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SOUTH PACIFIC COMMISSION

JOINT SPC/NMFS WORKSHOP ON MARINE TURTLES
IN THE TROPICAL PACIFIC ISLANDS

(Noumea, New Caledonia, 11 - 14 December 1979)

REPORT



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Noumea, New Caledonia
January 1980



Participants and observers at the SPC/NMFS Workshop on Marine Turtles

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I. INTRODUCTION

The meeting was officially opened by Dr René Grandperrin, SPC Fisheries Adviser, who outlined the objectives of the Workshop and suggested some guidelines for discussion. The consultants were introduced: Mr George Balazs, University of Hawaii, Dr Peter Pritchard, Florida Audubon Society, and Professor Archie Carr, University of Florida.

Mr H. Kami, Chief of Aquatic and Wildlife Resources Division, Guam, was unanimously elected Chairman of the meeting and Dr P. Galenon, of the Service de la pêche, French Polynesia, was elected Vice-Chairman.

A drafting committee comprising Mr Richard Uchida, Southwest Fisheries Center, Hawaii, Ms Sylvia Spring, Wildlife Division, Papua New Guinea, and Mr Nick Stone, Fisheries Division, Solomon Islands, was elected.

The provisional agenda was approved and adopted.

The meeting was declared open to the public and the press.

Mr Richard Shomura, National Marine Fisheries Service, announced that his organisation was glad to join with the South Pacific Commission to sponsor the Marine Turtle Workshop.

II. AGENDA

1. Opening remarks (8.30 a.m.)
2. Election of chairman and other office bearers
3. Present knowledge on the biology of marine turtles
 - 3.1 Green turtle
 - 3.2 Hawksbill
 - 3.3 Other species
4. Status of our knowledge of marine turtles resources within the region:
Is there an historical decline?
5. Traditional and socio-economic importance of marine turtles within the region
6. Regulations and problems of enforcement
7. Review of rearing and breeding experiments
8. Possible future actions
 - 8.1 Co-ordination and dissemination of information on a regional basis
 - 8.2 Biological research (age, growth, feeding habits, etc.)
 - 8.3 Stock assessment (aerial surveys, field studies, tagging, etc.)
 - 8.4 Conservation
 - 8.5 Management
 - 8.6 Artificial breeding
 - 8.7 Education and training
 - 8.8 Other
9. Other matters
10. Summary
11. Closing remarks

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Interpreter

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Secretary to the meeting

IV. PRESENT KNOWLEDGE ON THE BIOLOGY OF MARINE TURTLES

1. Dr Pritchard presented a slide show introducing the seven living species of marine turtles: green turtle Chelonia mydas, hawksbill Eretmochelys imbricata, loggerhead Caretta caretta, leatherback Dermochelys coriacea, olive ridley Lepidochelys olivacea, Kemp's ridley Lepidochelys kemp and flatback Chelonia depressa. All these species except Kemp's ridley are known to occur in the SPC region. In the succeeding parts of the report where reference is made to "the region" this means the SPC region.

GREEN TURTLE

2. Dr Carr gave a brief introduction on his work on green turtles in the Western Atlantic.

3. Mr Balazs gave a brief outline on the Hawaiian green turtle population. The green turtle is the most abundant turtle in the region.

4. This was followed by round the table discussions on growth rates, migration movements, food preferences and supplies, and nesting.

5. The meeting highlighted areas which are poorly researched, the lost years, from hatchlings to turtle of 35 cm carapace length and subsequent lack of information on growth rates. Sex ratios were also discussed. It became apparent that there is no known way of sexing sub-adults, juveniles and hatchlings other than through histological examination. The subjects of basking behaviour and predation were discussed at this point.

HAWKSBILL TURTLE

6. General biology was outlined by all three consultants whose conclusion was that there was again insufficient data. The hawksbill is the second most common turtle species in the region. Tag recoveries were discussed. Many countries showed an interest in tagging programmes. The differences in nesting tracks of the hawksbill and green turtle were outlined. Toxicity of hawksbill flesh was then discussed. Great interest was shown by participants and a lively discussion followed.

LEATHERBACK TURTLE

7. Biology of this species, probably the third most common one in the region, was described by the consultants. Distribution is very dilute and nesting in the region has not been recorded outside Melanesia.

OLIVE RIDLEY

8. Introduced by Dr Pritchard. Short discussion on distribution and nesting in the Pacific followed. This species is rare in the region.

LOGGERHEAD

9. Introduced by the consultants. Distribution and nesting records in the Pacific were presented and discussed. This species is rare in the region.

10. Mr Shomura reviewed the Honolulu Turtle Workshop held 31 July to 2 August 1979. He then went on to suggest that all countries fill in distribution charts for known nesting areas of the various turtle species discussed in this workshop.

