

Pacific Islands Fishery News

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Are the Territory Bottomfish Fisheries in Dire Straits?



In August 2019, the National Marine Fisheries Service (NMFS) Pacific Island Fisheries Science Center (PIFSC) released a scientific report that assessed the status of the bottomfish fisheries and stocks in the Territories of American Samoa, Guam and the Commonwealth of the Northern Mariana Islands (CNMI). This study used the survey data generated by the territory fishery management agencies to provide a scientific basis for the

management of bottomfish fisheries.

The assessment was peer-reviewed by an independent panel of experts and the Council's Scientific and Statistical Committee. The methods used in this recent assessment were considered an improvement compared to the previous one.

According to the assessment, the bottomfish stock in American Samoa is overfished and the fishery is experiencing overfishing; the stock in Guam is overfished and the fishery is not experiencing overfishing; and the stock and fishery in CNMI are neither overfished nor experiencing overfishing. It seemed that the bottomfish fisheries in American Samoa and Guam were in dire straits based on the assessment.

Council staff held a series of meetings to help the fishing communities understand the science and the implications of the results on their livelihood. Staff met with the bottomfish fishing communities in CNMI and Guam in September 2019 to inform them about the situation and emphasized the importance of getting accurate and representative fisheries information. The fishing communities expressed the following concerns:

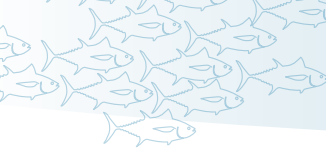
- Data do not represent the entire bottomfish fishery.
- Data collection programs are not implemented properly. Some fishermen are not interviewed even when available. Some data are allegedly fabricated.

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Dedicated to ecosystem-based fisheries management in the US Pacific Islands



Bottomfish Fisheries in Dire Straits?

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- Treating the species as a single management complex does not represent how the fishery has been conducted in recent years.
- Assessment outcome will severely limit the fisheries.
- Outreach on the results of the assessment is lacking.

The American Samoa DMWR organized a bottomfish fishermen meeting with the PIFSC scientists as part of the 180th Council meeting on Oct. 21, 2019. Fishermen from Tutuila and Manu'a islands participated in the meeting and questioned the accuracy of the assessment because the result does not match what the fishermen perceive to be the status of the fishery. Fishermen questioned how there could be over-fishing if there are only a few boats fishing part-time and only occasionally selling their catch. Most participants said that they fished to share with their church, family and village. Fishermen were also unaware of the fishery data collection program, especially

in the Manu'a islands, but expressed interest in contributing to the science by self-reporting their catch. Fishermen came out of the meeting with a better understanding of the importance of accurate fishery data, and the scientists came out of the meeting with a better understanding of the fishing culture, nature and extent of the fishery.

The assessment was presented to the Council on Oct. 24, 2019, in American Samoa. The Council expressed its concerns regarding the data used in the assessment and the implications of the results to the bottomfish fisheries in the territories. The Council also received numerous public testimonies from fishermen who pleaded with the Council to consider not closing the American Samoa fishery due to this new information. The Council recommended that NMFS implement an interim measure to reduce over-fishing of the American Samoa stock, which will allow the fishery to operate while the Council develops a plan to rebuild the stock. The Council

also made several recommendations to improve fishery data collection in the territories, conduct fishery-independent research, training on self-reporting and extensive education and outreach to support data collection.


The Council will be working with NMFS on several actions stemming from the meeting:

- Joint outreach activities on the assessment and importance of data collection in the Marianas.
- Rebuilding plans for the overfished stocks in Guam and American Samoa.
- Amendments to the American Samoa and Mariana Fishery Ecosystem Plans to regroup the bottomfish management complexes into more biologically meaningful units.
- 2020 to 2022 annual catch limits.
- Data collection improvements in the territories (see article "The Quest for the Fishery Data Collection Grail").



The bottomfish fisheries in American Samoa, Guam and the Commonwealth of Northern Mariana Islands (CNMI) are the only small boat demersal (on or near the ocean bottom) fisheries managed under the Western Pacific Regional Fishery Management Council's Fishery Ecosystem Plans. The fisheries are predominantly a single-day trip, except for fishing in the northern islands of CNMI where it becomes a multi-day trip due to the sheer distance between fishing locations. The fishing grounds range from depths of 100 to 500 feet for the shallow species of grouper, snapper, emperor and jacks to more than 900-foot depth for deep snapper species. The bottomfishing vessels are mostly less than 25 feet. The gear is comprised of a pole and line (manual or electric reels) with multiple branch lines that split off several feet from the terminal end of the mainline. Lead weights are attached to the terminal end along with a chum bag to attract fish at the start of the branch line section. Each boat brings one to four gear setups on any given trip. Fishing participation in the territories is a fraction of Hawai'i's where, on average, 350 unique fishermen report catches.

