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TWO NEW SPECIES OF SEA BASSES OF THE GENUS *DIPLECTRUM*, WITH A KEY TO THE PACIFIC SPECIES[1]

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There are eight known species of the serranid genus *Diplectrum* in the eastern Pacific: *D.* conceptione, *D. euryplectrum*, D. macropoma, D. maximum, D. *pacificum*, D. sciurus, and D. eumelum n. sp. and D. *labarum* n. sp. The species may be distinguished on the basis of numbers of fin rays, scales and gill-rakers, body shapes, length of fin spines, and shape of spine cluster. A key is given, and meristic data are presented. The range of D. maximum is extended north from Peru to Baja California, and the distinctively colored juveniles are described for the first time.

INTRODUCTION

The serranid genus *Diplectrum* consists of 11 known species. All are rather small for sea basses (25–30 cm) and live on the continental shelf on sand or mud bottoms. They are commonly taken along with shrimp, and are abundant in their habitat. Although they are not now much utilized commercially, they do represent a potential resource. Also, they are collectively the most abundant, and probably the most important, serranid predator in their habitat.

Although seven eastern Pacific species have been described, the genus has never been reviewed. Walford (1937) gave a key which distinguished the four species which occurred north of the equator. Hildebrand (1946) presented a key which distinguished the four Peruvian and Panamanian species, including the southern *D. conceptione*, and described a new form, *D. maximum*. Subsequently Hildebrand (1948) described another new species, *D. mexicanum*, from the Gulf of California.

Our data indicate that there are eight species of *Diplectrum* in the eastern Pacific, and that two of these are undescribed. *D. mexicanum* Hildebrand 1948 is identical to *D. nzacroponza* Gunther 1864. *It* is our purpose to describe the new forms, and present sufficient data on the others that they may readily be identified. Meristic and morphometric data for all species but *D. conceptionc* are given in Tables I–III. We have examined no material of D. *conceptione*.

MATERIALS AND METHODS

Specimens utilized for this study are housed at the Scripps Institution of Oceanography (SIO) and the Fish Collection, Department of Zoology, University of California, Los Angeles (UCLA). Counts and measurements were made according to the methods of Hubbs and Lagler (1958). Rows of scales on the opercle have often been used as a taxonomic discriminator in *Diplectrum*. Although we made these counts, we experienced difficulty in obtaining consistent, repeatable data.

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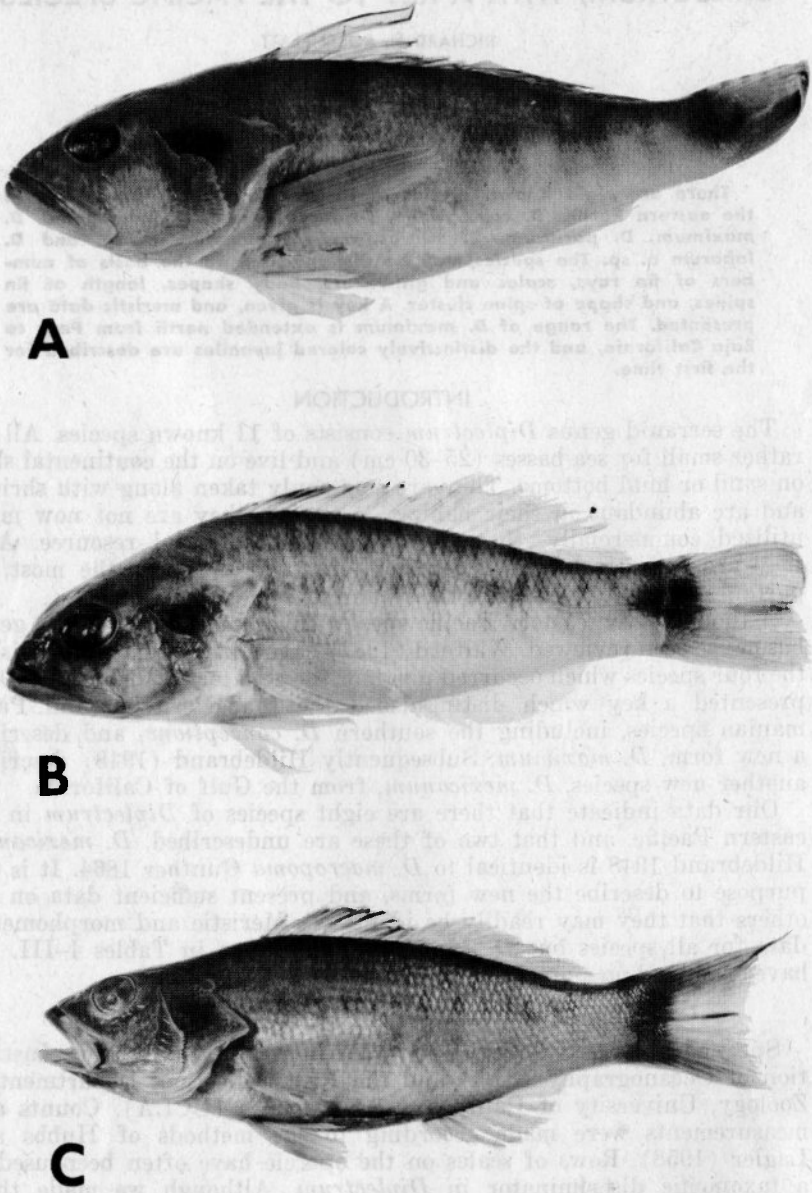

FIGURE 1. Three species of *Diplectrum;* A, holotype of *D. laborum* (right side, reversed), B, holotype of *D. eumelum,* C, *D. mocropomo,* a 137 mm individuol from the Gulf of Californio (SIO60-95).

