

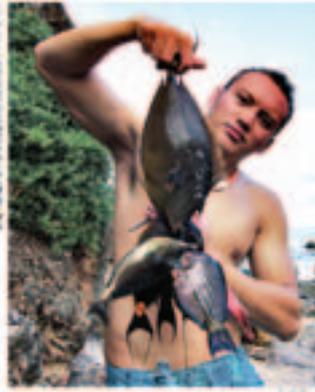
Journal of Micronesian Fishing

Marlin Magic in Majuro
Mariana Islands Rabbitfish Traditions
Interview from Namu Atoll
Atulai Fishing



FALL
2009

Cover photo: Impressive daytime catch using a modified pole-spear, Namu Atoll, Marshalls; Kesta Kilma



Pete shows cost-effective rigging on Yap (Top)

"Day-spear catches Palau (Top) and Saipan (Right)



Traditional and modern fishing canoes on Chuuk (below)



Photos: Top row, P. Houk; Middle L, J. Starmer; Middle R, CNMI CRM; Bottom R&L, TTPI Archives, University of Hawaii; Bottom center, P. Houk

Journal of Micronesian Fishing

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Editors' Perspective-

Does Size Matter?

Some folks argue that size don't matter. Well, actually it does, when we are talking fish. It comes as no surprise that if fish are caught below a critical size, they probably will not reproduce. What may come as a surprise is that even small differences in fish size, such as one or two inches, can have major consequences for the quantity and quality of eggs produced, and eventually will impact the population of fish in the next generation that you, or even your kids, hope to catch. Big fish are equally important because they are known to produce the largest and best quality eggs, translating into a highly successful next generation.

Consider the common trevally shown in the photo on the right as an example. Below 12" the fish is considered reproductively immature, and even though it may reproduce, it will create 38 times less eggs than a 27" fish. Once past 12", or mature, a rule of thumb is that every doubling in size results in an exponential increase in the number of eggs produced. So, although smaller fish may already be reproductively active, until they hit a critical size their genes don't allow them to focus all their available energy upon reproduction because they need to grow. Once larger sizes are reached, the "energy-growth" balance shifts, and the larger fish can spend the majority of their energy producing numerous, high-quality eggs. Like all rules in biology and ecology, there always seems to be exceptions and differences. Many coral-reef fish change their sex according to size, with one sex non-existent until a critical size is reached. As an example, many of those big blue parrotfish we like to eat only become males at larger sizes.



Let these foot-long trevally double in size and they will produce 38 times more eggs when they spawn.

Another unique finding now coming into light is how fishing pressure affects the genes of fish. High fishing pressure requires that fish start reproducing earlier, and thus, change their genetic instructions to stop growing and start reproducing earlier in life. If we continue to sell our big ones for a profit, the populations may slowly lose their genetic ability to grow to maximum sizes. While it sounds a bit unrealistic, even impossible, this seems to have already happened in some of the commercially exploited fisheries in the Atlantic. Hopefully we aren't the next example of this trend.

So what are we to do?? First, we can improve our understanding and discussion of these issues through forums like this journal. Second is to translate what is known into beneficial management of our public markets, where financial gain and marine resources meet. Markets certainly need a consistent supply of fish. Finally, it comes down to us, the stakeholders, and our long-term values, decisions, and teachings. We aim to provide more information about critical sizes for particular fish in issues to come, and further these discussions. Again, this journal is a forum for you to express yourself and thoughts.....so let us all know what's on your mind. Knowledge and solutions lie within all of us.

Sincerely,

*John Starmer
Peter Houk*

An interview with Kesta Kilma

Namu Atoll - Marshalls



JMF is excited to bring you informative, interesting, and diverse interviews from fishermen throughout Micronesia. In this issue we catch up with Kesta Kilma, the councilman for Namu Atoll, an outer atoll in the Marshalls. Log onto www.micronesianfishing.com to download the complete audio file (.mp3) and enjoy while at work.



What is a typical day on Namu?

