

# 1985 Sea Turtle Population Assessment of Oroluk Atoll

BY

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## I. INTRODUCTION

Oroluk Atoll is a low coral atoll located northwest of Pohnpei (7°30'N, 155°20'E) (Figure 1). Since the early 1960's until present a group of 6 - 20 Kapingamarangi people have resided on Oroluk Island with Pohnpei government's consent. In the past, residents have observed large numbers of hawksbill sea turtles (Eretmochelys imbricata) and green sea turtles (Chelonia mydas) utilizing Oroluk Island as a nesting ground. Recently, there have been reports of drastic decline in green turtle nesting and little to no hawksbill turtle nesting. A rapid decline in nesting is due to increasing human population pressure, development of previously uninhabited islands and increasing hunting for turtles.

The inhabitants of Oroluk have built a stone holding pen, and turtles are placed within the pen to await the government field trip ship which calls about 4 - 6 times per year. Until recently turtles were loaded aboard the field trip vessel for return to Pohnpei, where they were either sold or eaten in the Kapingamarangi village there. The enforcement of the Endangered Species Act has put a stop to commercialization but subsistence use is still allowed under Federal Law (McCoy, 1982).

Due to the current population status of sea turtles in Micronesia, the hawksbill turtle is listed as endangered and the green turtle is listed as threatened. Therefore, certain hunting restrictions exist.

The nesting season is reported to be from May- September. Pritchard (1982) reports that nesting occurs in December and January, but residents I have interviewed contest this report. The small island near Keltie Pass (Figure 1) was once a turtle nesting ground, but is no longer utilized.

Conservation attempts by residents have existed for many years. Fencing, if available, or logs are placed around approximately 50% of the nests to hold the emerging hatchlings. The hatchlings are held in an ice chest- type container for 3- 4 months until the carapace is hard and the turtle large enough to avoid predation. The hatchlings are fed clam meat. The remaining uncovered nests are allowed to hatch naturally. Other conservation methods include: no harvesting of eggs, females are only captured after nesting and, as reported by a recently returned resident, only one turtle is eaten monthly.

The Oroluk project goals for nesting season 1985 were to assess the sea turtle population and tag turtles with identification tags, assess the coconut crab (Birgus latro) population and to make other general resource observations. Oroluk Atoll is a large rookery for various bird species. Future bird population assessments will be conducted. It is important to note that the remoteness of Oroluk Atoll makes transportation and work there difficult.



## II. METHODS

Nightly patrols were made from June 1- July 10, 1985 on Oroluk Island (Figures 1&2). As the female turtle was laying her eggs, a straight-line carapace length was measured and the number of eggs counted. On her return to the sea she was turned over and two Inconel tags applied, one on each front flipper. All information was recorded on data sheets, including: identification tag numbers, date/time, carapace length, false crawl or nest, number of eggs, nest location, weather conditions and identifiable bodily characteristics (Table 1). A false crawl is defined as an attempt by the female turtle to crawl on land in search of a nest site, but if disturbed she will not nest and return to the sea. Also, old discarded humerus bones were collected and sent to National Marine Fisheries Service, Hawaii, for age dating.

The coconut crab population was assessed almost nightly by randomly selecting a station with 2- 4 sampling areas. Each area was stepped-off to be 30- 35 sq. meters in size (average 32 sq. meters). In each area were placed 5- 7 coconut halves as bait that were allowed to remain for 1- 2 hours before counting the crabs. All sized crabs were counted and usually the largest were captured and eaten. The project team observed that the crabs preferred to crawl on grass and coral areas and would not crawl on sandy areas. It should be noted that these crabs may have been repeatedly counted in different stations. Data was collected on the date, time and total number of coconut crabs in each area (Table 3).

## III. RESULTS AND DISCUSSION

Table 1. Green sea turtle nesting data at Oroluk Island, June 1 to July 10, 1985.

Turtle #	Tag #	Date/time	Carapace length(cm)	False crawl/Nest	#Eggs
1	4302;4303	6-4-85/0135	110cm	false crawl	--
"	"	6-11-85/0500	"	nest	120
2	4304;4305	6-26-85/0105	95cm	false crawl	--
3	4306;4307	7-1-85/ 0505	100cm	nest	132
4	4308;4309	7-4-85/0405	107cm	nest	128

The green sea turtle was the only species of turtle seen and tagged by the project team. Three nests and two false crawls occurred (Figure 2). Four female turtles were tagged. The project team explained to the Oroluk residents the importance of this work and tagging efforts. The residents agreed not to kill or eat turtles with tags.