DIPLECTRUM HOLBROOK

The following combination of characters distinguishes *Diplectrum* from other Pacific serranid genera:

D.X, 12; A.III, 7 or 8 (occasionally 6 or 9); body elongate, moderately compressed; top of head naked from occiput forward; caudal lunate to slightly forked; scales moderately large, 50–80 rows above lateral line; preopercle produced into bony flap and armed with 1 or 2 clusters of strong, divergent spines.

KEY TO THE PACIFIC SPECIES OF *DIPLECTRUM*

1a. Second, 3rd, and 4th (occasionally 5th) dorsal spines with black, filamentous estension; the 3rd spine longest, often reaching to base of 9th spine when depressed; 2nd spine at least twice as long as 1st (See species account for specimens <B0 mm) ----- *labarum*

1b. Dorsal spines without black filamentous extensions; the 3rd spine not the longest; 2nd spine less than twice as long as 1st ----- 2

2a. 22 or more gill-rakers on lower limb of first gill arch; no large black area on inner membrane of opercle ----- *sciurus*

2b. 17 or fewer pill-rakers on lower limb of first gill arch; a large black area on inner membrane of opercle, visible externally as a dark spot above spinous projection of preopercle ----- 3

3a. 3rd anal spine scarcely if any longer than 2nd; lower jaw projecting strongly, its tip entering the dorsal outline of head ----- *maximum*

3b. 3rd anal spine notably longer than 2nd; lower jaw not projecting sufficiently to enter dorsal outline of head ----- 4

4n. 3–4 much enlarged spines at angle of preopercle ----- *conceptione*

4b. At least 6 spines at angle of preopercle, radiating from a single, broad center 5

5a. 8–11 oblique scale rows on cheek ----- 6

5b 6 oblique scale rows on cheek ----- 7

Ga. Head large (2.2–2.5 in std. length); caudal peduncle rery shallow (3.8–4.6 in head); spinous projection of preopercle always deeper than length of eye (in specimens as small as 60 mm mny he jnst equal); dark bar at base of soft dorsal; ventral fins dusky; anal soft rnys usually 8 ----- *curyplectrum*

6b. Head Smaller (2.7–2.9 in std. length); caudal peduncle deeper (2.7–3.0 in head); spinous projection of preopercle usually not as deep as length of eye; no dark bar at base of soft dorsal; ventral fins colorless; anal soft rays usually 7 ----- *pacificum*

7a. Body deep (2.8–3.4 in std. length); caudal peduncle quite deep (2.8 or less in head); snout straight and somewhat pointed; 19–27 pseudobranch filaments; 9th dorsal spine notably shorter than 10th; dorsal and anal soft rays decreasing in length posteriorly; in isopropanol no pale spots on preorbital or pale stripe on cheek; soft dorsal not spotted, but top half with a dnsky bar ----- *macropoma*

7b. Body moderately deep (3.0–4.2 in std. length); caudal peduncle shallow (3.0–3.2 in head); snout blunt, curving convexly at tip; 27–37 pseudobranch filaments; 9th and 10th dorsal spines subequal; posterior soft dorsal and anal rays as long as or longer than anterior rays; orange stripe passing from preopercle anteriorly across cheek, breaking up into 3 distinct spots on preorbital (pigmented areas definitely pale in isopropanol); soft dorsal spotted ----- *eumelum*

DIPLECTRUM LABARUM N. SP.

Description

D.X, 11–13 (12.0); A.III, 6–8 (7.1); pectoral 15–18 (16.6); gill-rakers 6–9 + 13–15 (8.1 + 14.0); pseudobranch filaments 23–36 (28.9) lateral line scales 47–49 (47.8); scale rows above lateral line 52–61 (56.7); oblique scale rows on cheek 7–8 (7.3). Measurements of body parts are given in Table III. Meristic data are in Tables I and II.

