

Marine Turtle Newsletter

Issue Number 86.

October 1999.



20th Symposium - call for papers (Witherington, pages 16-19).

IN THIS ISSUE:

Guest Editorial:

Operation Kachhapa: In Search of a Solution for the Olive Ridleys of Orissa.

Article:

Current Status and Conservation of Marine Turtles on the Mediterranean Coast of Israel.

Note:

The Use of a Goretex Mesh to Repair a Traumatic Coelomic Fistula in a Juvenile Green Sea Turtle.

Letter to the Editors: On the Ostional Affair.

Obituary: In Memoriam: Johan Paul Schulz (1921-1999).

Meeting Reports

Announcements

News & Legal Briefs

Recent Publications

MTN/NTM Online - The *Marine Turtle Newsletter* and *Noticiero de Tortugas Marinas* are both available at the MTN web site: <<http://www.seaturtle.org/mtn/>> and <<http://www.seaturtle.org/ntm/>>.

Noticiero de Tortugas Marinas (NTM) - This is the Spanish edition of the MTN. Any subscription enquiries should be directed to Angela Mast. Submissions should be made to the editors of the MTN.

Subscriptions and Donations - Subscriptions to the MTN and donations towards the production of both the MTN and NTM should be sent c/o Chelonian Research Foundation (see inside back cover for details).

Editors:

Brendan J. Godley & Annette C. Broderick

*Marine Turtle Research Group
School of Biological Sciences
University of Wales Swansea
Singleton Park
Swansea SA2 8PP
Wales UK*

*E-mail: MTN@swan.ac.uk
Fax: +44 1792 295447*

Editorial Board:

Nicholas Mrosovsky
(Founding Editor)
*University of Toronto
Canada*

Karen L. Eckert
(Editor Emeritus)
*WIDECAST
USA*

Jack G. Frazier
*CINVESTAV-IPN
Mexico*

Peter L. Lutz
*Florida Atlantic University
USA*

Jeff D. Miller
*Queensland Dept. of the Environment
Australia*

Anders G. J. Rhodin
*Chelonian Research Foundation
USA*

Online Co-ordinator:

Michael S. Coyne
*National Ocean Service
1305 East-West Highway
Silver Spring
MD 20910
USA*

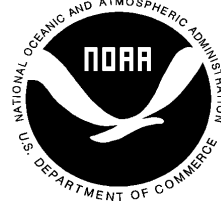
NTM Co-ordinator:

Angela M. Mast
*13217 Stable Brook Way
Herndon
VA 20171
USA*

*E-mail: mcoyne@seaturtle.org
Fax: +1 301 713 4384*

*E-mail: mast@erols.com
Fax: +1 202 887 5188 c/o Rod Mast*

Produced with assistance from:



(PTFE) mesh (GoreTex) was surgically implanted inside the fistula in an attempt to induce re-epithelialization. The outside of the fistula was covered with a linear polypropylene (Marlex). The PTFE was selected for the inside due to its ability to resist adhesion formation, a valuable quality when resting against viscera. The Marlex was chosen for the outer covering to stimulate fibroblast formation and enhance healing.

The external surface of the implant area was protected with petroleum jelly and covered with waterproof tape. The patient was maintained in the dry/shower tank and tube fed a mixture of blended squid, trout chow and Gatorade.

Within two weeks, a layer of new tissue had begun growing into the Marlex mesh. By one month post-op there was enough external re-epithelialization for the patient to be returned to a pool.

Re-examination one year post-implantation revealed a fully recovered patient. The original lesion had contracted from 10 x 25 cm to an irregular 5 x 20 cm, and the margins of the plastron wound had granulated to form a smooth transition to pink scar tissue.

The lesson to be learned from this case is that marine turtles are extremely hardy, and with proper wound management, even severe lesions should warrant consideration for treatment.

Letter to the Editors:

On the Ostional Affair

Dear Editors,

Earlier articles focusing on the Ostional egg commercialization program (OECF) have appeared in the *Marine Turtle Newsletter* (Cornelius 1985; Pritchard 1984a; 1984b). More recently, an excellent paper by Lisa Campbell (Campbell 1998) appeared. The latter paper offers an analysis of the OECF from a socio-economic stand point. It gives an historic, economic, and social background of the Ostional programme, as well as the biological rationale that permitted the legal commercialization of eggs. Readers are encouraged to refer to those articles for a more complete description of the programme.

The OECF operating at the Ostional Wildlife Refuge (RVSO) was legalized over a decade ago by the government of Costa Rica to permit the sustainable use of olive ridley (*Lepidochelys olivacea*) sea turtle eggs by members of the Association for the Integral Development of Ostional (ADIO). The term "sustainable use" is interpreted here as the regulated, long-term take of eggs from the nesting beach with no or negligible negative impact on the nesting population. Through this programme the ADIO has legally extracted ridley eggs from the beach and sold them with relatively good socio-economic success (Campbell 1998; Ordóñez & Ballesteros 1994; Ordóñez *et al.* 1994). The commercialization of eggs is mostly based on the facts that a large number of eggs are destroyed during mass nesting (arribada) events and that there is an adjacent community in need of a source of income (Alvarado 1990). In addition, hatching rate at Ostional is commonly below 15%, which is low when compared with that of approximately 90% of olive ridley eggs at solitary nesting beaches (Reichert 1993).

