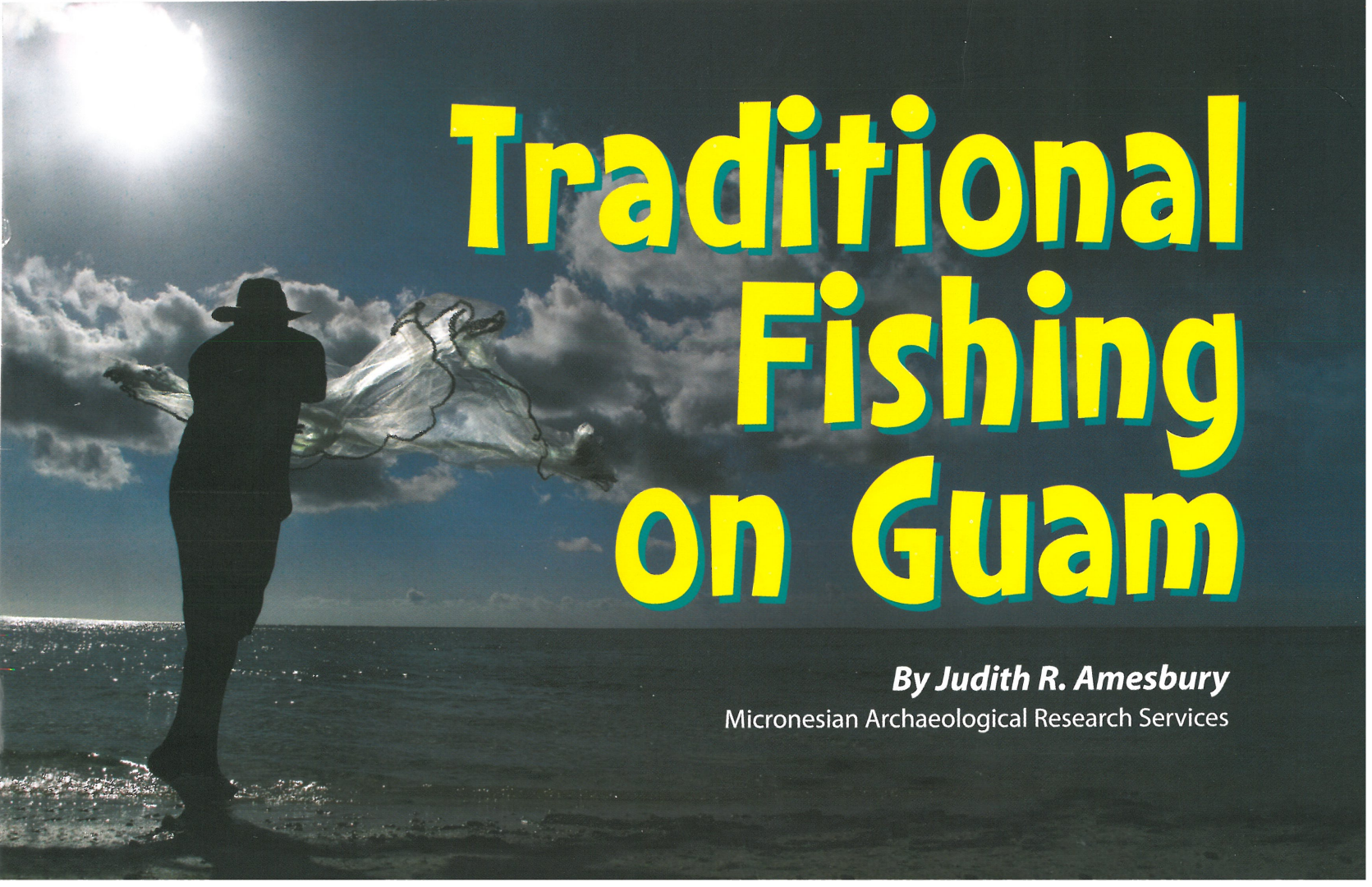
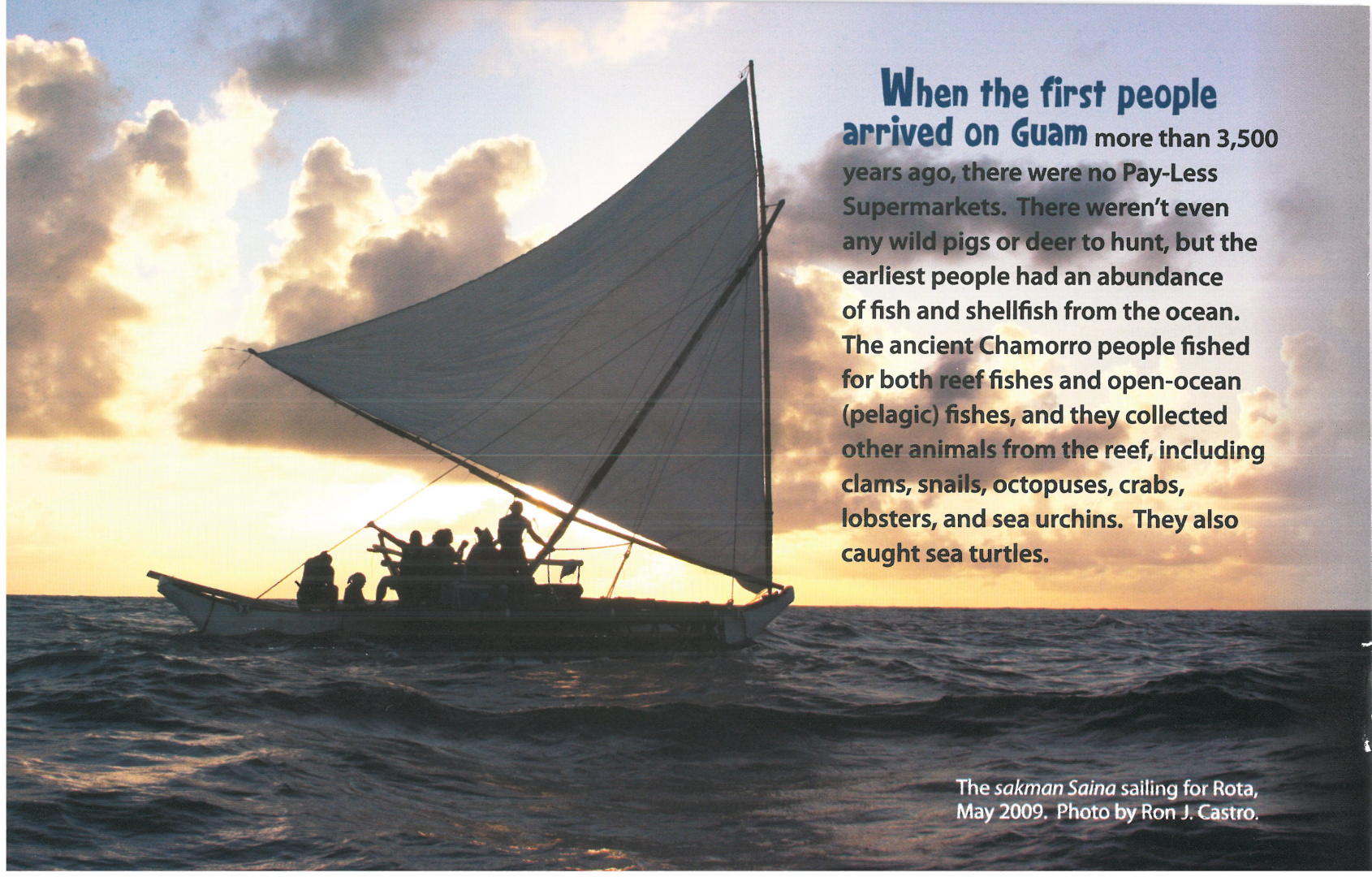


