REPORT

ON

FISHES OBTAINED BY THE STEAMER ALBATROSS

IN THE VICINITY OF

SANTA CATALINA ISLAND AND MONTEREY BAY.

REPORT ON FISHES OBTAINED BY THE STEAMER ALBATROSS IN THE VICINITY OF SANTA CATALINA ISLAND AND MONTEREY BAY.

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The fishes here reported on were collected by the United States Fish Commission steamer *Albatross* in April, 1897, during the progress of investigations conducted in the vicinity of Santa Catalina Island and of Monterey Bay in southern California. They were obtained by the use of the seine and of the hand line, trawl line, gill net, and dredge, usually at inconsiderable depths, and are therefore for the most part the common shore and market fishes of this region. Two dredge hauls and two sets of the gill net were at greater depths than 200 fathoms. The discovery of an undescribed species of *Averruncus* and one of *Radulinus* emphasizes again the great development of Agonoid and Cottoid fishes in the North Pacific.

LIST OF FISHES.

Polistotrema stouti (Lockington). Santa Cruz; Station 3669.
Raja inornata Jordan & Gilbert. Station 3665.
Hydrolagus colliei (Lay & Bennett). Station 3666.
Clupea pallasii Cuvier & Valenciennes. Santa Cruz.
Clupanodon cæruleus (Girard). Santa Catalina Island.
Engraulis mordax Girard. Santa Cruz; Santa Catalina Island.
Mesopus pretiosus (Girard). Santa Cruz.
Chauliodus macouni Bean. Station 3669.
Gasterosteus cataphractus microcephalus Girard. Santa Cruz.
Siphostoma griseolineatum (Girard). Santa Cruz.
Atherinopsis californiensis Girard. Santa Cruz; Santa Catalina Island.
Atherinops affinis (Ayres). Monterey; Santa Catalina Island.
Roccus lineatus (Bloch). Monterey; Santa Cruz. Introduced species.
Paralabrax clathratus (Girard). Santa Catalina Island.
Umbrina roncador Jordan & Gilbert. Santa Catalina Island.
Abeona minima (Gibbons). Santa Cruz.
Amphistichus argenteus Agassiz. Santa Cruz.
Pimelometopon pulcher (Ayres). Santa Catalina Island.
Oxyjulis modestus (Girard). Santa Catalina Island.
Sebastolobus alascanus Bean. Stations 3666, 3667, 3669, and on trawl line set in 10 to 15 fathoms at entrance to Dakin Cove, Santa Catalina Island.

This fine species of red rockfish occurs outside the zone of profitable fishing for the market, and is unknown to the fishermen. An individual occasionally strays into shallower water, as seen by the above record. More recently, a specimen was taken by fishermen in Monterey Bay, and found its way to the San Francisco market.

Sebastolobus altivelis Gilbert. Station 3670. Ten specimens were preserved, of which 9 have 15 dorsal spines, while 1 has exceptionally 16 spines as in *S. alascanus*.

Sebastodes goodei Eigenmann & Eigenmann. Station 3671. Hand line near Monterey, 69 fathoms.

Sebastodes paucispinis (Ayres). Santa Catalina Island; Monterey Bay.

Sebastodes serranoides Eigenmann & Eigenmann. Santa Catalina Island.

Sebastodes flavidus (Ayres). Monterey Bay.

Sebastodes mystinus Jordan & Gilbert. Monterey Bay.

Sebastodes pinniger (Gill). Monterey Bay.

Sebastodes miniatus (Jordan & Gilbert). Monterey Bay; Santa Catalina Island.

Sebastodes saxicola (Gilbert). Stations 3665, 3667, 3671.

Sebastodes introniger Gilbert. One specimen 44 cm. long; locality unknown.

This species has been identified with *S. melanostomus* Eigenmann, by Cramer and by Jordan & Evermann. The types of the two have not been compared, and the description of *S. melanostomus* fails to agree in so many details with specimens of *S. introniger* that it seems best to keep the two apart. *S. introniger* has the head larger, $2\frac{2}{3}$ in total length. The interorbital space is narrower, $5\frac{1}{2}$ in length of head. The scales are larger, 34 in the course of the lateral line. The accessory scales are very numerous. The gillrakers are much longer, the longest contained $2\frac{1}{3}$ to $2\frac{1}{2}$ times in the diameter of the orbit. The second and third anal spines are equal, or the second slightly the longer, contained $1\frac{1}{2}$ times in longest anal ray. In *S. melanostomus* the head is $3\frac{1}{4}$ in total length, there are 43 scales in the lateral line, and but few accessory scales. The gillrakers are contained $3\frac{1}{2}$ times in the diameter of orbit. The anal spines are graduated, the second "not much more than half the length of the soft rays." Two specimens of *S. introniger*, 30 cm. and 44 cm. long, entirely agree with each other in the respects above mentioned. The differences alleged to separate the two species can not, therefore, be due to age.

