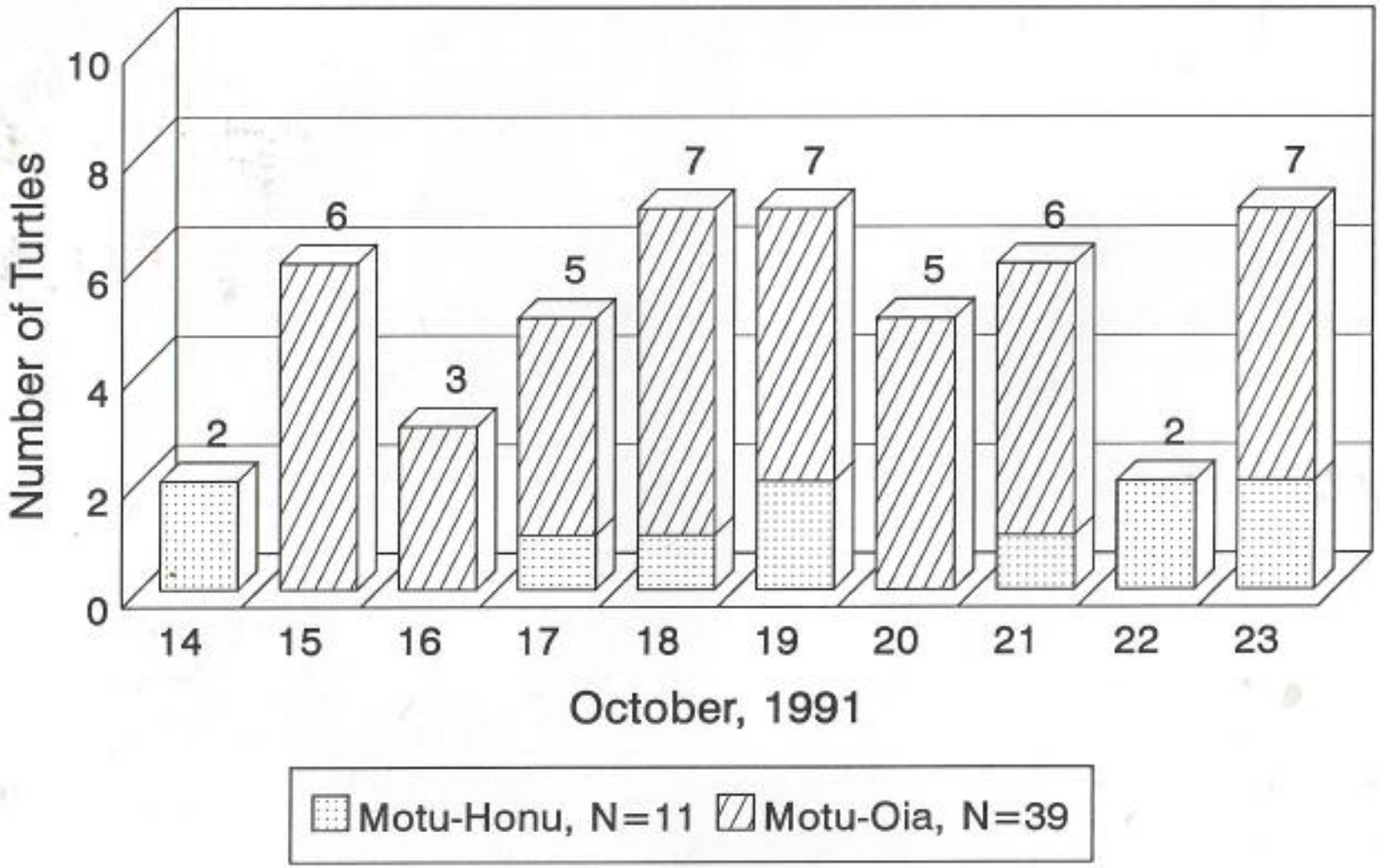
Conservation Recommendations For Sea Turtles at Scilly Atoll

- ✓ Limit Resident Take of Turtles to Two Per Month (Preferably Males).
- ✓ Encourage Resident Family to Continue Tagging.
- ✓ Conduct Satellite Telemetry.

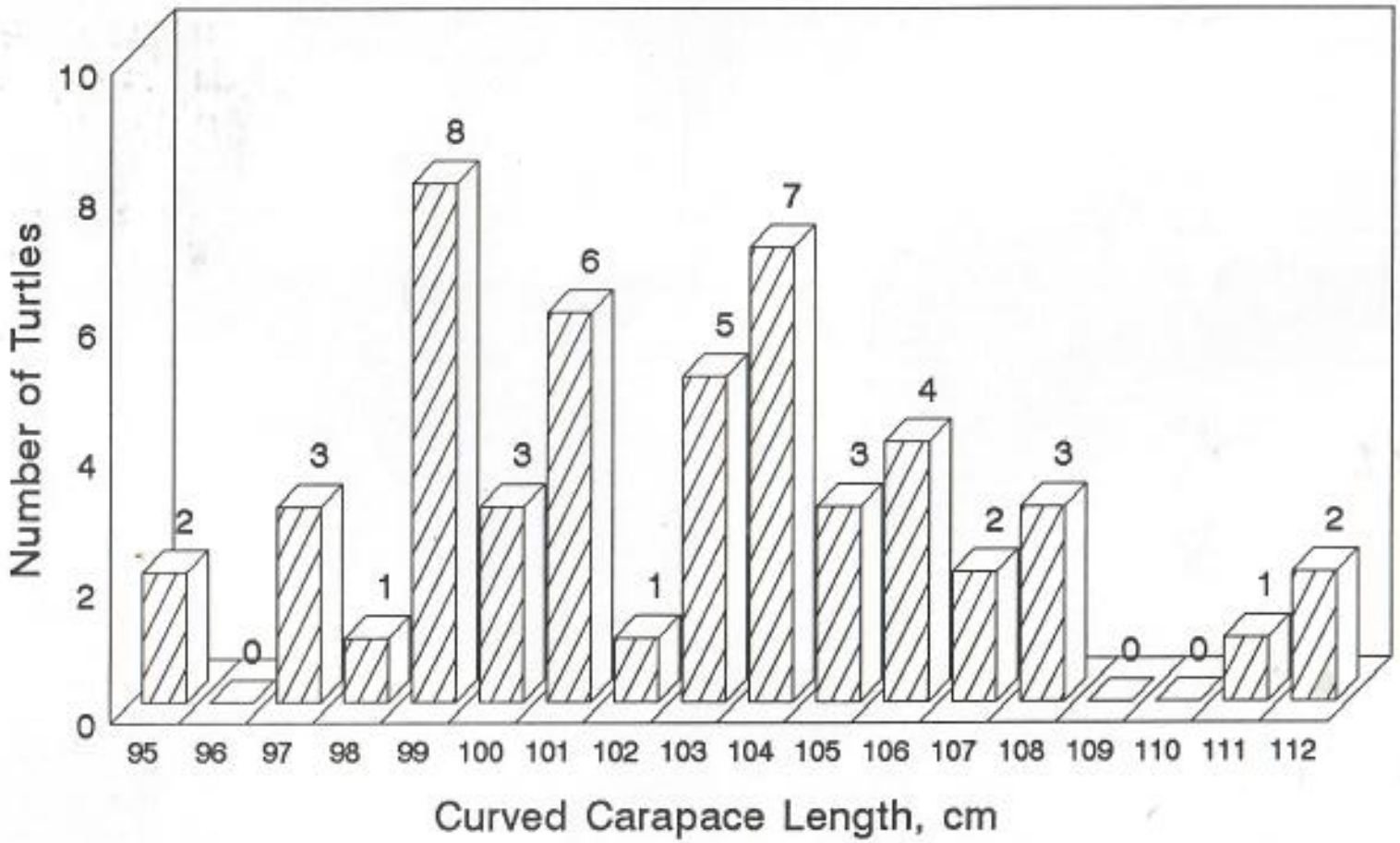
Conservation Recommendations For Sea Turtles at Scilly Atoll

- ✓ Redefine Sanctuary Status to Include Waters Within 1 km of the Atoll.
- ✓ Designate Resident Taputu Family as Sanctuary Warden.
- ✓ Supply Portable Radio to Communicate With Tahiti Officials.
- ✓ Apprehend and Heavily Fine Poachers.

Number of Nesting Green Turtles Tagged Nightly at Scilly Atoll, French Polynesia, During a 10-day Period in October, 1991



Carapace Lengths of 51 Green Turtles Nesting at Scilly Atoll, French Polynesia, During October, 1991



Long-Distance Migrations of 12 Adult Green Turtles Tagged at Scilly Atoll During 1972-73

Carapace Length cm	Sex	Date Tagged	Date Recaptured	Recapture Location
101	F	Apr 72	Aug 72	Vavau, Tonga
93	F	Apr 72	Sep 73	Maskeline, Vanuatu
88	F	Dec 72	Jul 74	Malekula, Vanuatu
98	F	Dec 72	Oct 73	Anatom, Vanuatu
99	F	Dec 72	Jan 75	New Caledonia
86	F	Dec 72	May 75	New Caledonia
102	F	Apr 72	Jul 72	Rabi, Fiji
102	F	Dec 72	Oct 74	Kandavu, Fiji
103	M	Dec 72	Oct 74	Kandavu, Fiji
102	M	Dec 72	Aug 74	Druadrua, Fiji
95	F	Feb 73	Jun 73	Suva, Fiji
88	F	Feb 73	Jun 73	Wallis Is.

