Organization of American States

WHMSI

PRETOMA

PROGRAMA RESTAURACION DE TORTUGAS MARINAS

Conservation of critical habitat for the giant oceanic manta ray (*Manta birostris*) in Costa Rica's North Pacific

Project proposal submitted to the Organization of American States and the Western Hemisphere Migratory Species Initiative

November 2012

1. Información General

Nombre de la Organización: Asociación Programa Restauración de Tortugas Marinas (Pretoma)	Tipo de Organización: Costa Rican environmental non-profit
Descripción Breve de la Organización: Pretoma's mission is to protect and restore populations of sea turtles, sharks, and other endangered marine species by advancing a vision of sustainable fishing practices and community based conservation work through scientific study, policy reform, targeted media use, public education, grassroots activism, and strategic litigation. The organization has a staff of eight – including fisheries biologists, turtle biologists, environmental scientists and a graduate law student. Pretoma has an office in San José, and a field station in San Francisco de Coyote, Guanacaste, Costa Rica.	
Persona de Contacto: Randall Arauz	Dirección: Apartado Postal 1203-1100
Teléfono: 506-2241-5227	E-mail y Pagina Web: rarauz@pretoma.org www.pretoma.org
Título del Proyecto: Conservation of critical habitat for the giant oceanic manta ray (*Manta birostris*) in Costa Rica's North Pacific	
Objetivo del Proyecto y Resultados Esperados: **General Objective** Contribute to the sustainable management of marine fauna along the Southwestern Pacific coast of the Nicoya Peninsula, Costa Rica by using the giant oceanic manta ray (*Manta birostris*) as a flagship species. **Specific Objectives** • Construct a scientific platform for the management of *M. birostris* along the Southwestern Pacific coast of the Nicoya Peninsula • Contribute to the protection of *M. birostris* through the consolidation of sustainable artisanal fishing practices and creation of public awareness. **Expected Results** • Identification of areas of critical habitat • Information regarding water temp, salinity, dissolved oxygen, and turbidity for 3 different depths at different sites • Visual behavioral and ID data. • Presence/absence studies of *M. Birostris* in Cabo Blanco and Isla Negritos, Southern Nicoya Península, using acoustic telemetry • Abundance at 2 sites. • Photo ID database (branchial gallery) • Formal report detailing recommended conservation steps • Increased dialogue between fishers and researchers	

• Identification of fisher opinions regarding species protection and fishing gear types/use • Fisheries management suggestions • Increased awareness of manta and manta habitat presence along Costa Rica's Pacific coast • Promotion of responsibly managed artisanal fisheries	
Población Objetivo: Eastern Pacific giant oceanic manta ray (*Manta birostris*)	
Monto solicitado en USD: $19,900.00	Co-financiamiento: Cash: $53,000.00 In-kind: $51,700.00
Duración del Proyecto en Meses: 12	Pais: Costa Rica

2. Project abstract (English and Spanish)

Oceanic mantas reside in deep water, pelagic zones, making periodic visits to cleaning stations at seamounts and coastal reefs. While minimal concrete information exists on oceanic manta movements, it is considered that coastal fisheries and a growing gill raker market are responsible for dramatic population decreases not yet fully quantifiable. Urgently needed fisheries reforms that would better protect this species are hindered by lack of scientific information regarding endangered marine species, policy shortcomings, and a lack of sustainable fishing models that are replicable throughout the region.

The Sea Turtle Restoration Program (Pretoma), a Costa Rican marine species conservation non-profit, plans to use the Eastern Pacific giant oceanic manta ray (*Manta birostris*) as a flagship species for marine fauna conservation and the development of sustainable fishing management plans. Pretoma and the Association of Punta Coyote Fishers (ASPEPUCO), a local artisanal fishing group, are partnering to construct a scientific platform for the management of *M. birostris* and to contribute to the protection of this species through the consolidation of responsible artisanal fishing practices. Building on a population of mantas already identified within the project site, both groups will work together to identify manta habitats at Cabo Blanco and the Isla Negritos, along the far southern Nicoya Peninsula, Pacific coast, Costa Rica, and tag, monitor individual movements with acoustic telemetry, photograph ventral spot patterns, and develop conservation recommendations for this species. Pretoma and ASPEPUCO, along with officials from Costa Rica's Ministry of the Environment and members from other local artisanal fishing associations (Cabuya, Montezuma, Paquera), will engage in a series of workshops with the goal of identifying sustainable coastal resource management strategies.

