

Galapagos-Cocos Swimway

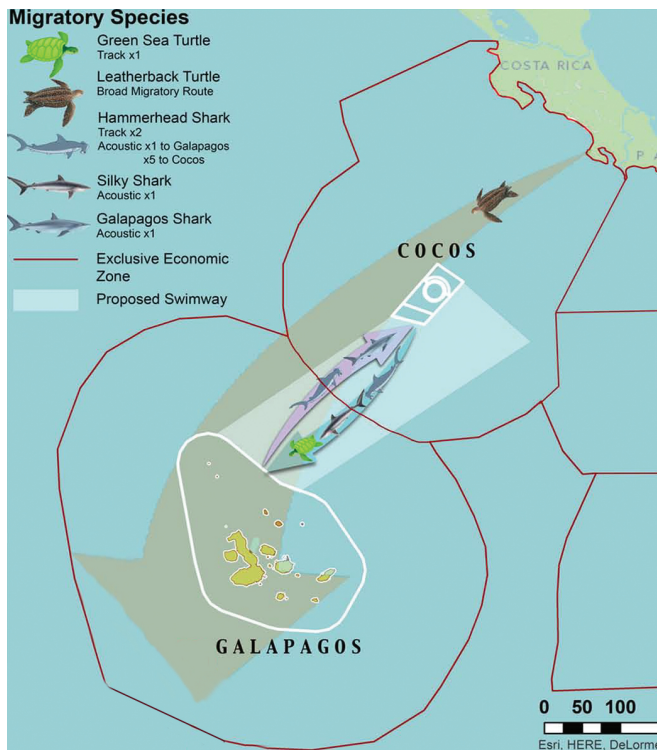
Leading the way in bilateral stewardship of the ocean

© Nonie Silver

Proposal

The **Galapagos-Cocos Swimway** is an area of ocean rich in biodiversity, measuring approximately 120,000 sq. km, that follows the Cocos Ridge - an underwater mountain range that links the Galapagos and Cocos Marine Reserves. Recent studies have demonstrated that sharks and turtles use the swimway to migrate between the marine reserves, putting them at grave risk to industrial fishing.

Turtle Island Restoration Network and our partners propose a bilateral initiative to protect the Cocos-Galapagos Ridge Swimway between Ecuador and Costa Rica. The goals are:



- 1 To **protect populations** of threatened migratory species & increase resilience of commercial fish stocks;
- 2 To foster **technological innovation** in the fields of open water management, bycatch reduction & biological/oceanographic research;
- 3 To promote **sustainable fishing practices** & increase the share of benefits for artisanal fishermen;
- 4 To show **leadership** on a global level in the development of bilateral marine conservation actions; and
- 5 To enforce the **sovereignty** of Ecuador & Costa Rica in Exclusive Economic Zones as defined by the United Nations Convention on the Law of the Sea.



Background

In 2003, the governments of Colombia, Costa Rica, Ecuador and Panama signed the Declaration of San Jose, creating the **Eastern Tropical Pacific Seascape (ETPS)**. This area of over 2 million hectares comprises the entire national waters of all four nations. The objectives of the ETPS are to protect key biodiversity, to foster sustainable fishing and employment in coastal communities, and to promote regional cooperation.