Identification of Stomach Contents Sampled From a Nesting Green Turtle at Scilly Atoll, French Polynesia During October, 1991

Microdictyon japonicum	50%
Caulerpa serrulata	25%
Turbinaria ornata	25%

Head Started Juvenile Green Turtles Released at Scilly Atoll on October 15, 1991

Tag No.	Curved Carapace Length (cm)	Released by
X670	18.7	Diana (Mama)
X671	19.2	Rene
X672	20.0	Janiver
X673	18.2	Omeri
X674	19.7	Ismael
X675	17.2	Tavita
X676	16.8	Bertho
X677	18.4	Teva
X678	15.9	Teheiki
X679	14.0	JDTK
X680	18.2	Edy
X681	18.1	Balazs
X682	16.7	Jean-Pierre
X683	18.8	Axel

Mean = 17.8cm
Range = 14.0-20.0cm
N = 14

Significant Events For Sea Turtles at Scilly Atoll

1982-83 1983-84	A. Lebeau Estimated 300-400 Turtles Nesting Per Season, Unknown # Tagged
1987	Visit by Cousteau.
1990	New Regulation Enacted.
1991	Siu, Landret and Balazs Tagged 50 Nesting Turtles During 10 Nights.
1991	Cyclone "WASA" Hits Scilly, Motu-One, and Mopelia With 110-mph Winds.

Significant Events For Sea Turtles at Scilly Atoll

1971	Fisheries Regulation for Turtles Enacted.
1972	235 Females and 13 males Confiscated, Tagged and Released.
1973-74	131 Females Tagged.
1972-75	12 Long-Range Recoveries.
1979	42 Females Tagged.

Significant Events For Sea Turtles at Scilly Atoll

<1952	?
1952	Elder of Taputu Family Arrived To Make Copra.
1952-69	1000 Adult Turtles Per Year Taken For Tahiti Markets and Pig Food.
1967	100 Nesting Turtles Turned in a Single Night on Motu Honu.
1970	Visit by FAO Consultant H. Hirth.

Maupiti	16° 28'S, 152° 16'W
Bora Bora	16° 30'S, 151° 45'W
Motu-iti (Tubai)	16° 16'S, 151° 49'W

Motu-One (Bellingshausen)	15° 49'S, 154° 31'
Scilly (Manuae)	16° 30'S, 154° 40'
Mopelia (Mopihaa)	16° 49'S, 153° 57'

In Tahiti, The Green Turtle (Honu)
is the "Animal of 100 Parts"
(ie. Can be Divided into 100 Pieces).
Each Piece Sells For 1000 Francs (US $10),
Therefore Each Turtle is Worth
100,000 Francs (US $1,000)

SPC-NMFS/Turtles/WP.4
25 October 1979

ORIGINAL : FRENCH

SOUTH PACIFIC COMMISSION

JOINT SPC-NMFS WORKSHOP ON MARINE TURTLES
IN THE TROPICAL PACIFIC ISLANDS
(Noumea, New Caledonia, 11 - 14 December)

TAGGING AND REARING OF THE GREEN TURTLE CHELONIA MYDAS, CONDUCTED IN FRENCH POLYNESIA BY THE DEPARTMENT OF FISHERIES

INTRODUCTION

The Department of Fisheries' involvement with protection of the green turtle Chelonia mydas goes back to 1972. Tahitians, like all South Pacific islanders, are extremely fond of this meat from the sea.

The atoll of Scilly or Manuae, longitude 154° 40 W, latitude 16° 40 S (Fig. 1), is one of the favourite nesting areas in French Polynesia for the green turtle, which is why research, and protective operations, were first started on this island. Scilly was declared a "protected area" on 28 July 1971 and the one family living there was appointed to watch over it.

The scientific data recorded since 1972, when the turtle programme began, were unfortunately dispersed, and to reassemble them was a difficult task indeed; much information is therefore missing. A modest study was nevertheless undertaken and comparisons made with other areas in the world where Chelonia mydas is found.

A small-scale green turtle rearing trial was undertaken in Rangiroa. In the absence of marine phanerogamia the hatchlings were experimentally fed on fish scraps and, especially, on Tridacna (Clam) flesh. It very quickly became apparent however that once they had reached a certain size, the young turtles developed deficiency symptoms due to the lack of plant materials in their diet. Attempts to feed them with land plants or algae were unsuccessful. The turtles finally had to be released and the programme remained confined to natural protection measures. This type of protection has proved positive since one of the turtles released from the Rangiroa farm weighing about 6.7 kg was recaptured almost 3,500 miles from the place of release.

I. TAGGING

1) Scilly, privileged nesting area in French Polynesia

Commonly eaten and much likely by the local population, the green turtle is becoming scarcer in French Polynesia, as in the rest of the world. Intensive exploitation has decimated green turtle populations in the Mascarene Islands, the Seychelles, Aldabra,

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SUMMARY

The following is a preliminary report based on the observations made on Chelonia mydas in 1972, 1973, and 1979 by officers from the Department of Fisheries of French Polynesia. Most tagging was done on adult females on the atoll of Scilly. Rearing trials were run, and observation of eggs and hatchlings brought to light some of the difficulties associated with aquaculture of this species.

From: SPC Newsletter DATED 11/73 DOUMENGE
Operation #1: 4/72 - 67♀ TAGGED TAGS 13-98 ✓
Oper. #2: 12/72 - 166♀, 13♂ TAGS 68-75, 101-212 ✓, 1301-1361 ✓
Oper. #3: 2/73 - 107♀ TAGS 1362-1468

Chagos and the Maldive Islands. One commercial fishery is still operating in the Saint Brandon group and supplies around 50 tonnes of turtle meat to Mauritius (Hugues 1972). In French Polynesia, green turtles used to be extremely abundant in the whole of the Tuamotu island group, but due to the presence of man nesting is now restricted to the uninhabited areas, in particular Scilly atoll which is a privileged nesting place in French Polynesia, as are Europa and Tromelin in the Indian Ocean. Tagging was mainly carried out from Scilly, situated on the westernmost boundary of French Polynesia, very difficult of access, and far from any sea route, which is no doubt why it is still regarded as safe for nesting by the green turtle.

THIS PAPER: = 355
4/72 = 67 F42
12/72 = 181 (168♀ 13♂)
2/73 = 58 = 107
BUT - 49 TAG NO MISSING
4/74 = 24
1979 = 42 more

2) Tagging operations

The turtles tagged by the Department of Fisheries were thus primarily females that had come to lay their eggs on the beach. After the eggs are laid, the nests are carefully guarded during the period of incubation which can be anywhere from 49 to 65 days long. When the baby turtles hatch, they work their way out of the sand and head for the sea. Some of the hatchlings chose the night to emerge totally from the nest; the officers doing turtle research in French Polynesia were surprised to see the instinct of self-preservation function from the time of hatching. Unfortunately a majority of the hatchlings fall prey, in the daytime, to the frigate bird (Fregata minor) and, at night, to the hermit crab (Coenobita sp.).

Considering that the estimated survival rate is less than 1%, collection of eggs for hatching and rearing of hatchlings in captivity for at least one year may constitute one of the best methods of protection.

There is a very well defined nesting season from September to December, but even in the off-season females regularly land on the beaches to lay their eggs. A major tagging effort was made during the peak season in 1972 (c.f. detailed results in Annex).

3) Methods

NO
NOT ALL PROVIDED HERE
TAG NO. MISSING
only 248 listed for 1972 here

Most of the turtles observed were captured on Scilly by the family that lives there. In 1972, 364 females, and very recently 42 more, were observed and tagged. After the females have laid their eggs, which they usually do at night, they are turned over on to their backs and left till the morning, when another team takes their body measurements. Slide calipers and a compass are used for measuring (c.f. length/weight graph in Fig.2).

NO 1979 TAG DATA GIVEN IN TABLES HERE

4) The green turtle Chelonia mydas in Scilly

Scilly has probably received more turtle visits than any other atoll in French Polynesia. People who used to live there say that not very long ago (20-30 years) it was not unusual to turn over 100 to 150 turtles in a single night. The population had dwindled considerably, as would seem to be borne out by the small size of the individuals now seen (the largest turtles were about 106 cm long, and a great majority

330 TOTAL TAG NO. LISTED HERE.
+ 49 MISSING TAG NOS.
= 379

of females had carapace lengths ranging from 93 to 97 cm), as compared with those found at Aldabra where the majority of females have a carapace length between 100 and 110 cm (Frazier 1971).

Eggs are laid all the year round on the sandy beaches of the atoll, but the largest numbers of females are seen from October till the end of December. During this period, while most of the females are busy nesting, the males stay outside the atoll (c.f. map).

