

## REVEALING THE NATURAL DIET OF LARVAL SPINY LOBSTERS

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Despite their economic and ecological importance, the natural diet of the larvae of spiny lobsters has not been confirmed. This has become a bottleneck in improving our understanding of the larval processes driving variation in recruitment to fisheries and for the development of larval aquaculture techniques for spiny lobsters. A variety of techniques have been attempted for identifying the natural prey of spiny lobster larvae with relatively little success. However, recent work using molecular genetics techniques has made some significant progress by identifying prey species from very small amounts of gut contents from wild caught larvae. Nucleotide sequence analysis using polymerase chain reaction (PCR) may be a promising tool, but the large quantity of the larval (host) DNA may mask subtle signals from the prey genome. We used a peptide nucleic acid (PNA)-directed PCR clamping to selectively inhibit amplification of host DNA for this purpose. The Japanese spiny lobster (*Panulirus japonicus*) and eel (*Anguilla japonica*) were firstly used as model host and prey organisms, respectively to demonstrate the veracity of this approach for gut content analyses. The method was then applied to wild-caught lobster larvae of *P. japonicus* and *P. longipes bispinosus* collected around Ryukyu Archipelago, Japan, and ITS1 sequences of wide variety of animals (Ctenophora, Cnidaria, Crustacea, Teleostei, Mollusca and Chaetognatha) were detected suggesting a highly diverse planktonic diet.