# Convención Interamericana para la Protección y Conservación de las Tortugas Marinas
# Segunda Conferencia de las Partes

*16 al 18 de Noviembre, 2004 – Isla de Margarita, Venezuela*

## Formulario para el Primer Informe Anual [English Version]

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## 1. Información Biológica

### 1.1. Especies presentes

| Especie | Océano Pacífico | Océano Atlántico | Mar Caribe |
|---|---|---|---|
| | Fase(s) | Fase(s) | Fase(s) |
| *Lepidochelys olivacea* | | R,M | |
| *Lepidochelys kempii* | | | |
| *Dermochelys coriacea* | | R,F,M | |
| *Eretmochelys imbricata* | | R,F,M | |
| *Chelonia mydas* | | R,F,M | |
| *Caretta caretta* | | R,F,M | |

Fases: R = reproducción; F = forrajeo; M = migración; D = fase desconocida

## 1.2. Sitios de importancia para la conservación de las tortugas marinas

| | Nombre del Sitio | Especie(s) | Temporada | Ubicación geográfica (Lat/Long) | Extensión (km o ha, según aplique) | Categoría de protección | Obs* |
|---|---|---|---|---|---|---|---|
| **Sitio de anidación** | Bahia | Cc/Ei/Lo/Cm | September - March | 12°58'40"S 38°25'17"W / 11°27'29"S 37°20'55"W | 214 Km | State Protected area | **ISA- Integral Study Areas** (In Situ-I) and **CA- Conservation Areas** (Relocation to open air hatcheries - T and/or Beach - P) |
| | Sergipe | Lo/Cc/Ei | September - March | 10º30'50"S 36º23'20"W | 125 Km | Federal and State Protected areas | ISA CA |
| | Trindade | Cm | December - April | 20°30'S, 29°49'W | 9 Km2 | Navy Protected area / County protected area | ISA |
| | Rio Grande do Norte Pipa | Ei | December - April | | 17 Km | | ISA |
| | Atol das Rocas | Cm | January - June | 3°45'S 33º37'W | 1,2 Km | Federal Protected areas | ISA |
| | Fernando de Noronha | Cm | January - June | 3º51'S 32º24'W | 2,8 Km | Federal Protected areas | ISA |
| | Rio de Janeiro | Cc/Ei/Dc | September - March | 21°18'08''S, 40°57'56'' W /22°05'44''S, 41°08'05''W | 120 Km | | ISA CA |
| | Espirito Santo | Dc/Cc/Ei/Lo | September - March | 18°24'S; 39°42'W / 20°48' S; 40°38' W | 224 Km | Federal and State Protected areas | ISA CA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sitio de Forrajeo** | Bahia | Cm/Ei | All year round | 12°58'40"S 38°25'17"W 11°27'29"S 37°20'55"W 12º56'908"S 37º98'806"W | | State protected Marine area | |
| | Fernando de Noronha | Cm/Ei | All year round | 3°45'S 33º37'W | | National Marine Park | |
| | Atol das Rocas | Cm/Ei | All year round | 3º51'S 32º24'W | | National Marine Park | |
| | São Paulo | Cm | All year round (in june-july and august there is na increase of Cm) | | | Anchieta Island is a State Protected Area | |
| | Santa Catarina | Cm | All year round | | | | |
| | Ceará | Cm/Ei | All year round | 2º50'S 40º09'W | | | |
| **Rutas Migratorias** | Bahia | Cc/Ei/Lo/Cm | All year round | | | | |
| | Espirito Santo | Cc/Ei/Dc/Lo/ Cm | All year round | | | | |
| | São Paulo | Cc/Ei/Dc/Cm | All year round | | | | |
| | Santa Catarina | Cc/Dc/Cm/Ei | All year round | | | | |
| | Ceará | Cc/Ei/Lo/Cm/ Dc | All year round | | | | |

## 2. Información sobre el uso derivado de las tortugas marinas

| | Tipos de uso | Especie | Productos | Cuenca Oceanográfica | Origen* | | Cantidad anual estimada | Fuente de Información | Acciones |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | L | I | | | |
| **Uso No extractivo** | Tourism | Cc/Cm/Lo Ei/Dc | Visitor Centers | Atlantic | X | | 1.500.000 visitors per year in 10 Visitor Centers | Annual Reports and Publications | Educational campaigns with general public and schools; Interactive programs (mini guides, ecotourism guided fieldtrips, public hatchling release) |
| | Self-sustainment; Production Units | Cc/Cm/Lo Ei/Dc | T-shirts, caps, handicraft, etc. | Atlantic | X | | | Marcovaldi et al (in press) | Production of articles of clothing, especially T-shirts. All these products promote the sea turtle conservation message. These generates social inclusion through the generation of jobs in the local communities where the cottage industries and others occur. |
| | Cultural Valuation | Cc/Cm/Lo Ei/Dc | Cultural Festivals | Atlantic | X | | | Marcovaldi et al (in press) | Support of local festivals |
| | Scientific | Cc/Cm/Lo/ Ei/Dc | Participation on events (congress, Simposiumns, and Workshops); Technical cooperation protocols, scientific publications | Atlantic | X | | | Annual Reports and Publications | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Uso extractivo** | subsistence (oportunistic and rarerlly) | Cc/Cm/Lo/Ei Dc | egg poaching | Atlantic | | X | ND | fishermen, local organizations, governamental organizations, NGO, universities | |
| | subsistence (oportunistic and rarerlly) | Cm Cc | meat | Atlantic | | X | ND | fishermen, local organizations, governamental organizations, NGO, universities | |

