
First occurrence of blackspot wrasse, *Decodon melasma* Gomon 1974 (Pisces: Labridae), in California

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ABSTRACT - Although wrasses (family Labridae) are the second largest family of marine fishes, only three species have been reported from California: rock wrasse, *Halichoeres semicinctus*; señorita, *Oxyjulis californica*; and California sheephead, *Semicossyphus pulcher*. This paper reports the first occurrences of a fourth species, the blackspot wrasse, *Decodon melasma* Gomon 1974, in California. Following the 1997-1998 El Niño, three specimens were collected in southern California trawl surveys; two were collected in June 1998 near Dana Point and Laguna Beach at depths of 60 m and one in April 1999 off San Diego at a depth of 100 m. Although blackspot wrasse reaches a length of 200 mm standard length (SL), all specimens collected in California were small juveniles (51-57 mm SL). The species was previously found in the Gulf of California but not on the Pacific Coast of the Baja California Peninsula. The Laguna Beach record represents a range extension of 1,500 km from Cabo San Lucas, Baja California Sur, Mexico.

Wrasses (family Labridae) are epibenthic, demersal, and water-column fishes found in coastal warm-temperate and tropical waters, usually near rocky and coral reefs of the Atlantic, Indian, and Pacific oceans. Although this is the second largest family of marine fishes (Nelson 1994), only three species have been reported from California: rock wrasse, *Halichoeres semicinctus*; señorita, *Oxyjulis californica*; and California sheephead, *Semicossyphus pulcher* (Hubbs *et al.* 1979, Eschmeyer *et al.* 1983). This article reports the first occurrences of a fourth species of wrasse in California.

Following the 1997-1998 El Niño, three specimens of a small labrid were collected in the Southern California Bight (SCB) by 7.6-m wide (headrope) semiballoon otter trawls with 1.2-cm cod-end mesh. The first specimen, 51 mm standard length (SL), was collected on June 2, 1998, off Dana Point, California (latitude 33°27.80' N and longitude 117°44.85' W) at

a depth of 60 m. The second specimen (also 51 mm SL) was collected on June 25, 1998, at a depth of 60 m off Laguna Beach, California (latitude 33°30.07' N and longitude 117°49.40' W). These fish were collected during a cooperative trawl survey between the Ocean Institute (Orange County Marine Institute at that time) and the Southern California Coastal Water Research Project (SCCWRP). Both specimens were identified at that time by M.J. Allen as the blackspot wrasse, *Decodon melasma* Gomon 1974. A third specimen (57 mm SL) was collected on April 26, 1999, off San Diego, California (latitude 32°37.54' N and longitude 117°19.37' W) at a depth of 100 m. It was captured at one of the City of San Diego, Metropolitan Wastewater Department, Environmental Monitoring and Technical Services' long-term, fixed-location trawl monitoring stations. City of San Diego marine biologists brought this specimen to the attention of R.H. Rosenblatt (Scripps Institution of Oceanography; SIO), who identified it as *Decodon melasma*. All three specimens have been catalogued in the SIO Marine Vertebrates Collection: SIO 99-100 (San Diego); SIO 00-77 (Dana Point); and SIO 00-78 (Laguna Beach).

The capture of blackspot wrasse at Laguna Beach, California represents a range extension of more than 1,500 km north of its northernmost record (Gomon 1974). The three specimens are the first records of the species outside of the Gulf of California north of Cabo San Lucas (latitude 22°45' N). Based on the new specimens, the current geographic range of black spot wrasse is now from Laguna Beach, California; and the northern Gulf of California to Peru, including Cocos Islands (Gomon 1974, Allen and Robertson 1994). Its range extends along the warm-temperate San Diego and Cortez Provinces and the tropical Mexican and Panamic Provinces of Briggs (1974). Blackspot wrasse occurs on flat sandy to soft bottoms, often with some rocky rubble or

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patch reefs at depths of 40 to 160 m (Gomon 1974), and as such, is characteristic of the middle and outer shelf zones of Allen and Smith (1988). It occurs in deeper water and on a different habitat (soft-bottom) than the other California species, which are inner shelf (<30 m) rocky bottom and kelp bed species (Feder *et al.* 1974).