The territory bottomfish is primarily managed through annual catch limits. This is a quota-based system where managers track the catch relative to the quota and the federal waters are closed once the quota is reached.

The bottomfish fishery data are collected by each territory's fishery management agency: American Samoa Department of Marine and Wildlife Resources, Guam Division of Aquatic and Wildlife Resources and CNMI Division of Fish and Wildlife. This is done through stratified random surveys—surveyors drive to the known ports, marinas and ramps at a specific time and date, count the number of boats that went out and try to intercept each boat when it returns to interview the captain and crew about their catch and effort. Other data on the bottomfish fisheries comes from the Commercial Purchase Receipt Book System where vendors log and report the bottomfish bought from the commercial fishermen and sold as fresh or processed product within their establishment. 

American Samoa Bottomfish Fishing Survey Demonstration



Council Advisory Panel member Ed Ebisui III with an unidentified species of bottomfish that looked like a giant ehu.

During a weekend in October 2019 in Pago Pago, American Samoa, everyone aboard the *Double Barrel* was set to fish for bottomfish. The team included Council member Ed Watamura, Council advisers Clay Tam, Kurt Kawamoto and Ed Ebisui III, Pacific Islands Fishery Science Center staff Joe O'Malley and bottomfish fisherman Mickey Kitiona. The goal of this trip was to demonstrate to the local bottomfish fishermen the survey used in Hawai'i to quantify differences in catch per unit effort (CPUE) using a standardized fishing method. The standardized fishing survey is one half of the fishery-independent survey method—the other half is the deployment of a camera system to take footage of the bottomfishes in their natural habitat. On Saturday, the team focused on pre-identified fishing locations on the island shelf (inner shelf) and shelf drop-off of Tutuila, while on Sunday they surveyed the offshore bank called South Bank.

The team used a two-deep sea pole and line gear, each powered by an electric reel. The average depth surveyed for the inner-shelf area was 40 feet, 150 feet for the drop-off and 186 feet at South Bank (Table 1). The team used the same hook size and a fish

and squid bait combination. The results of the fishing demonstration showed a higher catch and CPUE at the offshore bank (Table 1). As expected, the team caught mostly shallow reef fish at the inner-shelf area, mostly deep-water species at the drop-off of Tutuila and all deep-water species at South Bank. There is hardly any difference between the total catch and CPUE between the inner-shelf and drop-off locations in Tutuila, with the main difference evident between Tutuila and South Bank.

TABLE 1. Results of the fishing demonstration comparing fishery parameters among the habitats surveyed.

Habitat	Mean depth (ft)	Total catch (lbs)	No. of Species		CPUE (lb/hr)
			Shallow	Deep	
Inner-shelf Tutuila	40	21.2	4	0	20.44
Drop-off Tutuila	150	22.3	1	4	18.03
South Bank	186	204.5	0	9	72.76

The average length of fish found in the offshore banks was generally longer, compared to the other two locations (Table 2). The top three species caught (by total weight) in the demonstration survey were the pale snapper (*Etelis radius*) at 64 pounds, followed by the long-tail red snapper (*E. coruscans*) at 51 pounds and an unidentified bottomfish species that looked like a giant ehu (*E. carbunculus*) at 35 pounds.

The Council hopes to build local capacity to conduct standardized fishing surveys such as this one in American Samoa in the future. More fishermen are needed to engage in the fishing surveys. Also needed are better bathymetric and habitat maps to properly structure future surveys and the purchase of sounders and fishing gear. 🐟

TABLE 2. Average length of bottomfish species caught at the Tutuila inner-shelf and drop-off and at South Bank.