Body moderately deep, caudal peduncle rather shallow; anterior dorsal profile gently convex, a slight depression just back of occiput; snout well rounded; mouth oblique; maxillary extending to a point just behind rear margin of pupil in large specimens, somewhat anterior to this in small specimens. Teeth in the jaws in villiform bands, some of the outer ones in the upper jaw enlarged, both outer and inner teeth in the lower jaw enlarged anteriorly, with a single enlarged row posteriorly; palatine teeth in narrow villiform bands; vomerine teeth in a triangular patch, villiform with a few enlarged at the two posterior apices. Gill-rakers at angle of first arch approximately $\frac{1}{2}$ length of eye; longest filament about $\frac{2}{3}$ length of eye. Spinous projection of preopercle deep and square; posterior margin straight, inclined slightly backward (almost vertical in smaller specimens); lower margin inclined slightly upward and approximately twice as long as upper margin which is inclined slightly downward; a single cluster of large, closely spaced diverging spines, uniformly decreasing in strength away from center, longest at apex of lower angle (Figure 1).

Spinous dorsal configuration unique; 2nd, 3rd, and 4th spines modified distally into slender, black. filamentous extensions; membrane between 2nd and 3rd spines deeply notched; 2nd spine usually at least twice as long as 1st (juveniles may often be identified by this character before filamentous nature of spines is evident); 3rd spine the longest, often reaching to base of 9th spine and beyond when depressed; 9th and 10th spines subequal, about $\frac{2}{3}$ as long as 1st dorsal soft ray. Soft dorsal outline varies with size; in smaller specimens, rays decreasing in length posteriorly, in larger specimens posterior rays (except for 12th) equal to or longer than anterior rays. Anal with 3 small graduated spines, the 2nd the strongest; soft margin somewhat rounded anteriorly, then with a posterior slant with an acute posterior angle, longest ray usually 2nd or 3rd in smaller specimens, 6th in larger specimens, middle rays the longest, reaching beyond tip of ventral, but falling well short of anal origin; caudal nearly truncate, with upper rays a little longer than the lower. Distal margin of pectoral fin inclined obliquely backward from third to tenth ray then with an anterior slant.

Color in isopropanol grayish-brown above, pale yellowish to silvery below; sides with 5 or 6 dark squarish blotches above, these often continuous with the same number of arcuate blotches below (these markings more or less evident in juveniles in conjunction with 2 dark longitudinal lines). Black spot on base of caudal rays very prominent, encompassing over half the caudal depth at this point; caudal rays tipped with black, the middle ones most heavily; inner membrane of opercle with a large black area, visible externally as a dark spot above spinous projection of preopercle. A dark band present just below the eye, broadening posteriorly on the cheek.

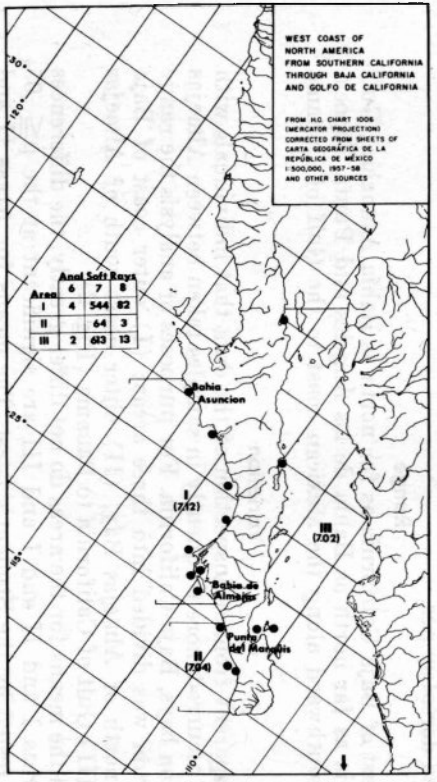

FIGURE 2. Variation in number of anal soft rays in *Diplectrum labarum*. Roman numerals indicate the areas compared (Area III extends south to Panama). The numerals in parentheses are the means for each area, the table gives the frequency distribution, and the dots indicate areas from which samples were utilized.

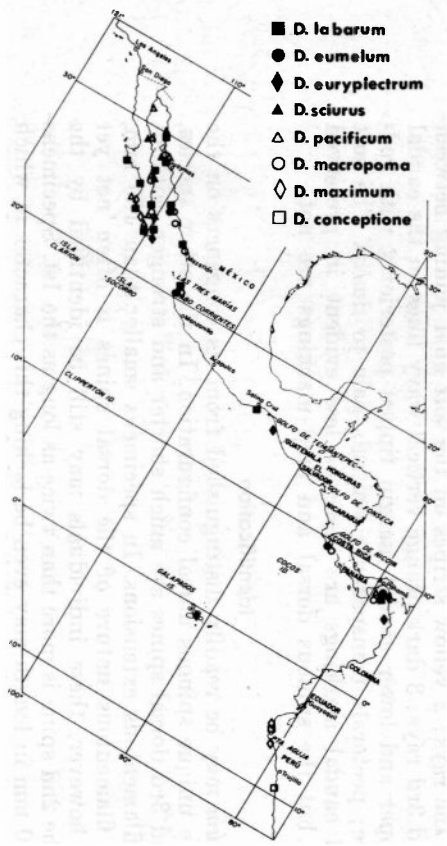

FIGURE 3. Distributian af the Pacific species af *Diplectrum* based on material examined by us with the exception of the Peru and Galapagas Islands recards.