Sebastodes ruberrimus Cramer. Monterey.

Sebastodes constellatus (Jordan & Gilbert). Santa Catalina Island.

Sebastodes chlorostictus (Jordan & Gilbert). Station 3666.

Sebastodes elongatus (Ayres). Stations 3664, 3665, 3666, 3671, 3672.

Sebastodes vexillaris (Jordan & Gilbert). Monterey; Santa Catalina Island.

Sebastodes maliger (Jordan & Gilbert). Monterey.

Sebastodes carnatus (Jordan & Gilbert). Monterey.

Sebastodes serriceps (Jordan & Gilbert). Santa Catalina Island.

Scorpæna guttata Girard. Stations 3664, 3665; Santa Catalina Island.

Ophiodon elongatus Girard. Santa Cruz.

Zaniolepis latipinnis Girard. Stations 3662, 3663.

Zaniolepis frenatus Eigenmann. Station 3663.

Chitonotus pugetensis (Steindachner). Station 3663.

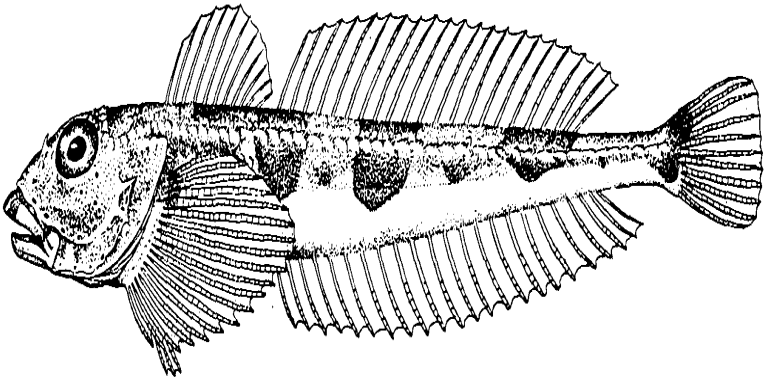
Tarandichthys tenuis (Gilbert). Stations 3662, 3663, 3664.

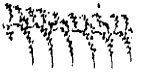
Icelinus quadriseriatus (Lockington). Station 3663.

Radulinus boleoides, new species. Plate 1. Type, a young female specimen, 72 mm. long, from Albatross Station 3664. Differing from *R. asprellus* in the much smaller eye, the scaled interorbital space, the presence of supraocular and occipital filaments, the smaller size and weaker spines of plates of the dorsal series, and the different coloration.

Head 4 in length; depth 9. Eye $3\frac{2}{3}$ in head ($2\frac{2}{3}$ in *R. asprellus* of the same size); snout $3\frac{1}{3}$; maxillary $2\frac{2}{3}$. Dorsal XI–22. Anal 23. Pectoral 18. Ventrals I, 3. 42 plates in the dorsal series.

Head and body very elongate, depressed anteriorly, the occiput wider and flatter than in *R. asprellus*. Snout long, depressed, and tapering, much as in the darters. Interorbital space very narrow, about half diameter of pupil. Mouth horizontal at lower side of snout, the maxillary reaching a vertical which trav-





RADULINUS BOLEOIDES. New species.

Lower figure is an enlarged view of dorsal spinous plates.

erses eye midway between its front and front of pupil. Fine teeth in bands in jaws and on vomer; none on palatines. In *R. asprellus*, also, the vomerine teeth are in a band, not in a single series, as stated in the original description. Branchiostegal membranes broadly united, wholly free from the isthmus in the type. In *R. asprellus* the gill-membranes vary in this respect, being sometimes wholly free from the isthmus, sometimes attached for half or more than half their width. Preopercle with two short, simple spines, the upper slender and sharp, directed backward and slightly upward, the lower broader and shorter, directed backward and downward. Below and in front of these are two rounded prominences which bear no spines. Opercle ending in a triangular process, which is scarcely spine-like. Nasal spines rather small, a depression between and behind them. No spines on orbital rim, which is not at all raised. The narrow interorbital space is not grooved. Occiput broad and flat, without ridges or spines. A slender filament on upper posterior border of orbit. A similar filament on each side of occiput on its posterior line.