The three California specimens had similar meristics (Table 1) and color patterns. They had five dusky bars on the back (about two to three scales in width), extending ventrally from the dorsal fin, across the lateral line, and to the midlateral body, fading ventrally, with a dark spot on each side of the dorsal caudal peduncle (Figure 1). The color of the body was similar to that shown in Allen and Robertson (1994). The body was pink, fading to white on the abdomen, on the pectoral fin base, and under the pelvic fins. The nape, top of head, and snout were dusky, with white on the head below the eye, and on the lower jaw. The head posterior to the eye was pink extending from there to the dorsal base of the pectoral fin. The upper lip was yellow posteriorly, around the anterior and ventral rim of the eye was yellow, and a yellow line extended posteroventrally from the eye onto the operculum. There was a yellow spot on the posterior operculum dorsal to this line, and the preopercular area was yellow. The spinous dorsal fin was dusky on the dorsal edge, with a black spot on dorsal spines 11 to 13. The anal fin was yellowish with a white edge, the caudal fin and pelvic fins white, and the pectoral fin pink. The eyes had black edges dorsally, fading to yellow, then red around most of the pupil.

The blackspot wrasse has a relatively elongate compressed body (depth 20-32% of standard length, increasing with size) (Figures 1 and 2) (Gomon 1974, 1995). Adults (not yet observed in California) have relatively blunt heads and slightly subterminal mouths (Figure 2). The body is red dorsally and white below, with head red dorsally, white ventrally, and with three yellow stripes below the eye. Meristic elements have the following ranges (from Gomon 1974, Watson 1996, and new California specimens): dorsal fin (X-XII, 9-10); anal fin (III, 9-10); pectoral fin (14-18); pelvic fins (I,5); branchiostegal rays (6); lateral line scales and pores (28-29); and gill rakers (5-7+9-12=14-19). It has caniniform teeth, with two pairs at the anterior of each jaw enlarged (Gomon 1974, Allen and Robertson 1994).

Characteristics that distinguish blackspot wrasse from other California labrids are the following: (1) scaly head with lower limb of preopercle scaly; (2)

large scales (28-29 in lateral line); (3) 10-12 dorsal spines; (4) adult coloration — red with a black spot dorsolateral on body and yellow eye stripes; and (5) juvenile coloration — pinkish red with up to 6 dusky bars above the lateral line, yellow eye stripes, and a dark spot on the spinous dorsal fin (Table 2). Blackspot wrasse is more similar in characteristics to California sheephead than to rock wrasse or señorita. Maximum size of adult blackspot wrasse is 23 cm in length (Gomon 1995).

Blackspot wrasse first occurred in California during the 1997-1998 El Niño period, as did several other species (Lea and Rosenblatt 2000). It is likely that its larvae came into the Southern California Bight with the warm water mass from the south. It is not known if these individuals are the result of long-distance dispersal from a distant population (1,500 km away) or whether they dispersed from populations along the outer coast of Baja California, which is less well sampled. Many shallow-living wrasses transform at a small size (Watson 1996) and may be planktonic as eggs and larvae for about a month. Blackspot wrasse (a deeper living species) may transform at a larger size (as do many deeper living species of other families; Moser 1996). If so, they may spend more time in the plankton (perhaps to 3 months), and travel further in the current before settling. Assuming current velocities of 2 to 10 cm/sec without eddies (based on extreme values for the California Current; Hickey 1993), eggs and larvae could travel about 50-250 km in one month or 150-800 km in three months in a north-flowing current. Given that both of these distances fall short of the 1,500 km distance from Cabo San Lucas, it is likely that the individuals captured in June 1998 in California came from spawning populations off the coast of northern Baja California. However, the individual caught in January 1999 (after the El Niño had subsided) may have been spawned off either southern California or northern Baja California. The generally tropical distribution of the species and the warm-temperate or cooler environment of the outer coast of Baja California suggests that the species may have expanded northward along the Baja California coast during the ocean warming of the past two decades (Smith 1995).