Scientific name	Common name	Average length (cm)		
		Inner-shelf Tutuila	Drop-off Tutuila	South Bank
<i>Aphareus rutilans</i>	rusty jobfish		49.6	54.0
<i>Aprion virens</i>	green jobfish	53.3		
<i>Carangoides caeruleopinnatus</i>	coastal trevally	30.4		
<i>Gymnosarda unicolor</i>	dogtooth tuna	70.0		
<i>Epinephelus timorensis</i>	yellowspotted grouper		29.6	
<i>Etelis carbunculus</i>	ruby snapper			31.5
<i>Etelis coruscans</i>	long-tail red snapper			66.2
<i>Etelis radius</i>	pale snapper			74.0
<i>Etelis sp.</i>	giant ehu			81.3
<i>Paracaesio kusakarii</i>	saddleback snapper			53.0
<i>Pristipomoides auricilla</i>	goldflag snapper		30.0	30.5
<i>Pristipomoides flavipinnis</i>	goldeneye jobfish			27.5
<i>Pristipomoides zonatus</i>	oblique banded snapper		27.9	36.8
<i>Variola albimarginata</i>	white-edged lyretail	28.1		
<i>Wattsia mossambica</i>	Mozambique large-eyed bream		44.5	

Message from the Council's Executive Director



The Western Pacific Regional Fishery Management Council embraces its duty, and that of the National Marine Fisheries Service (NMFS), to not only conserve and manage fish stocks, protected species and habitat but also ensure the viability of our region's fisheries and fishing communities. Addressing the US seafood trade deficit and illegal, unreported and unregulated fishing are goals of this Administration.

These goals can be met if our US fishermen have access to adequate fishing grounds and the ability to catch and market sustainably caught domestic fish at profitable levels.

As we reflect on the year coming to an end, we recall frustrations about area closures and regulatory and administrative delays and cling to promises of more positive actions to support our island fisheries as we enter the new decade.

Marine national monuments continue to close 51 percent of the US exclusive economic zone (EEZ) waters in our region. Additionally, the 132,000-square-mile section of the US EEZ waters known as the Southern Exclusion Zone (SEZ) was closed to the Hawai'i deep-set longline fishery for tuna following the fishery's interaction with two false killer whales. The SEZ will remain closed at least through the first half of 2020. NMFS Pacific Islands Regional Office (PIRO) says that, before making a decision on reopening the area, it must evaluate the false killer whale mortality and serious injury estimates using the full fishery data for 2019 to be generated by NMFS Pacific Islands Fisheries Science Center (PIFSC). Closure of the SEZ, the monument waters around the Northwestern Hawaiian Islands and the longline exclusion zone (0 to 50 miles from shore) around the main Hawaiian Islands, leaves only 17 percent of US EEZ waters around Hawai'i open to the State's preeminent longline fishery.

Delays by the NMFS PIRO in issuing biological opinions (BiOps) for the Hawai'i deep-set and shallow-set longline fisheries, American Samoa longline fishery and US tropical purse-seine tuna fishery hindered the Council's ability to enhance management of the Hawai'i shallow-set longline fishery's interaction with sea turtles in a timely manner. The delay also led to Earthjustice filing a Notice of Intent to Sue and the threat of an injunction of these fisheries.

The Western and Central Pacific Fisheries Commission (WCPFC) did not develop a new conservation and management measures for tropical tunas at its December 2019 meeting in Papua New Guinea (PNG). As a result, the Hawai'i longline fishery will continue to operate with a quota that does not reflect its capacity, its stellar monitoring and compliance record or the demand of its local and domestic markets. Likewise, the American Samoa longline fleet, as well as those of other local South Pacific islands, would continue to face hardship if the catch of its target species remains low. Many associate the low catches with the dramatically increased operations of China longline vessels in the region. At the meeting of the Permanent Advisory Committee to the US Commissioners to the WCPFC held prior to the PNG meeting, the Council advocated for the development of a tuna allocation scheme that would support the Hawai'i and American Samoa longline fisheries. Such a scheme could include bigeye tuna quotas for the purse-seine fishery as well as the longline fishery. Currently,

quotas are set for latter only. The scheme could also establish a target reference point for catches of South Pacific albacore, which would recognize the increased catches of the species by distant-water fishing nations and the special status of Small Islands Developing States and Participating Territories.

A recent draft stock assessment by NMFS indicates that the federally managed bottomfish complex in American Samoa is overfished and experiencing overfishing and that the Guam bottomfish stock is overfished but not experiencing overfishing. It is generally agreed that the stock assessments for these fisheries are based on poor data that likely inaccurately represent the condition of the stocks. To address these fishery management concerns, the Council is working with local agencies and NMFS on improving Territory fishery data collection programs and methods.