A color transparency of a 138 mm specimen from the Gulf of California shows the following markings: a dull orange line running longitudinally along the membrane of the spinous dorsal, slightly above its base; on the soft dorsal 5 dull orange diagonal bars (sloping backwards), and a very narrow line of brighter orange running just at the tips of the rays; 2 yellow stripes on the soft anal joining between the 2nd and 3rd rays; 3 dark orange vertical wavy lines on the caudal fin; the upper and lower caudal margin tipped posteriorly with reddish orange; pectorals transparent; ventrals pale to dusky. The soft dorsal and caudal markings are more or less evident in preserved specimens, but the spinous dorsal and anal markings are not.

Identification

D. *labarum* may be readily distinguished from its congeners on the basis of the unique spinous dorsal configuration. In the other species, the 2nd and 3rd dorsal spines are much shorter and stronger, without the black filamentous extensions. In specimens smaller than 100 mm, the black, filamentous nature of the dorsal spines is often not yet apparent; however, these individuals may still be identified by the fact that the 2nd spine is more than twice as long as the 1st. Specimens less than 60 mm in length may even be lacking this character in which case they are most easily confused with D. *pacificum,* as the color pattern is similar, and the preopercle is not yet developed to the point of distinction. Cheek scale count is probably the best character to use at this stage (D. *labarum,* 7–8; D. *pacificum,* 9–10) keeping in mind that there may be some overlap.

Derivation of Name

From the Latin *labarum,* the Roman imperial standard, in allusion to the elongated dorsal spines.

Range

Outer coast of Baja California as far north as Bahia Asunción; Gulf of California as far north as Bahia de los Ángeles and Punta Tepoca, extending southward along the Mexican coast to the Gulf of Panama (Fig. 3).

Variation

It was apparent from an inspection of the data that individuals with 8 anal rays occurred more frequently in samples taken between Almejas and Asuncion bays, Baja California. For purposes of analysis the range of D. labarzcm was divided into three areas; (I) outer coast of Baja California north of Almejas Bay, (II) outer coast south of Almejas Bay, and (III) Gulf of California to Panama (Fig. 2).

Although the means for the areas do not differ greatly, the differences between Areas I and II and I and III are significant at the $p \leqq .05$ level when tested by the Student's t-test. The means for Areas II and III could not be separated. In order to avoid'certain assumptions required by the Student's t-test, the median test, a nonparametric procedure (Tate and Clelland 1957), was applied, and the results were the same. The data for Area II are given separately, since the relatively small sample size does not allow us to preclude the possibility of intermediacy. However, lumping Area II with either Areas I or III does

not affect the results of the analysis. This does not indicate that the Area II population is intermediate, only that the available samples arc small in relation to the samples for Areas I and III.

Since this variation is characterized by northern populations having a higher frequency of individuals with 8 anal rays (rather than 7), one might initially attempt to explain it as a phenotypic effect of water temperature. However, temperature data. (Griffiths 1968) indicate surface temperatures in Area II actually differ more from those in III than from those in I. If anal ray counts were being signifiantly affected by water temperatures, one might then expect to find a north-south cline of this character in Area III. This is not the case. It might further bc expected that other counts would be higher in Area I. This is, however, not true for dorsal and pectoral rays, for which a large number of specimens was examined.

Although the hypothesis of environmentally induced variation cannot be discarded, it does not seem consistent with the data at hand. Whether the differences are genetic or not, it is clear that there must be restricted mixing of individuals between Areas I and II in order for this variation to exist. Such restriction is somewhat surprising in a supposedly vagile species such as this which produces large numbers of eggs and pelagic larvae. Our current understanding of the hydrography of the outer Baja coast provides no explanation for any sort of pelagic barrier between Almejas Bay and the Marquis Point vicinity, and as me know very little about the ecology and behavior of *D. labarum,* we must defer further speculation as to the cause of this phenomenon to future studies of this species or other fauna of the area. At present, sufficient specimens to allow similar analysis of other species of *Diplectrum* occurring here are not available.

DISCUSSION

D. *labarum* is the most common *Diplectrum* in SIO trawl collections from the outer coast of Baja California and the Gulf of California, and appears to be fairly common throughout its range. It occurs most frequently in the Gulf with *D. sciurus* in depths of 36–72 m, but has been taken with all the Pacific species except D. *maximum* and *D. conceptione.* Its complete absence from the literature is difficult to explain, particularly in light of its unique appearance and the fact that it occurs as far south as Panama where lack of sampling and descriptive effort has certainly not been a problem. Whether this absence results from a failure of recognition or a real lack of material could only be determined by an extensive examination of earlier collections.

MATERIAL EXAMINED

Holotype—SIO65-160, a 176mm SL individual from Bahia de Banderas, Jalisco, Mexico, taken on 2 June 1965 by otter trawl on a muddy sand bottom at 31–35 m by T. Matsui and C. W. Jerde.

