

# Marine Turtle Newsletter

LIBRARY OF  
GEORGE H. BALAZS



IUCN/SSC

No. 1. AUGUST 1976

Editor: N. Mrosovsky\*

Editorial Advisor: Archie Carr

## EDITORIAL

Efforts are going on all over the world to save marine turtles from extinction. Marine turtles are widely distributed and their migrations take them across international boundaries. These facts complicate both arriving at an understanding of their biology and devising the necessary measures for their conservation. Given this situation, the authorities at IUCN and the members of the IUCN Marine Turtle Specialist Group felt that better communication between workers in different parts of the world was needed.

The aim of this newsletter is:

- 1) to provide a forum for exchange of information about all aspects of marine turtle biology and conservation
- 2) to alert interested people to particular threats to marine turtles, as they arise.

The letter will appear at irregular intervals, depending on the amount of new information and any particular circumstances calling for action on the part of conservationists.

Recipients of this first newsletter can help by letting the editor know if he has their correct mailing address, and also who else should receive the newsletter. A yellow form has been provided for this at the end of the newsletter. In addition, any comments, suggestions or items for inclusion would be welcome. Please remember that people in other parts of the world may be interested to learn what you are doing and what the turtle situation is in your area. This letter is being sent to people in more than 30 different countries.

---

\* Address all correspondence to: N. Mrosovsky  
Departments of Zoology and Psychology  
University of Toronto  
Toronto. M5S 1A1 Canada.

IUCN PRINCIPLES ON SEA TURTLES

After consulting with various people and organizations, the Survival Service Commission of the IUCN issued the Principles and Recommendations on trade in sea turtles printed below. You are strongly encouraged to bring these principles to the attention of any organization involved in trade in sea turtle products, government departments, consumers, manufacturers, local press carrying advertisements for turtle products, etc.

(Editor)

From the IUCN Bulletin, April 1975, Vol 6, No 4.

SSC issues 'Principles' on trade in sea turtles

In response to the concern expressed in a decision of the 42nd meeting of the Survival Service Commission regarding the rapidly expanding trade in sea turtles and their products, the Secretariat of IUCN, in consultation with the Co-Chairmen of the SSC Marine Turtle Specialist Group, convened an ad hoc meeting to "review the commercial exploitation of marine turtles with special reference to the state and implications of turtle farming and, if possible, to reduce the result of such review to a statement of principles".

This meeting took place at Miami, Florida, USA, on 21 - 23 November 1974. The resulting Statement was accepted by the 44th meeting of the Survival Service Commission on 7 - 8 March 1975, and is now issued as the Commission's 'Principles and Recommendations'.

PRINCIPLES AND RECOMMENDATIONS

1. Because the majority of the distinct populations of Chelonia (green turtles) are extinct, threatened or rapidly declining, the entire group should be considered endangered.
2. The reasons for the extinction and decline of populations include particularly exploitation for meat, hides, eggs and other products (including souvenirs), massive killing of turtles in the trawl nets of fishing fleets as well as increasing habitat destruction and disturbance.
3. The situation has become even more critical with the expansion of international commercial trade in sea turtles and their products.
4. As regards trawling, urgent attention should be given to encourage the use of nets designed to minimize undesirable catches of turtles, and research into this question should be given funding priority.
5. As regards souvenirs, the taking and preparing of turtles and turtle products for the primary purpose of souvenirs should be strongly discouraged.
6. As regards primary exploitation (meat, hides, eggs), where it can be demonstrated that local turtle populations can tolerate exploitation, and the desire or necessity is present, this should be done only by peoples traditionally dependent on them, with methods ensuring minimal waste and for local utilization. The diversion of wild sea turtle resources from traditional use by local people, or the expansion of that use, to satisfy or extend the demands of international commerce, is condemned.
7. It is emphasized at this point that there is a distinction between turtle farming and turtle ranching; a turtle farm implies that the unit is completely independent of wild stocks; a turtle ranch is a unit dependent on wild populations for eggs or turtles with the animals kept in varying degrees of captivity (H. Hirth, FAO Fisheries Synopsis No. 85, "Synopsis of Biological Data on the Green Turtle", December 1971).

