

Gender Roles, Power & Fisheries

We are celebrating Women's History Month in March by profiling women who are making significant contributions across fisheries and its larger market chain. Women are industry leaders, vessel owners, fishers, observers, processors, buyers, restaurateurs, policy makers and community connectors. The women of the Pacific Islands understand the linkages between fisheries and the economic well-being of their island communities. Understanding the history and barriers for women allows us to plan for a better path forward.

Historically, female labor roles within the fishing industry were limited to shore-based activities, taking place in areas of the home, such as budgeting, childrearing, processing and the marketing of their husbands' catch. In general, any job that brought men away from home for any period of time, in turn emphasized the role of women onshore. These women held responsibilities beyond what was considered normal at that time. A good global example of this is offshore fisheries. As fishing families took shape in this way, a form of matriarchy naturally developed. Women held the power of the purse earlier as a member of a fisher family than in other parts of society (Thompson 1985).

In the 19th century, a wife was seen as an economic necessity and a wifeless fisherman would hire a servant to take care of his onshore duties. A fisher's wife occupied a far more important position in the family than in other situations (Thompson 1985). In 1935, American cultural anthropologist Margaret Mead famously described gender roles in Papua New Guinea. The women fished, farmed and wove and sold mosquito nets, while the men attended to elaborate religious rituals. Mead described the women as holding "the real position of power in the society" (Mead 2003). Mead's studies have been revisited by many contemporary scholars who detail more complex power dynamics.

Women still hold that fishing purse today. For example, Hawai'i's longline vessel fleet has a large proportion of female owners who complete all the related onshore business duties. This responsibility is seen more broadly. "Wives of fishermen have always played an active role in the onshore business side of fishing operations, doing everything from paper work to mending nets and making lobster pots. There is a huge amount of unrecognized voluntary support that keeps small fishery businesses operating," (Pacific Community 2021).

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Women's role and involvement in the work of fisheries, including the related economic and societal benefits, have often been overlooked and undervalued (Rohe, et al. 2018). Women play a vital role as fishers, processors and traders. "In developing countries, women do up to 90% of secondary fisheries activities," noted Dr. Pip Cohen, program leader of the Resilient Small-Scale Fisheries Research Program at WorldFish. Across Oceania's Pacific Islands, women are directly involved in the fishing effort itself and are given insular fishing opportunities (Lambeth, et al. 2014).

One of the keys to achieving a sustainable economy is to understand and value these female roles. Addressing barriers is another critical step. The women featured in our Spring 2021 issue (www.wpcouncil.org/wp-council-newsletters) are leaders in key fisheries governance posts, breaking the status quo, which had almost solely men in leadership positions. In the fishing industry, women experience unequal access to capital to start or grow their own businesses, despite making up nearly half of the global workforce (Holmyard 2021). In some cultures, the expectation that women stay home limits their mobility and ability for broad participation in the fisheries workforce. We believe that collectively understanding and addressing these issues affords women and underserved communities the opportunity for a brighter fisheries future.



Carrie Johnston is the executive publisher of Hawaii Fishing News (HFN) and the only woman on the Western Pacific Regional Fishery Management Council's Hawai'i Advisory Panel. She credits her parents' and grandparents' lifelong examples for her desire to lead and serve her community. Johnston expanded HFN, a monthly publication created by her

father, into a multimedia business that honors and promotes the values she was taught by her family. "I am passionate about HFN continuing to serve as a legacy keeper of culture and a way of life, maintaining the biggest fish state records and as 'The Voice of Hawaii's Fisherman,'" said Johnston. Her career experience, community resources and background in project management, public involvement and conflict management make her a valuable contribution to the Council.



Gender Roles CONTINUED FROM PAGE 1

Kyung Cha has been the owner of Kyung's Seafood in Honolulu for more than nine years. She is a first-generation immigrant from Korea and single mom to a daughter that helps out at the restaurant when she can. Cha is very particular in choosing quality products for her customers, and serves a combination of Korean and local favorites like ahi poke, sashimi, meat jun, barbeque chicken and Kalbi short ribs. Since the pandemic hit, Cha has had to get creative to keep her small business afloat, from moving tables outside and increasing her catering and take out promotion, to collaborating with other neighborhood businesses. "I work hard and try to provide fresh food and put my customers first," said Cha.



Photo: Bruce Asato



Council member **Monique Amani** was appointed in August 2019 representing Guam. She is an avid spearfisher and competes locally, nationally and internationally. Born and raised on Guam, Amani co-owns and manages Mosa's Joint restaurant and is a voice for small

business owners and recreational fishermen. She regularly purchases fish caught locally to serve at her restaurant and supports the Council's Catchit Logit electronic reporting app by submitting her vendor data. "I wanted to be part of the Council so that I can help ensure that there are still fish in not only Guam's waters, but all of the Western Pacific's waters so that future generations, like my nieces and other kids, can still fish," said Amani.

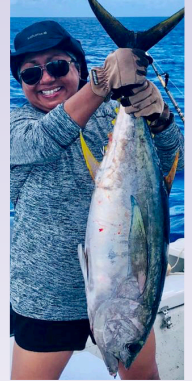


Audrey Toves is the only female boat captain and fishing charter business owner in Guam, and has more than 15 years of experience in the industry. She is a single mother and runs One Love GUd Vibes Charters with her son as her deckhand. "When I decided to pursue my career as a boat captain and starting my own business, I wanted to start from the bottom and work my way up," explained Toves. "After getting familiar with the vessel and operations, I had a hard time getting a job as a captain.

Female captains are uncommon and not respected enough in the industry." She notes she is inspired by her father, Franklin Toves, and learned many of her fishing skills from him. Her goal is to share her love of the ocean with others and be the first fisherwoman to catch the biggest Pacific Blue Marlin, beating the Guam record at 1,153 pounds.

Vicky Benavente was appointed as the Commonwealth of the Northern Mariana Islands (CNMI) Secretary of Labor in 2017. After working for more than two decades in the tourism and hospitality industry, she understands the importance of safeguarding the islands' natural resources, both on land and sea. Benavente has been involved with the Saipan Fishermen's

Association since it formed in 1985. She and her husband have participated in numerous sport fishing tournaments in the CNMI and the Pacific region, and have seen an increase in the number of female competitors. Benavente has volunteered to teach the youth in high schools about the basics of trolling and boat handling, emphasizing, "It's never too early to instill the utmost respect for our ocean in the future leaders of our islands." Her inspiration comes from her parents, whose love for their family and each other allowed them to raise a large family in Guam shortly after World War II. "Whatever challenges they faced, my parents encouraged us to do our best in life, and to respect everyone."



Beatrice Fejeran and her husband, William, have been owners and operators of the WJC Fish Market in the CNMI for more than 17 years. Originally from the Philippines, Fejeran began her business by buying fish from recreational and commercial fishers and selling them directly village to village, house to house. Eventually, the company

grew to include fishing vessels and opening a fish market. With her income based on the fluidity of tourism and local markets, Fejeran has struggled to overcome many obstacles over the years. "I am proud of what we have achieved through hard work and determination, that was only possible through the help of God and my family," said Fejeran. WJC Fish Market supports the sustainability of local fish populations by providing vendor data to the CNMI Division of Fish and Wildlife and is a registered user of the Council's Catchit Logit app.

Rasela Feliciano, Christinna Lutu-Sanchez and **Krista Corry** are three Samoan women whose families own all but one of the U.S. longline vessels based in American Samoa. Their businesses provide jobs and revenue for the local economy and fish (primarily albacore tuna) to the cannery that is American Samoa's largest private employer. While the roles of women in Samoan culture have evolved and expanded, most community leadership positions are held by men. These women manage their businesses by being hands-on and leading by example. This is most evident in their willingness to take care of the day-to-day tasks that help those people who work for them succeed and focus on getting the boats ready to go fishing. They also treat their crew more like family than employees. All three ladies go above and beyond the call of duty as an owner to make sure their crews are looked after and given the safest possible working conditions. 🐟



References available upon request.

Meeting Highlights Dec. 7-9, 2021

Council Recommends Tori Lines, New American Samoa Bottomfish Stock Assessment Approach

The Western Pacific Regional Fishery Management Council recommended to replace blue-dyed fish bait and strategic offal discharge with tori lines in the Hawai'i deep-set longline fishery's suite of seabird conservation measures. This amendment will improve the overall operational practicality and efficacy of required mitigation regulations. At their meeting in early December, the Council's Scientific and Statistical Committee (SSC) supported the regulatory changes, noting that they are informed by the best scientific information available.

The change was based on a fishing-industry-led collaborative project with Hawai'i longline vessels to conduct field experiments over the past three years to compare seabird interaction rates with baited hooks. "The Hawaii Longline Association fully supports this change to



Laysan albatross on Midway Atoll

Kingma. Council Executive Director Kitty Simonds added, "This action is an example representing the Council's long history of proactive and adaptive conservation measures to address fishery impacts to protected species."

The Hawai'i deep-set longline fishery, which targets bigeye tuna, has been using a suite of seabird mitigation measures since 2001 under the Council's Pelagic Fishery Ecosystem Plan. This effort was accomplished through the Magnuson-Stevens Act's bottom-up approach for making or changing fishery regulations that starts with an issue presented from Council advisory groups, the fishing industry and the public.

The Council also endorsed the SSC's recommendation to use a single-species, age-structured management approach for the next American Samoa bottomfish stock assessment scheduled for 2023. The American Samoa bottomfish fishery is managed as a complex of 11 species. Data are available to support age-structured assessments for each species, which is biologically more accurate.

An SSC working group and PIFSC, American Samoa Department of Marine and Wildlife Resources (DMWR) and Council staffs held two data evaluation workshops to improve information used in the stock assessment. "This data discussion and evaluation is a step in the right direction," said DMWR Director and Council Chair Archie Soliai. "Consultation between PIFSC and DMWR is absolutely necessary to ensure that the next stock assessment is accurate."



