



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]

Directorio

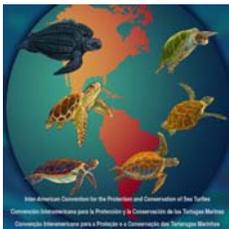
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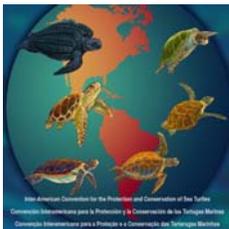
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1. Información Biológica

1.1. Especies presentes

Especie	Océano Pacífico	Océano Atlántico	Mar Caribe
	Fase(s)	Fase(s)	Fase(s)
<i>Lepidochelys olivacea</i>		R,M	
<i>Lepidochelys kempii</i>			
<i>Dermochelys coriacea</i>		R,F,M	
<i>Eretmochelys imbricata</i>		R,F,M	
<i>Chelonia mydas</i>		R,F,M	
<i>Caretta caretta</i>		R,F,M	

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



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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	10°30'50"S 36°23'20"W	125 Km	Federal and State Protected areas	ISA CA
	Trindade	Cm	December - April	20°30'S, 29°49'W	9 Km ²	Navy Protected area County protected area	ISA
	Rio Grande do Norte Pipa	Ei	December - April		17 Km		ISA
	Atoil das Rocas	Cm	January - June	3°45'S 33°37'W	1,2 Km	Federal Protected areas	ISA
	Fernando de Noronha	Cm	January - June	3°51'S 32°24'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



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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 12°56'908"S 37°98'806"W		State protected Marine area	
	Fernando de Noronha	Cm/Ei	All year round	3°45'S 33°37'W		National Marine Park	
	Atol das Rocas	Cm/Ei	All year round	3°51'S 32°24'W		National Marine Park	
	São Paulo	Cm	All year round (in June-July and August there is an increase of Cm)			Anchieta Island is a State Protected Area	
	Santa Catarina	Cm	All year round				
	Ceará	Cm/Ei	All year round	2°50'S 40°09'W			
Rutas Migratorias	Bahia	Cc/Ei/Lo/Cm	All year round				
	Espírito 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				



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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, Simposiums, and Workshops); Technical cooperation protocols, scientific publications	Atlantic	X			Annual Reports and Publications	

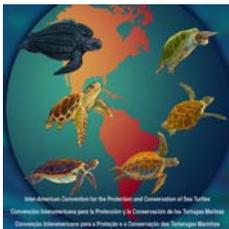


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Uso extractivo	subsistence (oportunistic and rarerlly)	Cc/Cm/Lo/Ei Dc	egg poaching	Atlantic		X	ND	fishermen, local organizations, governmental organizations, NGO, universities	
	subsistence (oportunistic and rarerlly)	Cm Cc	meat	Atlantic		X	ND	fishermen,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

* L = legal, I = ilegal



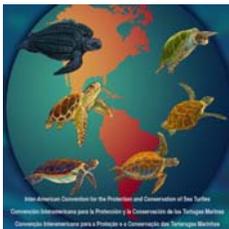
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3. Amenazas principales

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 <i>et al</i> , 2001; Werneck <i>et al</i> , 2003; Werneck <i>et al</i> , 2004;	Rehabilitation Research
Traumas and impacts with fishing gear debris	Cm/ Cc	not available	Bahia / São Paulo	Werneck <i>et al</i> , 2003; Werneck <i>et al</i> , 2004	Rehabilitation

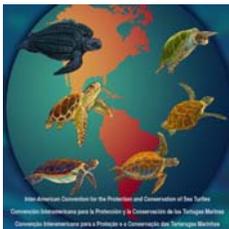


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3.2. Captura (intencional / incidental)

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 <i>et al.</i> 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 <i>et al.</i> 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 <i>et al.</i> 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 <i>et al.</i> 2004	Mitigatory measures: fishing regulation for temporal fishing closure, during nesting season or important feeding areas. Awareness campaign directed towards fishermen.



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Floating cage targeting fishes	Cc/Cm/Ei	not available	São Paulo and Santa catarina	Marcovaldi <i>et al.</i> 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 <i>et al.</i> 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	Año de Firma y/o de la Ratificación
Memorando de Entendimiento	
Inter- American Convention	1996
CITES	1973
ASO	2002
FAO	1966
Biodiversity Convention	1992



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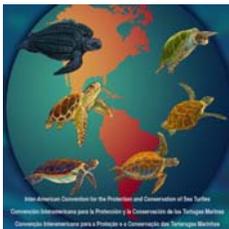
4.2. Normativa nacional

Tipo y Nombre del Instrumento Legal (No.)	Descripción	Sanciones Contempladas
	(Ámbito de Aplicación)	
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 State Law No.7034, February 1997 - BA	Forbids artificial lighting (more than 0 lux) in the main nesting areas	
CONAMA*, Resolução 000010 Law n° 6.938/81 and decreate n° 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.

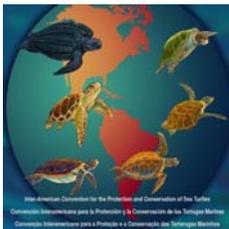


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4.4. Instituciones públicas y privadas involucradas en la conservación de las tortugas marinas

Institución / Entidad	Responsabilidades
IBAMA	Environmental Policy Guarantee the protection and recuperation of endangered species, including the five sea turtle species occurring along the Brazilian coast
Fundação Pró-TAMAR	NGO - Co-management of Brazilian Sea Turtle Conservation Program - Projeto TAMAR/IBAMA
Petrobras	Official 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	Technical 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	Technical Cooperation



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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)	Technical Cooperation
Programa de Avaliação do Potencial Sustentável de Recursos Vivos na Zona Econômica Exclusiva - REVIZEE	Technical 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 Espírito 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)



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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.



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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).



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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 assess post-capture effects. The Plan also has established cooperative agreements with the fisheries industries (vessel owners) to



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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



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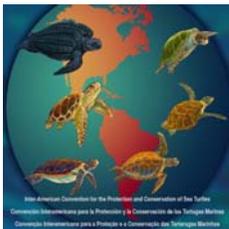
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degrees of potential for participation in tourism. Strategies for pinpointing economic alternatives are developed with two primary goals in mind: institutional self-support and development of community policies that generate economic alternatives. 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 Regênciã, 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 Regênciã 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 Regênciã and Ubatuba, includes children between the ages of nine and seventeen. Since 1993 at Regênciã, 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.



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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 Turtle conservation activities	over 14.000 nests per season	since 1982	
Long term studies in water capture mark recapture	Sea Turtle conservation activities	3428 records	since 1987	
GIS/SITAMAR	To promote spacial and standartized analyses for the managment of sea turtles in nesting and by cachth 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	since 1990	
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	



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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 haematological 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	



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7. Cooperación internacional

WideCast

Archie Carr Center For Sea Turtle Research

Conservation International

Frankfurt Zoological Society

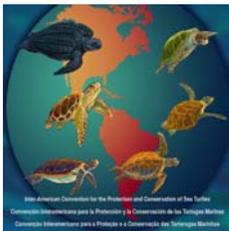
IUCN/MTSG

NFWF

NOAA

WWF

ZooMarine- Portugal



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10. Anexos

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