

SEA TURTLES OF FRENCH POLYNESIA:  
REPORT OF A RESEARCH EXPEDITION TO SCILLY ATOLL AND MOTU ONE

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INTRODUCTION

The three small neighboring atolls of Scilly ( $16^{\circ}30'S$ ,  $154^{\circ}40'W$ ), Motu One ( $15^{\circ}49'S$ ,  $154^{\circ}31'W$ ), and Mopelia ( $16^{\circ}49'S$ ,  $153^{\circ}57'W$ ) are located in a remote and seldom-traveled region of the South Pacific at the western limits of French Polynesia. Maupiti and Bora Bora, two high volcanic islands with permanent human habitation, are situated 250-300 km to the east. Tahiti and the capital city of Papeete lie another 300 km to the southeast of Bora Bora. Although green turtles, *Chelonia mydas*, used to nest in great numbers at Scilly, Motu One, and Mopelia, considerable declines have occurred during recent decades due mainly to commercial exploitation for markets in Tahiti. At present, only Scilly continues to have significant numbers of nesting turtles. Few researchers have visited these three isolated nesting sites to tag turtles and gather relevant ecological information. However, turtles intermittently tagged there in the past by local authorities have shown some amazing long-distance migrations across a broad expanse of the Pacific: from longitudes  $155^{\circ}W$  to  $165^{\circ}E$  (Doumenge 1973, Anon. 1979; see also summaries of these papers by

Balaze 1982, Meylan 1982, Pritchard 1982, and Groombridge and Luxmoor 1989). These movements, ranging up to 4000 km, represent some of the longest migrations ever documented for green turtles worldwide (Fig. 1 & 2). Except for Scilly, there are no other known nesting sites of any magnitude for sea turtles throughout the 130 islands and atolls comprising French Polynesia.

During October 1991, we visited Scilly and Motu One via Bora Bora aboard the 20-m research vessel Aorai to conduct biological studies that included tagging nesting turtles. Several hundred eggs and hatchlings also were collected for ongoing captive-rearing experiments in Tahiti. The expedition was undertaken by EVAAM, an agency of the Government of French Polynesia. Additional financial assistance was provided by the Regional Marine Turtle Conservation Programme of the South Pacific Regional Environmental Programme (SPREP 1991). An overview of the results of the expedition (as of May 1992) are presented herein, along with some historical aspects of green turtles in the area and preliminary conservation recommendations aimed at preventing the further depletion of this important resource.

#### HISTORICAL OVERVIEW

As elsewhere in Oceania, green turtles have been and continue to be a prized food to the native people of French Polynesia (Leach et al. 1984). In ancient times, turtles were held "sacred for the gods" and only eaten by kings, priests, and marae (temple) keepers (Henry 1928). Icons of turtles were associated with royalty, the supernatural, and the afterworld (Rolett 1986). Petroglyphs of turtles as sacred symbols were carved on certain

boulders and limestone slabs incorporated into the marae. In the interior of Bora Bora a boulder known as *ofai honu* (turtle stone), contains numerous turtle petroglyphs. This stone was believed to be the parent of the island and its chiefs (Emory 1933).

There is no evidence that permanent human settlements ever existed on Scilly, Motu One, or Mopelia until recent times, although historically the rugged seafaring people of Maupiti visited these sites to obtain turtles and other resources. Beginning in the late 1800's, longer and more frequent visits occurred to make copra. Mopelia, the closest of the three atolls to Maupiti, appears to have had the most continuous human occupation for copra production (Eggleston 1953). During the 1950's, as many as 200 copra workers occupied Motu One where a concrete warehouse and other facilities were constructed. However, during the 1960's with the advent of nuclear testing and associated higher paying jobs elsewhere in French Polynesia, Motu One was virtually abandoned along with many of the other atolls worked for copra. During our short three-day visit in October 1991, only eight people were living at Motu One. The relatively small numbers of nesting turtles remaining today at Motu One and Mopelia are undoubtedly the direct result of persistent exploitation associated with human habitation.

At Scilly, the earliest settlement established to make copra appears to have been about 1952. The elder of the Taputu family (deceased in 1985) arrived in 1952, and his descendants continue to live there. Rene Taputu, who was born at Scilly in 1955, currently oversees 25 residents that include many children. Rene Taputu is also the principal person knowledgeable about the atoll's turtles, since they continue to be a



prominent component of the local diet. Up to 50 adult turtles of both sexes are consumed annually under special permission previously granted by government authorities.

The main nesting season extends from October to December, but some turtles sporadically nest throughout the year. Very few immature turtles are encountered, and the green turtle is the only species ever seen. The Taputu family has a history of raising small numbers of hatchlings in captivity for a year or so prior to releasing them as a restocking effort.

According to Rene Taputu, and verified by other sources, between 1952 and 1969 about 1000 adult turtles of both sexes were taken annually for markets in Tahiti, as well as for local consumption that included food for pigs. Eggs are not presently eaten, but it is unclear if they were in the past. During 1967, 100 nesting turtles were captured in a single night on the most southerly islet of Motu Honu. A stone flung by a turtle nesting at this site fatally struck one of the atoll's inhabitants in the head. Pens constructed from sinkholes in the interior of Motu Rahi and Motu Oia along the east side of the atoll made it possible to hold several hundred turtles alive for months at a time until a transport vessel arrived from Tahiti, Maupiti, or Bora Bora.

