

I. INTRODUCTION

- A. Thank you for inviting me to speak to you this evening-I would like to give you some insight into what I feel is a fascinating group of salt water reptiles. ^{SEA TURTLES} Like to have you leave here tonight with a greater understanding of sea turtles and particularly an awareness of the survival difficulties they are experiencing.
- B. First I would like to give you ^{background} information on _____ sea turtles, both biological and economical- then will show slides to illustrate points.

II. SEA TURTLES

- A. What is a sea turtle? we are referring to a turtle that has become highly adapted to an aquatic existence-body has been flattened and streamlined- limbs have become oar shaped-live most all of their life in the ocean, however, tied to land for reproduction(egg deposition)-tied to the air for respiration.
- B. 5 major types(or genera) of sea turtles-all in trouble due to pressures from man. 3 represented in Hawaiian waters--Green or Honu, Hawksbill or e'a, and leatherback. Hawk and leatherback seldom seen -both Endangered-continued survival questionable (Endangered status attempts to halt international commerce)
- Third, Green is the principal turtle of our Islands.
Green's status is officially listed as Depleted-that is, declining at a rate that gives cause for serious concern.
Green sought after throughout the world for its exotic products:
Turtle steak; leather; shell; oil(cosmetics); "calipee"(soup).
- C. In order to ^{better} understand problems experienced by Green helpful to summarize some of the essential BIOLOGICAL FACTS: known about greens throughout world:
^{what we know about green turtles:}
1. Reaches sexual maturity at from 6 to 9 years of age-200lbs or greater shell length 31 to 36 inches.
 2. Reproduce by migrating between feeding areas and nesting beaches-few dozen miles to over 1000 miles. Only reproduce every 2 to 4 years.
 3. Lay eggs(nest) on the same general stretch of beach throughout their reproductive life-do not change nesting beach-are believed to return to the beach on which they were hatched.
 4. Exhibit high mortality during first year -when adults, only predators are man and large sharks.
 5. Can be easily overexploited to the point of destruction-as seen in the Caribbean and Atlantic where whole colonies have been completely exterminated.
 6. Have NOT been successfully restocked by releasing young or transplanting eggs. Probably due to complex life cycle . Therefore, once gone in the wild, probably gone forever.

III. SITUATION IN HAWAII

- A. In Hawaii green commercially exploited for restaurant trade-all signs indicate that the Hawaiian Honu ^{depleting} is overexploited, underprotected and declining at a significant rate.

EXAMPLES:

1. 400 lbs commercially reported in 1963- 25,500 lbs in 1972-follows trends in tourism-steak appears in tourist oriented restaurants as exotic item- "a hawaiian dish-like to try something different, but not too different" No catch statistics on sport catch-estimated to be considerable.
2. Observations over many years by divers, fisherman and pilots making low level flights indicate that there are far fewer turtles present.
3. Nesting habitat reduced-many beaches where nesting formerly took place on major islands-today, for all practical purposes none takes place-only sight left is French Frigate Shoals (480NW of Honolulu)-animals periodically migrate from majors to FFS.
4. Intensive study at FFS this past summer revealed that nesting population is at a dangerously low level-only 149 females in area for entire season.
5. Must realize- there is presently no regulations for the protection of Hawaii's turtles.

If something is not done, we could very well lose this ^{unique} animal in our Islands. Restaurants on all islands continue to offer turtle steak, thus providing a strong dollar incentive to increase exploitation. Tourists are not to blame because they are generally unaware of the sea turtles plight. One more part of our unique environment down the drain.

- B. I believe that they are worth saving and that sound conservation practices must be immediately put into effect: Hawaii's Green Turtles unique because:
1. Last green turtle colony left in the United States-few scattered nestings on East Coast of Florida of remnant population. Hawaii's green therefore is important to all of U.S., not just Hawaii.
 2. Only colony in the world that can be entirely managed under 1 governments jurisdiction- all other colonies migrate accross international boundries.
 3. Great Scientific value-Bask; interesting problems in animal navigation-island finding ability.
 4. Can provide supplemental protein in the diets of less fortunate island residents who fish the sea for food- But only if managed wisely-and if not first destroyed from commercial exploitation.

SLIDES

IV. Conclusion-

- A. Farming suggested as way to save turtles-Unfortunatly no biological basis now exists for commercial farming-without further damaging wild populations. life cycle not completed in captivity-hundreds of thousands of eggs must be removed from natural nesting beaches- Stimulate demand for turtle products-put more fishing pressures on wild animals-Bring turtle products into vogue.

Hand out literature on this subject that you will find interesting.

