

THE PRESENT STATUS OF THE SPINY LOBSTER FISHERY IN HAWAIIAN WATERS

By

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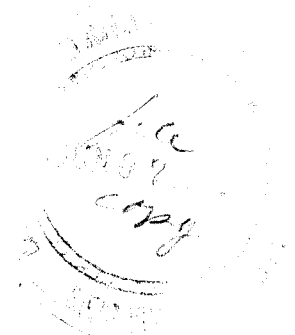
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Introduction

The spiny lobster, Panulirus marginatus and P. penicillatus, fishery in the Hawaiian Archipelago consists of a primarily recreational or subsistence fishery in the main Hawaiian Islands and a newly developed commercial fishery for P. marginatus in the Northwestern Hawaiian Islands (NWHI). These fisheries have recently been described in the "Source Document for the Final Fishery Management Plan of the Spiny Lobster Fisheries of the Western Pacific Region," dated May 1981, issued by the Western Pacific Regional Fishery Management Council.

The purpose of this report is to describe the fishery as it exists today. Most of the information was gathered through informal interviews with participants in the fishery. Some data collected by other agencies or for other purposes have been summarized for presentation here.

Estimation of Spiny Lobster Catch

Records of the reported catch of spiny lobster in the Hawaiian Archipelago are available back to at least 1948 in the data files of the Hawaii Division of Aquatic Resources (HDAR; formerly the Hawaii Division of Fish and Game). These records are based on fish catch reports that are submitted to HDAR for catches subsequently sold in the state. There is believed to be a substantial catch by purely recreational fishers in the main Hawaiian Islands on which no data are collected. As can be seen from Table 1, the spiny lobster catches decreased steadily from approximately 19,051 kg (42,000 lb) in 1948 to 1,959 kg (4,319 lb) in 1975. The reported catch has gone up since 1976 due to the initiation of the P. marginatus fishery in the NWHI.

Since the fishery in the NWHI is presumably conducted entirely in the U.S. Fishery Conservation Zone (FCZ), which lies outside the jurisdiction of the state, most of the boats participating in the fishery do not now report their catches to HDAR. Thus, the more recent records from HDAR do not represent the total commercial catch in the Hawaiian Archipelago. Also, since there presently is no fishery management plan (FMP) as yet to regulate the fishery in the FCZ, the industry is under no legal requirement to report their catches. Thus, there is no official public record of the complete catches in the NWHI.

Table 1.--Catch of spiny lobsters reported to the Hawaii Division of Aquatic Resources, for the main Hawaiian Islands and the Northwestern Hawaiian Islands.

Year	Main Hawaiian Islands		Northwestern Hawaiian Islands		Total Hawaiian Archipelago	
	kg	lb	kg	lb	kg	lb
1948					19,219	42,370
1949					19,791	43,632
1950					15,428	34,012
1951					7,856	17,230
1952					8,188	18,052
1953					8,136	17,938
1954					6,804	14,999
1955					7,316	16,136
1956					5,775	12,732
1957					6,528	14,392
1958					4,169	9,192
1959					5,597	12,339
1960					4,750	10,473
1961					5,734	12,642
1962					3,578	7,890
1963					4,662	10,277
1964					4,467	9,846
1965					3,700	8,158
1966					2,486	5,481
1967					2,002	4,415
1968					2,155	4,751
1969					4,195	9,250
1970					2,448	5,398
1971					2,785	6,140
1972					2,426	5,349
1973					2,529	5,577
1974					2,026	4,467
1975	1,959	4,319	--	--	1,959	4,319
1976	6,865	6,317	--	--	2,783	6,317
1977	6,112	13,474	31,547	69,549	37,659	<sup>1</sup> 83,023
1978	2,854	6,292	12,440	27,427	15,294	33,719
1979					9,544	21,041

<sup>1</sup>The Fishery Management Plan dated May 1981 indicates a total catch of 85,839 lb in Table 7.7.