The initial purpose of the studies done at Scilly on Chelonia mydas was to define the sites with the largest number of nests and those where turtles most often landed. Very quickly investigations were focused on the southwesterly portion of the atoll, particularly the islets Motu Rahi, Motu Oia and Motu Honu.

Measurements taken on more than 90 young turtles on Scilly will permit very interesting comparisons to be made with other young turtles studied by the Department of Fisheries, in particular on Rangiroa (studies in progress). Observation of the feeding patterns of young turtles on Scilly will improve our knowledge of food conversion ratios.

In addition, nearly 70 adult females were caught and observed during night outings and their meristic characters determined. Preliminary results showed that the very large turtle specimens (200 kg and over) that were still seen a few years ago have become virtually extinct, since the largest on record weighed only 175 kilos. On the first few evenings of our visit we saw large numbers of females crawling along the beach to lay their eggs, but subsequently they became more suspicious, especially those that were in the lagoon. The presence of man appears to greatly influence the turtles' choice of a nesting beach, where alternative beaches are available. The females have to swim over the outer reefs for a long distance (200-300 metres) under conditions that are always extremely difficult on account of the breakers and the undertow. When they get to the beach, they reach a stage where the nesting instinct overcomes their fear and they start digging in spite of the light from the torches. They usually come up from the sea in a straight line, but occasionally a female will cover more than 100 metres in her search for a suitable nesting place. After measurements had been taken, all the turtles were tagged and released. Two recaptures were made of females that had come in to lay for a second time, 9 days after the first, on the very same beach, only a few dozen metres from their first nest.

During each nocturnal search for females, the tracks made the previous night were measured and recorded. They showed that the most frequently visited site was the east coast beach on the ocean side of the atoll, where up to 14 tracks a night were counted.

1979

About 10 nests were found, 5 of which were examined to establish the relationship between size and number of eggs laid and body weight of the female.

From Motu Rahi to Motu Oia on the ocean side (over a distance of 3-3.5 km), the number of tracks counted on the beach did not significantly vary during our visit (8-13 tracks/night).

At Motu Honu, the sandy lagoon beach was much favoured at the beginning of our stay (8-10 tracks/night), but gradually fell into disuse (1-3 tracks/night) because of our too frequent visits there.

The size of the females has appreciably declined in the last 10 years, evidence that man's predatory action has been too strong.

Rate of growth appears to be quite as high as in Rangiroa turtles, since the mean weight of Scilly turtles was 150 grams at 8 months.

Because of its scientific usefulness, particularly as regards observation of Chelonia mydas, the atoll of Scilly was scheduled as a protected area on 28 July 1971.

II. REARING

1) Turtle rearing on Scilly

The family living on the atoll started a very small-scale rearing operation in floating cages. Each cage is 2 x 1.5 m. in size and attached to a post standing in 50 cm of water. Being made entirely of wood the cage floats, half of it immersed and the other half constantly exposed to sunlight.

The eggs collected are buried and, on hatching, the baby turtles are put into a cage and left without food of any kind for three days. Subsequently they are fed mainly on clam and fresh fish.

This rearing experiment, though very small, has nevertheless enabled hundreds of releases to be made, when, 9 to 12 months after hatching, the little turtles were strong enough to survive. However, since this trial, which is still continuing, was not conducted on a scientific basis, it has not yielded much information.

2) Rearing on Rangiroa

Rearing of Chelonia mydas was conducted by the Fisheries Department on scientific lines from 1971 to 1972.

It involved about 50 turtles and yielded data on food consumption, rate of growth in first year, and food conversion ratio.

Growth studies showed that over the first 12 months, consumption of food (mainly clam and fresh fish) increased rapidly and irregularly.

Table 1 - Average quantity of food absorbed by a turtle during the first 12 months of life

Month	Average daily quantity	Average monthly quantity
1	25 g/day	775 g/month
2	50 g	1,400 g
3	65 g	2,015 g
4	65 g	1,950 g
5	70 g	2,170 g
6	70 g	2,100 g
7	75 g	2,225 g
8	80 g	2,480 g
9	100 g	3,000 g
10	120 g	4,720 g
11	120 g	3,600 g
12	150 g	4,650 g
		31,085 g/year

At birth, average weight of the hatchling was 19 grams, average carapace length 4.0 cm and average carapace width 2.9 cm.

Average weight gain after one year was slightly over 5,600 grams (5.6 kilos), at which time the carapace length was 33.6 cm and its width 28.6 cm.

Figures 3 and 4 show how the meristic characters of a turtle vary from birth to the age of 12 months.

CONCLUSION

The protection of the endangered turtle species Chelonia mydas can no longer remain the concern of one country or territory, but requires the cooperation of all the countries in the Pacific. In addition, rearing of this species in captivity appears to be an efficient and not very costly method of conservation.

To sum up:

average weight of a turtle reared in captivity after one year	5,620 g
average length of shell (carapace)	33.6 cm
average width of shell (carapace)	28.8 cm
total food consumption of a turtle during the first 12 months of life	31 kg.

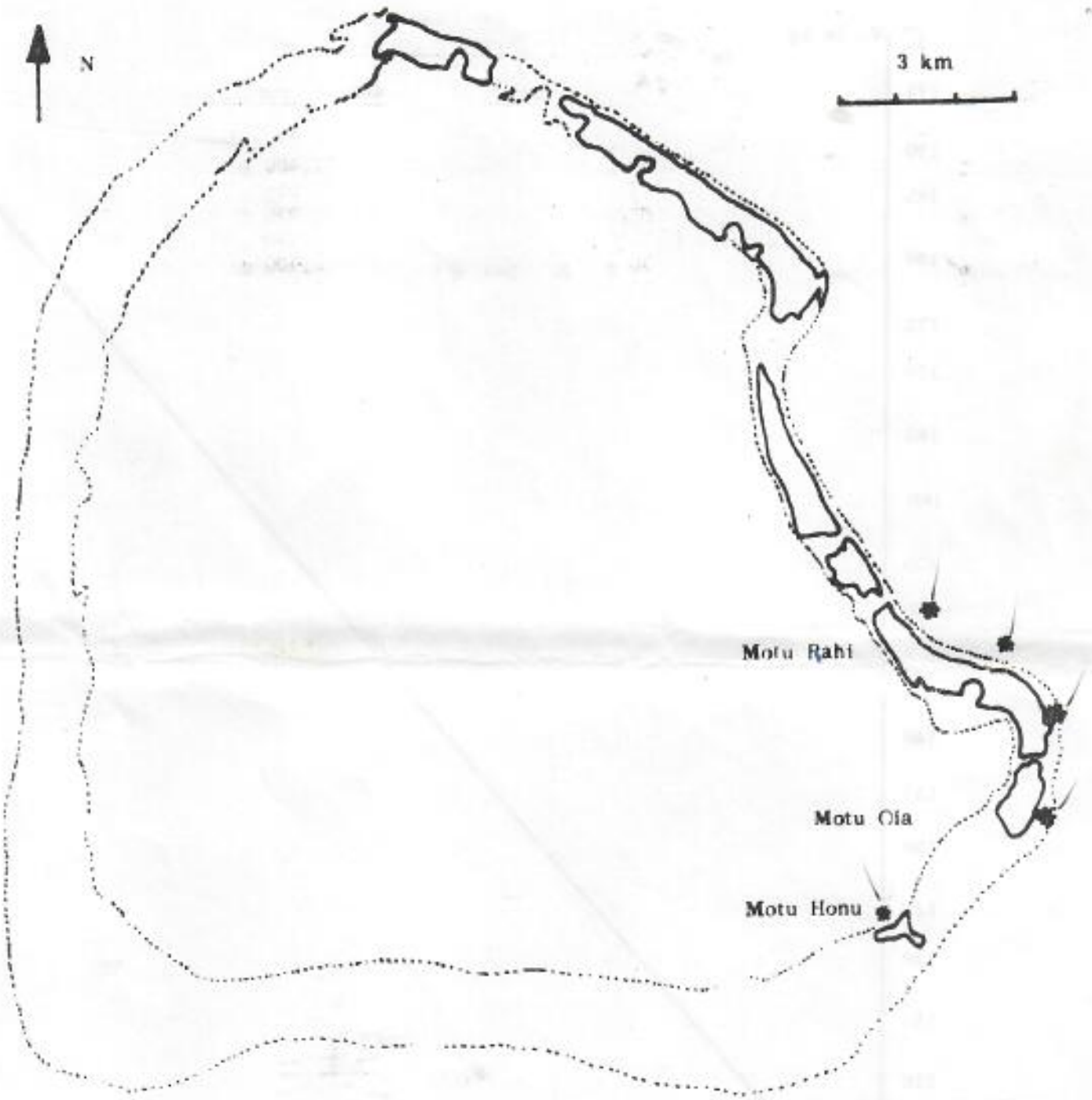

Fig.1 : Scilly Atoll

* High concentrations of green turtle nesting.