Wake up in the morning, have coffee, dream a bit about clam farming and other opportunities for the people of Namu. After that...well fishing, we go out fishing, some with canoes and boats, others just close by.

What % of your diet is fresh fish and locally grown products?

About 80%. Everytime we go out we mainly go for the fish, however we also harvest clams and trochus, typically 80% of the catch is fish and 20% edible shells.

Is there any type of traditional fishing that is still practiced that you can highlight?

Kanano. People with traditional knowledge of localized fish migration patterns throw rocks in key locations to 'herd' the fish in a predictable location nearshore....then we harvest what we need.

Can you describe any traditional fishing management activities?

There are traditional regulations for the people of Namu regarding how much fish they can take when going fishing, we got to conserve our resources you know...you can fish, but not too much. Lately, government-based fishing projects strain these traditional practices by providing income for the fish resources. Also, there traditional MPA areas, they were there before I was born. There are times when you can goto these places, but you need to ask the right people before going, and fishing is highly regulated for 'special' times.

Can you explain the government-based fishing operations on Namu?

Twice a month the local fisheries agency comes to our atoll and buys fish. So...the fishermen go out fishing and sell it to the big boats that bring fish to Kwajalein. How much they pay the fishermen is not what you would call...."handsome pay", between 0.50 cents and

1 dollar per pound. This is dangerous because instead of catch for their consumption they catch for their cash crop. That is what scares me.

As a councilman for Namu, what do you think is needed to help?

We need more information on our fisheries resources so we know how much to catch. We don't want to deplete the resources for the future. Sometimes we visit the agencies and they give us too many promises and were waiting for their actions. However there are 32 atolls in the RMI. We need to build partnerships to help understand and manage our resources, and educate the people.

Are you aware of any illegal fishing from permitted or unpermitted foreign fishing vessels that are mandated to stay 5-miles from the shoreline when they fish?

Yes, often. We see them entering our 5-mile fishing zone and record the vessel number and report them, however most of the time action is not taken. The Marshall Islands government has no power to cover all these waters. There are laws. However, I really don't understand the laws, there is conflict between our traditional laws and the government laws. Also, some of the boats have ties with businessmen and/or politicians and of course no enforcement happens to them. They can come whenever they like. They use hook and line and sometimes dive for the clams and other fish. Sometimes we go there and take "our" fish from "their" hook and line.



Marlin Magic

IN MAJURO



Fish scale
reading
417 lbs.



It's a quiet Tuesday afternoon at the Robert Riemers boat docks. Cold Budweiser being sold from a small window for \$2 a can offers desirable relief from the hot sun and busy day; as I enjoy winding down the afternoon with stories about fishing and life in Majuro. The sight of a well-used, heavy-duty fish scale on the dock makes me wonder about the status of big-game fishing. Unfortunately the nearby billfishing clubhouse was already closed down for the day (or longer...) so my questions would have to wait...

I decided to head over to the Marshall Islands Conservation Society where I met Kilom and started talking about the nearshore coral reefs. In the midst of our conversations he smiles, points, and calmly states, "that's a big one." To my surprise the heavy-duty fish scale was about to prove its presence as a big blue marlin had just come in on a charter fishing boat. Never having seen a marlin larger than 200 lbs my 525 lbs guess was a bit over, however the lucky tour group clearly enjoyed hauling in the 417 lbs beast. The experts behind the catch, Ben Reimers and Kim Maie, verify for me that indeed, this is a nice fish... "but they can be bigger." They shared with me the impressive 719 lb Marshall Islands Billfishing Club record that is held by Kyle Alvin, the all Micronesian record of 794 lbs held by Alex Trentnoff, and the cash prize of

\$25,000 that was recently awarded for the annual Marshall Islands tournament. While I was always aware of the popularity of marlin tournaments throughout Micronesia, their level of interest and cash-and-weight statistics were outstanding in Majuro.