On a more positive note, 2019 saw the following advances among others:

- The Territory's embracing mandatory fishing permit and reporting requirements, which was endorsed by independent reviewers at the Pacific Insular Fisheries Monitoring and Assessment Planning Summit.
- Funding for pelagic fishery research in the region, the first such dedicated funding since dissolution of the Pelagic Fisheries Research Program seven years ago.
- A new model developed by the NMFS PIFSC to evaluate the impact of Hawai'i longline fishery interactions on the North Pacific loggerhead and Western Pacific leatherback sea turtle populations. Results show the shallow-set longline fishery has little to no discernible impacts on the population trend of loggerhead and leatherback turtles over the next 100 years. The results for the deep-set fishery are expected in early 2020.

American fisheries in the Western Pacific Region produce 80 percent of the nation's domestic bigeye tuna, 65 percent of its domestic yellowfin tuna and 55 percent of its domestic swordfish. The Hawai'i longline fleet accounts from the majority of the approximately \$120 million in ex-vessel landings at the port of Honolulu, making it consistently one of the top 10 ports in the nation in terms of seafood landings. The longline fishery is the State of Hawai'i's primary food producer, with about 80 percent of the product kept on island, helping the State to reach its food sustainability goal. Local fisheries in American Samoa support the StarKist tuna cannery in Pago Pago, the Territory's primary private-sector employer, and provide American product that meets Department of Defense and the nation's school meal program requirements.

In the coming year, the Council looks forward to collaborating with the region's fishing communities and local and federal fishery agencies to support these and other American commercial, recreational and subsistence fisheries in our Region, so we can fish forever!

Hau'oli Lanui, la Manuia Aso Fiafia, Magof Gupot, Ammeseighil Ubwutiwel Layúl Luugh Me Rágh Ffé,

Kitty M. Simonds

Looking Ahead to the Future

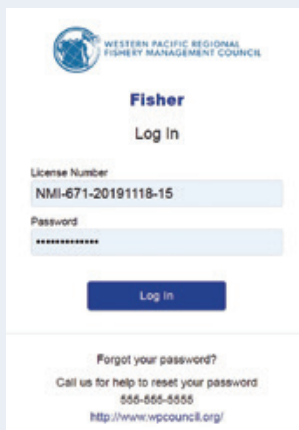
As 2019 draws to a close, so does the Western Pacific Regional Fishery Management Council's current five-year programming and funding cycle. Here is a peek into what is in store as the Council gears up for the next five years of management and conserving fishery resources in the US Western Pacific Region.

PRIORITY AREAS FOR 2020-2024

- Finalize ongoing amendments and support timely implementation of Council actions.
- Actively participate in international scientific and management of Regional Fishery Management Organizations to ensure fair allocation of shared resources for US fisheries.
- Coordinate data collection and research through the Council's Fishery Data Collection and Research Committee to support annual catch limit specifications for insular fisheries and pelagic research to support regional assessments and monitor fisheries on a near real-time basis.
- Actively address protected species (Endangered Species Act listings/Marine Mammal Protection Act) to mitigate interactions with species of concern and minimize impacts on Pacific Island fisheries.
- Support fishery development of under-utilized fisheries in the Western Pacific Region.

To carry out its work, the Council has made some changes to its program structure and advisory bodies. Starting in 2020, the Council will also schedule four meetings per year instead of three. They will include meetings in the Mariana Archipelago (Guam and Northern Mariana Islands) in September and American Samoa in December as well as two meetings in Hawai'i (March and June). Previously, the Council would hold one meeting in the Territories, rotating between American Samoa and the Mariana Archipelago. 🐟

You Catch It, You Log It – Small Boat Reporting App



Mobile technology and applications

are changing the world as we know it. Instant messaging, electronic logging of information, geolocation and software applications at your fingertips are available anytime, anywhere. What if you merge these technologies with fishing? This would revolutionize the collection of fisheries data. The Council is developing a mobile application to improve the collection of fisheries data through self-reporting by small boat fishing communities in the Commonwealth of Northern Mariana Islands (CNMI), Guam and American Samoa. This supports the effort by CNMI to implement its mandatory fishing license and reporting regulations. The project is in its final development stage with deployment scheduled for the first quarter of 2020.

The fisher app has the following features:

- Allows fishermen to submit species-level catch, effort, sales and fishing trip information to comply with regulations.
- Provides fishermen with an electronic record of their catch history and sales performance.
- Documents bycatch and depredation events.
- Provides fishery managers with real-time data for tracking catch.
- Gives fishermen accountability for the information they provide and direct participation in fisheries management.