8. Further, in recognition of the deteriorating energy and food resources of the world, it is advocated that wherever possible any turtle culture be maintained at the lowest applicable trophic level.\*
9. Farming objectives which lead to the expansion of existing markets resulting possibly in an increased exploitation of wild turtles are unacceptable. However, it would be consistent with the foregoing principles to accept turtle farming whose products will replace wild turtle products in existing traditional markets. The acceptability of any farm should be demonstrated by suitably designed and independently evaluated tests and data. Moreover, those ranching endeavours satisfying the above conditions and which can be shown not to harm wild turtle populations are also acceptable.
10. Funds should be provided for the preparation of informative pamphlets to promote the application of the foregoing principles and immediate measures should be taken to ensure the early implementation of such action as is necessary to conserve the marine turtle resource in accordance with these principles.
11. Nearly all the considerations stated for *Chelonia* may be applied with equal force to populations of the six other species of marine turtles.

\* All organisms are classified as producers, primary consumers (herbivores), secondary consumers (carnivores), or decomposers according to the place they occupy in the food chain of an ecosystem. This placement is termed 'trophic level'. Therefore, herbivorous species should subsist on a diet based on plant protein and carnivorous species on animal protein.

#### THE TAG LOSS PROBLEM

(based on information provided by G.H. Balazs, G.R. Hughes, J.P. Schulz, G.S. de Silva and Siow K.T.)

A persistent problem in assessing turtle populations is that tags often come off or are shed by the turtles. Mostly people just do the best they can without ever addressing this important problem directly. In fact there are at least two practical questions here:

- 1) how to prevent tag loss, in particular what kind of tag is best?
- 2) how frequent is tag loss? This information is necessary for making population estimates based on tag returns.

On the first question, what type of tag is best, opinion seems to be divided. For instance, on a recent visit to Trengganu, Malaysia, Mr. Siow Kuan Tow (State Director for Fisheries, Kuala Trengganu, Malaysia) informed me that in the leatherback conservation programme plastic tags (Jumbo Rotatag, Dalton, Henley, England) had been substituted for monel tags because tag loss with the latter was too great. On the other hand, in S. Africa, plastic tags were given up sometime ago and monel metal substituted instead. More recently Dr. G.R. Hughes (P.O. Box 662, Pietermaritzburg, Natal, S. Africa) writes: "Regrettably a substantial number of loggerheads had lost their tags and the calluses appear to be those remaining after the loss of plastic tags although some calluses were clearly those resulting from the loss of monel tags. A not inconsiderable number of monel tags were removed and replaced with new ones because the originals were corroded, some very badly."

It is conceivable, of course, though not very likely, that one kind of tag would be better for one population and another kind for another. But without quantitative assessment of tag loss in these cases, it is not possible to tell whether this is the case, or whether either the monel metal or the plastic tag is superior.

There seem to be very few studies on tag loss. However, in Surinam Schulz (1975, Zoologische Verhandlungen, 143, p 61-62) marked 80 newly tagged green turtles with paint. Within one month 12 of these had been seen on the beach again with the paint mark still visible, but without the tag (metal tag). "The actual number of animals that lost their tag has been estimated at 15-20%, a figure based on a calculation which included the estimated number of turtles that had lost both paint mark and tag". In whatever way one does the calculations, at a minimum certainly 15% of the tags were lost ... within a month! Schulz points out that there are several reasons why tags are lost, including poor tagging and loss through corrosion.

Corrosion of tags has been documented recently by Mr. G.H. Balazs (Institute of Marine Biology, P.O. Box 1346, Kaneohe, Hawaii, U.S.A.). He has a collection of tags recovered from sea turtles; their disintegrating and battered state is a dismal sight for any turtle researcher. Correspondence between Mr. Balazs and the manufacturers of the monel metal tag indicated that working of the metal to and fro might cause cracks which would result in deterioration of the metal. On the positive side, this company (National Band and Tag Company, 721 York Street, Newport, Kentucky, USA) is looking into the possibility of producing a tag made from a more corrosion resistant material. This is known as Iconel, an alloy containing nickel. The cost of tags made from Iconel is higher than that of monel metal tags. The exact cost however depends on how many of these tags are ordered. Combined orders will reduce the prices. People interested should communicate direct with George Balazs. He also has information and views on what size of tag is best. However, it must be added that Iconel has not yet been given long-term trials on marine turtles, and some method of assessing the reliability of this kind of tag would surely be desirable.