During September 1970, FAO consultant Harold Hirth visited French Polynesia as part of a broader survey of sea turtles in the South Pacific region (Hirth 1971). The visit included an overflight of Scilly and Mopelia. Partly because of Hirth's conservation recommendations, legislation was enacted in 1971 prohibiting the sale of turtles throughout French Polynesia. Restrictions were also placed on the time of year and

minimum size that turtles could be captured. However, enforcement of these laws has been difficult. In separate legislation that same year, Scilly and Motu One were given "sanctuary" status that provided some additional but limited protection for turtles.

In April 1972, 67 adult females held in pens at Scilly were confiscated, tagged (with Monel alloy tags supplied by Hirth), and released by government officials. Later that year in December, 168 more females and 13 males were tagged and released from the same holding pens. During 1973-74, an additional 131 adult females were tagged at Scilly. Of these 379 turtles tagged during 1972-74, 12 long-distance recoveries were made, encompassing the islands of Tonga (1 turtle; 2000 km), Fiji (5 turtles; 3000 km), Wallis (1 turtle; 3000 km), New Caledonia (2 turtles; 4000 km), and Vanuatu (3 turtles; 4000 km). All recoveries were made to the west of Scilly, and none occurred within French Polynesia. Two of the recoveries involved males that were recaptured in Kandavu and Druadrua, Fiji. Also, a female, and one of the males, tagged in December 1972 were recaptured nearly 2 years later within 12 days of one another both in Kandavu, Fiji. All of the 12 recoveries were made in coastal waters and presumably involved turtles remigrating to seagrass or algal foraging pastures where they resided before migrating to Scilly to breed. During 1979, 42 females were tagged at Scilly by government officials, and 40 more were tagged in 1983-84 by Lebeau (1985). One turtle from this latter group was recaptured 3 months later in the Cook Islands, 500 km to the southwest of Scilly.

During 1987, a team led by Jacques Cousteau visited Scilly by seaplane and helicopter to film a documentary for TV. Scenes in this film show Rene



Taputu hand-capturing a large turtle in the water along the seaward fringing reef.

In 1990, several hatchlings were collected at Mopelia by EVAAM and transported to the University of Georgia, via Honolulu, for use in mitochondrial DNA studies of globally distributed green turtle populations (Bowen et al. in press). The extensive black pigment seen for a short time in the plastron of post-hatchling green turtles from Hawaii (Balazs 1986) was documented as also occurring in turtles from Mopelia.

It should be noted that Scilly is sometimes known by the name Fenua Ura, or Manuae (not to be confused with Manuae in the Cook Islands). Motu One is also called Bellingshausten, after the Russian explorer that passed through this region of the Pacific in 1820. Mopelia is shown as Maupihaa on some maps of the Pacific.

#### FINDINGS AT SCILLY ATOLL

Nesting activity was monitored at Scilly for 10 consecutive nights (14-23 October 1991) on the islets of Motu Honu and the southern portion of Motu Oia (Fig. 3). This fairly comprehensive level of coverage was made possible by the fine cooperation of Rene Taputu and several family members who assisted in walking the beaches throughout the night. The northern segment of Motu Oia, Motu Rahi, and other islets to the north were not surveyed. Eleven nesting turtles were tagged on Motu Honu and 39 were tagged on Motu Oia (Fig. 4). Two other seemingly healthy adult females were tagged and released from a pen where, along with eight other turtles, they were being held for food. The surface water temperature in the pen was 35<sup>o</sup>-40<sup>o</sup>C, and the abundance of mosquitos suggested low water salinity.

All turtles were triple or quadruple tagged on the flippers (both front and hind) with titanium tags and/or Inconel alloy tags (Table 1). No previously tagged turtles were encountered, nor were any recently seen by Rene Taputu. Based on limited data, Lebeau (1985) estimated that 300-400 turtles nested annually at Scilly during the 1982 and 1983 seasons. With some speculation, our survey suggests that a similar number of nesting turtles may have been present throughout the atoll during the 1991 season. Rene Taputu stated that relatively fewer turtles had been present during the 1990 nesting season, in contrast to the number nesting during our visit.

The curved carapace lengths of 51 of the 52 tagged turtles that we were able to measure ranged from 95 to 112 cm, mean= 103 cm (Fig. 5). Six shells used by Rene Taputu as ornaments at his home on Motu Oia ranged from 94 to 109 cm, mean= 99 cm. Carapace coloration was predominately mottled brown, amber, olive, and black-- similar to green turtles seen nesting at Rose Atoll in American Samoa and Fakaofu Atoll in Tokelau. Plastrons were yellowish-orange; however, three of the turtles examined had distinct black spots ranging 1-5 cm in diameter. One of these turtles had multiple spots scattered throughout the plastron, while the other two only had a couple. Rene Taputu indicated that about 10% of the turtles he eats have these spots which he calls, roughly translated, "chicken fecal-drop turtles." Although externally these turtles appear healthy and fat, when butchered they have a thin fat layer, and excessive water comes from the meat when cooked.

