

## COPEPODA.

*Lernæa branchialis* Linn.

Packard, Mem. Bost. Soc. Nat. Hist., i, p. 295, 1867 (*Leonava*).

Variety *sigmoidea* (Stearns exped.), without special locality. Packard gives no special locality, and says his specimens were attached to the *skin* of the codfish, which makes it almost certain that he observed some entirely different parasite.

## CIRRIPEDIA.

*Coronula diadema* De Blainville (Linn.).

Packard, Canadian Nat. and Geol., viii, p. 418 (18), 1863; Mem. Bost. Soc. Nat. Hist., i, p. 295, 1867.

Gulf coast (Packard).

*Balanus crenatus* Bruguière.

Packard, Mem. Bost. Soc. Nat. Hist., i, p. 295, 1867.

Gulf coast! (Stearns exped.); whole coast (Packard).

*Balanus balanoides* Stimpson (Linn.).

Packard, Mem. Bost. Soc. Nat. Hist., i, p. 295, 1867.

Inserted without remark, by Packard.

*Balanus porcatus* Costa.

Packard, Canadian Nat. and Geol., viii, p. 418 (18), 1863; Mem. Bost. Soc. Nat. Hist., i, p. 295, 1867.

Whole coast (Packard).

## RHIZOCEPHALA.

*Peltogaster paguri* Rathke.

Packard, Mem. Bost. Soc. Nat. Hist., i, p. 295, 1867.

Atlantic coast! (Stearns exped.). Packard recorded the species from Maine, not Labrador.

NEW HAVEN, CONN., May 1, 1883.

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**NOTES ON THE FISHES OF TODOS SANTOS BAY, LOWER CALIFORNIA.**

**By ROSA SMITH.**

During the past winter (1882-'83) the writer, with a party of naturalists, spent three weeks on Todos Santos Bay and points northward to San Diego.

The bay of Todos Santos has a shore line of about forty miles, a little more than half of it being a smooth sand-beach, the remainder bluffs of dark red or blackish lava, extending into the sea at intervals, forming rocky tide-pools, interspersed with longer or shorter shingle beaches. About 20 miles below the town of Ensenada the land slopes gently to and below the sea-level, allowing the water to cover the shallower por-



tions, forming lagoons and creeks. A small group of picturesque rocks affords the only protection to the bay on its western side at a distance of 10 miles from Ensenada.

Having a low tide during our stay, the rock pools were thoroughly searched with dip-nets, and many heavy stones overturned.

At Punta Banda, on the southern shore of the bay, lives George Tannahill, a Scottish fisherman, who has built a small hut of water-worn bowlders on the shingle beach, where he spends, with his family, a few months of the year "fishing for a pastime," as he told me. He had on hand two species of fishes (*Trochocopus pulcher* and *Serranus clathratus*). He formerly dried the "red-fish" for exportation, but now no regular fishing is done anywhere on the bay. He gave me the common names of thirteen species, which may be referred to the species in this list which are marked with an asterisk, and which are accompanied by the common names used by Mr. Tannahill.

Family SCYLLIIDÆ.

1. *Scylliorhinus ventriosus* (Garman) J. & G.

Egg cases like those belonging to this species were found along the beach.

Family HETERODONTIDÆ.

2. *Heterodontus francisci* (Grd.) Gill.

A few egg cases of this species were washed up on the beach.

Family MYLIOBATIDÆ.

- \*3. *Myliobatis californicus* Gill.

Sting-rays three feet in diameter are said to be frequently seen.

Family CYPRINODONTIDÆ.

4. *Fundulus parvipinnis* Grd.

Abundant in shallow water.

Family MURÆNIDÆ.

- \*5. *Muræna mordax* Ayres. — "Black eel."

Family GASTEROSTEIDÆ.

6. *Gasterosteus microcephalus* Grd.

At the Tia Juana Hot Springs, about 3 miles below the boundary line, this species is abundant in a stream of somewhat warm mineral water, in company with water-beetles, snails, and other animal forms, and well-shielded by growing water-cress, Azolla, and an alga. This stickleback also occurs in Wild Cat Cañon, a few miles further south. D. I, I, I, 11-13; A. I, 8; lateral plates, 4. In life with the sides silvery forward, golden on abdomen; about eight squarish dark blotches on back and



sides superiorly; some large black punctulations below; chin silvery, salmon-colored in some of the examples; ventrals more or less salmon-colored.

Family MUGILIDÆ.

\*7. *Mugil albula* L.—Mullet.

Said to be very abundant in lagoons of Punta Banda.

Family SPHYRÆNIDÆ.

\*8. *Sphyræna argentea* Girard.—Barracuda.

Family SCOMBRIDÆ.

\*9. *Trachurus picturatus* (Bowditch) J. & G.—Horse mackerel.

Family CARANGIDÆ.

\*10. *Seriola dorsalis* (Gill) J. & G.—Yellow-tail.

Family SERRANIDÆ.

\*11. *Stereolepis gigas* Ayres.—Jew-fish.

12. *Serranus clathratus* (Grd.) Steindachner.

One seen.

Family SPARIDÆ.

13. *Girella nigricans* (Ayres) Gill.

Numerous young specimens in rock pools.

Family SCIÆNIDÆ.

\*14. *Roncador stearnsi* (Steind.) J. & G.—Roncador.

\*15. *Cynoscion parvipinne* Ayres.—Corvina.

Family LABRIDÆ.

16. *Trochocopus pulcher* (Ayres) Garman.—Red-fish.

A few seen. Very abundant, and fond of abalone meat, which is used for bait.

Family POMACENTRIDÆ.

\*17. *Pomacentrus rubicundus* (Grd.) J. & G.—Gold-fish.