How might reliability of tags be assessed then? Mr. Stanley de Silva (Office of Chief Game Warden, Peti Surat 311, Sabah, Malaysia) is launching on an experiment that should help resolve some of these issues. He has undertaken to double tag green turtles nesting near Sandakan, Sabah; on one flipper there will be a monel metal tag and on the other flipper a plastic tag. If this experiment can be carried out with large enough numbers of turtles and for long enough, it should not only establish which kind of tag is superior, at least for the Sabah turtle populations, but also provide estimates of the chances of loss occurring with each of these two kinds of tag. Such estimates will be valuable in helping to assess trends in turtle populations based on tag returns. Perhaps someone should try something along similar lines with the new Iconel tag.

Meanwhile, anyone with information or views on the tag loss problem is urged to share them with other biologists by writing to this newsletter. N. Mrosovsky.

#### TOM HARRISSON : OBITUARY

Professor Tom Harrisson, Co-Chairman of the Marine Turtle Group, and his wife Christina, were killed in a road accident in Bangkok last January.

Tom was an incredibly versatile individual who has left his mark in many fields. His contributions to sea turtle conservation were enormous. Before the Japanese occupation the turtle egg industry of the Sarawak Islands (Talang 2 Besar, Talang 2 Kechil and Satang), off the southwest coast of Borneo, had been in the hands of a few prominent Malay families. In 1941 the industry was placed under a Turtle Trust Ordinance to be administered by the Curator of the Sarawak Museum. In 1947, Tom Harrisson became Curator of the Museum. He took charge of the Turtle Islands, instigated regulation of the exploitation there, and established a tagging program. His adoption of a monel metal cow-ear tag as a fin-clip, replacing the unsatisfactory shell-tags previously used, was a milestone in sea turtle research procedure. On July 4, 1956, a turtle that had been tagged at one of the rookery islands three years before returned to nest. This was the first remigration of a tagged turtle; and since then, hundreds of similar returns recorded at the Sarawak rookery and elsewhere have shown that the three-year absence

represented the predominant intermigratory interval of the species. Tom's frequent short published accounts of his conservation problems and achievements at the islands attracted worldwide attention, which surely lengthened the survival-expectancy of Chelonia. When he died, the Turtle Group lost an irreplaceable officer, the green turtle a staunch benefactor, and the surviving Co-Chairman a valued friend. Archie Carr

#### NOTES ON TURTLE CONSERVATION IN NATAL

##### Hatchling Taggings:

1974/75 season was quite successful in that 11635 loggerhead hatchlings were marked and released of which only one has been recovered on the Cape Peninsula 1200 miles south of the release area. The hatchling had taken at least 2 months and at most 3½ months to travel the distance. It is the 8th hatchling recovered out of 33,000 marked over 4 seasons.

##### Adult Populations:

The loggerhead population was of average size this past season (1974/75) and there has been only a slight increasing trend over 12 years of protection. However, 49.7% of the nesting females encountered had nested in either one, two or three seasons before this season.

The leatherback population during the 1974/75 season was the best ever. After an annual handling figure averaging 21 p.a. for 10 years the 1973/74 season saw the number go to 54 and 1974/75, 65 animals were handled. This was partly due to improved patrolling techniques but the number of nests recorded (a more dependable record) increased from 356 to 510, so this was indeed a promising increase.

George Hughes  
Natal Parks, Game and Fish Preservation Board,  
P.O. Box 662, Pietermaritzburg,  
Natal, S. Africa.

#### TURTLE PROGRAMME IN BAJA CALIFORNIA, MEXICO

The "Tortuga Prieta" (Green Turtle, Chelonia mydas carrinegra) is the commonest turtle found on the S.W. coast of the peninsula and within the Gulf of California. This species is highly prized for its meat and the skin and flippers are included in stews made from it. The skin is not of very high quality and does not make good leather; it is therefore used almost entirely for food. The entire Peninsula has been surveyed but no nesting grounds have been found for this species. It is noteworthy that most of these dark coloured turtles caught within the Gulf of California are immature, small in size (60%) and that neither the adult males or adult females are in a reproductive state.

