Parker, Kenneth Paul. April 1972. Recruitment and behavior of puerulus larvae and juveniles of the California spiny lobster, Panulirus interruptus (Randall). San Diego State College Master's Thesis.

ABSTRACT

In this investigation of recruitment and behavior of puerulus and juvenile P. interruptus a program of study was undertaken involving: (1) puerulus settlement, (2) puerulus habitat preference, (3) puerulus metamorphosis including morphological and behavioral changes, (4) juvenile habitat preference, and (5) juvenile recruitment into subtidal habitats.

The results from the puerulus studies indicate that puerulus larvae of P. interruptus are well suited for a planktonic existence and are capable of seeking out a settlement habitat. The puerulus larvae are probably directly responsible for recruitment of the benthic populations of P. interruptus.

Puerulus settlement was found to extend from mid-May into early October with peak settlement occurring in early August. After settlement the puerulus was found to make various appropriate morphological and behavioral changes which are more suitable for a benthic habitat. These changes include reduction in length of antennae, accumulation of pigment, reversal of phototaxis, and eventual loss of pleopods.

Laboratory preference experiments indicated that postsettlement puerulus significantly prefer consolidated substrates and Phyllospadix. Similar results were observed for juvenile P. interruptus, as they showed a significant preference for coarse substrates and Phyllospadix. Laboratory shelter selection experiments showed that juvenile P. interruptus significantly preferred shelters with blocked rear entrances, long shelters, and shelters with low profiles. Negative phototaxis and positive thigmotaxis were thought to influence these selections.

Using habitat preference information as guidelines for subtidal surveys of San Diego and Santa Catalina Island, two types of shallow water habitats were found to contain juvenile P. interruptus in abundance: shallow rubble rock areas and shallow Phyllospadix beds. Repeated sampling of shallow Phyllospadix habitats at Santa Catalina Island showed that juvenile lobsters remain in these shallow nursery habitats 2 years before moving subtidally into the adult population during the second summer after settlement.

Recruitment information obtained from both puerulus studies in San Diego and juvenile field

surveys at Santa Catalina Island indicated low recruitment in 1970 and 1971, compared to results obtained by Serfling (in preparation) for 1969.