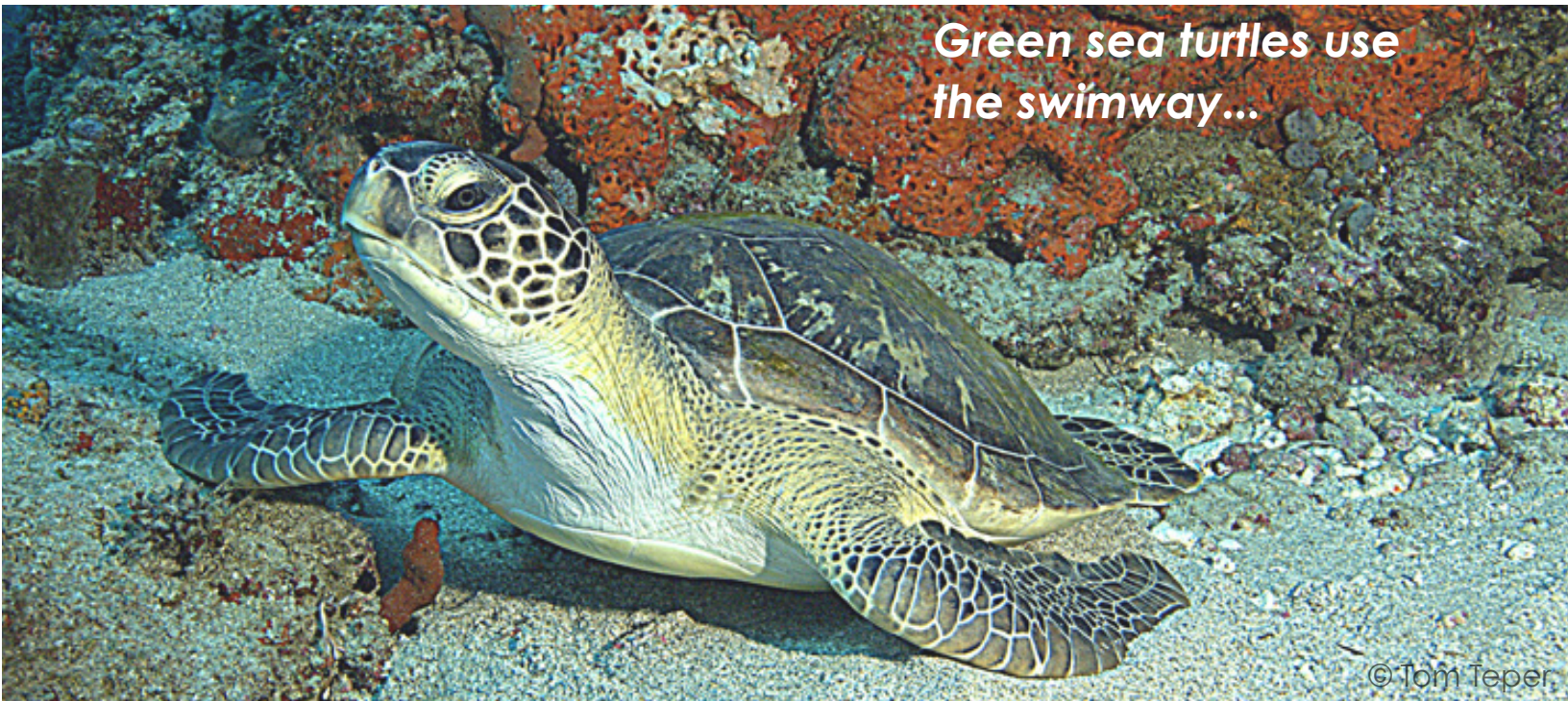
Two of the most important biodiverse hotspots in the ETP are **Galapagos Marine Reserve** and **Cocos Island National Park**. Both are UNESCO World Heritage Sites and provide protection to a host of threatened endemic, native and migratory species. Both host some of the world's most recognized eco-tour dive sites, generating millions of dollars in revenue. They are some of the last remaining sites in the world where huge schools of hammerhead sharks may still be found.

They provide important habitats for several endangered and critically endangered turtle species, including Eastern Pacific green turtles and leatherback turtles respectively. Whale sharks migrate through their waters. Yet once these species move outside the boundaries of these marine reserves, they are threatened by longline and purse seine industrial fishing vessels.

These two areas are linked by a 700 km chain of seamounts called the Cocos Ridge. Studies have shown that several key marine species move between these two Marine Protected Areas, including scalloped hammerhead, Galapagos, silky and whale sharks, and leatherback and green sea turtles.



Green sea turtles use the swimway...



© Tom Teper



The
Leatherback
Trust



Importance

The Cocos Ridge is a highly productive area, where industrial purse seine and longline fishing takes place. Yet many of the vessels fishing here are not from Costa Rica or from Ecuador.

Both nations now adhere to the **United Nations Law of the Sea**, and claim 200 Nm exclusive economic zones. This means that the entire area of ocean between the limits of the Galapagos and Cocos marine reserves lies either in Ecuador or Costa Rica.

Both countries are now in a position to:

- 1 **protect their biological resources;**
- 2 **ensure that the benefits of the ocean are directed towards their own people; and**
- 3 **enforce their sovereignty.**



“Illegal fishing is driving sharks and sea turtles toward extinction, and we will do everything we can to end this assault on the very ocean ecosystems that sustain life for humans and all living things.”

- Todd Steiner, Executive Director of Turtle Island

Endangered Scalloped Hammerhead Sharks use the Swimway...



