

. Hawaiian Islands National Wildlife Refuge
Expedition Report
French Frigate Shoals
May 13-20, 1971

Personnel:

David L. Olsen - Assistant Wildlife Administrator
Ernest Kosaka - Hawaii Division of Fish and Game
Bil Gilbert - Writer representing Sports Illustrated

Itinerary:

- May 13 Depart Kailua, 7:00 AM. Arrive Honolulu International Airport 7:30 AM. Depart Honolulu via FAA DC-3 for French Frigate Shoals 8:30 AM. Conducted aeral census of seals and turtles. Checked equipment out and visited Trig Island.
- May 14 Conducted biological investigations on Shark Island.
- May 15 Conducted biological investigations on La Perouse Pinnacle and spent the night camping on East Island.
- May 16 Conducted biological investigations on East, Round and Mullet Islands.
- May 17 Conducted biological investigations on Trig and Whale Skate Islands.
- May 18 Conducted biological investigations on East, Big and Little Gin Islands, camped overnight on East Island.
- May 19 Completed biological investigations on Trig and Whale Skate, returned to Tern Island.
- May 20 Assembled gear for departure and departed French Frigate Shoals 2:30 PM via FAA DC-3. Arrive Honolulu 5:45 PM. Returned to Kailua via government vehicle 10:00 PM.

General:

Weather conditions throughout the entire trip were excellent. Although a few rain squalls were seen on the horizon on several days, no rain was recorded on any of the islands. Winds were slight and variable, seldom exceeding 6 or 7 knots. The highest wind speed recorded during the week was 10 knots. On several days the ocean appeared to be glassy smooth and this was most unusual for French Frigate Shoals at this time of the year.

A 16 ft. skiff and 40 hp. outboard motor were provided by the Coast Guard for our transportation from Tern Island to the other islets. Lodging and meals were provided at a nominal cost by the Coast Guard.

The objectives of this trip were twofold, the first was to continue with our biological investigations of the Hawaiian monk seal and green sea turtle populations and to census the seabird populations present there. The second was to provide Mr. Gilbert with the opportunity to visit and learn to appreciate the natural values involved with the Hawaiian Islands National Wildlife Refuge. His article on the trip will probably be published in an August issue of Sports Illustrated. 1971

Although no formal marine investigations were conducted, some diving was accomplished around several of the islets. This afforded Mr. Gilbert the opportunity to gain an appreciation of the values of the marine aspect of the refuge (table 7).

Wildlife Populations

All of the islets except Disappearing were visited during our stay and wildlife population estimates were made on each islet. On Shark, Tern, Trig, Whale Skate, Round, East and Gin Islands, head counts of the larger species of nesting seabirds were made. Where chicks were present head counts were also made. Reliability figures for each of the population estimates are included in the counts (Table 1).

La Perouse Pinnacle was visited and all members of the party landed on the ledge. Ernest Kosaka successfully scaled the pinnacle.

Our visit to the island was made prior to the peak of the sooty tern nesting season. Probably no more than 10% of the terns using East and Whale Skate Islands were on eggs. Estimates of sooty tern populations were made by calculating the number of birds per square yard and using a plainmeter to delineate out the high concentration areas.

Although wedge-tailed shearwaters were present in great numbers on some of the islands, no eggs were found. Many of the birds were digging burrows but the majority of them left their nesting areas during the daylight hours.

A storm which hit the north end of the atoll eliminated all the nesting albatross on the north side of Tern Island.

Two nights were spent on East Island. In addition to observing nesting turtles, specimens of seabirds were collected for pesticide analysis. Ten noddy terns, ten wedge-tailed shearwaters together with ten sooty terns and their eggs were collected. Of the 30 birds collected, 4 were previously banded: sooty tern numbers 923-22147 and 923-17393, common noddy terns numbers 923-47467 and 923-21362.