Proposed Coral Critical Habitat Designation in the US Pacific Island Territories

Council members raised concerns with the National Marine Fisheries Service's (NMFS) "negative determination" that the proposed critical habitat designation for Endangered Species Act (ESA)-listed coral species is not expected to affect the territories' Coastal Zone Management Programs. Territory governments have been receiving conflicting information from NMFS on whether the "negative determination" is automatic for critical habitat designations. The Council requested NMFS follow up with the Guam and Commonwealth of the Northern Mariana Islands (CNMI) governments and provide specific reasons for not accepting the territorial objection to the NMFS negative determination on the Coastal Zone Management Act federal consistency provisions.



Staghorn coral in the reef flat off Guam. Source: Pacific Daily News.

Council members from the CNMI, Guam and American Samoa continued to press NMFS regarding the pending critical habitat designation. In November 2020, NMFS proposed the designation of critical habitat in nearshore territorial waters. Critical habitat is habitat containing physical features essential to support recovery of ESA-listed species.

Territory resource agencies and governors have since voiced their dismay that such designations may impact the territory governments' ability to manage coastal areas, which are often funded by or authorized by the federal government. Critical habitat designations add a layer of federal agency consultation to the federal project approval process.

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STORY ICON KEY



REGIONAL INTEREST



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FISHERMEN



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FEDERAL



HAWAII



GUAM/CNMI



AMERICAN SAMOA



Meeting Highlights, Dec. 7-9, 2021 CONTINUED FROM PAGE 3

Council Recommends a New US Strategy in the Pacific Islands with the WCPFC

The Council discussed outcomes from the December Western and Central Pacific Fisheries Commission (WCPFC) meeting, including proposed protections on sharks, and conservation and management of South Pacific albacore and bigeye tuna. Despite scientific advice, the 18th WCPFC meeting ended without an agreement on increasing Hawai'i longline fishery bigeye tuna catch limits, or reducing total catch on South Pacific albacore with a goal of increasing catch rates for fisheries such as American Samoa. The tone of the negotiations was unfavorable for U.S. interests.

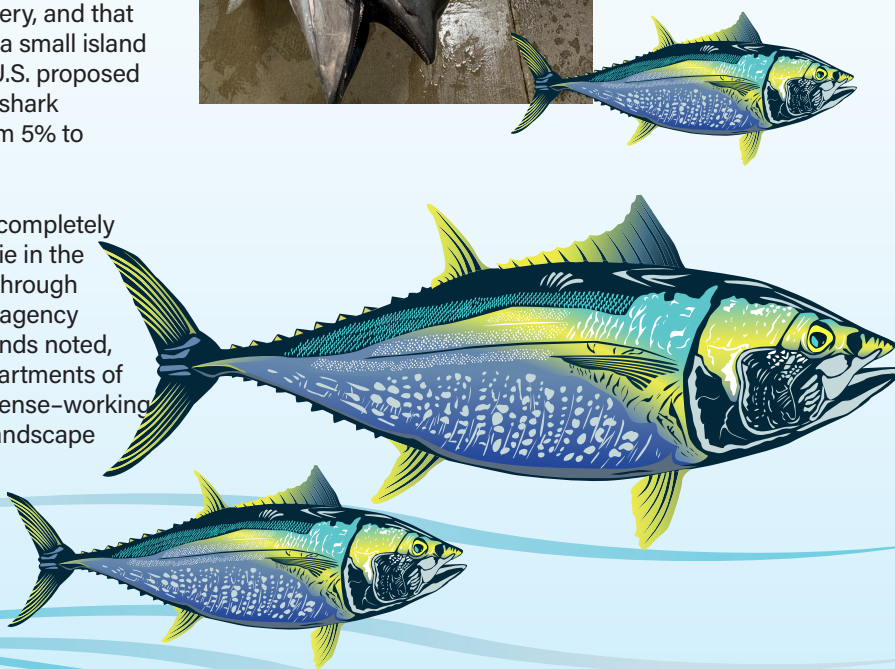
The U.S. objectives included a 3,000 metric ton increase in the bigeye tuna catch limits for the Hawai'i longline fishery, and that purse seine vessels based out of American Samoa, a small island developing state, have recognized privileges. The U.S. proposed prohibiting wire leaders on fishing gear to promote shark conservation and increasing observer coverage from 5% to 10%. None of these measures were adopted.

During Council deliberations, it was decided that a completely new strategy is needed for the U.S. government to tie in the geopolitical interests of U.S. fisheries in the Pacific through a high-level campaign with increased multi-federal agency engagement. Council Executive Director Kitty Simonds noted, "This can only be done by all federal agencies—Departments of State, the Interior, Homeland Security and even Defense—working together well in advance of meetings to make the landscape workable for us at the WCPFC."

For more information, visit <https://meetings.wcpfc.int/meetings/wcpfc18>.



Bigeye tuna at Honolulu auction. Photo: Michael Goto.



Proposed Northwestern Hawaiian Islands Sanctuary Designation

The Council discussed several considerations for potential noncommercial fishery regulations within the proposed NWHI sanctuary, including customary exchange. The initial discussion looked at Council-developed regulations in the Pacific marine national monuments and previous Council scoping in Hawai'i.

NOAA's Office of National Marine Sanctuaries initiated the public process in November 2021, and the Council is formally consulted to provide fishery regulations. The Council will provide NOAA with a response in advance of its March 31, 2022, deadline.

Council Workgroup Creates Working Definition of Conservation to Address President's Goals

A Council Coordination Committee subgroup on area-based management created a working definition for conservation to address the goals under the president's America the Beautiful 30x30 initiative. The working definition of a conservation area is an 1) established, geographically defined area, with 2) planned management or regulation of environmentally adverse fishing activities, that 3) provides for the maintenance of biological productivity and diversity, ecosystem function and services (including seafood production).

The Council sent a letter to NMFS that conservation areas should: 1) be informed by empirical evidence and scientific veracity, 2) be adequately monitored and enforced, 3) be adaptive to address climate change—especially in the Pacific Islands, and 4) recognize existing subsistence and native rights. 🐟

Treaty Deadlock: Why an International Treaty with Central and South America Creates a Barrier for Cultural Harvest of Honu in Hawai'i

"As a matter of policy..." That was the phrase repeated by the U.S. Department of State representative at the December 2021 Western Pacific Fishery Management Council meeting, as the Council grappled over the question of whether cultural take of honu (Hawaiian green sea turtle) could be allowed. Last year, the Council revisited this long-standing issue, recognizing that multiple generations have passed since the last legal take and there is an urgency to pass on the cultural and traditional ecological knowledge before it disappears. At the September 2021 Council meeting, NOAA Pacific Islands Regional Office Regional Administrator Michael Tosatto indicated that NOAA was committed to exploring whether cultural take may be possible, and what avenue and process may be followed.

The short answer to the Council question, as conveyed by David Hogan of the U.S. Department of State, was that there does not appear to be an avenue under existing domestic law or international treaty. The domestic law is the Endangered Species Act (ESA), under which honu are listed as a threatened species and take is prohibited. The international treaty is the Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC), under which intentional capture, retention or killing of sea turtles is also prohibited, with a very narrow "economic subsistence" exception.

The United States initiated the Convention negotiations that occurred in 1994-1996. The treaty opened for signatures in December 1996 and the United States ratified the treaty in February 2001. The IAC entered into force in May 2001 and has 16 contracting Parties in North and South America and the Caribbean (see map). Hawai'i, as part of the U.S., is included in the Convention Area, although its honu population is not a shared stock with Central and South America. In addition to promoting the protection of sea turtles throughout the Americas, the United States pursued the IAC as a means to export U.S. bycatch reduction policies. In particular, the United States at the time was focused on advancing the requirements to use sea turtle excluders in shrimp trawl fisheries across the Americas, as the nation had domestically prohibited shrimp trawling unless fishers could demonstrate that they could exclude sea turtles from trawl nets. The United States agreed to an exception for "economic subsistence" with the intention that such exception would apply narrowly to coastal communities in Central America that have no economic alternatives for subsistence.

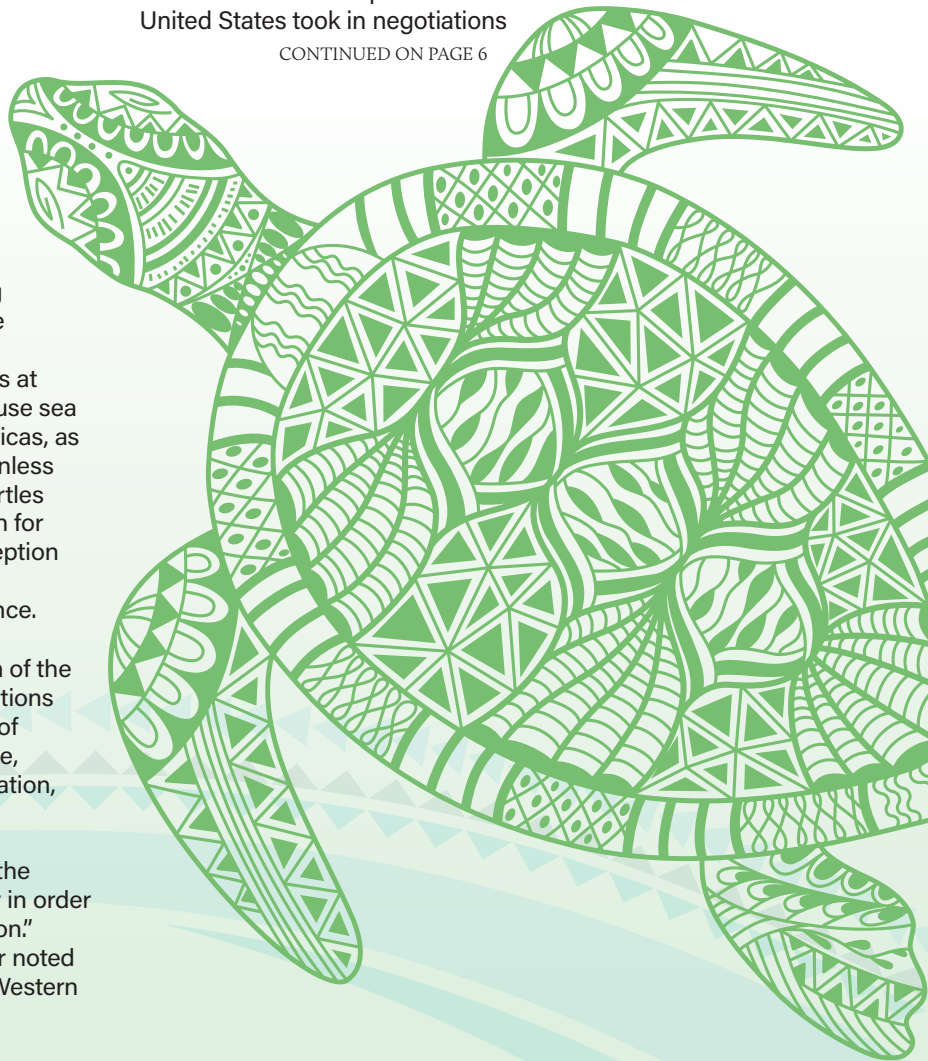
In the Congressional Record leading up to the ratification of the IAC, a member of the Senate Committee on Foreign Relations asked the Department of State if proper implementation of the Convention would require new legislation. In response, the assistant secretary of state wrote, "No. Existing legislation, including the [ESA], and the Magnuson-Stevens Fishery Conservation and Management Act...provide sufficient legislative authority to implement U.S. obligations under the Convention. Accordingly, no new legislation is necessary in order for the United States to ratify or implement the Convention." The Senate's Resolution of Ratification for the IAC further noted that "Because all species of sea turtles occurring in the Western