**The
Leatherback
Trust**



Capturing the World's Attention

More than 13 scientific publications, 11 scientific presentations, 7 documentaries, and hundreds of media hits have been generated from our work in Cocos Island, Costa Rica. Turtle Island's and our partners' landmark marine research, combined with innovative conservation programs that make use of the best available technology, have captured the world's attention. See examples below.

TV & Documentaries

Newspapers, Magazines & Blogs



Scientific Presentations

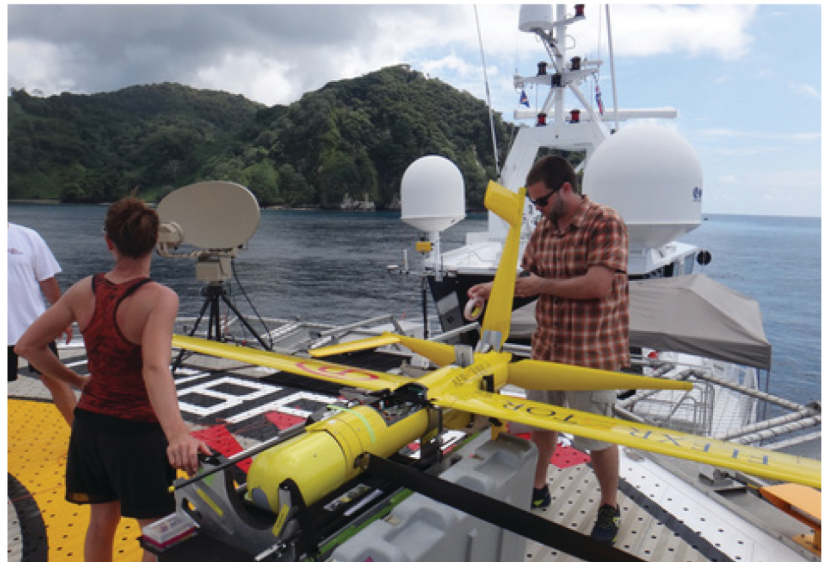
Hearn, A., J. Ketchum, A.P. Klimley, E. Espinoza, J.R. Green, C.R. Peñaherrera, D. Acuña, T. Steiner, R. Arauz, S. Bessudo, and G. Soler. 2015. "The Galápagos Marine Reserve as a key site for migratory marine species in the Eastern Tropical Pacific." Presentation by Alex Hearn to AAAS 96th Annual Meeting Pacific Division Symposium: Galapagos 2015: Science, Conservation, and History in the 180 Years Since Darwin. San Francisco State University, June 14 - 17, 2015.

Scientific Publications

Ketchum, J.T., A. Hearn, A.P. Klimley, E. Espinoza, C. Peñaherrera & J. Largier. 2014. Seasonal changes in movements and habitat preferences of the scalloped hammerhead shark (*Sphyrna lewini*) while refuging near an oceanic island. *Marine Biology* doi 10.1007/s00227-013-2375-5

Drones could help spot illegal fishing around Costa Rica's Cocos Island

ZACH DYER | JULY 17



The
Leatherback
Trust



Scientific Publications

Acuña-Marrero, D, J. Jimenez, F. Smith, P.F. Doherty Jr., A. Hearn, J.R. Green, J. Paredes-Jarrin, P. Salinas. 2014. Whale shark (*Rhincodon typus*) seasonal presence, residence time, and habitat use at Darwin Island, Galapagos Marine Reserve. *PLOS One* 9(12): e115946

Hearn, Alex, James Ketchum, A. Peter Klimley, Eduardo Espinoza, Cesar Peñaherrera. 2010. Hotspots within hotspots? Hammerhead shark movements around Wolf Island, Galapagos Marine Reserve. *Marine Biology*. Volume 157, Issue 9, pp 1899-1915

Bessudo, S., G.A. Soler, P.A. Klimley, J. Ketchum, R. Arauz, A. Hearn, A. Guzmán, and B. Calmettes. 2011. Vertical and horizontal movements of the scalloped hammerhead shark (*Sphyrna lewini*) around Malpelo and Cocos Islands (Tropical Eastern Pacific) using satellite telemetry. *Boletín de Investigaciones Marinas y Costeras* (ISSN 0122 9761). Vol 40.

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.

Hearn, A. 2009. Shark Migrations – Discovering the Golden Triangle. In: T. De Roy (ed.) *Galapagos – Preserving Darwin's Legacy*. Bateman Press Pp 90-97.