V. STATE OF KNOWLEDGE ON MARINE TURTLE RESOURCES IN THE TROPICAL PACIFIC

11. Participants and observers were asked to give a short report on the above subject. Information on countries not represented at the Workshop was given by the consultants.

American Samoa

12. Hawksbill and green turtle were reported to occur, with hawksbill predominating, and some utilisation of the species for food.

Fiji

13. Hawksbill appears most common with small numbers of green turtle also reported. There were also reports of two leatherback nestings. It was noted that turtles had been reported as being numerous in 1774.

French Polynesia

14. Green turtle is the commonest nesting species, hawksbills nest but are very uncommon. There is no indication of the leatherback turtle occurring in the area.

15. There is also evidence of a historical decline.

New Caledonia

16. Both green turtles and hawksbills are recorded as being common. Leatherbacks and loggerheads have been reported occasionally.

New Hebrides

17. Green turtles, hawksbill and leatherback turtles nest but little is known about the quantities at this time.

Kiribati

18. Green turtles are most frequent, with hawksbill second in importance, and a possibility of nesting by loggerheads.

19. It was felt that more work was required to better assess the population; early studies indicate greater densities of green turtles in the Phoenix Group.

Papua New Guinea

20. Six species are found. Green turtles are most abundant and widespread, with three major nesting sites. Also a specimen of Chelonia mydas agassizi has been reported in Papua New Guinea. Hawksbills are almost as widespread but not as abundant; nesting is dilute and no major nesting concentrations are known. Widespread but dilute nesting of leatherbacks occurs on the New Guinea coastline and in the Bismarck Archipelago. Loggerhead and ridley nesting has been reported. Incidental catches of flatbacks are recorded from the Gulf of Papua.

21. A general decline in turtle populations is reported, due to increasing hunting pressure.

Solomon Islands

22. Five species are known to occur; the green turtle is thought to be more common than the hawksbill. The green turtle is the species most commonly exploited for food. Individual village communities can catch as many as 40 turtles per hunt. Hawksbill is reported to be the most common nesting species. Leatherback turtles are known to nest seasonally but not in great numbers.

Tonga

23. Green and hawksbill turtles are present. Ridleys have been seen but no nesting proven. Hawksbill is the largest stock but green turtles are more frequently utilised. Further study is intended.

Philippines

24. Three species are found: green turtles, hawksbill and leatherbacks. Literature indicates small numbers of ridleys and loggerheads. Green turtles and hawksbills nest in the Turtle Islands. No nesting of leatherbacks is known.

25. Further research is intended including serious monitoring of the green turtle and hawksbill populations. Turtle populations have been significantly reduced. Draft legislation has been put forward to stop commercial fishing.

Queensland - Australia

26. No decrease in abundance of turtles in the Torres Strait during the last 30-40 years has been reported in the area of major exploitation.

Western Samoa

27. Hawksbills are known to nest and green turtles are occasionally seen.

Trust Territory of the Pacific Islands

28. The green turtle is the most common species, with widespread nesting. The hawksbill is the second most common turtle. Both species are heavily utilised. The leatherback is an occasional visitor, ridleys are rarely seen and loggerheads are unknown.

Tuvalu

29. The commonest turtle is the green turtle, with hawksbill also occurring. Numbers are declining and some protection is thought necessary.

Cook Islands

30. Northern Cook Islands were reported to have had concentrations of turtles, mainly green turtles in the past. Hawksbills are known to occur in small numbers.

Hawaiian Islands

31. The green turtle is the commonest species with all nesting occurring on the small, uninhabited islands of the Northwest Hawaiian Islands. Small numbers of hawksbills occur at the southeastern end of the archipelago. Leatherbacks are regularly sighted, but nesting has never been recorded. Olive ridleys and loggerheads are known as accidentals.

VI. TRADITIONAL AND SOCIO-ECONOMIC IMPORTANCE OF MARINE TURTLES

32. A film concerning the complex interaction between the Miskito Indians (Caribbean Nicaragua) and green turtles was introduced and shown by Professor Carr. This film stimulated a certain amount of interest and discussion from participants.

33. Slides dealing with subsistence hunting methods and traditional utilisation of turtles in Papua New Guinea were shown and introduced by Ms Spring.

34. This was followed by a general discussion on subsistence turtle fisheries.

35. The socio-economic aspects were then discussed. In some of the countries concerned economic development is often in conflict with conservation. A vigorous discussion ensued on the present and potential exploitation of the hawksbill resource by a few of the participating countries.

VII. REGULATIONS AND PROBLEMS OF ENFORCEMENT

36. Participants told of their countries' legislation in force to date and there was a wide variance in legislative formats. The importance of education was stressed because often governments have neither money nor manpower to enforce these legislations.

