

Project Update: February 2017

Punta Pargos Report: 2016/2017

Marine turtle monitoring and protection patrols on Punta Pargos, Costa Rica have been operating this season since 29th October 2016. This is the 15th year of operation at this site by Sea Turtles Forever anti-poaching teams. Our teams have been able to secure over 90% of the marine turtle eggs laid on Punta Pargos's five beaches over the duration of the last 15 years by running nightly protection patrols during the 8-month nesting season for *Chelonia mydas* (CM), otherwise known as the Eastern Pacific green turtle. Prior to our operations 99% of all marine turtle eggs laid on Punta Pargos were illegally harvested and either sold on the black market, eaten or fed to live stock. Even though we have operated patrols for 15 years we are still challenged by poachers on all beaches. 90% of nests left unsecured due to being laid at times before or after our patrols are illegally harvested. Our patrols are timed to protect the beaches during the prime nesting time when 90% or more of the nests are laid, but some turtles do come at irregular times and those nests are still in jeopardy of illegal harvest unless they are also missed by poachers.

Ocean conditions have been highly irregular for 2 years in the Pacific Ocean. The strongest El Nino conditions ever recorded have been documented and the north-west region of Costa Rica experienced a dramatic drop in CM nesting last year. Our nest numbers dropped by approximately 40% from average last season and this season nesting started approximately 1 month later than normal. Our numbers are down approximately 40% again this season. Projects 50 miles north of us and up to 100 miles south have experienced even larger drops in CM nesting, approximately 60% and 70% respectively. This environmental phenomenon is still playing out and our monitoring is vital to gaining any understanding of the correlations that may exist between the dramatic El Nino conditions and the decrease in nesting productivity.

When we began our monitoring patrol on Punta Pargos the area had been experiencing near complete harvest of all marine turtle eggs for decades. This uncontrolled harvest left the marine turtle cohort, or total population of turtles, with very few if any young turtles in the cohort. It would be like taking all the babies out of a population and destroying generations of youth. This left us with an older population that had also been thinned out from commercial fishing activities and illegal harvest of adult turtles. We are what I consider the last hope for this population of turtles. Over the last 15 years of monitoring and producing hatchlings many of our original adult nesting turtles have died off, this is indicated by the low numbers of returning tagged turtles we are seeing compared to the 270 adult nesting turtles we have tagged over the course of our research. This die off factor could explain our descending nest numbers, we have got to continue to monitor this area and collect more data to establish these theories as fact. There are varying estimates of how many years it takes for hatchling green turtles to mature to nesting age but one thing stands out, we may have established our protection patrols in the most critical time and will now be relying on our production of hatchlings over the last 15 years to save this troubled cohort. It can take 20 years or more for green turtles to reach nesting age so we are getting closer to seeing a time when our hatchlings will return to nest.

Currently, at this point in the 2016/2017 season we have secured 46 nests on Punta Pargos and have lost four to illegal harvest which gives us a 92% success ratio. We have added two patrollers to the team and hope to gain the momentum and keep our success ratio at the 90% or better range as the season continues to unfold.

We have tagged seven new *Chelonia mydas* and had two returning previously tagged turtle on the project during the current patrol season. With 270 previously tagged *Chelonia mydas* over the last 10-year period for an average of approximately 26 newly tagged turtles per season it leaves us wondering at this time where the bulk of our previously tagged cohort is located. We do collect information from other projects to the north and south of Punta Pargos that indicate some of our turtles have a nesting range of over 50 miles, we will be receiving information on these locations soon. Our tagging research is revealing important new information on spatial distribution of nesting by *Chelonia mydas* and our operations are vital to that body of information.

The science and production of turtle hatchlings we are generating on Punta Pargos is vital to the long term sustainability of the species. The social impacts we are creating are absolutely vital to the long term sustainability of marine turtles on Punta Pargos as well.