A silhouette of a fisherman wearing a hat, standing on a beach and casting a large, clear fishing net into the air. The background features a bright sun in the upper left corner, a blue sky with scattered white clouds, and the dark ocean surface. The title text is overlaid on the right side of the image.

Traditional Fishing on Guam

By Judith R. Amesbury

Micronesian Archaeological Research Services



**When the first people
arrived on Guam** more than 3,500

years ago, there were no Pay-Less Supermarkets. There weren't even any wild pigs or deer to hunt, but the earliest people had an abundance of fish and shellfish from the ocean. The ancient Chamorro people fished for both reef fishes and open-ocean (pelagic) fishes, and they collected other animals from the reef, including clams, snails, octopuses, crabs, lobsters, and sea urchins. They also caught sea turtles.

The sakman Saina sailing for Rota,
May 2009. Photo by Ron J. Castro.

Fish bones found in archaeological sites reveal to us which fishes the ancient Chamorro caught. They caught all of the ordinary reef fishes and even some extraordinary reef fishes, including the largest species of parrotfish, the bumphead parrotfish known in Chamorro as *atuhong*, and the even larger humphead wrasse or *tangison*. They also caught potentially dangerous fishes, including sharks and rays, moray eels, scorpionfish and barracudas.

The most amazing fishing done by the ancient Chamorro was from their sailing canoes in the open ocean for mahimahi, marlin, tuna and wahoo. Flying fishes (*gãhga* in Chamorro) were also caught from canoes and used as bait for some of these large pelagic fishes.

Can you imagine catching a marlin from a canoe?



Matthew Orot (Duenas) and Andre Duenas landed this 367-pound blue marlin on October 13, 2011. Photo by Michael Duenas.

In addition to fish bones, archaeologists find pieces of fishing gear from the Pre-Contact Period.

Most abundant are the J-shaped hooks and V-shaped gorges made of *Isognomon*, a kind of oyster shell. These are found in almost all archaeological sites along the coast of Guam.

Less common are two-piece fishhooks. The shank and hook were separate pieces that were tied together. Some fishhooks were made of human bone. Since there were no large land mammals like deer or cattle during the Pre-Contact Period, the ancient Chamorro sometimes used human bones to make fishhooks and spear points. The spears were used in fighting and in spearing fish.

Fishing line and nets were made of plant materials that don't survive in archaeological sites. Based on the fish bones found in sites, we know that the ancient Chamorro used nets. Also bone needles, which were used in making nets, are found in coastal sites. Stone and shell sinkers have been found as well.



Pre-contact gorges. Photo by Frank Wells.



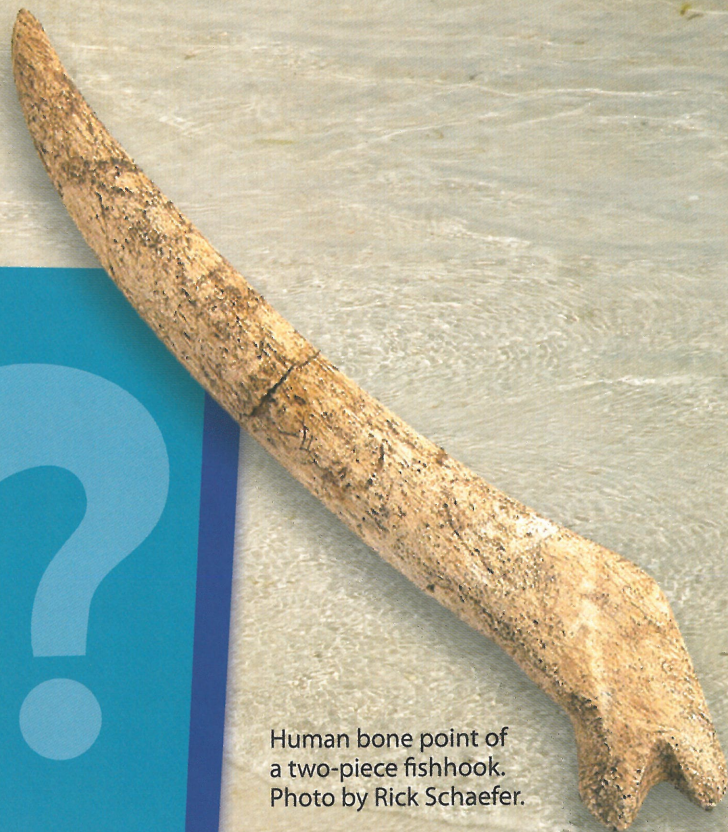
Pre-contact fishhooks.
Photo by Frank Wells.