Although the ultimate cause leading to such poor hatching success is unknown, it is believed that this may be a consequence of the large number of destroyed eggs which provide a favourable medium for the increased proliferation of microorganisms (Cornelius *et al.* 1991). The increased microflora may lethally interact with turtle embryos and thus lead to poor hatching (Cornelius *et al.* 1991; Valverde *et al.* 1988).

It has been suggested that given that the level of egg removal by the community is low, relative to the total number of eggs oviposited during any given major arribada ($13.8\% \pm 2.9$ [mean \pm SE]; $n=31$; range: 1.8-79.6%; Chaves-Quirós 1998), the operation does not appear to impact the adult population (Cornelius *et al.* 1991). Available preliminary evidence appears to support this assumption (Alvarado 1990), although the appropriate tools to make a definite evaluation of the relationship between the level of egg extraction and the maintenance of the adult population have yet to be developed. During the last four years, conflicts in the RVSO have exposed the lack of a solid organizational structure of the egg harvest programme.

Although conflicts within the OECF are not new (Campbell 1998), the current situation within the RVSO threatens to paralyse the programme, putting at risk the entire community of Ostional. Moreover, this lack of organizational structure has resulted in a chaotic situation in the RVSO which includes acts of violence. The violent acts have been documented in Costa Rican newspapers, but the exact circumstances surrounding each act are ambiguous at best.

Motivated by the conflictive events in the RVSO, in the month of June of the current year I addressed a letter

to Elisabeth Odio, Minister of the Environment and Energy of Costa Rica, to express my concerns about the situation in Ostional. The document was distributed to a select group of government and academic institutions in Costa Rica as well as international conservation organizations and scientists. The objectives of the letter were: 1) to make it known to government officials that the international sea turtle community is concerned about the situation in Ostional and; 2) to offer suggestions on how the government might address the problems at this wildlife refuge. As stated in the letter, the main deficiencies of the programme appear to be: a) the lack of government supervision of the administrative process related to the egg sale; b) the lack of adequate support from government and academic entities to assess the biological impact on the nesting population by the extraction of eggs; c) lack of a strategic and overall vision of the goals and mission of the OECP.

Towards addressing these problems I listed four main suggestions:

1) It is essential to conduct studies on the reproductive ecology and biology of the olive ridley in order to determine the main factors that control the demographics of the species at Ostional. In the short to mid terms, the relationship between hatching rate and egg extraction needs to be established since it is unknown whether the extraction of eggs impacts hatching success, although it has been speculated that hatching rate is increased due to egg removal (Cornelius & Robinson 1985). Also, it is necessary to develop the tools to assess the impact of the egg extraction on the maintenance of the adult population. The basic objective here should be to devise a methodology aimed at establishing the relationship between the size of the nesting population and the proportion of eggs extracted. Simply determining whether the population is declining or increasing is not enough. We need to make sure that population fluctuations can be related to the level of egg extraction. For as long as this cannot be accomplished, it will not be possible to evaluate conclusively the effect of egg extraction on the nesting population.

2) It seems clear that ADIO members and community of Ostional in general depend to a large extent on the profits derived from the commercialization of eggs (Campbell 1998). Arribada populations may undergo natural fluctuations (Valverde *et al.* 1998) that could directly affect the availability of eggs for commercialization. If ADIO members and the Ostional community are overly dependent on the resource for subsistence, what would be the economic and social impacts to the residents of Ostional if the nesting population undergoes a substantial decrease due to

unknown causes? A possible solution is to educate the Ostional residents in alternative productive jobs. Costa Rica has the institutional availability to accomplish this goal (e.g., National Learning Institute). In addition, Ostional can provide at least partial funding from the egg sale to help implement an education programme which in turn would contribute to the equitable development of the community proportional to the rational use of the resource.

3) One of the reasons for the government to allow the exploitation of eggs is that only eggs from Ostional would be commercialized and that this would be done at prices lower than those of illegal eggs. The objective was to discourage egg poaching from other beaches which would make egg sale unprofitable from beaches other than Ostional. Preliminary evidence suggests that this goal has been at least partially accomplished (Arauz-Almengor *et al.* 1993), but that the marketing structure needs to be improved to ensure that the original goal of discouraging sell of illegal eggs is achieved. It should be the government's responsibility to take the appropriate actions towards fulfilling this latter goal.

4) The regulation of the OECP must be improved. This is a very delicate task since on the one hand, the objective is to exploit in a controlled fashion a biological resource (about which many biological aspects are unknown) on a long-term basis for a species considered to be endangered. On the other hand, it is desired that the commercialization of the eggs promotes the development of the community in an integrated and just way, according to the basic needs of the community.

It is important to take into account that the exploited resource is dynamic, and as such, the regulations that govern the egg extraction should be flexible and responsive to its dynamics.