Body with a dorsal series of imbricated spinous plates, similar to those in *R. asprellus*. But the plates are smaller, with less evident keels and shorter spines. Along its anterior third the series is accompanied above by a narrow band of smaller plates, which are continued anteriorly on sides of occiput, and merge anteriorly into the patch behind and between the eyes. Posterior portion of snout, the opercles, and the posterior line of occiput with spinous scales; head otherwise naked.

The vertical fins have long, slender rays as in *R. asprellus*. The dorsal fins are separate, but the interspace is less than the diameter of the pupil. The distance from front of anal to vent equals two-thirds diameter of orbit. Ventrals short, reaching half way to front of anal. Pectorals reaching slightly beyond front of anal, seven-eighths length of head.

Color light olive or grayish, the lower parts unmarked, the breast and belly silvery. Back crossed by four wide brownish-olive crossbars, the anterior of which, under spinous dorsal, becomes merged into the general brownish-olive coloration of upper portion of head and nape. The edges of the bands are sharply defined, and are marked with concave indentations where encroached upon by roundish light-colored areas. The spaces between the bands are slightly dusky and are marked with some irregular, small, dark blotches along middle of sides. Anteriorly on the back are pairs of round, light-colored spots with darker edges, some of them showing silvery pigment. A small silvery spot above the base of each pectoral fin. A narrow dark line across occiput behind the eyes. Dusky blotches on cheeks. A dark bar across the maxillary and lip; a pair on premaxillaries. Two faint dark bars on the caudal fin, the fins otherwise translucent or whitish, unmarked.

Clinocottus analis (Girard). Santa Catalina Island.

Averruncus sterletus, new species. Plate 2. Type, 103 mm. long, from Albatross Station 3662.

Very closely related to *A. emmelane*, with which it agrees in coloration and general appearance, as well as in most details of structure. It differs in the following respects: The snout is shorter, the rostral spines scarcely protruding beyond the premaxillaries; no barbels on snout below rostral spines or on margin of preorbital, or at mandibular joint; region between rostral spine and front of premaxillaries wholly occupied by a triangular movable plate, with rough, granular surface; breast with three parallel series of sharply keeled plates; no spine at posterior end of premaxillary fossa; ventrals very long and slender, wholly white; spinous dorsal, anal and pectorals with fewer rays.

Head 4⅔ in length; width at base of pectorals, 7; depth 8⅓. Dorsal VII–8. Anal 9. Pectoral, 12 on each side. Thirty-nine plates in dorso-lateral series.

Rostral projection shorter than in *A. emmelane*, with two short, forwardly directed spines, behind which is a pair more widely separated, directed upward

and backward. Supraocular ridge elevated, not sharp, finely granular, with preocular and postocular spines. Ridges and spines on head as in *A. emmelane*, but none of the former rough-serrate. Eye large, 3¼ in head, longer than snout and more than twice the interorbital width. Mouth little overpassed by the rostral spines, the maxillary reaching slightly behind front of orbit, 3⅛ in head. Teeth present on jaws, vomer and palatine. Barbels fewer than in *A. emmelane*. Three are present on maxillary, two of which are at its posterior end, the upper much the longer. The third is inserted more anteriorly, behind the middle of the maxillary. Eight shorter barbels are present on each mandibular ramus, the posterior only near the joint. Several short barbels on gular region, and a cross series on branchiostegal membranes, usually one barbel for each ray. Plates on the body as in *A. emmelane*, all with sharp spines, which are present, though small in the ventral series. Middle of breast with one median and two lateral series of plates, all of which bear distinct longitudinal keels. The two lateral ridges on breast are the anterior continuation of the ventral ridges of the trunk.

The spinous dorsal begins at the seventh dorsal plate, the last dorsal spine articulating with the thirteenth plate. The first and last rays of the second dorsal articulate, respectively, with the eighteenth and twenty-fourth plates. The dorsal series unite at the thirtieth plates, the median series of nine plates thus formed bearing double or bifid spines throughout. The first and the last anal rays articulate, respectively, with the sixteenth and twenty-third plates of ventral series (excluding the anterior three on breast). The ventral series coalesce immediately opposite the union of dorsal series. The anus is opposite the interspace between the third and fourth plates. Ventral spines long and slender, equaling length of snout and eye. Pectorals equaling length of head in advance of opercular joint. Five lower pectoral rays with incised membranes, the tips projecting.

