THE NATIONAL REPORT
EL REPORTE NACIONAL

FOR THE COUNTRY OF
POR EL PAIS DE

BARBADOS

NATIONAL REPRESENTATIVE / REPRESENTANTE NACIONAL

WAYNE HUNTE

Western Atlantic Turtle Symposium
Simposio de Tortugas del Atlantico Occidental

17-22 July / Julio 1983
San José, Costa Rica
Barbados National Report, WATS I Vol 3, pages 36-40

WESTERN ATLANTIC TURTLE SYMPOSIUM
San José, Costa Rica July 1983

NATIONAL REPORT FOR THE COUNTRY OF

BARBADOS

NATIONAL REPORT PRESENTED BY

Dr. Wayne Hunte
The National Representative

Address:
Bellairs Research Institute of McGill University
St. James, Barbados, West Indies

NATIONAL REPORT PREPARED BY

Dr. Wayne Hunte

DATE SUBMITTED 11 January 1983

Please submit this NATIONAL REPORT no later than 1 December 1982 to:

IOC Assistant Secretary for IOCARIBE
% UNDP, Apartado 4540
San José, Costa Rica

Barbados National Report, WATS I Vol 3, pages 36-40

WIDECAST
Wider Caribbean Sea Turtle Conservation Network

With a grant from the U.S. National Marine Fisheries Service, WIDECAST has digitized the databases and proceedings of the **Western Atlantic Turtle Symposium (WATS)** with the hope that the revitalized documents might provide a useful historical context for contemporary sea turtle management and conservation efforts in the Western Atlantic Region.

With the stated objective of serving "as a starting point for the identification of critical areas where it will be necessary to concentrate all efforts in the future", the first Western Atlantic Turtle Symposium convened in Costa Rica (17-22 July 1983), and the second in Puerto Rico four years later (12-16 October 1987). WATS I featured National Reports from 43 political jurisdictions; 37 presented at WATS II.

WATS I opened with these words: "The talks which we started today have the multiple purpose of bringing our knowledge up to date about the biological peculiarities of the marine turtle populations of the western Atlantic; to know and analyse the scope of the National Reports prepared by the scientific and technical personnel of more than thirty nations of the region; to consider options for the orderly management of marine turtle populations; and in general to provide an adequate forum for the exchange of experiences among scientists, administrators, and individuals interested in making contributions for the preservation of this important natural resource."

A quarter-century has passed, and the results of these historic meetings have been lost to science and to a new generation of managers and conservationists. Their unique importance in providing baseline data remains unrecognized, and their potential as a "starting point" is neither known nor appreciated.

The proceedings document what was known at the time concerning the status and distribution of nesting and foraging habitat, population size and trend, mortality factors, official statistics on exploitation and trade, estimated incidental catch, employment dependent on turtles, mariculture operations, public and private institutions concerned with conservation and use, legal aspects (e.g. regulations, enforcement, protected areas), and active research projects. In most cases it was the first time a national sea turtle assessment had been conducted.

Despite the potential value of this information to agencies responsible for conducting stock assessments, monitoring recovery trends, and safeguarding critical habitat in the 21st century, the hand-written National Reports, largely illegible in the published proceedings, have slipped into obscurity. To help ensure the legacy of these symposia, we have digitized the entire proceedings, including the National Reports, plenary presentations and panels, and annotated bibliographies of both meetings, and posted them online at http://www.widecast.org/What/RegionalPrograms.html.

Each article has been scanned from the original document. Errors in the scan have been corrected; however, to be true to the original content (as closely as we can discern it), potential errors of content have not been corrected. This article should be cited:

Hunte, W. 1984. National Report for Barbados, pp.36-40. *In*: Bacon, P., F. Berry, K. Bjorndal, H. Hirth, L. Ogren and M. Weber (Editors), Proceedings of the First Western Atlantic Turtle Symposium, 17-22 July 1983, San José, Costa Rica. Volume III: The National Reports. RSMAS Printing, Miami.

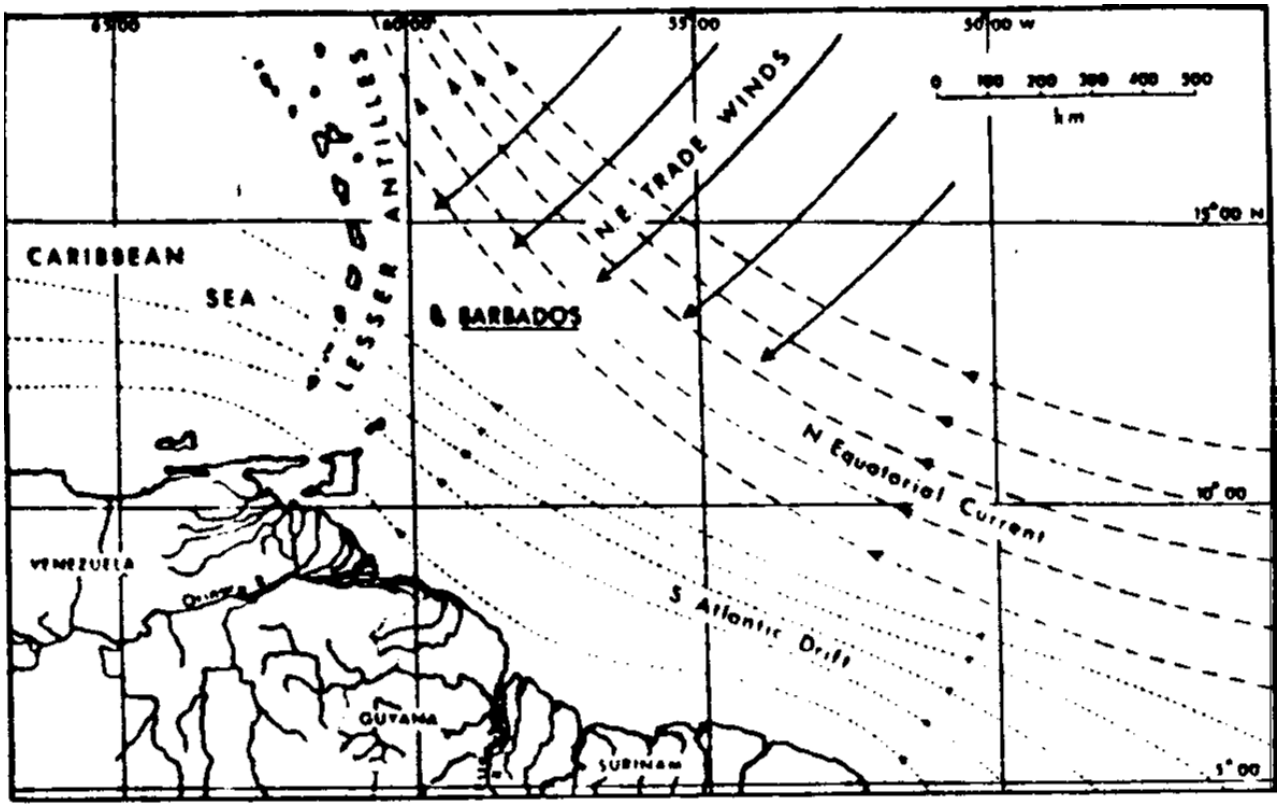
Karen L. Eckert
WIDECAST Executive Director
June 2009