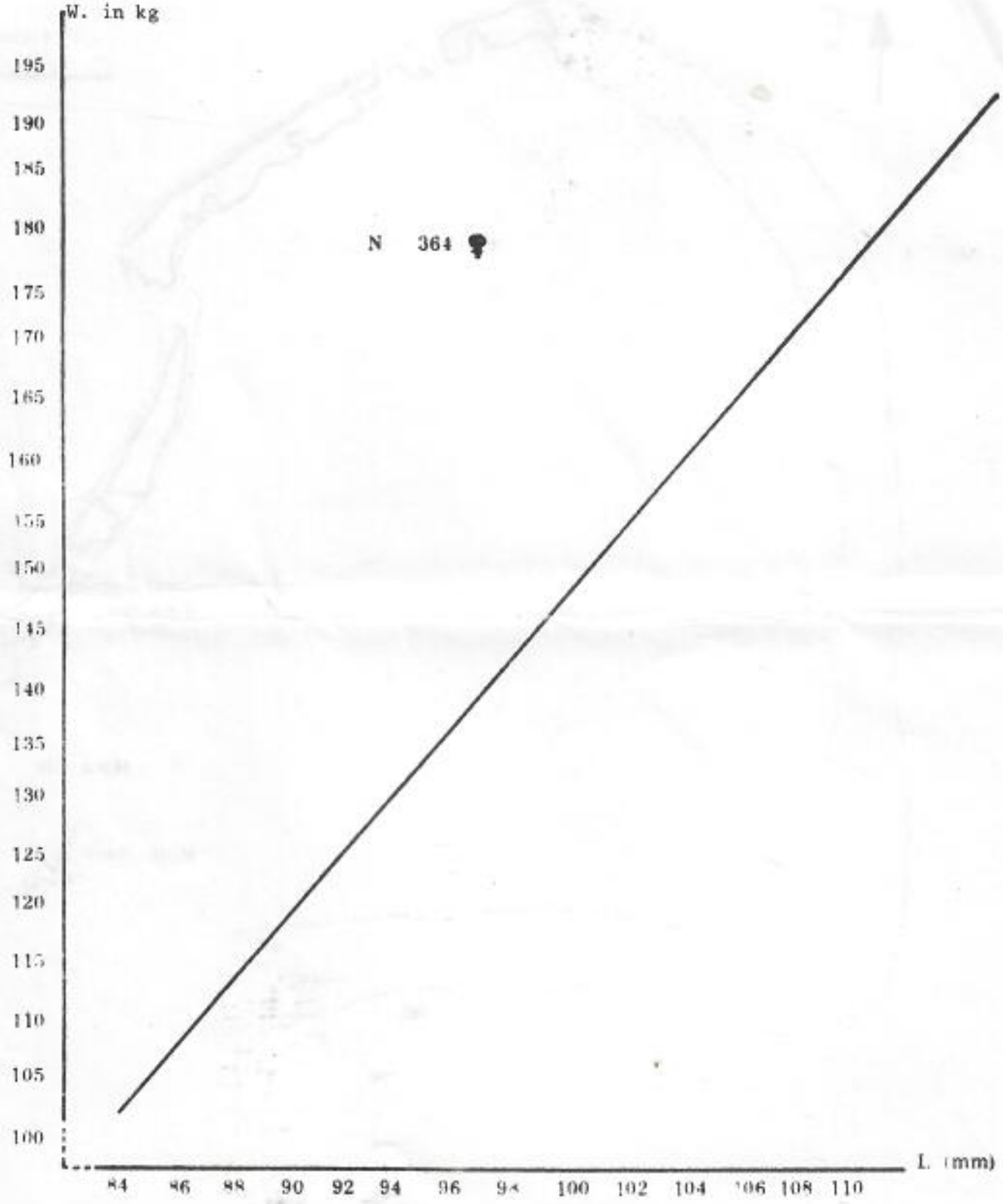

Fig.2 : Length/Weight ratio for 364 females
(Scilly Atoll)

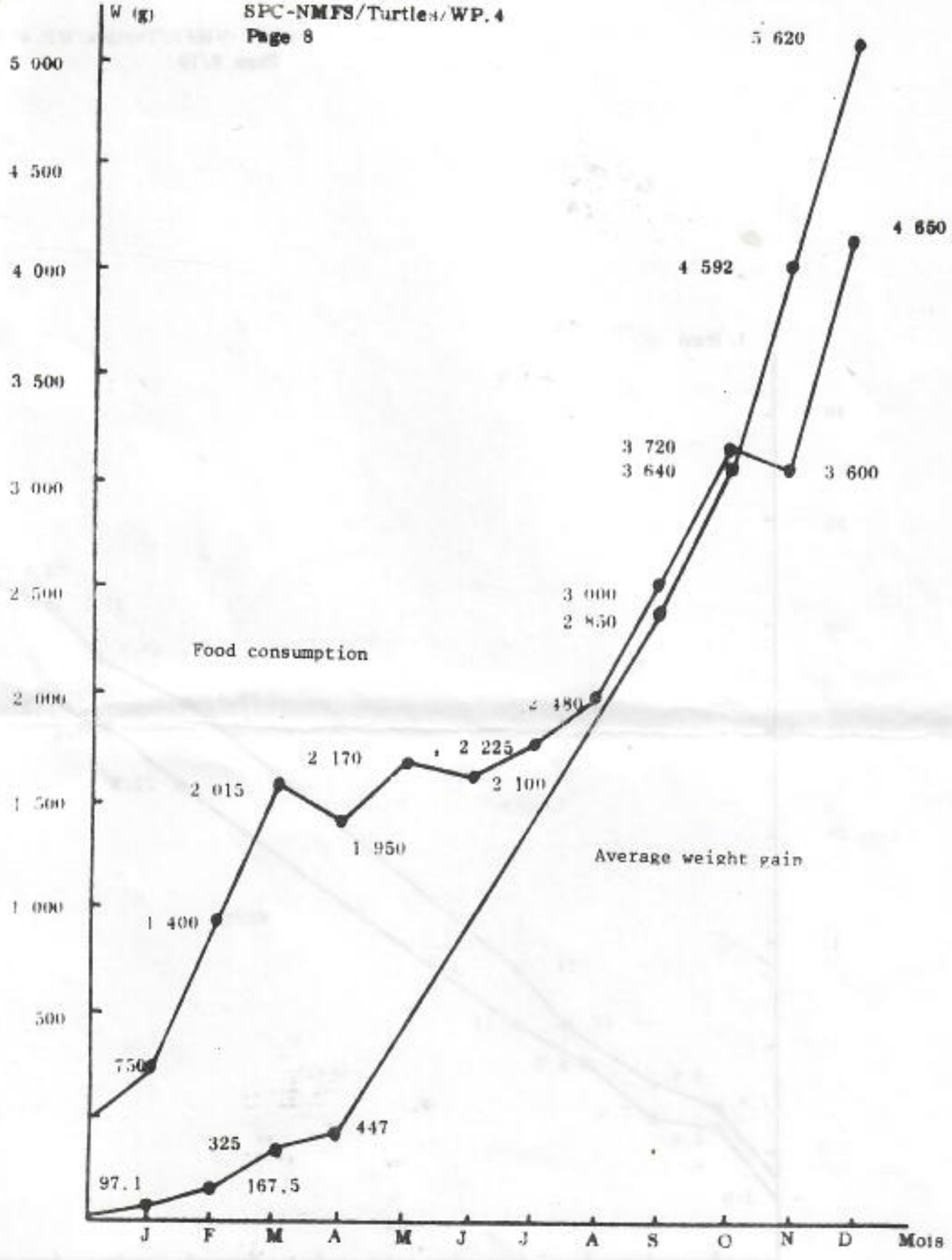

Fig. 3 : Growth over 12 months (16/12/71-16/12/72)

(Avatoru, Rangiroa, Tuamotu)