The 'Tortuga Golfina' (Pacific or olive ridley, Lepidochelys olivacea) begins to become abundant in the S.W. part of the peninsula and within the gulf itself. There are nesting grounds on the South of Magdalena Bay and around the cape.

In addition to the work mentioned above, the abundance of turtles within the gulf has been determined, and a complete study made of the fishing industry and allowable catches specified.

Turtles are caught all along both coasts; nets with 90 cm mesh are used, or turtles are harpooned from boats (1 ton capacity) with outboard motors.

Translated from an account by : Biol. René Márquez M.  
Programa de Tortugas Marinas  
Instituto Nacional de Pesca México  
México, D.F.

Loggerhead Turtle Newsletter

A newsletter about loggerhead turtles in the United States has been started. The first loggerhead newsletter describes projects in various parts of the United States, and plans to develop a centralized data bank, computer programmes, and distribution of uniform data sheets.

Interested people should contact:

Charles R. LeBuff  
Caretta Research  
PO Drawer E, Sanibel Island  
Florida, 33957, USA

RECENT PAPERSReferenceAddress of Author

Bacon, P.R. 1975. Review of research, exploitation and management of stocks of sea turtles in the Caribbean region. FAO Fisheries Circular, No. 334, FAO Rome.

P.R. Bacon,  
Dept. of Biological Sciences,  
University of West Indies,  
Trinidad.

(useful compilation of facts on the current situation and a plea for more coordination and communication)

Balazs, G.H. 1976. Sea Turtle Conservation. 'Elepaio: Journal of the Hawaii Audubon Society, 36 # 7.

G.R. Balazs  
Hawaii Institute of Marine Biology,  
P.O. Box 1346,  
Kaneohe  
Hawaii, USA 96744.

(account of efforts to have green and loggerhead turtles put on the USA Federal register of endangered species, with the implication that USA government authorities are unduly delaying taking action on these matters)

Balazs, G.H. 1976. Green turtle migrations in the Hawaiian Archipelago. Biological Conservation, 9, 125-140.

G.R. Balazs  
Hawaii Institute of Marine Biology  
P.O. Box 1346,  
Kaneohe  
Hawaii, USA 96744.

(tagging of turtles, both at nesting and while basking away from their nesting area, indicates that that turtles from two widely separated locations converge for reproduction to a central site in the Hawaiian Archipelago)

Carr, A. 1975. The Ascension Island Green turtle colony. Copeia, 3, 547-555

A. Carr,  
Dept. of Zoology,  
University of Florida  
Gainesville  
Florida, USA.

(on tag recoveries, nest site fixity, internesting intervals, and discussion of nomenclature and whether different populations of green turtle are sub-species).

Carr, A. & Stancyk, S. 1975. Observations on the ecology and survival outlook of the hawksbill turtle. Biological Conservation, 8, 161-172.

A. Carr,  
Dept. of Zoology,  
University of Florida  
Gainesville  
Florida, USA.

(new data on stomach contents and an updated summary of information on the hawksbill collected at Tortuguero)

Cornelius, S.E. 1975. Marine Turtle mortalities along the Pacific Coast of Costa Rica, *Copeia*, 1, 186-187

(a report on massive die offs of turtles in 1972)

Felger, R.S., Clifton, K. & Regal, P.J. 1976. Winter dormancy in Sea turtles: independent discovery and exploitation in the gulf of California by two local cultures. *Science*, 191, 283-285.

(remarkable discovery providing many possibilities for learning more about sea turtles - unfortunately dormant turtles are extremely vulnerable and large numbers are already being taken.)

Hirth, H.F. & Schaffer, W.M. 1974. Survival rate of the green turtle, Chelonia mydas, necessary to maintain stable populations. *Copeia*, 2, 544-546.