***** L = legal, I = ilegal

## 3. Amenazas principales

### 3.1. Hábitat y otras amenazas

| Amenazas | Especie(s) afectada(s) | Tamaño de impacto | Región(es) geográfica(s) afectada(s) | Fuente de información | Acciones |
|---|---|---|---|---|---|
| Beachfront lighting | Cc/Ei/Cm/Lo/Dc | not available | Ceará/Rio Grande do Norte/Sergipe/Bahia/ Espírito santo/Rio de Janeiro | Annual reports | Educational Campaigns and Legislation |
| Coastal development | Cc/Ei/Cm/Lo/Dc | not available | Ceará/Rio Grande do Norte/Sergipe/Bahia/ Espírito santo/Rio de Janeiro | Annual reports | Educational Campaigns and Legislation |
| Beach traffic (occasionally) | Cc/Ei/Cm/Lo/Dc | not available | Sergipe/Bahia/Espírito santo/Rio de Janeiro | Annual reports | Educational Campaigns and Legislation |
| Pollution (Coastal Oil Ship Wash Up) | Cc/Ei/Cm/Lo/Dc | not available | Ceará/Rio Grande do Norte/Sergipe/Bahia/ Espírito santo/Rio de Janeiro/São Paulo | | National service available (Hot Line) sends technicians to analyze the path. Through radar analyses the ship is found. The company could be penalized. |
| Pollution (garbage) | Cc/Ei/Cm/Lo/Dc | not available | all coast | | |
| Diseases (Fibropapilomatose) | Cm | not available | Ceará/Rio Grande do Norte/Sergipe/Bahia/ Espírito santo/Rio de Janeiro/São Paulo | Baptistotte *et al* , 2001; Werneck *et al* , 2003; Werneck et al, 2004; | Rehabilitation Research |
| Traumas and impacts with fishing gear debris | Cm / Cc | not available | Bahia / São Paulo | Werneck et al, 2003; Werneck et al, 2004 | Rehabilitation |

### 3.2. Captura (intencional / incidental)

| Amenazas | Especie(s) afectada(s) | Tamaño de impacto | Región(es) geográfica(s) afectada(s) | Fuente de información | Acciones |
|---|---|---|---|---|---|
| Gill net targeting lobster | Cc/Dc/Cm/Ei/Lo | not available | Ceará, Bahia, Espírito SAnto | Marcovaldi *et al* . 2004 | Preliminary study with onboard observers for sea turtles CPUE samples in Ceara and Bahia. Mitigatory measures: support the government to regulate the replacement of the gear to the lobster trap. The current federal law published by Ibama forbid the use of this gear since 31-December 2004. |
| Fix cage targeting fishes | Cc/Dc/Cm/Ei/Lo | 233 turtles captured in 2003 | Ceará | Marcovaldi *et al* . 2004 | Mitigatory measures: monitoring, research and awareness campaign directed towards fishermen |
| Gill net for fishes | Cc/Cm/Ei/Lo | not available | Bahia, Sergipe, Espirito Santo, Rio de Janeiro, São Paulo and Santa catarina | Marcovaldi *et al* . 2004 | Mitigatory measures: area closures in some regions awareness programs directed towards fishermen |
| Shrimp trawl | Cc/Cm/Ei/Lo | not available | Bahia, Sergipe, Espirito Santo, Rio de Janeiro and São Paulo | Marcovaldi *et al* . 2004 | Mitigatory measures: fishing regulation for temporal fishing closure, during nesting season or important feeding areas. Awareness campaign directed towards fishermen. |

| | | | | | |
|---|---|---|---|---|---|
| Floating cage targeting fishes | Cc/Cm/Ei | not available | São Paulo and Santa catarina | Marcovaldi *et al* . 2004 | Mitigatory measures: monitoring and awareness program oriented to the fishermen.Preliminary study with fishermen for sea turtle samples of CPUE with four floating cages. |
| Pelagic longline | Cc/Cm/Dc/Lo | From 1999 to 2004, 45 monitored cruises, a total of 592 sets and a total effort of 638,952 capturing 544 sea turtles. Most caught turtles: loggerhead (407 individuals) and the leatherbacks (114 individuals). | Brazilian EEZ and adjacent international waters | Marcovaldi *et al* . 2004 | Creation of a Federal Act requiring the use of approved mitigatory measures to reduce incidental capture by the longline commercial fleet (Act SEAP February 2003); use of dehooker devices; use of dip net to bring turtles on board and reduce injuries; onboard observers for sea turtles CPUE samples. |

