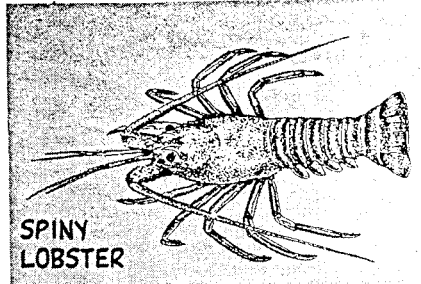


Identifying Characteristics of Hawai'i's Lobster

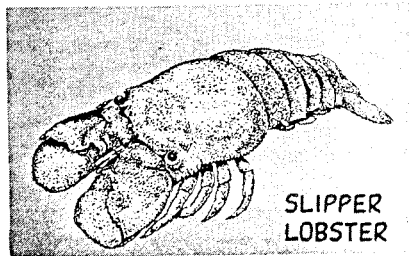
by Dr. Robert A. Skillman, Leader, Fishery Management Research Program, National Marine Fishery Service, Honolulu Laboratory.



Two species of spiny lobster and two slipper lobster occur in Hawai'i, but unfortunately none have commonly accepted Hawaiian or English names to differentiate them. One of the spiny lobster, *Panulirus marginatus*, is found only in Hawai'i and Johnston Island, while the other species, *Panulirus penicillatus*, is widely distributed throughout the Indo-Pacific.

These two species can be distinguished by examining the area between the eyes and antennae; *P. marginatus* has two main and several small spines while *P. penicillatus* has only four large spines. Another feature that distinguishes these species is the legs. Those for *P. marginatus* are solid colored while those for *P. penicillatus* have longitudinal white stripes. The color of *P. marginatus* is commonly brownish-red marbled with white, thus many people call it the red lobster; but it may also be purple, light yellow, or light brown. *P. penicillatus* varies in color from greenish to reddish-brown, and it is sometimes called the green lobster.

The green lobster is found in shallow water, indeed on the reef in the breakwater, but it is not readily trapable. The red lobster occurs in shallow water, including in lagoons; but the commercial fishery, at least in the Northwestern Hawaiian Islands, occurs primarily from 15 to 35 fathoms. And, the red lobster readily goes into traps.



There is one species of slipper lobster that is commonly caught in Hawai'i's waters ranging from shallow lagoon areas to at least 35 fathoms. In fact, until 1984 *Scyllarides squammosus* was thought to be the only slipper lobster occurring in Hawai'i. We now know that *Scyllarides haanii* also occurs in Hawai'i, but is caught primarily at deeper depths, mostly 35 fathoms or deeper. The most obvious difference is that in *S. haanii* the tail section is strongly elevated or humped.

Spiny Lobster Fishery Analyzed

From the literature of the National Marine Fishery Service "Spiny Lobster Fishery Analyzed (Northwestern Hawaiian Islands)"

■ Fishery Management Research Program leader Dr. Robert A. Skillman; industry economist Samuel G. Pooley, statistician Gary L. Kamer and research assistant Wesley K. Higuchi analyzed the relationship between the carapace lengths and tail widths of the spiny lobster *Panulirus marginatus*. Analysis included tests to detect differences in samples between islands, sexes, and in functional forms.

The relationships were used by the spiny lobster planning team of the Western Pacific Regional Fishery Management Council to recommend a new size regulation for the Northwestern Hawaiian Islands' spiny lobster fishery.

The scientific and statistical committee of the council followed this recommendation and proposed the 5.1 cm tail width for the fishery; however, at its recent meetings in August, the council voted a smaller tail width (4.8 cm) based on economic considerations.

Dr. Skillman also reports that semiannual reports were prepared on the status of the NWHI spiny lobster fishery. Landings of spiny lobster have risen by 50 percent in the first half of 1985 (compared with the first half of 1984), but the amount of fishing effort (trap-nights) has increased substantially (45 percent). The effect is evident in a drop in spiny lobster catch rates.

At the same time, the targeting of slipper lobster by the fishery has increased the landings of these species dramatically (by 10 times). Midyear landings were 260,000 legal spiny lobster and 680,000 slipper lobster.

The spiny lobster planning team concluded that although the spiny lobster stock appears to be in reasonably good biological condition (the catches are within the maximum sustainable yield range projected by the fishery management plan), the declining catch rates and lower prices commanded by slipper lobster pose substantial commercial problems.

Lobster Catch Rates

From a National Marine Fisheries Service press release on lobster fishing in the Northwestern Hawaiian Islands.

■ Catch rates at locations that are fished by Hawai'i's expanding lobster fishing fleet are noticeably lower than historical catch rates obtained by the National Oceanic and Atmospheric Administration research vessel *TOWNSEND CROMWELL* over five years ago, before extensive fishing began by commercial lobster boats. At Laysan Island, where there is no commercial fishery, catch rates were very similar to those obtained five years ago.

Fishery scientist Robert B. Moifit explained that two types of lobster traps were used by the *CROMWELL* to determine the current catch rate. Wire mesh traps that used to be the standard for the industry in Hawai'i had slightly better catches of large spiny lobster, while molded plastic traps, which are in current use by commercial vessels, had much higher catches of slipper lobster and small spiny lobster.