The residents of Oroluk reported the total number of nests for each month of the 1985 nesting season (Table 2). The first nest was laid on April 24, 1985.

Table 2. Monthly nesting of green turtles at Oroluk Island, 1985.

	<u># of nests</u>
April	1
May	20
June	3
July	18
August	7
September	1
October	0
total # nests	<u>50</u>

Table 3. Coconut crab data at Oroluk Island, 1985.

Station #	Date	Time	Area #	# Crabs in each area
1	6/4	2224	1	9
			2	6
			3	9
2	6/5	2230	4	5
			5	0
			6	4
3	6/6	2343	7	4
			8	14
			9	24
4	6/8	2202	10	23
			11	10
			12	7
5	6/10	2230	13	7
			14	6
			15	7
6	6/11	2110	16	3
			17	10
			18	7
7	6/12	2355	19	3
			20	5
			21	7
8	6/13	2158	22	15
			23	5
			24	5
9	6/14	2205	25	3
			26	10
			27	25
10	6/15	2215	28	20
			29	15
			30	30

Continued Table 3. Coconut crab data at Oroluk Island, 1985.

Station #	Date	Time	Area #	# Crabs in each area
11	6/16	2215	31	25
			32	17
			33	20
12	6/17	2225	34	15
			35	13
			36	16
13	6/18	2156	37	8
			38	20
			39	16
14	6/19	2240	40	20
			41	15
			42	21
15	6/20	2302	43	16
			44	21
			45	17
16	6/21	2113	46	13
			47	15
			48	24
17	6/22	2138	49	11
			50	25
			51	15
18	6/23	2245	52	12
			53	18
			54	13
19	6/24	2302	55	10
			56	5
			57	15
20	6/25	2230	58	10
			59	5
			60	10
21	6/26	2235	61	0
			62	10
			63	5
22	6/27	2150	64	13
			65	11
			66	3
23	6/28	2115	67	2
			68	3
			69	3
24	6/29	2215	70	0
			71	0
			72	0
25	6/30	2230	73	15
			74	20
			75	13
26	7/2	2305	76	5
			77	3
			78	4



There were 869 coconut crabs counted in 78 areas (26 stations). It is estimated that .35 coconut crabs per square meter inhabit Oroluk Island.

$$\frac{869 \text{ total \# crabs} / 78 \text{ areas}}{2496 \text{ total \# sq. meters} / 78 \text{ areas}} = \frac{11.14 \text{ average \# crabs}}{32 \text{ average sq. meters}}$$

$$= .35 \frac{\text{coconut crabs}}{\text{sq. meter}}$$

Budget

This budget is planned to support a working team of two people for 2 months. These figures are not exact.

A. Transportation	\$100.00
B. Provisions (food)	400.00
C. Equipment	231.00
D. Labor	1000.00

Total cost = \$1791.00

IV. CONCLUSION

The sea turtle is a valuable food resource. The meat provides an important source of nutrition to people of the FSM in their subsistence lifestyle. A decline in the sea turtle population will adversely effect the availability of this food resource. It is obvious that a rapid decline in turtle nesting exists at Oroluk Atoll. Conservation and management measures must be established soon in order to stabilize and increase the population.

Since the nesting season at Oroluk is reported to be from May to September, an accurate account of the nesting population can not be made if the project team is there for only one month. It is strongly recommended that the turtle assessment work be reported for the full 1986 nesting season at Oroluk Atoll.

NOT  
NECESSARILY  
TRUE

Prospective plans exist to establish Oroluk Atoll as a marine reserve. In order for these plans to be met, more resource assessment and research work must be conducted.

V. ACKNOWLEDGMENTS

The 1985 sea turtle population assessment project was funded by the Economic Development Authority. Mike Gowel, FSM Chief of Marine Resources, acted as advisor to the project. Dr. George H. Balazs, Wildlife Biologist for National Marine Fisheries Service, Honolulu, Hawaii, provided technical information, permission to tag turtles and supplied the tags. Tashiro Ludwig