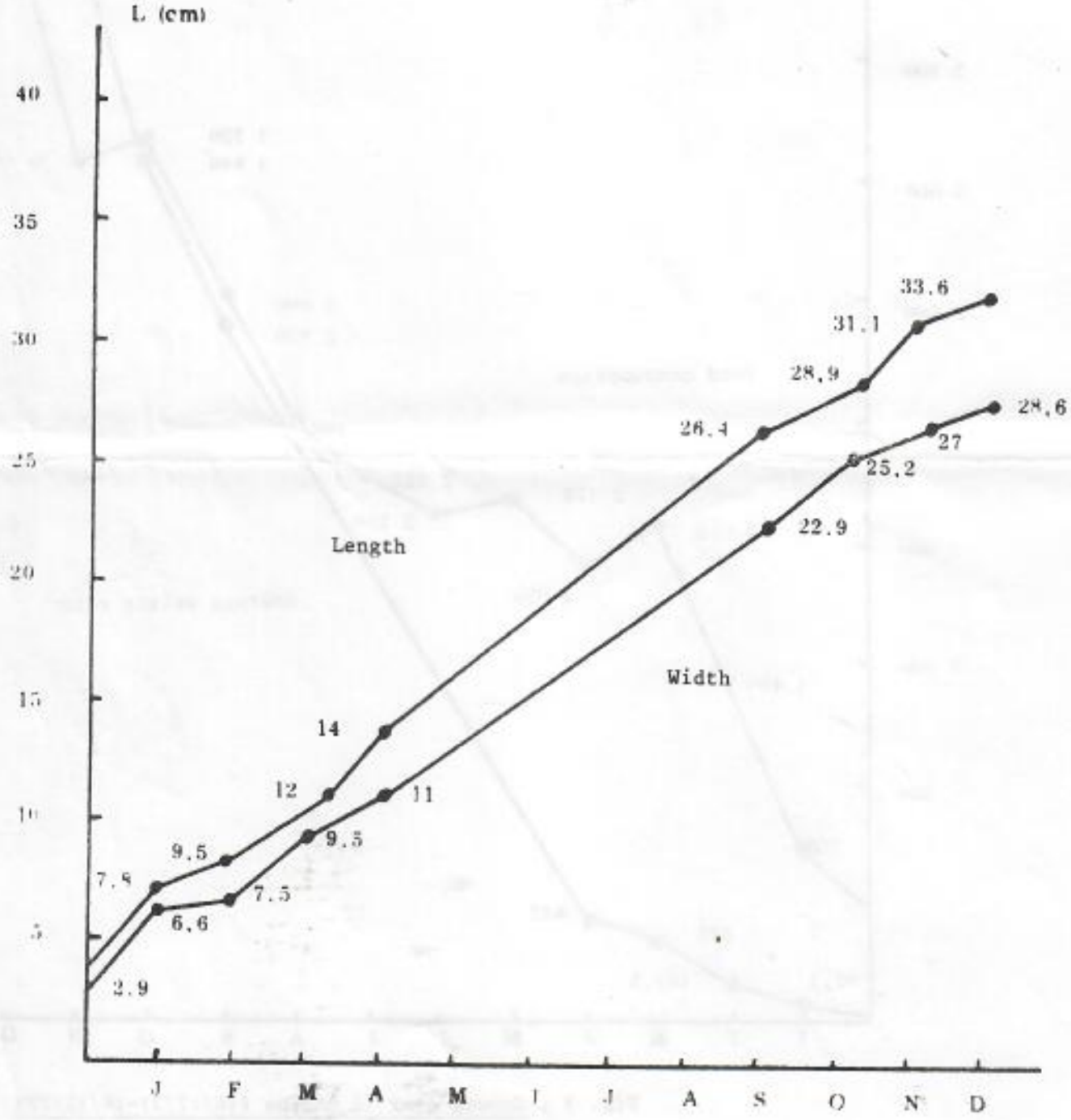

Fig.4 : Growth of shell over 12 months
(Avatoru, Rangiroa, Tuamotu)

(67 TURTLES)

ANNEX : TURTLE TAGGING

DATE : 30/04/72 April 30, 1972

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
13	F	98	69	76	15		SCILLY	
14	F	98	70	77	14		"	
15	F	99	75	79	13		"	
16	F	102	78	85	15		"	
17	F	92	74	79	11			
18	F	101	77	84	14		"	*1
19	F	101	72	78	12		"	
20	F	97	68	74	11		"	
21	F	96	72	77	12		"	
22	F	93	70	74	12		"	
23	F	99	75	82	12		"	
24	F	97	72	76	12		"	
25	F	106	82	82	12		"	
26	F	102	71	77	14			*2
27	F	101	74	74	12		"	
28	F	94	69	78	12		"	
29	F	101	73	77	12		"	
30	F	98	79	82	11		"	
31	F	92	74	73	13		"	
32	F	104	73	82	12			
33	F	103	85	85	13		"	
34	F	102	80	75	14		"	
35	F	98	72	73	13		"	
36	F	93	80	74	12		"	
37	F	101	77	82	11		"	
38	F	94	73	75	12		"	
39	F	93	72	79	12		"	*3

*1 - Captured in Tonga on 9/08/72 - Vavau Islands (2,760 km - Weight 127 kg).

*2 - Captured at Rabi (Fiji) on 26/07/72 (2,091 km - Weight 114 kg).

*3 - Captured Maskeline Islands (New Hebrides) on 14/09/73 (length 140 cm).

April 30, 1972

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
40	F	97	79	74	12		SCILLY	
41	F	98	74	79	12		"	
42	F	93	72	72	12		"	
43	F	104	73	77	12		"	
44	F	96	70	75	13		"	
45	F	94	74	80	13		"	
46	F	100	80	78	11		"	
47	F	105	74	83	12		"	
48	F	101	77	80	13		"	
49	F	94	76	78	11		"	
50	F	105	82	86	13		"	*4
51	F	101	69	79	13		"	
52	F	89	69	77	13		"	
53	F	92	76	79	13		"	
54	F	98	75	79	14		"	
55	F	95	78	80	13		"	
56	F	101	78	82	14		"	
57	F	101	84	86	11		"	
58	F	94	79	74	13		"	
59	F	99	75	80	13		"	
60	F	104	72	79	11		"	
61	F	92	72	70	11		"	
62	F	93	71	82	12		"	
63	F	99	75	73	13		"	
64	F	99	74	82	13		"	
65	F	102	79	77	13			
66	F	95	71	76	10		"	
67	F	102	72	76	12		"	
68	F	103	74	81	11		"	
69	F	102	76	77	12		"	
70	F	94	72	76	10		"	
71	F	96	73	75	12		"	
72	F	104	78	79	11		"	
73	F	94	76	78	13		"	

*4 - Carapace broken; had knit again.

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
74	F	97	74	78	12		SCILLY	
75	F	98	69	75	12		"	
76	F	88	72	75	13		"	
77	F	100	78	82	14		"	
78	F	94	74	76	12		"	
98	F	95	73	77	12		"	

67 TOTAL

All these turtles, from number 13 to number 98, are females captures on the beach in the previous 4 months. During their captivity they were fed on green leafy plants. After tagging, they were all released in the lagoon. A few of the turtles attempted to reach the open sea by crawling right across the coconut plantation.

ALSO TURTLES HELD FROM EARLIER MONTHS ? OR ?

DATE : 5/12/72 = DECEMBER 12, 1972

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
101	F	102	79	85	13	132	SCILLY	
102	F	92	69	70	12	75	"	
103	F	99	76	81	12	129	"	*5
104	F	100	73	77	13	134	"	
105	F	107	74	78	13	135	"	
106	F	97	73	83	12	123	"	
107	F	103	76	82	13	129	"	
108	F	103	71	83	12	139	"	
109	F	98	73	78	13	127	"	
110	F	104	74	79	12	123	"	
111	F	100	74	80	13	117		
112	F	96	67	69	11	95	"	
113	F	108	82	90	13	160		
114	F	84	64	74	11	94	"	Cut to the bone
115	F	97	66	77	12	116		
116	F	104	82	86	12	147	"	
117	F	94	74	78	13	142	"	
118	F	88	70	72	10	92	"	
119	F	93	64	69	12	90	"	
120	F	98	75	79	12	128	"	
121	F	92	69	75	11	98	"	
122	F	82	65	72	12	84	"	
123	F	96	72	81	12	120	"	
124	F	100	74	80	13	124	"	
125	F	98	73	77	12	108	"	
126	F	101	77	84	12	140	"	
127	F	99	75	78	13	136	"	
128	F	96	75	80	13	132	"	
129	F	102	86	88	13	135	"	
130	F	100	76	80	13	120	"	
131	F	97	77	83	13	130	"	
132	F	100	76	82	12	134	"	
133	F	92	65	72	12	95	"	
134	F	97	72	75	12	113	"	

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34

*5 - New Caledonia, 15/01/75

5 Dec 12, 1972

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
135	F	93	72	76	12	115	SCILLY	
136	F	103	83	86	13	141	"	
137	F	98	82	81	13	147	"	
138	F	88	67	73	12	106	"	*6
139	F	93	72	78	12	110	"	
140	F	89	72	76	12	110	"	
141	F	102	76	84	12	150	"	
142	F	108	84	94	14	200	"	
143	F	83	69	76	11	95	"	
144	F	90	67	72	11	94	"	
145	F	102	73	81	13	130	"	
146	F	101	86	82	12	136	"	
147	F	98	75	78	13	147	"	
148	F	98	74	80	12	116	"	
149	F	100	76	83	13	135	"	
150	F	92	69	76	11	94	"	
151	F	86	68	75	12	104	"	*7
152	F	90	68	66	12	98	"	
153	F	98	76	80	13	130	"	
154	F	84	65	68	12	95	"	
155	F	95	74	77	12	124	"	
156	F	103	77	82	13	145	"	
157	F	98	75	81	13	135	"	
158	F	92	70	73	12	105	"	
159	F	96	78	76	12	105	"	
160	F	97	75	78	12	116	"	
161	F	90	70	72	12	100	"	
162	F	101	79	83	13	152	"	
163	F	106	82	88	13	153	"	
164	F	85	69	72	11	93	"	
165	F	100	81	86	12	158	"	
166	F	102	77	85	12	161	"	

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(32)

(5) *6 - July 1974, captured in the New Hebrides, Malekula.