The Council is also developing a fish vendor application that goes in tandem with the fisher app. In CNMI, the fish vendors are required to report their purchase and sale of fish (or fish products) caught in CNMI waters. This app provides the following:

- Ability of vendors to submit their sales electronically and comply with regulations.
- Traceability of fish products to the exact fishing trip.
- Electronic records for vendors and a summary of their fish purchases and sales.
- Real-time data for managers to track commercial sales of fish.
- Verification of fishermen catch and the portion of the catch that entered commerce.

The applications are free and will be provided to fishermen and vendors, along with extensive training on how to use the apps. Interested persons must first register with their respective local fishery management agencies.

It's time to move away from paper reporting and venture into the future of fishery data collection. 🐟

New Model Shows Hawai'i Shallow-Set Longline Fishery Has Minimal Impact on Turtle Populations

The Hawai'i shallow-set longline fishery has little to no discernible impact on the population levels of loggerhead and leatherback turtles. That was the finding of a new Population Viability Assessment model developed by the National Marine Fisheries Service (NMFS) Pacific Islands Fisheries Science Center (PIFSC). The model was presented to the Western Pacific Regional Fishery Management Council at its 180th Council meeting held in October 2019 in American Samoa. The model's results will be published in a NOAA technical memorandum in early 2020.

The fishery, which produces 55 percent of the domestic US catch of swordfish, is one of the most highly regulated and monitored longline fisheries in the entire Pacific with 100 percent federal observer coverage. Since 2004, every



A live loggerhead turtle is brought onboard a longline vessel with a dip net to allow for safe removal of fishing gear. Photo: NOAA NMFS

shallow-set longline trip has carried a federal observer, who collects data on target and non-target fish as well as any interactions with protected species, such as turtles, seabirds and marine mammals. The shallow-set longline fishery is also required to use circle hooks and fish bait designed to reduce accidental interactions (meaning hooking or entanglement) with sea turtles, and take additional steps to reduce impacts to seabirds. Over 99 percent of the sea turtles observed interacting with the fishery since 2004 were released alive.

PIFSC's model analyzed the impacts of the future anticipated level of interactions in the Hawai'i shallow-set longline fishery on the loggerhead and leatherback turtle populations over the next 100 years. The anticipated level analyzed was equal to or less than 36 loggerhead turtle interactions per year and equal to or less than 21 leatherback turtle interactions per year. The results of the model showed no discernible impact of the fishery's interactions on the population trend of loggerhead turtles over the next 100 years. For leatherbacks, it showed a small change in the long-term population trend, indicating that the population impact from the fishery would

occur five years earlier at the end of the 100-year period. The model also indicated that the past take made no discernable difference on the historical population trend. The model is considered to be conservative because the impacts of the interactions are only applied to index beaches, which account for about 52 percent of the loggerhead population and about 75 percent of the leatherback population. A PIFSC scientist noted that the primary impacts on the leatherback population include directed fisheries and nesting predation where the turtles nest in Indonesia and Papua New Guinea.

These model results further support the conclusions of a biological opinion (BiOp) issued by NMFS in June 2019 that the Hawai'i shallow-set longline fishery is not likely to jeopardize the continued existence of species listed under the Endangered Species Act. Nevertheless, the BiOp required implementation of additional mitigation measures to minimize the impacts of the interactions, including a fleet-wide hard limit of 16 leatherback turtles annually (after which the fishery must close for the remainder of the year) and interaction limits for each shallow-set trip that would require vessels to return to port if they reached a limit. The Council at its 179th meeting in August 2019 took final action to implement these management actions (see *Pacific Islands Fishery News* Summer 2019).

At its 134th meeting in October, the Council's Scientific and Statistical Committee (SSC) endorsed the take model developed for the shallow-set longline fishery as the best scientific information available for evaluating the impacts of the fishery on loggerhead and leatherback turtle populations. The SSC further recommended that PIFSC apply the model to the interaction data for the Hawai'i deep-set longline fishery (which targets bigeye tuna) and the American Samoa longline fishery (which targets albacore tuna) to provide a robust scientific assessment to be considered in the upcoming BiOps for those fisheries. The Council at its 180th meeting urged NMFS to consider all anticipated scientific information, including the PIFSC model, in the BiOp for the Hawai'i deep-set and American Samoa longline fisheries.

