

The Conservation Mosaic Approach to Reduce Corruption and the Illicit Sea Turtle Take and Trade

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Key takeaways

- » *Grupo Tortuguero de las Californias* (GTC – the Sea Turtle Conservation Network of the Californias), a sea turtle conservation effort in Baja California, is an example of a “conservation mosaic” approach to address declining turtle populations, poaching and related corruption.
- » GTC is an example of using “soft power” approaches as an alternative to “hard enforcement,” which was unlikely to be successful due to the complex of community dynamics, institutional weaknesses, and criminal factors that drive sea turtle take and related corruption in the region.
- » “Soft power” included community-based monitoring, an extensive education and communications strategy to enhance environmental literacy and cooperation between communities and authorities, and community-based research.
- » Though reducing corruption was not an explicit objective of the initiative, the case highlights how community involvement in conservation efforts, alongside the state’s policy-setting role, can address some of the conditions that encourage corruption and endanger conservation outcomes.

Context for the initiative

Although it has been illegal to kill sea turtles in Mexico since 1990, poaching for human consumption remains a major threat to the recovery of these endangered species. The most common reasons for poaching include direct economic benefits from the sale of turtle meat and other products, lack of law enforcement, and the ease of bribing authorities. Strong cultural traditions promoting the consumption of turtles exacerbate the problem, as do family and extended social networks that cut across poaching and enforcement communities, reducing the likelihood of legal sanctions. Corruption, largely in the form of bribery, facilitates this illegal sea turtle take and trade.

Corruption can be addressed through top-down or bottom-up approaches, or a combination—implementation of more transparent and publicly accountable governance systems by officials, or community-based monitoring by the public. Until recently, the potential role of community-based non-governmental organizations (NGOs) in combating the illegal trade has been underestimated, but evidence of the importance

of bottom-up initiatives is growing. For example, a study found that NGOs that targeted conservation and animal welfare decreased the illegal pet trade in Peru despite the government lax enforcement of wildlife legislation (Daut et al. 2015). [Grupo Tortuguero de las Californias](#)—Sea Turtle Network of the Californias—demonstrates how illicit wildlife trafficking and related corruption, even when it is deeply ingrained, can be addressed through a community-based approach.

Illegal Sea Turtle Take and Trade

The waters around the Baja California peninsula, including the Gulf of California, are considered the most important fishing zones in Mexico. They also contain critical feeding and nursery grounds for five species of sea turtles officially endangered or threatened, including black, loggerhead, hawksbill, olive ridley and leatherback turtles. The black turtle (*Chelonia mydas agassizii*), *tortuga prieta* in Spanish, is the most common species and historically the most important animal native to the region, as it plays a central ecological, cultural, and economical role.

Fisheries data indicate that black turtles were abundant and the target of a lucrative industry well into the 1960s. However, by the 1970s, the species experienced sharp population declines. By the mid-1980s, most reports indicate black turtles reached an all-time low, with a steady recovery since 2000. Sea turtles face loss of nesting beaches, egg poaching, loss of feeding habitat, hunting of juveniles and adults, and entanglement in fishing gear.

The main threat to black turtles in the Baja California region is directed take and local consumption. Alarming mortality rates linked to incidental capture of 10-20 percent on sea turtles tagged between 1994 and 1999 were reported. A minimum of one black turtle per week, on average, was consumed in each coastal community where surveys were conducted in the past. In some communities the number was far greater. There are more than 150 permanent, coastal communities along the Baja California peninsula, of

varying sizes. At this conservative estimated level of take, it is likely that the minimum mortality rate due to local consumption of black turtles in the Baja California region was at least 7,800 per year. When black market trade in urban, mainland and inland communities is included in this estimate, mortality was calculated as high as 30,000 turtles annually (Garcia-Martinez and Nichols 2000; Nichols 2003; Mancini et al. 2011). This take impacted both immature and mature animals and likely has resulted in the decline in the number of nesting females on eastern Pacific rookeries. Boat collisions, ingestion of plastic debris, and contamination were identified as further, moderate, threats to black turtles.