The project, titled "Conservation of critical habitat for the giant oceanic manta ray (*Manta birostris*) in Costa Rica's North Pacific", is a one year initiative beginning in January 2013 and ending in December 2013. It builds on 5 years of fisheries data collection between Pretoma researchers and ASPEPUCO fishers.

Resumen del proyecto

Las mantas oceánicas se encuentran en aguas profundas y zonas pelágicas en adición de visitar periódicamente a estaciones de limpieza ubicadas en montes submarinos y arrecifes costeros. Mientras que poca información concreta existe sobre los movimientos de las mantas oceánicas, se consideren que las pesquerías costeras y un mercados crecientes de sus branquias son responsables por las reducciones dramáticas de sus poblaciones aún no cuantificable. Las reformas pesqueras que se necesitan urgentemente para proteger esta especie resultan estancadas por la falta de información acerca de las especies marinas en peligro de extinción, la falta de voluntad política y una falta de modelos de pesca sostenible replicables para toda la región.

La Asociación Programa Restauración de Tortugas Marinas (Pretoma), una organización Costarricense sin fines de lucro de conservación de animales marinas, pretende usar la manta gigante oceánica del Pacífico Oriental (*Manta Birostris*) como una especie de enfoque para la conservación de la fauna marina y el desarrollo de planes del manejo pesquero sostenible. Pretoma y la Asociación de Pescadores de Punto Coyote (ASPEPUCO), un grupo de pescadores artesanales locales, están trabajando juntas para construir una plataforma científica para el manejo de *M. birostris* y para contribuir a la protección de esta especie a través de la consolidación de técnicas responsables de la pesca artesanal. Debido de que ya se ha identificado una población de mantas dentro del sitio del estudio, ambas grupos trabajarán en la identificación de los hábitats de las mantas por Cabo Blanco y la Isla Negritos, Península de Nicoya, costa Pacífica de Costa Rica, y para estudiar, marcar y monitorear los individuos, fotografiar sus manchas ventrales y elaborar recomendaciones para la conservación de esta especie. Pretoma y ASPEPUCO, junto con oficiales del Ministerio del Ambiente y miembros de otras asociaciones de pescadores artesanales (Cabuya, Montezuma, Paquera), harán una serie de talleres con el enfoque de identificar estrategias para el manejo sostenible de los recursos costeros.

El título del proyecto es “Conservación de áreas de hábitat críticos para la manta gigante oceánica (*Manta birostris*) del Pacífico Norte de Costa Rica”. Es una iniciativa con una duración de un año (enero del 2013 a diciembre del 2013), y se darán seguimiento a los 5 años de datos recopilados entre investigadores de Pretoma y los pescadores de ASPEPUCO.

2. Experiencia de la Organización

Pretoma has achieved a wide range of results over the years that have positively impacted Costa Rica’s marine conservation policy.

<u>Coastal conservation/development</u>

- *Creation of the Caletas-Arío National Wildlife Refuge in 2006, including a 19,000 hectare Marine Protected Area (MPA) managed under a multiple use scheme*. Pretoma participated in the process that initiated in 2002 to create the Wildlife Refuge, in coordination with the Ministry of Environment, local artisanal fishing organizations, property owners, and local NGOs.

- *Creation of a 15,000 hectare MPA for the Camaronal National Wildlife Refuge under a multiple use scheme, in 2009*. Pretoma collaborated closely with the Ministry of

Environment and property owners to create a MPA for the Camaronal Wildlife Refuge since 2004.

- *Creation of the Seamounts Marine Management Area in 2011*. This new MPA expands the protected waters around Cocos Island National Park. Pretoma has been an elected member of the official Cocos Island Marine Conservation Area Council for three consecutive years.

- *Over 20 publications in peer reviewed journals*. Relevant information on sea turtles, sharks, and fisheries technologies that mitigate impacts on them, with recommendations for ecosystem based management.

- *Established 6 sea turtle conservation projects.* 5 of these projects are "community-based": Punta Banco (1996), San Miguel (1998), Corozalito (2009), Costa de Oro (2010) and Bejuco (2011). Caletas (2002) is Wildlife Refuge with no neighboring community.