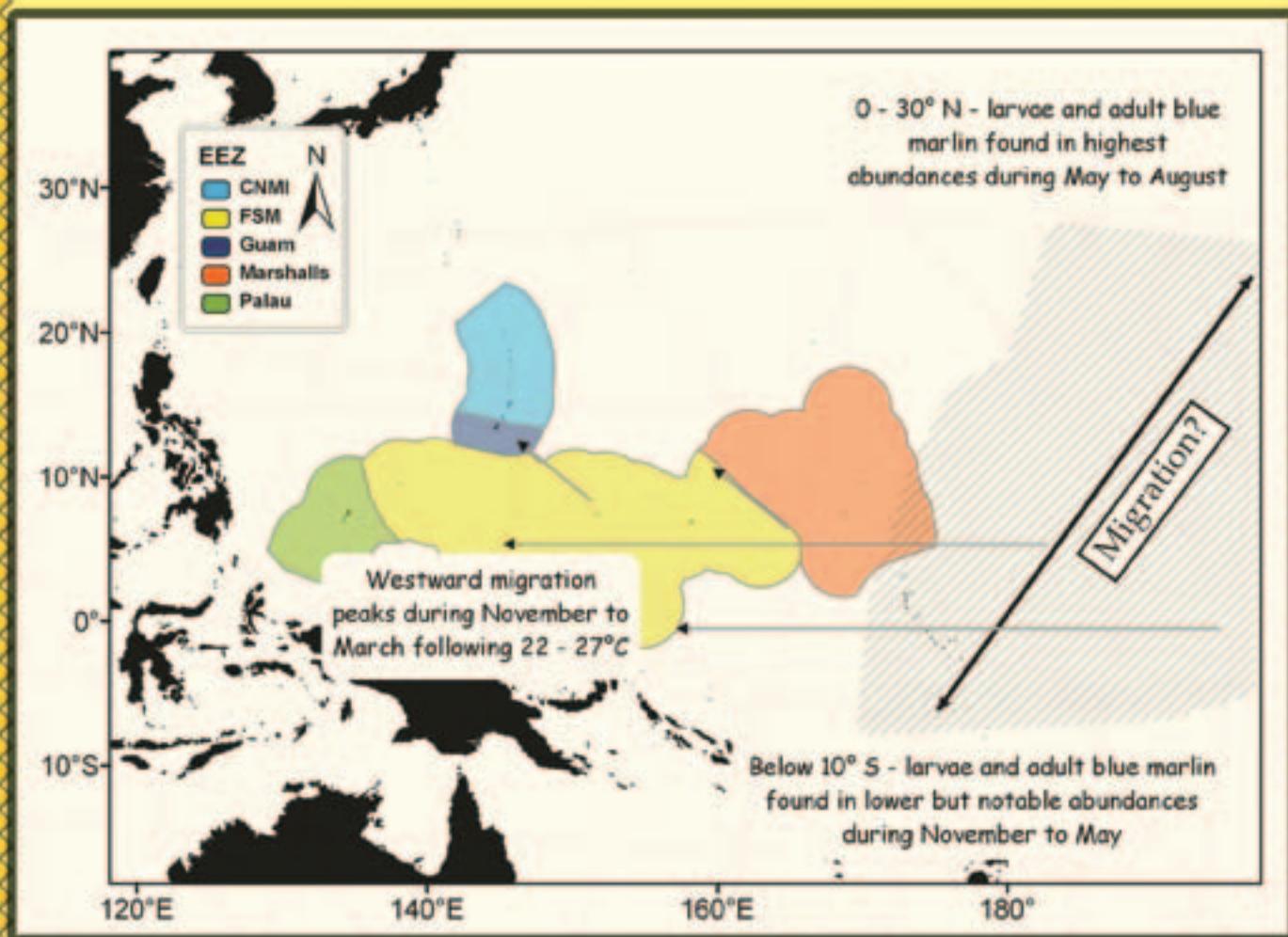
So, what makes blue marlin fishing so productive here? It turns out that several scientists and organizations, most notably the National Oceanic and Atmospheric Administration fisheries center and the Secretariat of the Pacific Community, have conducted research on the topic. Both the adult and larval (baby) phases of the Pacific blue marlin show similar trends in their abundances and distribution on annual cycles. The available information suggests blue marlin are in highest abundances where tropical, productive waters exist between the temperatures of 22°C and 27°C^{1,2} characteristics of a nice chunk of the Central Pacific Ocean waters (see map). Productivity refers to the amount of nutrients, and thus plankton, that exist due to seasonal and regional upwelling events. Large, reproductive populations, and larvae, were found in the central Pacific Ocean, west of the Marshall Islands and southeast of Hawaii during the spring and summer months^{1,2}. As the seasons change there is appears to be a migration/dispersal of blue marlin to