COUNTRY: BARBADOS

TABLE 1. GEOGRAPHIC INVENTORY	
Length of Coastline*	57 mi / 91.7 Km**
Continental Shelf Area	320 Km^2
Seaward Extent of Jurisdictions	
Territorial Sea	12 nm / 19.3 Km***
Extended Economic Zone	200 nm / 321.9 Km***
Fisheries Jurisdiction	200 nm / 321.9 Km (in practice: 12 mi / 19.3 Km)***
Other (Describe)	

* Coastline length is the measurement of the national seaward boundary of a country; i.e., the distance from border to border for a coastal country and the distance around an island country.
** *Editor's note (2009):* Values originally entered in miles; converted to kilometers by editor.
*** *Editor's note (2009):* Values originally entered in nautical miles; converted to kilometers by editor.

Figure 1. Location and regional setting of Barbados.[1]



[1] *Editor's Note (2009):* Maps and figures are reprinted exactly as they appear in the original WATS I Proceedings (Bacon et al. 1984); we regret the poor quality exhibited in some cases.

INTRODUCTION

During 1982, an attempt was made to gather what Information is available on sea turtles in Barbados, to organise and synthesize it, and to prepare a Report based on the information. The purpose of this exercise was to produce the Barbados National Report for the Western Atlantic Turtle Symposium to be held in July 1983 in San José, Costa Rica. The guidelines for the research were provided by W.A.T.S and are:

A. Compilation of all historical and current data possible on sea turtle populations and socio-economics- from literature records, research reports, data files, and official records.
B. Beach surveys of all major sea turtle nesting beaches possible.
C. Aerial surveys of all marine shorelines possible, and to record and quantify sea turtle tracks and nests, and to categorise the shoreline with respect to nesting and non-nesting areas.

Given the limited information existing in records, reports and files, and the limited time available for personal observations in the field, much of the information herein included has been gathered by the process of interviews. There is therefore considerable variation in the extent to which the objectives of the study have been met, and this will become evident in the pages to follow.

GEOGRAPHIC AND COASTAL DESCRIPTION OF BARBADOS

Lying 90 miles east of the Lesser Antilles on top of a north-south trending submarine ridge, Barbados is the most easterly and the only non-volcanic island in the Lesser Antilles chain (Fig. 1). It has an area of 166 sq. miles and an extreme length of 21 miles. About 6/7 of the island is covered by Pleistocene reef limestone which reaches a maximum depth of nearly 300 ft. On the northeast side of Barbados, the raised reef rock has broken away exposing the underlying sedimentary formations of banded mudstones and sandstone, and a 'chalky' Radiolarian earth.

The coastline is regular, there being no deep indentations. It is about 57 miles long and made up of 26 miles of sandy beach, 20 miles of coral limestone cliffs and scarps, 7 miles of rough sedimentary slopes and 4 miles of artificial short defenses. Of the 26 miles of beach, approximately 19 miles are composed of nearly pure fine-grained calcareous sands (containing fragments of calcareous algae, coral, molluscs, and foraminifera), and 7 miles are of medium-grain mainly silica sand beach. The latter forms a shore on the north-eastern coast of the island. Mangrove growth on the island is negligible.

Actively growing coral reefs of Barbados are restricted to the Western coast. Individual reefs are separated by shallow bays with very light coloured sand or rubble bottoms. In some areas, at shallow depths, the bottom is composed of see-grass beds, primarily *Thalassia* and *Syringodium*.

OCEANOGRAPHIC PARAMETERS

Tides

Tides in Barbadian waters have a small range, averaging between 2.2 and 2.5 ft. The tides are semi-diurnal (i.e. two tidal cycles daily).

Wind and Waves

The north-east trade winds which blow throughout the year are an important feature of Barbados' climate. Wind direction dominantly remains within an arc from ESE through E to ENE. There is therefore a marked contrast in wave amplitude on different coasts. On a calm day, the east coast waves have an amplitude 4 times that of the west. On a rough day, they can be 8 times as large.

Temperature

Typical mean monthly sea temperatures for Barbados are shown in Fig. 2.