## 4. Marco Jurídico

### 4.1. Instrumentos internacionales

| **Convenio, Tratado, Convención, Acuerdo**<br>**Memorando de Entendimiento** | **Año de Firma y/o de la Ratificación** |
|---|---|
| Inter- Americam Convention | 1996 |
| CITES | 1973 |
| ASO | 2002 |
| FAO | 1966 |
| Biodiversity Convention | 1992 |

### 4.2. Normativa nacional

| Tipo y Nombre del Instrumento Legal (No.) | Descripción (Ámbito de Aplicación) | Sanciones Contempladas |
|---|---|---|
| IBAMA*, Federal Law of Environmental Crimes n°9605 | Environmental crimes forbids the exploitation of meat, eggs and carapace | Payment of fees, community services, and 6 months to 1 year of jail |
| IBAMA, Federal Regulation, Portaria 000010 | Forbids the traffic of any vehicles in the main nesting areas | |
| IBAMA, Portaria 000011<br>State Law No.7034, February 1997 - BA | Forbids artificial lighting (more than 0 lux) in the main nesting areas | |
| CONAMA*, Resolução 000010<br>Law nº 6.938/81 and decreate nº 99.274/90 | For any environmental licensing in the main nesting areas an evaluation of Projeto TAMAR/IBAMA is required. | CONAMA could suspend enterprise implementation that are in disagreement with this resolution. |
| Federal Regulation, Portaria IBAMA N-784, 28 May 1998 | Forbids trawling at the Rio Doce sea, between latitude 18°20' e 20° 10', up to 2,5 nautical miles form the coast. | |
| IBAMA, Portaria 001535, August 1995 | Mandatory use of TED (Turtle Excluder Devices) for shrimp trawling fleets. | Fee payment and apprehension of fishery and fishing material, if relapse the license could be suspended |
| Portaria IBAMA 1522, December 1989; Portaria IBAMA 45-N, April 1992. | Brazilian Red List, 05 sea turtles species classified as threatened | |

***** IBAMA – Brazilian Institute for the Environment and Natural Resources (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renovaveis)
CONAMA – National Council for the Environment (Conselho Nacional do Meio Ambiente)

### 4.3. Indicar si está en proceso de aprobación algún instrumento legal.

### 4.4. Instituciones públicas y privadas involucradas en la conservación de las tortugas marinas

| Institución / Entidad | Responsabilidades |
|---|---|
| IBAMA | Environmental Policy<br>Guarantee the protection and recuperation of endangered species, including the five sea turtle species occuring along the Brazilian coast |
| Fundação Pró-TAMAR | NGO - Co-management of Brazilian Sea Turtle Conservation Program - Projeto TAMAR/IBAMA |
| Petrobras | Oficcial Sponsor |
| Instituto Estadual de Meio Ambiente e Recursos Hídricos | Environmental Enforcement Support |
| Prefeitura Municipal de Camaçari | Environmental Enforcement Support |
| Prefeitura Municipal de São Mateus | Environmental Enforcement Support |
| Prefeitura Municipal de Anchieta | Environmental Enforcement Support |
| Prefeitura Municipal de Serra | Environmental Enforcement Support |
| Prefeitura Municipal de Linhares | Technical Cooperation |
| Estação Ecológica dos Tupiniquins-Ibama | Monitoring of stranded animals |
| Instituto de Pesquisas Cananéia | Monitoring of stranded animals |
| Instituto Albatroz | Technical Cooperation |
| Aquário Municipal de Santos | Sea Turtle Rehabilitation |
| Centro de Biologia Marinha da Universidade de São Paulo | Monitoring of stranded animals |
| Núcleo de Educação e Monitoramento Ambiental | Techinical Cooperation |
| Laboratório de Biodiversidade e Evolução Molecular | Technical Cooperation |
| Laboratório Marcos Daniel | Technical Cooperation |
| Companhia Siderúrgica de Tubarão | Sponsorship |
| Samarco Mineração | Sponsorship |
| Mix Industria de Produtos Alimentícios Ltda | Techinical Cooperation |

| | |
|---|---|
| Conselho Nacional de Pesca Empresarial - CONEP | Technical Cooperation |
| ITAFISH Empresas Pesca | Technical Cooperation |
| IMAIPesca | Technical Cooperation |
| Secretaria Especial de Aquicultura e Pesca | Technical Cooperation |
| Bahia Pesca | Technical Cooperation |
| Instituto de Pesca de São Paulo | Technical Cooperation |
| Projeto Biopesca | Monitoring of stranded animals |
| Research and Monitoring Fishing Centers of Ibama (Pará, Pernambuco, Santa Catarina, Rio Grande) | Techinical Cooperation |
| Programa de Avaliação do Potencial Sustentável de Recursos Vivos na Zona Econômica Exclusiva - REVIZEE | Techinical Cooperation |
| Universidade Estadual de Feira de Santana Laboratórios de Ciências do Mar e Pesca | Technical Cooperation |
| Universidade Federal da Bahia Escola de Medicina Veterinária | Technical Cooperation |
| Universidade de Vila Velha | Technical Cooperation |
| Universidade Estadual Norte Fluminense | Technical Cooperation |
| Universidade Federal Rural de Pernambuco | Technical Cooperation |
| Pontifícia Universidade Católica do Rio Grande do Sul | Technical Cooperation |
| Universidade do Estado do Rio de Janeiro | Technical Cooperation |
| Universidade de São Paulo | Technical Cooperation |
| Faculdades Associadas de Espirito Santo | Technical Cooperation |
| Fundação Universidade Federal do Rio Grande | Technical Cooperation |
| Museu Oceanográfico da Fundação Universidade Federal do Rio Grande | Technical Cooperation |
| Museu Oceanográfico da Universidade do Vale do Itajaí | Technical Cooperation |