Hemisphere are listed as endangered or threatened under the Endangered Species Act of 1973..., said Act will serve as the basic authority for implementation of United States obligations under the Convention."

Similarly in the Congressional Record, the Department of State was asked whether any "traditional communities" in the United States would qualify for an exemption from the IAC's restrictions. The assistant secretary of state responded that under the ESA, no community or individual in the United States is permitted to engage in activities that would qualify as economic subsistence, and that under existing domestic law, the United States would not be able to apply the exception for traditional communities.

It is with that backdrop that Hogan explained to the Council members that, as a matter of policy, the United States would not be able to advance a request for an economic subsistence exception under the IAC if take is prohibited under ESA. But even if take could be allowed under the ESA, Hogan told the Council, that, as a matter of policy, it would be a challenging situation for the United States to advance a petition for an economic subsistence exception in the IAC. This is because it would contradict the position that the United States took in negotiations

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Treaty Deadlock CONTINUED FROM PAGE 5

and would also contradict what the Department of State told the Senate at the time of the ratification.

It appears then, that in pursuing sea turtle conservation objectives directed at Central and South America, the United States deadlocked itself into an IAC-ESA no-go zone for allowing any amount of directed take for its own people.

But consider that the United States appears to have ratified the IAC without acknowledging the fact that ESA's ultimate goal is to recover species and remove them from the list of endangered and threatened species, and that management authority for sea turtles would be returned to the states and territories when a species is recovered. Also consider that the United States appears to have ratified the IAC without acknowledging the provisions under ESA Section 4(d), which allows for take prohibitions for threatened species to be tailored to specific activities (commonly referred to as the "4(d) rule"), and has been used to exempt managed fisheries for ESA-listed salmon populations from take prohibitions. And importantly, consider the fact that the United States, in ratifying the treaty, did not address the traditional and indigenous communities of Hawai'i and the rest of the U.S. Pacific Islands who hold long-standing traditions of managing, harvesting and sustainably utilizing green sea turtles as an integral part of their cultural and social fabric.

Would the United States' approach to the IAC be different today if these additional considerations were factored in at the time of the negotiations? We will never know. But in this day and age, when calls for indigenous rights in conservation are growing internationally, and in light of the Biden Administration's emphasis on indigenous peoples and advancing racial equity, there may be no better time for the United States to become a leader in modernizing the conversation around indigenous peoples and their practices as an integral strategy for advancing sea turtle conservation—as a matter of policy, of course. 🐢



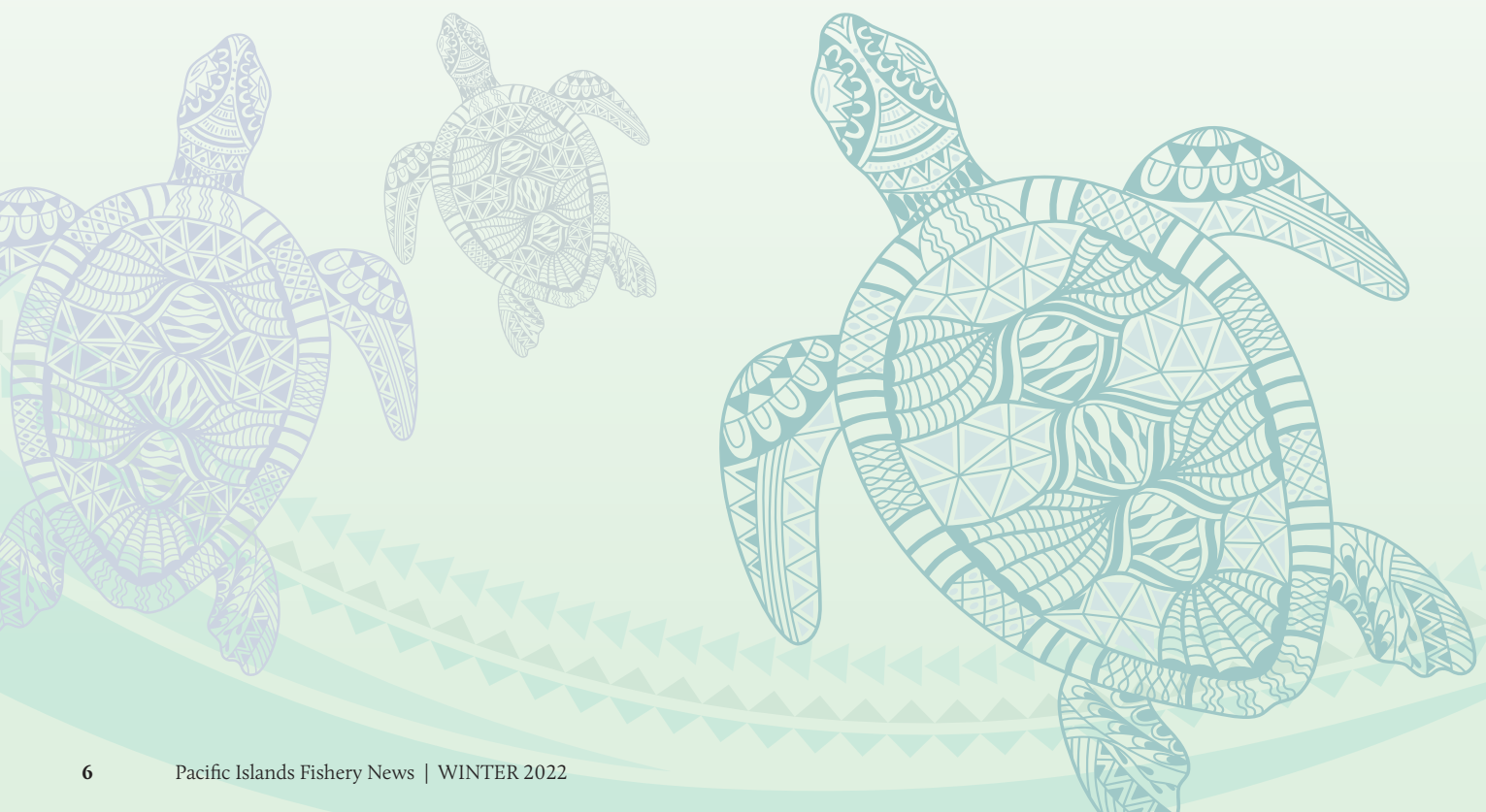
Map showing the IAC member countries. Although Hawai'i and U.S. Pacific Island Territories are not shown on the map, they are included in the Convention Area.
Source: IAC <http://www.iacseaturtle.org/defaulteng.htm>.

Additional Resources:

IAC Convention Text: www.iacseaturtle.org/texto-eng.htm

U.S. Senate Resolution of Ratification (September 2001): www.congress.gov/treaty-document/105th-congress/48/resolution-text/?r=1&s=1

Congressional Record on Informal Public Meeting on Treaties, including the IAC (July 2000): www.congress.gov/congressional-report/106th-congress/executive-report/16/1



Fishing Industry Leads the Way Toward Innovative Fishery Solutions

When there's a problem in your fishery, who you gonna call? The answer is usually the Western Pacific Regional Fishery Management Council, but sometimes bureaucratic management changes take too long. While the pace of the government crawls along, your fishery is still experiencing problems. An alternative is doing something yourself. The fishing industry in the Western Pacific has often used this approach to develop solutions and implement them on a voluntary basis.

Many management actions, in fact, have come at the request of the fishing industry to keep from taking too much or reducing interactions with protected species. Fishermen are conservationists. They are stewards of the resource because their livelihoods depend on it. Fishermen want to keep fishing so they have always been willing to go without when necessity demands it.

When the Magnuson-Stevens Act passed in 1976, fishermen were recognized as having a unique responsibility to protect what they have and provided a seat on the regional fishery management councils as a way to provide a "bottom-up" approach to management. As stakeholders, fishermen provide solutions to fishery issues and management recommendations for the fishery itself. Much of the Council's fishery management plans developed in the early 1980s are a direct result of fishers applying knowledge of the fisheries to try unique management approaches in their fisheries.