What is meant by the Pre-Contact Period?

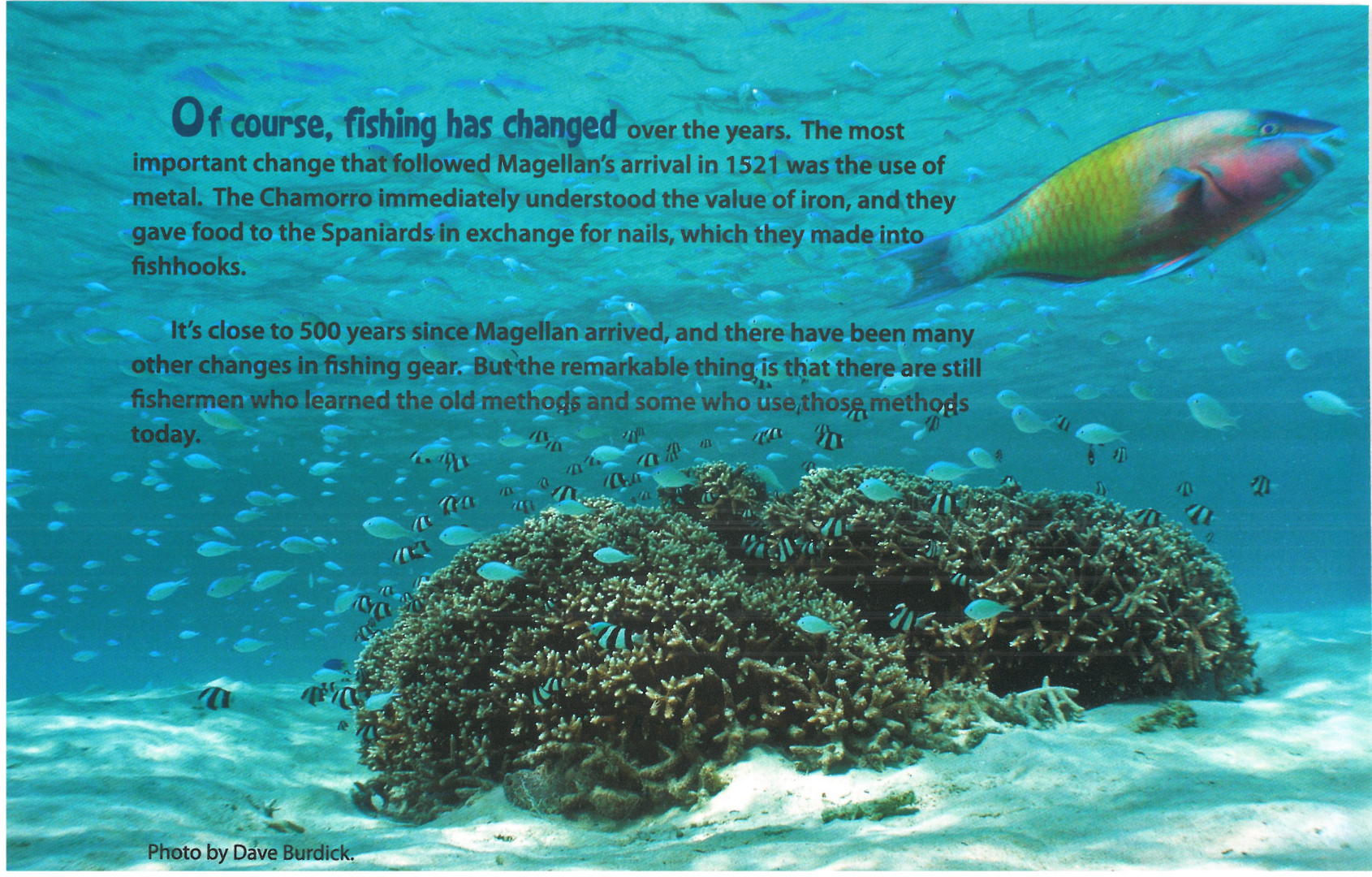
The Pre-Contact Period is the period of time when people lived on Guam before the arrival of Magellan in AD 1521.

How long was the Pre-Contact Period?

The Pre-Contact Period began when the first people arrived on Guam by at least 1500 BC. It lasted until the arrival of Magellan in AD 1521. So it was more than 3,000 years long.



Human bone point of
a two-piece fishhook.
Photo by Rick Schaefer.



Of course, fishing has changed over the years. The most important change that followed Magellan's arrival in 1521 was the use of metal. The Chamorro immediately understood the value of iron, and they gave food to the Spaniards in exchange for nails, which they made into fishhooks.

It's close to 500 years since Magellan arrived, and there have been many other changes in fishing gear. But the remarkable thing is that there are still fishermen who learned the old methods and some who use those methods today.

Tåkka'

Catching fish by hand

Tåkka' is the Chamorro word that means to reach in or to search blindly. It's also the name of a fishing method. Ray Topasna, who was born in 1940 and grew up in Umatac, said that his mother, Maria Tainatongo Topasna, caught fish by hand during low tide. She wrapped her right hand in cloth to protect it from an eel bite or sea urchin spine. When she saw a fish dart into a hole in the reef, she reached into the hole and caught the fish with her right hand, then carefully slid her left hand into the hole to bring the fish out without letting it escape. She killed the fish by biting it on the head. Ray said she caught *palakse'* (small parrotfish), *sesyon* (adult rabbitfish), *kichu* (convict tang), and *sihek* (black-and-white monocle bream) with this method.