**5. Excepciones:**

Programas de uso extractivo (incluya el Plan de Manejo)

## 6. Esfuerzos para la conservación

### 6.1 Descripción General del programa de protección y conservación de las tortugas marinas

*Initial and Current Structure*

In 1980 the Brazilian government established the National Sea Turtle Conservation Program (Projeto TAMAR), which is affiliated with the Federal Government's Institute for Environment (IBAMA). Conservation activities focus on major nesting and feeding grounds, distributed along 1,100 of the 8,000 km of mainland coastline, as well as sites on three oceanic islands (Marcovaldi and Marcovaldi 1999).

In 1988 the PRO-TAMAR Foundation, a private, non-profit organization, was legally created to support, and co-manage Projeto TAMAR jointly with IBAMA, primarily by raising and administering funds. The Foundation is comprised of a board of Trustees, a president and seven regional directors responsible for the twenty-one field stations.

A system of partnerships between the public and non-profit sectors institutionalizes a hybridized organization, increasing the effectiveness of protection, handling and research activities with sea turtles. The role of IBAMA, the Brazilian agency responsible for environmental policy, is to guarantee the protection and recuperation of endangered species of extinction, including the five sea turtle species occurring along the Brazilian coast; it is also responsible for supporting major operational expenditures of the Program, mainly salaries of senior staff and capital expenditures, such as buildings, vehicles, and equipment. The PRO-TAMAR Foundation, on the other hand, functions as a synergistic element that complements the role of the State, ensuring the continuity of sea turtle conservation activities through a more efficient and flexible administrative structure. In the three-way alliance that includes IBAMA and local communities, the Foundation serves as a catalyst and intermediary between government and citizens in remote coastal villages.

*Community – an important partner*

TAMAR incorporated humanitarian and social issues into its conservation efforts. Indeed, the first strategy adopted to effectively promote sea turtle protection was to involve the community. For this purpose, fishermen were hired to carry out sea turtle conservation and management activities. The alternate livelihood activities conferred upon them status within their communities, a greater knowledge of sea turtles (which they then share with others), and an enhanced conservation ethic. Some of these fishermen have worked in the Program for more than twenty years. Each man comes from a different community, and this is a practical way to disseminate the sea turtle conservation message (Marcovaldi and Marcovaldi 1999). TAMAR gradually incorporated activities that encourage environmental sensitivity through the use of sea turtles as 'flagship species'. TAMAR's strategy is based on the principle that, without the participation of communities, conservation programs may be condemned to failure. Today, local villagers, including fishermen, constitute the majority of TAMAR staff. More than 1,000 people, about 85 per cent of whom are local coastal residents, are currently involved directly with the Program. Based on a multi-pronged strategy, these activities interact among themselves, providing sustainability to TAMAR projects and long-term results.

*Sea Turtle Conservation Activities*

*Nesting Areas*

Intensive study areas (ISA) and conservation areas (CA) have been implemented in each of TAMAR's fifteen continental stations at nesting beaches. Despite more than two decades of conservation work, it has not been possible to extend comparable efforts to all parts of the Brazilian coastline, nor even to all of TAMAR's field stations.

ISAs are located where there is a major concentration of nesting activity of any one of the five species, and can encompass from 5 to 50 km of continuous sandy beach. A research team, consisting of the station manager and a variable number of trainees and interns, generally students of one of the natural sciences, patrols the ISA each night and day during the nesting season. Vehicles are used to patrol larger areas, generally exceeding 10 km of beach.

Nesting turtles encountered during patrols are measured, and metal tags are applied to the flippers. All clutches left at their original site (*in situ*) are marked. In areas where predators are a serious threat, nests are protected with a plastic or wire mesh buried just below the surface of the sand, above the eggs; the mesh size is large enough to allow hatchlings to escape from the nest (see Marcovaldi and Marcovaldi 1999 for details). In general, the involvement of personnel from local communities in the ISAs is limited to checking, marking and protecting the nests.