In the late 1980s to early 1990s, the fishery in the Western Pacific Region was filled with gear and area conflicts with a general sense of something needing to be done for everyone to get along. Longline and small-boat fishermen created gentlemen's agreements to keep their fishing areas separate, which were later codified in regulations in the form of a longline prohibited area around the main Hawaiian Islands. When the longline

fishery started fishing around the Northwestern Hawaiian Islands in areas where Hawaiian monk seals foraged, fishermen came to the Council with the idea of closing nearshore waters, which led to the creation of a 50-nautical-mile protected species zone around the area. However, fishermen have gone even further by developing gears and methods that have made a difference in their fisheries.

When the shallow-set swordfish fishery interactions with seabirds became prevalent in the 1990s, the fleet adopted mitigation measures on a voluntary basis to reduce interactions. This included decreasing the use of deck lights at night, adding weights to increase the sink rate of gear during setting, strategically discarding swordfish heads to distract seabirds and using blue-dyed bait so birds would be less likely to dive on the bait. Some of these measures were later adopted as regulatory requirements. When fleet interactions increased with sea turtles, the fleet switched over to using circle hooks and mackerel as bait instead of squid. These innovations reduced the interactions by 90% each for seabirds and sea turtles.

These types of innovations were not only conducted by the longline fleet. When there was a need to ensure that bottomfish were not caught during the closed season, fishermen researched devices that were appropriate for their fishery. A method of venting, or releasing the pressure from a fish's swim bladder, and using a tool like a drop shot recompression device to release the fish at depth was adopted by a group of fishermen who provided kits to the community. These innovations have also helped fishermen participate in cooperative research and bottomfish tagging studies, leading to improved stock assessments.

More recently, the Hawaii Longline Association took the initiative to change out the leader line material to lessen impacts to oceanic whitetip sharks from the longline fishery (see Summer 2021 *Pacific Islands Fishery News*,

www.wpcouncil.org/wp-council-newsletters).

The organization was also integral in designing and testing tori lines to reduce interactions with seabirds

(www.wpcouncil.org/2021torilinerreport). This is not a new concept. Today, there is an increasing effort to look to the past and use methods and techniques to manage resources based on culture and traditions of the indigenous people of the Pacific. Whatever those methods are, you can be sure that fishermen will be leading the way. 🐟



Drop Shot Weight Release

Fish can be returned to the bottom by using a release weight. Test have shown that fish do not require venting if using a release weight as gases in the swim bladder recompress as the fish returns to the bottom. However, if the stomach protrudes out of the fish's mouth, use a smooth or rubberized dowel to push the stomach back into the stomach cavity. This will prevent the stomach from obstructing water flow through the fish's gills as it descends to the bottom.



A) Pass the hook on the release weight from behind, along the gill plate and gills out through the fish's mouth.

B) Next, drop the fish head first into the water. If the fish is larger, reduce the margin of error for timing the release of the fish with the weight by using the optional "drop shoot." (below) The drop shoot provides safe handling of larger fish during release and also eliminates the need for two persons.



C) Once the released fish reaches a minimum depth of 25 fathoms, pull sharply on the line to release the fish.




Tools:
Barbless hook mounted on a 5-lb lead weight and attached to a release line.

Optional "drop chute" made of 8-inch by 3-foot PVC pipe cut length wise in half and with a nylon rope handle

Part of a flyer that the Pacific Islands Fisheries Group created on methods for releasing bottomfish.
Source: PIFG.

“Lack of diversity is the enemy of success” – Secretary of Commerce, Gina Raimondo



On Jan. 14, 2022, Secretary Gina Raimondo held the Department of Commerce's first Equity Town Hall. She said prioritizing equity work is “not just because it's the right thing to do, although that is primarily the most important reason to care about equity and inclusivity and equal opportunity, but frankly it's good for our economy, homogeneity discrimination, lack of diversity is the enemy of success. America's diversity is a competitive advantage—but only if we give everyone an opportunity to fulfill their potential and fully participate. That means women, people of color, and people who live in rural areas, on tribal lands, and in underserved communities.”

Secretary Raimondo emphasized the DOC's overall priority is to help build an economic system that works for all. Among the new equity guiding principles is a commitment to make DOC's programs, services, personnel and data accessible to underserved communities by changing how the federal government structures their products and works with grassroots partners. One particularly interesting example discussed at the town hall is that NOAA will incorporate takeaways to improve their climate services following a series of Climate and Equity Roundtables with underserved communities.

Secretary Raimondo said that equity will be at the heart of the DOC's priorities, including using new and existing programs to drive equitable, place-based growth through the Economic Development Administration's (EDA) Build Back Better Regional Challenge. The program aims to transform communities throughout the country, making employer-driven investments in the U.S. workforce through the Good Jobs Challenge so that all Americans have a path into a high-quality career. The secretary also mentioned the Minority Business Development Agency that fosters the growth of women- and minority-owned businesses and supports small-business owners in underserved communities. Both agencies have grant opportunities and, given their priorities, our regional fishing communities may be able to apply for additional resources.

Characterizing our Underserved Communities

The U.S. Census Bureau is modeling the poverty levels of our communities at the county level and tracking where these levels concentrate over time. This work directly informs EDA's programmatic needs to better identify successful economic development treatments for improving poverty. It's anticipated that the Bureau's poverty estimates could inform research and measure the impact of EDA's investments for underserved communities in the coming years.

A key fundamental barrier for U.S. Territories is that not all of the Bureau's data are current for the regions. The agency's new Climate and Economic Justice Screening Tool states that for American Samoa and the Northern Mariana Islands, the

data used to identify disadvantaged communities are from the 2010 Decennial Census. For Guam, work is currently underway to identify disadvantaged communities and update the tool accordingly.

Closer to home, the NOAA Pacific Islands Fisheries Science Center (PIFSC) has an extensive collection of regional census data compiled (2005-2020) to support its social vulnerability indicators initiative. PIFSC has a few publications that apply its methodologies to describe social vulnerability (environmental justice, economic, gentrification pressure) for communities across the region. PIFSC also created online fishing community snapshots compiling community demographics and involvement in fisheries. Poverty levels are included with national comparisons. Economically challenged coastal communities rely heavily on marine resources. More than 75% of communities in the Western Pacific Region identify as indigenous, Asian American or Pacific Islander. We generally have higher poverty values and lower median income values than the national average. For example, using the PIFSC tool for Hilo, HI, the percentage of families below the poverty level is 12%, slightly above the national average of 11.3%.

It appears our federal agencies are poised to tactically deliver resources to underserved communities in a way that self-evaluates how effectively community needs are met. It's a good start. 🐟



Secretary Raimondo's recent remarks included ways the federal government is increasing opportunities for rural communities, like this one in the Commonwealth of the Northern Mariana Islands.

Resources:

The PIFSC Hilo Community Snapshot example: <https://apps-nefsc.fisheries.noaa.gov/read/socialsci/pifsc/createReport.php?state=HI&island=Hawaii&community=Hilo>

EDA Resource Directory: www.eda.gov/resources/directory

Minority Business Development Agency (Pacific office): www.mbda.gov/business-center/hawaii-mbda-business-center

Kleiber D, Kotowicz D, Hospital J. 2018. Applying national community social vulnerability indicators to fishing communities in the Pacific Island region. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-65, 63 p. <https://doi.org/10.7289/V5/TM-PIFSC-65>.

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Fishery Management Lessons From a Fish Tank

We have all heard that the ocean is nothing but a big aquarium. Many families dream of having an aquarium in their house at some point in their lives, but those who have had the luxury of owning one know that it's difficult to maintain and keep the fish alive. If you are able to keep the fish alive long enough, you may get lucky and have one generation of fish spawn in the tank. First-time owners typically pepper the clerk at their local pet store or aquarium fish supplier with questions, asking, "What water temperature should it be?" "How much food do I put in?" "How long should I have the light on?" "How much air should I pump in?" "What is the right water level?" or, for those with marine aquaria, "How salty should the water be?" Clerks usually say, "It's all about the balance."

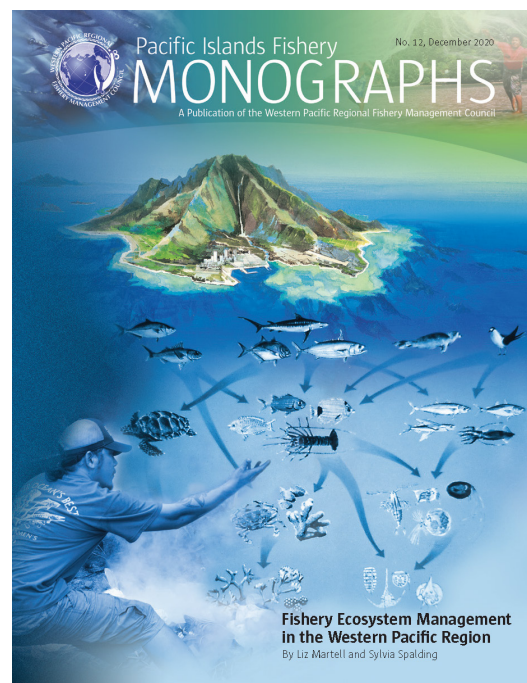
If you put too much food (nutrients) into the tank, it gets filthy fast and stresses the fish. If the fish get stressed, they won't reproduce. If you leave the lights on all the time, the algae grow quickly and the tank gets filthy fast. If you combine too much light and too many nutrients, the tank gets filthy really fast. If the water is too warm it stresses the fish. Too cold? That also stresses the fish. As Goldilocks said, it has to be "just right." If the aquarium owner's goal is for the fish to grow and reproduce, he or she must also consider and manage the environment of the tank to make it conducive for the fish to do so. Taking the environment into consideration to sustain the fish in the tank is what Ecosystem-Based Fishery Management (EBFM) is all about.

Fish populations don't live in a vacuum—they are affected by the environment in which they live. Fishery scientists and managers should be aware if conditions are "just right" when doing stock assessments, monitoring fishery performance and making management decisions. Certain precautions should be taken in conditions that are above or below the optimal level, depending on if the fish responds positively or negatively to those conditions.