Turtles tagged at Motu Honu were found to nest mainly on the lagoon side of the islet where the beach consists entirely of fine-grained coral



sand with no offshore obstructions. This beach is accessible at all tidal stages. In contrast, all nesting turtles encountered at Motu Oia, except one, came ashore on the ocean side of the islet, which is bordered by a very shallow fringing reef that drops abruptly into deep oceanic waters. Access along this coastline is further hampered by rugged, often sharp limestone onshore that a turtle must crawl over once it leaves the water. Expanses of this beach rock extend for 10-50 m above the high-tide mark and must be crossed to reach sand areas suitable for nesting. Conversely, when leaving the nest, hatchlings must negotiate this rocky area with some difficulty to crawl to the sea. The lagoon-side beach of Motu Oia is narrow and free of obstruction, but composed of coarse coral sand and rubble. Nevertheless, nesting can successfully occur there, as shown by the turtle encountered and information supplied by Rene Taputu.

During one of our nightly surveys, hatchlings were found from a newly emerged nest close to Rene Taputu's home on Motu Oia. The hatchlings were reportedly from oviductal eggs removed from a butchered turtle that were buried as a conservation effort about 2 months earlier. No predation on these hatchlings was observed, nor was the presence of potential terrestrial or marine predators noted in abundance anywhere in or around the atoll. However, during a visit to Scilly in 1984, large numbers of hermit crabs were seen by one of us (JPL) on Motu Honu. Tracings were made of the hind flippers of 20 of the hatchlings encountered at Motu Oia for comparison with green turtle hatchlings from Hawaii and Florida. A preliminary analysis of these data indicate that hatchlings from the Pacific, when adjusted for carapace length, have significantly larger hind



flippers than hatchlings from Florida. The curved carapace length of hatchlings examined at Motu Oia ranged from 45 to 50 mm, range= 48.9 mm.

A partially filled stomach from a nesting female butchered a week earlier was salvaged from a garbage pit near Rene Taputu's home. The contents were found to consist of 50% Microdictyon japonicum, 25% Caulerpa serrulata, and 25% Turbinaria ornata. These benthic algae were not seen in abundance in the lagoon or along the fringing reef. However, Caulerpa racemosa, an alga sometimes grazed by green turtles elsewhere, commonly occurs in the lagoon at Scilly and is often eaten by human inhabitants.

The discarded and sun-dried limb bones (humeri) of 15 adult turtles that had been used for food by atoll residents were collected for skeletochronological aging studies. This research may eventually provide important information on the age of turtles breeding at Scilly Atoll. For example, in the Hawaiian Islands, based on tag-and-recapture studies of immature turtles, it is estimated that green turtles in the wild take an average of 25 years to reach sexual maturity (>88 cm in curved carapace length).

Mating turtles were seen both in the lagoon and just outside the seaward edge of the fringing reef where courtship and copulation, according to Rene Taputu, most commonly occur. Turtles mating in this latter area are openly susceptible to capture by high-speed 12-m bonito fishing boats visiting waters surrounding the three atolls. A month prior to our arrival, seven turtles and a bonito boat were taken into custody at Maupiti for violating the August through March closed season for taking turtles. Considerable incentive exists for poaching, since an adult turtle can be

illegally sold in Tahiti for about US\$1000. Turtles inside the lagoons at Scilly, Motu One, and Mopelia are safe from hunting by bonito boats, because it is impossible for vessels of that size to enter the narrow and extremely hazardous passes. In addition, turtles in the lagoons at Scilly and Motu One are legally protected under the 1971 sanctuary designation.

On 15 October 1991, 14 juvenile turtles that Rene Taputu had raised from hatchlings collected during the 1990 season were measured, tagged, and released into the lagoon. These turtles were in excellent condition and ranged from 14 to 20 cm in curved carapace length, mean= 17.8 cm (Table 2). In addition, a 51 cm juvenile captured 2 months earlier in a fishtrap was tagged (X669, RMTP483) and released at the same time.

A nesting turtle that we tagged on Motu Oia on 18 October 1991 was recaptured 5 months later, on 23 March 1992, in a fishing net at Toberua Island near Suva, Fiji. A photograph taken shortly after capture showed an otherwise healthy turtle with numerous, partially healed, deep gouges in the plastron (Fig. 6). Injuries to this extent were not seen when the turtle was originally tagged, nor on any of the other turtles examined. Possibly they were caused by the effects of cyclone Wasa that passed by the three atolls on 9-10 December 1991 with winds of 180 km/h.

#### FINDINGS AT MOTU ONE

Nesting activity at Motu One could only be monitored for two nights (18-19 October 1991). In addition, only partial coverage could be achieved, mainly on the principal islet (Motu Poromotou) where turtles come ashore (Fig. 7). The limited coverage at Motu One resulted from the short time we



had available at the atoll, poor weather conditions, and the small resident human population (6 men, 2 women) available to assist in walking the lengthy beaches at night. One of our team members (JPL) remained at Scilly to tag turtles, while the other two (PS and GHB) traveled 75 km north to Motu One aboard the research vessel Aorai.

Only three nesting turtles, all Chelonia mydas, were tagged at Motu One (Table 1). To our knowledge, these are the first turtles ever tagged at this atoll. The curved carapace lengths of the turtles measured 98 cm, 109 cm, and 109 cm. The dried carapace of a male green turtle captured for food a few months earlier outside the fringing reef measured 88 cm. One of the three nesting females examined had a single blackish streak in the plastron, similar to the spots previously described in turtles at Scilly. All three turtles came ashore on the ocean side of Motu Poromotou, where a shallow fringing reef borders the coastline, similar to Scilly. As at Scilly, expanses of beachrock were present above the high-tide mark on the ocean side of the islet. Turtles must cross this rugged region in order to reach sand areas suitable for nesting. In contrast, the lagoon-side beach of Motu Poromotou mainly consists of fine coral sand, with virtually no obstructions. No signs of nesting were seen along this beach, although residents reported that turtles do occasionally come ashore. A census of nesting pits (including ones that may have been false) along the entire ocean side of Motu Poromotou resulted in 28 being identified. Plastic debris and other synthetic drift material were found in abundance on this coastline, unlike the small quantity encountered at Scilly.