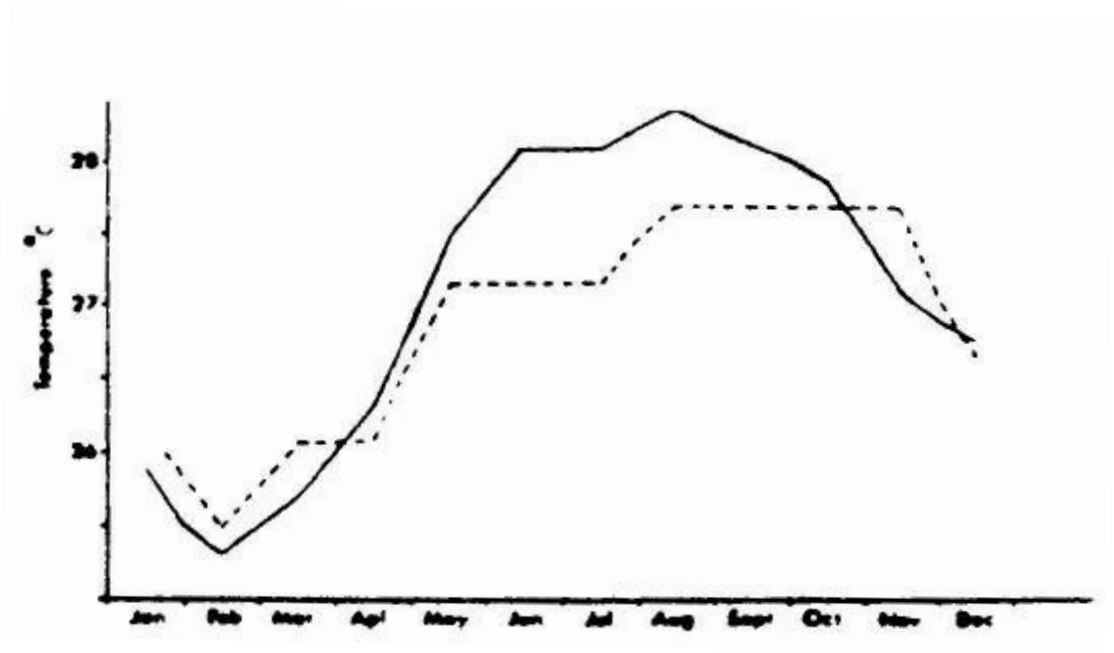


Figure 2. Mean monthly sea surface temperatures, west coast of Barbados (after Lewis 1960: fig 3). Key: Sea Surface Coastal (solid line), Sea Surface Oceanic (broken line).

Salinity

Typical mean monthly salinities for Barbados are shown in Fig. 3.

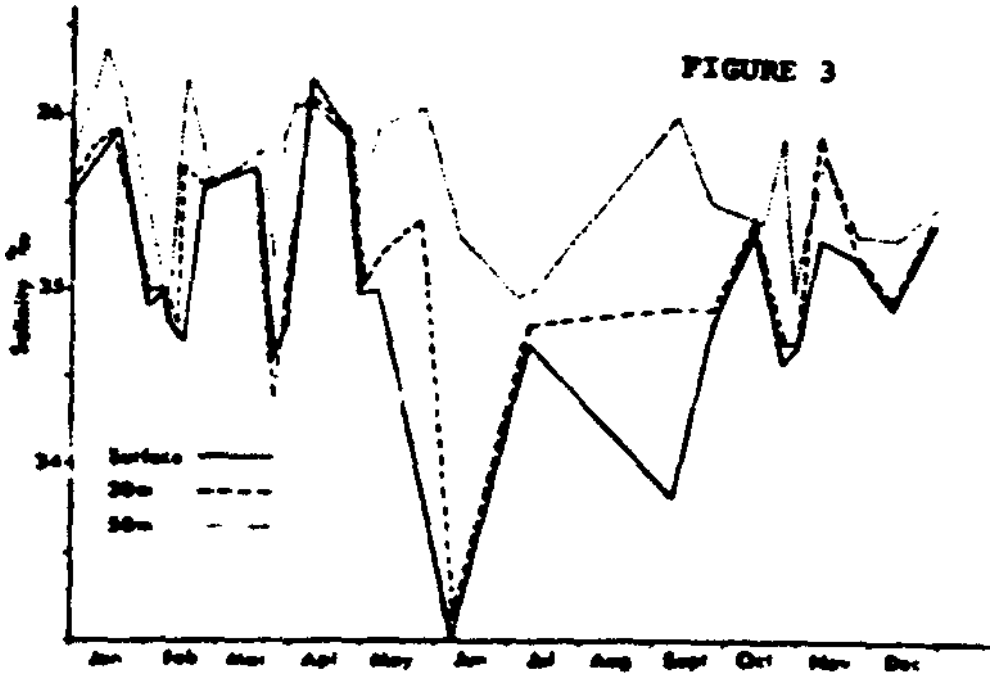


Figure 3. Monthly salinities at various depths off Holetown, West Coast of Barbados. 1972. (data courtesy of H. Powles). Key: Surface (solid line), 30 m (large dashes), 50 m (small dashes).

THE TURTLE FISHERY

Fishing Methods

Trammel (entangling) nets used to be set frequently off the east coast, but this practice no longer prevails. The nets now used range between 8" to 12" square mash, are typically 8 to 12 ft. deep, and anywhere from 20 to 150 meters long. They are set both near the surface, and at the bottom or on bars. Turtles are also taken as by-catch by fishermen, and are illegally taken on beaches.

Fishing Regulations

- It is illegal to take turtle eggs; and to catch any turtle on the beach or within 100 yards [2] of the shore.
- It is illegal to set any gear for the purpose of catching turtles within 100 yards of the shore.
- It is illegal to buy, sell or possess any turtle of weight less than 30 lbs.

These offences are punished by confiscation of turtle(s), eggs, and/or gear and by a fine of up to $100.00. There is no closed season for turtle fishing in Barbados.