Mr. Tannahill informed me that this species is quite common and troublesome, as its mouth is too small to catch on the large hooks used and it steals the bait put out for larger-mouthed fishes.

Family LATILIDÆ.

\*18. *Caulolatilus princeps* (Jenyns) Gill.—White-fish.

Family GOBIIDÆ.

19. *Typhlogobius californiensis* Steind.

A few fine examples of this interesting species were found at low tide burrowing in sand under stones.



## Family SCORPÆNIDÆ.

\*20. *Sebastodes* species.—Rock-cod.

## Family COTTIDÆ.

21. *Leptocottus armatus* Grd.

Two specimens of this extremely common Cottoid were taken with a seine from a shallow stream emptying into the ocean at Rosario, about 15 miles below the boundary line and near the Coronado Islands. The beach at this point is of firm, light brown sand, and the rocky cliff behind the sand strip is red volcanic rock. A few rocks jut into the sea, entirely destitute of life except for the abundant mussels and a very little thread-like sea-weed.

22. *Oligocottus analis* Grd.

Abundant in tide pools on Todos Santos Bay.

## Family GOBIESOCIDÆ.

23. *Gobiesox rhessodon* Rosa Smith.

Three young specimens were scraped with a dip-net from living *Zostera*. They were plain, dark brown, very slender, and from seven-eighths of an inch to one inch in total length. A few adult examples were found adhering to the under surface of stones.

## Family BLENNIDÆ.

24. *Isesthes gilberti* Jordan.

Among ten specimens of *Isesthes* from Todos Santos Bay, the largest measures  $5\frac{3}{4}$  inches; head,  $4\frac{1}{8}$ ; depth,  $4\frac{1}{8}$ ; D. XII, 18; A. 21. Five other specimens (smaller) have the same fin formula. A specimen,  $2\frac{1}{8}$  inches in length, has D. XII, 16; A. 20; while another somewhat larger has D. XI, 19; A. 21, and an individual less than two inches long has D. XII, 16; A. 19; the orbital tentacles of this last being only trifid instead of multifid, the gill-opening, as in all from this locality, extending downward to lower edge of pectoral. The color of the largest specimen is dull olivaceous, all the markings more obscure than in smaller ones. A specimen  $2\frac{1}{4}$  inches long has the following life markings: a black spot, larger than pupil, on second dorsal spine; eight or nine small blue dots on median line of side (below lateral line), from pectoral to caudal; ground color of head bluish gray, finely dotted with reddish; two black stripes downward and forward from eye, the first meeting the one from opposite side close behind symphysis of lower jaw, the second meeting on throat; tentacles multifid.

25. *Clinus evides* J. & G. (= *Gibbonsia elegans* Cooper).

This species was rather abundant in rock pools, most of those taken being "variously variegated, with light and dark shades of red, brown, and white," the predominant color being reddish purple; a few were



plain purplish brown, and others inhabiting deep pools with a heavy growth of *Zostera* were, in life, of a vivid green, with about four horizontal stripes of lighter green, silvery patches shining through on the inferior stripes. As usual, two brown ocelli margined with a ring of red were placed one at a distance of its own diameter behind the margin of opercular flap, the other as far below the dorsal fin and under its posterior half. In the specimens examined the dorsal fin rays vary from V, XXVIII, 6 to V, XXXI, 9, the anal usually having twenty-four articulate rays, occasionally as few as twenty-three or as many as twenty-six, the anal spines always numbering two.

SAN DIEGO, CAL., *May* 15, 1883.

**CATALOGUE OF MOLLUSCA AND ECHINODERMATA DREDGED ON THE COAST OF LABRADOR BY THE EXPEDITION UNDER THE DIRECTION OF MR. W. A. STEARNS, IN 1882.**

**By KATHARINE J. BUSH.**

The collection upon which the following catalogue is based was obtained by the expedition of 1882, under the direction of Mr. W. A. Stearns. Part of the specimens were sent to the Peabody Museum of Yale College by Messrs. B. S. Barrows and J. A. Allen, and the rest to the National Museum by Mr. Stearns.

The dredging was done mostly by Mr. Stearns, Mr. B. S. Barrows, and Mr. Edwin R. Flint; but Messrs. J. A. Allen and Charles L. Flint, jr., assisted in this work.

The dredgings were made during the month of August, in shallow water, at different points along the coast included between Forteau Bay and Dead Island. The principal localities are L'anse au Loup, north latitude  $51^{\circ} 33'$ , west longitude  $56^{\circ} 48'$ ; Henley Harbor, about north latitude  $52^{\circ} 05'$ , west longitude  $55^{\circ} 51'$ ; Dead Island, near Square Island, north latitude  $52^{\circ} 48'$ , west longitude  $55^{\circ} 48'$ .

The nomenclature adopted is mostly the same as that of the Preliminary Check-list of the Marine Invertebrata of the Atlantic Coast, and the Catalogue of Marine Mollusca by Prof. A. E. Verrill.\* The names used in Binney's edition of Gould's Invertebrata of Massachusetts are added in parenthesis when different from those adopted.

For such species as are not included in Gould's report, references have been given to at least one work in which the species is described or figured.

A list of the species found by Prof. A. S. Packard, jr.,† during the summer of 1864, but not obtained by the Stearns expedition, has been appended to the catalogues, both of mollusca and echinodermata, to make the faunal lists more complete.

\* Preliminary Check-list of the Marine Invertebrata of the Atlantic Coast, New Haven, Conn., 1879. Catalogue of Marine Mollusca, in Trans. Conn. Acad., vol. v, part 2, April, 1882.

† Recent Invertebrate Fauna of Labrador, 1865.



Smith, R. 1883. "Notes on the fishes of Todos Santos Bay, Lower California."  
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