

# Conservation advocacy increases protections for Critically Endangered Pacific Leatherback sea turtles

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## ABSTRACT

Leatherback sea turtles, the most unique of the seven species of sea turtles, are critically endangered and being pushed toward extinction in the Pacific Ocean. The crash of the Pacific leatherback population is the result of human exploitation and incidental take by commercial fisheries compounded by ongoing loss and degradation of nesting habitats. The Sea Turtle Restoration Project (STRP) is a nonprofit project with over twenty years of actions focused on saving sea turtles and protecting marine biodiversity. STRP advocacy work combines public outreach and engagement for local and international issues with strategic litigation to establish protections for Pacific leatherbacks and their essential habitat. Successes include the closure and implementation of new restrictions on the Hawaiian longline fishery, the creation of the Leatherback Conservation Area which closes the drift gillnet fishery over 210,000 square miles during leatherback foraging season, and the establishment of the largest area of marine critical habitat ever designated for a sea turtle. STRP will continue to support cooperation among fishermen, local community members, national organizations and law enforcement officers around the globe to protect leatherbacks. Global cooperation is required to reduce the many threats to sea turtles and to ensure the survival and recovery of their populations.

**Key words:** Conservation, Leatherback sea turtles, Restoration Project

## INTRODUCTION

Leatherback sea turtles (*Dermochelys coriacea*) are the most unique of the seven sea turtle species and are critically endangered across their range (Sarti & Martinez, 2000). They are the biggest of all sea turtles, with the largest on record growing up to nine feet long and exceeding 2,000 pounds, and have survived more than 100 million years virtually unchanged. Leatherbacks were once common in every ocean except the Arctic and Antarctic oceans, but now only small populations are distributed worldwide in the tropical and temperate waters of the Atlantic, Pacific and Indian Oceans. The Andaman and Nicobar Islands host the largest nesting population of leatherbacks in India (Andrews & Shanker, 2002).

Pacific leatherbacks are divided into two populations, the Eastern Pacific leatherbacks and the Western Pacific leatherbacks. Eastern Pacific leatherbacks primarily nest in Central America and spend the majority of their lives offshore of nesting beaches or migrating to foraging areas in the South Pacific (Shillinger *et al.*, 2009). Western Pacific leatherbacks nest along the beaches of Indonesia and Papua New Guinea and migrate to forage offshore of Australia, in the North Pacific, or the California Current ecosystem offshore of the United States (Benson *et al.*, 2011). The journey of over 12,000 miles from Papua Barat, Indonesia to California and back is the longest known migration of any reptile.

Leatherback populations have declined in all ocean basins to an estimated 30-40,000 adult females in 1996 (Spotila *et al.*, 1996). Pacific leatherbacks have experienced the greatest decline, with populations falling precipitously by 95% in the last several decades (Spotila *et al.*, 2000). Leatherbacks in the eastern Paci-

fic are at the greatest risk of going extinct, with fewer than 1,690 adult females remaining at the turn of the century (Kaplan, 2005; Spotila *et al.*, 1996). The dramatic decline of leatherback sea turtles is signaling a threat to the balance and biodiversity of the oceans (Spotila *et al.*, 2000).

The population crash Pacific leatherbacks is the result of incidental takes by commercial fisheries, mostly as bycatch in longline and gillnet fishing, and human exploitation of eggs and meat (Chan, 2000; Kaplan, 2005; Zug & Parham, 1996). Up to 50 percent of the remaining Pacific leatherbacks are caught and injured or killed each year by longline fishermen (Lewison, Freeman & Crowder, 2004). Unless current fishing practices are changed, Pacific leatherbacks will be extinct in as little as 10-30 years (Lewison *et al.*, 2004). At Rantau Abang in Terengganu, Malaysia, where egg poaching removed more than 95% of the clutches, a nesting population of 10,000 leatherbacks was reduced to twenty in 1993 and only two in 1994 (Chan & Liew, 1996; Spotila *et al.*, 1996). Other threats to leatherbacks globally include loss or degradation of nesting habitats due to coastal development; disorientation and loss of hatchlings due to beachfront lighting; excessive nest predation by native and non-native predators; degradation of foraging habitat; entanglement in marine pollution and debris; and watercraft strikes (National Marine Fisheries Service and U.S. Fish and Wildlife Service, 2001). The death of more than 1 percent of the adult female Pacific leatherback population each year could lead to its extinction (Spotila *et al.*, 1996).