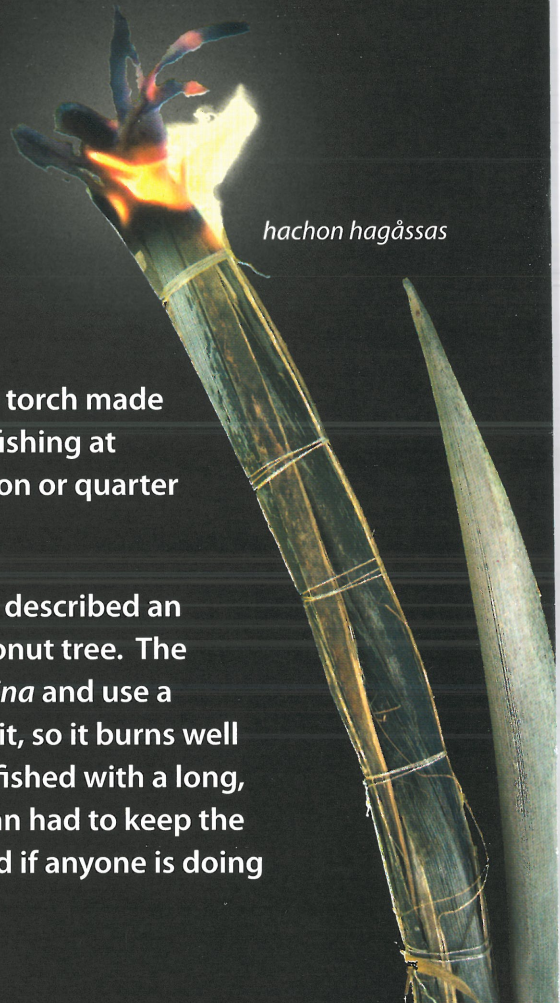
Ray Topasna, November 2010.

Sulo'

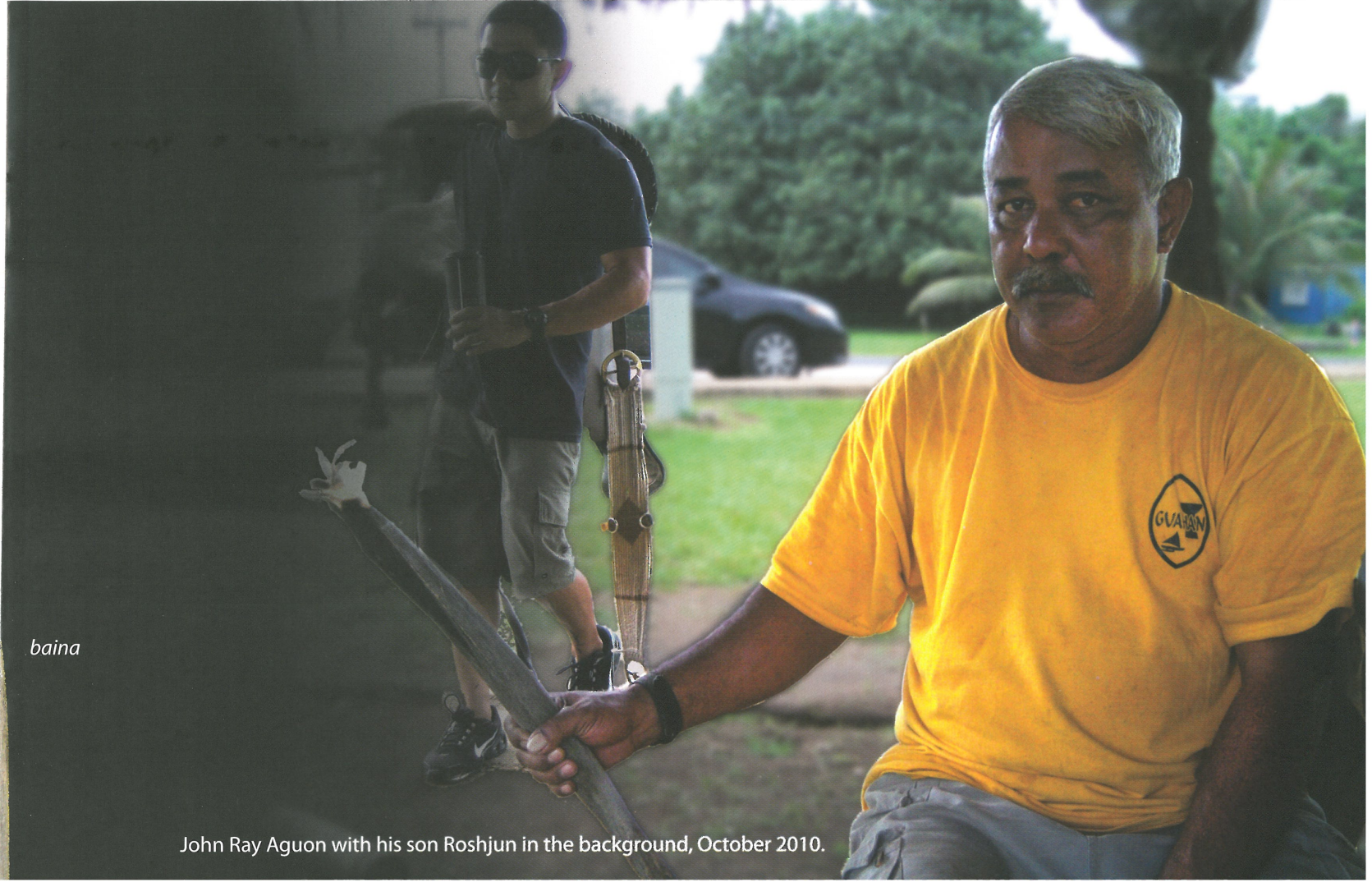
Fishing at night with a torch (hachon) and spear (fisga)

When Ray Topasna fished with his mother at night, Ray carried a torch made of bamboo filled with diesel fuel (*hachon petrolio*). This method of fishing at night with a torch is known as *sulo'*. It was done during the new moon or quarter moon at low tide.

John Ray Aguon, who was born in 1960 and grew up in Talofofo, described an earlier type of torch (*hachon hagâssas*) made from a part of the coconut tree. The *baina* is the sheath of the flower. To make a torch, you shred the *baina* and use a handful of the shredded pieces together. The woody fiber has oil in it, so it burns well when lit. No fuel is needed. John carried the torch while his father fished with a long, two-pronged or multi-pronged spear (*fisga*) to catch parrotfish. John had to keep the torch dry. If he let the torch get wet, he'd be in trouble. When asked if anyone is doing *sulo'* fishing nowadays, John joked, "No, we've got flashlights."



hachon hagâssas



baina

John Ray Aguon with his son Roshjun in the background, October 2010.