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#### VI. REFERENCES

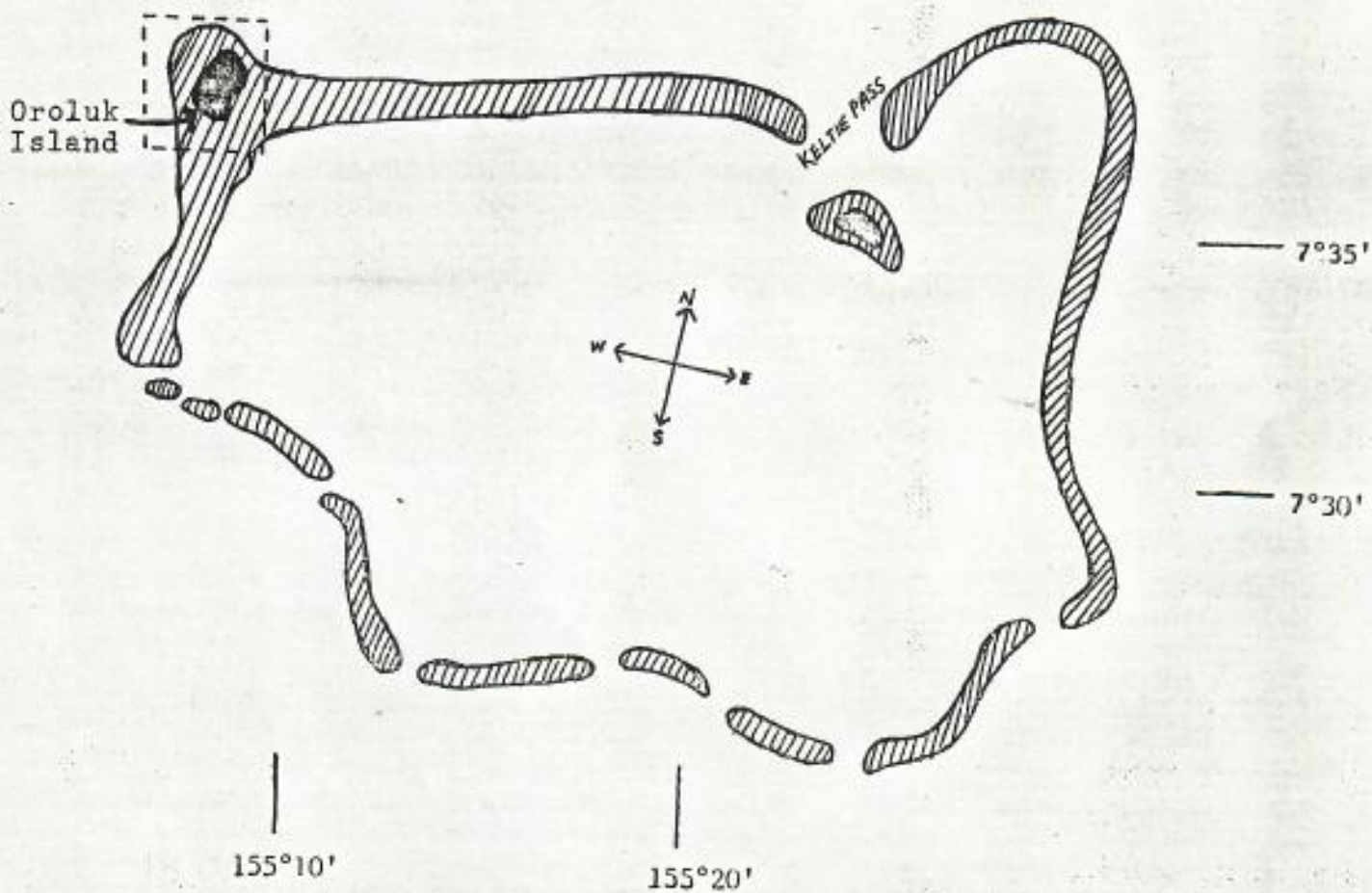
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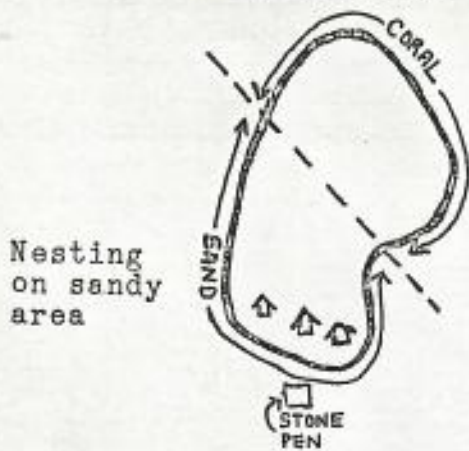
ORCLUK ATOLL