The Western Pacific Regional Fishery Management Council has been active in promoting EBFM over the past several decades, starting with the transition from species-based management plans to archipelago-based plans in 2009. The Council amended the plans in 2019 to include "ecosystem component species" to increase the flexibility of applying ecosystem approaches to management, rather than using rigid annual catch limits. Some of the Council projects under the Coral Reef Conservation Fund are geared toward pushing the envelope for EBFM. Partnering with the Donovan Lab of Arizona State University, the Council is attempting to evaluate different indicators that affect ecosystem component species and develop thresholds for these indicators that can be used as triggers for management action when the limits are breached.

Given the uncertainties brought about by climate change, the "just right" condition is becoming less frequent and the baseline is shifting. Just as in the current political and social climate, the environment is experiencing a "new normal." This poses significant challenges for fisheries science and management, especially for the people directly impacted by such changes. The infrastructure needed to reduce impacts from the changing environment and its effects on fish stocks is not currently sufficient to meet the information demands of adequate science for management.

Significant investments are needed in the Western Pacific Region to improve the environmental monitoring infrastructure, data management, processing and analysis and to convert those to management-ready products that assist fishery managers in making ecosystem-informed management decisions. The realities of climate change are upon us. Unless there is an Aqua Scum 2003 (which you may remember as the high-tech saltwater filter in Disney's Finding Nemo) big enough to influence the entire Pacific Ocean, we can only hope that the right players come together to start cracking the hard nut of EBFM. With the right tools and people, it can be done. 🐟



The Council published a monograph on *Fishery Ecosystem Management in the Western Pacific Region* that provides an overview of the Council's ecosystem activities from 1987 to 2020.

www.wpcouncil.org/wp-content/uploads/2021/01/Monograph-12_Fishery-Ecosystem-Management.pdf



Fishermen, fish-cutters, tutors and college professors that teach Hawaiian communities alike enjoy using the 2022 Kaulana Mahina (Hawai'i Lunar Calendar). See page 17. Photo: Leihuanani Rojo.

Integrating Traditional Fishermen Knowledge into Annual Fishery Reports



American Samoa fisherman observes the coastline as he casts his fishing line. Photo: Alice Lawrence.

For generations, fishing has played a central role in shaping Pacific Island communities' social, cultural and economic fabric. However, Western science and management have not always captured or considered fishermen's traditional knowledge. In 2009, the Western Pacific Regional Fishery Management Council developed place-based fishery ecosystem plans (FEPs), to better support communities through new institutional frameworks. The shift from species-based plans resulted in developing activities and programs that engage communities to share, understand and document traditional resource management practices and knowledge.

In 2021, Hawai'i fishermen Clay Tam and Roy Morioka hosted two meetings for fishermen throughout the region to capture their 2020 on-the-water observations for species managed within the Council's jurisdiction. The goal was to incorporate empirical and traditional knowledge from active fishermen into the Annual Stock Assessment and Fishery Evaluation (SAFE) Reports. Observations included changes to the physical environment (e.g., weather, sea conditions, water temperature), markets, fishery stocks (e.g., species abundance, sizes, predation), unusual events and species cycles (i.e., juvenile recruitment). Fishermen observations also captured the effect of the COVID-19 pandemic restrictions on the fishing market. For example, with the decline of tourism, fishermen had to adjust and peddle fish along the roadside.

Key findings from Hawai'i fishermen included comments on the direction of currents that were unfavorable for bottomfish, and increased rain, which contributed to mud lines that ran straight offshore. The most notable remark described the change in bottom substrate around Penguin Bank. Fishermen also reported an increase in smaller fish and large schools or small/juvenile 'opakapaka, which may indicate good recruitment.

Guam fishermen reported that 2020 was a "banner year" for bottomfish even though a recent stock assessment says the

stock is overfished. Despite this, estimated catch totals were down relative to the previous two years, which may be because creel surveys were not conducted for more than half of the year and the estimates may have missed notable landings. Shark depredation also continues to be problematic for fishing in the entire region.

The 2020 findings were summarized and presented to the Council's Archipelagic and Pelagic Plan Teams, who meet each year to review the FEPs through the production of the Annual SAFE Reports. The Council, Plan Teams and other Council advisory groups applauded the effort to record anecdotal data from fishermen, noting it is a useful addition to the reports. Plan Team members suggested the information should be kept in its own section to ensure it is not misunderstood as an interpretation of the quantitative data.

The Council produces Annual SAFE Reports for each of its FEPs—four archipelagic reports for Hawai'i, American Samoa, the Marianas and the Pacific Remote Islands Areas, and one pelagic report for fisheries operating in the Western Pacific Region. The reports summarize the best available scientific information for the past, present and future conditions of the stocks, marine ecosystems and federally managed fisheries. Successful ecosystem-based fisheries management requires increased understanding of a range of social and scientific issues, biological and trophic relationships, ecosystem indicators and models, and the ecological effects of non-fishing activities on the marine environment.

In February 2022, Tam and Morioka hosted the 2021 Fishermen's Observation Summit for the Western Pacific. Remarks will be summarized and reported at Archipelagic and Pelagic Plan Team meetings in April and May, and the 2021 SAFE Reports will be available in July 2022. See the Council website for more information: www.wpcouncil.org/annual-reports. 🐟

Updates from the 'Aha Moku 'Ohana



While not acting in its official capacity, the leadership of the 'Aha Kiole o Moloka'i took part in an island-wide effort to address the deer famine issue (due to long-term drought) and COVID-19 as a kakou (all of us) thing. Photo: Malia Akutagawa.



The 'Aha Moku structure is based on the ancient Hawaiian communities' consultation leadership model called the 'Aha Kiole (people's council). The structure emphasized broad participation in resource management of moku (region) and ahupua'a (wedge-shaped land sections from mountain to the sea). Native Hawaiians have managed their natural resources successfully for thousands of years through this structure. That experience and practical knowledge can add value to modern ways of managing natural resources.

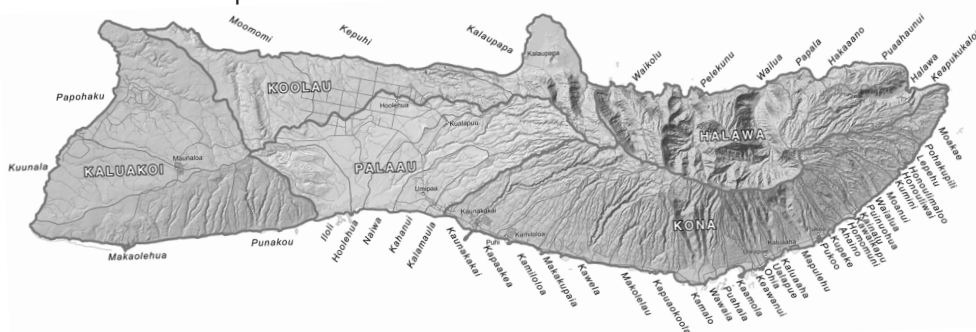
Under the Magnuson-Stevens Act, the Western Pacific Regional Fishery Management Council developed ecosystem-based fisheries management approaches consistent with traditional indigenous cultural practices. Beginning in August 2006, the Council hosted the Ho'ohanohano I Na Kupuna Puwala conference series to increase the Hawaiian community's participation in the conservation and management of Hawai'i's resources through the creation of a community and cultural consultation process within other governance structures. These meetings included Native Hawaiian kupuna (elders) and cultural practitioners, educators, governmental agency representatives, state legislators and other community members. The conferences served as an effective tool to bring native practitioners together to discuss traditional practices and provide input to the Council's Hawai'i Archipelago Fishery Ecosystem Plan.

Through the combined efforts of more than 100 kupuna and Native Hawaiian resource practitioners of the

43 moku in the State of Hawai'i, Act 212 and 288 were signed into law. In 2007, Act 212 initiated the process to create a system of best practices based on indigenous resource management of moku boundaries, and established the 'Aha Kiole Advisory Committee, consisting of eight members that represented the eight main Hawaiian islands. The Committee operated as an independent body and reported its findings, recommendations and progress in establishing the 'Aha Kiole system to the legislature and governor. Act 288 passed in 2012, changing the group's name to the 'Aha Moku Advisory Committee (AMAC) and placing it within the Hawai'i Department of Land and Natural Resources.

Although the governor has yet to appoint new members to the AMAC, the communities have continued to work on their kuleana (responsibilities). When the coronavirus hit in 2020, grocery stores on Moloka'i were impacted due to infections of their employees. Many members of the 'Aha Kiole o Moloka'i responded to challenges in their community by conducting wellness checks, and bringing food (e.g., fish, venison) and providing services (e.g., housekeeping, adult daycare) to kupuna in their area. Some members obtained permission from large landowners to allow people to hunt on their lands for subsistence to help families that were struggling financially. Local fishermen also provided fish to the Maui Food Bank, which was distributed to communities on Moloka'i.

This is the first in a series on the 'Aha Moku, exploring what truly works for different islands, opportunities for the island councils and what is happening today. Find out more at www.ahamoku.org.



Example of a moku map (noted in white) for the island of Moloka'i by Islandbreath.org.

Note - This is a guest article from Heidi Dewar, Owyn Snodgrass and Barbara Muhling (NOAA Southwest Fisheries Science Center), and Dave Itano (American Fishermen's Research Foundation).

The Albacore Tuna Archival Tagging Program Wants You!



Characterizing the movements and behaviors of highly migratory species, like widely ranging tunas, sharks and billfish, is key to both management and understanding basic aspects of their biology. From a management perspective, knowing where fish go helps us define parameters such as the overlap with fisheries and both stock structure and dynamics. With regard to biology, we gain insight into foraging ecology and habitat use and how these change over time and space. When movements are linked to environmental conditions, we can define essential habitat, create species distribution models and consequently predict shifts over short and long time-scales, including in association with climate change. This biological information is critical as we shift towards ecosystem management in which decisions are informed by linkages to other species in the system, environment and socioeconomic factors.