Ben Riemers

Kimo Maie



"People are just now getting serious about their Marlin fishing in Majuro"



the south and west, during the fall and winter². While we know that marlin exist throughout the entire tropical ocean, and individuals have been tracked over thousands of kilometers, scientific studies tend to focus upon continuously re-occurring, large, reproducing populations (easier to design surveys around). If these are a useful indications of where one population center of blue marlin may be for the tropical Pacific, then it becomes clearer why these fish are often caught near Majuro, often on the “back-side” of Arno Atoll, the easternmost and closest waters to the studied population center that a day boat from Majuro can reach.

The more I talk with Ben and Kimo the more I realize how impressive their catches have been. While running their charter fishing operations for the past 15-20 years they estimate that “30-40 out of each 100

trips land marlins, and that doesn’t include the ones that got away. People are just now starting to get serious about their marlin fishing,” according to Ben, referring to the acquisition of newer, stronger, and better gear.

While the marlin statistics seem to be growing, Ben and Kimo explained to me that unfortunately the same is not true for the commercially desirable yellowfin and skipjack tuna stocks. It seems that the added commercial fleets based in Majuro, as well as the numerous local operations, now require fishermen to go further offshore (more gas) and settle for smaller fish. That, to me, sounded a bit like a common theme throughout Micronesian waters.

If reading this makes you want to try your luck next time in Majuro...you don’t need to look far to find Ben and Kimo.

Story by: Peter Houk. Article designed by: Leonard Leon

¹ A good summary of information can be found on the NOAA website:

http://www.nmfs.noaa.gov/habitat/habitatprotection/profile/westernpacific/indo-pacific_blue_marlinhome.htm

² A very interesting, but more scientific paper is freely available online: Matsumoto, WM., Kazama TK. Occurrences of young billfishes in the Central Pacific Ocean. Southwest Fisheries Center, Honolulu, HI.

Traditional Rabbitfish Management

by Herman Tudela



One interesting aspect of the Chamorro culture is the fact that many traditional names exist for the exact same fish. Take one very important and desirable fish that many of us still are familiar with, as an example, the rabbitfish (*Siganus* spp.). Juvenile rabbitfish have been arriving on our shores for years in large numbers when the season, moon, and tidal phases are just right, providing food for our ancestral and current generations alike.

During the initial arrival phase the fish are termed "mañahak", and arrive with empty stomachs and do not feed for several days. The initial arrival of the fish is very important, as the size and quantity are good predictors of when future events will occur. During this phase Chamorros typically catch an abundance of mañahak, and preserve them by means of salting, termed "asni tukon", for times when their abundances are low and protein is in need.

After several days in the "mañahak" stage, we change the name of the rabbitfish to "ma lessa", because the juvenile fish has started eating. While there is no significant change in size at this time, traditional knowledge describes the changing color of the fish, reminding us about the importance of visual cues to tell us about our resource status. The linking of changing diet patterns with changing colors and changing local names is intended to preserve the fish at this stage of their life. This is a time when extraction was prohibited until the fish reaches about three to four inches in length, when they become termed "dagge'".

"Dagge'" intermix with adults from previous cycles, and together they feed heavily and engage in spawning cycles, events known as "Sa' guon guihan". The name "dagge'" indicates that the rabbitfish is capable of reproducing. This knowledge can be confirmed through examination of the fish at the fishing grounds. At this stage traditional knowledge indicated that fishing for rabbitfish was again resumed. Once the "dagge'" grow to full adult sizes Chamorro's term the fish "sesyon, hiteng, ha' tan or kahlo." The differing names of adult rabbitfish refer to differing species.