Legal Victories

- Pretoma filed Constitutional Lawsuit that led to closure of a legal green turtle slaughterhouse in 1999 where 1800 animals were slaugherted per year.

- Negotiated inclusion of specific anti-shark finning legislation in Costa Rica's Fisheries Law, March 2005.

- Closure of private docks to foreign shark finning fleets in 2010, after a Constitutional Court ruling in 2006.

- Stopped Installation of Tuna Farms in Golfito, 2011. Pretoma obtained a victory in the Constitutional Court in 2007.

- Imposition of 4 commercial embargoes on shrimp imports on behalf of the United States due to failure to protect sea turtles (1999, 2002, 2005, 2009-2012). Pretoma provided evidence to the US State Department proving Costa Rica´s failure to protect sea turtles from shrimp trawlers.

3. Descripción narrativa del proyecto

3.1. Justificación

Even though Costa Rica hosts an array of sea turtle and shark tagging programs, the giant oceanic manta's, *Manta birostris*, migratory patterns and foraging grounds have not been clearly identified along the country's Pacific Coast. However, manta sightings are reported at dive sites along the Nicoya Peninsula. One of these sites, Cabo Blanco, is within a no-take marine protected area (MPA) of an Absolute Biological Reserve. The other at the Isla Negritos on the Southern Nicoya Peninsula is currently unprotected and exploited by various near shore fisheries. This highlights the importance of identifying specific manta foraging grounds and migration routs in Costa Rica in order to develop national and international efforts to protect

mantas in the region and in international conventions including the Convention of International Trade in Endangered Species (CITES). Scientific data of mantas in Costa Rica is limited to a few reports, and no studies have been carried out to understand the habitat preferences of this species.

Since 2005 Pretoma has worked with Costa Rica's Environmental Ministry (MINAET), its subsidiary the Tempisque Conservation Area (ACT), and the local ASPEPUCO Fishers to create the two marine protected areas (MPAs) along the Nicoya Peninsula's Southwestern Pacific coast in Costa Rica (Latitude = 9.8060, Longitude = -85.2910). Extensive sea turtle research focused on the area's nesting beaches has allowed Pretoma researchers to conclude that unsustainable fishing techniques, such as shrimp trawling and gillnetting, are a major threat to the region's economic well-being, while also damaging local endangered sea turtle populations. Increasingly, there are reports of giant mantas being targeted because of developing international markets. It is expected that fishing pressure on this species will increase in the coming years, much like it has with sharks because of the value of their meat and fins. Manta ray sightings also drive the dive tourism industry and their numbers and presence positively impact the socioeconomic development of the Nicoya Peninsula.

ASPEPUCO fishermen have maintained their economic well-being using bottom long lines—a method that does not target mantas or result in manta by-catch. ASPEPUCO members – along with artisanal fishers from Cabuya, Montezuma, and Paquera – will work with Pretoma researchers, a collaboration that began in 2008 with sea turtle data collection efforts, to actively seek out mantas and suitable manta habitat around the Negritos Island and within the Cabo Blanco MPA. Individual animals will be tagged with acoustic tracking devices and their movements monitored with moored receivers to better understand their behavior. Their unique ventral spot patterns will also be photographed and catalogued for identification purposes and population density calculations. This information will better justify the development of coastal MPAs and sustainable fishing practices in Costa Rica and in neighboring Central American countries. Both organizations will also engage other fishing associations throughout the region to promote sustainable fishing practices.

The proposed work is a component of Pretoma's larger efforts to protect fisheries resources and endangered marine species along this stretch of coast under the name, "Sustainable coastal development: Conservation of marine areas and economic partnerships between fisher folk and tourism operators". The project is strengthening the relationship between conservationists and fisher folk with a vision of sustainable management of the area's coastal resources.

3.2. Línea base

With the overfishing of many bony fish species (tuna, billfish, cod, grouper, etc), worldwide commercial and artisanal fisheries have begun to target manta populations for their flesh, and more recently, their dried branchial gill filaments (rakers). These cartilage filaments filter plankton from the water and are an increasingly sought after ingredient in the Chinese Medicine trade. The burgeoning gill raker market appears to be a relatively new phenomenon, with demand significantly increasing in the last couple of decades (Manta Trust, 2012).

