VI.—*A Catalogue of the Fishes of the Pacific Coast of America
North of Cerros Island.*

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The present paper is an enumeration of the fishes occurring on the Pacific coast of America north of Cerros Island and to a depth of 150 fathoms. The explorations of the U. S. Fish Commission steamer Albatross, during the last three years, have added a large number of species to those previously known from this region, and our own explorations have added about as many new forms, from San Diego alone, as were discovered by the Albatross along the whole coast included in the present paper. These additions, as well as the extension of the habitat of many species, make the present list desirable.

Several forms have recently been discovered by the Albatross in deeper water. Most of these, however, have little relationship to the littoral fauna, and the deeper water has not been sufficiently explored to warrant a list at the present time.

We have placed the dividing line between the littoral and the bathybial faunas of this region at 150 fathoms, because all of the genera so far recorded from this depth have representatives in the shallower water—15 to 50 fathoms. Some of the littoral genera, as Sebastodes, have representatives in deeper water, but this is not of general occurrence; these are added as foot-notes.

Cerros Island is a convenient and natural southern boundary to this region. South of it few, if any, of the characteristic genera (Sebastodes, genera of Embiotocidæ) of this region are found. A number of southern forms extend further north, but this number has not been materially increased by our explorations at San Diego; on the other hand, a large number of northern forms, or representatives of northern forms which had not been found south of Point Conception, were added to the San Diego fauna. The California fauna has been hitherto divided into a southern and a northern at

Point Conception. This division was the result of insufficient exploration, and the results mentioned above have made it evident that no definite boundaries can be assigned for a Northern and a Southern California fauna.

It is quite evident, and readily admitted, that the fauna of California is distinct from the Alaskan fauna, and the latter has been added for convenience and comparison only. But four of the species found at San Diego are also found in Alaska. The California fauna is characterized by the abundance of species of *Sabastodes*, of *Cottidæ*, and of *Embiotocidæ*. The last are entirely absent from Alaska, while only a few species of *Sebastodes* are found there. The boundary between these two regions lies somewhere between Sitka and Puget Sound. No *Embiotocidæ* are found at Sitka.

The relative number of species at the principal localities is as follows:—

The whole of Alaska	108 species.
Puget Sound	107 "
San Francisco	156 "
Monterey	148 "
Santa Barbara	117 "
San Pedro	82 "
San Diego, including Cortes Banks	168 "

There are known from the entire region 382 species, belonging to 228 genera. Of these, 116 genera or more than half, are also found in the Atlantic Ocean, and 32 species are found both in the Atlantic and in the Pacific.

The genera having species in both oceans, practically all belong to one of three classes: 1st. Tropical genera; 2d. Arctic genera, whose species are distributed throughout the Arctic seas; 3d. Pelagic and other genera, having a wide distribution.

Lists similar to the present were published by Jordan and Gilbert in the Proceedings U. S. National Museum for 1880, for the shores from San Diego to Puget Sound, and by Bean (l. c., 1881) for Alaska.

I have endeavored to give definite localities for the region from Ensenada, Lower California to Puget Sound. Those recorded from Alaskan waters have all been lumped into the general locality "Alaska." No definite localities have as yet been published for the species discovered by the Albatross.