Corruption and Sea Turtle Conservation

Many of the turtles captured accidentally or directly enter the black market, are traded locally, or consumed domestically. All of these activities are related to corrupt actions by fishers and consumers, including high government officials and law enforcement authorities. At the root of this mortality are several factors, some of which relate to poor enforcement of conservation laws faced by many developing countries, as well as gaps in knowledge and resources. Sorting out the impact of corruption on sea turtle conservation efforts therefore requires identifying corrupt practices as well as conditions that may encourage or discourage such practices.

At one end of the spectrum, local residents and fishers lacked important knowledge, which might have made them more likely to break laws:

- » **Misunderstanding of the law:** Many fishers understood the law to permit local take of sea turtles for domestic consumption, particularly when a turtle had been captured accidentally or had died in fishing gear.
- » **Limited knowledge of the species:** Few residents knew where local sea turtle populations migrated to reproduce, and many described egg poaching on nesting beaches—not local hunting—to be primarily

responsible for population decline. In general, there was inadequate public information available on sea turtle biology.

Once they are involved in illegal activity, knowingly or unknowingly, fishers and traders are more vulnerable to extortion by law enforcement authorities, or they may simply be more willing to pay bribes to smooth out any problems that may arise due to the illegal activity.

At the other end of the spectrum, authorities failed to enforce laws for a number of reasons that help explain how corruption can become embedded in the system:

- » **Lack of enforcement resources:** Limited staff and insufficient patrol equipment (trucks and boats) reduced capacity for enforcement in the vast region of Baja California. In many cases, the Mexican Federal Agency for Environmental Protection (PROFEPA) agents reported being underpaid as well.
- » **Conflict of interest:** In small fishing communities, a conflict of interest occurred when the fisheries inspector was a friend or family member. In addition, it was not uncommon to find that those supplying turtles were doing so for individuals with political influence and economic resources.
- » **Convergence of different types of crime:** Trafficking of protected marine resources often goes hand in hand with trafficking of other illegal goods (e.g., guns, drugs), potentially placing PROFEPA agents in harm's way as well as introducing significant financial sums to an otherwise fairly low-stakes trade compared to other illicit trades.

In conditions like these—with local fishers and enforcement officers easily becoming involved in larger dynamics of criminality and/or political power—it is easy to see how corruption can become ingrained. Fishers reported that bribery was an alternative to large fines or incarceration when they were caught with contraband. Sea turtle conservation in Baja California became essentially taboo due to these layers of illegality, corruption, impunity, and intertwining with the narco-industry. The big NGOs wouldn't touch the topic, and funders said it was too late to protect sea turtles.

Grupo Tortuguero de las Californias

In response to sea turtle declines and mortality information, GTC was established in 1998, beginning a tradition of yearly meetings. By 2006, the gathering had grown from its founding group of 45 fishers, coastal residents, scientists, educators and conservationists to the current international network linking 500 members from more than 53 coastal communities, dozens of non-profit organizations and numerous government agencies and research institutes from Cuba, Japan and Mexico. All share the same goal: the recovery of sea turtle populations.

These annual meetings allow members to present results of research and monitoring projects and communication and outreach programs, and to attend hands-on training workshops. Most importantly, conservation strategies are debated and developed, and critical personal relationships are formed and renewed. Each GTC member community has given rise to many sea turtle and non-sea turtle conservation, education and advocacy projects. The group provides monitoring and transparency by sharing data from the feeding grounds with the Marine Geospatial Ecology Lab's Migratory Connectivity in the Ocean (MiCO) Initiative (<https://mico.eco>), an online mapping of species being satellite tracked or flipper tagged. Also, GTC established a system where turtle stranding data are constantly shared with local authorities like PROFEPA.