The genus Manta was re-assessed for the IUCN Red List in 2011 to take into account the species reclassification within the genus which took place in 2009. Upon revaluation, both species of manta rays have now been listed as Vulnerable, an upgrading from Near Threatened. In November 2011, *M. birostris* was listed on both Appendix I and II of the Convention on Migratory Species (CMS). International trade, however, is currently not restricted for *M. birostris* under CITES.

While international protective legislation is still poor for these animals, some countries have taken their own steps to initiate national protection for their populations of manta rays including: Republic of Maldives, Mexico, Philipines, Micronesia (Yap), Hawaii, Ecuador.

M. birostris commonly appears within lists of observed marine fauna published by tourism dive businesses along Costa Rica's Northern Pacific Coast. However, there is a disconnect between casual observation of this species and scientific data relating to its near coastal behavior and habitat preference. In fact, a perusal of the University of Costa Rica's most respected peer reviewed journal, *Revista de Biologia Tropical*, reveals no tagging or habitat affinity studies for this animal. In fact, the species is only mentioned in a handful of this journal's published papers where provisional lists of marine fauna along the coast and at Cocos Island are been provided.

3.3. Objetivos y propósito del proyecto

Project Purpose (general objective)

Contribute to the sustainable management of marine fauna along the Pacific coast of the Nicoya Peninsula, Costa Rica by using Eastern Pacific giant oceanic manta rays (*Manta birostris*) as a flagship species

Project Objectives

- Construct a scientific platform for the management of *M. birostris* along the Pacific coast of the Nicoya Peninsula

- Contribute to the protection of *M. birostris* through the consolidation of sustainable artisanal fishing practices

3.4. Resultados del Proyecto e Indicadores

OBJECTIVES	ACTIVITIES	RESULTS	INDICATORS
1. Construct a scientific platform for the management of M. birostris along the Pacific coast of the Nicoya Peninsula	Visually identify and survey manta habitats	1. Identification of areas of critical habitat	1.Number and location of identified habitats 2. Number of diving trips
	Monitor physical and chemical conditions of water at identified habitat sites	1. Information regarding water temp, salinity, dissolved oxygen, and turbidity for 3 different depths at different sites	Number of data sets generated through use of a multi-parameter instrument
	Manta observation, data collection, acoustic tagging, photographing	1. Visual behavioral data 2. Presence-absence studies of *M. Birostris* in Cabo Blanco and Isla Negritos, Southern Nicoya Península, using acoustic telemetry 3. Abundance at 2 sites 4. Photo ID system (branchial gallery)	1. Number of individuals at different locations observed and tagged 2. Number of maps created using GPS information from VEMCO V16 acoustic transmitters 3. Number of diving trips 4. Number of photos 5. Photo ID software

2. Contribute to the protection of M. birostris through the consolidation of sustainable artisanal fishing practices	Hold two workshops with local artisanal fishing associations and other project stakeholders	1. Increased dialogue between fishers and researchers 2. Identification of fisher opinions regarding species protection and fishing gear types/use 3. Fisher management suggestions	1. Number of workshops 2. Number of individuals/groups attending 3. Available minutes from proceedings complete with fisher input
	Development of *M. birostris* conservation recommendations	1. Formal report detailing recommended conservation steps	1. Report
	Public relations correspondence of results	1. Increased awareness of mantas and manta habitat presence along Costa Rica's Pacific coast 2. Promotion of responsibly managed artisanal fisheries	1. Press releases 2. Reports 3. Media coverage 4. National and International presentations

3.5. Actividades del Proyecto y Metodología

Waypoints of known manta congregation sites at Cabo Blanco and the Isla Negritos will be programmed into hand held GPS units. Researchers will use Pretoma's 18 foot research vessel and the services of local fishing boat captains to arrive at and visually survey these rocky areas via the use of SCUBA gear. Researchers will also search for adjacent sites with rocky substrates where manta activity is likely to occur.

To monitor physical and chemical conditions of the water, a multi-parameter instrument will by used by researchers at the identified habitats. Salinity, water temperature, dissolved oxygen, and turbidity will be measured monthly at the surface, 10 meter, and 20 meter depths (or bottom depth).