Conservation efforts to recover Pacific leatherback populations must address protection of nesting beaches to increase hatchling production, stop further degradation of essential habitats, and reduce high mortalities from fisheries by catch and can only achieve

success by addressing all of these issues. (Sarti *et al.*, 1996; Sarti Martinez, 2000; Spotila *et al.*, 2000). Leatherbacks have benefited from some increased protection under fisheries conservation treaties, such as the effort to reduce fisheries bycatch on the high-seas is under the Convention on Migratory Species, and from international trade agreements, such prohibition of international trade of leatherback eggs, meat, or products as under the *Convention on International Trade in Endangered Species* (CITES). Global cooperation is required to reduce threats and to ensure the success of conservation efforts.

### **Conservation Advocacy of the Sea Turtle Restoration Project**

The Sea Turtle Restoration Project (STRP) is a non-profit project of Turtle Island Restoration Network (TIRN) that is based in the San Francisco Bay area of California in the United States and has worked for over 20 years to save sea turtles and protect marine biodiversity. STRP works globally for all sea turtle species to protect them from slipping closer to extinction, and restore their dwindling populations. Halting and reversing the catastrophic decline of Pacific leatherback sea turtles has been a focus of STRP for several years.

STRP's many victories for sea turtles began in 1990, with compelling Mexico to end its then-legal harvest of sea turtles and closing its largest sea turtle slaughterhouse, ceasing the annual slaughter of more than 50,000 turtles on Mexico's coast, in collaboration with many other partners in Mexico and internationally. In 1993, STRP initiated a lawsuit that resulted in 20 nations adopting rules requiring turtle excluder devices (TEDs) on shrimp nets, which allow sea turtles an escape hatch from trawl nets that drown thousands of sea turtles each year. During this work, the organization created an award-winning TEDs video with the United Nations to promote worldwide use of this technology. The following year, STRP helped bring the world's attention to a local campaign in India to successfully protect Bhitarkanika turtle reserve, a nesting site for olive ridley sea turtles.

### **U.S. Fisheries Reforms**

Through a combination of public engagement and legal action, STRP's advocacy efforts have resulted in the creation of new conservation policy, both domestically in the U.S. and internationally on the high-seas, to protect Pacific leatherbacks from being pushed to extinction by fisheries. One example is the 210,000 square mile area in the California drift gillnet fishery that closes during leatherback feeding season established in 2001 and named the Leatherback Conservation Area (LCA) (Figure 1). In 2007, STRP prevented the reopening of drift gillnet fishing in the LCA, halting an effort by the U.S. Pacific drift gillnet fishery effort to expand by 15-20 percent and remove the LCA closed area.

STRP public advocacy work, combined with strategic lawsuits, resulted in a 2004 ban on shallow-set longlines by U.S. fleets throughout the, shut down California's swordfish fleet, and closed the Hawaiian longline fishery due to its deadly impacts to Pacific

leatherbacks. In 2006, to the Hawaii-based fishery reopened only after increased protections for leatherbacks were developed and put in place, including mandatory use of circle hooks. Ongoing STRP work has maintained the longline ban in the northeast Pacific and along the U.S. West Coast for U.S. fisheries.

A detailed legal petition backed by support from thousands of individuals resulted in the National Marine Fisheries Service's (NMFS) proposal to expand federally designated protected areas, known as critical habitat under the Endangered Species Act, for leatherbacks (Figure 1). A total of 70,000 square miles offshore of the U.S. West Coast has been proposed as critical habitat for the Pacific leatherback, with a final decision on the exact protected area rule scheduled for November 15, 2011. A volunteer project, the Leatherback Watch Program, was launched in 2010 to work collaboratively with charter vessels, marine researchers and local yacht clubs to compile, record and communicate sightings of Pacific leatherbacks, resulting in increased awareness and scientific information about the extremely rare sea turtles (Figure 2).