Comparatiavely little interest in eating turtles appeared to exist

among the residents of Motu One. Perhaps not more than one turtle per month was being taken for food, and during some months none at all. As at Scilly, the green alga, Caulerpa racemosa, was present in the lagoon and formed a part of the residents' diet.

Newly emerged hatchlings were found during one of the nightly surveys, again demonstrating that some nesting had occurred up to 2 months earlier. Although predation on hatchlings was not observed, the presence of hermit crabs in abundance at Motu One constituted a potentially serious threat. The curved carapace lengths of 30 of the 52 hatchlings collected ranged from 47 to 51 mm, mean= 49 mm. Tracings of the hind flippers were also taken on these 30 turtles.

Two months after our departure from Motu One, storm waves and high winds from cyclone Wasa inflicted major damage to the dwellings and other facilities located there. Fortunately, there was no loss of life. After the storm passed, all of the residents were evacuated to Tahiti by military helicopter. The resettlement of the atoll is pending.

#### CONSERVATION RECOMMENDATIONS

-The number of turtles taken for food by the residents at Scilly should be limited to two per month, and preferably should be male turtles.

-The number of people allowed to live at Scilly should be stabilized at the current level or less.

-Rene Taputu should be designated as the official warden of Scilly under the sanctuary status. He should also be supplied with a portable shortwave radio to allow communications with Tahiti.

-The sanctuary status of both Scilly and Motu One should be redefined to include the surrounding waters within one kilometer of both atolls.

-Turtle poachers should be apprehended, prosecuted, and heavily fined.



-Additional tags, applicators, and data books should be supplied to Rene Taputu so he will continue to be motivated, and have the ability, to tag turtles following the training we provided.

-An assessment should be undertaken to determine what impacts may have occurred to nesting habitats and turtles at Motu One, Scilly, and Mopelia as the result of cyclone Wasa.

-Satellite telemetry should be conducted with several nesting turtles at Scilly to determine exact migratory routes, speeds of travel, and ultimate foraging pasture destinations. This work should be in conjunction with additional saturation tagging throughout as much of the peak nesting season as possible.

-The number of nests (eggs or hatchlings) taken annually from Scilly for experimental captive rearing and restocking efforts in Tahiti should not exceed 3% of the estimated total available.

-Educational efforts by the Government of French Polynesia on behalf of sea turtle conservation should be continued, and expanded if possible, in cooperation with the SPREP Regional Marine Turtle Conservation Programme.

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TABLE 1.

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

1991 Date	Tag Numbers			RH	Curved carapace L X W cm	Motu site
	LFF	RF	LH			
	<u>SCILLY</u>					
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
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



Table 1. continued

1991 Date	Tag Numbers				Curved carapace L X W cm	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

Table 1. continued

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

Table 1. continued

1991 Date	Tag Numbers				Curved carapace L X W cm	Motu, site
	LFF	RFF	LH	RH		
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
<u>Motu One</u>						
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.

SCILLY1-8T.GHB



**TABLE 2.**  
**Tagging and Measurement Data for 15 Juvenile Green Turtles**  
**Released at Scilly Atoll, French Polynesia**  
**on October 15, 1991**

Tag no.	Curved carapace		Released by
	length	width	
X670	18.7	16.3	Diana (mama)
X671	19.2	17.5	Rene
X672	20.0	16.7	Janvier
X673	18.2	16.0	Omeri
X674	19.7	18.0	Ismael
X675	17.2	14.8	Tavita
X676	16.8	14.6	Bertho
X677	18.4	16.7	Teva
X678	15.9	14.3	Teheiki
X679	14.0	12.2	JDTK
X680	18.2	15.7	Edy
X681	18.1	15.7	GHB
X682	16.7	14.8	Jean-Pierre
X683	18.8	17.5	Axel
RMTP483, X669	51.0	47.0	Ismael
(This turtle captured approximately 2 ago months in Rene's fishtrap)			

FIGURE 4.