Unlike the intensive study areas (ISAs), TAMAR's conservation areas (CAs) are monitored by researchers and surveyed solely by local fishermen and other coastal inhabitants. When one of these TAMAR field assistants encounters a nest with eggs, he carefully digs up and transfers all the eggs to a styrofoam box that is subsequently delivered to station staff at pre-determined collection points. The eggs are then moved either to open-air hatcheries or to safe beach areas. This procedure normally reduces transport time to less than 12 hours between oviposition and reburial, critical for successful embryonic development (TAMAR 2004). Each TAMAR station has an open air hatchery to where eggs are normally transferred from the surrounding CAs (Marcovaldi and Marcovaldi 1999).

The ISA, where nests are always monitored *in situ*, serves as a control against which to evaluate hatch success and incubation conditions of transferred eggs in the CA. TAMAR carefully monitors a variety of incubation variables in order to keep conditions similar between the natural, *in situ* nests, and those that have been transferred. Although there are several reasons why it is preferable to leave clutches *in situ*, hatcheries are a necessary interim step. At present, clutches that cannot otherwise be protected from predators, heavy beach traffic, beach erosion, or even egg poaching in inaccessible areas, are moved to hatcheries or other beach sections for safe incubation (Marcovaldi and Marcovaldi 1999).

The main goal of TAMAR is to keep as many clutches as possible *in situ*. Nowadays, nearly 70 per cent of all clutches are left in their original places. Clearly, the full cooperation of people in the coastal communities is a fundamental requisite for attaining successful hatching from clutches left *in situ*. In fact, the beach could only be entirely protected with the work and dedication of the field team, composed mainly of local community members.

In total some 150 fishermen and other coastal inhabitants contribute, under the supervision of trained biologists, to a comprehensive long-term research project that includes routine collection of information on nesting and hatching success. All data obtained is organized in a standardized National Database. As a result of these activities, the number of nests with eggs that have been protected each year has risen from around 200 in 1984 to 14,000 in recent years, due to an increase in survey effort, and in recent years to an increase in nesting (TAMAR 2004).

*Non Reproductive Grounds*

The stations dedicated to protecting turtles at their feeding grounds were set up in areas where it was believed that large numbers of turtles were being accidentally caught and subsequently drowned in various forms of coastal artisanal fishing nets and weirs (Marcovaldi 1993).

Building on experience gained from work at other stations, research and monitoring activities of turtles in the water have been designed to incorporate active participation of coastal residents; the primary sites are Almofala and Ubatuba, in the states of Ceará and São Paulo, respectively. Fishermen and other coastal residents are taught about the natural history of sea turtles and their role in the ecosystem. The objective is to develop strategies to reduce the numbers of turtles drowned through coastal incidental capture. Results so far include the introduction of alternative fishing methods and fisheries products, such as oyster and mussel culture (Silva et al. 2000).

Another positive measure has been recruiting fishermen to actively resuscitate stunned turtles. Frequently, after being caught in a net, a sea turtle becomes comatose and appears dead (Shoop, Ruckdeschel, and Wolke 1990). In the past, stunned turtles incidentally caught by the fishermen were quickly thrown back in the water, causing their subsequent death. These actions were based on the fishermen's fear of punishment, since turtles in Brazil are protected by law, and their intentional capture is banned. In response to this situation, TAMAR began distributing brochures and posters explaining how turtles that are incidentally caught can be resuscitated, following up with casual conversations and workshops to instruct fishermen how to reduce incidental capture and mortality. They are encouraged to check their nets often for sea turtles, and are instructed on methods for reviving unconscious animals. After rehabilitation, fishermen release the turtles into the ocean, in most cases bearing tags that TAMAR has put on the animals. Today, approximately 250 fishermen cooperate with TAMAR to minimize incidental capture by coastal fisheries, and some 5,500 turtles have been resuscitated since the implementation in 1991 of the Ubatuba and Almofala stations that encompass the feeding areas where there are higher known rates of incidental sea turtle capture than elsewhere along the coast.

Since June 2001, TAMAR has been developing the National Plan for the Reduction of Incidental Capture of Sea Turtles in Fishing Activities. The Plan involves a management system based on a network of all TAMAR stations, as well as affiliated research centers, universities, oceanographic museums and non-governmental organizations along the coast of Brazil, and also includes some international cooperation. The main objective is to reduce the incidence of turtles captured and killed in the course of various fishing activities. Specific objectives include monitoring, research, mitigation actions, negotiation, and other fundamental concepts through implementation of central principals of the Code of Conduct for Responsible Fisheries of the UN Food and Agriculture Organization (FAO 1995).

Surface pelagic longline and drift nets are the oceanic fisheries that have been monitored. The drift net, also known as ‘surface net’, targets mainly sharks particularly hammerhead (*Sphyrna* sp); however, it incidentally captures certain marine mammals, and turtles. TAMAR has been monitoring the incidental capture of sea turtles in drift nets at Ubatuba since 2002 with the voluntary support of local fishermen. In Longline Fishing Activities TAMAR has been developing two main lines of research: 1) testing mitigation measures with modified bait and hooks, to avoid capture and mortality of sea turtles, and 2) satellite monitoring, to asses post-capture effects. The Plan also has established cooperative agreements with the fisheries industries (vessel owners) to

develop conservation plans for sea turtles. As regard to drift net fishing activities, discussions with stakeholders are created to find possible solutions to minimize the capture of these animals, for example through replacement with other gear. These measures are important not only for the sea turtles, but also for the fishermen since they minimize the damage to their fishing equipment and result in more efficient fishing effort (Marcovaldi et al. 2002).