Umegamson

Octopus hunting

John Ray Aguon said that octopus hunting was usually done by women during the day at low tide. John started following his mother, Marcela Naputi Aguon, while she was octopus hunting and reef harvesting when he was only four years old. His mother knew how to look for a favorite hiding place, a hole which the octopus enters, then covers with a rock from the inside. She hunted with two metal rods. She would spear the octopus (*gãmsón*) with a straight pointed rod (*dulok*), and then hook it with a rod ending in a hook (*gãncho*) to pull it out of the hole. John said the octopus is the most powerful animal without bones in the ocean. An octopus is an invertebrate.

What is an invertebrate?

Invertebrates are animals without backbones. These are some edible marine invertebrates harvested in Guam.

Phylum Arthropoda

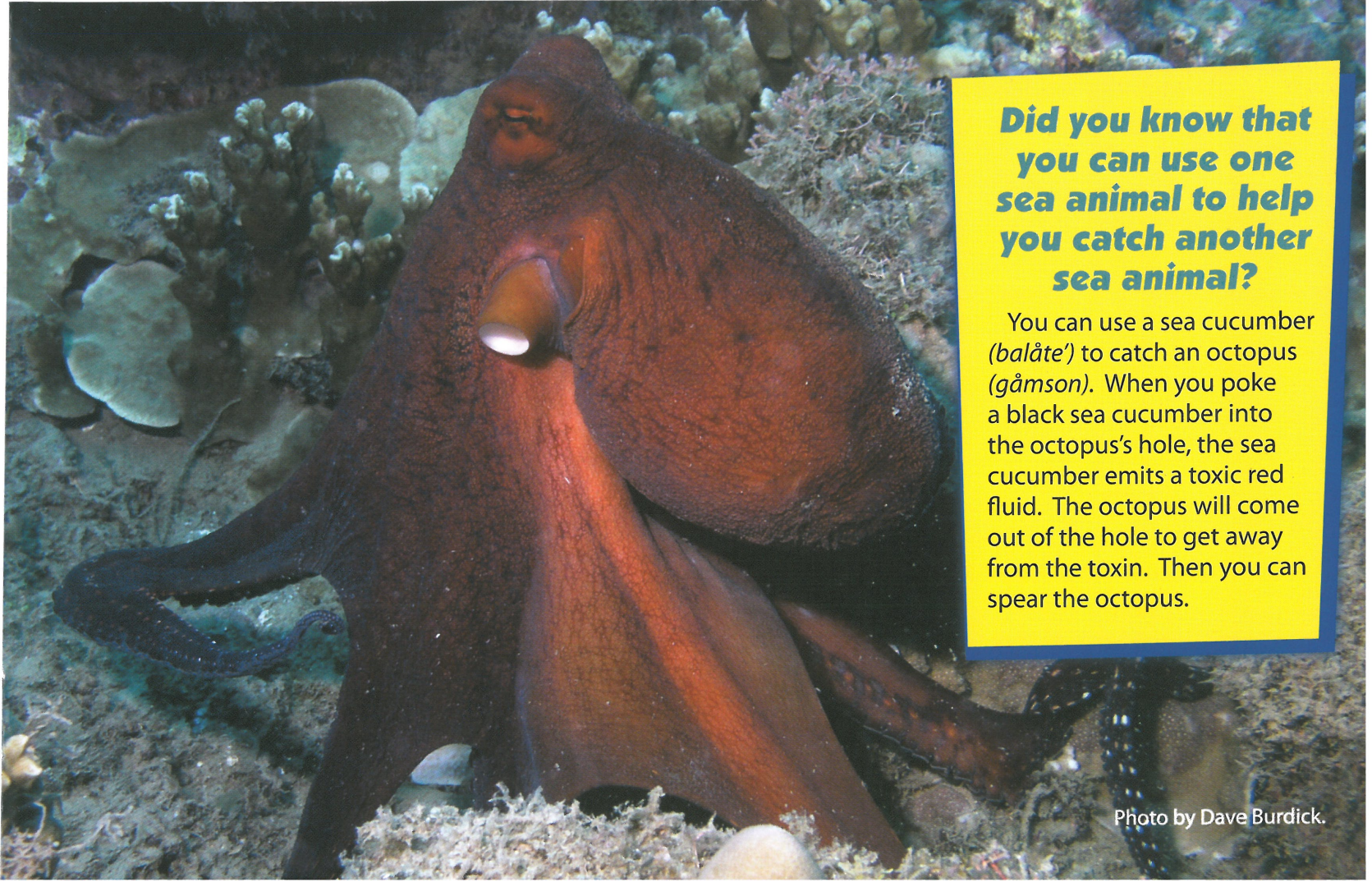
Subphylum Crustacean
(includes crabs, lobsters, shrimps)

Phylum Mollusca

Class Bivalvia (bivalves, clams)
Class Gastropoda (gastropods, snails)
Class Polyplacophora (chitons)
Class Cephalopoda (octopuses, squids)

Phylum Echinodermata

Class Echinoidea (sea urchins)



**Did you know that
you can use one
sea animal to help
you catch another
sea animal?**

You can use a sea cucumber (*balâte'*) to catch an octopus (*gâmsan*). When you poke a black sea cucumber into the octopus's hole, the sea cucumber emits a toxic red fluid. The octopus will come out of the hole to get away from the toxin. Then you can spear the octopus.

Photo by Dave Burdick.