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

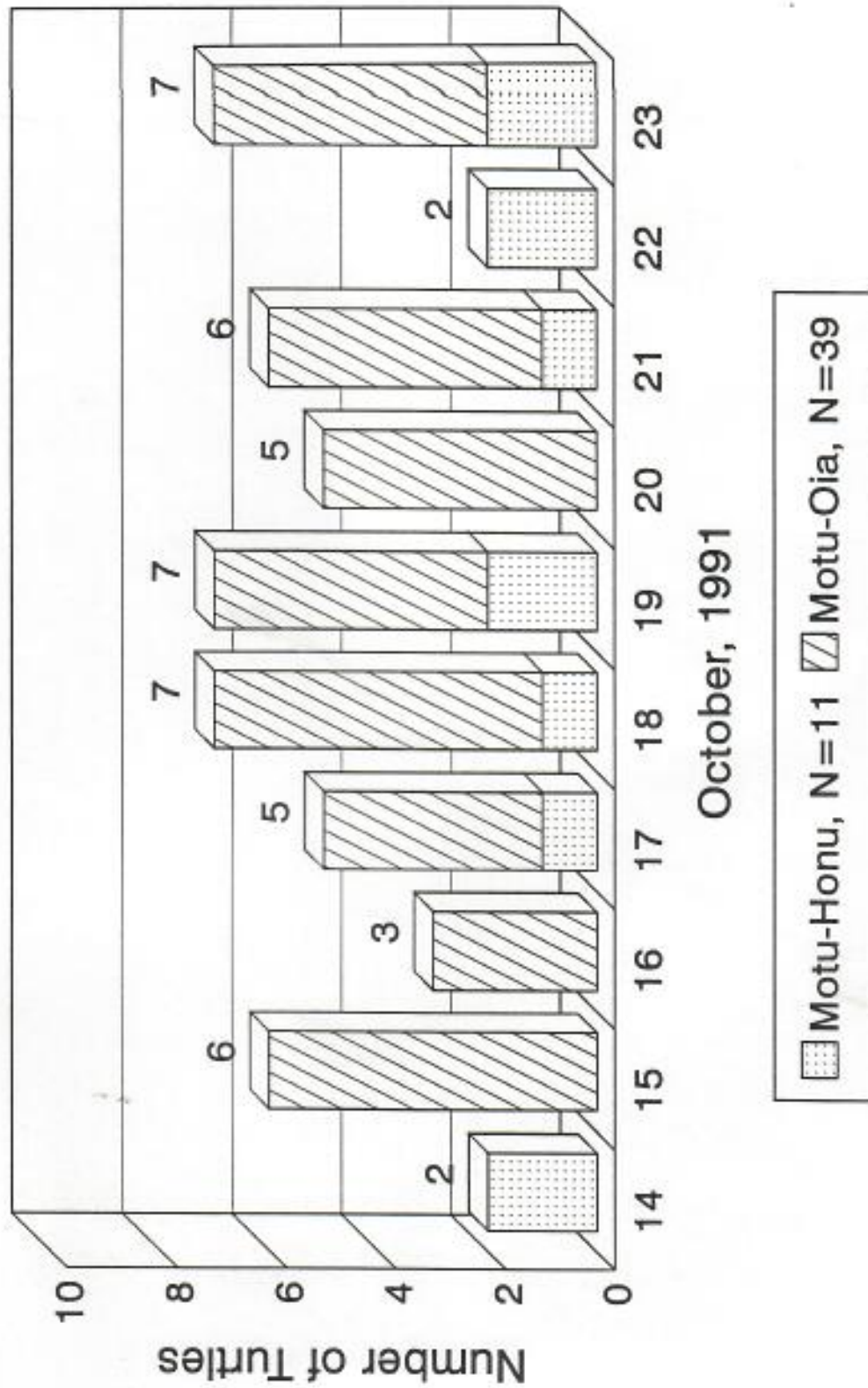
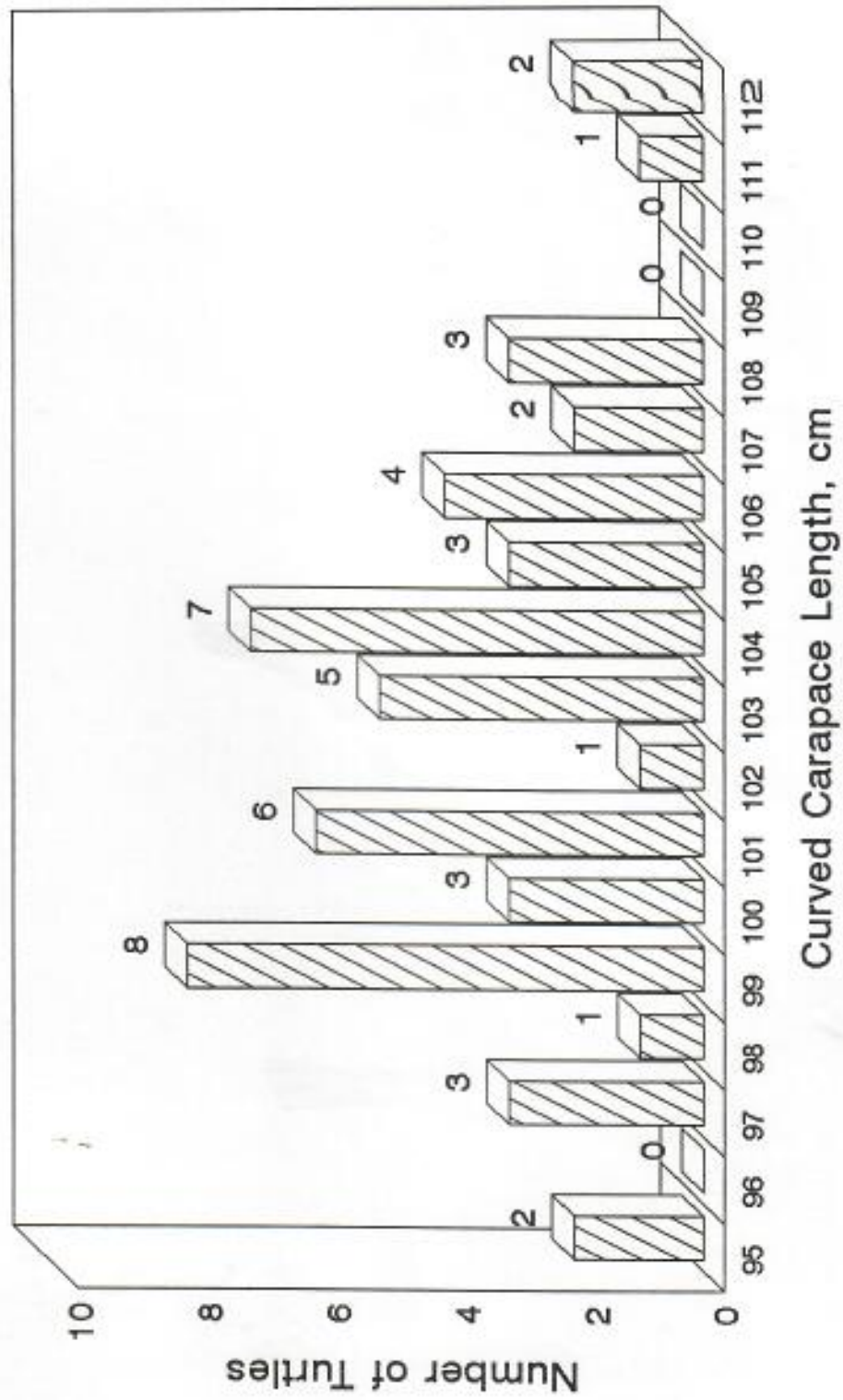