	Ensenada	San Diego	Cortes Bank	San Pedro	Santa Barbara	Port Harford	Monterey	San Francisco	Columbia R.	Puget Sound	Alaska
62 <i>Plagyodus borealis</i> Gill										+	+
53 <i>Sudis borealis</i> Reinhardt										+	+
54 <i>Sudis ringens</i> Jordan & Gilbert											
55 <i>Synodus luciocephalus</i> Ayres		+			+			+			
56 <i>Tarletonbeania crenulata</i> Jordan & Gilbert					+						
57 <i>Tarletonbeania tenuis</i> E. & E.		+									
58 <i>Diaphus theta</i> E. & E.		+									
59 <i>Catablemella brachychir</i> E. & E.			+								
60 <i>Stenobranchius leucopsarum</i> E. & E.		+									
61 <i>Myctophum californiense</i> E. & E.		+									
62 <i>Myctophum townsendi</i> E. & E.			+								
63 <i>Myctophum boops</i> Richardson ¹										+	
64 <i>Mallotus villosus</i> Müller											+
65 <i>Thaleichthys pacificus</i> Richardson									+	+	+
66 <i>Osmerus thaleichthys</i> Ayres						+	+	+	+	+	+
67 <i>Osmerus dentex</i> Steindachner										+	+
68 <i>Hypomesus pretiosus</i> Girard								+		+	+
69 <i>Hypomesus olidus</i> Pallas										+	+
70 <i>Oncorhynchus gorbuscha</i> Walbaum								+	+	+	+
71 <i>Oncorhynchus kisutch</i> Walbaum								+	+	+	+
72 <i>Oncorhynchus tshawytscha</i> Walbaum								+	+	+	+
73 <i>Oncorhynchus keta</i> Walbaum								+	+	+	+
74 <i>Oncorhynchus nerka</i> Walbaum									+	+	+
75 <i>Fundulus parvipinnis</i> Girard		+	+		+	+					
76 <i>Sidera mordax</i> Ayres		+	+		+						
77 <i>Ophichthys triserialis</i> Kaup								+			
78 <i>Myrichthys tigrinus</i> Girard											
79 <i>Nemichthys avocetta</i> Jordan & Gilbert										+	
80 <i>Ptilichthys goodei</i> Bean											+
81 <i>Tylosurus exilis</i> Girard		+		+	+						
82 <i>Scomberesox brevirostris</i> Peters		+						+			
83 <i>Hemirhamphus rosae</i> Jordan & Gilbert		+		+	+						
84 <i>Exocoetetes californicus</i> Cooper		+	+	+	+						
85 <i>Siphostoma punctipinne</i> Gill		+									
86 <i>Siphostoma californiense</i> Storer		+			+	+	+	+	+	+	
87 <i>Siphostoma griseolineatum</i> Ayres								+	+	+	
88 <i>Siphostoma auliscus</i> Swain		+									
89 <i>Siphostoma barbarae</i> Swain & Meek					+						
90 <i>Siphostoma leptorhynchum</i> Girard		+			+						
91 <i>Hippocampus ingens</i> Girard		+									
92 <i>Aulorhynchus flavidus</i> Gill								+	+	+	+
93 <i>Gasterosteus microcephalus</i> Girard		+	+		+	+	+	+	+	+	+
94 <i>Gasterosteus aculeatus cataphractus</i> Pallas											
95 <i>Mugil cephalus</i> Linnaeus		+	+					+		+	
96 <i>Menidia tenuis</i> Ayres		+									
97 <i>Atherinopsis californiensis</i> Girard		+			+	+	+	+	+	+	
98 <i>Atherinops affinis</i> Ayres		+			+	+	+	+	+	+	

¹ *Myctophum protocus* Gilbert, 584 f. (?) Described to us by fishermen.² Oregon, Adair Bay.