Spearfishing

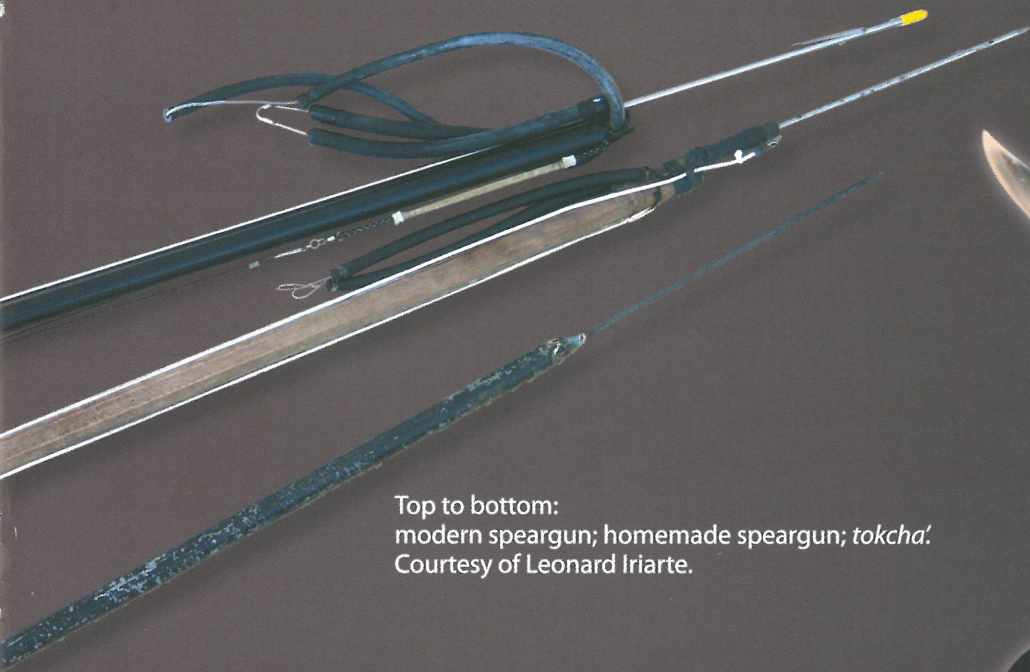
The gear for spearfishing changed dramatically during the 20th century. In the past, fishermen used a short, handheld spear with a single point, the *tokcha'*. There was no speargun to propel the spear. The spear was propelled by the thrust of the fisherman's arm. The fishermen made their own goggles with wooden frames, inner tube rubber, and glass lenses.

Around the 1970s, local fishermen made their own spearguns based on ones that were purchased off-island. Ray Topsana described a homemade speargun. The stock of the gun was made of wood. The trigger on top of the stock was made of a bent spoon handle. For the rubber, the fishermen cut up inner tubes or they obtained rubber from oxygen tanks at the hospital. A short tubular section of bamboo (later copper tubing) was used at the end of the speargun to guide the spear.

By the 1980s, the fishermen purchased manufactured spearguns, and by the 1990s, many spearfishermen, like Ken Borja and Pat Castro, transitioned to contemporary European-style spearguns. These come in a wide variety of designs and are made with materials ranging from wood to carbon fiber that make them lightweight, durable, and



easy to maneuver. Ken and Pat use mask, snorkel, and fins, but they do not use scuba equipment. They are free divers. Guam's free-dive spearfishermen were the champions in the 2010 Micronesian Games.



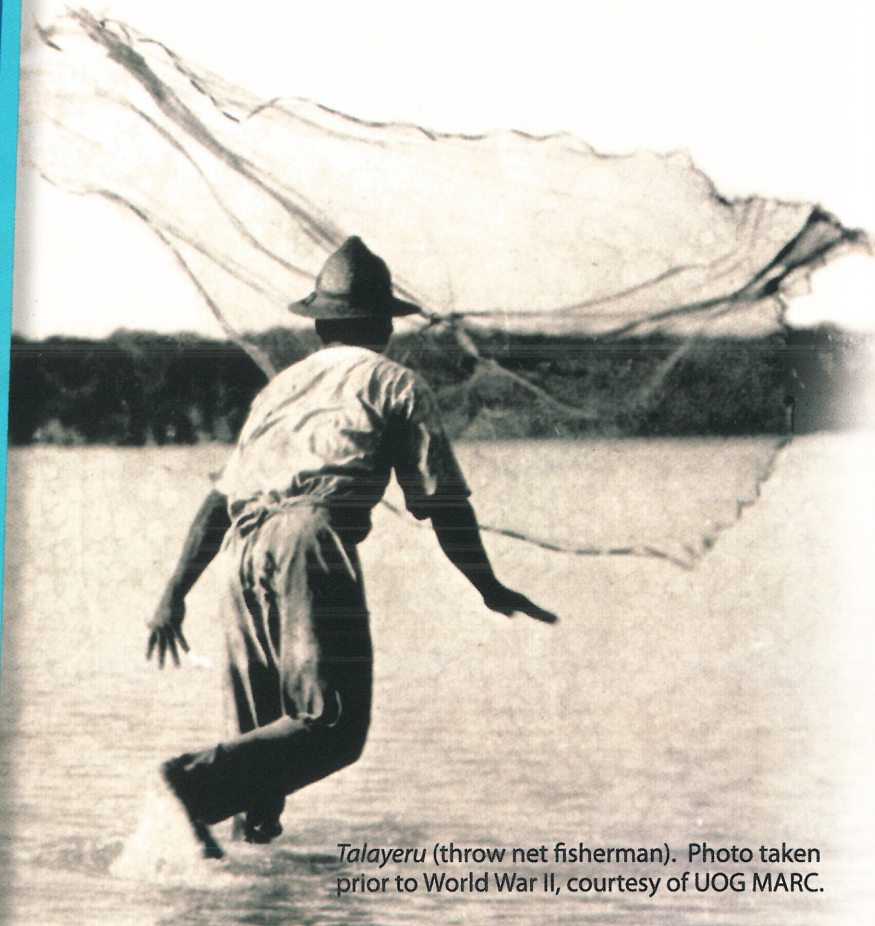
Top to bottom:
modern speargun; homemade speargun; *tokcha*.
Courtesy of Leonard Iriarte.



The late Paul Castro (1963-2002) with *mamulan*
(giant trevally). Photo by James Borja.