Wildlife Management Studies

Studies of the Hawaiian Monk Seal

An aerial census of the seal population was conducted on May 13. The islets were circled several times and 3 observers censused the seals. Although there was a slight variation in counts this census is considered reliable.

Table 2
Aerial Census - Seals

<u>Island</u>	<u>Number</u>
Disappearing	32
Gins	42
East	17
Round	1
Mullet	17
Whale Skate	16
Trig	15
Shark	8
Tern	<u>1</u>
Total:	149

A total of 41 seal pups were tagged (Table 3). All were double tagged with identically numbered monel tags. Sexing was accomplished by ? — rectal examination.

Nine previously tagged animals were observed during our stay at French Frigate Shoals. Of the 54 seal pups tagged during July 1970 on French Frigate, only 6 were observed during this period.

Of the 39 pups tagged during 1969 on French Frigate only 2 were observed. These data again suggest a heavy mortality during the first few years.

We made a special effort to try to find tagged adult females for todate we still have not observed a tagged adult female which was originally tagged as a pup.

Seal tag return data are shown in table 4.

Table 3
Seal Tagging Data
French Frigate Shoals

<u>Tag no.</u>	<u>Date</u>	<u>Location</u>	<u>Sex</u>
951	5/18	East Island	M
952	5/18	East Island	M
953	5/18	Big Gin	M
954	5/18	East Island	F
955	5/18	East Island	M
956	5/18	East Island	M
957	5/18	East Island	F
958	5/18	East Island	F
959	5/18	East Island	M
960	5/18	East Island	F
961	5/18	East Island	F
962	5/16	Mullet Island	M
963	5/16	Mullet Island	F
964	5/16	Round Island	F
965	5/16	Round Island	M
966	5/16	Round Island	M
967	5/16	Round Island	M
968	5/16	Round Island	M
969	5/16	Round Island	M
970	5/16	Round Island	M
971	5/16	Round Island	F
972	5/16	Round Island	F
973	5/16	Round Island	M
974	5/16	Round Island	M
975	5/16	Round Island	M
985	5/13	Trig Island	F
986	5/14	Shark Island	M
987	5/15	Whale Skate	M
988	5/15	Whale Skate	F
989	5/15	Whale Skate	M
990	5/15	Whale Skate	M
991	5/15	Whale Skate	F
992	5/15	Whale Skate	F
993	5/15	Whale Skate	F
994	5/15	Whale Skate	F
995	5/15	Whale Skate	F
996	5/15	Whale Skate	F
997	5/15	Whale Skate	M
998	5/15	Whale Skate	M
999	5/18	East Island	F
1000	5/18	East Island	F

Table 4
Seal Recapture Information
French Frigate Shoals
May 12-20, 1971

<u>Tag No.</u>	<u>Location</u>	<u>Age</u>	<u>Tag Date</u>	<u>Age</u>	<u>Sex</u>	<u>Location</u>	<u># Previous Returns</u>
* 668	Little Gin	SA	9/9/69	Y	F	Laysan	
* 767	Little Gin	Y	7/15/70	P	M	Round	
** 788	Whale Skate	SA	6/21/69	P		East	
*** 789	East	SA	6/27/69	P	F	East	1
* 904	East	SA	7/11/70	P	F	Whale Skate	
*A914	Whale Skate	SA	7/11/70	P	M	Whale Skate	
*A921	Whale Skate	SA	7/12/70	P	M	Whale Skate	
* 927	Little Gin	Y	7/13/70	P	M	Little Gin	
** 928	East	Y	7/13/70	P	M	East	

Key:

- * Double tagged
- ** Single tagged
- *** Yellow nylon tag

Studies of the Green Sea Turtle

Although an attempt was made to conduct an aerial census of the turtles on the islands it proved unsuccessful. From the air it was evident that many more turtles were in the shallow waters adjacent to the island than there were on the beaches. For example, approximately 40 turtles were noted just off the north end of East Island while only 8 were observed on the beach. Census figures of turtles found on each islet cannot be considered a reliable estimate of the turtle population present around the atoll. In light of the number of turtles seen in the water in comparison of the number tagged, we estimated the French Frigate turtle population at 250 animals during that week.