37. Alternative forms of conservation legislation were discussed, including legal reinforcement of traditional restraints.

38. Mention was made of the taking of turtles by foreign fishing vessels and it was suggested that very large fines or confiscation of vessels that are caught in violation of local conservation regulations may serve as a deterrent to poaching activities.

VIII. REVIEW OF REARING AND BREEDING EXPERIMENTS

39. A slide show was presented by Professor J. Thomson, University of Queensland, on the turtle-rearing project in the Torres Strait area. Professor Thomson stated that the project will be closed down in June 1980 because it has not proved economically viable.

40. A general discussion on turtle rearing ensued.

41. Dr Pritchard briefly discussed turtle farming, indicating that this is a controversial issue. He concluded that turtle farming in the Pacific Island countries appears to be impractical at this time.
42. Another turtle farming study, the SPC project in the Cook Islands, concluded that it was not economically feasible at the village level in the Pacific.
43. On a question of whether hawksbill turtle eggs could be transplanted successfully from one location to another for recolonisation, Professor Carr indicated that this has been tried with the green turtle but that there is no evidence yet that it has been successful; however, he noted that this could be tried on an experimental basis with the hawksbill.
44. Discussion on the headstarting programme followed. Professor Carr brought out that headstarting programmes have not been demonstrated to be successful.

LX. POSSIBLE FUTURE ACTIONS

Co-ordination and dissemination of information on a regional basis

45. It was emphasized that for a co-ordinated research effort to be undertaken in the region, there is an urgent need to disseminate results and data.
46. It was pointed out that the South Pacific Commission cannot undertake any data processing but can disseminate digested data.

Biological research (age, growth, feeding habits, etc.)

47. Before any comprehensive tagging is carried out in the region, it was suggested that an in-depth review be conducted by NMFS and Mr Balazs of all tag-recovery data and an informational document prepared. The subject of reward was then discussed. In the opinion of the participants, a reward system for tag return is desirable. Various reward systems were also discussed.
48. It was brought out that there are several purposes for conducting a tagging programme. These are:-
- (i) to determine migratory patterns
 - (ii) to study site fixation of nesting grounds
 - (iii) to obtain population estimates
 - (iv) to measure growth.
49. In discussing tagging it was noted that a tagging programme should include provisions for conducting experiments on double tagging to estimate tag loss rate.

Stock assessment (aerial surveys, field studies, tagging, etc.)

50. The consultants reported that at the present time, conducting a census of nesting female turtles at nesting sites is the most reliable method of stock assessment.
51. Professor Carr indicated that the number of females nesting in different years is highly variable.
52. On aerial surveys, Professor Thomson reported that this method of counting turtles had only limited value. Dr Pritchard indicated that the hawksbill turtles are inconspicuous from the air; however, green turtles and olive ridley are easier to detect.
53. Aerial surveys would provide (1) estimates of the number of nesting turtles based on track counts and (2) information on foraging areas.
54. Mr Balazs then presented a slide show on migratory pattern, copulation, nesting and hatchlings of green turtles in Hawaiian waters and some aspects of the hawksbill hatchery in Western Samoa.

Conservation and management

55. Discussion on these topics brought out that very little is known about population parameters that are vital to instituting conservation and management measures. Mr Balazs pointed out that the background document, "Sea turtle conservation strategy" which was produced at the Washington, D.C. meeting, has some recommendations for conservation and management of turtle stocks.

Artificial breeding

56. In general, workshop participants believed that artificial breeding of turtles was impractical and not economically viable.

Education and training

57. Workshop participants brought out that the message on turtle conservation should reach the children at the elementary school level. Professor Carr pointed out that it was necessary to generate public interest in turtle conservation legislation which might otherwise prove unpopular. Ms Spring reported that the Papua New Guinea educational programme includes a variety of methods to reach the public. Among them were posters, badges, stickers, T-shirts and the news media.

58. It was pointed out that the South Pacific Commission has a budget item for sponsoring trainees from member countries to participate in various types of training programmes.

X. RECOMMENDATIONS

59. After the discussion on possible future actions the Chairman invited recommendations from the meeting. The meeting made the following seven recommendations:-

Recommendation No.1

It is highly desirable that all the Fisheries Departments and other bodies involved with sea turtles should ensure the circulation of information through the SPC Fisheries Newsletter.

Recommendation No.2

The meeting recommended that a thorough scientific evaluation of the effectiveness of ongoing headstarting programmes be undertaken; progress of this evaluation to be published and made available to countries and territories in the region.

Recommendation No.3

The meeting recommended that the SPC develop further basic educational materials relative to sea turtles for use throughout the region.

Recommendation No.4

The meeting recognised that the hawksbill turtle faces a grave threat to its survival in some areas as a result of the present world demand for tortoiseshell. The meeting recommended that management-oriented research on the biology of this species in the region be undertaken.