State of the stocks

There are approximately 29 landing sites for exploited marine stocks in Barbados, and catch statistics are recorded by the Fisheries Division of the Ministry of Agriculture at 11 of them. This practice has operated since the early 1960's. The fact that there is no separate column for turtle landings on the Fishery Division's Recording Forms may suggest that, even then, turtle landings were rare. To date, such landings are listed under a Column entitled 'Any other deep water species'.

The landings are not recorded separately for the different turtle species. However, interviews and personal observations suggest that there are four[3] species of turtles found in Barbadian waters – the green turtle *(Chelonia mydas*), the hawksbill (*Eretmochelys imbricata*), the leatherback (*Dermochelys coriacea*)[3], and the loggerhead (*Caretta caretta*). Of these, the green turtle is believed to be the most common, followed by the hawksbill. Leatherbacks and Loggerheads are relatively rare.

Two parameters are commonly used to indicate the state of exploited stocks: changes in the catch (more properly catch per unit effort) with time; changes in the mean size of animal caught.

It is impossible, without further study to ascertain what proportion catch is landed at landing sites; and of those landed at sites, what proportion is recorded. Consequently, the landing statistics cannot be relied upon to reflect real trends in abundance of turtle stocks around Barbados. Nevertheless, the weight (kg) of turtles recorded as landed in Barbados per operational landing site each year for the last 20 years (1962-1982) is shown in Fig. 4. In spite of the problems with the recording system, the data do indicate a general decline in turtle landings in Barbados. This pattern was supported by all persons interviewed. During fishing seasons in the 1950's the mean number of turtles caught per fisherman per month was reported as being in the order of 35. It is now about 2 turtles per fisherman per month.

Based on weights recorded at landing sites, the mean weight of the turtles landed in each year was calculated, and is shown in Fig. 5. The data do not suggest that there has been a decrease in the mean size of the turtles landed. However, many fishermen interviewed felt that turtles caught now are smaller than they were in the past. The discrepancy between catch statistics and fishermen observations may result from the tendency of fishermen to return small turtles to the sea prior to their being recorded.

Management and rehabilitation

Apart from the Fisheries regulations previously stated, no management program exits for turtle stocks in Barbados.

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[2] *Editor's note (2009):* Original text read "years", we assume the intended word was "yards".

[3] *Editor's note (2009):* Included as a hand-written note in the original Report.

An experimental attempt at rehabilitation has been conducted on the east coast of the inland. About 630 hawksbill turtles were reared from eggs and released on the east coast when between eight and nine months of age. It is difficult to ascertain what impact, if any, this has had on the hawksbill population. However few fishermen have reported seeing larger [4] numbers of smaller turtles at sea than they had done prior to the rehabilitation exercise.

Bellairs Research Institute conducts a head-starting program for hawksbills. Survivorship prior to release (3 months after hatching) is >98%. The Institute is also involved in a tagging program for juvenile and adult hawksbills, greens and loggerheads in collaboration with Archie Carr, University of Florida.[3]

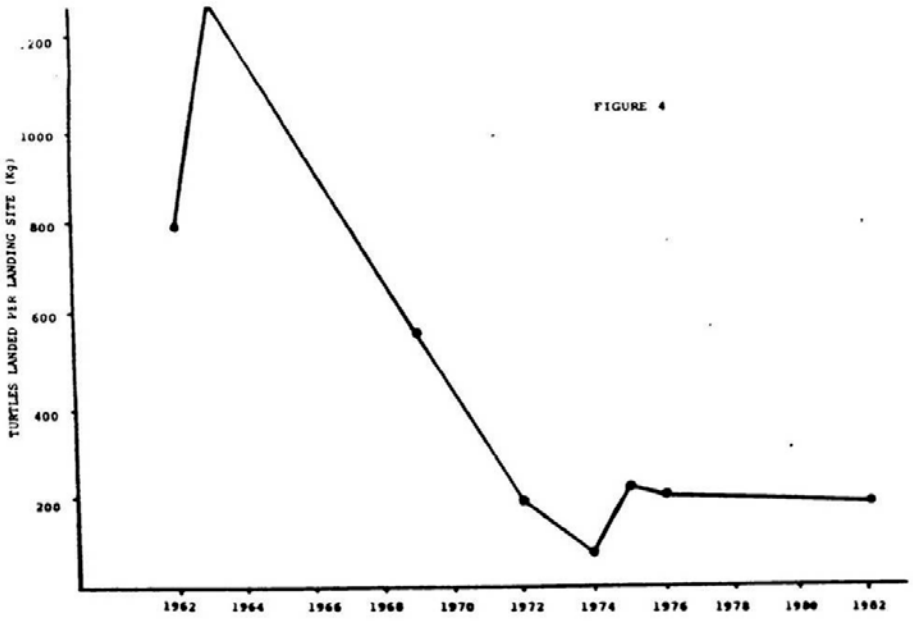

Figure 4.
Weight (kg) of sea turtles landed per operational landing site per year for the last 20 years (1962 - 1982).