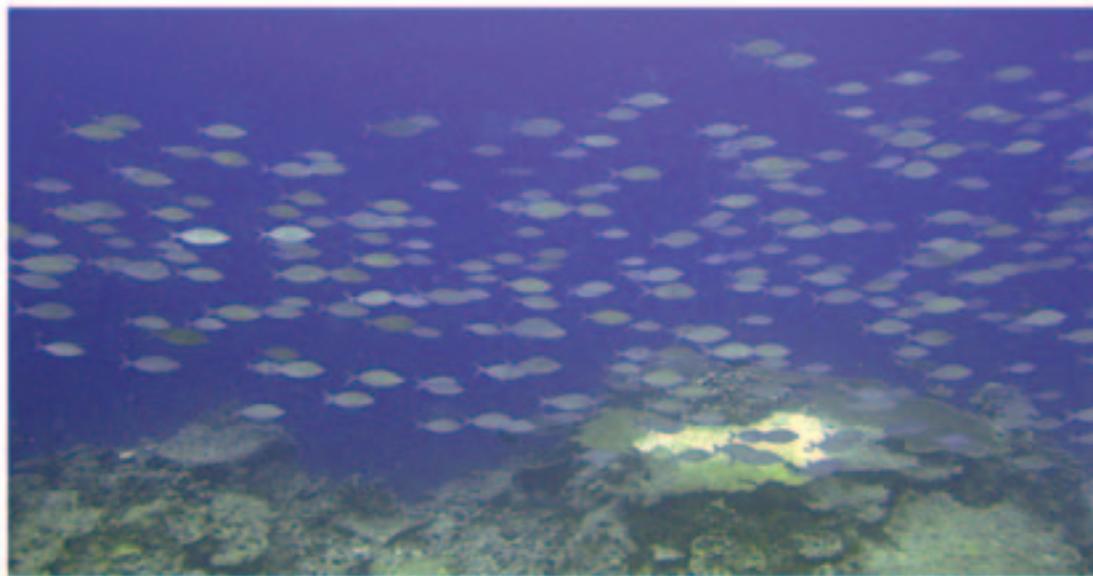


The differing moon phases dictate tidal cycles, and along with seasonal changes, have driven rabbitfish lifecycles for generation.



I think it is important to remember that the traditional names for each growth phase are linked with respect for, and sustainable harvest of, the desirable resource. For our ancestors, the traditional knowledge represents conservation techniques required for the sustenance of each village or clan. Seasons change, and so do the rabbitfish cycles. It will be many months before these fish returns. During these months the wind and ocean patterns change and low-tide events shift from day to night. Traditionally, this means that the rabbitfish take refuge and spread themselves out along our reefs; too difficult to harvest mass amounts. For the modern Chamorro people traditional knowledge and conservation of rabbitfish have helped to keep these important fish stocks available to our current generation, and we should respect and continue to use that knowledge.

These days many continue to say that our resources are not as plentiful as in the olden days. In my eyes, the biggest problem is that currently, our society fails to use the science and environmental stewardship that is embedded in our traditional culture, and has been passed down over the past 4000 or so years the Chamorro have lived on Saipan. A second major problem with conserving our precious resources is the greediness of people who take financial gain from our public-access resources. Regulations should be tailored and infused with these traditional stewardship for effective management that both science and traditional uses for all to enjoy.



A school of adult rabbitfish starting to aggregate into a spawning population.

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Offshore Atulai Fishing

Ben had been bugging me about trying for atulai (mackerel scad) for a few days now, as the moon was getting smaller and rising later in the night. It actually didn't take that much convincing to lose a night of sleep for a bit of fishing, especially for fishing that would likely fill the cooler if we got it right. Ben and his cousin came by the house and we loaded up the boat before heading down to Smiling Cove as the sun melted into the horizon. The main channel markers had just started blinking back at the stars as we headed out to the fishing grounds off the end of the reef coming down the north end of the lagoon. With no moon in the sky, Saipan was a dark

outline with a fringe of bustling lights, occasionally interrupted as the waves moved Managaha in and out of our line of sight with the shoreline. We rigged a single, waterproof 12v bulb and hung it over the side to start its work of attracting our school.