Net Fishing

Fishermen on Guam use many kinds of nets. In the past, they made their own nets of plant fiber, such as pineapple fiber, and of cotton twine. Now they purchase manufactured nets of nylon and monofilament. The nets have different sizes of mesh depending on the fish targeted.



Talayeru (throw net fisherman). Photo taken prior to World War II, courtesy of UOG MARC.

Talåya

Cast net or throw net

The talåya is a circular or conical net with weights around the edge. The fisherman throws or casts the net to cover a school of fish, and the weights sink to trap the fish inside the net. This type of fishing can be done by one or two people. The second person collects the catch and carries it in the *guagua'*, a woven basket usually worn at the waist. Any unwanted fish are returned to the water.

The smallest mesh *talåya* are used to catch *mañâhak* (juvenile rabbitfishes) while the largest mesh *talåya* are used for *guili* (rudderfish), *lâggua* (larger parrotfish) and *tataga'* (unicornfish). In between the smallest and largest meshes are sizes used for catching *ti'ao* (juvenile goatfish), *i'e'* (juvenile jacks), young mullet, and *kichu* (convict tangs).



Talayeru with net made of pineapple fiber. Photo dating to about 1900, courtesy of UOG MARC.

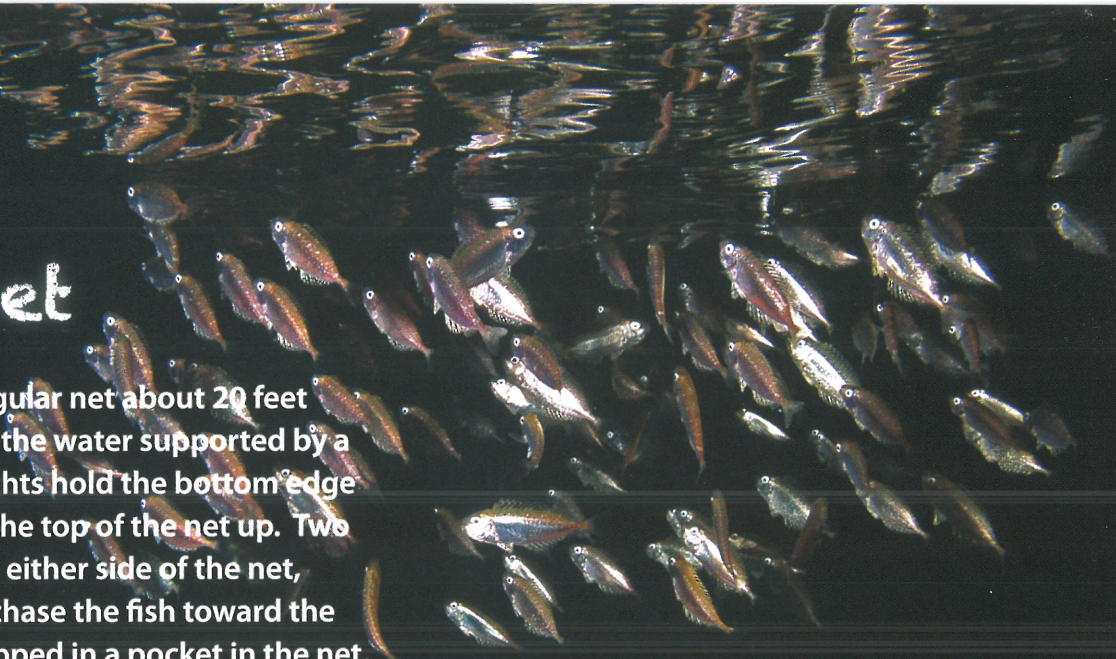
Lågua'

Pocket net

The *lågua'* is a rectangular net about 20 feet long. It hangs upright in the water supported by a pole on either side. Weights hold the bottom edge down, while floats keep the top of the net up. Two people hold the poles on either side of the net, while others splash and chase the fish toward the net. The fish become trapped in a pocket in the net, which extends toward the back. The bottom of the net is then lifted quickly before the fish can escape.

This type of net is used to catch the small seasonal fishes: *mañãhak* (juvenile rabbitfishes), *ti'ao* (juvenile goatfishes), *i'e'* (juvenile jacks) and *achenchon* (juvenile fusiliers).

mañãhak
juvenile rabbitfish
Photo by Dave Burdick.



Chenchulu

Surround net

The *chenchulu* or surround net is a long net, sometimes hundreds of feet long. John Ray Aguon sets his *chenchulu* in Talofofo Bay from his boat to surround schools of *atulai* (bigeye scad) that enter the bay. The net can be set in a big loop from one spot along the reef to another, or it can be set in a circle in the deeper water. The net does not kill the fish like a gill net (*tekken*) does. It only corrals the fish. Then John and his son Roshjun collect the fish with a scoop net.

chenchulu
surround net

school of *atulai*
bigeye scad

Chenchulu

Surround net

The *chenchulu* can be used in a variety of ways. Bobby Alvarez uses two "pans" made of inflated inner tubes with circles of plywood tied to the bottom to carry the net into the water. The *chenchulu* is arranged with one end in each inner tube and the net piled more or less equally into the two pans. The inner tubes are pushed into the water close together and

Two *galaide'* (paddling canoes) carry the *chenchulu*. Photo taken prior to World War II, courtesy of UOG MARC.



then pulled apart from each other to distribute the net. The net is laid out in an open circle. The fishermen splash and chase the fish into the net. The Chamorro word for splashing and chasing the fish is *tigan*. As the fish are chased into the net, the net is closed to form a complete circle. Then the fishermen spear the fish inside the net. Bobby fishes with a crew of up to a dozen people. He goes after the *sesyon* (adult rabbitfish), but other crew members spear other species of reef fishes. This is done in shallow water about three to five feet deep.

In the past *chenchulu* fishing was more of a community event as seen in this photo of Inarajan Bay, where the net was used as a pull net (*chenchulu manhålla*). The people of the village worked together to pull the net to the shore. Judy Flores, who participated in events like this in the late 1950s and early 1960s, said the voice of Commissioner Joaquin S.N. Diego could be heard across the bay as he directed the pulling of the net. Diego was Commissioner from 1944 to 1973.