The Council will additionally work with NMFS to evaluate the impact of any management actions for reducing turtle interactions on the economic performance and socioeconomic effects of the shallow-set and deep-set longline fisheries, including consideration of the effect on protected species being transferred to foreign fisheries should the US longline fishery close. It also recommended that NMFS work with the Council to develop only necessary sea turtle protection measures under the ongoing consultations for the Hawai'i deep-set and American Samoa longline fisheries that are appropriate and practicable and ensure the sustainability of the fisheries. 🐢

Fishing Tournament Participants Support Data Collection



Pago Pago Game Fishing Association President Chris Banse and Pafuti Ioane of the Double Trouble collect their prize for largest tuna of the tournament.

The 2nd Pago Pago Open Fishing Tournament was held in October just before the 180th meeting of the Western Pacific Regional Fishery Management Council. The Council and the American Samoa Department of Marine and Wildlife Resources coordinated and hosted the tournament, which received a good deal of sponsorship support. The major sponsor for the tournament was the Pago Pago Trading Company. Other contributions were provided by the American

Samoa Power Authority, Starkist Samoa, POP Fishing and Marine and the Pacific Islands Fisheries Group. The free tournament was open to all small fishing vessels in American Samoa. Fifteen vessels competed, including one from the Manu'a Islands. Some of the participating boats invited Council members from Hawai'i, Guam and the Commonwealth of the Northern Mariana Islands to fish with them.

The all-day tournament highlighted important fishery management issues for the Territory by including bottomfish as a gear category and a special prize category for captains who volunteered to test a new self-reporting data app while competing. Boats received prizes for the highest number of total species from the bottomfish and pelagic trolling categories and for the largest fish from three tuna species categories, *masimasi* (dolphin fish) and *pa'ala* (wahoo). There was also a grand prize for the tournament's heaviest overall fish. Participating fishermen had the option of keeping their fish or donating them to Hope House Charities, which serves residents who are elderly or disabled. The tournament landed 101 fish, weighing well over 700 pounds. 🐟

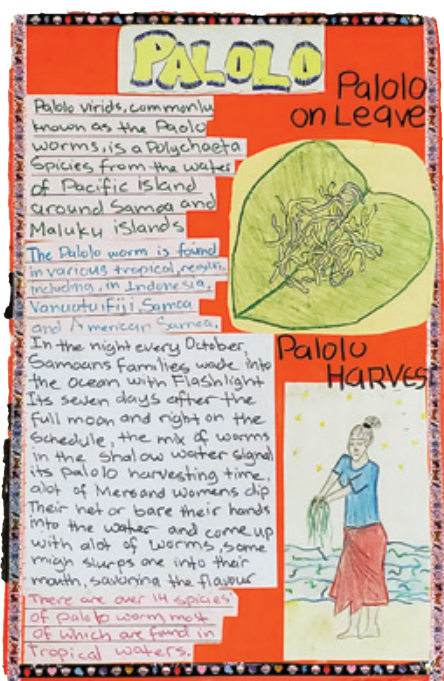


From top: DMWR staff member Tepora Lavatai collects catch data on this black marlin caught by the crew of the Double Trouble. Middle: Capt. Clint Ilaoa and the Avaiki crew made the trip from Manu'a to participate in the tournament. Bottom: Capt. Leuma Sue (second from left) and the crew of the Salvation took home the grand prize of a Penn International 80 gold reel for the heaviest fish—a 124.2-pound marlin.

TOP 10 BOATS THAT BROUGHT IN THE MOST TOTAL FISH AT THE TOURNAMENT

Vessel	Captain	Bottomfish Landed	Pelagic Fish Landed	Total Fish Landed
Avaiki	Clint Ilaoa	29	3	32
Noelani	Tata Aga	23		23
Double Hooked	Andy Wearing		13	13
Salvation	Leuma Sue	2	4	6
Tava'e Ula	Brian Peck	5		5
DMWR Whaler	Sean Felise	1	3	4
Double Trouble	Chris Banse		4	4
Jasmine	Henry Tavake		4	4
Capital M	Fai Mareko		1	1
Sau la	Peter Reid III		1	1
Tournament Totals		60	33	93

Students' Talents on Display at the Fishers Forum



The family-friendly Fishers Forum in American Samoa held Oct. 22, 2019, at the National Marine Sanctuary of American Samoa's Tauese P.F. Sunia Ocean Center, focused on the theme of "Palolo Harvest: Science and Tradition." In Samoa, the mass spawning of the breeding parts of the marine worm called palolo typically occurs seven days after the full moon in October or November over two to three consecutive nights. While this date fell the weekend before the forum, local fishermen were disappointed to not find many in their nets.