Hearn, A. 2009. Shark movement patterns. In: P. Oxford & G. Watkins. *Galapagos, both sides of the coin*. Pp 46-47

Hearn, A., J. Ketchum, G. Shillinger, A.P. Klimley & E. Espinoza. 2008. Shark Research & Conservation in the Galapagos Marine Reserve. Annual Report 2006-7. Fundación Charles Darwin, Santa Cruz, Galapagos, Ecuador 114 pp (In Spanish).

Ketchum, J.T., A. Hearn, A.P. Klimley, C. Peñaherrera, E. Espinoza, S. Bessudo, G. Soler, and R. Arauz. 2014. Interisland movements of scalloped hammerhead sharks (*Sphyrna lewini*) and seasonal connectivity in a marine protected area of the Eastern Tropical Pacific. *Mar Bio. International Journal on Life in Oceans & Coastal Waters*.

Nance, H. & A. Hearn. 2008. Current research aimed at protecting the globally endangered scalloped hammerhead shark, *Sphyrna lewini*, in the Eastern Tropical Pacific. *Endangered Species Update* 2008 25 (1): 9-11 (published in 2010)

Seminoff, J.A., J. Alfaro-Shigueto, D. Amorrocho, R. Arauz, A. Barquero Gallegos, D. Chacón Chaverri, A.R. Gaos, S. Kelez, J.C. Mangel, J. Urteaga, and B.P. Wallace. 2012. Biology & Conservation of Sea Turtles in the Eastern Tropical Pacific Ocean: A General Overview. In: *Sea Turtles of the Eastern Pacific. Advances in Research & Conservation*. Jeffery A. Seminoff & Bryan P. Wallace (editors). Arizona-Sonora Desert Museum Studies in Natural History.

Zárate, P. & A. Hearn. 2008. Conservation Status of Sharks in Nicaragua, Costa Rica, Panama, Colombia & Ecuador. Consultancy by the Charles Darwin Foundation for IUCN. Santa Cruz, Galápagos, Ecuador, 33p (In Spanish).

Scientific Presentations

Arauz, R., T. Steiner, D. Amorrocho & J. Carrion-Cortez. 2103. Home Range and Migration of East Pacific green turtles (*Chelonia mydas*) tagged in Cocos Island National Park, Costa Rica. Proceedings of the 30th Annual International Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-640:122 (abstract).

Arauz, R., D. Amorrocho, T. Steiner, & J. Carrion-Corte. Home Range and Migration of East Pacific green turtles (*Chelonia mydas*) tagged in Cocos Island National Park, Costa Rica. 2010 International Sea Turtle Symposium, Goa, India April 2010. (poster presentation).

Arauz, R., and T. Steiner. 2006. Leatherback Sea Turtle Stewardship to attain local, regional and global marine conservation and management. Proceedings of the 8th World Wilderness Congress, 30 September- 6 October 2005. Anchorage, Alaska.

Arauz, R., T. Steiner, & I. Naranjo. NGO participation essential to guarantee the consolidation of the Cocos-Baulas Marine Biological Corridor, Costa Rica (accepted poster presentation). The First International Marine Protected Areas Congress. Geelong, Australia 23-28 October 2005.

Hearn, A. et al. Movements of large female whale sharks through Darwin Island, Galapagos & the Eastern Tropical Pacific. 3rd International Whale Shark Conference, Atlanta, GA. October 2013

Hearn, A., J. Ketchum, M. Hoyos, R. Arauz, C. Fischer & A.P. Klimley. 2011. Sharks and Marine Protected Areas in the Eastern Tropical Pacific. American Fisheries Society Symposium, Seattle 5-11 Sept. 2011.

Klimley, P., R. Arauz, S. Bessudo, A. Hearn, S. Henderson, H. Guzman, J. Ketchum, G. Soler & G. Shillinger. Movements of sharks at seamounts & island, biotic "hot spots," relative to marine protected areas in the eastern Pacific Ocean Corridor. AAAS (American Association for the Advancement of Science), San Francisco, CA. February 2007

Madrigal, J., R. Arauz & T. Steiner. Is Cocos Island's "No Fishing Zone" Big Enough for Black Turtles? A Preliminary Analysis. 2012. (Abstract). Proceedings of 2012 International Sea Turtle Symposium, Huatulco, Mexico. April 2012.