While large terrestrial animals can be tracked visually, this is not the case for marine species that spend little time at the surface and move, unseen, through three dimensions. Describing movements of highly migratory species required the development of novel tags that allow scientists to essentially follow fish without getting wet. Successfully employing these devices requires two things: 1) securing the tags to the fish in a way that they will remain attached, and 2) getting the data back—both of which pose unique challenges.

Archival tags are one of the primary types of tags used on species like tunas. They are either attached to the outside or implanted internally through a quick surgical procedure (www.tinyurl.com/ORFishermenTaggingTuna). To recover the

data, the fish must be recaptured and the archival tag recovered. **NOAA is offering a REWARD for recovery of the tags** (see flyer). While in or on the fish, archival tags typically log high-resolution data (once every one to two minutes) on swimming depth, water temperature, body temperature and light. From these four parameters, we can examine diving behavior, characterize feeding events, quantify thermal habitat and estimate geographic location—information that is currently impossible to collect using any other method.

In the Pacific Ocean, the Southwest Fisheries Science Center, American Fishermen's Research Foundation and American Albacore Fishing Association have collaborated for two decades on an archival tagging program for albacore. To date, we have deployed more than 11,000 tags working together with fishermen. Of the 37 tags recovered, 30 have provided data over periods up to 2.8 years. The data provides broad insights into the biology and movements of albacore in the North Pacific. Here are just a few examples of interesting findings.

Archival tags revealed that from their U.S. West Coast foraging ground, albacore move to different locations

during winter and spring, where their diving/foraging patterns differ depending on regional conditions. Note that in Focal Area 1 (see map below) where surface waters are cooler and the mixed layer is relatively shallow, albacore spent the majority of time at or near the surface (<50 m). The mixed layer is the top portion of the water column where temperatures are relatively warm and stable. In comparison, offshore, where the surface waters are warmer and the thermocline is deeper, albacore spend the majority of the daytime at depths of ~100-300 m and nighttime in the mixed layer above 50 m.

REWARD: TAGGED ALBACORE

Tagged Albacore have a green dart tag in their back
Archival tags are data recording devices that are implanted in the belly with a stalk sticking out.

\$500: Whole fish w/Archival tag/ \$300: Archival tag only/ \$20: Dart tag only







TO CLAIM YOUR REWARD

<p>Record</p> <ol style="list-style-type: none"> 1) Date 2) Catch latitude and longitude 3) Fork Length and unit (cm or in) 4) Dart and/or Archival Number 5) Fisherman/ gear type/ contact info 	<p>Contact</p> <p>Ericka Carlson +1 (971) 209-2030 erickac@afrf.org OR Owyn Snodgrass +1 (858) 546-7000 owyn.snodgrass@noaa.gov</p>
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- US Commercial: Fish and/or tags can be delivered to the nearest processor.
- US Recreational: Contact above to coordinate shipping and reward.
- Outside the US: Contact National Fishery Agency or people listed above.

NOTE: All shipping costs will be paid for by NOAA



Archival tag in belly with stalk sticking out.

To remove make shallow incision from ~6" to 1/2" towards head from stalk.



Tear tissue to open belly and expose tag.



Gently remove tag, it may be encased in tissue. Store it in a safe place.



Research funded by the National Oceanographic and Atmospheric Administration and the American Fishermen's Research Foundation

While foraging on ocean fronts, albacore feed on the cold side, which tends to be more productive, but then return to the warm side. This strategy allows them to warm up faster so they can get back to chasing prey more quickly. Albacore take advantage of the thermal differences across a front likely to both increase their time foraging and speed up digestion rates that increase with temperature.

In a study linking albacore and prey distribution, tagging data were used to inform albacore species distribution models to characterize the geographical overlap between albacore and prey, and better understand what environmental factors influence albacore switching between different prey species. Given that the prey of albacore occur in both deep and surface waters, what they are foraging on will influence their availability to surface fishing gear. 🐟

References:
 Childers J, Snyder S, Kohin S. 2011. Migration and behavior of juvenile North Pacific albacore (*Thunnus alalunga*). Fisheries Oceanography. 20. 157 - 173. 10.1111/j.1365-2419.2011.00575.x.

<https://aslopubs.onlinelibrary.wiley.com/doi/full/10.1002/lol2.10049>
<https://calcofi.org/publications/calcofireports/v60/Vol60-Muhling.pdf>



Fishermen - We Need Your Help!

During summer 2021, fishermen aboard the FV *Peso* surgically implanted 78 tags into juvenile albacore off the West Coast.

We expect these tagged fish to show up in fisheries around Hawai'i over the next few years. **If you catch a tagged albacore, please return the Fish and/or tags for your REWARD.** Fish and/or tags can be delivered to the nearest U.S. processor for recovery or contact Owyn Snodgrass at (858) 546-7000 for instructions.

All shipping costs will be paid by NOAA. Data from these tags will provide a valuable comparison to those deployed over the last two decades as we continue to examine the impact of climate change on tuna distribution, behaviors and gear vulnerability.

We can't do this without you!

Fig. A

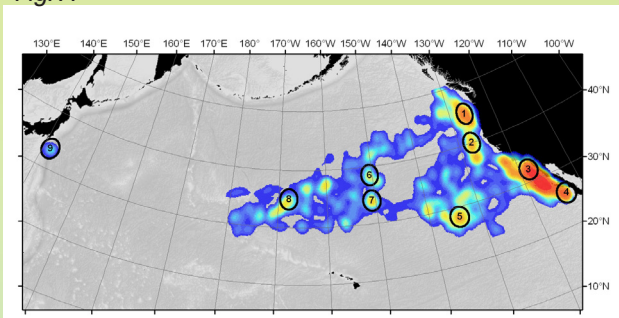


Figure A) is a kernel density map identifying seven focal areas in the Pacific Ocean to which tuna disperse after leaving coastal foraging areas in the late fall. Archival tags were deployed off both Southern California, and Oregon and Washington.

Figures B) and C) show tuna dive patterns in Focal Area 1 and 5, respectively, over a seven-day period. Grey bars indicate nighttime and the grey line denotes the depth of the mixed layer, where temperatures are warm and relatively stable.

Fig. B

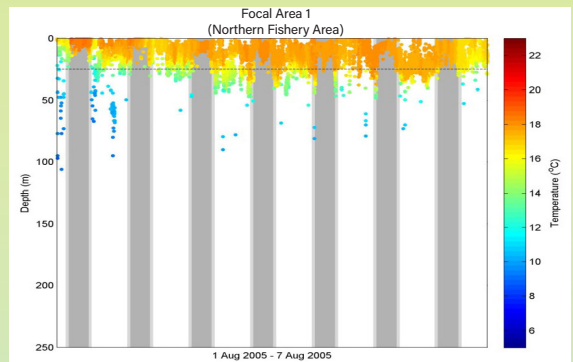
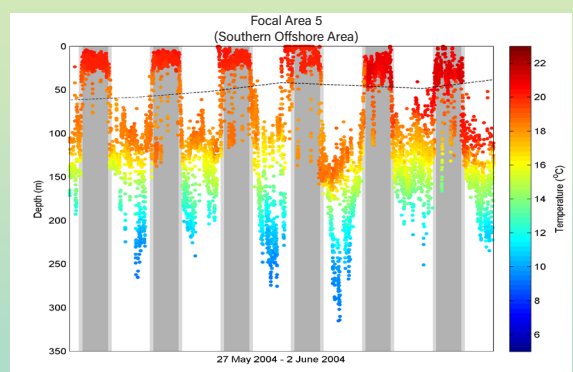


Fig. C



Echosounder Buoys Expand the Utility of FADs for Artisanal Fisheries



New technological advances in remote underwater detection provide a unique opportunity to overcome some of the potential barriers that limit the expansion of artisanal pelagic fisheries across the tropical Pacific Ocean. Small echosounder buoys that identify pelagic fish and communicate those findings via satellite links have quickly evolved over the last two decades, with state-of-the-art models currently able to:

- Identify fish at depths of more than 100 meters with a resolution of 0.05 m.
- Identify different species and produce biomass estimations.
- Provide remote customized data products.

While now widely used by industrial purse-seiner fleets, echosounder buoy technology has not yet been adopted by artisanal fisheries. The Nature Conservancy (TNC) and multiple fisheries agencies across Micronesia are collaborating on a smart fish aggregating devices (FADs) project to try and bridge this gap.

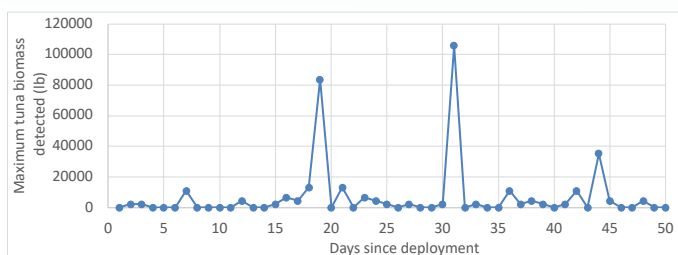
On Nov. 23, 2021, a team from the Guam Division of Aquatic and Wildlife Resources (DAWR), along with Western Pacific Regional Fishery Management Council member Monique Amani, deployed the first echosounder buoy in Guam attached to FAD #3, located north of Ritidian Point. The echosounder transmits its location and estimated tuna biomass data detected daily. Just two days after deployment, a tuna detection spike of ~2,000 pounds showed up at 10:08 a.m. at the sonar beacon's maximum depth (~110 meters, 360 feet). On December 26 at 10 a.m., the echosounder detected a tuna biomass peak of up to 105,000 pounds between 60 and 115 m (195 and 360 feet)—the largest of several large peaks observed since the echosounder buoy was deployed.