Why *ataulai*?? I have to admit that as the season wears on I get kinda tired of the oily taste of the fish and prices in the markets seem to sink as the season ages. But the initial excitement can't be discounted. When schools show up and decide to hang around for a while, you don't have to look for the birds, look for the fishermen. It seems that the fish want to get hooked, four hook rigs can often come up with multiple fish on one cast. Such seasonal abundance is always reason for excitement, beer, and barbeques.

Before CNMI banned the use of surround and drag nets certain beaches would get swamped with the catch as the fish were pulled ashore. Now, with nets no-longer an option in the CNMI, a flotilla of homemade boats clots the area in front of the commercial dock on Saipan, where the bright dock lights attract the fish. Plywood canoes, recycled jet-ski's, and the occasional store-bought boat all jockey for position and fill up the water with tiny hooks hoping to catch their fair share. I couldn't help but to flash back to a scene on Rota Island where I watched the harbor shoreline clogged with fishermen (and women) casting lines and talaya (throw nets) in hopes of catching their share from a school that had taken up residence next to the docks. The excitement was real.

A few fishermen hope for bigger prizes and will sacrifice one of their *ataulai* on a large hook, hoping to get one of the predators that attack the schools from below. Dogtooth tuna and skipjack occasionally zip through the school, looking for an opportunistic meal. Other fishermen will slip into the water with spearuns looking for the bigger fish as well, much to the dismay of those on the surface who expect the distraction will translate to fewer fish biting their hooks.



Tonight, however, we are with the offshore atulai flotilla. Four or five other boats have motored out to try to gather their own schools. The big swells cause their lights to blink on and off, but the water is otherwise glassy calm tonight. As we slowly drift away from shore, we rig our rods- four small hooks with feathers or bits of latex glove for decoration and a three ounce sinker to get the hooks to the school.

Then the rhythm of the evening's fishing begins. Click, whirrr, crank, crank, crank. Open the reel, let the line sink below the light, pull 'er up. Over and over until suddenly Ben gets a bite, then his cousin, then my line feels the weight of a fish. Now the work begins. The new rhythm includes the need to remove fish, one, two, four at a time from the hooks. Some make it directly to the cooler, others flop around on deck for a while before meeting their cousins on ice.

After a while, the lights of Saipan were hidden a bit too often for comfort by the growing swell as we drift offshore in our small 15 ft. boat. We pull up the lines and light, and motor closer in. But the night is not over and just off the reef we again drop our light and lines, resuming standard operational procedures. This time it seems that the fish followed us as bites started immediately after dropping our light. A few more cycles back toward Saipan and another light starts to compete with the one below our boat, our exclusive access is gone. Finally, a few clouds above the island start to glow as the moon begins to rise. Though tonight's moon is just a fingernail, most of the atulai seem to have lost interest in our light. Though some hang on, the rhythm of the catch is irregular, with more and more zeroes between the odd one or two fish on the line.

By now its nearly four a.m. and our excitement wanes with the decreasing catch. As the cooler is overflowing at this point and our ice is melted to brackish, we decide to motor back to the marina, following the main channel markers blinking their welcome back to Saipan lights. We split up the catch at the house and say good night and good morning. While its now time to catch up on some sleep, I can't help thinking about breakfast-- probably atulai.

John Starmer



Tools of the Trade: Gunning for Tinian



I had a chance to talk with Mike Lizama, a resident of the island of Tinian, while he was doing some work on a beach near the harbor. As I strolled up, I noticed a couple of unique spear guns leaning against a tree. It turned out Mike was the manufacturer. He has been making guns for nearly twenty years and is hoping to sell them as a local alternative to either low quality or way-too-pricey spear guns that are being imported by stores.

