

## A Tale of Sharks and Lionfish

Dr Rachel T Graham (Belize, Panama)

I was sitting bobbing on the sea in a small panga - an open boat with an outboard - with several traditional fishers in Belize when my phone rang. I had thankfully just washed my hands clean of bait. After fumbling for the buttons, I managed to answer. There was nary a hello or chit chat, as my Panamanian colleague jumped right to the point: “the community leaders and fishers here are not the least bit interested in assessing the status of sharks and other marine megafauna...what do we do?”



My colleague had been invited by a renowned Kuna marine biologist to visit Panama's indigenous region of the Kuna people known as Kuna Yala (also known as Guna Yala and formerly the San Blas Islands) who live on a widespread archipelago of low-lying islands and mainland tropical forests, to discuss our work with fishers, collaborative fisheries assessments and marine megafauna monitoring. Fiercely independent, the Kuna form their own government and means of governance that blends formal and traditional processes, as they strive to maintain a distinctive culture and language, all guided by their cosmivision that integrates many aspects of the natural world.



“Why don't you start by asking them what concerns them the most at sea right now?. If they have any preoccupations that we can help them resolve, then let's start a discussion with the community chiefs and fishers.”

She called back an hour later and simply said: “lionfish, they're very worried about lionfish, it's proving to be a major problem and nuisance for the fishers and people are scared of them”.

“We can definitely help them with their lionfish problem”.

I knew that our broad network of fisher partners in other countries in the MesoAmerican Reef region were effectively hunting this invasive, highly predatory, venomous and yet quite tasty species. Lionfish (*Pterois* spp.) originated from the Indo-Pacific but through misguided human actions this beautiful species was released into the predator-free waters of the western Atlantic, invading all known coral reef nooks and crannies and voraciously devouring local reef fish.

With the invitation of the community chiefs known in Kuna as Saglas (said SAiylas) we sought seed funding and proposed to bring two of our top lionfish hunting fishers from Mexico and Belize to Panama to train the fishers of the Kuna Yala Comarca on how to fish, de-fin (where the potent and very painful venom is located) and prepare tasty lionfish recipes. I have long championed peer to peer training in all aspects of our conservation work and this ethos and

approach has proven impactful, helping to build resilient networks and sustain conservation actions following training. The exchanges enlightened all involved with sharing of skills, telling of sea stories (some very tall) and deep discussions about overcoming common challenges.

We had to adhere to a strict protocol of official introductions in each island community visited. This further involved presentations on who we are, what we do, and what we had proposed to undertake with lionfish and fishers in the communal palapa (traditional communal meeting house), translated in Kuna by our colleagues. With the Saglas' blessings we turned the presentations into engaging education for multiple audiences that went beyond lionfish and touched on coral health, fish, fisheries and climate change – a key threat to the island existence of the Kuna people due to rising sea levels flooding their island homes. The immersive training for captures and preparation events engaged fishers and students and created anticipation for the upcoming work at sea.

In the evening, we were also asked to attend communal meetings where our new Kuna fisher partners would share their experiences of the day with the Saglas and the community. All the while we conducted participatory rapid assessments of key areas where lionfish were most prevalent and hotspots for fish in general. We made the training and capacity-building activities fun for all – you always learn and retain far more when there is joy and camaraderie in the process of acquiring new information and skills. And to boost science education, which is limited in Panama's schools, we engaged local professors and students to help gather data on the lionfish captured, conduct stomach contents analyses, measure length and weight, and age the fish using crystalline otoliths from their heads (similar to using rings to age a tree).

When the project wrapped three weeks later, teachers and students asked if we could embark on a broader curriculum of science, both theoretical and experiential, relevant to their Comarca. Our new fisher partners asked if we could accompany them in developing management measures to render their most lucrative fishery, that of the Caribbean spiny lobsters, more sustainable. The Kuna Congress and IIDKY asked us if we could support their bid to establish functional marine protected areas (MPAs). And as we departed, the Saglas asked us "You know the monitoring of many species including corals that you first asked about... would this still be possible to undertake?"

Several years later, we have developed strong ties to the Kuna communities and the leaders in Congress and an MOU with their science department IIDKY. We piloted our science Ninja Lesson plans with professors with the benediction of the Ministry of Education and co-created a broad proposal for Kuna-led and managed MPAs. The pandemic was brutal to Kuna communities usually reliant on revenue from tourism to their islands. To support many families and communities through the worst of the pandemic we called on their traditional artisanal skills in the creation of species oriented Mola masks that sold around the world, supported the first ever monitoring of multiple marine species and traditional fisheries, graduated Kuna university thesis students – including the first thesis work on sea turtles in the comarca produced by a Kuna student, all while led by Kuna biologists who have trained with us. And for the first time in over 22 years, Kuna Yala's spectacular coral reefs, seemingly more resilient to climate change than most others in the Caribbean, are being assessed, this time led by an all-Kuna team that include the first women Kuna Scuba divers in the history of the Comarca.

If one wishes to build and support partnerships for a common long-range goal, in this case the improved wellbeing of fishers and communities and a better understanding and stewardship of marine species, it's important to be open to all possibilities, not judge, ask many questions, listen deeply and fully support local choices and decision-making.

Doggus nued\* lionfish, for this very special gift of a wonderful partnership with the Kuna.

\*Thank you in Kuna

**About the author:** Dr Rachel Graham is the founder of MarAlliance which works with coastal communities across multiple tropical countries, including Panama, where she is now based, to seek win-win outcomes for fishing communities and threatened marine wildlife.