Paratypes—Mexico, Baja California Sur—Bahia Asunción, SIO64-892, 1 (123); Bahia Ballenas, SI064-270, 28 (48–73); SI064-820, 7 (50–75); SI064-889, 145 (19–133); Punta Pequeña, SI064-886, 16 (112–164); SI064-887, 18 (35–123); SI064-888, 193 (39–146); Punta San Juanico, SI069-235, 21 (57–151); Boca Ánimas, SI069-234, 5 (68–128); SI064-883, 28 (119–177); SI064-884, 42 (35–135); Cabo San Lazaro, SI064-880, 5 (38–137); Isla Magdalena, SIO64-881, 47

(33–176); SI064-882, 18 (114–176); Bahia Magdalena, SIO62-112, 2 (44–60); SI064-20, 3 (95–151); Isla Margarita, SIO64-877, 48 (48–138); SI064-879, 2 (124–128); Bahia Almejas, SIO64-876, 44 (24–67); Punta del Marquis, SIO62-701, 5 (152–172); SI062-702, 11 (60–66); SIO62-708, 7 (18-48); SIO62-709, 36 (59–192); SIO62-867, 1 (59); SIO64-871, 1 (178); Vicinity Todos Santos, SIO64-866, 6 (54–63); SIO64-868, 1 (162); Mexico, Gulf of California—Punta Tepoca, SIO 60-120, 6 (106–124); Bahia Los Angeles, SIO62-236, 106 (65–185); SI061-282, 3 (93–212); Cerro Colorado, SI070-70, 7 (73–108); Bahia Santa Inéz, SI065-304, 63 (72–174); SI065-305, 2 (100–190); SIO68-71, 57 (50–156); SIO68-72, 21 (58–161); SIO68-73, 18 (68-126); SIO 68-74, 14 (46–158); SI068-75, 21 (57–159); Punta San Telmo, SIO65-285, 31 (14–88); Topolobampo, UCLA56-118, 1 (63); Isla Espiritu Santo, SIO68-66, 7 (62–75); SI068-67, 18 (59-110); SI070-62, 1 (52); Bahia La Paz, SI065-257, 133 (75–150); SI065-350, 2 (98-103); Punta Gorda, SI065-250, 1 (139); Mexico, Sinaloa-Tres Islas, SI066-520, 1 (54); El Dorado, SI059-262, 1 (133); Boca Tecapbn, SI060-90, 10 (72–122); SI062-75, 70 (43–74); Mexico, Nayarit—off Laguna de Agua Brava, SIO62-76, 20 (63–139); Islas Las Tres Marias, SIO60-89, 4 (91–135); San Blas, SI059-270, 4 (96–123); Mexico, Jalisco—Bahia Banderas, SIO62-51, 2 (89–117); SIO65-160 taken with the holotype, 9 (88–178); Mexico Oaxaca—Golfo de Tehuantepec, SI063-503, 23 (40–118); SIO63-504, 17 (29–110); SIO63-514, 2 (69–132); SIO63-518, 1 (40); SIO63-524, 10 (34–76); SIO63-526, 10 (38–58); SI065-164, 124 (38–77); Panama, SIO70-218, 1 (65); SI071-249, 4 (104–130); SIO 71-57, 34 (72–162).

DIPLECTRUM *EUMELUM* N. SP.

Diplectrum macropoma (not of Gunther), Jordan and Eigenmann, Bull. U.S. Fish Comm., VIII, 1888 (1890), 397; Jordan and Evermann, Bull. U.S. Nat. Mus., LXVII, 1896, 1205; Meek and Hildebrand, Field Mus. Nat. Hist., Publ. 226, zool. ser., XV, pt. 2, 1925, 475. Orces, G. Ciencia y Naturaleza, 2 (2), 1959, 81.

Description

D.X, 12; A.III, 7; pectoral 16–17 (17.0); gill-rakers 7–8 + 12–13 (7.3 + 12.7); pseudobranch filaments 27–37 (32.1); lateral line scales 47–50 (48.5); scale rows above lateral line 51–60 (56.1); oblique scale rows on cheek 6–7 (6.0). Measurements of body parts are given in Table III. Meristic data are in Tables I and II.

Body moderately deep, back slightly elevated, caudal peduncle fairly shallow; anterior dorsal profile straight or slightly concave from base of spinous dorsal to interorbital, gently convex from this point to tip of snout which is broad and blunt; mouth quite oblique; maxillary extending well beyond pupil to rear margin of orbit in some specimens. Teeth in the jaws in villiform bands, some of the outer ones enlarged in the upper jaw, both inner and outer teeth enlarged in the lower jaw anteriorly, with a single row of enlarged teeth posteriorly. Palatine teeth in narrow villiform bands. Vomerine teeth in a triangular patch, villiform with a few enlarged at the two posterior apices. Gill-rakers at angle of first arch less than $\frac{1}{2}$ length of eye; longest filaments about $\frac{2}{3}$ length of eye. Spinous projection of preopercle deep; posterior mar-