The echosounder buoy deployed at FAD #3 does not have the capability to distinguish between tuna species, but test buoys that can differentiate between tuna species will be tested later in 2022.

Echosounder attached to FAD #3 after deployment. Photo: Jaime Bass, DAWR.

The echosounder has been detecting tuna biomass at depths that are a little too deep for conventional trolling, but it is within the range of the jigging method of fishing. This should excite those who enjoy a good fight of bringing tuna up from the depths, and expands the fishing method options for Guam's small-boat fishery, which normally includes trolling, shallow- or deep-water bottomfishing.



Echosounder graph showing tuna detection spikes. Image courtesy: Javier Cuetos-Bueno, TNC.

Javier Cuetos-Bueno is a fisheries advisor for TNC and is leading the smart FADs project. He explained that the project aims to provide additional information to the fishing community to encourage more fishers to target pelagics, which are a very resilient resource. The idea is that knowing in real-time where tunas are aggregating will make pelagic fishing more attractive and profitable as it will reduce the cost of locating the fish. This could be useful for all types of fishers, especially for Guam's artisanal fishing community. Smart FADs will also help fishery managers better understand the dynamics of pelagics around buoys and track and recover FADs if they get detached, which helps them better manage their FAD networks.

Cuetos-Bueno said TNC has a few more echosounders ready for deployment and is working with DAWR to get those out on the water as soon as practical, particularly at other sites around Guam so there is a wider region of the ocean reporting biomass. He is coordinating with partners across the Western Pacific Region to have additional units installed, including the Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, the Marshall Islands, Palau and Hawai'i.

TNC is currently working with fishery management agencies to develop a data-sharing framework so that agencies such as DAWR can easily access the information received from the smart FADs, and share it with the fishing community through a web portal. 🐟

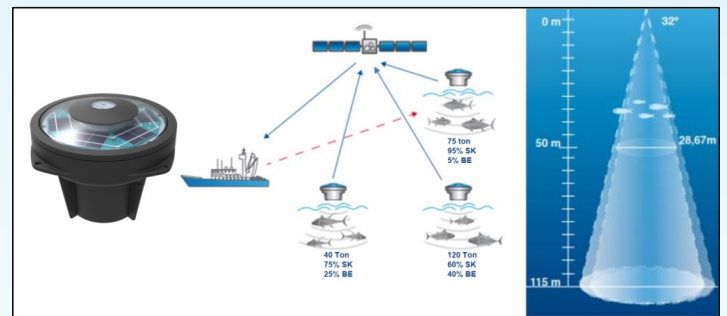
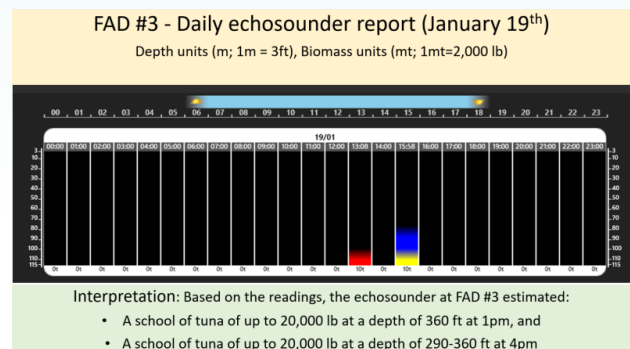


Image depicting echosounder satellite connectivity and transmission of fish biomass data to the receiving vessel (left). The cone on the right shows the widening of the underwater beacon coverage down to 115 m (~380 feet). Image courtesy: Javier Cuetos-Bueno, TNC.



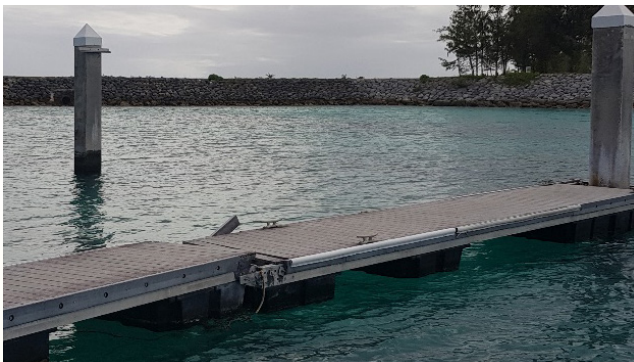
Echosounder report showing tuna biomass, depth and detection time of day. Image courtesy: Javier Cuetos-Bueno, TNC.

CNMI's Rota Marina Gets a Facelift



Aerial view of the Rota Harbor and Marina after repairs are completed.

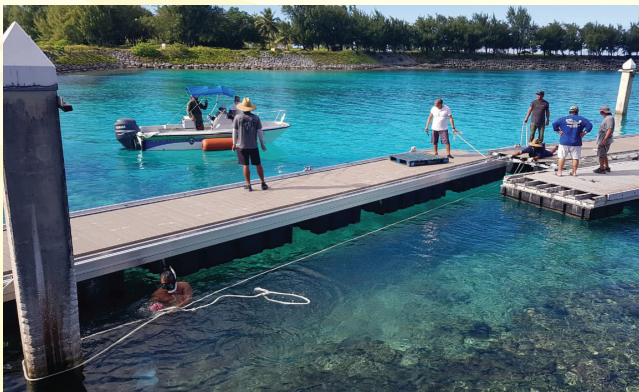
The Commonwealth of the Northern Marianas Islands (CNMI) has endured numerous tropical storms and typhoons, which have devastated the islands of Saipan, Tinian and Rota. The storms damaged boat ramps and marinas, which ultimately prevented recreational and commercial fishing vessels from docking.



After sustaining storm damage, several slips at the Rota West Harbor Marina were missing or held together by rope.

In 2018, the CNMI received ~\$608,000 from the U.S. Fish and Wildlife Service's Wildlife and Sport Fish Restoration Program to repair the Rota Marina. This repair meets the conservation and management objective in the CNMI's Marine Conservation Plan of promoting responsible domestic fisheries development to provide long-term economic growth, stability and local food production.

The project faced delays due to contract changes, permit processing and shipment of prefabricated materials. Typhoon Mangkhut and Super Typhoon Yutu caused additional issues, but finally on Jan. 10, 2022, work began with the mobilization of staff and supplies to Rota's West Harbor Marina.



New slips, frames, floaters and brackets at the Rota Marina (Jan. 12, 2022).



CNMI Governor Ralph DLG. Torres (orange shirt), together with Senator Victor Hocog, Senator Vinnie Sablan, Rota Mayor Efraim Atalig, Dept. of Fish & Wildlife Director Manny Pangelinan, Dept. of Public Works Secretary James Ada, DLNR Secretary Anthony Benavente, Fr. Nelson Plohimon, local dignitaries and members of the community gathered for a ribbon-cutting ceremony and blessing of the newly renovated marina. Photo: CNMI Office of the Governor.

Special recognition goes to the CNMI Department of Lands & Natural Resources (DLNR) staff on Saipan and Rota, Saipan Marina staff and the Rota Mayor's Office for their dedication to finishing this project. 🐟



DLNR Secretary Anthony Benavente (right) with DFW staff members as they install and make the necessary adjustments to the new slips.



CNMI's *Kirida* fishing vessel also participated in the new installation by bringing necessary supplies and manpower to speed up the process.

Photos: CNMI DLNR and Rota Mayor's Office.



Congressional Corner

Follow the bills that impact your fisheries at www.congress.gov.

On Nov. 16, 2021, the House Natural Resources Committee's Subcommittee on Water, Oceans and Wildlife held a legislative hearing on proposed Magnuson-Stevens Act (MSA) changes in HR 59 (Strengthening Fishing Communities and Increasing Flexibility in Fisheries Management Act), HR 4690 (Sustaining America's Fisheries for the Future Act of 2021) and HR 5770 (Forage Fish Conservation Act of 2021). Witnesses that provided testimony at the hearing included Janet Coit, assistant administrator for the National Marine Fisheries Service, and Marc Gorelnik, chair of the Council Coordination Committee (CCC).

Testimonies on the bill centered on the impacts that the legislation would have to fisheries and management, for better or worse. Gorelnik carried the message of all of the regional fishery management councils; "the MSA works" because "the outcome of our management success is clear: commercial, recreational and subsistence fisheries are key contributors to our coastal communities and the nation's economy." Coit added that "under the MSA, U.S. fisheries are among the world's largest and most sustainable." They recognized and appreciated the emerging challenges being addressed by the bills, but also stressed the need for flexibility in meeting regional needs and that some changes are concerning. Representatives noted the differences in the bills would need to be reviewed to build consensus as changes to the MSA are moved forward.

Currently, legislation reauthorization has not been introduced in the Senate. For more information on the legislative hearing in November, see: https://naturalresources.house.gov/hearings/hybrid-wow-legislative-hearing_november-16-2021.

At the end of 2021, the Advancing the Quality and Understanding of American Aquaculture (AQUAA) Act was introduced in the Senate (S 3100) by U.S. Senators Roger Wicker (R-MS), Brian Schatz (D-HI) and Marco Rubio (R-FL). A companion bill was introduced in the House (HR 6258) by Representatives Stephen Palazzo (R-MS) and Ed Case (D-HI). These bills intend to establish national standards for sustainable offshore aquaculture and designate NOAA as the lead agency for marine aquaculture. The legislation would also create a permitting system for offshore aquaculture in federal waters and increase research and development in the aquaculture industry. The AQUAA Act was introduced in the last Congress and aims to provide federal support for a sector of food production that is fast growing and absent of a federal permitting and regulatory framework.

2022 is the second year of the 117th Congress, which means that all bills that do not pass by December 31 will be dead. There are many other issues that the House and Senate are grappling with at the moment and it is unclear how far the fishery bills may advance. 🐟

Science and Management 101: Council Basics

Have you ever wondered what our Council does or who the decision-makers are? What about what happens at Council and advisory group meetings, or how you can get involved in the Council process? You're in luck—we have created handouts on these topics to help you understand fisheries management a little better. These resources and more are available on the Council website at www.wpcouncil.org/fisheries101.