### **International Conservation**

STRP initiated an international meeting to catalyze solutions to the leatherback sea turtle's precipitous decline in 2002. The meeting brought together scientists, government representatives and non-governmental conservation organizations and resulted in several petitions to the United Nations urging an international moratorium on longline fishing for the protection of leatherbacks. The coalition formed in the original meeting grew, resulting in a letter delivered prior to the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea in 2005 signed by 1,007 scientists from 97 countries and 281 non-governmental organizations from 62 countries urging the United Nations to implement a moratorium on longline fishing in the Pacific Ocean to prevent the extinction of the critically endangered leatherback sea turtle. The letter and subsequent advocacy actions led by STRP and coalition resulted in the development of several new sea turtle Action Plans from Regional Fisheries Management Organizations.

While reform of U.S. fisheries has reduced a portion of leatherback takes on the high-seas, direct international efforts led by STRP have also contributed to the conservation of Pacific leatherbacks. Nesting beach protections and protected migratory corridors for both East and West Pacific leatherback populations have been established by STRP.

Papua New Guinea is home to a large population of nesting West Pacific leatherbacks, many of which migrate to the U.S. to forage (Benson *et al.*, 2011). After many years of negotiations, STRP established the first marine protection Conservation Deed Trust to protect leatherback nesting beaches in a village of Papua New Guinea, Karkum, in 2008. This deed trust successfully utilized traditional laws for marine protection, and continues to this day.

As allies since the 1990s, STRP has partnered with community based conservation groups in Costa

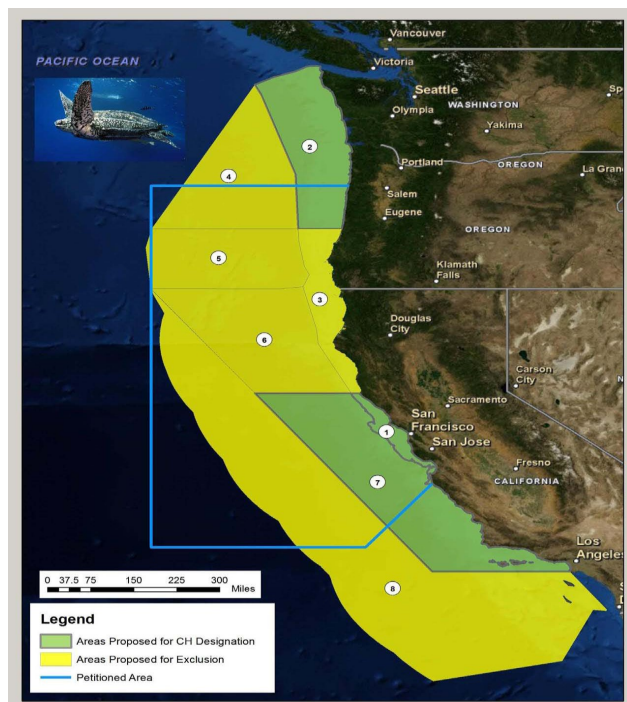
Rica, home to Las Baulas National Park and some of the most productive nesting beaches for Eastern Pacific leatherbacks (Shillinger *et al.*, 2009). In 1997, STRP initiated the creation of Programa Restauración de Tortugas Marinas (PRETOMA), a sister organization in Costa Rica. Together, PRETOMA and STRP established a 20,000-hectare Wildlife Refuge to protect sea turtles in Costa Rica. PRETOMA and STRP study the migratory movements of sea turtles in the Cocos Island National Park using satellite transmitters, and use the data gathered for ongoing efforts to protect Costa Rica's leatherbacks. The aim of the collaborative Cocos Island Monitoring and Research (C-MAR) research project is to document migration patterns of east Pacific sea turtles and sharks in order to establish a protected area swimway from the Cocos Island National Park to the Galapagos Islands. This is a key swimway for leatherback sea turtles and home to a vast profusion of marine life (Shillinger *et al.*, 2009). By demonstrating the importance of the Cocos Ridge Corridor to marine wildlife through primary research, support has been gained from the International Union for the Conservation of Nature and the International Sea Turtle Society, who passed resolutions in support of a protected marine swimway in the area.

