

GUAM DEPARTMENT OF AGRICULTURE

SASA BAY MARINE PRESERVE



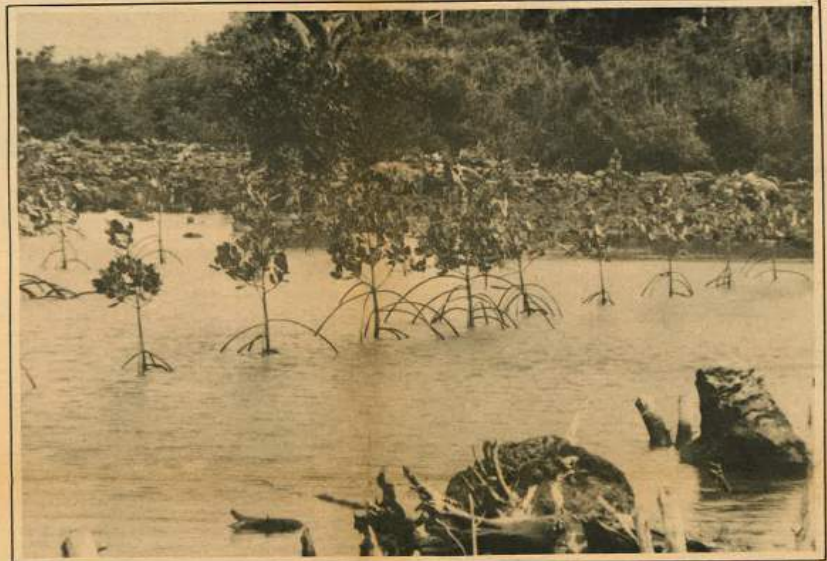
HISTORY:

From seafood to sanctuary-

- In the past Sasa Bay has historically been used for subsistence harvesting of seafood such as clams, oysters, akmangao (mangrove crabs), and pång'lao (land crabs).
- Multiple oil spills in the 1980s killed off portions of the mangroves, however replanting efforts have helped restore the area.

"If ancient Chamorros had mariculture long ago, perhaps we should follow in their footsteps and carry on their tradition by utilizing this bay for mariculture once again."

Rich Braley, marine biologist



These mangroves were replanted in Sasa Bay in 1981, a year after the oil spill. The mangroves were part of a study, the first of its kind, on mangrove recovery. The photo was taken this year.

Picture from article from "Islander", June 3rd 1984



Mangrove roots providing a surface for oysters to attach to. Small minnows swim in between the roots.

- In 1997 Sasa Bay was recognized for its valuable habitat and was designated as a marine preserve. Currently, no fishing or harvesting activities are allowed.
- Sasa Bay continues to be home to the Marianas Island's largest area of mangroves.



WILDLIFE:

An essential habitat and nursery...

- Mangrove trees (mangle) are able to survive in brackish water along the shore, and provide valuable nursery habitat for young sharks and fish. Mangrove roots also help absorb waves and prevent erosion.
- 88 types of coral and 25 types of algae have been reported in Sasa Bay
- Other common wildlife found in Sasa bay include mullet, stingrays, fiddler crabs, mudskipper fish, pacific golden plovers, and other birds.



REFERENCES & FOR MORE INFORMATION:

- https://www.guampdn.com/lifestyle/sasa-bay-mangroves-historically-used-for-subsistence-harvesting/article_ea9f4534-fa4b-11eb-9537-3f324492f0e4.html
- <https://www.guampedia.com/mangroves-the-forest-between-land-and-sea/>
- Contact: cara.lin@doag.guam.gov or another representative from the Guam DOAG DAWR

CRABS IN THE MANGROVES



SCURRYING SCAVENGERS:

- Mangrove areas in Guam are home to swimming crabs, mud crabs, fiddler crabs, sesarmid crabs that climb trees, and others.
- These crabs may feed on small organisms on the mud surface or bits of decaying leaves and animal parts. Some more aggressive crabs, such as the swimming crabs, might also attack other crabs!
- The crabs are part of an important mangrove food web that starts with tiny microscopic plants and decomposing leaves and goes all the way up to larger birds, fish, and humans.
- Although the crabs are found on land, they need to go to the water to reproduce, where microscopic crab larvae develop among the plankton.



***see below for photo credit



***PHOTO CREDIT:

Davie, Peter JF, and Peter KL Ng. "A review of *Chiromantes obtusifrons* (Dana, 1851) (Decapoda: Brachyura: Sesarmidae), with descriptions of four new sibling-species from Christmas Island (Indian Ocean), Guam and Taiwan." *Zootaxa* 3609.1 (2013): 1-25.

SCALLOPED HAMMERHEAD SHARK (KILU'US)



CRITICALLY ENDANGERED:



Photo by Kris-Mikael Krister

- Scalloped hammerhead sharks have greatly declined in the past 50 years and are listed as an endangered species.
- Identifying and protecting nursery areas for this species around the world is vital to prevent extinction

REPORTS IN SASA BAY MARINE PRESERVE



- During the 1980s into the early 2000s there were multiple anecdotal sightings of juvenile and adult scalloped hammerhead sharks in the Apra Harbor area. However, there have been no reported sightings in recent years.



Map from the study showing the sites where water samples were collected. The highest amount of eDNA was found in the Inner Harbor area, followed by Sasa Bay.

- A recent scientific report released in 2021 found eDNA (environmental DNA; in this case DNA isolated from water) evidence of scalloped hammerhead sharks in the Apra Harbor area.
- Despite the lack of recent sightings, this study is the first evidence in 50 years that this shark can be found in Guam's waters.

REFERENCES:

- NOAA 2015. *Endangered and Threatened Species; Determination on the Designation of Critical Habitat for Three Scalloped Hammerhead Shark Distinct Population Segments.*
- Budd et al 2021. *Ecological Indicators. First detection of critically endangered scalloped hammerhead sharks (Sphyrna lewini) in Guam, Micronesia, in five decades using environmental DNA*

MANGROVE MUDSKIPPER (MACHENG)

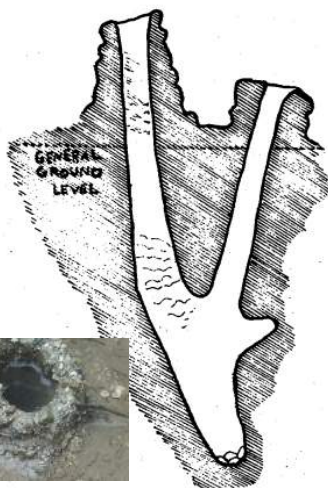


A GOBY ON THE GO:

- Mudskippers are a type of goby and are named for their ability to quickly "skip" on the mud's surface away from danger.
- They are amphibious-meaning they can survive in and out of the water.
- Their protruding eyes can move independently and allow them to see in all 360° around them.



Mudskippers use their fins to perch themselves on the mud or form a suction cup to stick to mangrove roots



As shown in this diagram, mudskippers build their tunnel nests in a Y shape. The photo shows the above ground view of the "chimney"

- When on land mudskippers breathe through their skin and keep air in specialized chambers under their gills.
- Mudskippers build and shelter in underground tunnels with "chimneys".
- The mudskipper diet consists of small animals like worms, insects, and fiddler crabs. They may also eat decaying matter.

REFERENCE:

Life on Guam- Mangrove Flat by Gaylord Diaz and Dave Hotaling, art by L Hotaling and Lita Payne