FIGURE 5.

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





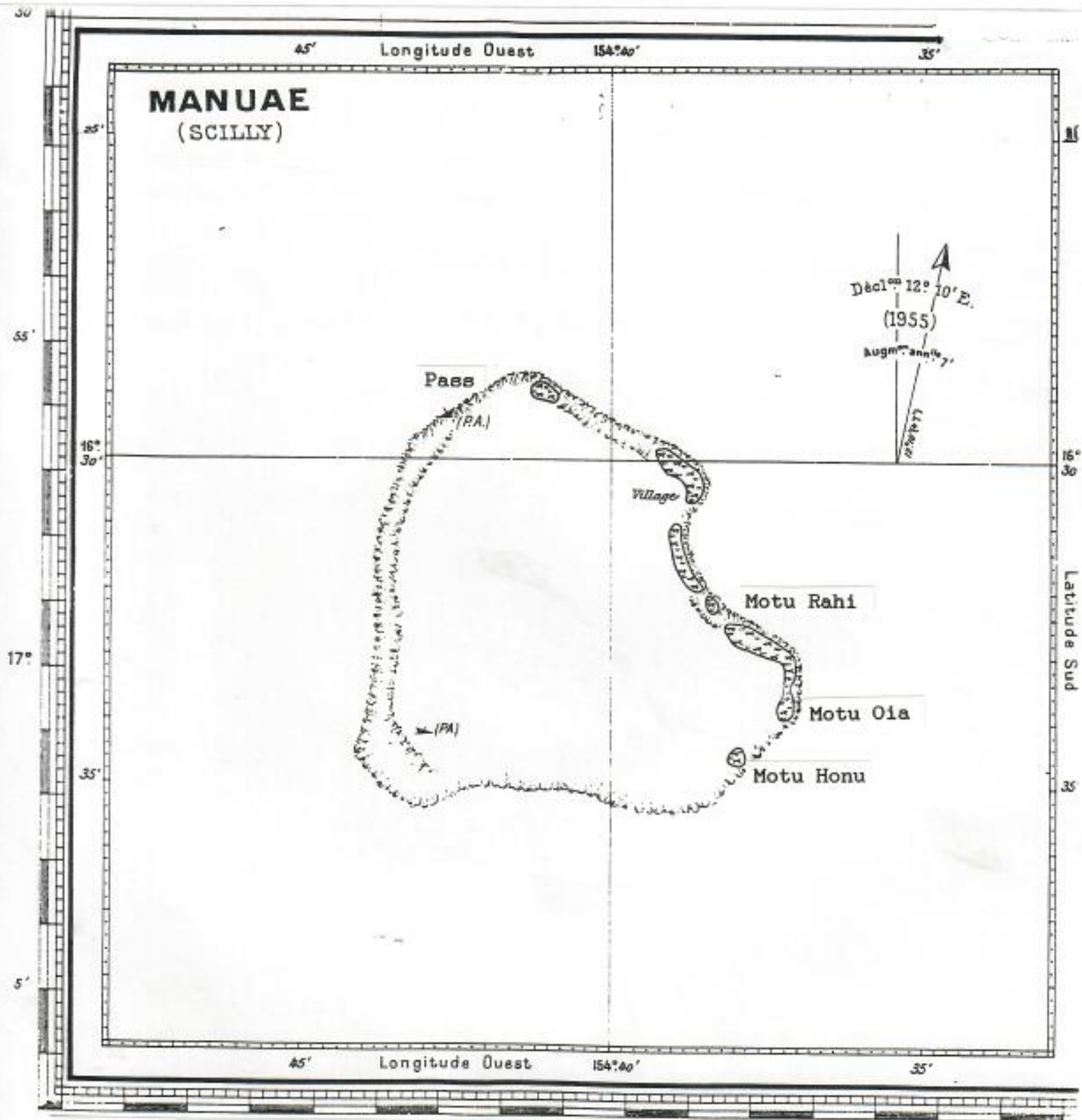


FIGURE 3. Map of Scilly Atoll (Manuae)  $16^{\circ}30'S$ ,  $154^{\circ}40'W$ . The greatest distance across the lagoon is about 13 km, or 7 nautical miles.