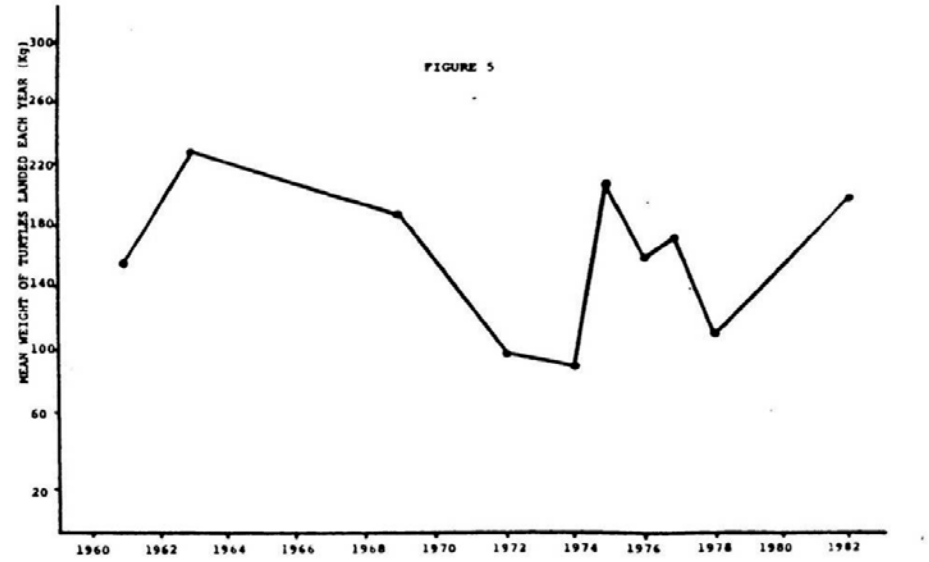

Figure 5.
Mean body weight (kg) of turtles landed (1962 - 1982).

[4] *Editor's note (2009):* Original read "longer", we assume the intended word was "larger".

Seasonality of Catch

From the catch statistics, the weight of turtles landed each month as a percentage of the total weight landed, is shown in Fig. 6. The data suggest that most turtles are landed between August and March; with April-July being the period of lowest catches. Most fishermen interviewed felt that the turtle season ran from July through till October; and tended to fish more heavily for turtles in that period.

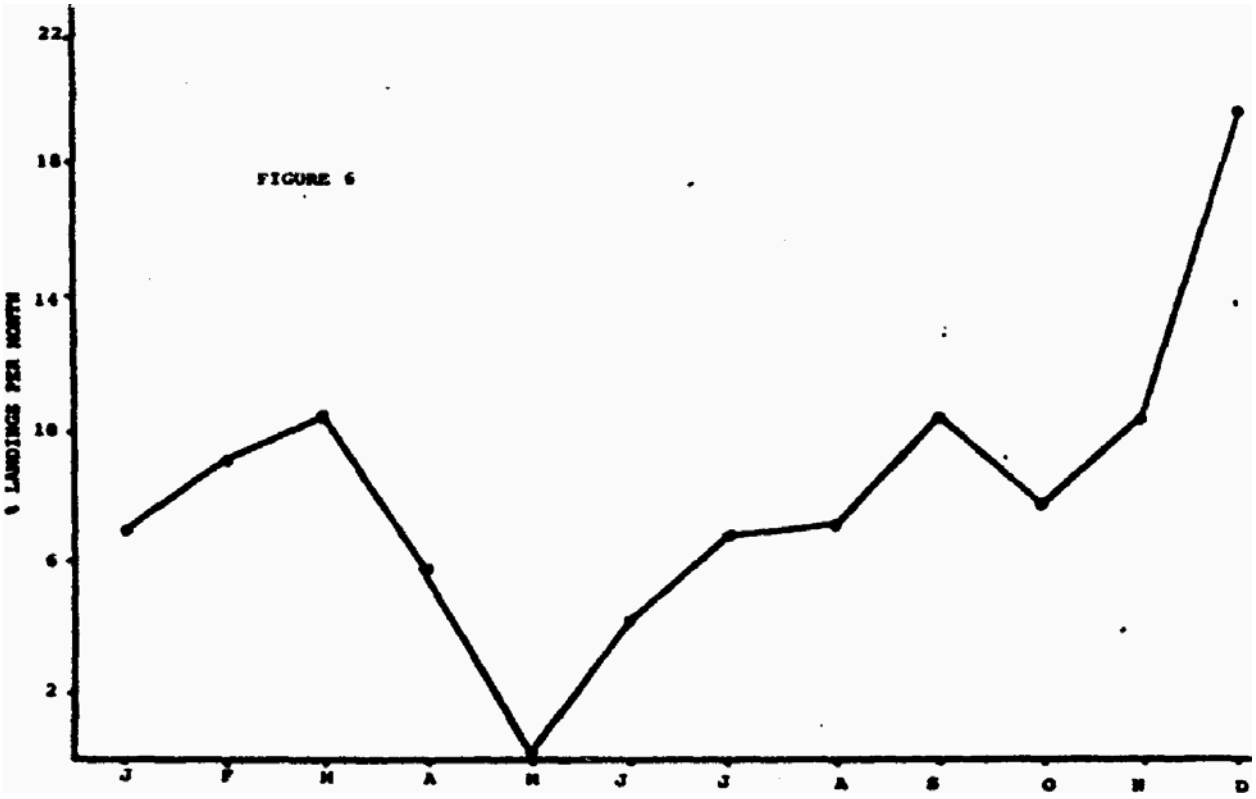

Figure 6. The weight of turtles landed each month expressed as a percentage of the total weight of catch landed.

Distribution of Catch

Most turtle fishing in Barbados is now carried out off the east coast. This is the exposed Atlantic coast of the island. Its beaches are the least used for recreational purposes, and the least disturbed by housing and hotel developments. In the past, the west coast landing sites recorded most of the turtles landed in the island, but little fishing is now done there. Turtles have apparently never been landed in large numbers on either the north or south coasts.

DEMOGRAPHY

Reproduction

In the past, turtles have been reported as nesting on sandy beaches on all coasts of Barbados. Nests are now rarer on all coasts, but are particularly rare on the more developed west and south coasts. In 1982, nests were recorded on Cattlewash beach (north-east coast), Bath beach (east coast), and Foul Bay beach (south-east coasts). Nearly all nesting turtles are hawksbills, but leatherbacks occasionally nest here.[5] There are no reports or records of either green or loggerhead turtles nesting in Barbados.

[5] *Editor's note (2009):* Included as a hand-written note in the original Report.

Interestingly, however, whereas loggerheads are caught far from shore, hawksbills and greens are typically caught near or inside of reefs.

