

## Field Identification of *Paralithodes* in the Southern California Bight

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Two species of the lithodid crab genus *Paralithodes* occur in southern California coastal waters, *P. californiensis* (Benedict 1894) and *P. rathbuni* (Benedict 1894). *Paralithodes* have been taken in POTW monitoring surveys in upper and mid slope depths (100 - 300 meters) becoming more common with greater depth. These crabs are distinctively spiny, the carapace bearing numerous very long spines, and share a similar orange color. As noted by Benedict (*vide* Schmitt 1921) both are very similar in appearance, but separable by the relative length of the spines and the structure of the rostrum. The rostrum provides the clearest means of differentiation and is illustrated here for both species along with Benedict's differential diagnosis from the original description of *P. californiensis*

“The most marked difference between the two species is in the rostrum; in ... *L. [P.] californiensis* the rostrum is bifid, while in *L. [P.] rathbuni* it is bifurcate, the tip being composed of two well developed divergent horns.” (Benedict 1894 *vide* Schmitt 1921)

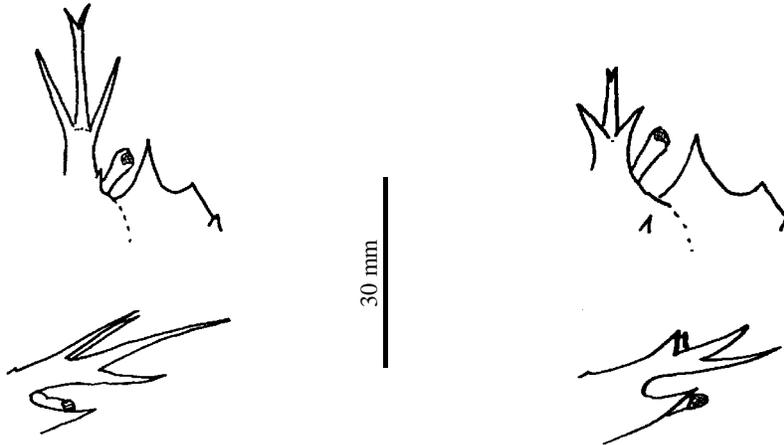


Fig 1. *Paralithodes rathbuni* (Benedict 1894)  
A: rostrum dorsal view. B: rostrum lateral view

Fig 2. *Paralithodes californiensis* (Benedict 1894)  
A: rostrum dorsal view. B: rostrum lateral view

Comments: 85 specimens have been taken in trawls on the Palos Verdes slope by CSDLAC since 1980 with *P. californiensis* the more abundant (52:33). Most have been collected on the mid slope (~300 meters) but both species have been taken on the upper slope (100-150 meters) as well. Typical specimens are adults, 70 to 100 mm carapace width. Small individuals (< 20 mm carapace width) of *P. rathbuni* already bear the distinctive bifurcate rostrum of the largest specimens. Similarly

small-sized *P. californiensis* have not been collected off Palos Verdes. While the form of the rostrum is distinctive in these crabs, some variability has been observed. In *P. californiensis* the rostrum is occasionally entire or only very weakly bifid. In *P. rathbuni* the divergent terminal horns vary in their relative length and angle of divergence. In both species the length of the sub-rostral spine relative to the rostral spine varies, while retaining the pattern of near-equality in length for *P. californiensis* and dominance of the rostral spine in *P. rathbuni*.

Both species are hosts to the rhizocephalan parasite *Briarosaccus callosus*. Approximately 40+ % of the *Paralithodes* collected off Palos Verdes are afflicted. In parasitized individuals the large, sack-like externa of the barnacle (typically 1 or 2 per crab) is evident protruding from the ventrum, protected by the abdominal somites. The externa, in turn, is host to an undescribed, specialized commensal pleustid amphipod (Cadien & Martin in press) that can be seen moving on and about the externa.