Latitude Sud

35'

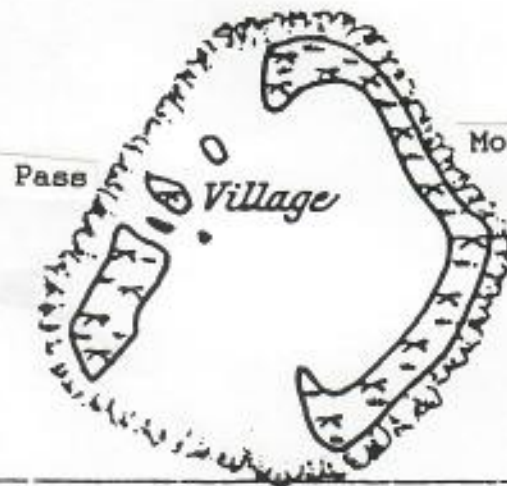
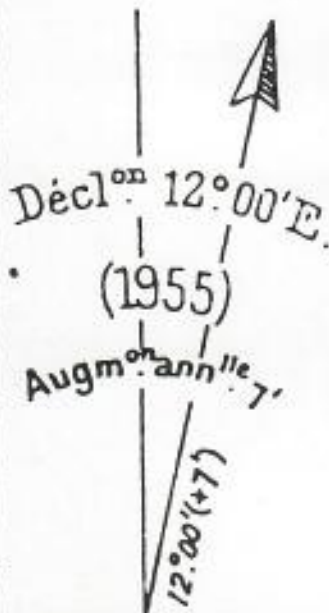
Longitude Ouest.

154°30' 27

45'

# MOTU ONE (BELLINGSHAUSEN)

16°  
50'



15°  
50'

35'

Longitude Ouest

154°30'

FIGURE 7. Map of Motu One (Bellingshausen) 15°49'S, 154°31'W. The greatest distance across the lagoon is about 3.7 km, or 2 nautical miles.

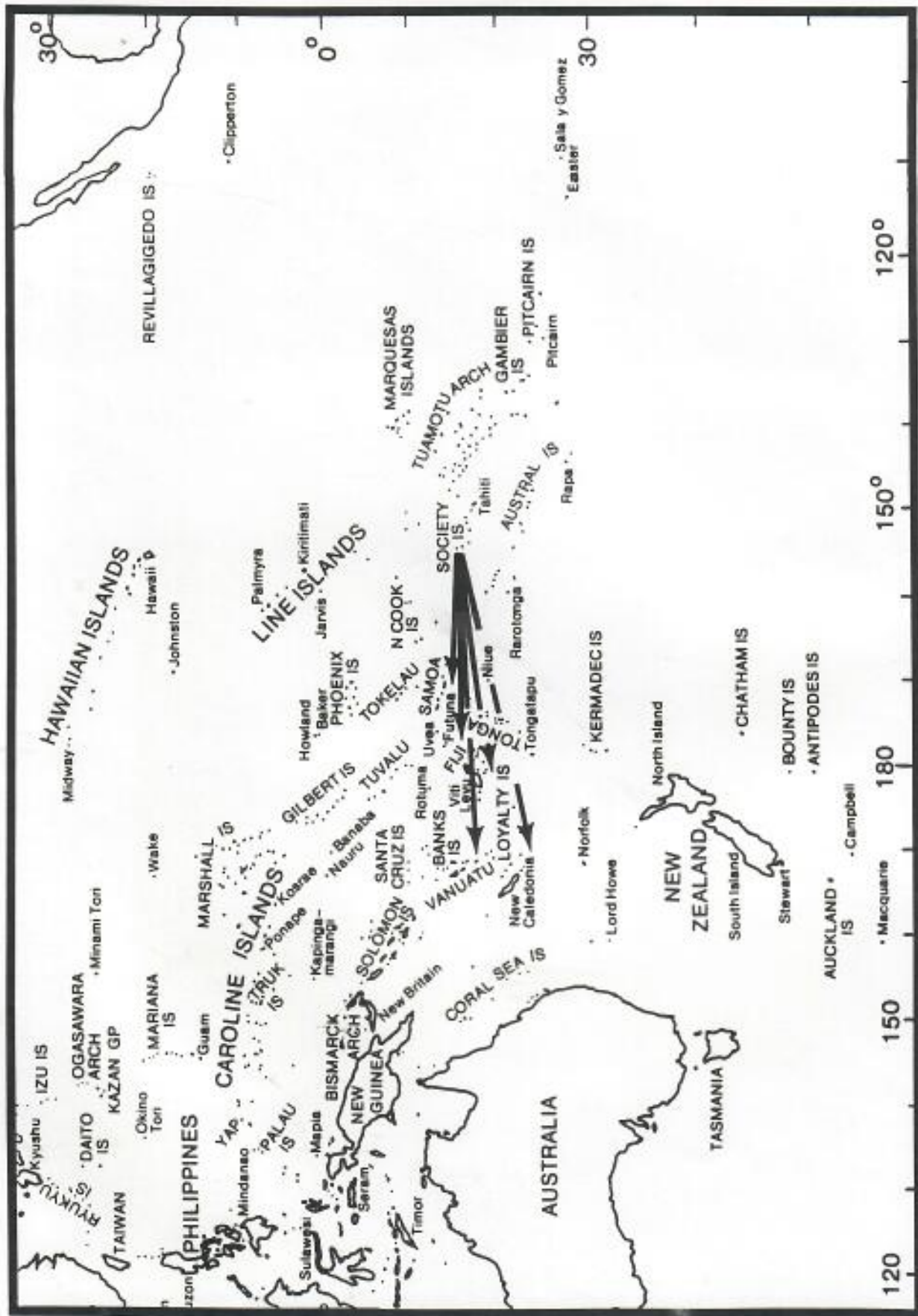


FIGURE 1. Tag recoveries across the Pacific basin documenting the migrations of green turtles breeding at Scilly Atoll. These westward movements represent the return of adult male and female green turtles to their resident foraging pastures, following the seasonal eastward voyage to Scilly for copulation and lay eggs.