(contains calculations relevant to conservation programmes and turtle ranching operations)

Hughes, G.R. 1974. The Sea turtles of South-East Africa 1. Status, morphology and distributions. II. The biology of the Tongaland loggerhead turtle Caretta L. with comments on the leatherback Dermochelys coriacea L. and the green turtles Chelonia mydas L. in the study region. Oceanographical Research Institute (2 West Street, Durban, South Africa), Investigational Reports Nos. 35 and 36.

(extensive data on many aspects of marine turtle biology, including work on populations in Europa Island; emphasis on role of temperature in ecology; presentation of information in great detail especially valuable)

Hughes, G.R. 1975. The Marine turtles of Tongaland, 8. The Lammergeyer 22, 9-18.

(recovery of notched hatchling loggerheads, cautions on assessing growth of adults by over-the curve measurement and data on numbers nesting)

Mrosovsky, N. & Shettleworth, S.J. 1975. On the orientation circle of the leatherback turtle, Dermochelys coriacea. *Animal Behaviour*, 23, 568-591.

(experiments comparing sea-finding behaviour in leatherbacks and green sea turtles)

Stephen E. Cornelius,  
Dept. of Wildlife & Fisheries,  
Texas A & M University,  
College Station,  
Texas 77843, USA.

R.S. Felger,  
Arizona-Sonora Desert Museum  
P.O. Box 5607,  
Tucson, Arizona, 85703,  
USA.

H.F. Hirth,  
Dept. of Biology,  
University of Utah,  
Salt Lake City,  
Utah, 84112, USA.

G.R. Hughes,  
Natal Parks,  
P.O. Box 662,  
Pietermaritzburg,  
Natal, South Africa.

G.R. Hughes,  
Natal Parks,  
P.O. Box 662  
Pietermaritzburg,  
Natal, South Africa.

N. Mrosovsky,  
Dept. of Zoology,  
University of Toronto,  
Toronto M5S 1A1,  
Ont. Canada.

Schulz, J.P. (1975) Sea turtles nesting in Surinam. Zoologische Verhandelingen, No. 143, 1-143, & 28 plates.

(account of 9-10 years work, full presentation of data in 26 tables, detailed description of populations, behaviour habitat, and geophysical factors; a major contribution and essential reading for anyone interested in sea turtles).

Suwelo, I.T. 1975. Turtle breeding at Sukamade Banyuwangi. Oseanologi di Indonesia, 4, 13-20.

(an account of nesting of green turtles in the Meru Betiri Nature Reserve, including numbers, seasonality, and conservation problems. Text in Indonesian, English Abstract).

Thayer, G.W., Wolfe, D.A., & Williams, R.B. 1975. The impact of man on seagrass systems. American Scientist, 63, 288-296.

(basic information on role of seagrass in food chains and estuarine ecology, values for productivity, and results of destruction of seagrass).

Yoshie, S. & Honma, Y. 1976. Light and scanning electron microscopic studies on the esophageal spines in the Pacific ridley turtle, Lepidochelys olivacea. Archivum Histologicum Japonicum, 38, 339-346.

(suggests spines are used for breaking food into small pieces).

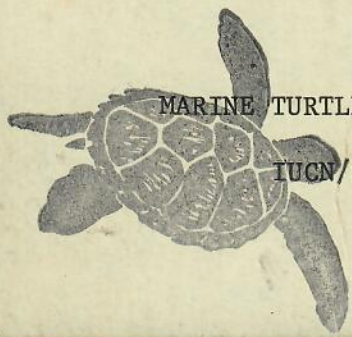
J.R. Schulz,  
Surinam Forest Service,  
P.O. Box 436,  
Paramaribo,  
Surinam.

Ismu Sutanto Suwelo  
Jurusan Biologi  
Fakultas Ilmu Pasti  
dan Abam  
Universitas Indonesia  
Jakarta, Indonesia.

G.W. Thayer  
Atlantic Estuarine  
Fisheries Centre,  
Beaufort, NC 28516  
USA

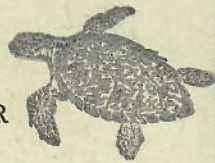
S. Yoshie  
Nippon Dental College  
(Dept. Oral Anatomy)  
Hamaura-cho 1-8  
Nugata 951  
Japan





MARINE TURTLE NEWSLETTER

IUCN/SSC



LIBRARY OF  
GEORGE H. BALAZS