I believe that the best way to address these concerns is to devise a Management Plan (MP) for the OECP. This MP should address the needs of the community within the frame of wildlife conservation guidelines. The current so called Management Plan functions more like an annual report with a few recommendations for harvest regulations. A true MP should go beyond this. Besides establishing egg extraction regulations, an MP should clearly define the authority in charge of regulating the resource use, as well as research and community needs as discussed above. Such an MP would be a document with a set life span (e.g., four years) at the end of which the document should be revised by the management authority and adjusted to the needs of the community taking into account the principles of sustainable use of a wildlife resource.

I suggest that the management authority can take

the form of a management board, constituted of community, governmental, and academic representatives. Because of the complexity of a management programme, I believe it necessary for the management board to be multidisciplinary in nature. Such a board would take advantage of the many resources already in place in Costa Rica to ensure the adequate development of the Ostional community and the preservation of the resource.

It is important to point out that the ADIO is well aware of the need for an MP (Ordóñez & Ballesteró 1994; Ordóñez *et al.* 1994). I believe their input in the process of designing and implementing such an MP is critical for the success of such a plan. In summary, it is my opinion that the OECP requires more attention from government officials and from the conservation and scientific communities to help devise an MP based on the biological aspects of the resource and on the socio-economic needs of the Ostional community.

I believe the science upon which the programme was developed needs to be improved and better defined. The basic, and perhaps most difficult, task that the scientific community should address is the development of sound tools that allow the objective and accurate discrimination of the causes that may eventually lead to an increase or decline of the Ostional nesting population.

Acknowledgements: I would like to thank Steve Cornelius for his support and criticism during the development of this article. The paper also benefited from valuable criticism from an anonymous reviewer. Funds to support the author during the writing of this paper came from a postdoctoral fellowship for the diversity in the Sciences from the University of Michigan.

ALAVARADO, M.A. 1990. The results of more than two years of turtle egg harvests at Ostional, Costa Rica. In: T. Richardson, J. Richardson & M. Donnelly (Compilers). Proceedings of the Tenth Annual Workshop on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFC-278, pp. 175-178.

ARAUZ-ALMENGOR, C.L. MO & E. VARGAS. 1993. Preliminary evaluation of olive ridley egg commerce from Ostional Wildlife Refuge, Costa Rica. Marine Turtle Newsletter 63: 10-13.

CAMPBELL, L. M. 1998. Use them or lose them? Conservation and the consumptive use of marine turtle eggs at Ostional, Costa Rica. Environmental Conservation 25: 305-319.

CHAVES-QUIROS, A. 1998. Evaluación de las arribadas de la tortuga lora *Lepidochelys olivacea* en el Refugio

de Vida Silvestre Ostional. Unpublished report, 15 pp.

CORNELIUS, S. 1985. Update on Ostional. Marine Turtle Newsletter 33: 5-8.

CORNELIUS, S.E. & D.C. ROBINSON. 1985. Abundance, distribution and movements of olive ridley sea turtles in Costa Rica V. Report to USFWS, Albuquerque, NM, 54 pp.

CORNELIUS, S.E., M. ALVARADO, J.C. CASTRO, M. MATA DEL VALLE, & D.C. ROBINSON. 1991. Management of olive ridley sea turtles (*Lepidochelys olivacea*) nesting at Playas Nancite and Ostional, Costa Rica. In: K. Redford and J. Robinson (Eds.). Neotropical Wildlife Use and Conservation. The University of Chicago Press, Chicago and London. pp.111-135.

ORDOÑEZ, G. & J. BALLESTERO. 1994. Sea turtle conservation and management: Ostional Development Association work during 1993 in the Ostional Wildlife Refuge, Guanacaste, Costa Rica. In: K.A. Bjorndal, A.B. Bolten, D.A. Johnson and P.J. Eliazar (Compilers). Proceedings of the Fourteenth Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-351, pp. 268-269.

ORDOÑEZ, G., M. ARAUZ-ALMENGOR, C.M. SOMARRIBA-ANRIA & J.C. CASTRO. 1994. Ostional: a community which lives together with the olive ridley marine turtle, *Lepidochelys olivacea*. In: B.A. Schroeder and B.E. Witherington (Compilers). Proceedings of the Thirteenth Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-341, pp. 129-131.

PRITCHARD, P. C. H. 1984a. Guest Editorial. Marine Turtle Newsletter 27: 1-2.

PRITCHARD, P. C. H. 1984b. Guest Editorial: Ostional management options. Marine Turtle Newsletter 31: 2-4.

REICHART, H.A. 1993. Synopsis of biological data on the olive ridley sea turtle *Lepidochelys olivacea* (Escholtz, 1829) in the Western Atlantic. NOAA Technical Memorandum NMFS-SEFSC-336, 78pp.

VALVERDE, R.A., S.E. CORNELIUS & C.L. MO. 1998. Decline of the olive ridley sea turtle (*Lepidochelys olivacea*) nesting assemblage at Nancite beach, Santa Rosa National Park, Costa Rica. Chelonian Conservation Biology 3: 58-63.

Roldán A. Valverde Dept. of Biology, University of Michigan Ann Arbor, MI 48109-1048, USA.
E-mail: roldan@umich.edu