Recommendation No.5

The meeting strongly recommended that the countries and territories of the Pacific establish turtle breeding sanctuaries or equivalent protected reserves within their areas.

Recommendation No.6

The meeting commended the marine turtle conservation, education and management programmes of Papua New Guinea and other Pacific Island governments and encouraged them to continue this work. Governments are urged to expand their programmes to include research and to seek financial assistance if necessary and applicable.

Recommendation No.7

The meeting recommended that SPC accept the offer of the Honolulu Laboratory of the NMFS to work with Mr George Balazs of the Hawaii Institute of Marine Biology to draft an informational paper detailing a comprehensive turtle tagging programme for the Pacific region.

APPENDIX : LIST OF DOCUMENTS

A. Working Papers

- WP. 1 The marine turtle situation in the Kingdom of Tonga,
by W.A. Wilkinson
- 2 Turtle fishing and marketing regulations in force in New Caledonia
- 3 The turtle status in Tuvalu, by E. Pita
- 4 Tagging and rearing of the green turtle Chelonia mydas conducted
in French Polynesia by the Department of Fisheries
- 5 Bibliography of marine turtles, by H. Singh
- 6 (There was no WP.6 due to an error in numbering.)
- 7 Notes on marine turtles of Kiribati, by B. Onorio
- 8 Notes on the hawksbill population of Western Samoa, by W. Travis
- 9 A review of sea turtle publications in the Philippines, by E.D. Gomez
- 10 The turtle farming project in Torres Strait - North Queensland,
by J.M. Thomson
- 11 Marine turtle resources of the Solomon Islands region, by J.K. McElroy
and D. Alexander
- 12 *Marine turtles of U.S. Territories in the Central Pacific Ocean.*
by G.H. Balazs
- 13 Synopsis of biological data on the green turtle in the Hawaiian
Islands, by G. Balazs
- 14 Summary report of the planning workshop for NMFS research on marine
turtles in the central and western Pacific, by R.S. Shomura
- 15 Country Statement - American Samoa
- 16 Subsistence hunting of marine turtles in Papua New Guinea,
by C. Sylvia Spring
- 17 *Country statement - T.T.P.I.*

B. Information Papers

Sea turtle identification sheets. FAO.

Report on the SPC turtle project in the Cook Islands. SPC 1978, 7 pp.

Marine turtles ⁱⁿ the Solomon Islands, by A. McKeown,
Ministry of Natural Resources, Honiara 1977, 49 pp.

Sea turtle fact sheet. Prepared for the World Conference on Sea
Turtle Conservation, Washington D.C., 26-30 November 1979, by
D. Ehrenfeld.

Subsistence hunting of sea turtles in Australia, by J. Kowarsky.
Presented at the World Conference on Sea Turtle Conservation,
Washington D.C., 26-30 November 1979.

Sea turtle populations of Indonesia and Thailand, by N.V.C. Polunin and N.S. Naitja. Presented at the World Conference on Sea Turtle Conservation, Washington D.C., 26-30 November 1979.

Sea turtles in the Solomon Islands. Ministry of Natural Resources, Honiara (undated).

Sea turtle conservation strategy (draft). Prepared at the World Conference on Sea Turtle Conservation, Washington D.C., 26-30 November 1979.

Marine turtles of Papua New Guinea, by P.C.H. Pritchard. Report to the Wildlife Division, Department of Lands and Environment, Konedobu, Papua New Guinea, 1979, 122 pp.

Marine Turtles of Papua New Guinea : unedited field notes, by P.C.H. Pritchard. Account of field work conducted on behalf of Papua New Guinea Wildlife Division, August to October 1978.

Does sea turtle aquaculture benefit conservation? by C.K. Dodd. Paper presented at the World Conference on Sea Turtle Conservation, Washington D.C., 26-30 November 1979.

Farming and ranching as a strategy for sea turtle conservation, by H.A. Reichart. Paper presented at the World Conference on Sea Turtle Conservation, Washington D.C., 26-30 November 1979.

The consequences of herbivory for the life history pattern of the Caribbean green turtle, Chelonia mydas, by K.A. Bjorndal. Paper presented at the World Conference on Sea Turtle Conservation, Washington D.C., 26-30 November 1979.

~~Subsistence hunting of turtles in the western Pacific: the Caroline Islands, by M.A. McCoy. Paper presented at the World Conference on Sea Turtle Conservation, Washington D.C., 26-30 November 1979.~~

Natural predators of sea turtles and their control, by S.E. Stancyk. Paper presented at the World Conference on Sea Turtle Conservation, Washington D.C., 26-30 November 1979.

Growth rates of immature green turtles in the Hawaiian Archipelago, by G.H. Balazs.