(6) *7 - Captured on 15/05/75 in New Caledonia, Baie de Gomen.

DECEMBER 12, 1972

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
167	F	103	80	86	13	138	SCILLY	
168	F	106	78	85	13	178	"	
169	F	93	67	72	11	108	"	
170	F	97	72	75	12	131	"	
171	F	92	65	84	11	101	"	
172	F	98	74	78	12	116	"	*8
173	F	98	74	80	12	121	"	*9
174	M	88	66	70	10	85	"	
175	F	78	68	70	11	100	"	
176	F	90	75	79	12	115	"	
177	F	101	69	78	13	145	"	*10
178	F	95	75	77	12	137	"	
179	M	95	69	72	12	110	"	
180	M	183	72	73	12	105	"	*11
181	F	102	80	81	13	155	"	*12
182	F	100	79	78	12	140	"	
183	F	92	72	81	12	115		
184	F	93	68	78	11	110	"	
185	F	99	70	82	12	120	"	
187	F	93	72	81	12	140	"	
188	M	96	71	74	11	120		*13
189	F	97	74	80	12	135	"	*14
190	F	91	69	72	12	110	"	
191	F	90	69	72	12	105	"	
192	F	102	77	81	13	150	"	
193	F	96	77	80	12	125	"	
194	F	92	78	70	12	117	"	
195	F	100	75	78	12	145	"	*15

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* 8 - Bite scar on both front flippers
* 9 - Captured in the New Hebrides, Anatom, in October 1973
*10 - Plastron misshapen
*11 - Captured on 3/10/74, in Fiji, Kandavu Island
*12 - Captured on 15/10/74, " " "
*13 - Plastron misshapen
*14 - Right front flipper missing
*15 - Plastron injured

December 12, 1972

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
196	F	93	72	74	12	120	SCILLY	
197	F	100	75	78	12	137	"	
198	F	98	71	77	12	155	"	
199	F	86	63	71	12	105	"	
200	F	105	79	82	13	143	"	
201	F	97	75	81	12	118	"	
202	F	92	74	79	12	115	"	
203	F	89	69	74	12	120	"	
204	F	98	69	80	12	140	"	*16
205	M	85	63	66	11	95	"	
206	F	94	71	75	12	110	"	*17
208	F	90	63	70	12	107	"	
209	F	93	71	75	12	125	"	
210	F	97	75	79	13	145	"	
211	F	93	73	81	13	135	"	
212	F	95	72	76	12	142	"	
1301	F	102	69	77	12	130	"	
1302	F	92	75	79	12	142	"	
1303	F	94	74	76	12	140	"	
1304	F	93	69	73	11	120	"	*18
1305	F	108	81	86	13	183	"	
1306	F	97	76	80	12	155	"	
1307	F	86	70	76	11	105	"	
1308	M	91	65	66	11	90	"	
1309	M	90	66	74	11	105	"	
1310	F	102	83	84	13	140	"	*19
1311	F	103	79	83	13	150	"	
1312	F	89	63	72	10	90	"	
1313	F	98	77	83	13	139	"	
1314	F	96	75	77	12	125	"	

*16 - Right front flipper missing

*17 - Plastron misshapen, scar

*18 - Left front flipper missing

*19 - Carapace split, right front flipper missing

DECEMBER 12, 1972

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
1315	F	91	68	72	12	110	SCILLY	
1316	F	94	94	76	12	123	"	
1317	F	100	79	80	12	140	"	
1318	F	101	80	84	13	145	"	
1319	F	97	77	82	12	140	"	*20
1320	F	100	88	88	12	140	"	
1321	F	91	70	72	11	110	"	
1322	F	93	76	82	12	140	"	
1323	F	93	75	76	12		"	
1324	F	94	72	76	11		"	
1325	F	92	70	75	12		"	
68	F	109	84	92	13		"	
69	F	94	71	80	11		"	
70	F	98	75	78	12		"	
71	M	86	68	70	11		"	
72	F	92	69	74	11		"	
73	M	90	67	70	11		"	
74	F	95	75	74	11		"	
75	F	96	75	78	11		"	
1326	F	100	80	85	12		"	
1327	F	106	78	85	13		"	
1328	F	95	93	80	12		"	
1329	M	87	68	70	11		"	
1330	M	102	79	78	12		"	*21
1331	M	90	69	75	11		"	
1332	M	95	71	72	12		"	
1333	F	105	81	85	12		"	
1334	F	101	80	81	12	160	"	
1335	F	92	72	74	12	110	"	
1336	F	94	74	83	12	140	"	
1337	F	105	76	84	14	165	"	
1338	F	93	69	76	11	103	"	
1339	F	96	74	78	11		"	
1340	F	97	69	76	12		"	

Dup. Numbers?

*20 - Plastron abraded

*21 - Captured on 1/08/74 in Fiji, Druadrua Island.

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(10)

December 12, 1972

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
1341	F	90	65	66	11		SCILLY	
1342	F	95	75	90	13		"	
1343	F	94	75	77	13		"	
1344	F	99	72	79	13	137		
1345	F	98	77	81	12	140	"	
1346	F	96	73	77	13	145	"	
1347	F	91	71	76	11	105	"	
1348	F	95	72	77	12	110	"	
1349	F	102	83	95	13	140	"	
1350	F	92	70	74	12	135	"	
1351	F	98	76	78	12	145	"	
1352	F	98	76	77	13	150	"	
1353	F	101	76	80	12	125	"	
1354	F	91	73	82	12	115	"	
1355	F	90	81	78	12	123	"	
1356	F	80	75	78	11	101	"	
1375	F	100	72	75	12	128	"	
1357	F							
1358	F	104	79	82	13	170	"	
1359	F	90	72	73	11	110	"	
1360	F	93	71	73	11	105	"	
1361	F	87	68	75	12	95	"	
1362	F	104	75	83	13	140	"	

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188 TOTAL (OF WHICH 13 ARE MALES)

168 ♀ 130♂

HELD FROM PREVIOUS MONTHS?

FEBRUARY 19, 1973

DATE : 19/2/73

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
1363	F	103	74	85	13	143	SCILLY	
1364	F	104	73	81	13	125	"	
1365	F	85	68	72	11	103	"	
1366	F	97	74	80	14	105	"	
1367	F	102	78	81	13	140	"	
1368	F	91	71	74	12	115	"	
1369	F	94	72	78	12	120	"	
1370	F	86	68	70	11	86	"	
1371	F	88	61	64	11	105	"	
1372	F	95	75	74	12	110	"	
1373	F	105	89	99	13	150	"	
1374	F	98	75	93	12	120	"	
1375	F	93	74	81	12	108	"	
1376	F	98	74	92	12	140	"	
1377	F	99	79	81	12	132	"	
1378	F	92	72	77	12	120	"	
1379	F	95	73	78	12	131	"	
1380	F	80	65	69	11	85	"	
1381	F	93	73	81	12	110	"	
1382	F	96	73	76	10	105	"	
1383	F	100	83	78	14	145	"	
1384	F	101	74	80	12	130	"	
1385	F	94	72	75	12	120	"	
1386	F	99	81	87	12	140	"	
1387	F	97	74	78	12	130	"	
1388	F	98	79	80	12	110	"	

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NOTE:
TAGS
1389 – 1436 MISSING HERE

DATE : Février 1973

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
1437	F	100	79	85	13	160	SCILLY	
1438	F	93	74	74	11	102	"	
1439	F	92	74	77	12	103	"	
1440	F	90	75	77	12	112	"	
1441	F	95	72	77	12	122	"	
1442	F	97	74	80	13	125	"	
1443	F	97	81	80	13	135	"	
1444	F	97	75	77	13	125	"	
1445	F	88	65	73	10	96	"	
1446	F	97	75	77	12	120	"	
1447	F	89	68	78	11	102	"	
1448	F	102	78	86	13	130	"	
1449	F	104	78	89	13	150	"	
1450	F	104	78	82	13	150	"	
1451	F	80	69	74	11	99	"	
1452	F	90	72	73	11	105	"	
1453	F	98	75	82	12	125	"	
1454	F	80	65	67	11	80	"	
1455	F	90	67	70	11	97	"	
1456	F	89	64	69	12	110	"	
1457	F	100	78	84	13	145	"	
1458	F	102	82	89	13	170	"	
1459	F	99	77	79	14	135	"	
1460	F	87	70	72	10	110	"	
1461	F	94	74	77	12	118	"	
1462	F	98	74	77	13	150	"	
1463	F	96	67	75	12	110	"	
1464	F	90	68	74	10	96	"	
1465	F	95	74	76	11	130	"	
1466	F	88	69	72	12	105	"	
1467	F	86	65	72	11	90	"	
1468	F	100	78	82	12	117	"	