To support the theme, the Council held a palolo poster contest in which schools held their own contests and submitted one winning poster from each grade for final judging at the Fishers Forum. The Council invited all public and private school students to submit posters, which were judged by Council members Monique Genereux, John Gourley and Ed Watamura and Sam Rauch, Deputy Assistant Administrator for Regulatory Programs at NOAA Fisheries. The judges selected the top two winners from each grade from pre-K age 3 to grade 12 based on the criteria of creativity and artistic value, along with the poster's connection to the event theme of palolo and

the harvest's importance to American Samoa, both from a scientific and traditional perspective. Seventy-five submissions were displayed. The winning entries received prizes of fishing rod and reel combos and mask and snorkel sets. All participating students

received gift certificates to the Regal Nu'uuli Place Cinemas.

Fishers Forum participants also learned about palolo and other fisheries-related topics from a number of experts. The following local and federal agencies

WPRFMC 180th Council Meeting Fishers Forum Palolo Poster Contest Winners

Prize	School	Student Name
Grade PreK age 3		
youth fishing rod and reel	Siliaga Elementary	Edward Meafou
Grade PreK age 4		
youth fishing rod and reel	Fagali'i Elementary	Lenora Mauava
youth fishing rod and reel	Siliaga Elementary	Roman Faiese
Grade Kindergarten		
youth fishing rod and reel	Siliaga Elementary	Aperila Tupulua & Starr Vaifale
Grade 1		
youth fishing rod and reel	Manumalo Academy	Puaina Sagapolutele
youth fishing rod and reel	Pavaiai Elementary	Cyrani Falese Fulu & Love Sione
Grade 2		
youth fishing rod and reel	Manumalo Academy	Tali Logoai-Peery
youth fishing rod and reel	Siliaga Elementary	Sonny Eti
Grade 3		
youth fishing rod and reel	Faleasao Elementary	Adonai Gaoa
youth fishing rod and reel	Manumalo Academy	Lhoney Heather
Grade 4		
youth fishing rod and reel	Faleasao Elementary	Fofoga Vaitautolu
youth fishing rod and reel	Siliaga Elementary	Arianna Pelini
Grade 5		
snorkel and mask	Marist St Francis	Lutaiapuava Lilo
snorkel and mask	Siliaga Elementary	Ferila Ofisa
Grade 6		
snorkel and mask	Leone Midkiff Elementary	Miracle Taalefili
snorkel and mask	Manumalo Academy	Zephaniah Tauvao
Grade 7		
snorkel and mask	Kanana Fou Elementary	Latana Sopa
snorkel and mask	Siliaga Elementary	Josaiah Faitasia
Grade 8		
snorkel and mask	Faleasao Elementary	Christina Logoleo
snorkel and mask	Leone Midkiff Elementary	Jaymie Godinet
Grade 9		
adult fishing rod & reel	High School	Divine Mauga
adult fishing rod & reel	Tafuna High School	Maeline Feula & Meleane Haa
Grade 10		
adult fishing rod & reel	Manumalo Academy	Randrielle Yola
adult fishing rod & reel	Tafuna High School	Matavai Auapaau
Grade 11		
adult fishing rod & reel	Manu'a High School	Falesoa Fonoti
adult fishing rod & reel	Tafuna High School	Amazing Leupolu
Grade 12		
adult fishing rod & reel	Tafuna High School	Maryanne Collins

and organizations had booths to inform the public about their work in resource management.

- American Samoa Coral Reef Advisory Group
- Department of Marine and Wildlife Resources-Education Division
- American Samoa Department of Commerce's Coastal Management Program
- National Marine Sanctuary of American Samoa
- National Park of American Samoa
- NOAA Pacific Islands Fisheries Science Center
- NOAA Pacific Islands Regional Office
- Pacific Islands Fisheries Group
- US Coast Guard Auxiliary
- US Fish and Wildlife Service
- USDA Natural Resources Conservation Service
- Western Pacific Regional Fishery Management Council

Staff from the National Park of American Samoa provided a presentation about the annual palolo spawning event. In addition, a team of professional fishermen from the state of Hawai'i was brought down to conduct a two-day bottomfish survey in the waters around Tutuila Island, and their catch was on display for the public to see. 🐟



Palolo harvest poster contest entries from students in grades pre-K to 12 in American Samoa addressing the theme "Palolo Harvest: Science and Tradition."