*Training Activities*

Aside from developing a sense of awareness among local populations, TAMAR also works to prepare future conservationists and natural resource managers. It offers practical experience through training activities and internships for secondary school, university, post-graduate students, and trainees. Interns and trainees not only learn about sea turtle biology, but also about the realities and difficulties of organizing and implementing conservation programs. TAMAR receives an average of 150 students and young professionals into its training activities each year, who are distributed among almost all of the twenty-one field stations (TAMAR 2004). Over the past twenty-five years, more than 1,500 students from different universities and other educational institutions, both Brazilian and international, have participated. An additional component of TAMAR's training activities involves the fisheries sector. Technical assistance is provided to fishermen in various communities, for example in oyster culture, fish farms, fisheries management, creation of artificial reefs and other fish attracting devices and organization of cooperatives, not to mention training to mitigate negative impacts on sea turtles as described above.

*Self Sustainable Alternatives*

Visitor centers (VCs), sites for public visitation, have been constructed in areas with high potential for tourism and adjacent to field stations. Currently there are ten TAMAR VCs nationwide. VCs provide opportunities for direct contact between residents, visitors, TAMAR staff, and sea turtles. Such centers are important tools for education and fund-raising campaigns. A VC typically includes display tanks containing local species of sea turtle in various life cycle stages, hatcheries, aquaria containing fauna inhabiting regional waters, natural-size replicas of sea turtles, and other educational displays. Prominent signs and panels explain the basic biology and status of the turtles, as well as program activities. Shops with various TAMAR trademark products, varying from T-shirts and other clothes to souvenirs, are key VC elements. Small museums, included in the VCs, may serve multiple purposes, sponsoring activities and functions, such as video clubs, art centers, and school-group presentations (Marcovaldi and Marcovaldi 1999). These interpretive centers must be tailored to local demands according to specific characteristics, ranging from relatively small and rustic structures to more sophisticated constructions capable of accommodating over a thousand tourists daily. The Program also creates new employment opportunities and provides income to participating children between the ages of ten and fifteen, benefiting themselves as well as their families. To prevent school avoidance, mini guides receive a scholarship for participating in the year-long training period at a TAMAR visitor center (Vieitas, Lopez, and Marcovaldi 1999).

*Generation of Sustainable Economic Alternatives*

Through intensive and long-term conservation efforts, TAMAR has accumulated extensive and detailed knowledge of each unique community with which the Program interacts. This has enabled identification of market opportunities, for example in the case of communities with varying

degrees of potential for participation in tourism. Strategies for pinpointing economic alternatives are developed with two primary goals in mind: institutional self-support and development of community policies that generate economic alternatives. TAMAR functions as a catalytic agent that generates the synergy crucial for promoting local development, a process that has been shown to be indispensable in a variety of development initiatives (Boisier 1991, 1993, 1997, 1999).

*The T-shirt Cottage Industry*. The first cottage industry was created in 1990 in Regência, Espírito Santo. Since then both product quality and commercial sales at TAMAR's souvenir shops have improved. The success of this first cottage industry inspired the creation five years later of another one in Pirambu, Sergipe. Both cottage industries produce articles of clothing, especially T-shirts, to meet the demands of gift shops associated with TAMAR VCs that receive a high number of tourists. All these products also promote the sea turtle conservation message through pictures and short phrases emphasizing the institutional message. There are thirty-five full-time workers in Regência cottage industry, and nineteen in Pirambu, all from the local communities. Most of them are the wives or daughters of fishermen who previously had no other employment alternatives. These community members were gradually incorporated into production with the completion of training courses designed and offered by TAMAR. The products are distributed throughout the shops, located at VCs, information posts in airports and in a shopping mall. Temporary shops are also set up at TAMAR's traveling exhibits.

*Craft Groups.* At the same time, TAMAR encourages about twenty-three craft groups associated with five field stations in five states. These are mainly independent groups. Some are related to local organizations, while others are family-based. To be associated with TAMAR, a group must use the sea turtle image, as well as other elements of nature that are part of their daily lives. These groups produce lace, embroideries, aromatic cushions, caps, paper bags, paper masks, and sachets as well as other handicrafts made of locally available materials including coconut fibers, sand, recycled paper, and *papier-mâché*, among others (Castilhos, Rocha, and Coelho 1997; Lima and Melo 2001; Lima 2003).