Thus, it is likely that the blackspot wrasse had spawning individuals in or near southern California and was spawning during this period. The two fish captured in June 1998 (both 51 mm) were probably spawned in spring of 1998, while the one captured in January 1999 (57 mm) was probably spawned in fall or early winter of 1998. Blackspot wrasse may

TABLE 1. Location and meristic data for blackspot wrasse (*Decodon melasma*) specimens collected in southern California in 1998 and 1999.

Category	Specimens		
	SIO 00-77	SIO 00-78	SIO 99-100
Collection Information			
Date	2-Jun-98	25-Jun-98	26-Apr-99
Location	Dana Point, CA	Laguna Beach, CA	San Diego, CA
Latitude N	33°27.80'	33°30.07'	32°37.54'
Longitude W	117°44.85'	117°49.40'	117°19.37'
Depth (m)	60	60	100
Standard Length (mm)	51	51	57
Meristic Counts			
Dorsal Fin Elements	X,10	XII,9	XI,10
Anal Fin Elements	III,10	III,10	III,10
Pectoral Fin Rays	17	17	16
Pelvic Fin Elements	I,5	I,5	I,5
Lateral line pores	29	29	Scales missing
Gill Rakers	5+9=14	5+9=14	5+9=14

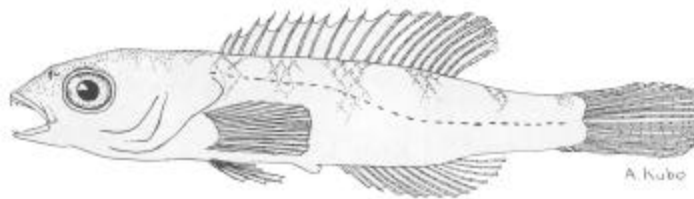


FIGURE 1. Juvenile (51 mm standard length) blackspot wrasse (*Decodon melasma*) collected off Laguna Beach, California, at depth of 60 m on June 25, 1998; SIO 00-78 (drawing by Atsuhiko Kubo).

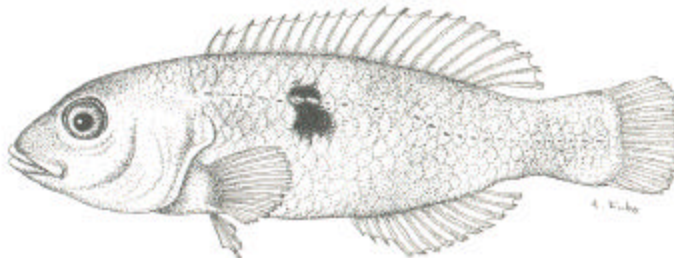


FIGURE 2. Adult (140 mm standard length) blackspot wrasse (*Decodon melasma*) (drawing by Atsuhiko Kubo, based on photograph in Gomon 1974).

TABLE 2. A key to species and life stages of wrasses, family Labridae, of California. Based on information in Jordan and Evermann (1898), Miller and Lea (1972), Gomon (1974), Eschmeyer *et al.* (1983), Allen and Robertson (1994), Nelson (1994), Gomon (1995), Humann (1996), and Watson (1996).

Characteristics of California Labridae: Mouth protractile; jaw teeth separate, projecting outward; dorsal fin with 8-14 spines and 9-13 soft rays; anal fin with 3 spines and 9-13 soft rays; caudal fin with 7+7 principal caudal rays; pectoral rays 12-19 soft rays; pelvic fins, 1 spine and 5 soft rays; 6 branchiostegal rays; gill rakers, 5-8 (upper limb) + 9-16 (lower limb) (note, gill raker counts for California sheephead (*Semicossyphus pulcher*) are 6-7+10-11=17-19; R. N. Lea, Calif. Dep. Fish Game, pers. comm.); lateral line scales, 26 to 60; lateral line continuous.