	Ensenada.	San Diego.	Corteo Banks.	San Pedro.	Santa Barbara.	Port Harford.	Monterey.	San Francisco.	Columbia R.	Puget Sound.	Alaska.
99 <i>Sphyræna argentea</i> Girard	+	+									
? <i>Polynemus approximans</i> Lay & Bennett ¹											
100 <i>Ammodytes personatus</i> Girard										+	+
101 <i>Ammodytes alascanus</i> Cope											+
102 <i>Echeneis naucrates</i> Linnæus											
103 <i>Remora remora</i> Linnæus			+	+					+		
104 <i>Xiphias gladius</i> Linnæus				+				+			
? <i>Trichiurus lepturus</i> ²			+								
105 <i>Scomber colias</i> Gmelin			+	+							
106 <i>Scomberomorus maculatus</i>			+	+							
107 <i>Scomberomorus concolor</i> Lockington											
108 <i>Sarda chilensis</i> C. & V.			+	+	+			+			
109 <i>Germo alalonga</i> Gmelin			+	+	+			+			
110 <i>Euthynnus pelamys</i> Linnæus			+								
111 <i>Trachurus picturatus</i> Bowdich		+	+	+	+			+	+		
112 <i>Caranx caballus</i>		+	+								
113 <i>Seriola dorsalis</i> Gill		+	+	+	+						
114 <i>Stromateus simillimus</i> Ayres		+			+	+	+	+		+	
115 <i>Brama raji</i> Bloch								+	+		
116 <i>Scosteus ænigmaticus</i> Lockington											
117 <i>Icichthys lockingtoni</i> Jordan & Gilbert								+			
118 <i>Acrotus willoughbyi</i> Bean											
119 <i>Paralabrax clathratus</i> Girard		+	+	+	+			+			
120 <i>Paralabrax maculofasciatus</i> Steindachner		+	+	+							
121 <i>Paralabrax nebulifer</i> Girard		+	+	+				+			
122 <i>Steriolepis gigas</i> Ayres		+	+	+	+			+	+		
123 <i>Xenistius californiensis</i> Steindachner		+									
124 <i>Anisotremus davidsoni</i> Steindachner				+							
125 <i>Girella nigricans</i> Ayres		+	+	+				+			
126 <i>Cæsiusoma californiense</i> Steindachner		+	+	+	+			+			
127 <i>Seriphus politus</i> Ayres			+	+	+	+	+	+			
128 <i>Cynoscion parvipinne</i> Ayres		+	+	+	+						
129 <i>Cynoscion nobile</i> Ayres			+	+	+			+	+		
130 <i>Sciæna saturna</i> Girard			+	+	+						
131 <i>Roncador stearnsi</i> Steindachner		+	+	+	+						
132 <i>Genyonemus lineatus</i> Ayres		+	+	+	+	+	+	+			
133 <i>Umbrina roncador</i> Jordan & Gilbert		+	+	+	+						
134 <i>Menticirrhus undulatus</i> Girard		+	+	+							
135 <i>Gerres cinereus</i> Walbaum		+									
136 <i>Hysterothorax traski</i> Gibbons								+			
137 <i>Abeona minima</i> Gibbons		+			+	+	+	+			
138 <i>Abeona aurora</i> Jordan & Gilbert								+	+		
139 <i>Brachyistius frenatus</i> Gill		+	+	+	+	+	+	+		+	
140 <i>Brachyistius rosaceus</i> Jordan & Gilbert								+			
141 <i>Cymatogaster aggregatus</i> Gibbons		+	+	+	+	+	+	+		+	
142 <i>Hyperprosopon analis</i> A. Agassiz								+			
143 <i>Hyperprosopon argenteus</i> Gibbons		+	+	+	+	+	+	+			
144 <i>Hyperprosopon agassizii</i> Gill					+	+	+	+			

¹ *P. californiensis* Thomiot, California.² Described to us by fishermen.³ Washington.⁴ Damon, Washington.

	Ensenada.	San Diego.	Cortes Bank.	San Pedro.	Santa Barbara.	Port Harford.	Monterey.	San Francisco.	Columbia R.	Puget Sound.	Alaska.
145		+			+	+	+	+			
146		+		+	+	+	+	+			
147											
148		+		+	+	+	+	+		+	
149		+			+	+	+	+		+	
150			+								
151			+				+				
152		+		+	+	+	+	+			
153		+		+	+	+	+	+			
154		+		+	+	+	+	+		+	
155	+	+	+	+	+		+				
156	+	+	+	+	+						
157		+	+	+	+		+				
158	+	+	+	+	+						
159		+	+	+	+						
160		+									
161							+			+	
162											
163										+	+
164										+	
165	+	+	+	+	+		+				
166		+									
167			+								
168		+		+			+			+	
169		+									
170		+									
171							+			+	
172				+			+				
173										+	
174		+								+	
175	+	+									
176											+
177											+
178							+	+		+	
179										+	
180							+	+		+	
181							+	+		+	
182		+	+		+	+	+	+		+	
183							+			+	
184			+								
185							+	+		+	
186							+				
187							+	+		+	
188			+	+	+	+	+	+			
189		+					+	+			
190											
191		+	+	+			+	+			
192		+	+				+	+			
193							+	+		+	+

¹ Locality not definitely given.² Tomales Bay, Artesian well at Santa Monica.