## DISCUSSION

STRP has demonstrated success using grassroots education and conservation advocacy to address the leading threats to Pacific leatherbacks and establish new domestic and international protections for these critically endangered sea turtles. As an organization, STRP fights to protect endangered sea turtles in ways that make cultural and economic sense to the communities that share the beaches and waters with these spectacular creatures. Aiming to restore and protect populations of endangered sea turtles to healthy and stable conditions, STRP addresses the root causes of the sea turtle population declines at political and local levels, and acknowledges the need of local economies to promote the establishment of locally engineered sustainable development alternatives. Emerging threats to Pacific leatherbacks require conservation efforts adapt to new challenges. Offshore oil drilling, catastrophic oil spills, and marine pollution in the form of marine debris and plastics are threats to sea turtles gaining increased attention on a global scale. The explosion of the Deepwater Horizon oil platform in the Gulf of Mexico triggered the largest oil spill in U.S. history in an area known to support thousands of sea turtles, and cleanup operations included *in-situ* burning of the surface oil. As a result STRP quickly mobilized to respond to the oil spill and took legal action to halt the *in-situ* burning which resulted in the formation of sea turtle rescue teams working with all cleanup operations. The dramatic increase in the production of plastic, and the resulting plastic litter, has now spread to all oceans of the globe. Ingestion of plastic has occurred in 34% of leatherbacks, resulting in nutritional loss and/or suffocation by choking on the plastic (Mrosovsky, Ryan & James, 2009). A leatherback nesting in French Guinea

James, 2009). A leatherback nesting in French Guinea expelled ingested plastic from its cloaca before depositing a clutch containing many malformed eggs (Plot & Georges, 2010). STRP has recently joined advocacy efforts to ban the free distribution of plastic bags by retail stores in the U.S. and leads public outreach efforts to inform consumers their disposable plastic purchases can lead to lethal plastic pollution in the ocean.

Leatherback populations around the world can also be impacted by natural changes to habitats and natural disasters such as the tsunami in December 2004 that swept across the Indian Ocean. Many prime turtle nesting sites in the Andaman and Nicobar Islands were severely affected by the earthquake and subsequent tsunami, which resulted in lower nesting levels the first two years following the disaster and a apparent recovery in the 2010-11 nesting season (Swaminathan, Namboorthri & Shanker, 2011). However, without long-term baseline data on the nesting populations, both in India and around the world, it is difficult to make accurate conclusions on the impacts of environmental change.



**Figure 1.** The Sea Turtle Restoration Project established the Leatherback Conservation Area in 2011 which prohibits drift gillnet fishing within 210,000 square miles from August 15 through November 15 when leatherbacks are most abundant (blue line). This area was proposed as protected critical habitat in a subsequent legal petition, to which the National Marine Fisheries Service responded by recommending 70,000 square miles of critical habitat in northern and southern foraging habitat (green areas). Map courtesy NOAA/NMFS .

STRP will continue to track the primary and emerging threats to Pacific leatherback sea turtles and support cooperation among fishermen, local community members, national organizations and law enforcement officers around the globe to protect leatherbacks. Long-term international cooperation is absolutely essential for



**Figure 2.** A Western Pacific leatherback sea turtle (*Dermochelys coriacea*) eating a brown sea nettle (*Chrysaora fuscescens*) photographed in the Monterey Bay National Marine Sanctuary offshore of California USA by a participant in the Leatherback Watch Program sponsored by the Sea Turtle Restoration Project (photo: Mark Cotter).

the recovery Pacific leatherback populations. Ending human activities that drive this species in the wrong direction, like longline fishing and destructive development on nesting beaches, can give leatherbacks a fighting chance. Every person on the planet can make an impact by supporting the work of the Sea Turtle Restoration Project to ensure the continued survival of Pacific leatherback sea turtles. Learn more and take action to protect leatherbacks at [www.seaturtles.org](http://www.seaturtles.org).

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