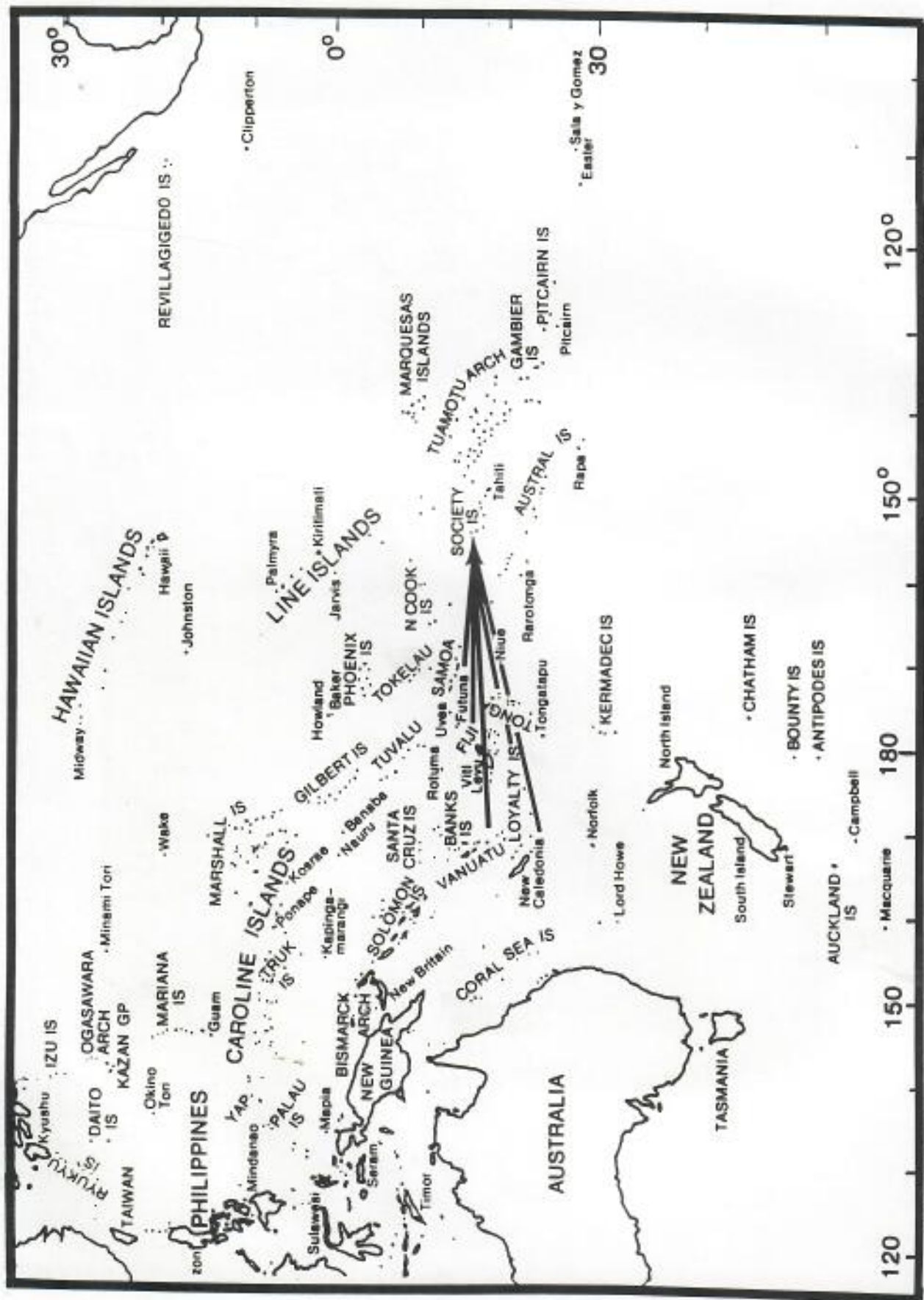


FIGURE 2. Migration map illustrating the eastward movements of adult male and female green turtles from their resident foraging pastures to the breeding site of Scilly Atoll. The migrations shown here are the converse of those documented by direct tag recoveries, as presented in Figure 1.



**FIGURE 6.** Photograph of 101 cm adult female green turtle recaptured in a fishing net at Toberua Island near Suva, Fiji on 23 March 1992. Partially healed injuries are visible in the plastron. The turtle was originally tagged (with tags S17-S19) while nesting at Motu Oia, Scilly Atoll on 18 October 1991. A migration of approximately 3000 km was accomplished by this turtle, from its nesting site at Scilly to its resident foraging pasture in Fiji.

Photo Taken Tues, March 24  
Toberna Island Resort  
Suva, Fiji

Taken by Lou Connick  
Box 855  
Old Lyme  
CT. 06371