	Ensenada.	San Diego.	Cortes Bank.	San Pedro.	Santa Barbara.	Port Harford.	Monterey.	San Francisco.	Columbia R.	Puget Sound.	Alaska.
194											+
195		+	+	+			+	+			
196											
197		+									
198			+								
199		+									
200		+		+	+		+	+			
201										+	
202		+									
203		+	+	+	+	+	+	+			
204											
205		+	+		+		+	+			+
206		+									
207		+	+				+	+			
208							+	+			
209		+									
210				+							
211		+									
212		+	+			+	+	+			
213		+									
214		+	+				+	+			
215		+	+								
216		+		+		+					
217		+		+	+	+	+	+	+	+	
218		+	+	+	+	+	+	+			
219										+	+
220		+	+	+			+	+			
221							+	+		+	+
222		+		+	+	+	+	+			
223		+		+		+	+	+			
224							+	+		+	
225		+	+	+			+	+			
226							+	+		+	
227				+							
228					+						
229											
230				+							
231											
232										+	
233		+	+	+	+						
234											
235											+
236									+	+	+
237										+	+
238						+	+			+	
239				+	+		+				+

¹ *Sebastodes aurora* Gilbert, 1600 ft.¹ *Sebastodes introniger* Gilbert, 1600 ft.² *Sebastolobus machrochir* Günther.³ Barclay Id., Brit. Columbia.⁴ South to Cape Mendocino.

	Ensenada.	San Diego.	Cortes Banks.	San Pedro.	Santa Barbara.	Port Harford.	Monterey.	San Francisco.	Columbia R.	Puget Sound.	Alaska.
240	Artemius fenestralis Jordan & Gilbert									+	
241	Dasycottus setiger Bean, p. 42										+
242	Icelinus bicornis Reinhardt										+
243	Icelinus australis E. & E.		+								
244	Icelinus quadriseriatus Lockington							+			
245	Icelinus cavifrons Gilbert, 44-30 f.				+						
246	Icelinus filamentosus Gilbert, 55-145 f.				+						
247	Icelinus tenuis Gilbert, 45-150 f.				+						
248	Icelinus fimbriatus Gilbert, 36-145 f.				+						
249	Icelinus oculatus Gilbert, 124 f.				+						
250	Chitonotus megacephalus Lockington							+			
251	Chitonotus pugetensis Steindachner							+		+	
252	Paricelinus hoplites R. & E.		+								
253	Radulinus asprellus Gilbert, 43-77								+		
254	Gymnacanthus pistilliger Pallas										+
255	Gymnacanthus galeatus Bean										+
256	Acanthocottus polyacanthocephalus Pallas										+
257	Acanthocottus tæniopterus Kner										+
258	Acanthocottus humilis Bean										+
259	Acanthocottus axillaris Gill										+
260	Acanthocottus platycephalus Pallas										+
261	Acanthocottus verrucosus Bean										+
262	Acanthocottus niger Bean										+
263	Acanthocottus quadrifilis Gill										+
264	Enophrys dicerans Pallas										+
265	Enophrys bison Girard							+		+	+
266	Liocottus hirundo Girard		+		+						+
267	Triglops pingeli Reinhardt										+
268	Prionistius macellus Bean										+
269	Leptocottus armatus Girard		+	+	+	+	+	+	+	+	+
270	Hemilepidotus spinosus Ayres							+	+		
271	Hemilepidotus jordani Bean										+
272	Hemilepidotus hemilepidotus Tilesius							+		+	+
273	Melletes papilio Bean										+
274	Scorpenichthys marmoratus Ayres		+	+	+	+	+	+	+	+	+
275	Oligocottus analis Girard		+	+				+			+
276	Oligocottus maculosus Girard					+	+	+		+	+
277	Oligocottus globiceps Girard						+	+		+	+
278	Blepsias cirrhosus Pallas							+		+	+
279	Blepsias bilobus C. & V.									+	+
280	Nautichthys oculo-fasciatus Girard							+		+	+
281	Rhamphocottus richardsoni Günther				+					+	+
282	Xenochirus triacanthus Gilbert ¹				+				+		
283	Xenochirus latifrons Gilbert, 61-158				+				+		
284	Aspidophoroides inermis Günther							+			
285	Aspidophoroides güntheri Bean										+
286	Siphagonus barbatus Steindachner										+

¹ No definite locality given.² Bathygonus nigripinnis Gilbert, 477 f.³ Xenochirus pentacanthus Gilbert, 178 f.