*Paper Recycling Project.* This Project, based at TAMAR field stations in Regência and Ubatuba, includes children between the ages of nine and seventeen. Since 1993 at Regência, and 2003 at Ubatuba, the children who participate in these two paper recycling workshops have selectively sorted waste products at both of these two field stations, with a remarkably high level of production. Together, they now produce around seven thousand bags per month. Besides making bags, the youngsters transform production leftovers into artisanal paper suitable for manufacturing business cards and other saleable products. Of the collected income derived from bag sales, 60 per cent is distributed according to individual production levels among workshop participants – who have very few alternatives for income and productive activities. The remainder is used in the purchase of materials necessary for bag production. A key project requirement is that all participants be enrolled in school. Thus, besides contributing to family income, these young people are also guaranteed a basic education. Over the years, more than 250 youngsters have participated in this project.

## 6.2 Proyectos y Actividades relevantes

| Proyecto/Actividades | Objetivo General | Resultados obtenidos | Duración | |
|---|---|---|---|---|
| | | | Desde | Hasta |
| Long term studies beach monitoring and nest protection, female tagging recapture program | Sea Turle conservation activities | over 14.000 nests per season | since 1982 | |
| Long term studies in water capture mark recapture | Sea Turle conservation activities | 3428 records | since 1987 | |
| GIS/SITAMAR | To promote spacial and standartized analyses for the managment of sea turtles in nesting and by cacth areas | in progress | 2004-2006 | |
| Satelitte Telemetry | Monitor Sea Turtle post nesting behavior and migration routes | in progress | 2001-2006 | |
| Genetic Studies | Genetic structure of all five sea turtle species nesting, forraging and migrating through Brazilian waters | in progress | since 1990 | |
| Modified Baits | Test modified baits to avoid Sea Turtle by catch on longline fisheries | in progress | 2004-2006 | |
| Circular Hooks Testing | Test circular hooks to avoid Sea Turtle by catch and post release death on longline fisheries | in progress | 2004-2006 | |
| T-shirt Cottage Industry | Social Inclusion / Job Generation / Sustainable Economic Alternatives | 54 full time workers - 127 thousand products - only in 2003 | since 1990 | |
| Craft Groups | Social Inclusion / Job Generation / Sustainable Economic Alternatives | 23 craft groups / 3000 products - only in 2003 | | |
| Paper Recycling Project | Social Inclusion / Job Generation / Sustainable Economic Alternatives | over 250 youngsters capacitated | since 1993 | |
| Oysterculture | Social Inclusion / Job Generation / Sustainable Economic Alternatives | over 10.500.000 oister "seeds" produced | since 1998 | |

| | | | |
|---|---|---|---|
| Turtle by Night | Public Outreach | | since 1995 |
| Mini Guides Project | The mini-guides project is based on a short summer course for local children that provides training skills needed to guide tourists, as well as marine conservation information | over 330 teenagers trained | since 1995 |
| Oriented School Visits | Environmental Education | 855 schools | since 1980 |
| Tamar at school - Bahia | Environmental Education | 20 schools | since 2003 |
| Kindergarten - Praia do Forte | Social Inclusion | 202 kids | since 1980 |
| Image Bank | Research / Public outreach | more than 10,000 photos and around 300 hours of images | since 1980 |
| Haematology studies | Biochemical and haemotological patterns in sea turtles in Brazil | in progress | |
| Veterinerian Studies | Anatomy, causa mortis diagnosis, papilomatoses, endo and ecto parasites | in progress | |
| Economic Sustainable Alternatives | Viability of fish and shrimp productions, through biological indexes of different species | in progress | |
| Sea Turtle by Cacth studies | Interaction between sea turtle and fisheries | in progress | |
| Female Weight Study | Weight pattern for the five sea turtle nesting females population in Brazil | in progress | |
| Nest site location studies | Determine patterns on nest site preferences in sea turtle species | in progress | |
| Conservation Units (Federal and State) Creation | Creation of Federal and State Conservation Units to protect sea turtle nesting and feeding areas | in progress | |
| Research on Visitor Centers | Evaluate the public outreach strategies to improve environmental education in the Visitor Centers | in progress | |

## 7. Cooperación internacional

WideCast
Archie Carr Center For Sea Turtle Research
Conservation International
Frankfurt Zoological Society
IUCN/MTSG
NFWF
NOAA
WWF
ZooMarine- Portugal

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## 9. Fuentes de información

BAPTISTOTTE, C.; RIETH, D.B.; BECKER, J.H.; LOPEZ, G.; CASTILHOS, J.C.de.; LIMA, E.H.S.M.; BELLINI, C.; MATUSHIMA, E.R.; BARATA, P.C.R. Prevalência de fibropapilomas em tartarugas marinhas nas áreas de alimentação no Brasil. In: CONGRESSO, 5., E ENCONTRO DA ASSOCIAÇÃO BRASILEIRA DE VETERINÁRIOS DE ANIMAIS SELVAGENS, 10., 2001. São Paulo. Anais..., São Paulo: Faculdade de Medicina Veterinária e Zootecnia USP, 2001, p.29.