Color similar to *A. emmelane*, the back and sides with 7 or 8 narrow black crossbars, the posterior of which extend faintly on the under surface. The interspaces on back are somewhat dusky, with lighter vermiculating lines and spots, a few of which extend on the bars. The dorsals have a speckled appearance, and are darker above the black dorsal bars. Head blackish above, the head and body light or slightly dusky below. Ventrals white. Anal white, with some black markings along the base of the rays. Pectorals with a wide black bar at base, succeeded by a wide white bar, followed by a narrower black bar and a narrow terminal white bar. Caudal with a narrow basal bar of black, then a narrow white bar followed by a broad black bar, and edged with white.

Xenochirus latifrons Gilbert. Stations 3665, 3671, 3672.

Xenochirus triacanthus Gilbert. Station 3664.

Parcella diaptera (Gilbert). Station 3667.

Macrourus acrolepis Bean. Station 3670. One taken in a gill net set in 581 fathoms, vicinity of Monterey Bay.

Lyopsetta exilis (Jordan & Gilbert). Stations 3664, 3665, 3666, 3667, 3671.

Hopsetta jordani (Lockington). Monterey; Santa Catalina Island.

Psettichthys melanostictus Girard. Santa Cruz; Monterey.

Hippoglossina stomata Eigenmann & Eigenmann. Stations 3662, 3663.

Citharichthys sordidus (Girard). Stations 3662, 3663, 3664, 3665, 3668, 3671.

Parophrys vetulus Girard. Monterey; Santa Catalina Island.

Lepidopsetta bilineata (Ayres). Station 3664.

Platichthys stellatus (Pallas). Santa Cruz.

Embassichthys bathybius (Gilbert). Stations 3669, 3670. One specimen taken in a gill net in 278 fathoms, Monterey Bay.

Microstomus pacificus (Lockington). Stations 3669, 3672.

Glyptocephalus zachirus Lockington. Stations 3669, 3671, 3672.

AVERRUNCUS STERLETUS. New species.

Lower figure is a ventral view.

LIST OF DREDGING STATIONS AND THE FISHES TAKEN AT EACH STATION.

Station 3662, off Santa Catalina Island; 47 fathoms.
- Zaniolepis latipinnis.
- Tarandichthys tenuis.
- Averruncus sterletus.
- Hippoglossina stomata.
- Citharichthys sordidus.

Station 3663, off Santa Catalina Island; 47 fathoms.
- Zaniolepis latipinnis.
- Zaniolepis frenatus.
- Chitonotus pugetensis.
- Tarandichthys tenuis.
- Icelinus quadriseriatus.
- Hippoglossina stomata.
- Citharichthys sordidus.

Station 3664, off Santa Catalina Island; 80 fathoms.
- Sebastodes elongatus.
- Scorpæna guttata.
- Tarandichthys tenuis.
- Radulinus boleoides.
- Xenochirus triacanthus.
- Lyopsetta exilis.
- Lepidopsetta bilineata.

Station 3665, off Santa Catalina Island; 59 fathoms.
- Raja inornata.
- Sebastodes elongatus.
- Sebastodes saxicola.
- Scorpæna guttata.
- Xenochirus latifrons.
- Lyopsetta exilis.
- Citharichthys sordidus.

Station 3666, off Monterey Bay; 68 fathoms.
- Hydrolagus colliei.
- Sebastolobus alascanus.
- Sebastodes elongatus.

Station 3666, etc.—Continued.
- Sebastodes chlorostictus.
- Lyopsetta exilis.

Station 3667, off Monterey Bay; 90 fathoms.
- Sebastolobus alascanus.
- Sebastodes saxicola.
- Furcella diaptera.
- Lyopsetta exilis.

Station 3668, off Monterey Bay; 39 fathoms.
- Citharichthys sordidus.

Station 3669, off Monterey Bay; 278 fathoms.
- Polistotrema stouti.
- Chauliodus macouni.
- Sebastolobus alascanus.
- Embassichthys bathybius.
- Microstomus pacificus.
- Glyptocephalus zachirus.

Station 3670, off Monterey Bay; 581 fathoms.
- Sebastolobus altivelis.
- Macrourus acrolepis.
- Embassichthys bathybius.

Station 3671, off Monterey Bay; 56 fathoms.
- Sebastodes goodei.
- Sebastodes elongatus.
- Sebastodes saxicola.
- Xenochirus latifrons.
- Lyopsetta exilis.
- Citharichthys sordidus.
- Glyptocephalus zachirus.

Station 3672, off Monterey Bay; 68 fathoms.
- Sebastodes elongatus.
- Xenochirus latifrons.
- Microstomus pacificus.
- Glyptocephalus zachirus.