Observed mantas at these sites will be tagged with VEMCO V16 acoustic transmitters (length = 9.5 cm; weight out of the water = 50 g) by SCUBA divers. Single transmitters will be deployed into the animal by the use of pole spears. VEMCO VR2W receivers will be deployed at three sites (Coyote, Cabo Blanco, Islas Negritos) to track the mantas turtles within the receiver network. Data will be downloaded from the receiver and analyzed to perform presence-absence studies. Visual counts will serve for population size estimates. Ventral spot patterns – the unique patterns of spots on the ventral (underside) surface of the animal – will be photographed by SCUBA divers on as many individuals as possible to produce a branchial gallery with these branchial images. An identification key (sex, tail length, fin damage) will accompany each individual along with a given name according to the methodology developed by the Manta Trust (2012).

Two workshops will be held with local stakeholders, fishing associations, and governmental entities to learn how the community wants to use the collected information. Fisher input will be put together into a coastal fisheries management report and be distributed to local media. Project results will also be communicated to Costa Rica's Environmental Ministry.

3.6. Marco Lógico

Resumen Narrativo	Indicadores Verificables	Medios de Verificación	Supuestos
Fin *Contribute to the sustainable management of marine fauna along the Pacific coast of the Nicoya Peninsula, Costa Rica by using Eastern Pacific giant oceanic manta rays (Manta birostris) as a flagship species*	*1. Population state of M. birostris in the southern Nicoya Peninsula, Costa Rica* *2. Hectares recommended for inclusion in MPAs*	*1. IUCN redlist, SCUBA dive shop sightings data* *2. Ministry of the Environment* *3. Export data provided by the Exterior Relations Ministry*	
Propósito *A scientific platform for the Management of M. birostris that results in its increased protection through the consolidation of sustainable fishing practices*	*1. Database of information for M. birostris* *2. Number of fishing associations adopting responsible fishing gear types*	*1. Existence of the data base* *2. Statistics provided by the Costa Rican Fisheries Institute (INCOPESCA)*	*Cooperation from INCOPESCA, artisanal fishing associations, and individual fishers*
Productos *Identification of areas of critical habitat*	*Number and location of identified habitats, number of diving trips*	*Research vessel's log, dive logs, use of mapping software*	*Must have cooperation from weather, boat must not suffer major mechanical failures, water visibility, currents*
Information regarding water temp, salinity, dissolved oxygen, and turbidity for 3 different depths at different sites	*Number of data sets generated through use of a multi-parameter instrument*	*Excel files*	*Weather conditions and boat mechanics must not hinder study, instrument need to function properly*
Visual behavioral data, presence-absence studies of M. Birostris in Cabo Blanco and Isla Negritos, Southern Nicoya Península, using acoustic telemetry, abundance at 2 sites, photo ID	*Number of individuals at different locations observed and tagged, number of maps created using GPS information from VEMCO V16 acoustic transmitters, number of diving*	*Picture data base, use of transmitters*	*Researchers must be able to successfully tag animals, transmitters and receivers must fundtion properly along with picture ID program*

system (branchial gallery)	*trips, number of photos, photo ID software*		
Increased dialogue between fishers and researchers, identification of fisher opinions regarding species protection, MPA development, and fishing gear types/use, fisher management suggestions	*Number of workshops, number of individuals/groups attending, available minutes from proceedings complete with fisher input*	*Workshop sign-in sheets and minutes*	*Fishers must be willing to participate in proceedings*
Formal report detailing recommended conservation steps	*Report*	*Confirmation emails regarding receipt of report from project funders and media outlets*	*Project information must be openly received by all project stakeholders*
Increased awareness of mantas and manta habitat presence along Costa Rica's Pacific coast, promotion of responsibly managed artisanal fisheries	*Number of press releases, reports, media coverage, national and international presentations*	*Websites, press clippings, radio and TV interviews*	*Researchers must present project information in such ways that are attractive to mass media outlets*
Actividades			
Visually identify and survey manta habitats	*$4,000*	*Project expense receipts, accounting sheets, paystubs*	*Variable Project expenses must not rise (gas, transportation, food, materials, etc.)*
Monitor physical and chemical conditions of water at identified habitat sites	*$2,000*		
Manta observation, data collection, tagging, photographing	*$7,000*		
Hold two workshops with local artisanal fishing associations and other project stakeholders	*$3,600*		
Development of M.	*$2,000*		

birostris conservation recommendations *Public relations correspondence of results*	*$1,300*		