The collage includes several handouts:

- WHAT DOES OUR COUNCIL DO?**: Explains the Council's role in managing fisheries, including 4 meetings a year (1 in Hawaii, 1 in the Mariana Archipelago, 1 in American Samoa, and 1 in the Pacific Islands) and 4 days of meetings.
- WHO ARE THE DECISION MAKERS? COUNCIL = DECISION MAKERS**: Lists 16 council members (3 non-voting, 13 voting) and 8 appointed seats. It also lists the staff and advisory panels.
- GET INVOLVED IN OUR COUNCIL PROCESS**: A 7-step guide for public participation, from preparing to show up to providing comments and participating in public testimony.
- WHAT HAPPENS AT COUNCIL & ADVISORY GROUP MEETINGS?**: Details the 4x per year meeting schedule and the 3-step process: 1. Hear reports and bring up issues, 2. Takes public testimony, 3. Deliberates, 4. May make a recommendation or take other action.
- FROM AN IDEA TO IMPLEMENTATION**: A 4-step process: 1. Most ideas are brought to the Council during public testimony or through advisory groups. 2. Discussion Paper: Staff prepare a discussion paper to explore the scope of an issue. 3. INITIAL ACTION: Staff analyze alternatives based on feedback. 4. FINAL ACTION: The Council takes a final action on the preferred management measure.
- HOW DOES THE DECISION-MAKING PROCESS WORK?**: Explains the flow from public testimony to staff analysis and final Council decisions.

New Outreach Resources

The 2022 traditional lunar calendars are now available for American Samoa, the Commonwealth of Northern Mariana Islands, Guam and Hawai'i. The calendars aim to raise awareness about traditional ecological knowledge and enhance community involvement in fishery management. Council staff and the four regional Advisory Panels collaborated to create calendars that highlight 13 species managed under the Council's Fishery Ecosystem Plans. Each month includes life history and fishery information, current regulations, management and stock status, and a delicious recipe to enjoy. In addition, a smaller, travel-sized version of the Hawai'i calendar was created to accompany fishermen on their trips.

Calendars are available to download and print at www.wpcouncil.org/educational-resources/lunar-calendars.



Council Family Updates

At the 189th Council meeting, the Council supported the following advisory body changes:

- Appointed **Jason Biggs**, Guam Div. of Aquatic and Wildlife Resources, to the Scientific and Statistical Committee (SSC) and the Archipelagic Plan Team
- Appointed **Frank Villagomez**, Commonwealth of the Northern Mariana Islands Div. of Fish and Wildlife, to the SSC

Council staff **Maria Carnevale** and others published a peer-reviewed journal article in *Frontiers in Marine Science* that captures issues affecting Justice, Equity, Diversity, and Inclusion in the marine science and conservation community. The article not only explores the limits of certain barriers identified by attendees at the sixth International Marine Conservation Congress, but also shares initiatives for improvement.

Johri S et al. 2021. Pathways to Justice, Equity, Diversity, and Inclusion in Marine Science and Conservation. *Front. Mar. Sci.* 8:696180. <https://doi.org/10.3389/fmars.2021.696180>

Council Scientific and Statistical Committee member **Ray Hilborn** and Council staff **Mark Fitchett**, among others, were co-authors in a recently published peer-reviewed journal article that found large stationary permanent marine protected areas are a relatively inefficient tool to protect marine biodiversity by reducing bycatch in oceanic fisheries. Dynamic ocean management, or changing the pattern of closures as bycatch hotspots shift, is much more effective.

Pons M et al. January 2022. Trade-offs between bycatch and target catches in static versus dynamic fishery closures. *Proceedings of the National Academy of Sciences*, 119 (4): e2114508119, <https://doi.org/10.1073/pnas.2114508119>

Recipe: Steamed Soy and Ginger Gindai

INGREDIENTS

- 1 2 to 3-lb gindai, cleaned and deboned
- 2 tbsp water
- 2 tbsp Kikkoman soy sauce
- 1 tbsp oyster sauce
- ginger, amount to taste
- 1 tbsp sesame oil
- green onions, thinly sliced
- 2 sprigs cilantro, finely chopped

INSTRUCTIONS

- Place fish onto a heatproof ceramic plate.
- For the sauce: Mix water, soy sauce and oyster sauce in a small bowl.
- Add sauce around fish. Scatter ginger over the top.
- Place fish into a steamer set over gently boiling water and cover. Steam for 10 minutes.
- Sprinkle fillet with green onions.
- Finishing: Heat sesame oil over medium-high heat until it begins to smoke. Carefully pour over dish. Sprinkle with cilantro.



Courtesy Hyatt Regency Saipan, From the 2022 CNMI Lunar Calendar



Photo: PIFG BFISH Project.

2022 Council Calendar

All meetings will be held virtually unless otherwise noted.

March

- 15-17** 143rd Scientific & Statistical Committee (SSC) meeting
- 22-24** 190th Council meeting
- 25-28** International Sea Turtle Symposium*
- 27-29** North Pacific Fisheries Commission — 7th Annual Session of the Commission*
- 29-30** National Saltwater Recreational Fisheries Summit, Arlington, VA*

April

- 19-21** Archipelagic Plan Team meeting
- 25-27** Inter-American Tropical Tuna Commission (IATTC): 3rd Workshop on Implementation of an Electronic Monitoring System in the Eastern Pacific Ocean*
- 26-28** Fishery Data Collection and Research Committee — Technical Committee meeting

May

- 3-5** Pelagic Plan Team meeting
- 10-11** IATTC: 11th Meeting of the Working Group on Bycatch*
- 12-13** IATTC: 6th Meeting of the Ad Hoc Working Group on Fish Aggregating Devices*
- 16-20** IATTC: 13th Meeting of the Scientific Advisory Committee*
- 17-19** Council Coordination Committee meeting*
- 23-26** 72nd Tuna Conference, Lake Arrowhead, CA*

June

- 14-16** 144th SSC meeting
- 20-23** 191st Council meeting



Thank you to Raquel Manalo of Daystar Fish Store and Carlita Salinas of DJ Fish Mobile - two of the fish vendors on Saipan that provided photos for the 2022 CNMI lunar calendar.
Photos: Floyd Masga.

*Meetings not hosted by the Western Pacific Regional Fishery Management Council.

Upcoming Events

The 143rd Scientific and Statistical Committee (SSC)

meeting will be held March 15-17, 2022, via Webex. Direct link to the meeting: <https://tinyurl.com/SSC143mtg>.

Major agenda items include:

- Review of the acceptable biological catch for the main Hawaiian Islands (MHI) deepwater shrimp and precious corals (action item)
- Territorial bottomfish management unit species complex revision
- American Samoa Bottomfish Fishermen Data Workshop outcomes
- 2021 Hawai'i and American Samoa longlinefishery reports
- Area-based management discussions

The 190th meeting of the Western Pacific Regional Fishery Management Council

will convene March 22-24, 2022, via Webex. Direct link to the meeting: <https://tinyurl.com/CM190mtg>.

Major agenda items include:


- Specification of the annual catch limits for the MHI deepwater shrimp and precious corals (action item)
- Council response to the Northwestern Hawaiian Islands proposed National Marine Sanctuary
- American Samoa Bottomfish Fishermen Data Workshop outcomes
- 2021 Hawai'i and American Samoa longline fishery reports
- Area-based management discussions

The Council meeting will have the following host sites, which are subject to local and federal safety and health guidelines regarding COVID-19:

- Tedi of Samoa Bldg.
Suite 208B, Fagatogo Village, American Samoa
- BRI Bldg.
Suite 205, Kopa Di Oru St., Garapan, Saipan, CNMI
- Cliff Pointe
304 W. O'Brien Dr., Hagatña, Guam

For more information on agendas, meeting documents and the web conference connection, go to www.wpcouncil.org/meetings-calendars.

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Action Item at the March 2022 Council Meeting

The Council will consider and may take action on the issue summarized below.

Specification of the main Hawaiian Islands (MHI) Deepwater Shrimp and Precious Coral Annual Catch Limits (ACLs):

The Council will review recent data for the multi-year specification of the ACLs for the MHI deepwater shrimp and precious corals for fishing years 2022-2025. The previous ACL specifications were based on a 1988 study for deepwater shrimp, and studies in 2002 and 2004 for precious corals. There was one federal permit holder for precious coral from 2016 to 2019 and zero in 2020. There were two federal permit holders for deepwater shrimp from 2016 to 2018 and zero from 2019 to 2020. The catch from the Fisher Reporting System of the Hawai'i Division of Aquatic Resources showed an average of 11,835 pounds of deepwater shrimp landed from three to five commercial marine license holders from 2016 to 2020. No catch were reported in the previous five years for precious corals. There are no assessments for these stocks and recent studies do not generate new maximum sustainable yields. Therefore, the Council may choose between two alternatives for these fisheries—not specifying an ACL or rolling over the current ACLs for fishing years 2022-2025.

All BRFA's to Reopen Effective Immediately

February 25, 2022, marks a victorious day for the Hawai'i bottomfishing community. After 24 years of dealing with an unnecessary fishery management tool called Bottomfish Restricted Fishing Areas (BRFAs), the Hawai'i Board of Land and Natural Resources opened eight remaining BRFA's, effective immediately. During the discussion, a board member asked about the benefits of opening the BRFA's. Brian Neilson, Hawai'i Division of Aquatic Resources Administrator, responded "equitable access to the resources." The closures have penalized fishermen who followed the rules and incentivized the ones who violated them. The bottomfish stock is managed based on the best scientific information available. Annual Catch Limits (ACLs) allow the fishermen to fish sustainably today and into the future. Mahalo to the fishermen who continually care and have been working collaboratively with scientists and managers to access their traditional resources—this day is for you.



Dedicated to ecosystem-based fisheries management in the U.S. Pacific Islands.