gin straight, inclined backward forming an obtuse angle with the lower margin, resulting in a notably produced lower angle; lower limb of preopercle smooth, continuous in profile with lower shelf of spinous projection; upper limb of preopercle finely serrate forming a broad concavity where it joins upper margin; a single cluster of large diverging spines uniformly decreasing in strength away from center, longest at the apex of lower angle. Spinous dorsal outline fairly even with no greatly elongated spines or pronounced notch; 2nd spine less than 1½ times as long as 1st; 4th and 5th spines longest, subequal; 9th and 10th spines subequal, about ⅔ as long as 1st dorsal soft ray. Posterior dorsal soft-rays (except for 12th) equal to or longer than anterior rays. Anal with 3 small graduated spines, the 2nd only slightly if any stronger than the 3rd; soft margin rounded anteriorly, then with a posterior slant to an acutely pointed tip; 6th ray the longest. Pectoral softly pointed, with oblique upper and lower posterior margins, middle rays the longest, reaching well beyond tip of ventral, often to a point above anal origin. Caudal barely lunate with the upper rays notably produced.

Color in isopropanol light brown above with numerous vague traces of dark cross bars, pale yellow below. Black spot on base of caudal rays large; inner membrane of opercle with a large black area, visible externally as a dark spot above spinous projection of preopercle. Membrane behind each dorsal spine tipped with a black speck; soft dorsal dusky. mottled with pale spots; middle rays of caudal tipped with black. Three pale spots on preorbital, a pale stripe extending from below eye across cheek and onto spinous projection of preopercle.

A color transparency of a specimen from Costa Rica shows the following: preorbital spots and cheek stripe bright orange; soft dorsal dull orange with colorless spots; dark area on opercle metallic blue; caudal with vertical wavy lines or orange spots; lower side with 4 or 5 faint orange longitudinal lines about 1 scale row apart.

Identification

Due to the similarity in general body shape, preopercular configuration, and cheek scale rows, D. *cumelum* is quite easily confused with D. *macropoma*, and this confusion has been widespread in the literature. D. *cumelum* has a larger head and much shallower caudal peduncle and may be most easily distinguished with any or all of the following characters: preorbital spots and cheek stripe; 9th and 10th dorsal spines subequal; profile of snout convex, not straight; posterior soft dorsal and anal rays equal to or longer than anterior ones; soft dorsal spotted.

Derivation of Name

From the Greek *eu*, beautiful and *melon*, cheek.

Range

From Topolobampo, Sinaloa, Mexico to Panama (Fig. 3).

Discussion

In 1948, Hildebrand described a new species, D. *mexicanum* based on a 125 mm specimen taken in the Gulf of California in 1889. A close examination of this description and the accompanying illustration shows this specimen to be specifically identical with *Centropristis macropoma*

Gunther 1864. A study of the intervening literature and specimens of *D.* nzacropoma and ***D. cumelum*** indicates the source of the confusion. D. ***macropoma*** and *D. cumelum* are very similar in appearance, but as noted above there arc several characters which readily distinguish them. In 1888, Jordan and Eigenmann apparently mistook specimens of *cumelum* for macroponza and listed as key characters for ***macropoma***, 3 characters (pale spots on snout, pale stripe on cheek, and spotted soft dorsal) which are in fact diagnostic for ***cumelum***. This concept of the species was maintained by Jordan and Evermann (1886), and in 1925, Meek and Hildebrand described as ***macropoma*** what again must have been specimens of ***cumelum***, adding another ***cumelum*** character (the posterior rays of soft dorsal the longest). This, then explains how Hildebrand, upon discovering a specimen of macroponza, of Günther, believed it to be a new species and described it as ***mexicanum***.

Material Examined

Holotype—SIO65-160, a 129 mm SL individual from Bahía de Banderas, Jalisco, Mexico, taken on 2 June 1965 by otter trawl on a muddy sand bottom at 31-35 m by T. Matsui and C. W. Jerde.

Paratypes — Mexico, Sinaloa, Gulf of California — Topolobampo, UCLA 56–118, 1 (172); Mexico, Jalisco-Bahía Banderas, SI062-51, 7 (109–202); SI065-160 taken with the holotype, 8 (113–132); Costa Rica, UCLA63-142, 12 (97–110); UCLA63-148, 54 (71–232); Panama, SIO70-141, 2 (86–105); SIO70-218, 24 (98–145); SIO71-57, 8 (82–229); SI071-249, 2 (140–149).

DIPLECTRUM MAXIMUM HILDEBRAND

Diplectrum conceptione Evermann and Radcliffe (in part, not of Cuvier and Valenciennes), Bull. U.S. Nat. Mus., 95, 1917, p. 75, pl. 7, fig. 2.

Diplectrum maximum Hildebrand, Bull. U.S. Nat. Mus., 189, 1946, p. 185, fig. 42.

D.X, I2; A.III, 7; pectoral 17; gill-rakers 6–7 + 13–14 (6.8–13.5); pseudobranch filaments 25–33 (29); lateral line scales 48–49 (48.5); scale rows above lateral line 60–70 (64.5); oblique scale rows on cheek 9. Measurements of body parts are given in Table III. Meristic data are in Tables I and II.