Introduction → NAME - POSITION - INSTITUTION - ^{AREA} STUDY

Very pleased that Charisse & Stuart have invited me -
Why study SEA TURTLES' - ^{People like to eat them and EGGS} CONSERVATION - SAVE THEM
from becoming extinct like other animals have -

TELL what you will TALK ABOUT → my talk to you
today - A little on the Biology of SEA TURTLES -

Show slides of study conducted during
this past summer in the Northwest H.I. at
the only place left in Hawaii where Turtles lay eggs -

Show slides of studies at Coconut Is
of growing turtles in captivity so we can
learn more about them.

and after I am finished talking, you can
ask questions for me to answer.

BIOLOGY → ① Air Breathers ^{Salt Gland Reptiles} ② Special Limbs
③ EAT ~~Anim~~ or Algae ④ whole life I.W. EXCEPT Egg laying
(describe) and NHI to sleep or BASK on Beaches

⑤ Grow LARGE - start out small ⑥ 5 MAJOR
types of sea turtles ① Green turtle ② Hawksbill

③ Ridley ④ Loggerhead ⑤ LEATHERBACK

⑦ Numbers getting fewer all over the world.

SLIDES → MAP - FFS → 10 ^{small} sand Islands

Answer Stuart and Charisse
questions first.

0	10	25	35	45	55
↑	↑	↑	↑	↑	Hatched
EGG					

25 gram ^{ounce}

MARINE TURTLES- MANS' GIFT FROM THE SEA

FOR HOW LONG?

Of the 5 genera of sea turtles that still exist today, 1 group is on the I.U.C.N. endangered list and the remaining 4 have experienced an alarming decrease in numbers over the past 50 years.

The reasons:

Ineffective or non-existent conservation laws

Over fishing

Resort hotels and lighted roads constructed near nesting beaches

Eggs taken indiscriminately for food

The taking of females when she "hauls out" to nest

The demand for shell ornaments and whole "stuffed" animals

Will these beautiful, swift and migratory reptiles only exist as aquarium specimens in the next 50 years?

As short a time ago as the 1930s', Pacific Green Sea Turtles nested on Oahu, Kauai, Molokai and Lanai. None do today. Animals found in our waters today migrate to the Federally protected Wildlife Refuge of the Leeward Islands for reproduction. Unfortunately there are no laws protecting, in any way, this valuable breeding herd when it is around our inhabited Islands.

Would you support some form of State conservation measure to protect these animals?

~~A SPECIAL CONFERENCE~~

~~on the~~

Seaward Advancement of Industrial Societies

~~Sponsored by the Sea Grant Office of NOAA~~

~~and the~~

~~Marine Technology Society~~

General
Aspects

Bark

Captain aspects - Copeia Article
- Pond
- Sea Life Park

all References
↓

Never
Hawks

Wild
aspects

NWHI - Sand
vs
Rock - Neckler

MAJORS -

Na Pali Coast - Brock

Lana'i - Amara letter

Big Island - Randy HEMB

Other Areas -

old Caribbean report - Bustard

Darney Islands -

D'Emigustens Reef -

Galapagos -

Variation in egg size -
related to performance -



December 2 & 3, 1974



SOME ASPECTS OF THE GREEN SEA TURTLE IN HAWAII

I. INTRODUCTION

- A. THANKS; PURPOSE (AQUAINT WITH ECOLOGICAL ASPECTS AND CONSERVATION PROBLEMS); WILL SPECIFICALLY 1, 2, & 3. ; SLIDES ARE RECENT; TOTAL OF 8 SEA TURTLES

II. GREEN TURTLE

- A. BEST KNOWN, WIDESPREAD COMMERCIAL USE; HEREIN THE FIRST REASON FOR POPULATIONS' DECLINE; VALUABLE PRODUCTS, THOSE DERIVED- MEAT, CALIPEE, OIL, LEATHER, EGGS SHELL.

ADDITION TO COMMERCIAL VALUE, INHERIT BIOLOGICAL REASONS WHY EASY TO EXPLOIT THEREFORE SUSEPTIBLE TO DECLINE

~~POPULATIONS OCCUR THROUGHOUT THE WARMER SEAS OF THE WORLD.~~
MIGRATIONS- FEEDING/BREEDING COLONIAL/GROUP NESTING SITES WHERE EGGS ARE LAID. SPECIFIC LOCATIONS, TURN ON BEACH, SCHEDULED, FEED AT SHALLOW COASTAL AREA- ROUTINE.

HAS RESULTED IN THE REPRODUCTIVE OR GENETIC ISOLATION OF COLONIES- ALL GREENS ARE NOT THE SAME, PROTECT ONE DOESN'T AID OTHERS

OVEREXPLOITATION (SLOW TO RECOVER FROM): COMPLEX MIGRATORY LIFE CYCLE: SLOW GROWTH: LARGE SIZE AT SEXUAL MATURITY: EFFORTS AT RESTOCKING ONCE OVEREXPLOITED HAVE NOT BEEN SUCCESSFUL.

BESIDES SUSEPTIBLE TO DIRECT EXPLOITATION BY MAN; SAME CHARACTERISTICS OF LIFE CYCLE MAKE IT SUSEPTIBLE TO HABITAT DESTRUCTION, WHICH HAS OCCURRED.