The breeding season for hawksbill in Barbados is primarily from May to October; which overlaps with the period that fishermen consider to be the turtle season and hence the period over which they concentrate most of their fishing effort. The rehabilitation exercise indicated that hawksbill eggs take about 60 days to hatch after laying.

Growth

At the time of release in the rehabilitation exercise, the hawksbills weighed about 6-8 lbs and were about 8-9 months old.

Mortality

Predation-free survivorship of hawksbills in the rehabilitation exercise was >80% at age 8-9 months; and was 100% in a few hawksbills kept at Bellairs in concrete tanks up to age five months. The only health problem that occurred in the Bellairs turtles was a thin mucous film that occasionally grew over the eyes. It could be resolved by a few drops of dilute Hydrogen peroxide, with no apparent ill effect.

SOCIOECONOMICS

Turtle-fishing is now conducted by only a few fishermen, and only as a supplement to their other fishing activities.

RECOMMENDATIONS

1. Conduct studies on the population ecology of the exploited species, such that future fisheries regulations can have a stronger biological basis, e.g. Should there be a closed season, and if so when? What is the size/age to sexual maturity, and the fecundity/size relationships; and so what should be the minimum size limit taken?

2. Improve the present system of recording landing statistics on turtles so that the effects of management and/or rehabilitation exercises can be more accurately monitored.

3. Impose harsher penalties for breaking current and future fisheries regulations and increase efforts to implement them.

4. If feasible, establish major nesting beaches as sanctuaries.

5. Attempt further, more large-scale, rehabilitation exercises.

6. Mount a public education program aimed at increasing co-operation from the public re turtle rehabilitation and management.

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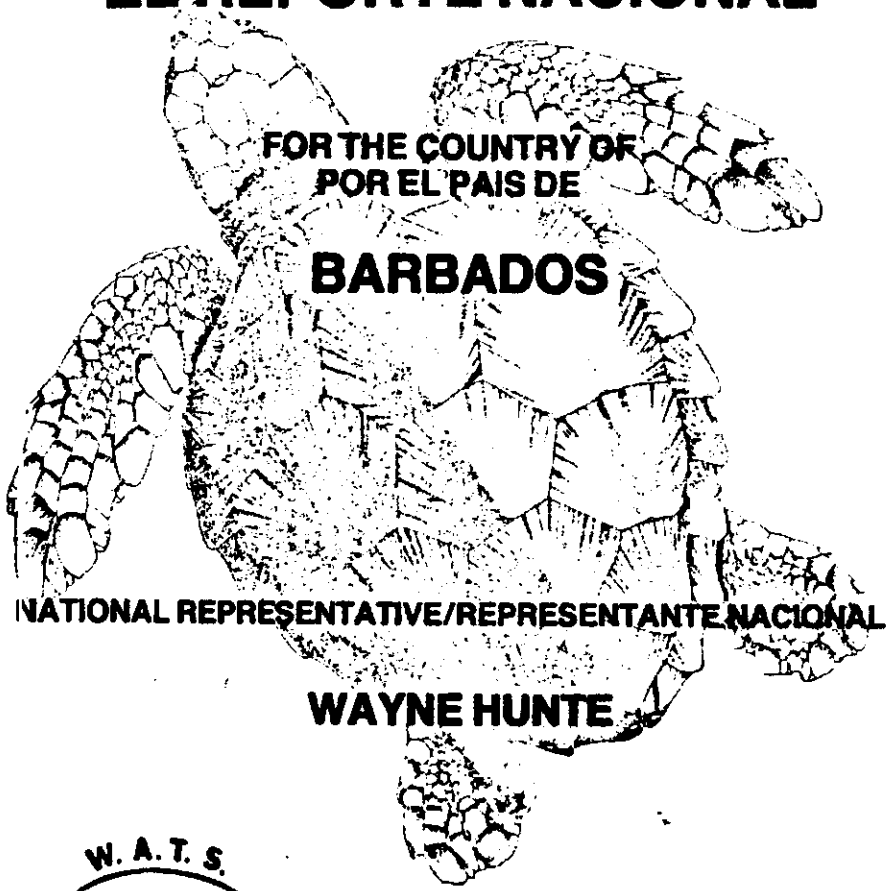

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Country BARBADOS

Length of Coastline* ..... 57 MILES ..... ___ Km

Km² of Continental Shelf Area ..... 320 Km² ..... ___ Km

Seaward Extent of Jurisdictions:

Territorial Sea ..... 12 NAUTICAL MILES ..... ___ Km

Extended Economic Zone ..... 200 NAUTICAL MILES ..... ___ Km

Fisheries Jurisdiction ..... 200 NAUTICAL MILES (FOR PEACHES - 12 MILES) ..... ___ Km

Other (Describe) _____ ... ___ Km

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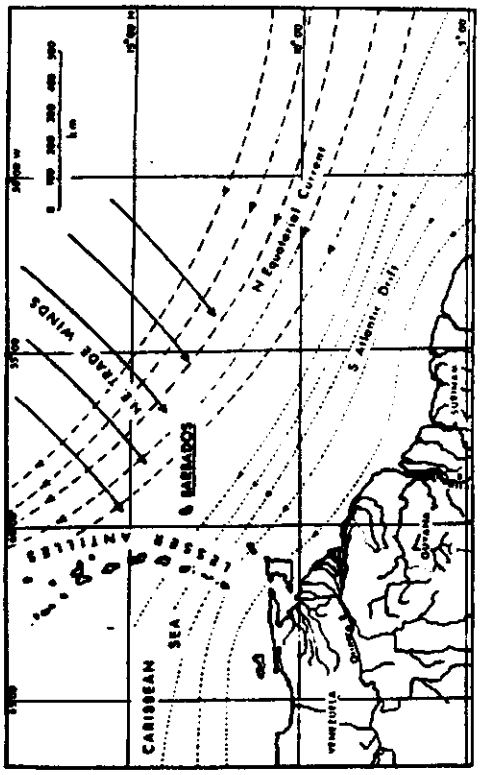

Fig 1 Location and Regional setting of Barbados.

