



HAWAIIAN MONK SEALS AND SEA TURTLES--SIGHTINGS
AND DIRECT INTERACTIONS WITH FISHING OPERATIONS
IN THE NORTHWESTERN HAWAIIAN ISLANDS

By

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August 1981

INTRODUCTION

The Honolulu Laboratory, Southwest Fisheries Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA), began a program of exploratory fishing in the Northwestern Hawaiian Islands (NWHI) in the early 1970's to assess the distribution, abundance, and availability of commercially valuable species of fishes and crustaceans. Early cruises of the NOAA ship Townsend Cromwell determined the presence of large quantities of spiny lobster, Panulirus marginatus, on Necker Bank and subsequent cruises showed that spiny lobsters were distributed throughout the range of the NWHI, although quantities varied considerably with respect to bank and sites on a particular bank. By 1976 commercial fishermen began to harvest this previously untouched resource by means of trap fishing.

The traps used in this fishery are of the California lobster pot type or variations of this basic type. Traps are fished overnight on the bottom and are connected in a string on polypropylene rope; the number of traps per string varying greatly among different boats. Lobster fishing is generally conducted at depths ranging from 27 to 64 m (15 to 35 fathoms).

With the advent of the lobster fishery in the NWHI, an increase in the level of activity around islands associated with the banks has resulted. Among the resident and transient inhabitants of these islands and their surrounding waters are four species of interest which are recognized by the U.S. Government as endangered and threatened species. These species are the Hawaiian monk seal, Monachus schauinslandi, leatherback turtle, Dermodochelys coriacea, and hawksbill turtle, Eretmodochelys imbricata, which are presently listed as endangered and the green turtle, Chelonia mydas, which is listed as threatened.

STATEMENT OF PROBLEM

Concern has been raised regarding the likelihood of interaction between these species and commercial lobster gear and whether this interaction may act to the detriment of the endangered and threatened species. Since most of the islands in the NWHI chain are a national wildlife refuge, landing on these islands is restricted without special permission. Therefore, the focus of the concern is primarily in terms of the possibilities of detrimental interaction owing to the lobster fishing gear and not on man's physical presence alone.

The following report is an attempt to address this concern and will present in tabulated form available data on sightings and incidences of direct interaction of monk seal(s) and sea turtle(s) with respect to both the lobster fishery and other fishing operations.

TREATMENT OF DATA

Data were grouped into three separate tables depending on the source; i.e., commercial vessel observer cruises (Table 1), Townsend Cromwell cruises (Table 2), and Easy Rider charter cruises (Table 3). Commercial vessel observer cruises were given a letter code to insure the confidentiality of the data. Incidences of direct interactions and sightings were footnoted to describe ship operations at time of observation. In this report the term "direct interaction" refers to any form of interference by the animal(s) with ongoing vessel operations, while

the term "sighting" refers to merely the observation of the animal(s) during ship operations.

RESULTS

Pooling the data from all three sources yields 35 sightings and 3 direct interactions. By source, of the 23 commercial vessel observer trips, a total of 4 sightings of monk seals and 1 direct interaction with a sea turtle were reported. On 20 cruises of the Townsend Cromwell, there have been 8 sea turtle and 21 monk seal sightings and 2 direct interactions with monk seals. Of the three Easy Rider cruises, two monk seal sightings and no direct interactions were observed. With respect to lobster fishing operations, four monk seal sightings and one direct interaction with a sea turtle were reported for all sources combined. Incidences of direct interaction totaled three, two involving monk seals during night-light operations from the Townsend Cromwell and one involving a sea turtle (mentioned above) during lobster fishing operations from a commercial vessel. The latter incident was documented in a Honolulu Laboratory internal report (Appendix).

Table 1.--Observations of monk seals and sea turtles on commercial vessel observer cruises.

Commercial observer trip	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
A	Necker Island	17	10	1,600	None	None
B	Maro Reef	54	28	7,563	None	None
B	Laysan Island		4	984	None	None
B	Necker Island		3	844	None	None
C	Necker Island	11	5	750	None	None
D	Necker Island	14	5	377	None	None
D	Nihoa		1	68	None	None
E	Necker Island	22	12	1,329	None	None
F	Maro Reef	15	5	670	None	None
G	Kure Atoll	52	4	3,412	None	1 sea turtle ¹
G	Midway Islands		3	2,436	None	None
G	Pearl and Hermes Reef		2	1,822	None	None
G	Maro Reef		26	19,776	None	None
H	Necker Island	12	5	750	None	None
H	Nihoa		1	75	None	None
I	Necker Island	18	5	464	1 monk seal ² 1 monk seal ³	None

Table 1.--Continued.