III. HAWAII'S GREEN TURTLE POPULATION

- A. ONE OF THE WORLDS GREEN TURTLE POPULATIONS EXISTS IN THE 1600 MILE EXPANSE OF THE HAWAIIAN ARCHIPELAGO
UNIQUE AMONG GREEN POPULATIONS (1. BASK (2. LAST IN US (3. COMPLETELY UNDER ONE COUNTRIES JURISDICTION- NOT KNOWN TO CROSS INTERNATIONAL BOUNTRIES.

FORMERLY NESTED IN MAJORS ISLANDS: NOW ONLY COLONIAL NESTING SITE IS FRENCH FRIGATE SHOALS, HINWR 500 NW of HONOLULU

TO ARCHIPELAGO SLIDE

TURTLES IN FEEDING AREAS AROUND MAJOR ISLANDS: HEAVY EXPLOITATION, MUCH COMMERCIAL UP TO 1973 AT THESE LOCATIONS - REFUGE ESTABLISHED IN 1909 BUT KILLING OF TURTLES REGULARLY OCCURRED- LAST DOCUMENTED IN 1959 WHEN APPROX. 25% THAT YEARS NESTING POPULATION SLAUGHTERED AND SHIPPED TO MARKETS IN HONOLULU.

→ I HAVE BEEN CONDUCTING STUDIES AT FRENCH FRIGATE SHOALS SINCE FOR THE LAST THREE YEARS TO DETERMINE THE STATUS OF THE COLONY - MID-MAY --MID-AUGUST SEASON PREVIOUS WORK BY FISH AND WILDLIFE REFUGE MANAGEMENT PERSONNEL AND MY RESULTS HAVE SHOWN THAT MIGRATIONS OCCUR (POINT OUT ON SLIDE).....

GIVE VARIOUS RESULTS OF STUDIES AS EACH SLIDE IS SHOWN

BLACK SLIDE

IV. SURVIVAL OUTLOOK

- A. POPULATION NUMBERS

- B. SAFEGUARD REFUGE AGAINST 1. EXPLOITATION 2. HABITAT DESTRUCTION 3. DISTURBANCES
4. MORATORIUM ON ALL TURTLE KILLING AROUND MAJOR INHABITED ISLANDS UNTILL CAREFUL STUDIES IN FEEDING PASTURES CAN SHOW WHAT CAN BE SAFELY TAKEN

- C. RECENT FEDERAL PROPOSAL (IF ENACTED) WILL GO A LONG WAYS TO AID GREEN TURTLE SURVIVAL.

Describe briefly -

enumerate Biological points -

delimitate more clearly and concisely - separate out ease to exploit factors -

I. Introduction

- A. Thank you - insight - leave with greater ^{understanding} awareness
- B. Give Background info - Biological, economical on sea turtles - then Slides.

II. Sea Turtle Info

- * A. What is a sea turtle? referring to reptile highly adapted for aquatic existence...
- B. 5 major types - 3 in Hawaii - list, status of Hawk, leather. ^{Endangered} ^{self} ^{often} ^{seen}
- Green - status - exotic products.
- C. Biological Facts - summarize for green what we know -
1. Sexual Maturity
 2. Migrate - feeding to breeding areas. only reproduce every 2-4 years
 3. Lay eggs some beach - return to beach of birth.
 4. High mortality when young - older only men and sharks.
 5. Easily overexploitable - examples - Cayman, E. Florida, Bermuda, Dry Tortugas
 6. Have not been successfully restocked by releasing young - gone from wild - probably gone for good.

III. Situation IN Hawaii for Green -

- A. Commercially exploited for restaurant trade - All signs now indicate green is overexploited, underprotected and declining at a significant rate.

Facts that indicate this are:

1. Commercial catch stats - lost 10 years

400 in 1963; to 25,500 in 1972 - Tourism

2. Trends observations by divers, fishermen, pilots - fewer present

3. Nesting habitat reduced - major no more - now only FFS.

4. Results of FFS study - low breeding pop. - 144 animals

5. No protective regulations

If something not done, could very well lose this unique animal in our islands. Restaurants continue to offer steak - \$ incentive for increased exploitation -

No blame tourists. ^{ONE} ^{TO} ^{move} ^{part} ^{of} ^{Hawaii} ^{unique} ^{environment} ^{lost} ^{due} ^{to} ^{apathy}.

B. Hawaii green turtles are worth saving. They are unique because:

1. Last colony left in U.S. - few green on E. Coast Florida

∴ Therefore important to all U.S. - not just Hawaii

2. ~~Can be~~ only that can be managed under one govern. Migrate

3. Scientific value - Base - Animal navigation, Islands.

4. Can provide Supplement Protein for less fortunate residents Go to sea for food - However, only if managed wisely.