Edwin Cabrera, another local Tinian resident first showed Mike how to make guns, but he has added a few special touches of his own over the years. Frustration with big fish taking spears or even the whole gun prompted him to add a commercially manufactured reel. "Now we can get our breath and fight the fish from the surface." He also added a pistol-grip style handle that was inspired by the pistol he used in his former work as a police officer. Also, Mike pointed out that he prefers the traditional individual loops on each 'gomo' (shooting rubber) as that allows a fisherman to tune the power of the gun better than those of commercial guns with joined rubbers.

Mike first started fishing by being taught to use talaya (cast net) and rod and reel by his dad when he was just starting elementary school. While he still likes "any and all kinds" of fishing, his current favorite is spear fishing. When I asked if he had a favorite fish, Mike answered, "The bigger the better." Now that Mike's guns are hitting the street, the big fish are swimming just a bit more carefully around Tinian.



Top Left: Mike and his current favorite.

Left: Detail of the no-frills method of attaching the gomo.

Right: Custom grip and reel to make sure the big ones don't get away.



Scenes from Yap Island



Traditional mens fishing house surrounded by stone money.

A closer look inside reveals a cooking pit and tools of the trade.



Local college students continue their traditional ties through a canoe building and navigational course.



NOT in my MPA declares Nimpal Community with the establishment of their "watch house". Taking turns sleeping in this house may not be extremely comfortable, however the improving fish stocks in their traditionally owned waters is well worth it according to them.



Local fish market and farm all in one.....why goto the store?

Journal of Micronesian Fishing

Submissions: Contributions can be as simple as photos of your catch or as detailed as a transcribed interviews. Mainly we are looking for stories (600-1200 words long) about fishing, cultural importance of fishing, management, community efforts, history, why Uncle Semo is the best fisherman ever, and related topics. JMF has an editorial staff that can help ensure that your message comes across clearly. We also are looking for smaller pieces too (up to 600 words) in any language, including yours!

Format: Electronic submissions are preferred and may be emailed to info@pacmares.com. Text submissions should be sent as .doc, .rtf or .txt files. Images may be sent as .jpg or .tiff files. English language submissions: 600 and 1200 words. Local language submissions up to 600 words.

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Catch, Cook, Enjoy!

This recipe reminds me a lot of the nitske soup from Palau – only not as much water! Frying the fish before “souping” gives an added layer of flavor. Even though this is a favorite grouper recipe, I’m sure it would go well with snapper too.

Soy-Braised Grouper

1 Grouper (3 lbs)
1 teaspoon salt
Some regular flour
3 slices fresh ginger
1-2 green onions
1 cup water
4 tablespoons soy sauce
2 tablespoons mirin
6 tablespoons vegetable oil



Gut and scale your grouper, removing the gills but leave the head on. Give the fish a rinse in fresh or salt water and sprinkle both sides with a pinch of the salt and leave it alone for about 10 minutes.

In the meantime, cut up your ginger and green onions fine. Add the mix to the water, soy, mirin and salt. (If you can't find mirin, a about 2 tablespoons of sugar can substitute) and the rest of the salt.

Heat up your oil until its hot-- almost smoking. Coat the fish lightly with flour-- inside and out-- and carefully add the fish to the oil. Keep the heat on while frying for about a minute on each side. Spoon hot oil over the fish while its cooking. After both sides are cooked, remove all but about a tablespoon of the oil.

Island Watercraft



Now on Saipan, this Hatohobei sailing canoe has already caught more than its share of off shore tuna in the waters of Palau.

Your food, your choice.



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resource management.*

A promotional graphic for Bird Island. The background is a scenic view of a rocky coastline with a blue sky and ocean. The text "ENJOY BIRD ISLAND" is prominently displayed in white. Below it, "CNMI MARINE PROTECTED AREAS" is written in a smaller font. At the bottom, there are four logos: NOAA, USFWS, a circular logo with "NOAA" and "BIRD ISLAND", and RARE (Resource Assessment and Conservation Economics).

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