BAPTISTOTTE, C.; SCALFONI, J.T.; GALLO, B.M.G.;SANTOS, A.S.; CASTILHOS,, J.C. de; LIMA, E.H.S.M.; BELLINI, C.; BARATA, P.C.R. Prevalence of sea turtle fibropapilomatosis in Brazil. In: ANNUAL SYMPOSIUM ON SEA TURTLE BIOLOGY AND CONSERVATION, 21. Philadelphia. Proceedings..., U.S.Department of Commerce. 2001.

BUGONI, L.; ESTIMA, S.C., MONTEIRO, D.S. "Interação com atividades humanas e ecologia das tartarugas Marinhas no Sul do Brasil". II Jornada de Conservación y uso sustentable de la fauna marina. 1 a 3 de octubre de 2003. Montevideo, Uruguay

FERNANDES, J.S.; GIFFONI, B.B.; MACEDO, S.; GALLO, B.M.G.; BECKER, J.H. Análise da sazonalidade das capturas de Chelonia mydas, em cerco flutuante na Ilha de Anchieta, Litoral, Norte do Estado de São Paulo. In: CONGRESSO BRASILEIRO DE ZOOLOGIA, 24., 2002, Itajaí. Resumos..., Itajaí: UNIVALI, 2002. ref.14065.

GALLO, B. M.; MACEDO, S.; GIFFONI, B. de B.; BECKER, J. H.; BARATA, P. C. R. Projeto TAMAR's station in Ubatuba ( São Paulo State, Brazil ): sea turtle conservation in a feeding area. In: ANNUAL SYMPOSIUM ON SEA TURTLE CONSERVATION AND BIOLOGY, 20., 2000. Orlando. Proceedings..., Miami: U.S.Department of Commerce, 2000. NOAA Technical Memorandum NMFS-SEFSC.

"Influência da iluminação artificial na reprodução das tartarugas marinhas". XV Seminário Nacional de Distribuição de Energia Elétrica. Compañía de Eletricidade do Estado da Bahia – COELBA, 1992

SALES,G.; GIFFONI, B.B.; MAURUTTO, G.; BRUNZIN, M. Captura incidental de tartarugas marinhas pela frota de rede de emalhe de deriva sediada em Ubatuba, São Paulo- Brasil. In: JORNADAS DE CONSERVACIÓN Y USO SUSTENTABLE DE LA FAUNA MARINA, 2., REUNIÓN DE INVESTIGACIÓN Y CONSERVACIÓN DE LAS TORTUGAS MARINAS DEL ATLÁNTICO SUR OCCIDENTAL, 1., 2003. Montevideo. Libro de Resúmenes..., [Sl.:s.n.], 2003. p. 65.

MARCOVALDI, M.Â. & MARCOVALDI, G.G. 1999. "Marine turtles of Brazil: the history and structure of Projeto TAMAR-IBAMA". Biological Conservation, 91:35-41.

MARCOVALDI, M.A.; SALES, G.;THOMÉ, J.C.A.; SILVA, A.C.C.D.da.; GALLO, B.M.G.; LIMA, E.H.S.M.; LIMA, E.P.; BELLINI, C.The Brazilian National Plan to Reduce the incidental capture of sea turtles in fisheries: Progress Report. In: TECHNICAL CONSULTATION ON SEA TURTLES CONSERVATION AND FISHERIES. Bangkok, 2004

MARCOVALDI, M.A.; PATIRI, V. and THOMÉ, J.C.. Projeto Tamar-Ibama: 25 years protecting Brazilian sea turtles through a community-based conservation program. In: Frazier, J. (Guest Editor). Sea Turtles as a Flagship Species. Maritime Studies (MAST). Special Issue 3(2). In press.

Relatório Técnico Anual Bahia ; Centro Tamar-Ibama, MMA- Ministerio do Meio Ambiente; junho de 2003 a maio de 2004

Relatório de Atividades; Fundação Pró-Tamar; 2002

TAMAR, 2004. Relatório de Atividades 2004 – Fundação Pró-Tamar.

WERNECK, M.R.; LEITE, T. de C.; OLIVEIRA, L.de.; BECKER, J.H. Resíduos antropogênicos ingeridos por tartarugas marinhas atendidas na Base do Projeto TAMAR-IBAMA de Ubatuba. In: CONGRESSO, 7., E ENCONTRO DA ASSOCIAÇÃO BRASILEIRA DE VETERINÁRIOS DE ANIMAIS SELVAGENS, 12. 2003. Águas de São Pedro. Resumos eletrônicos.., [S.l.:s.n.], 2003.

WERNECK, M.R.; BAPTISTOTTE, C.; GALLO, B.M.G.; BECKER, J.H. Reabilitação de Tartarugas Marinhas atendidas pela Base de Ubatuba – SP do Projeto Tamar-Ibama – Avaliação dos 100 primeiros casos. In: REUNION SOBRE INVESTIGACION Y CONSERVACION DE TORTUGAS MARINAS DEL ATLATICO SUR OCIDENTAL, 2. 2004. San Clemente del Tuyu. Resumos…, [S.l.:s.n.], p.32., 2004.

## 10. Anexos

- **Tamar Bibliography List**
- **Fichas de campo**
- **Tamar stations map**
- **Tamar organograma**