Commercial observer trip	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
J	?	11	?	?	?	?
K	Necker Island	11	6	582	None	None
L	Maro Reef	46	32	25,500	1 monk seal ² 1 monk seal ²	None
M	Necker Island	14	7	1,244	None	None
N	Necker Island	15	8	1,244	None	None
O	Necker Island	18	4	456	None	None
O	Nihoa		4	381	None	None
P	French Frigate Shoals	14	3	300	None	None
P	Necker Island		3	300	None	None
P	Twin Banks		1	100	None	None
P	Nihoa		1	100	None	None
Q	Necker Island	14	6	718	None	None
R	?	22	?	?	?	?
S	Necker Island	13	7	256	None	None
T	Necker Island	15	9	1,497	None	None
T	Nihoa		1	164	None	None

Table 1.--Continued.

Commercial observer trip	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
U	Necker Island	19	3	282	None	None
U	French Frigate Shoals		1	94	None	None
V	Necker Island	10	5	500	None	None
W	Necker Island	?	7	615	None	None

¹This incident involved the tangling of a large leatherback turtle in the mainline of a lobster set. This incident was documented in a Honolulu Laboratory internal report (Appendix).

²Occurred during lobster fishing operations.

³Occurred while at anchor.

Table 2.--Observations of monk seals and sea turtles on Townsend Cromwell cruises.

<u>Townsend Cromwell cruise</u>	<u>Area (bank)</u>	<u>Duration of trip (days)</u>	<u>Days lobster fishing</u>	<u>Total traps hauled</u>	<u>Sightings of monk seals and sea turtles</u>	<u>Direct interaction</u>
75-04	Necker Island	34	4	22	None	None
75-04	Gardner Pinnacles		3	31	None	None
75-04	Pearl and Hermes Reef		1	1	None	None
75-04	Kure Atoll		1	6	None	None
75-04	Lisianski Island		1	9	None	None
75-04	Laysan Island		1	9	None	None
75-04	Nihoa		2	19	None	None
76-06	Necker Island	34	6	144	None	None
76-06	Pearl and Hermes Reef		1	24	None	None
76-06	Niihau		1	24	None	None
76-06	Open ocean		--	--	1 sea turtle ¹	None
77-02 (III)	Necker Island	46	1	32	None	None
77-02 (III)	Raita Bank		1	40	None	None
77-02 (III)	Maro Reef		7	408	None	None
77-02 (III)	Laysan Island		5	324	1 monk seal ¹ 2 monk seals ²	None

Table 2.--Continued.

<u>Townsend Cromwell cruise</u>	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
77-02 (III)	Kure Atoll		3	176	None	None
77-02 (III)	Midway Islands		4	252	None	None
77-02 (III)	Pearl and Hermes Reef		3	216	None	None
77-02 (III)	Salmon Bank		1	72	None	None
77-02 (III)	Lisianski Island		2	144	None	None
77-02 (V)	Maro Reef	44	3	38	1 monk seal ³ 1 monk seal ⁴	None
77-02 (V)	Laysan Island		2	22	1 monk seal ⁴	None
77-02 (V)	Pearl and Hermes Reef		2	11	1 sea turtle ⁴	None
77-02 (V)	Lisianski Island		2	12	1 monk seal ¹	None
77-02 (V)	French Frigate Shoals		--	--	1 sea turtle ³ 1 sea turtle ³ 2 monk seals ⁴	None
77-03 (I)	Nihoa	53	3	176	None	None

Table 2.--Continued.

Townsend Cromwell cruise	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
77-03 (I)	Necker Island		6	356	None	None
77-03 (I)	Raita Bank		1	60	None	None
77-03 (I)	Laysan Island		2	120	1 monk seal ¹ 1 monk seal ⁵	None
77-03 (I)	Lisianski Island		2	120	None	None
77-03 (I)	Pearl and Hermes Reef		2	120	None	None
77-03 (I)	Kure Atoll		2	120	None	None
77-03 (I)	Midway Islands		1	60	None	None
77-03 (I)	Maro Reef		1	60	None	None
77-03 (I)	French Frigate Shoals		4	240	None	None
77-03 (I)	Middle Bank		1	56	None	None
77-03 (I)	Penguin Bank		1	56	None	None

Table 2.--Continued.