Body elongate, head small; caudal peduncle compressed and quite long; anterior dorsal profile slightly concave from base of spinous dorsal to interorbital, straight from this point to tip of snout which is narrow and somewhat pointed; mouth moderately oblique; lower jaw strongly projecting, its tip just entering dorsal outline of head; maxillary extending to a point directly below rear margin of pupil. Teeth as in other species. Gill-rakers at angle of first arch approximately $\frac{1}{2}$ length of eye; longest filaments less than $\frac{1}{2}$ length of eye. Spinous projection of preopercle shallow, well-rounded; no well defined upper and lower horizontal margins, the projection continuous (no sharp change in direction) with upper and lower limbs of preopercle; a single cluster of slightly diverging spines, decreasing in strength very little away from the center, longest at the center. Spinous dorsal outline moderate without a pronounced notch; the 4th spine the longest; 9th and 10th spines subequal about $\frac{2}{3}$ as long as 1st dorsal soft ray. Soft dorsal

outline with a distinct posterior slant, the anterior rays the longest. Anal with 3 spines, the 2nd stronger than and equal to or longer than the 3rd; soft margin convexly rounded, the 2nd ray the longest, posterior tip not acutely pointed. Pectoral obliquely rounded, the 4th through 7th rays the longest, reaching beyond tip of ventral, but not to anal origin. Caudal nearly truncate, the upper rays slightly longer than the lower.

Color in isopropanol: lowermost sides and belly pale; back and upper sides dark brown with 3 pale horizontal stripes; one, from just back of occiput to just below middle of soft dorsal; a second, from just behind eye to upper part of caudal peduncle, ending in a paler blotch on base of caudal rays; a third, from just above pectoral base to lower part of caudal peduncle; the upper 2 lines continuous and slightly darker than the third which is broken, consisting of a series of 9–10 very pale blotches interrupted by the darker background; a median pale line on the nape from occiput to base of spinous dorsal. Vague traces of small dark spots on snout and nape. Dark spot on base of caudal rays small (less than $\frac{1}{3}$ depth of caudal at this point) and only slightly if any darker than background color of sides; caudal dusky, the upper and lower rays darker toward their bases. Inner membrane of opercle with a large black area visible externally as a silver spot bordered posteriorly and above by black. A prominent jet black region extending across the membrane between the first four or five dorsal spines, narrowing posteriorly to a dusky stripe which continues the entire length of the dorsal fin. Pectoral and anal pale, translucent, ventral slightly dusky.

Discussion

The above description is based on 4 small specimens (67–92 mm) collected in 1962 and 1964 on the outer coast of Baja California at Bahia Magdalena and Punta del Marquis in shallow water (14 fathoms). The presence of these small individuals here leads us to conclude that there exists a viable, reproducing population of D. *maximum* in this area, as the transport of larvae or juveniles from the only previously noted locality, northern Peru, over 2,000 miles to the south, is unlikely.

These individuals possess at least one very prominent character, the large, jet black region on the anterior portion of the spinous dorsal, which has not been previously described for *maximum*. This may be a juvenile character, and specimens as small as these have never been described in detail. However, it could represent a real genetic difference between the South American and Baja California populations. The true relationship of these populations cannot be established until a larger number of specimens representing n wider size range from both areas becomes available.

Range

Known only from Bahia Magdalena and Punta del Marquis, Baja California, and Paita and Lobos de Tiera, Peru (Fig. 3).

Material Examined

Mexico, Baja California Sur — Bahia Magdalena, SI062-106, 1 (68); SIO62-726, 2 (44–50); SIO64-63, 1 (92); Punta del Marquis, SIO62-706, 2 (74).

TABLE 1

Meristic Data for Seven Pacific Species of *Diplectrum*

	Dorsal Soft Rays			Anal Soft Rays				Lateral Line Scales					Pectoral Rays			
	11	12	13	6	7	8	9	47	48	49	50	51	15	16	17	18
D. labarum	5	263*	6	6†	1,153*	96	--	11	36*	3	--	--	2	112	159*	3
D. sciurus	--	21	--	--	3	118	3	--	4	15	1	1	--	--	19	2
D. maximum	--	4	--	--	4	--	--	--	2	2	--	--	--	--	4	--
D. euryplectrum	1	33	--	--	--	34	--	--	15	5	--	--	--	--	9	25
D. pacificum	2	72	2	--	75	1	--	--	7	16	--	--	--	1	22	--
D. macropoma	--	39	--	--	39	--	--	7	25	7	--	--	--	1	36	2
D. eumelum	--	39*	--	--	39*	--	--	6	11	20*	2	--	--	1	38*	--

Gill Rakers on Lower First Arch

	11	12	13	14	15	16	17	23	24	25	26	27	28	--	--	--
D. labarum	--	--	10*	29	10	--	--	--	--	--	--	--	--	--	--	--
D. sciurus	--	--	--	--	--	--	--	1	3	8	7	1	1	--	--	--
D. maximum	--	1	1	2	--	--	--	--	--	--	--	--	--	--	--	--
D. euryplectrum	--	--	--	--	3	14	3	--	--	--	--	--	--	--	--	--
D. pacificum	--	3	11	9	--	--	--	--	--	--	--	--	--	--	--	--
D. macropoma	1	12	25	--	--	--	--	--	--	--	--	--	--	--	--	--
D. eumelum	--	13*	26	--	--	--	--	--	--	--	--	--	--	--	--	--

* Count of Holotype
† Geographically variable.see species account.