		Ensenada	San Diego	Cortez Banks	San Pedro	Santa Barbara	Port Harford	Monterey	San Francisco	Columbia R.	Puget Sound	Alaska
287	<i>Brachyopsis rostratus</i> Tilesius								+			+
288	<i>Brachyopsis verrucosus</i> Lockington								+			
289	<i>Brachyopsis xyosternus</i> Jordan & Gilbert							+	+			
290	<i>Bothragonus swani</i> Steindachner										+	
291	<i>Odontopyxis trispinosus</i> Lockington					+			+			+
292	<i>Podothecus vulsus</i> Jordan & Gilbert								+			
293	<i>Podothecus acipenserinus</i> Tilesius										+	+
294	<i>Prionotus stephanophrys</i> Lockington								+			
295	<i>Careproctus gelatinosus</i> Pallas											+
296	<i>Cyclogaster pulchella</i> Ayres							+	+		+	+
297	<i>Cyclogaster gibba</i> Bean										+	+
298	<i>Cyclogaster calliodon</i> Pallas										+	+
299	<i>Cyclogaster cyclopus</i> Günther							+			+	+
300	<i>Cyclogaster mucosa</i> Ayres ¹							+	+			
301	<i>Cyclopterichthys ventricosus</i> Pallas											+
302	<i>Cyclopterichthys stelleri</i> Pallas											+
303	<i>Eumicrotremus spinosus</i> Müller											+
304	<i>Gobiesox mæandricus</i> Girard							+	+			
305	<i>Gobiesox rhessodon</i> R. Smith	+	+									
306	<i>Gobiesox eigenmanni</i> Gilbert	+	+									
307	<i>Porichthys margaritatus</i> Richardson		+	+	+	+	+	+	+		+	
308	<i>Trichodon trichodon</i> Tilesius											+
309	<i>Trichodon japonicus</i> Steindachner ²											
310	<i>Cryptotrema corallinum</i> Gilbert					+						
311	<i>Paroclinus rothrocki</i> Bean. (Between Nagai and Koniwski Islands)											
312	<i>Plectobranthus evides</i> Gilbert									+		
313	<i>Hypsoblennius gentilis</i> Girard		+			+						
314	<i>Hypsoblennius gilberti</i> Jordan	+	+									
315	<i>Neoclinus satiricus</i> Girard							+				
316	<i>Neoclinus blanchardi</i> Girard		+			+	+	+	+			
317	<i>Clinus evides</i> Jordan & Gilbert	+	+			+	+	+	+			
318	<i>Heterostichus rostratus</i> Girard	+	+			+	+	+	+			
319	<i>Auchenopterus integripinnis</i> R. Smith	+										
320	<i>Chirolophus polyactocephalus</i> Pallas								+		+	+
321	<i>Muraenoides ornatus</i> Girard								+		+	+
322	<i>Muraenoides maxillaris</i> Bean										+	+
323	<i>Muraenoides dolichogaster</i> Pallas											+
324	<i>Apodichthys flavidus</i> Girard							+	+		+	
325	<i>Apodichthys fucorum</i> Jordan & Gilbert							+	+		+	
326	<i>Anoplarchus atropurpureus</i> Kittlitz							+	+		+	+
327	<i>Xiphister chirus</i> Jordan & Gilbert							+	+		+	+
328	<i>Xiphister mucosus</i> Girard							+	+		+	+
329	<i>Xiphister rupestris</i> Jordan & Gilbert							+			+	+
330	<i>Stichæus punctatus</i> Reinhardt											+
331	<i>Cebedichthys violaceus</i> Girard	+	+			+		+				
332	<i>Notogrammus rothrocki</i> Bean											+
333	<i>Lumpenus anguillaris</i> Pallas								+		+	+
334	<i>Delolepis virgatus</i> Bean										+	+

¹ *Paraliparis rosaceus* Gilbert, 984 f.² (*Gillellus semicinctus* Gilbert) loc. ?
(*Gillellus arenicola* Gilbert).³ San Quentin.