Although we visited several of the islets on several days our repeated visits seem to have no adverse affect on turtle use of the islets.

Two nights were spent on East Island in an effort to observe turtles in the process of nesting. During the first night a single turtle came up on the beach and nested. The process was not observed and no effort was made to excavate the nest site. On the second night three turtles apparently nested and one was observed during the entire nesting process. Once the body cavity and pit were excavated it took 15 minutes to lay the clutch of 68 eggs. An hour was spent filling and packing the hole, and concealing the site. A total of 42 fresh (considered to have been excavated during the past month) turtle pits were observed on East Island.

A total of 47 turtles were tagged during the week at French Frigate Shoals. The smallest was 130 lbs. while the largest tipped the scales at 305 lbs (Table 5). Four previously tagged turtles were recovered (Table 6). Two had been tagged at Lisianski over three years ago while the other were previously tagged at French Frigate Shoals. No significant changes in measurements were noted.

An unusual observation of copulating sea turtles was made. In the shallow waters adjacent to East Island a group of 6 turtles was observed milling around a copulating pair. Olsen observed the incident from underwater and recorded it on film. All of the turtles swimming around the pair were males and they exhibited rather aggressive behavior and attempted to break up the pair. A note on this observation will be published in one of the herpetological journals.

Table 5
Turtle Tagging
French Frigate Shoals
May 1971

Tag #	Date	Sex	Plastron Length	Carapace		Length Curved	Width	Thickness	Weight	Is.
				Length Straight	Width					
940	5/13	M	27.7	34.2	26.5			12.0	195	T
941	5/13	F	30.9	36.3	29.2			13.8	275	T
942	5/13	F	28.0	33.1	25.1			12.5	205	T
** 943	5/14	M	26.3	33.9	24.9	35 1/2	32 1/4	11.7	180	S
** 944	5/14	F	30.3	38.6	29.3	39 1/2	36	13.7	280	S
945	5/14	F	28.8	36.1	28.3			13.2	235	WS
946	5/14	M	25.9	33.3	26.2			12.3	180	WS
947	5/14	M	27.6	35.0	26.8			12.6	220	WS
948	5/14	M	24.1	31.0	24.1			10.5	130	WS
949	5/14	F	27.7	34.2	26.1			14.9	225	WS
950	5/14	M	28.2	34.5	27.1			12.1	220	WS
951	5/15	F	26.2	33.1	25.8			12.1	185	T
952	5/15	M	27.2	34.0	25.6			12.2	195	T
953	5/16	M	28.1	35.9	27.7	36	39.2	14.3	225	E
954	5/16	F	29.1	36.0	26.3	38	37	14.8		E
955	5/16	M	27.2	33.5	27.3	35 1/2	34	12.4		E
956	5/16	F	29.8	37.2	27.7	40	37 1/2	13.0		E
957	5/16	F	31.0	36.5	27.6	39 1/2	38	14.4		E
958	5/16	F	30.7	38.2	29.8	40	38	13.9		E
959	5/16	F	30.0	36.6	29.0	40	39 1/2	14.8		E