Building a Conservation Mosaic

Illegal trafficking and related corruption have been a target of GTC's work, implicitly if not explicitly. Rather than focus on hard enforcement strategies, which would have been nearly impossible (if not deadly) given the combination of traditional use, black market trafficking, corruption and linkages to the narco-industry, GTC focused on "soft-power" approaches through a "conservation mosaic" strategy



Figure 1. The sea turtle conservation mosaic is a network built on community-based research, social participation and active communication for effective sea turtle conservation. This model has been adopted by other groups working on sea turtle conservation in Indonesia and shark conservation in the eastern Pacific (Nichols 2006).

(Nichols 2006). This approach (Figure 1) highlights the importance of community involvement, but acknowledges the role of the state to set policy agendas, with three interrelated components:

- » Building a diverse network that united everyone and anyone interested in protecting black turtles from extinction;
- » Acquiring the needed ecological knowledge and solutions through community-based research and monitoring as well as in-depth social, cultural, behavioral and economic science and surveys; and
- » Active communication leveraging the network and its knowledge through media, including flyers and murals, documentary films and TV interviews.

Keys for Success: Education and Monitoring

GTC launched a robust movement to **enhance environmental literacy** in the region. Murals painted by local artists, non-governmental organizations, and school groups, depicting sea turtles in a variety of scenes (Figure 2), helped to shape pro-environmental attitudes and behaviors toward the treatment and recovery of endangered sea turtles and stewardship of marine ecosystems.¹ These murals were part of a holistic outreach campaign by GTC as a unifying NGO in the state. Ongoing education and

outreach initiatives include workshops for fisherfolk, environmental education for schoolchildren, regional sea turtle festivals, innovative community-based social marketing comic books, and radio programming, along with the murals. Environmental murals have also provided a means by which communities have public access to information about the marine environment. Stimulating community pride in a local species is also at the core of other organizations. (See, for example, <https://rare.org/>.)

Community monitoring initiatives like GTC are central to sustainable collective governance and conservation of species and ecosystems (Ostrom 1990). GTC shared data in real time, empowered fishers to analyze and present findings at conferences, and developed deep, trusted relationships with the media, who considered GTC members “honest brokers.” Monitoring data demonstrates the recovery of black turtles; however, it is still too early to ease up on conservation efforts as other turtle populations have not recovered.

Making the sea turtle conservation movement in Baja California more **accessible and open to individuals from diverse backgrounds** has helped address entrenched cultural norms supporting turtle consumption.

Enforcement and scientific agencies had long resisted civic involvement, but their inability to conduct

¹ According to 333 surveys of adult and young participants in nine communities in Baja California Sur.



Figure 2. Sea turtle murals inspire conservation (Schneller and Irizarry 2014)

scientific monitoring and protect sea turtles due to lack of funds and staff helped pave the way for a more collaborative approach. PROFEPA maintained only 12 agents dedicated to environmental law enforcement for over 1,000 miles of coastline encompassing both the Pacific and gulf coasts. In response, **groups related to GTC were given authority to monitor sea turtle bycatch in several remote areas.**

An additional component that fueled success was to **always give credit, rather than take it.** In essence, GTC endeavored to create a parallel conservation apparatus using new rules in order to remain outside the “stuck” ways of a corrupt system. This meant that certain professional sacrifices were made; for example, by scientists changing their research from science to advocacy; by fishermen, leaving a traditional way of life for generations, from fishing to sea turtle conservation. Credit was given to other NGOs that later claimed to have developed the local efforts. In addition, funders sometimes were not interested in this experiment or considered it a waste of money, and academics found it “unscientific.” It is worth mentioning that the data from GTC have been used in 234 theses, scientific articles, reports,

presentations, posters, and book chapters.

Many of these approaches, which were initially deemed “inappropriate,” have become the new normal, including participatory research and monitoring, data sharing, and smart media communications. When the goal is to build a diverse and unstoppable “movement,” the strategy is very different from the approach to building an organization, campaign, project, academic reputation, brand, foundation or government agency.