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58 TOTAL

December 7, 1974

DATE : 7/12/74

24 TOTAL

No.	Sex	Carapace length	Carapace width	Plastron length	Head width	Weight kg	Tagging place	Comments
1502	F	102	78	80	12	130	SCILLY	*22
1503	F	86	75	76	12	115	"	*23
1504	F	97	71	81	115	115	"	*24
1505	F	94	67	72	11	120	MOTU ONE	
1506	F	95	70	75	11	106	"	
1507	F	95	72	78	11.5	105	"	
1508	F	96	75	77	12.5	125	"	*25
1509	F	97	76	77	11	110	"	*26
1510	F	94	75	78	12	115	"	*27
1511	F	105	83	84	16	167	"	
1512	F	102	78	85	12	142	SCILLY	
1513	F	89	68	76	11	102	"	
1514	F	95	73	78	11.5	120	"	*28
1515	F	93	72	74	11	110	"	
1517	F	99	72	79	12	125	"	
1518	F	102	75	80	11	120		
1519	F	95	77	80	11.5	140	"	
1520	F	94	70	76	11	110	"	
1521	F	99	79	82	12	145	"	
1522	F	101	77	79	11.5	155	"	*29
1523	F	90	70	74	11	100	"	*30
1524	F	90	72	75	12	90	"	
1525	F	90	72	73	11.5	100	"	
1526	F	100	80	85	12	110		

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*22 - Carapace split; left rear flipper missing

*23 - Carapace split, right rear flipper missing

*24 - Left side broken

*25 - Right rear flipper missing

*26 - Right rear flipper missing

*27 - Parasite on plastron, scar tissue on left side of carapace

*28 - Injury on left side of carapace

*29 - Enclosure

*30 - Right front flipper missing

THE SOUTH PACIFIC ISLANDS
FISHERIES NEWSLETTER
SEPT. 1972 NO. 6

CAPTURE OF TURTLES TAGGED BY THE FISHERIES SERVICE OF FRENCH POLYNESIA UNDER SPIFDA AUSPICES

The last issue of the Newsletter (No. 5 of May 1972) made reference on pages 21 and 22 to the tagging of sixty-seven female green turtles (Chelonia mydas) which were then released on 31 March 1972 by the Fisheries Department of French Polynesia off Scilly Atoll (Fenua Ura) to the west of the Leeward Islands in the Society island group (16°30 south - 154°40 west). Correct

(1) One of these turtles, bearing tag no. 26, was caught on 28 July 1972 off the Fiji islands in the vicinity of Savu Savu (Vanua Lava island), 16°49 south - 179°15 east. In 120 days this green turtle had therefore travelled about 1,800 nautical miles (3,300 kilometres).

(2) Another was captured in the Vavau Islands (Tonga) on 9 August 1972, representing a movement of about 2,091 kilometres over 130 days.

These long-distance recoveries are the first ever to be reported from the South Pacific and point to the value of tagging programmes.

*
* *

PROGRESS OF THE MARINE TURTLE PROJECT

The study of problems related to the protection of marine turtle species endangered by human exploitation in the tropical Pacific concerns all the territories within the scope of the Fisheries Agency.

In 1971 two consultants, Professors Hirth, of Arizona University, and Hendrickson, of Utah University, visited most of the area covered by the Fisheries Agency. Their reports are now available: Professor Hirth's was circulated in October 1971, and Professor Hendrickson's has just reached us. Territorial Administrations now have documentation they can use to undertake limited but effective action.

From a number of recent developments it is plain that the project is being pursued vigorously. Firstly, to the documentation already available has been added a first class document, with the publication in February and the distribution in March, of the synopsis of biological data on green turtles (Chelonia mydas) published by FAO in Rome and written by Professor Hirth, the Agency's consultant.

In addition, through the co-ordinated action of the Agency's consultants, Hirth, Hendrickson and Glude, it was possible to meet rapidly an urgent demand for tagging equipment to continue current operations and undertake new activities. Tagging equipment was ordered specially in the United States and forwarded at the end of April to Western Samoa, the Trust Territory of the Pacific Islands and French Polynesia.

In the latter territory a special mass tagging operation was conducted in a very short time by the French Polynesian Department of Fisheries.

Following Fisheries Agency's consultants' recommendations, the Territorial Assembly of French Polynesia, on proposal of its Department of Fisheries, enacted, on 23rd December 1971, a new regulation on the capture and marketing of green turtles (Chelonia mydas), the text is attached.

? 67 tagged

In accordance with this regulation, about 200 green turtles found stocked - and intended for sale - in the Scilly atoll (at the extreme West of the Society island group), were confiscated by the administration at the beginning of March. On 16th March the Fisheries Agency in Noumea received a telegram from Tahiti, requesting urgently equipment and instructions for tagging green turtles before release into the sea. As a result of a rapid exchange of cables and correspondence between Noumea, Tahiti, Tucson (Arizona) and Salt Lake City (Utah),

1971

Need p. 22

see p.11 SOPAC 4/30/72

88 tags and a pair of pliers were delivered 10 days later in Tahiti and transported urgently to Scilly where the Polynesian Fisheries Department tagged and released, on 31st March, 67 female adult turtles, measuring between 87 and 110 centimetres at the longest part of the shell.

The Fisheries Agency, the Polynesian Fisheries Department and the consultants, Professors Hirth and Hendrickson, because of their immediate co-ordination and close co-operation, were able to meet a new and unexpected situation which ended with a first mass release of tagged green turtles, in an area where, at present, we have no accurate data regarding movements and behaviour.

In addition studies on green and hawksbill turtle rearing are continuing in some territories and we are grateful to Mr James McVey, biologist of the Marine Resource Division in the Trust Territory for forwarding to us, for the information of our readers, the first results of his experiments on growth and feeding of young hawksbill turtles. We look forward to receiving similar notes on current experiments from territories.

Lastly, to show its interest in this project which covers all territories, the South Pacific Commission has decided, as counterpart, to participate in the purchase of equipment and to bear the cost of publication of the extension handbook on marine turtles in the Pacific.

* * *

YOU BETTER TALK BRISKLY!

= CHANGE SLIDE

Ecological aspects of green turtles nesting at Scilly Atoll and Motu-One in French Polynesia

SLIDE CHANGE

DUE TO EXPLOITATION FOR COMMERCIAL MARKETS IN TAHITI.

The three small atolls of Scilly, Motu-one, and Mopelia are located in a remote and seldom-visited area of the South Pacific ~~Ocean~~ at the western limits of French Polynesia. Although green turtles used to nest at these sites in great numbers, serious declines are known to have occurred during recent decades. At present, only Scilly Atoll continues to have significant numbers of nesting turtles. ~~Exceedingly~~ ONLY a few people have ever been able to visit these islands for the purpose of tagging turtles and gathering relevant ecological information. The ~~few~~ turtles that have been tagged there in the past have shown some amazing migrations across a broard segement of the Pacific basin.* During October of last year I was invited by my coauthors to join them on a two-week expedition to Scilly and Motu-one, via Tahiti and Bora Bora. The trip was sponsored by the Government of French Polynesia with additional financal assistance from the Regional Marine Turtle Conservation Programme ~~of SPREP (South Pacific Regional Environmental Proramme based in Noumea, New Caledonia)~~. This paper gives a brief overview of that voyage and its findings, as well as some conservation recommenditions aimed at preventing the further depletion of green turtles in this important region of oceania.

CHANGE SLIDE

We acknowledge the generous and valuable assistance of the chief of Scilly Atoll, Rene Taputu, ~~who~~, more than any other person alive today, ~~clearly~~ has the ability and the desire to reverse the downward trends in nesting turtles he has seen during his lifetime at Scilly. We hope that the French Polynesian government, and perhaps certain members of the global conservation community, will help us to give Rene Taputu the tools and continued encouagement he needs to accomplish this goal.

CHANGE SLIDE

* [EXCEPT FOR SCILLY, THERE ARE NO OTHER REMAINING BREEDING SITES OF ANY ~~ONE GREEN~~ MAGNITUDE FOR SEA TURTLES THROUGHOUT ALL OF FRENCH POLYNESIA.]

XEROX VANUATU STAMPS

YOU BETTER GO FAST! (2)

PAID OUR RESPECTS

TURTLE STONE - SEARCHED FOR AND FOUND IT
SYMBOL of CHIEFS - POWER

HIGH-TECH HONU - GOVERNMENT AGENCY IN TAHITI
STICKER/EMBLEM

~~AORAI~~ - ~~250 km to BORABORA~~
~~SCILLY~~

SCILLY MAP - MOTU HONU - MOTU OIA
PASS AT NORTH - 7 MILES
THE PASS - GETTING INSIDE ATOLL

QUIET VILLAGE - LAGOON CALM & PROTECTED
TAPUTU - WEALTH OF INFORMATION

TAPUTU GROUP PHOTO - 26 PEOPLE -
ARRIVE MIDOCTOBER - 6 ADULTS - REST
NO CONTACT OUTER WORLD SINCE JUNE. 1 year - 15 years old
TURTLE SHELLS - COLOR VARIATIONS
- EATING ABOUT 30 A year -
BOTH SEXES . COLOR VARIABLE

MOTU HONU - BEAUTIFUL BEACH
100 IN ONE NIGHT 1967 - ALSO
MAN KILLED WHEN HIT BY STONE

MOTU OIA - BEACH ROCK - NEVER SEEN
SEVERAL SLIDES ANYTHING LIKE IT
BEFORE! - GREENS OVER ROCKS.