Tag #	Date	Sex	Plastron Length	Carapace		Length Curved	Width	Thickness	Weight	Is.
				Length Straight	Width					
960	5/17	F	30.1	36.3	26.7	39 1/2	35	15.3	290	WS
961	5/17	F	29.6	35.8	28.4	38 1/2	36 1/2	13.1	230	WS
962	5/17	M	28.7	36.6	27.5	38 1/2		12.3	240	WS
963	5/17	F	29.8	37.6	27.6	40	38	15.2	253	WS
964	5/17	M	27.4	34.7	26.9	37 1/4	35	12.6	210	WS
965	5/17	M	27.0	34.7	26.5	38	32 3/4	10.5	155	WS
966	5/17	F	31.1	36.9	29.2	40 1/4	38	15.1	280	WS
967	5/18	M	26.1	33.4	24.5	35	31 1/2	11.6	175	E
968	5/18	M	25.1	33.3	26.3	35 1/2	34	11.1	180	E
969	5/18	F	28.8	35.1	26.9	37	35	14.9	235	E
970	5/18	F	28.8	35.3	27.8	36		14.8	260	E
971	5/18	F	30.8	38.5	27.6	40 1/2	39	13.8	275	E
972	5/18	F	27.6	33.3	27.1	35 1/2	35 1/2	13.3	230	E
973	5/18	F	27.5	34.5	26.9	36 1/2	36	14.9	255	E
974	5/18	F	30.0	37.2	28.2	40	38 1/2	15.8	305	BG
975	5/18	F	29.2	35.6	26.5	38	35 1/4	13.9		BG
976	5/18	F	30.5	37.3	27.6	40	36 1/4	15.3		BG
977	5/18	F	27.4	33.8	25.5	35 1/2	33	12.6		LG
978	5/18	M	27.8	34.7	27.8	36 1/2	33 1/8	13.1		LG
979	5/18	M	27.9	35.6	26.9	37 1/4	35 3/4	12.8		LG
980	5/18	M	25.2	31.4	23.9	33 1/5	33	11.7		LG
981	5/18	F	29.0	36.7	27.5	38 1/4	35 3/4	13.2		LG
982	5/18	F	29.6	36.9	28.9	39	38 1/4	13.9		LG

Tag #	Date	Sex	Plastron Length	Carapace				Thickness	Weight	Is.
				Length Straight	Width	Length Curved	Width			
983	5/18	F	29.9	37.3	30.1	40 1/4	39 1/4	14.7		LG
984	5/18	F	29.2	36.2	28.0	38 1/4	36 1/4	14.5		LG
985	5/18	F	29.7	37.4	28.6	40 1/2	37	14.9		LG
986	5/19	M	22.0	27.2	21.4	28.8	25.3	9.9		E

Key to IS.

E - East Island

WS - Whale Skate

T - Trig Island

BG - Big Gin

LG - Little Gin

S - Shark Island

Table 6
Turtle Retraps
French Frigate Shoals

<u>Tag #</u>	<u>Sex</u>	<u>Location</u>	<u>Plastron Length</u>	<u>Carapace</u>		<u>Thickness</u>	<u>Round Measurements</u>	<u>Weight</u>	<u>Date</u>
				<u>Length</u>	<u>Width</u>				
660	F	East Is.	31.8	30.4	38.1	15.1	40 X 43	330	5/16/71
	F	Lisianski	32.0	30.3	33.4	15.7		325	3/20/68
459	F	Whale Skate	28.7	35.4	27.4	13.5	37 X 34.9	250	5/15/71
	F	Trig Is.					38 1/2 X 36		3/13/67
	F								2/23/69
644	F	Whale Skate	29.1	34.6	28.6	12.3	37 X 35 3/4	255	5/17/71
	F	Lisianski	29.6	34.4	28.6	12.7	37 X 35.5	225	3/30/69
	F	Lisianski					36 3/4 X 34 1/2		9/26/67
736	F	Trig Is.	29.9	37.8	28.6	13.7	40 X 36 1/4	270	5/17/71
	F	East Is.	No measurements taken - nesting						

Appendix

Table 7
Diving Time
French Frigate Shoals

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Depth</u>
5/13	1 hour	Trig Island	18'
5/14	2 hours	La Perouse, Tern	32'
5/16	2 hours	Tern Island	21'
5/18	1 hour	East Island	12'
5/19	1 hour	East Island	9'

U. S. FISH AND WILDLIFE SERVICE
TRIP REPORTS FOR THE HAWAIIAN
ISLANDS NATIONAL WILDLIFE REFUGE

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