Steiner, T., R. Arauz, J. Madrigal, and M. Ong. 2012. Is Cocos Island's "No Fishing Zone" Big Enough for Black Turtles? A Preliminary Analysis. Proceedings of 2012 International Sea Turtle Symposium, Huatulco, Mexico. April 2012.

Cocos Island Marine Preserve: a Unique Citizen Science Program for Sea Turtle & Shark Conservation. The Northern California Underwater Photographic Society. Millbrae, California. Nov 11, 2011.

"Citizen Science and the Study Sea Turtles & Sharks of Cocos Island National Park, Costa Rica." Marin Scuba Club Seminar Series, Jan. 21, 2015.

"Cocos Island National Park, Costa Rica: An Underwater Serengeti." American Cetacean Society San Francisco Chapter Seminar Series, August 26, 2014.

Media

Documentaries, Films & TV

Underwater Highways. Dir. Water Brothers. Canadian Broadcasting Company. 2015.

Last Home of the Giants. Dir. Water Brothers. Canadian Broadcasting Company. 2015.

Shark Men. Season 3. National Geographic Channel. 2012.

Galapagos 3D. Dir. Martin Williams. Colossus Productions, 2013.

Shark SuperHighway. National Geographic Explorer. Dir. Thomas Lucas. National Geographic Channel. 2008.

Sharkwater. Dir. Rob Stewart. SW Productions, 2006.

The Last Journey of the Giant Leatherback? Dir. Stanley M. Minasian, Turtle Island Restoration Network and the Center for Biological Diversity, 2004.

Ancient Sea Turtles: Stranded in a Modern World. Dir. Steve Cowan. The Sea Turtle Restoration Project Earth Island Institute, 1998.

Newspapers, Magazines & Blogs

Steiner, T. "Sea Turtle Swims Into History: Migrates from Cocos Island National Park to the Galapagos". *National Geographic Ocean Views News Watch On-line*. September 22, 2014.

Steiner, T. 2013. "Citizen Divers Enlisted in Conservation Study of Sea Turtles And Sharks at Cocos Island National Park, the 'Most Beautiful Island in the World'". *National Geographic News Watch On-line*. August 16, 2013.

Steiner, T. 2012. "An Underwater Serengeti." *Earth Island Journal*, Spring 2012:26-30.

Dia a Dia Staff Reporter. "Registran en Costa Rica travesía de una tortuga a lo largo de 500 kilómetros." *Dia a Dia*. March 20, 2015.

Rojas, Pablo. "'Gina', la tortuga verde que completó una migración de 500 km desde Isla del Coco hasta Golfo Dulce." *Costa Rica Hoy*. March 20, 2015.

Underwater Times Staff Reporter. "Sea Turtle Satellite Tagging Expedition At Cocos Island, Costa Rica Swims Into Action". *Underwater Times*. September 3, 2009.

Dyer, Zach, "Drones could help spot illegal fishing around Costa Rica's Cocos Island." *The Tico Times*. July 2015.

Milton, Caitlyn. Protecting Cocos Island marine life. *Tomnod*. August 19, 2015.

Clemmes, Danny. Conservationists Turn to Drones to Protect Cocos Island. *Discovery*. July 25, 2015.

Mission Blue Staff Reporter. Cocos Island. *Mission Blue*. March 4, 2013.

Nasar, Joanna. "Juvenile Green Sea Turtle 'Gina' Migrates Over 310 Miles from Cocos Island to Golfo Dulce." *Indybay*. March 20, 2015.

PRETOMA. "A Turtle's Journey: Argo the Green Sea Turtle." *Undersea Hunter*. July 2012.

Simmons, Laura. "Sea Turtle Migrates From Costa Rica to Ecuador." *Liberty Voice*. July 2, 2014.

Steiner, T. "Sea Turtle Swims Into History: Migrates from Cocos Island National Park to the Galapagos." *Voices, National Geographic*. June 25, 2015.

Steiner, T. "Scientists and Scuba Divers Working Together to Save Cocos Island's Spectacular Marine Life." *One World One Ocean*. January 30, 2013.

Steiner, T. "Cocos Island and the Great Turtle Race." *The Cleanest Line, Patagonia*. July 13, 2008.

WFN Staff Reporter. "Migration of 'Sanjay' the green Sea Turtle makes history." *Whitley Fund for Nature*. June 24, 2014