<u>Townsend Cromwell cruise</u>	<u>Area (bank)</u>	<u>Duration of trip (days)</u>	<u>Days lobster fishing</u>	<u>Total traps hauled</u>	<u>Sightings of monk seals and sea turtles</u>	<u>Direct interaction</u>
78-01 (II)	Open ocean	42	--	--	1 sea turtle ¹	None
78-01 (II)	Nihoa		2	100	None	None
78-01 (II)	French Frigate Shoals		1	60	None	None
78-01 (II)	Kure Atoll		1	60	None	None
78-01 (II)	Midway Islands		2	120	None	None
78-01 (II)	Laysan Island		1	40	6 monk seals ¹	None
78-01 (II)	Necker Island		2	120	None	None
78-01 (II)	Island of Hawaii		1	60	None	None
78-01 (II)	Maui		2	120	None	None
78-01 (II)	Penguin Bank		1	60	None	None
78-03	Lisianski Island	48	1	31	None	None

Table 2.--Continued.

<u>Townsend Cromwell</u> cruise	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
78-03	Pioneer Bank		1	32	None	None
78-03	Raita Bank		1	39	None	None
78-03	Gardner Pinnacles		3	111	None	None
78-03	Niihau		1	16	None	None
78-03	French Frigate Shoals		--	--	1 monk seal ⁴	None
78-03	Pearl and Hermes Reef		--	--	1 monk seal ¹	None
78-04	Necker Island	20	3	160	None	None
78-04	French Frigate Shoals		2	102	None	None
78-04	Maro Reef		2	112	None	None
78-04	Nihoa		1	56	None	None
79-02 (I)	Midway Islands	30	1	16	None	None
79-02 (II)	Pearl and Hermes Reef	37	1	60	None	None
79-02 (II)	Lisianski Island		2	100	None	None
79-02 (II)	Laysan Island		1	60	None	None
79-02 (II)	Brooks Bank		2	109	None	None

Table 2.--Continued.

<u>Townsend Cromwell cruise</u>	<u>Area (bank)</u>	<u>Duration of trip (days)</u>	<u>Days lobster fishing</u>	<u>Total traps hauled</u>	<u>Sightings of monk seals and sea turtles</u>	<u>Direct interaction</u>
79-02 (II)	Necker Island		6	326	None	None
79-02 (II)	Nihoa		---	---	1 monk seal ⁴	None
79-03	Necker Island	47	1	34	None	None
79-03	French Frigate Shoals		2	67	None	None
79-03	Maro Reef		2	54	None	None
79-03	Laysan Island		1	34	None	None
79-03	Lisianski Island		1	35	1 sea turtle ¹	None
79-03	Pearl and Hermes Reef		3	108	None	None
79-03	Midway Islands		1	28	None	None
80-02	Necker Island	48	3	151	None	None
80-02	Raita Bank		1	38	None	None
80-02	Pearl and Hermes Reef		2	64	None	None
80-02	Ladd Bank		1	40	None	None
80-02	Salmon Bank		1	40	None	None
80-02	Northampton Bank		1	40	None	None
80-02	French Frigate Shoals		---	---	None	1 monk seal ⁶

Table 2.--Continued.

<u>Townsend Cromwell</u> cruise	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
80-03 (I)	Kure Atoll	30	2	8	1 monk seal ¹	None
80-03 (II)	Maro Reef	32	3	12	None	None
80-03 (II)	Lisianski Island		2	8	None	None
80-03 (II)	Pearl and Hermes Reef		2	8	None	None
80-03 (II)	Kure Atoll		2	8	None	None
80-03 (II)	French Frigate Shoals		--	--	2 monk seals ¹	None
80-04 (I)	French Frigate Shoals	23	--	--	1 monk seal ⁷	None
80-04 (II)	Necker Island	32	3	120	None	None
80-04 (II)	Brooks Bank		3	120	None	None
80-04 (II)	St. Rogatien Bank		3	120	None	None
80-04 (II)	Raita Bank		4	135	None	None

Table 2.--Continued.

Townsend Cromwell cruise	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
80-04 (II)	Maro Reef		4	122	None	None
80-04 (II)	Gardner Pinnacles		2	48	None	None
80-05 (II)	Necker Island	43	2	73	None	None
80-05 (II)	Laysan Island		1	24	1 monk seal ¹	None
80-05 (II)	Pogy Bank		1	24	None	None
80-05 (II)	Ladd Bank		1	24	None	None
80-05 (II)	Maro Reef		1	24	None	None
80-05 (II)	Gardner Pinnacles		2	48	None	None
80-05 (II)	Midway Island harbor		---	---	6 sea turtles ⁴	None
80-05 (II)	French Frigate Shoals		---	---	1 monk seal ⁴	2 monk seals ⁸
81-01	Nihoa	40	2	59	None	None

Table 2.--Continued.