■ land

▨ reef



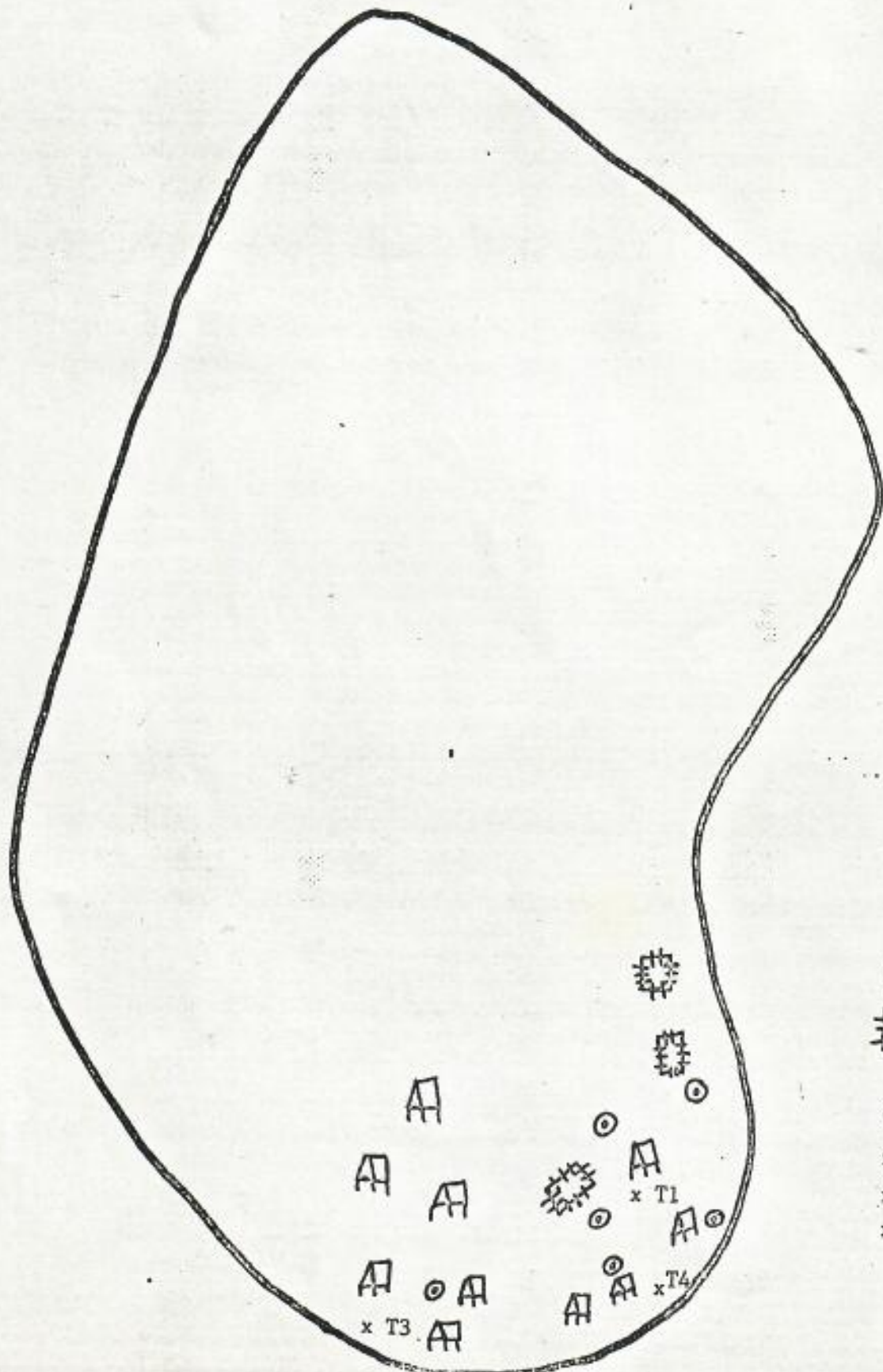
ORCLUK ISLAND



\*Note: map not drawn to scale

Figure 1. Location of project

OROLUK ISLAND



- A - hut
- ⊛ - pig pen
- ⊙ - other nests
- xT1 - turtle nest #1
- xT3 - turtle nest #3
- xT4 - turtle nest #4

Figure 2. Map of island

stone pen

stone pen