- 1a. Dorsal spines 10-12; sides of head more or less scaly; pink or red coloration on body _____ 2
- 1b. Dorsal spines 8 to 10; head mostly naked; body color yellow to brown (sometimes green) _____ 3
- 2a. Scales large (28 to 29 in lateral line); lower limb of preopercle scaly; one or more dark blotches dorsolaterally on sides; yellow eye stripes _____ blackspot wrasse, *Decodon melasma*
 - a. Single dark spot dorsolaterally on side (Figure 2); body depth 25-30%; color red; > 13 cm SL _____ adult
 - b. Five to six dark bars on back (one on dorsal caudal peduncle) (Figure 1); body depth about 20-25% of standard length; color pink; <13 cm SL _____ juvenile
- 2b. Scales small (about 60 in lateral line); lower limb of preopercle naked _____
 - _____ California sheephead, *Semicossyphus pulcher*
 - a. Head and tail black, midbody red, chin white; body deep, compressed; > 30 cm SL _____ terminal phase (male)
 - b. Fins without spots; body deep, compressed, pinkish with white chin; length 15 to 30 cm SL _____ initial phase (female)
 - c. Single white stripe on side; black spots on anterior and posterior dorsal fin, dorsolateral caudal base, anal fin, and pelvic fins; body deep, reddish; < 15 cm SL _____ juvenile
- 3a. Posterior canines well developed on both sides; dorsal spines pungent _____
 - _____ rock wrasse, *Halichoeres semicinctus*
 - a. Body with black bar behind pectoral fin, back unmarked or with multiple bars; > 30 cm SL _____ terminal phase (male)
 - b. Black flecks generally present on body; length 12 to 30 cm SL _____ initial phase (female)
 - c. Body with two white stripes on side of body, and two black spots on dorsal fin; body elongate compressed; yellow, orange, or green; < 12 cm SL _____ juvenile
- 3b. Posterior canines rudimentary; dorsal spines slender, very flexible _____ señorita, *Oxyjulis californica*
 - a. Body with broad black spot on the caudal fin at base of fin; > 2.5 cm SL _____ juvenile and adult
 - b. Body with a black spot on posterior dorsal and anal fins; length less 2.5 cm _____ small juvenile

spawn from spring through fall, as do the other California labrids (Watson 1996). Adults of the blackspot wrasse appear to be synchronous hermaphrodites in all but very large individuals (Gomon 1974). Individuals with two well-developed ovaries and a small testis on the left side occur at least to 150 mm SL; individuals with just testicular tissue occur from 138 to 200 mm SL (Gomon 1974).

Little is known about the ecology or behavior of this species. However, its general body morphology as an adult (i.e., elongate compressed, slightly inferior mouth, caniniform teeth) and behavior of morphologically similar labrids (Hobson 1968) suggest that it may be a solitary species that cruises over the bottom while foraging on small benthic crustaceans. Blackspot wrasse is a geminate species of the red hogfish, *Decodon puellaris*, of the Atlantic, which occupies similar depths (6-275 m) and habitat in the Atlantic and Caribbean between South Carolina and northeastern Brazil, and which grows to a similar size (15 cm) (Gomon 1974, Robins *et al.* 1986).

The common name 'blackspot wrasse' was suggested by its scientific name *melasma* (black spot) in reference to the black dorsolateral spot on each side of the body (Gomon 1974). This name has been used in Allen and Robertson (1994), Gomon (1995), and Escobar-Fernandez and Siri (1997). Bussing and Lopez (1994) used 'blotched hogfish.' As this species has not yet been included in the American Fisheries Society Checklist of Common and Scientific Names of Fishes of the United States and Canada (see Robins *et al.* 1991), we recommend the common name "blackspot wrasse" as the English common name for this species. In Spanish, this species has been called "lorito marcado" (Bussing and Lopez 1994) and "señorita de mancha negra" (Gomon 1995, Escobar-Fernandez and Siri 1997).

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