The people of Inarajan using the *chenchulu* as a pull net to fish for *atulai*. Photo taken late 1950s or early 1960s, courtesy of UOG MARC.

Gadi

Leaf sweep

Ray Topasna described the method of fishing called *gadi*. Coconut leaves were split in two along the midrib and tied together on a vine or rope to form a "wall" or "curtain" of leaves. At high tide, men and women used the curtain of coconut leaves to chase the fish into the *chenchulu*. This turned into a social occasion with laughing and singing. *l'e'* (juvenile jacks) and *ti'ao* (juvenile goatfish) were caught at night by *gadi*.

The coconut leaves could be used to block off a channel as the tide went out also. Then the fish that remained in the shallow water could be caught. Fishes caught included *sesyon* (adult rabbitfish), *kichu* (convict tangs), and small *tataga'* (unicornfish) including *hangan* (orangespine unicornfish). Ray said no one has been doing *gadi* since the 1960s.

hangan
orangespine unicornfish

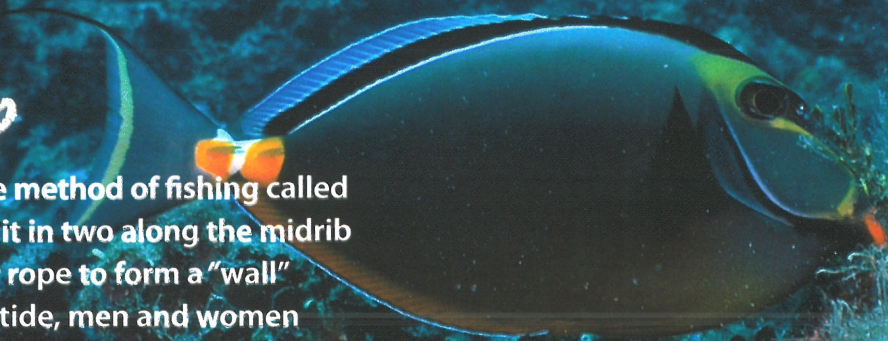


Photo by Dave Burdick.

Påtte

Dividing up the catch

Ray Topasna explained the process of distributing the catch, which is known as *påtte*. The owner of the net, who is usually the boat owner also, gets one-third of the fish. The divers who help to guide and secure the net also get one-third. The remaining one-third goes to the community. Someone calls out "Tajalle family," for example, and people cheer as the Tajalle family steps up to collect their fish. The elders take their share first and the children line up at the end. If there are any fish left over, they go to the prison, the hospital, the senior citizens, and the nuns in Malojloj.



Giving away *mañāhak* from a *galaide*.
Photo courtesy of UOG MARC.

Gigao

Fish Weir

No fish weirs have been operating around Guam since the late 1980s or early 1990s, but prior to that, they had been in use for hundreds of years. Some ancient stone fish weirs remain on the west side of the island. Recent *gigao* were made of *tangantangan* or rebar and chicken wire. The *gigao* consisted of a large, box-like trap, a few feet square and several feet deep. The funnel-shaped opening allowed the fish to swim in, but made it difficult for them to find their way out. Leading up to the trap were fences called leaders that channeled the fish toward the trap. The fishermen would periodically check the trap. The top of the box could be opened in order to remove the fish with a scoop net. Many kinds of reef fish were caught in this way, and any fish that were not wanted could be released.

Gigao photo courtesy of UOG MARC.

**There are many more methods
of traditional fishing on Guam.
Would you like to know more?
Talk to a fisherman. Or better
yet, give it a try yourself!**

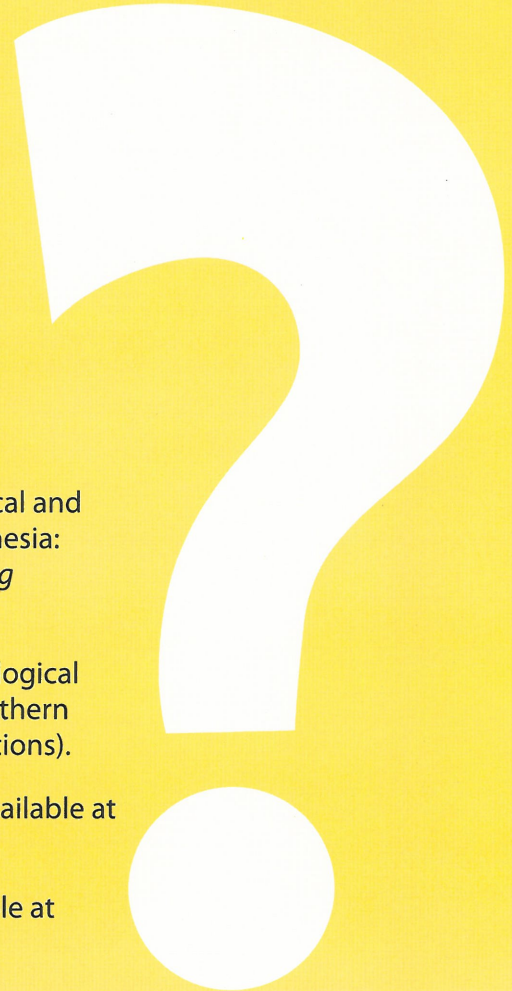
Here are some online resources.

Amesbury, J.R. and R.L. Hunter-Anderson. 2003. Review of Archaeological and Historical Data Concerning Reef Fishing in the U.S. Flag Islands of Micronesia: Guam and the Northern Mariana Islands. Available at www.wpcouncil.org (Mariana Archipelago Library).

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Kerr, A.M. 2011. Fishing Methods of the Mariana Islands, Micronesia. Available at www.guammarinelab.com (Technical Reports).

Kerr, A.M. 2012. Fish Names of the Mariana Islands, Micronesia. Available at www.guammarinelab.com (Technical Reports).



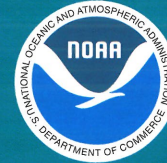
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TRUST

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**Micronesia Archaeological
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Cover photo of Bobby Alvarez by Edgar T. Flores. Chamorro orthography by Jeremy Cepeda.

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