The illegal harvest of marine turtles and their eggs is a culturally imbedded practice on a global level. All beaches that are not protected, and many that are protected, are illegally harvested in every third world location where marine turtles nest. With the large percentage of productive nesting beaches located in third world countries the nesting beaches have been illegally harvested for generations. Most countries do have laws in place that regulate or completely ban illegal harvest of endangered marine turtles, but local populations are very rural and not patrolled, in some cases even the authorities will illegally harvest the turtles and eggs. We have experienced that even the police in charge of enforcing environmental laws will undertake illegal harvest at secluded sites outside our project area.

You cannot change a culturally imbedded practice in a few years, it takes a generation of change to start the transformation from illegal consumption to sustainable management. We understand this very well at Sea Turtles Forever and have a long-term commitment to change. Running educational programmes for the last 10 years at seven nesting area schools around Punta Pargos started out as a pilot project we felt was vital to our long-term goals. These programmes have taught the local school children "Why are Sea Turtles Important" for a decade now. Before our programme was started the children had no idea that endangered marine turtles were threatened with extinction, and many of the children had eaten eggs and or meat from local nesting turtles, and would tell us this. We are currently organising a strategy to quantify the success of our educational programme and document the changes in attitude toward marine turtle conservation in our area.

To change an imbedded cultural practice you have to prove there is value in the desired change. Creating jobs in rural third world areas is incredibly valuable to these poor communities. People are struggling and there are few good jobs, pay is very minimal so environmental laws are ignored

and alternative incomes are desirable. When a nest of turtle eggs can bring in \$10 on the black market you end up with a steady stream of would-be poachers. We have created good jobs for local community members on our protection patrol team, this is one of the values that shows the local community that environmental stewardship pays more than environmental degradation. I want to explain how this also spans the generational necessities of lasting change.

William Zuniga Aguilar has been with our patrol team for 12 years now, when he started his children were very young. He has improved his life through dedication to our patrol team and this season his son Jerson joined the patrol team at 22 years of age. Jerson is being trained to collect data and catching on very fast. Bernardo Ordonez has been on our patrol team for 8 years, he was once an accomplished poacher. We have had three of Bernardo's sons on our patrol team now and that has benefited his family immensely, they have had work when there was little or no work to find and influenced many poachers to stop the illegal activities or face confronting their friends on the beach. Martin Gomez has been on our patrol team for 6 years and he was also previously one of the most accomplished poachers in the area, now his son has joined the team as a data entry specialist. Martin's father owns the local market and when we started the patrol he was still selling illegally harvested eggs right out of the store, that has stopped and now his son and his grandson are benefiting from responsible management of the eggs. We have spanned three generations of that family and now enjoy incredible support from one of the first families to populate the area. The social changes are incredible, we have truly altered the environmental consciousness of the entire area by showing that there is value in this change we had instilled.

We work with the community in many ways. The local tour operator brings STF clients that we take with our patrol team for a fee that helps support the patrol salaries and benefits the local tour company. Our volunteers eat at local restaurants and rent housing from local establishments. This creates value from conservation that is greatly appreciated by the community.

Our payroll is US\$2200 per month currently depending on number of patrol hours maybe a bit more at times. This pays for six Costa Rican team members at a rate that would be approximately double the going rate of pay for a local job. We pay our team well and most administrative and project director time is volunteer. When you are out all night at crazy hours protecting the beach from unpredictable poachers you should get paid more. Our patrol team is also trained to collect important data on nesting activities, which is a learned skill. Our team is very proud of their jobs, they value them greatly and would literally fight to the death to protect those turtles and their jobs. They have faced adverse weather, violent encounters with poachers, snakes, some gunfire, insects and many sleepless nights to protect our endangered turtles. But they are prospering, this is the value we offer them and as they learn and teach their children and we span the generations this way of life becomes a pillar of what creates a community committed to environmental stewardship.

What is a turtle worth, this cannot really be calculated without adding in variables that may not be obvious on our first accounting? "Why are Sea Turtles Important" is a lesson that requires an

in-depth understanding of the numerous benefits to our society and our oceans, they are many and some not obvious without deep understanding of the social and environmental nuances in play.



Left: William, Marc and Carlos leading patrols 2017 season. Right: Daytime nesting event Punta Pargos 2017.



Left: Checking tags. Right: 94% hatch recovery on *Chelonia* nest 2017.