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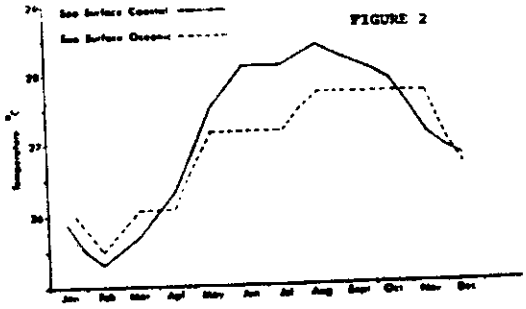

FIGURE 2

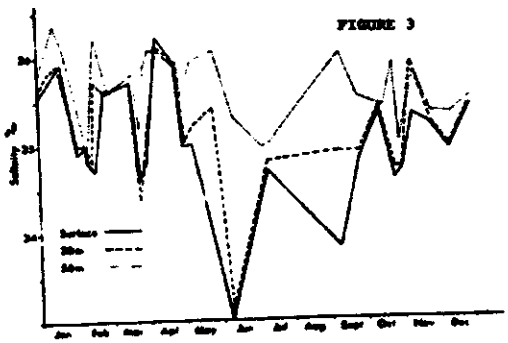

FIGURE 3

within 100 yards of the shore.

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State of the stocks

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Two parameters are commonly used to indicate the state of exploited stocks: changes in the catch (more properly catch per unit effort) with time: changes in the mean size of animal caught.

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Management and rehabilitation

Apart from the Fisheries Regulations previously stated, no management program exists for turtle stocks in Barbados.

An experimental attempt at rehabilitation has been conducted on the east coast of the island. About 630 hawksbill turtles were reared from eggs and released on the east coast when between eight

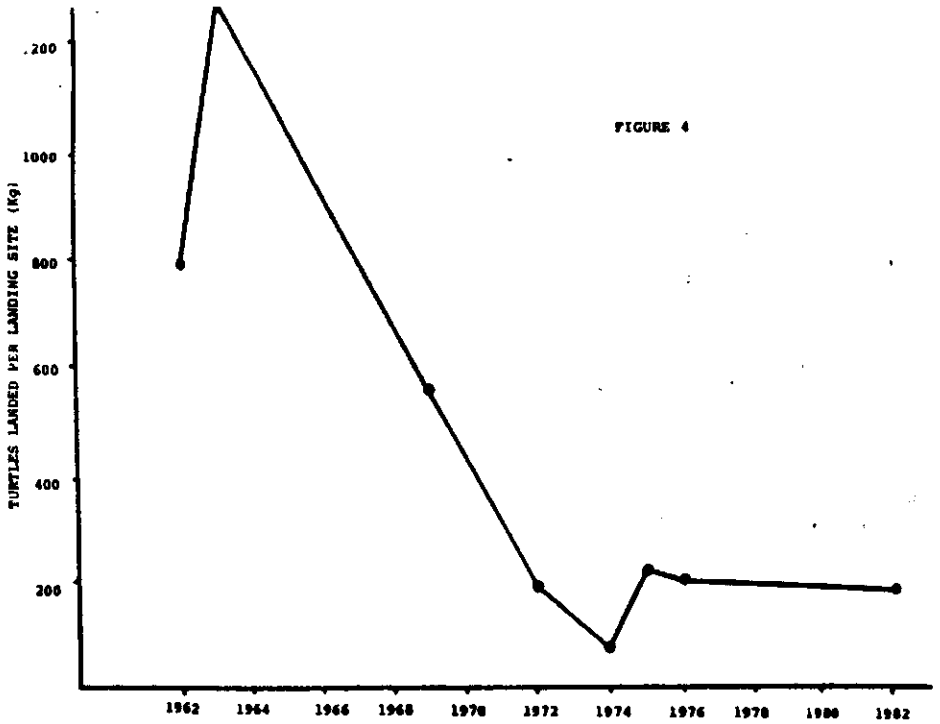

FIGURE 4

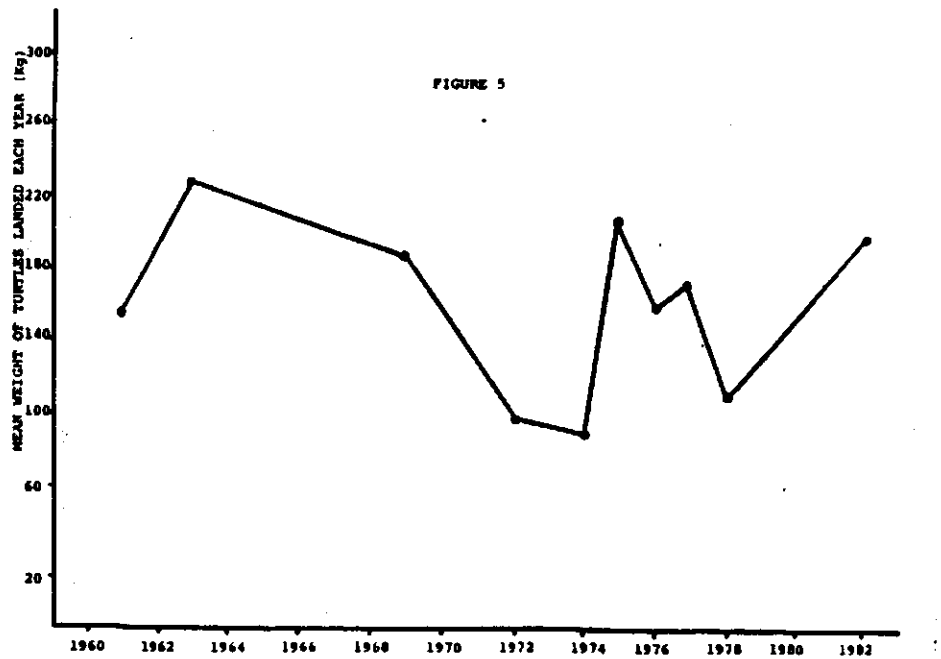

FIGURE 5

and nine months of age. It is difficult to ascertain what impact, if any, this has had on the hawksbill population. However, a few fishermen have reported seeing longer numbers of smaller turtles at sea than they had done prior to the rehabilitation exercise.