<u>Townsend Cromwell cruise</u>	Area (bank)	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
81-01	Nihoa	40	2	59	None	None
81-01	Bank #3		1	32	None	None
81-01	Necker Island		2	64	None	None
81-02	Pearl and Hermes Reef	36	2	64	None	None
81-02	Ladd Bank		2	64	None	None
81-02	Maro Reef		2	64	None	None
81-02	French Frigate Shoals		2	64	None	None
81-02	Necker Island		2	64	None	None
81-02	Laysan Island		--	--	1 monk seal ⁴	None
81-03	Open ocean	18	--	--	1 sea turtle ¹	None
81-03	French Frigate Shoals		--	--	1 monk seal ⁴	None
81-03	Middle Bank		--	--	1 monk seal ⁹	None

¹Occurred while underway.

²Occurred during lobster fishing operations.

³Occurred during trolling operations.

⁴Occurred while at anchor.

⁵Occurred during period of multiple fishing operations.

⁶A monk seal began to interfere with night-light operations by chasing attracted fish away from the light. Subsequently the seal began tugging on the night-light by grasping the electrical cord near the base of the light with its mouth.

⁷Occurred during environmental station.

⁸Occurred during a night-light operation. A monk seal was first observed around the light at 1900.

By 2000 a second seal appeared and began actively feeding around the night light. At 2200 the two seals began interfering with opelu (mackerel scad, Decapterus sp.) fishing under the light by taking the hooked opelu off the lines before they could be retrieved.

⁹Occurred during handlining station.

Table 3.--Observations of monk seals and sea turtles on Easy Rider charter cruises.

<u>Easy Rider</u> charter cruise	Area	Duration of trip (days)	Days lobster fishing	Total traps hauled	Sightings of monk seals and sea turtles	Direct interaction
77-02 (I)	Gardner Pinnacles	20	1	59	None	None
77-02 (I)	St. Rogatien Bank		1	59	1 monk seal ¹	None
77-02 (I)	French Frigate Shoals		2	79	None	None
77-02 (I)	Necker Island		8	598	None	None
77-02 (II)	Nihoa	23	2	196	None	None
77-02 (II)	Necker Island		8	703	None	None
77-02 (II)	Maro Reef		2	200	None	None
80-01	Maro Reef	15	--	--	1 monk seal ²	None

¹Occurred while underway.

²Occurred during undetermined ship operations.

APPENDIX

REPORT OF THE ACCIDENTAL CAPTURE AND RELEASE OF A
LEATHERBACK TURTLE IN THE NORTHWESTERN HAWAIIAN ISLANDS

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On September 22, 1980 while fishing at Kure Atoll aboard the Easy Rider Too, an adult leatherback turtle, Dermochelys coriacea, was brought to the surface while retrieving lobster gear. The turtle's left front flipper had become entangled in the polypropylene rope which connected a string of 253 lobster traps. As the turtle was hauled slowly to the surface, it offered no resistance and though alive, it made very little movement on its own. No attempt was made to lift the turtle out of the water and aboard the ship. Efforts made to untangle the turtle from the ship failed; the turtle began to roll over, entangling its head in the line and thereby submerging its head below the surface. At this point the captain, Gary "Skip" Naftel, decided to enter the water and attempt to free the turtle. Whether the line was untangled or cut is not recalled, but the turtle was subsequently released and appeared to swim slowly down underneath the ship and out of sight. The elapsed time from the turtle's retrieval to its release was approximately 15-30 minutes.

The trap string had been set at 1745 on September 20, 1980 and retrieval started at 0747 on September 22, 1980. The incident occurred in the morning sometime between 0800 and 1000. The depth of the fishing site ranged from 29 to 40 m (16 to 22 fathoms) and the end to end position of the string was as follows:

Lat. 28°21.45'N, long. 178°19.5'W to lat. 28°23.6'N, long. 178°24.9'W

Unfortunately, no record was made as to which end of the lobster string the incident took place.

Three photographs of the incident were taken and are included in the report. While in the water alongside the turtle the captain of the Easy Rider Too estimated the carapace length at 5 feet. The apparent condition of the turtle upon release was uncertain since it moved slowly away and was observable only for a very short time. The only apparent physical damage to the turtle was in imprint of the polypropylene line at the base of the left front flipper.



1



2



3

Photographs 1 and 2 show the entangled leatherback turtle off the starboard side of the ship. In photograph 3, the turtle has rolled over in the water while the captain attempts to remove the line from around the turtle's head and flipper.