TABLE 3

Comparative Measurements of Seven Pacific Species of *Diplectrum* in Thousandths of Standard Length

	Diplectrum labarum				*D. eumelum*				*D. macropoma*			*D. maximum*			*D. sciurus*			*D. pacificum*			*D. euryplectrum*		
	R	X	N	H	R	X	N	H	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N
Head length	361–424	387	16	404	373–409	388	29	388	354–387	370	25	350–364	357	4	334–385	352	15	346–375	361	15	404–455	438	10
Eye length	68– 97	86	16	81	74– 97	84	29	81	74– 90	83	25	83– 94	90	4	78– 93	84	15	59– 91	79	15	94–106	97	10
Snout length	77–108	89	16	93	81–100	89	29	91	75– 94	84	25	73– 79	77	4	75– 82	78	15	74– 95	84	15	77–107	94	10
Suborbital width	3 6 49	41	16	48	36– 54	45	29	47	36– 44	40	25	29– 37	33	4	21– 32	27	15	34– 54	44	15	35– 51	46	10
Interorbital width	70– 81	76	16	73	64– 80	11	29	76	59– 73	64	25	69– 75	71	4	70– 86	77	15	59– 76	67	15	78– 92	85	10
Maxillary length	159–180	167	16	178	162–179	170	29	172	151–164	157	25	141–155	148	4	130–140	135	15	186–226	205	15	174–200	187	10
Greatest body drpth	272–343	305	16	318	234–328	292	29	309	287–346	316	25	238–266	251	4	258–306	283	15	247–315	279	15	272–313	290	10
Caudal peduncle depth	113–128	117	16	119	115–133	125	29	130	131–146	138	25	113–122	118	4	94–115	104	15	116–135	126	15	95–107	102	10
Caudal peduncle length	194–238	222	16	220	203–244	220	29	220	202–243	224	25	242–276	255	4	201–245	219	15	225–269	245	15	189–216	205	10
Pectoral length	248–276	263	16	250	261–299	277	29	278	254–295	278	25	223–239	234	4	236–270	128	15	233–266	249	15	247–271	259	10
Pelvic length	193–262	216	16	217	198–228	212	29	203	178–223	206	25	185–218	205	4	204–229	251	15	186–226	205	15	202–235	218	10
Pelvic spine length	102–148	122	16	113	87–143	126	28	117	111–140	126	25	110–117	112	4	102–129	117	15	76–117	103	15	88–130	103	10
Longest dorsal spine	159–225	194	10	225	130–163	146	25	147	141–170	155	20	116–157	151	4	137–157	146	14	119–152	142	14	135–164	148	10
Shortest dorsal spine	78–107	95	16	91	99–121	108	28	100	80–101	90	23	96–106	101	4	95–112	104	15	88–106	96	15	98–121	108	10
Second anal spine	56– 88	71	16	67	53– 76	65	29	67	53– 69	62	25	98–109	101	4	53– 63	57	15	49– 76	62	15	53– 82	66	10
Third anal spine	78–115	94	16	89	74–107	95	27	91	80–115	95	23	92–100	96	4	77– 90	84	15	69– 93	81	14	75– 95	86	10
First dorsal ray	115–151	140	16	129	140–185	154	29	149	146–181	160	24	150–163	157	4	138–150	144	15	129–163	140	15	131–162	140	10
Longest anal ray	129–156	141	16	136	137–163	150	29	150	134–181	153	25	144–165	153	4	122–136	128	15	120–154	137	15	129–149	138	10
Standard lengths	82–211	--	--	176	99–210	--	--	129	78–144	--	--	68– 92	--	--	96–134	--	--	77–226	--	--	83–137	--	--

TABLE 2

Cheek Scale Counts for Seven Pacific Species of *Diplectrum*

	Rows					
	6	7	8	9	10	11
D. labarum	--	29*	16	--	--	--
D. sciurus	--	4	13	4	--	--
D. maximum	--	--	4	--	--	--
D. euryplectrum	--	--	17	3	--	--
D. pacificum	--	--	--	13	8	2
D. macropoma	39	--	--	--	--	--
D. eumelum	37*	2	--	--	--	--

* Count of Holotype

While this paper was in press an additional species, *Diplectrum rostrum* (Bortone, Copeia *1974* (1): 61–65) was described from the eastern Pacific. *D. rostrum* may be distinguished from the species treated by us by the following combination of characters: Gill rakers 22–25, anal soft-rays usually 7, two light bands across snout below eye, black mark on operculum present. In overall appearance, *D. rostrum* is most similar to D. *pacificum*.

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