RENE CATCHING - FEMALE COME INTO
SHALLOWS TO HIDE FROM MALES

MOVE QUICKLY! BE BRIEF!

SLIDES

YOU BETTER GO FAST

TITLE

3 ATOLLS, LAT. LONG

RENE TAPUTU - ACKNOWLEDGEMENTS

COAUTHORS - INTRODUCTION of SIU & LANDREY

-TAHITI- - PERSONAL NOTE COMMENTARY - NOT NMFS: 28 YEARS AGO I LIVED IN TAHITI FOR 7 MONTHS - SAW A SEA TURTLE for the first time ON THE REEF AT BORA BORA

NMFS IS NOT SENDING ITS EMPLOYEES TO TAHITI;

* FIRST TIME BACK IN 28 YEARS.

PACIFIC-WIDE MAP - FRENCH POLYNESIA - TAHITI ONE OF 130; 5 ARCHIPELAGO OVER 130°-155° LONG. 7°-29° S LAT.

190,000 PEOPLE - 1/2 LIVE ON TAHITI

SOCIETY ISLANDS - POINT OUT TAHITI, BORA BORA - SCILLY, MOTU-ONE, MOPELIA (BOWEN'S GENETICS ATOLL)

SIG. EVENTS - SEA TURTLES AT SCILLY (2 slides) - LESS THAN 50 PEOPLE RESIDENT TO SCILLY; PERSON killed by TURTLE MOTU-HONU. BIRTH 1970 (AERIAL OVERFLIGHT ONLY)

MIGRATION ARROWS MAP - RESULTS OF 1972-73 TAGGING 12 RECOVERIES 10 FEMALES; 2 MALES

MAP PROMPTED RELUCTANCE TO TAG FURTHER - SHOW TURTLES ALL LEAVE TAHITI - KILLED & EATEN ELSEWHERE.

REVERSE ARROWS MAP → LOOK AT MIGRATIONS SO I REDREW MAP TO FROM A DIFFERENT PERSPECTIVE!

BORA BORA - BOAT ~~STOP~~ MADE A STOP OVER IN BORA BORA (LUSH INTERIOR).

EMORY PRINT - STONE IS THE "MOTHER" ("IFAI HONU" OF BORA BORA - = TURTLE STONE

ACCORDING TO FOLKLORE

DRAFT Known about STONE FOR 15 YEARS.

~~[illegible]~~
RAISE HATCHLINGS – MAINLY
PET – BABIES –
BUT FEELS IT HELPS RESTOCK.

MOTU-ONE –
40 MILES North
JEAN-Pierre left at Scilly
to TAG, while we
went to MOTUONE FOR
3 DAYS.
4 MILES ~~[illegible]~~ AROSS LAGOON
(8) PEOPLE ON ISLAND.
HOWEVER, IN PAST YEARS
UP TO 200 copra WORKERS
RESIDENT – NATURAL RESOURCES
∴ HEAVILY EXPLOITED!

– EVERYONE EVACUATED IN DEC – ~~[illegible]~~
AFTER CYCLONE WASA –

SCILLY 50 NESTING IN 10 NIGHTS –
WE ESTIMATED MINIMUM COVERAGE
OF 50% OF ALL NESTING
IN ATOLL –
SPECULATED THAT
300-400 1992-93 SEASON

RECOMMENDATIONS –
– AGREED TO 2 A MONTH
– NOT EAT ANY THAT HE TAGGED

MAUPITI TO BORA BORA 27 miles (43 km)
MOPELIA TO MAUPITI 100 miles (160 km)
Scilly To Mopelia 43 miles (69 km)
Motu one TO Scilly 40 miles (64 km)

229 km
272 km

↓ MAUPITI 293
Bora = 336

1000 500

Scilly → ~~Solomons 5200 km~~
NO RECOVERIES SOLOMONS

Scilly → Tonga 2000 km
→ Fiji 3000 km (Same to Wallis)

165 E Scilly → cooks 500 km
Rarotonga 700 km ok

155 W → N.C. Scilly

Scilly → Bora Bora = 300 km ok

Scilly → MAUPITI = 250 km

Scilly → ~~Bora~~ TAHITI = 580 km

Scilly → Bora Bora → Tahiti 300 km ok

Scilly → N.C. 4200 km

Scilly → VANUATU 4000 km

Tagging and Measurement Data for 55 Adult Female Green Turtles Encountered at Scilly Atoll (Manuae) and Motu-One (Bellingshausen), French Polynesia During October 1991

by

Philippe Siu, Jean-Pierre Landret, and George Balazs

Scilly Motu-one
Honu = 12 3
Oia = 40

1991 Date	Tag Numbers LFF	RFF	LH	RH	cm Curved carapace L X W	Motu site
			SCILLY			
10/14	X651	RMTP476	X652	--	100 x --	Honu
10/14	RMTP477	X653	X654	--	104 x --	Honu
10/15	RMTP478	X655	X656	--	104 x 94	Oia
10/15	RMTP479	X657	X658	X659	104 x 94	Oia
10/15	RMTP480	X660	X661	X662	105 x 93	Oia
10/15	RMTP481	X663	X664	X665	105 x 95	Oia
10/15	RMTP482	X666	X667	X668	100 x 96	Oia
10/15	RMTP484	RMTP485	X558	--	97 x 90	Honu
10/16	RMTP486	RMTP487	X559	X560	97 x 86	Oia
10/16	RMTP488	RMTP489	X561	X562	101 x 92	Oia
10/16	RMTP490	RMTP491	X563	X564	101 X 87	Oia
10/17	RMTP492	RMTP493	X565	X566	104 x 93	Honu/Oia
10/17	RMTP495	X684	X685	X686	112 x 103	Oia
10/17	RMTP496	X687	X688	X689	99 x 87	Oia
10/17	RMTP497	X691	X695	X693	108 x 99	Oia

1991 Date	Tag Numbers				cm Curved carapace L X W	Motu site
	LFF	RFF	LH	RH		
10/17	RMTP498	X567	X569	X568	112 x 103	Oia
10/18	RMTP499	--	S8	--	101 x 96	Honu
10/18	RMTP500	S9	S10	--	102 x 90	Oia
10/18	S11	S12	S13	--	105 x 95	Oia
10/18	S14	S15	S16	--	101 x 93	Oia
10/18	S17	S18	S19	--	101 x 91	Oia
10/18	S20	S21	S22	--	99 x 88	Oia
10/18	S23	S24	S25	--	103 x 91	Oia
10/19	S26	S27	S28	S29	99 x 88	Honu
10/19	S30	S31	S32	S33	103 x 96	Honu
10/19	S34	S35	S36	S37	99 x 88	Oia
10/19	S38	S39	S40	S41	99 x 87	Oia
10/19	S42	S43	S44	S45	103 x 101	Oia
10/19	S46	S47	S48	S49	104 x 97	Oia
10/19	S50	--	--	--	106 x 97	Oia
10/20	S51	S52	S53	S54	99 x 93	Oia

1991 Date	Tag Numbers				cm Curved carapace L X W	Motu site
	LFF	RFF	LH	RH		
10/20	S55	S56	S57	S58	104 x 96	Oia
10/20	S59	S60	S61	S62	106 x 101	Oia
10/20	S63	S64	S65	S66	107 x 99	Oia
10/20	S67	S68	S69	S70	108 x 99	Oia
10/21	S71	S72	S73	S74	106 x 97	Honu
10/21	S75	S76	S77	S78	103 x 96	Oia
10/21	S79	S80	S81	S82	99 x 86	Oia
10/21	S83	S85	S86	S87	111 x 104	Oia
10/21	S84	S88	S89	S90	95 x 94	Oia
10/21	S91	S92	S93	S94	101 x 92	Oia
10/22	S111	S112	S113	S114	106 x 94	Honu
10/22	S115	S116	S117	S118	103 x 95	Honu
10/22	S119	S120	S121	--	98 x 90	(Pen)
10/22	S122	S123	S124	--	97 x 89	(Pen)
10/23	S251	S252	S253	--	104 x --	Oia
10/23	S254	S255	S256	--	99 x 92	Oia

1991 Date	Tag Numbers LFF	RFF	LH	RH	cm Curved carapace L X W	Motu site
10/23	S257	S258	S259	--	108 x 95	Oia
10/23	S260	S261	S262	--	100 x 95	Oia
10/23	S263	S264	S265	--	107 x 94	Honu
10/23	S266	S267	S268	S269	-- x --	Honu
10/23	S270	S271	S272	--	95 x 81	Oia
			Motu-One			
10/19	S126	S127	S128	S129	109 x 97	Poromu Tou
10/19	S131	S130	S132	S133	98 x 91	Poromu Tou
10/20	S134	S136	S137	S138	109 x 97	Poromu Tou

Note: RMTP prefix tags made of titanium; X and S prefix tags made of Inconel.