3.7. Cronograma / Plan de Trabajo

Plan de Trabajo																	
Actividad	**Producto**	**Meses**												**Responsable**	**Indicador**	**Presupuesto**	
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**			**Fondos OEA**	**Co-Finan.**	**Total (US$)**
1. Construct a scientific platform for the management of M. birostris along the Pacific coast of the Nicoya Peninsula																		
1.1. Visually identify and survey manta habitats	Identification of areas of critical habitat	x	x	x	x									Jeffry, Eric, Amado	1.Number and location of identified habitats 2. Number of diving trips	4,000	15,000	20,000
1..2 Monitor physical and chemical conditions of water at identified habitat sites	Information regarding water temp, salinity, dissolved oxygen, and turbidity for 3 different depths at different sites	x	x	x	x	x	x	x	x	x	x	x	x	Eric, Amado	Number of data sets generated through use of a multi-parameter instrument	2,000	9,000	10,000
1..3 Manta observation, data collection, tagging, photographing	1. Visual behavioral data 2. Presence-absence studies of *M. Birostris* in Cabo Blanco and Isla Negritos, Southern Nicoya Península, using acoustic telemetry 3. Abundance at 2 sites 4. Photo ID system (branchial gallery)			x	x	x	x	x	x	x	x	x	x	Jeffry, Eric, Amado, Randall	1. Number of individuals at different locations observed and tagged 2. Number of maps created using GPS information from VEMCO V16 acoustic transmitters 3. Number of diving trips 4. Number of photos 5. Photo ID software	7,000	26,000	36,000
2. Contribute to the protection of M. birostris through the consolidation of sustainable artisanal fishing practices																		
2.1 Hold two workshops with local artisanal fishing associations and other project stakeholders	1. Increased dialogue between fishers and researchers 2. Identification of fisher opinions regarding species protection, MPA development, and fishing							x				x		Jeffry, Eric, Randall	1. Number of workshops 2. Number of individuals/groups attending 3. Available minutes from proceedings complete with fisher input	3,600	1,200	1,800

	gear types/use 3. Fisher management suggestions																
2.2 Development of *M. birostris* conservation recommendations	Formal report detailing recommended conservation steps								x	x	x	x	x	Jeffry, Eric, Randall	Report	2,000	7,000	10,000
2.3 Public relations correspondence of results	1. Increased awareness of mantas and manta habitat presence along Costa Rica's Pacific coast 2. Promotion of responsibly managed artisanal fisheries												x	Randall	1. Press releases 2. Reports 3. Media coverage 4. National and International presentations	1,300	1,000	1,350
															Total:	19,900	53,000	72,900

3.8. Monitoreo y Evaluación

The project's long term goal is to foster increased coastal resource and endangered marine species protection for Costa Rica's Pacific coast. All manta populations will continue to be monitored both by Pretoma and through the use of information provided to the organization by tourism SCUBA dive shops. Pretoma envisions the replication of project methodology to other coastal areas in Costa Rica and throughout Central America. The organization is also developing a partnership with international NGOs that will pool resources in a political effort to lobby for the development of more, larger, and more effectively managed MPAs that bring the total percentage of Costa Rica's protected marine territory from a current 2.3% to 5%.

Since the NGO began working with local artisanal association ASPEPUCO in 2008, fisher interest in providing catch data for the development of multi-use MPAs that deter the use of unsustainable fishing gear and promote the responsible exploitation of coastal resources has increased. Project members will continue to work with this fisher group, and a growing list of other fishing associations along the southern Nicoya Peninsula to develop these partnerships.

3.9. Composición del Equipo y Asignación de Tareas

Research team members' work titles have been identified in the project budget and their work assignments are presented in section 4.7. Section 4.10 provides a description of their experience.

3.10. CV del Personal Propuesto

Project Director Randall Arauz

1988 - BSc. Biology. University of Costa Rica

Current Positions:

April 1994 - Present. Central American Director. Turtle Island Restoration Network (TIRN), San Francisco, California.

September 1997 - Present. President Founder. Asociación Programa Restauración de Tortugas Marinas PRETOMA, Costa Rica.

November 2004 – Present. Co-Vice Chair, Central America. Shark Specialist Group. International Union for the Conservation of Nature (IUCN).

March 2010 – Present. President. Costa Rican Sea Turtle Conservation Network.

Acknowledgements and Awards:

February 2004. Neotropical Conservation Award. Granted by Conservation International, in the framework of the XXIV Syposium on Sea Turtle Biology and Conservation. San José, Costa Rica.

