FOOD PREFERENCES, FEEDING ACTIVITY PATTERNS, AND POTENTIAL COMPETITION OF THE AMERICAN LOBSTER, *HOMARUS AMERICANUS*, AND ECOLOGICALLY SIMILAR CRUSTACEANS NATIVE TO CALIFORNIA

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ABSTRACT

Comparative laboratory feeding studies were conducted to determine the potential competition between the American lobster (Homarus americanus) and two native California decapod crustaceans, the California spiny lobster (Panulirus interruptus) and the rock crab (Cancer antennarius), for a common food resource if available in limited quantity. The analyses of foraging activity and feeding behavior showed that the three crustaceans fed selectively by discriminating between prey if given a choice, and do so in a similar stereotyped sequence of food procurement and ingestion. The prey selected by H. americanus from representative species of the major taxonomic food categories are remarkably similar to those preferred by P. interruptus, but differed to some extent from those chosen by C. antennarius. Similarly, the diurnal feeding activity rhythms for both lobster species are nearly identical. These rhythms are crepuscular-nocturnal, with 90 percent of the feeding activity occurring at night. The activity rhythms of the rock crab are desultory, revealing its capricious and irregular pattern of feeding throughout the day and night. Because of the striking

similarity in both the diurnal patterns of feeding activity and in the specific types of prey selected by the two lobster species, competition between them probably would be severe. Thus, because of the apparent adaptive advantage of *H. americanus*, its establishment could lead to the eventual displacement of *P. interruptus*.