Oryx

Northwest Mexico: a region of hope for the hawksbill sea turtle

By Lourdes Martinez-Estevez & Catherine E. Hart, 19th December 2022

Beautiful: that's how most people describe the hawksbill sea turtle. Its carapace of overlapped keratin scutes is commonly referred to as tortoiseshell and is individually coloured with patterns of amber, orange, brown, red, yellow and black. For centuries, luxury items such as desks, musical instruments, jewellery and handicrafts were made from these scutes. Millions of hawksbills have been taken for the tortoiseshell trade, and thousands of individuals worldwide are still being caught to supply this illegal trade.

Left: A hawksbill turtle in the ocean. Right: Female hawksbill turtle on a beach, with tracking device attached to its carapace. Photos: Sarai Barcenas & Catherine E. Hart.

Besides the tortoiseshell trade, hawksbills face similar threats to the other six sea turtle species, including the illegal harvest of their eggs and meat, nesting and foraging site degradation, and bycatch in artisanal and industrial fisheries, to name but a few. Thankfully, the international trade in hawksbills was banned in 1981, along with the trade in all other sea turtle species and their byproducts. In Mexico, the harvest, consumption and trade of sea turtles was banned in 1990 and those who partake in such activities commit a federal offence. Further government initiatives have led to the use of turtle excluder devices by Mexican shrimping fleets and the listing of sea turtles under the Mexican Endangered Species Act, with national conservation action programmes (Programa de Acción para la Conservación de la Especie).

Video footage from a hawksbill turtle's travels. Video: Lourdes Martinez-Estevez & Don Croll.

Hawksbill sea turtles in the Mexican Pacific are part of the eastern Pacific population, which includes individuals from Mexico to Peru. This population is one of the world's most threatened sea turtle populations and until 2008 it was considered functionally extinct. The high oceanic productivity in north-west Mexico provides hawksbills with coastal habitats that support their development and reproduction. This may be why they continue to return to their foraging and nesting sites and their home ranges can be smaller than 3 km^2.

One of the most important sea turtle conservation programmes in north-west Mexico is that of Grupo Tortuguero de las Californias A.C. This non-profit organization was founded in the late 1990s through the vision of Jeffrey A. Seminoff and Wallace J. Nichols, to monitor sea turtles in the region. They created a network of fishers, local communities, scientists and non-profit organizations to document sea turtle records and identify important nesting and foraging sites. Today, the group includes more than 500 active members along the Baja California Peninsula and the mainland Pacific coast of Mexico. Perhaps its most important scientific achievement is the compilation of a comprehensive database of the five regional sea turtle species, which comprises 12,783 records from 2001 to date.

Grupo Tortuguero de Las Californias, 2022. Photo: Grupo Tortuguero de las Californias A.C.

Using the hawksbill records from the group's database, we analysed regional hawksbill distribution, determining the conservation status of those sites with hawksbill records, and understanding how hawksbill numbers and the proportion of juveniles and adults have changed over time. This analysis allowed us to identify 52 foraging and nesting sites, mainly in mangrove estuaries, on reefs and around islands. This information is key in helping conservationists focus future conservation actions. We also found that hawksbill records have increased by almost seven times on previous records from 2010, most likely as a result of more than 15 years of conservation, surveys, regulation and commitments to maintain this species and its habitats.

Left: Turtle tracks in the sand. Right: Juvenile hawksbill turtle. Photos: Catherine E. Hart & Carlos Aguilera.

So, what does the future hold for hawksbills in north-west Mexico? There is no denying that the number of nests reported each year is perilously low. However, we are hopeful that the number of hawksbills and known foraging and nesting sites will continue to grow through the inclusive conservation and monitoring activities that build relationships between local communities, NGOs, and the government. Furthermore, the network of Grupo Tortuguero de las Californias forms a part of larger regional organizations such as the Eastern Pacific Hawksbill Initiative, which connects hawksbill conservation and research efforts along the Eastern Pacific, increasing our ability to respond quickly to conservation issues and share regional knowledge.

A hawksbill turtle on the sea bed. Video: Lourdes Martinez-Estevez.

Perhaps help has arrived just in time for the imperilled hawksbill turtle, which unwittingly finds itself an ocean ambassador, with organizations pinning their hopes on this charismatic species to raise awareness of ocean conservation. Let's hope that the beauty that once condemned this turtle will now inspire more and more people to unite for the conservation of the hawksbill turtle and its habitats.

The article "Exploring the demography and conservation needs of hawksbill sea turtles Eretmochelys imbricata in north-west Mexico" is available in *Oryx—The International Journal of Conservation*.

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Lourdes Martínez-Estévez is a Mexican scientist with experience in applied Ecology, Conservation Biology, and spatial conservation strategies in terrestrial, freshwater, and marine habitats. She has a PhD in Ecology from the University of California, and a master's in Environmental Biology from UNAM, Mexico. She is passionate about studying threatened species, such as prairie dogs and hawksbill sea turtles, and finding strategies to protect them, especially in collaboration with local communities. She is also committed to increasing diversity and inclusion in science.

Catherine E. Hart is a postdoctoral researcher at the Instituto Politécnico Nacional, Mexico. Her work focuses on the conservation of sea turtles in northwest Mexico. She is particularly interested in the role played by community groups in species conservation and has worked within local NGOs since 2003. Catherine is currently researching the effects of temperature, incubation techniques and conservation practices on olive ridley sea turtle embryos and neonates and studying hawksbill sea turtles using satellite telemetry, photo-identification, and beach monitoring with support from Alianza WWF-Fundación Telmex Telcel.