April 2004. Whitley Fund for Nature Gold Award. Granted by the Whitley Fund for Nature , at the Royal Geographical Society, London, UK.

January 2006. Mention of Honor. Granted by Shark Project of Germany, in the framework of the Annual Boat Festival "Boot 2006", Dusseldorf, Germany.

September 2007. Mention of Honor. Central American Environmental Torch Award. Granted by the International Union for the Conservation of Nature, at the Salvadorean Musem of Art, San Salvador, El Salvador.

April 2010. The Goldman Environmental Prize for Central and South America. Granted by the Goldman Fund, at the Opera House of San Francisco, California, USA.

Selected Technical Reports and Peer Reviewed Publications:

Cornelius, S.E., R. Arauz, J. Fretey, M.H.Godfrey, R. Márquez-M, and K. Shanker. 2007. Effect of land based harvest of Lepidochelys. Chapter 12. In Biology and Conservation of Ridley Sea Turtles. Pamela Plotkin (editor). The John Hopkins University Press. Baltimore.

Arauz, R. 2010. Telemetría de tortugas marinas y Áreas Marinas Protegidas en el Pacífico de Costa Rica. En: B Wallace & E. Utreras (eds). Informe sobre el estado de las tortugas marinas del Pacífico Este Tropical. Conservación Internacional, Quito, Ecuador, Vol. 1 pp 16-17.

Arauz, R., A. Barquero, A. Navia. 2010. La Pesca y el Tiburón. En: A Hearn, E Utreras & S. Henderson (eds.). Informe sobre el estado de los tiburones del Pacífico Este Tropical. Conservación Internacional, Quito, Ecuador, Vol. 1 pp 26-27.

Bessudo. S., G.A. Soler, A. P. Klimley, J. T. Ketchum, A. Hearn, & R. Arauz. 2011. Residency of the scalloped hammerhead shark (*Sphyrna lewini*) at Malpelo Island and evidence of migration to other islands in the Eastern Tropical Pacific. Environ. Biol. Fish. DOI 10.1007/s10641-011-9769-3.

Swimmer, Y., J. Suter, R. Arauz, K. Bigelow, A. López, I. Zanela, A. Bolaños, J. Ballestero, R. Suárez, J. Wang, and C. Boggs. 2011. Sustainable fishing gear: the case of modified circle hooks in a Costa Rican longline fishery. Mar Biol (2011) 158:757–767. DOI 10.1007/s00227-010-1604-4

Whoriskey, S., R. Arauz, J. Baum. 2011. Potential impacts of emerging mahi-mahi fisheries on sea turtle and elasmobranch bycatch species. Biological Conservation 144 (2011) 1841–1849

Arauz, R., Y. Swimmer, C. Boggs, A. Bolaños, and J. Madrigal. 2012. Field studies to evaluate the efficiency of alternative hooks that facilitate the release of sea turtles and other bycatch species in the Pacific longline mahi -mahi fishery of Golfito , Costa Rica. Bulletin of Marine Science. 88(3):791–815. 2012.

Lead Biologist Jeffry Madrigal

Formal Studies:
1998 Bachelor in Middle Education (High School Degree). Liceo Mauro Fernández Acuña. Tibás, San José, Costa Rica.
2008 Marine Biology Student. National University of Costa Rica, Heredia, Costa Rica.

Work Experience:
2001-2004 Children's Museum of Costa Rica. Hall Guide.
2008 Butterfly Garden Spyrogira. Front desk.
2009-Present—Fisheries Biologist. Asociación Programa Restauración de Tortugas Marinas (Pretoma)

Related Experience:
Cultural activities with children at the National Children's Hospital.
Maintenance Project of Biological Hall in Children's Museum, Costa Rica.
Ecological Project El Carmen of Guadalupe Community.
Open Water Diver.
Nitrox Certification Diver.

Languages:
Spanish (native language)
English (advanced 90%)
Italian (30%)

Field Assistant Eric Lopez

Eric is a member of the ASPEPUCO fishing association and secretary to its board of managers. He has also been Pretoma's fisheries field assistant for the last 5 years. Prior to this experience, he coordinated Pretoma's sea turtle nesting beach conservation projects.

