	0	0	1	0	1	0	0	1	1	0	0	2	15
skate, California	*Rhinobatos productus*	174	1	2	0	2	2	0	0	0	0	0	0	3	1	2	0	0	2	15
sole, sand	*Hexanchus griseus*	161	0	1	1	0	1	3	0	0	0	0	0	3	1	1	0	3	1	15
topsmelt	*Raja inornata*	177	2	1	1	0	0	3	0	0	0	0	0	3	1	3	0	0	1	15
sole, English	*Psettichthys melanostictus*	205	0	2	0	0	3	3	0	3	0	0	0	0	1	1	0	0	2	15
blacksmith	*Atherinops affinis*	186	0	3	0	1	0	0	0	3	3	1	0	0	1	1	0	0	2	15
shark, horn	*Heterodontus francisci*	169	0	1	0	0	2	2	1	0	0	0	0	3	3	1	0	0	2	15
surfperch, walleye	*Gymnothorax mordax*	452	2	1	1	0	1	3	1	0	0	1	0	0	1	3	0	0	1	15
eel, California moray	*Embiotoca lateralis*		0	3	0	0	0	2	0	3	0	1	0	3	1	1	0	0	1	15
surfperch, striped	*Parophrys vetulus*	206	0	1	0	0	2	3	0	3	0	0	0	0	1	3	0	0	1	14
sanddab, speckled	*Citharichthys stigmaeus*	228	0	2	1	0	0	3	0	3	0	1	0	0	1	1	0	0	2	14
skate, longnose	*Menticirrhus undulatus*	426	0	2	0	1	2	0	0	3	0	1	0	0	1	1	3	0	0	14
sole, petrale	*Sphyraena argentea*	130	0	3	2	3	1	0	0	0	0	1	0	0	0	2	0	0	2	14
opaleye	*Hermosilla azurea*	602	1	1	0	3	1	0	0	1	0	1	0	1	1	1	0	0	2	13
corbina, California	*Anisotremus davidsoni*	480	1	2	0	0	1	2	0	1	0	1	0	0	1	2	0	0	2	13
barracuda, California	*Genyonemus lineatus*	435	1	3	1	1	2	0	0	0	0	1	0	0	0	2	0	0	2	13
zebra perch	*Raja rhina*		0	3	0	0	0	3	0	0	0	0	0	3	1	3	0	0	0	13
sargo	*Girella nigricans*	475	0	2	0	2	1	0	1	1	0	1	0	0	1	2	0	0	2	13
croaker, white	*Eopsetta jordani*	209	0	1	0	0	2	3	0	0	0	0	0	0	2	3	0	0	2	13
skate, big	*Seriphus politus*	440	2	3	1	0	1	2	0	0	0	1	0	0	0	1	0	0	2	13
butterfish, Pacific	*Halichoeres semicinctus*	146	0	2	0	0	1	1	0	1	0	1	3	0	1	2	0	0	1	13
queenfish	*Umbrina roncador*	423	0	2	0	2	0	0	0	0	0	1	0	0	1	2	3	0	1	12
thornback	*Sebastes dallii*	671	0	2	0	0	0	1	0	1	0	1	0	0	1	2	3	0	1	12
turbot, diamond	*Raja binoculata*	176	0	1	1	0	0	3	0	0	0	0	0	3	1	2	0	0	1	12
wrasse, rock	*Peprilus simillimus*	80	0	1	0	0	2	3	0	0	0	1	0	1	1	1	0	0	2	12
croaker, yellowfin	*Roncador stearnsii*	422	0	2	0	2	0	0	0	0	0	1	0	0	1	2	3	0	1	12
rockfish, calico	*Amphistichus koelzi*	560	0	2	0	0	1	1	0	0	0	1	0	3	1	1	0	0	2	12
croaker, spotfin	*Hypsopsetta guttulata*	236	0	0	0	0	1	2	0	3	3	0	0	0	1	1	0	0	1	12

Table C-1. Nearshore Species Matrix Scoring Table: Re-score with Matrix version 8

Arranged by species score

Species	Scientific Name	Spp. ID	1a	1b	2a	2b	3a	3b	4	5	6	7a	7b	7c	7d	7e	8a	8b	9	total score
surfperch, calico	*Porichthys notatus*	485	0	1	1	0	1	3	0	2	0	1	0	0	1	1	0	0	1	12
midshipman, plainfin	*Platyrhinoidis triseriata*	178	0	1	1	0	0	2	0	0	0	0	0	3	1	1	0	0	2	11
shark, swell	*Medialuna californiensis*	478	0	2	1	0	1	1	0	1	0	1	0	0	1	1	0	0	2	11
halfmoon	*Hyperprosopon ellipticum*		0	3	0	0	0	1	0	1	0	1	0	3	0	1	0	0	1	11
surfperch, silver	*Cephaloscyllium ventriosum*	163	0	0	0	0	1	0	0	1	0	0	0	3	3	1	0	0	1	10
kelpfish, giant	*Heterostichus rostratus*	501	0	1	0	0	1	2	0	1	0	1	0	0	1	1	0	0	2	10
salema	*Xenistius californiensis*	484	0	1	0	3	0	0	0	1	0	1	0	0	1	1	0	0	1	9
greenling, rock	*Hexagrammos superciliosus*		0	2	0	0	0	2	0	1	0	1	0	0	1	1	0	0	1	9
eulachon	*Thaleichthys pacificus*	188	*	0	0	0	1	0	0	3	3	1	0	0	0	1	0	0	0	9
senorita	*Oxyjulis californica*	144	0	1	1	0	0	2	0	1	0	1	0	0	0	1	0	0	1	8
smelt, longfin	*Spirinchus thaleichthys*		*	0	0	0	0	0	0	3	3	1	0	0	0	1	0	0	0	8
pipefish, bay	*Syngnathus leptorhynchus*		*	0	0	0	0	0	0	3	3	1	0	0	0	0	0	0	0	7
prickleback, rock	*Xiphister mucosus*		*	0	0	0	0	0	0	2	0	1	0	0	1	2	0	0	1	7
sole, slender	*Gillichthys mirabilis*	483	0	0	0	0	2	0	0	3	0	1	0	0	1	0	0	0	0	7
tonguefish, California	*Lyopsetta exilis*	210	0	0	1	0	0	0	0	0	0	0	0	0	1	3	0	0	1	6
mudsucker, longjaw	*Symphurus atricauda*		2	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	6
turbot, curlfin	*Pleuronichthys decurrens*	235	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	5
skate, sandpaper	*Raja kincaidii*		*	0	0	0	0	0	0	0	0	0	0	3	1	1	0	0	0	5
skate, starry	*Raja stellulata*		0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	0	0	5
turbot, spotted	*Pleuronichthys ritteri*	239	*	0	0	0	0	0	0	3	0	0	0	0	1	1	0	0	0	5
turbot, hornyhead	*Hippocampus ingens*		*	0	0	0	0	0	0	3	0	1	0	0	0	1	0	0	0	5
seahorse, Pacific	*Pleuronichthys verticalis*	238	*	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	1	5
Irish lord, red	*Hemilepidotus hemilepidotus*		*	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	4
turbot, C-O	*Lythrypnus dalli*	486	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	3
goby, bluebanded	*Syngnathus californiensis*		*	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	3
pipefish, kelp	*Pleuronichthys coenosus*	237	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	3
goby, zebra	*Lythrypnus zebra*	488	*	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2

C.2 Literature Cited

Weber LM. 1998. A global Assessment of major fisheries at risk, relevant management regimes, and non-governmental organizations. In: A review of the Pew Charitable Trusts, February 1998.