	Ensenada	San Diego	Cortes Bank	San Pedro	Santa Barbara	Port Harford	Monterey	San Francisco	Columbia R.	Puget Sound	Alaska
335 <i>Anarrhichas lepturus</i> Bean							+	+			+
336 <i>Anarrhichthys ocellatus</i> Ayres							+	+			
337 <i>Lycodopsis pacificus</i> Collett								+		+	
338 <i>Lycodopsis paucidens</i> Lockington								+			
339 <i>Lycodes coccineus</i> Bean											+
340 <i>Lycodalepis turneri</i> Bean											+
341 <i>Gymnelis viridis</i> Fabricius											+
342 <i>Scytaliscus cerdale</i> Jordan & Gilb.										+	
? <i>Fierasfer dubius</i> Putnam		+	+								
343 <i>Otophidium taylori</i> Girard		+	+		+		+	+			
344 <i>Dinematichthys marginatus</i> Ayres								+			
345 <i>Gadus callarias</i> Linnaeus									+	+	
346 <i>Pleurogadus navaga</i> Kølreuter											
347 <i>Microgadus proximus</i> Girard							+	+		+	
348 <i>Pallachius chalcogrammus</i> Pallas					+		+	+		+	
349 <i>Pallachius saida</i> Lepechin											+
350 <i>Merluccius productus</i> Ayres					+		+		+		
351 <i>Macrurus acrolepis</i> Bean											
352 <i>Atheresthes stomias</i> Jord. & Gilb.								+			+
353 <i>Hippoglossus hippoglossus</i> L.									+	+	
354 <i>Lyopsetta exilis</i> Jordan & Gilbert							+	+	+	+	
355 <i>Eopsetta jordani</i> Lockington		+					+	+	+	+	
356 <i>Hippoglossoides elassodon</i> J. & G.									+	+	
357 <i>Psettichthys melanostictus</i> Girard							+	+		+	
358 <i>Hippoglossina stomata</i> E. & E.		+									
359 <i>Xystreus liolepis</i> Jordan & Gilb.		+	+	+	+						
360 <i>Paralichthys californicus</i> Ayres		+	+	+	+	+	+	+			
361 <i>Citharichthys sordidus</i> Girard		+	+	+	+	+	+	+		+	
362 <i>Citharichthys stigmæus</i> J. & G.			+	+	+	+	+	+			
363 <i>Pleuronichthys decurrens</i> J. & G.							+	+			
364 <i>Pleuronichthys verticalis</i> J. & G.							+	+			
365 <i>Pleuronichthys cænopus</i> Girard		+		+	+	+	+	+		+	
366 <i>Hypopsetta guttulata</i> Girard		+		+	+	+	+	+			
367 <i>Parophrys vetulus</i> Girard					+		+	+		+	
368 <i>Inopsetta ischyra</i> Jordan & Gilbert									+	+	
369 <i>Isopsetta isolepis</i> Lockington								+			
370 <i>Lepidopsetta bilineata</i> Ayres							+	+		+	
371 <i>Lepidopsetta umbrosa</i> Girard											
372 <i>Limanda aspera</i> Pallas											
373 <i>Pseudopleuronectes pinnifasciatus</i> Kner.											
374 <i>Platessa quadrituberculata</i> Pallas											+
375 <i>Liopsetta glacialis</i> Pallas											+
376 <i>Platichthys stellatus</i> Pallas						+	+	+	+	+	+
377 <i>Microstomus pacificus</i> Lockington							+	+		+	
378 <i>Symphurus atricauda</i> J. & G.		+						+			
379 <i>Sphaeroides politus</i> Girard		+									
380 <i>Diodon hystrix</i> Linnaeus		+									
381 <i>Chilomycterus californiensis</i> E.				+							
382 <i>Mola mola</i> L.		+	+	+		+					
Totals	27	158	51	82	117	49	149	156	25	106	109