Because of this lack of information on the activities in the NWHI, the Honolulu Laboratory has initiated a project to obtain the information by conducting informal interviews with persons associated with the spiny lobster industry. This project is being conducted by the junior author, Bernard M. Ito, and Gary L. Steiger. All of the information presented in this report was gathered through their efforts.

Based on this informal means of collecting data, we estimate that the 1980 spiny lobster catch in the NWHI was approximately 148,780 kg (328,000 lb) made by three boats on 12 trips (Table 2). Through August 1981, we estimate the catch to be nearly 295,747 kg (652,000 lb) made by 7 boats on 16 trips. We have no data on two additional boats in the fishery, except that one of them made two trips.

Table 2.--Estimates of catch and number of trips for the spiny lobster fishery conducted in the Northwestern Hawaiian Islands obtained via informal interviews. Estimated whole weight of frozen tails is based on tail weights averaging 35.6% of total weight as calculated from Uchida et al. 1980.

Year	Trips	Frozen tails							
		Whole live		Tail only		Estimated whole		Total whole	
		kg	lb	kg	lb	kg	lb	kg	lb
1980	12	5,171	11,400	51,170	112,809	143,736	316,879	148,907	328,279
1981 <sup>1</sup>	16	11,635	25,651	101,132	222,956	284,081	626,281	295,716	651,932

<sup>1</sup>Incomplete.

The draft FMP estimates a maximum sustainable yield (MSY) of 200,000-378,000 lobsters in the NWHI. If we take an estimate of the average weight of lobsters at the point of MSY to be 515.5 g, 85 mm carapace length (1.15 lb), then in terms of weight the MSY would be 104,328-197,179 kg (230,000-434,700 lb). Thus, the estimated catch in 1980 falls within the MSY range, whereas in 1981 the estimated catch already exceeds the MSY range.

#### Number of Boats in Fishery

Since the start of the spiny lobster fishery in the NWHI in 1976, there has been a total of 14 different boats participating in the fishery. Although the figures for 1981 are as yet incomplete, 1981 has been the most active year in the NWHI fishery in terms of the number of boats operating and the number of fishing trips (Table 3).

#### Fishing Vessels

Although a few of the vessels in the NWHI spiny lobster fishery primarily target lobsters, most of the vessels are multi-purpose fishing boats or can easily be converted for other fisheries. The vessels that have participated

Table 3.--Growth of the Northwestern Hawaiian Islands spiny lobster fishery, 1976 to August 1981.

	Year					
	1976	1977	1978	1979	1980	1981
Number of vessels	2	5	2	2	3	9
Estimated number of trips	3	14	12	6	12	20

in the fishery have ranged from 17.3 to 56.1 m (57 to 185 ft) and have had carrying capacities ranging from 27 metric tons (MT) (30 short tons (ST)) to approximately 227 MT (250 ST). Their trap-carrying capacity have ranged from 300 to 2,000-3,000 traps and the number in the crew have ranged from 2 to 18 fishermen.

The four boats currently participating in the fishery have a combined carrying capacity of about 727 MT (800 ST) and can carry a total of 3,900 traps. Only one of the boats specializes in live lobsters; the others land mostly frozen tails. The latter vessels all have brine, blast, and holding freezers.

Many of the boats have the capability of fishing for bottom fish, and they often do so during lobster fishing trips.

#### Literature Cited

- Uchida, Richard N., James H. Uchiyama, Darryl T. Tagami, and Paul M. Shiota. 1980. Biology, distribution, and estimates of apparent abundance of the spiny lobster, Panulirus marginatus (Quoy and Gaimard), in waters of the Northwestern Hawaiian Islands: Part II. Size distribution, legal to sublegal ratio, sex ratio, reproductive cycle, and morphometric characteristics. In Richard W. Grigg and Rose T. Pfund (editors), Proceedings of the Symposium on Status of Resource Investigations in the Northwestern Hawaiian Islands, April 24-25, 1980, University of Hawaii, Honolulu, Hawaii. Sea Grant Misc. Rep. UNIH-SEAGRANT-MR-80-04, p. 131-142.

October 1, 1981