Impact on Corruption Dynamics

Because reducing corruption was not an explicit initial objective of the GTC initiative, data on experiences or perceptions of corruption was not initially collected, so it not possible to “prove” that corruption in management of sea turtle conservation has declined due to GTC’s activities. However, GTC’s ongoing work has produced a number of changes that address conditions that encouraged corruption (Table 1).

Table 1. Measures that helped address facilitating conditions for corruption in the illegal take and trade of sea turtles in Baja California.

Measure	Activity	Results
Establish protected sea turtle habitat	Work with federal government to establish national policies and legislation for management of sea turtles	Clear definition of areas where sea turtle take is illegal helps limit “uninformed” illegality
Frequent meetings of GTC leaders with NGOs, state and federal authorities	Meetings began with a dialog and increased trust across partners	Greater opportunity to address sensitive problems in a collaborative manner
Improving transparency	Better data on sea turtle populations, shared at yearly meetings, showed authorities the impact of illegal take and effectiveness of protections	Better data gave GTC a stronger argument for improving protection and reducing illegal take and helped increase enforcement through agreements with the United States, for example
Developing “intelligence” within communities	Law enforcement agents used information to target known poachers and trade locations	Poachers fined and jailed, making illegal activity less attractive
Alternative livelihood for community members	Ecotourism implemented by NGOs provided economic incentives directly managed by community members	In addition to reduced unintentional or uninformed take, community attitudes are more likely to condemn poaching and related corruption (see next item)
Attract poachers into legal activities related to conservation of sea turtles	Poachers were persuaded to become tour guides for sea turtle watching/ecotourism	Increased incentive to protect sea turtles reduces potential involvement in illegal activities, where bribes are more likely
Increasing enforcement in isolated/remote communities, including GTC taking on some monitoring and enforcement roles	Collaborative approach created shared understanding of the problem of declining sea turtle population and identified resources to support local communities and enforcement agents to work together	Illegal activity and attendant bribery or high-level complicity may be reduced

Lessons and recommendations

This practice note highlights several areas where considerable progress remains to be made towards reducing corruption and the take and trade of sea turtles and their recovery in the region. In addition to the “keys to success” outlined above, the following lessons and recommendations may help guide future community-based natural resource management (CBNRM) efforts that have identified corruption as an obstacle.

1. A critical lesson from the GTC experience was the importance of building trust in order to address complex and sometimes sensitive issues:
 - » Get to know the community, while allowing them to know you as more than just an outside researcher;
 - » Build trust through local friendships and partnerships and demonstrate respect in interactions with all individuals;
 - » Take time to learn about community issues,

cultural norms and practices, and get to know the personal, local, and regional politics;

- » Work within the existing socioeconomic and ecological frameworks.
2. Integrate local knowledge and information with “outside” science into a strategy and implement the action plan with the support, knowledge and active participation of local communities:
 - » While it is acceptable to share knowledge with local fishers (particularly when it is specifically requested), do not do all the talking; spend an equal amount of time asking questions and engaging in participant observation.
 3. Monitor progress and maintain flexibility, following [adaptive management strategies](#), traditional ecological knowledge, integrative science and the social ecological systems and resilience (SESr)

model (Folke et al. 2016).

4. When corruption is a major hindrance to conservation objectives, initial analysis can help inform reform agendas and track progress:
 - » Social science research and [political economy analysis](#) can map where and how corruption happens in local harvest and trade processes and what systemic factors drive it (e.g., attitudes, involvement of criminal gangs) and facilitate it (e.g., poor relations between authorities and communities, lack of knowledge of laws). Such research can be tailored for different situations, risk levels, or populations.
 - » Survey data can set baselines and monitor progress on corruption experience or perceptions; user surveys can assess experience and satisfaction with selected services as they are reformed and identify ongoing problems (see [Hart 2019](#)).

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