Seasonality of Catch

From the catch statistics, the weight of turtles landed each month as a percentage of the total weight landed, is shown in Fig. 6. The data suggest that most turtles are landed between August and March; with April - July being the period of lowest catches. Most fishermen interviewed felt that the turtle season ran from July through till October; and tended to fish more heavily for turtles in that period.

Distribution of Catch

Most turtle fishing in Barbados is now carried out off the east coast. This is the exposed Atlantic coast of the island. It's beaches are the least used for recreational persons, and the least disturbed by housing and hotel developments. In the past, the west coast landing sites recorded most of the turtles landed in the island, but little fishing is now done there. Turtles have apparently never been landed in large numbers on either the north or south coasts.

DEMOGRAPHY

Reproduction

In the past, turtles have been reported as nesting on sandy beaches on all coasts of Barbados. Nests are now rarer on all coasts, but are particularly rare on the more developed west and

south coasts. In 1982, nests were recorded on Cattlewash beach (north-east coast), Bath beach (east coast), and Foul Bay beach (south-east coasts). All nesting turtles are Hawksbills. There are no reports or records of either Green or Loggerhead turtles nesting in Barbados. Interestingly, however, whereas Loggerheads are caught far from shore, Hawksbills and Greens are typically caught near or inside of reefs.

The breeding season for Hawksbill in Barbados is primarily from May to October; which overlaps with the period that fishermen consider to be the turtle season and hence the period over which they concentrate most of their fishing effort. The rehabilitation exercise indicated that Hawksbill eggs take about 60 days to hatch after laying.

Growth

At the time of release in the rehabilitation exercise, the Hawksbills weighed about 6-8 lbs and were about 8-9 months old.

Mortality

Predation-free survivorship of Hawksbills in the rehabilitation exercise was 88% at age 8-9 months; and was 100% in a few Hawksbill kept at Bellairs in concrete tanks up to age five months. The only health problem that occurred in the Bellairs turtles was a thin mucous film that occasionally grew over the eyes. It could be removed by a few drops of dilute Hydrogen peroxide, with no apparent ill effect.

SOCIOECONOMICS

Turtle-fishing is now conducted by only a few fishermen, and

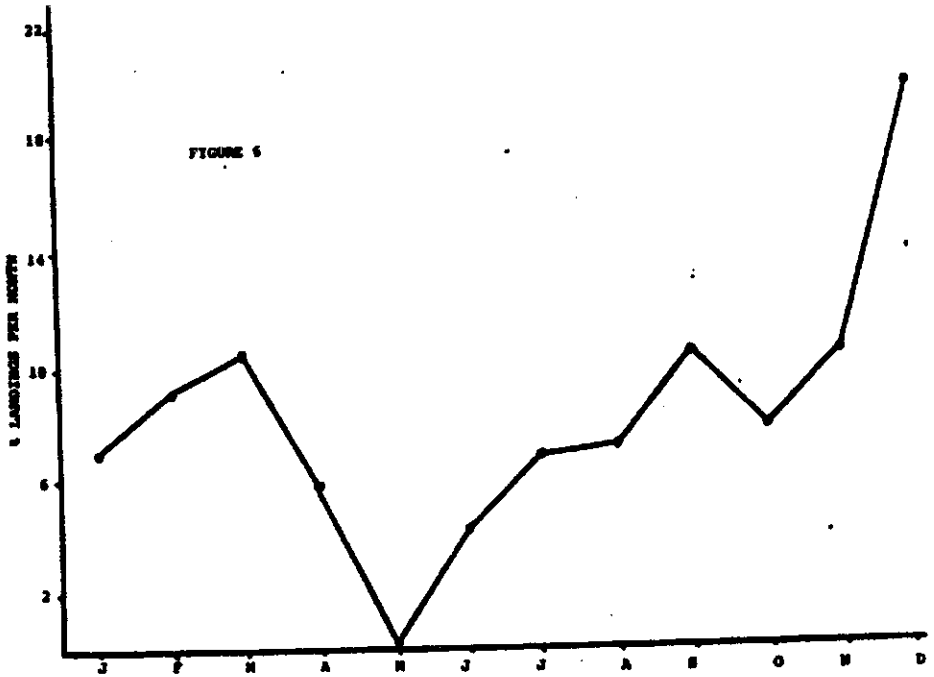

FIGURE 6

only as a supplement to their other fishing activities.

RECOMMENDATIONS

1. Conduct studies on the population ecology of the exploited species, such that future fisheries regulations can have a stronger biological basis, e.g. Should there be a closed season, and if so when? What is the size/age to sexual maturity, and the fecundity/size relationship; and so what should be the minimum size limit taken?
2. Improve the present system of recording landing statistics on turtles; so that the effects of management and/or rehabilitation exercises can be more accurately monitored.
3. Impose harsher penalities for breaking current and future fisheries regulations and increase efforts to implement them.
4. If feasible, establish major nesting beaches as sanctuaries.
5. Attempt further, more large-scale, rehabilitation exercises.
6. Mount a public education program aimed at increasing co-operation from public re turtle rehabilitation and management.