Boat Captain Amado Quiroz

Amado is ASPECOY's board president and has been an association member for the last 10 years. He has worked as Pretoma's research boat captain for the last 3 years. His extensive knowledge of the project areas and on-the-water experience will be a major asset to this project.

4. Presupuesto

Category	Cost Calculation	Total Cost	WHMSI	Pretoma (in-kind)	Sandler Foundation	TIRN
Staff						
Project Director (Randall Arauz)	2K/month	24,000			12,000	12,000
Project Manager (Jeffry Madrigal)	1.5K/month	18,000			12,000	6,000
Biologist (Eric Lopez)	1K/month	12,000	5,000		7,000	
Boat Captain (Amado Quiroz)	500/month	6,000		2,000	4,000	
Materials & Supplies						

2 VEMCO VR2W receivers	1,500 x 2	3,000	3,000			
Acoustic tags	400 x 15	6,000	4,000	2,000		
Acoustic hydrophone	1,000	1,000		1,000		
GPS units	100 x 2	200		200		
Material for stainless steel darts	10 x 30	300	300			
Gas for boat	250/round trip to Southern Nicoya x 4	1,000	1,000			
Research vessel	5,000	5,000		5,000		
50 HP motor	10,000	10,000		10,000		
Truck	27,000	27,000		27,000		
Camera and housing	1,500	1,500		1,500		
SCUBA gear/pole spears	1,000 x 3	3,000		3,000		
Travel						
Diesel for truck	250/round trip to Southern Nicoya x 4	1,000	1,000			
Food and lodging	500/trip to Cabo Blanco x 4	2,000	2,000			
Workshops (2)						
Workshop supplies	100 x 2	200	200			
Lunch for participants	500 x 2	1,000	1,000			
Educational materials	1,000 x 2	2,000	2,000			
Transportation for Coyote/Bejuco fishers to workshops in Cabuya/Paquera	200 x 2	400	400			
TOTAL		**$124,600 (includes in-kind)**	**$19,900**	**$51,700**	**$35,000**	**$18,000**

Anexo 1: Documento que demuestra la existencia legal de su organización

BUFETE BALLESTERO & ASOCIADOS

Abogados y Notarios

Ref. 002-2012

LIC. FRANCISCO BALLESTERO GÓMEZ
ABOGADO Y NOTARIO, CERTIFICA:

A) Con vista en el Registro de Asociaciones del Registro Público, al **Tomo**: Cuatrocientos cuarenta y seis, **Asiento:** Dos mil trece, aparece inscrita la asociación denominada **PROGRAMA RESTAURACIÓN DE TORTUGAS MARINAS**, pudiendo usar las siglas **PRETOMA**, cuya cédula de persona jurídica es la número **tres – cero cero dos – dos uno dos seis cinco siete. B)** La asociación fue constituida el día cinco de setiembre del año mil novecientos noventa y siete y por su naturaleza, es de plazo indefinido, por tanto se encuentra vigente. **C)** El domicilio de la asociación es el siguiente: San José, Tibás, San Juan, de la entrada principal del cementerio, veinticinco metros al sur, segunda casa a mano izquierda. **D)** La representación judicial y extrajudicial con facultades de apoderado generalísimo sin límite de suma, corresponde al señor **Randall Arauz Vargas**, mayor, soltero, Biólogo, vecino de San José, Tibás, Cuatro Reinas, cédula de identidad número **nueve -cero siete ocho - cuatro siete cinco**, quien es el presidente de la asociación y ha sido nombrado en su cargo a partir del día dieciséis de setiembre del año dos mil diez y hasta el día quince de setiembre del año dos mil trece, por tanto se encuentra vigente. . El suscribiente notario advierte que lo certificado es una transcripción en lo conducente y lo omitido no modifica, altera, condiciona, restringe ni desvirtúa lo transcrito. Es todo.**********

SE EXPIDE ESTA CERTIFICACIÓN A SOLICITUD DEL INTERESADO, SEÑOR RANDALL ARAUZ VARGAS, EN SAN JOSÉ, AL SER LAS NUEVE HORAS, DEL VEINTITRÉS DE ENERO DEL AÑO DOS MIL DOCE. CORRESPONDE AL NÚMERO CERO CERO DOS - DOS MIL DOCE, DEL CONTROL DE CERTIFICACIONES DE ESTA NOTARÍA. SE AGREGAN Y CANCELAN LAS ESPECIES FISCALES DE LEY.********