

**California MLPA Master Plan Science Advisory Team  
Proposed Level of Protection for Ghost Shrimp in the  
MLPA South Coast Study Region  
Revised June 16, 2009**

**Proposed New Ghost Shrimp (*Neotrypaea californiensis*) Level of Protection**

Does proposed activity alter habitat directly?	Yes
Is habitat alteration likely to change community structure?	Yes
Proposed LOP:	<b>Low</b>

**Ghost Shrimp (all methods of hand harvest)**

*Direct impacts* – Take of ghost shrimp (*Neotrypaea californiensis*) directly alters habitat by removing these important habitat engineers from the ecosystem.

Ghost shrimp are a relatively sedentary species that create branched burrows in mudflats in estuaries and bays. They are important bioturbators and their burrows create habitat for a wide variety of species, including pea crabs, gobies, and burrowing clams. Additionally, they are a significant portion of the biomass in some mudflats and are important prey for some fishes and birds.

The local abundance of ghost shrimp is likely to be altered by take relative to a state marine reserve (SMR) for two reasons. First, adults have limited home ranges, so local abundance is sensitive to the removal of individuals. Second, the trampling associated with collecting ghost shrimp may amplify the decrease in shrimp abundance. For example, Wynberg and Branch (1994) found a 70% population decline of a similar ghost shrimp species when only 10% of the population was actually removed. They attributed the difference to smothering in collapsed burrows caused by trampling on the surface.

*Indirect impacts* – Since ghost shrimp are important habitat engineers and modify their environment to the benefit of other species, their removal could limit the available habitat for a suite of associated species, thereby altering mudflat community structure. Additionally, the trampling associated with ghost shrimp collection could reduce other macrofauna populations (Wynberg and Branch 1997) and could kill non-target infaunal species.

*Proposed Level of Protection:* **Low**

**References**

- Wynberg, R.P. and G.M. Branch. 1994. Disturbance associated with bait collection for sandprawns (*Callinassa kraussi*) and mudprawns (*Upogebia africana*): long-term effects on the biota of intertidal sandflats. J. Mar. Res. 52: 523-558.
- Wynberg, R.P. and G.M. Branch. 1997. Trampling associated with bait-collection for sandprawns *Callinassa kraussi* Stebbing: effects on the biota of an intertidal sandflat. Envir. Cons. 24: 139-148.