Calling All Data Holders!



Ecosystems change.

Without the data on the changes, management lags. To manage proactively, ecosystem data can be collected to forecast changes and predict potential impacts to resources

such as fisheries. This is the main idea behind an initiative between the National Marine Fisheries Service's (NMFS) Pacific Islands Fisheries Science Center (PIFSC), Pacific Islands Regional Office (PIRO) and the Western Pacific Regional Fishery Management Council.

The 2018-2022 Pacific Islands Region Ecosystem-Based Fisheries Management (EBFM) Implementation Plan was published in April 2019 to identify, coordinate and further EBFM in the near- and long-term. The plan proposes to link comprehensive scientific research with management objectives in order to meet management responsibilities for ensuring sustainable and responsible fisheries. While a wealth of information is available from a wide variety of sources, scientists and managers still need to identify which information is useful and in what form. Sometimes the needed information can be found, but, in a lot of cases, it cannot.

The Council, through its Regional Ecosystem Advisory Committees (REACs), began the process of finding data sources that

can be used to support research on fishery ecosystem impacts of climate change on local fisheries. The REACs are composed of local and federal agency employees who deal with natural ecosystem resources in each of the island areas. The CNMI and Guam REACs met in September and the American Samoa REAC met in October to solicit data sources from its members.

The CNMI REAC noted that much of the data that would be useful in ecosystem modeling would come from the Bureau of Environmental and Coastal Quality, as well as the University of Hawai'i (for tide information) and the Pacific Islands Ocean Observing System. Members of the Guam REAC provided numerous data sources that are available including surveys done in Guam by the University of Guam Marine Laboratory, US Fish and Wildlife Service, National Park Service, Army Corps of Engineers and many other agencies in Guam. The American Samoa REAC noted the lack of comprehensive data on the islands but provided examples of available data from local projects and surveys.

Accessing this data through requests to those agencies and working with NMFS PIRO and PIFSC are the next steps in this process. Scientists and managers involved in the EBFM Implementation Plan will need to review these data sources to determine which ones are suitable for existing or future management objectives. If there are suggestions for other available data sources, please contact Council staff Marlowe Sabater (Marlowe.Sabater@wpcouncil.org or at 808 522-8143).



Derby Postponement Doesn't Deter Guam Fishermen



Fottuna crew (from left): Mike Wu, Sol Monteverde, Capt. Felix Quan and Darrell Quintanilla. Photo courtesy Ed San Nicolas

The Guam Fishermen's Cooperative Association's 24th annual Guam Marianas International Fishing Derby was originally scheduled for the weekend of Aug. 18, but an approaching typhoon forced postponement to the weekend of Sept. 21-22. However, the excitement to catch a big one was high, and no passing storm would stop the avid fishermen. Sixty-five boats participated the first day, and 68 boat the next.

Boaters launched out of the Agat Marina in southern Guam and the Greg D. Perez Hagåtña Marina. The weekend tournament started at 5 a.m. and ended at 7 p.m. both days.

Target species were pelagic and included marlin, yellowfin tuna, bonita (skipjack tuna), wahoo and mahimahi. This year there were two special awards for 4th place marlin and the heaviest gindai to honor the late fishermen Frank James and Enrique Aflague Sr., respectively.

Winners for this year's tournament:

CATEGORY	BOAT NAME	CAPTAIN	WEIGHT
Bonita	<i>Sea Angel</i>	Roland Barcinella	16.1 lbs.
Mahimahi	<i>Amanda Joy</i>	Hector Aguilo	28.1 lbs.
Marlin	<i>Blu-By-U</i>	Dr. Hoa Nguyen	494.5 lbs.
Wahoo	<i>Litesi Marie</i>	Jeff Ludwig	26.7 lbs.
Yellowfin	<i>Reef Finance</i>	Frank Charfaurus	17.4 lbs.
SPECIAL CATEGORIES			
4th Place Marlin	<i>Angela Gale</i>	Paul Flores	136.2 lbs.
Heaviest Gindai	<i>Sea Angel</i>	Roland Barcinella	(unknown weight)



Felix Reyes with his marlin caught solo and ready to weigh. Photo courtesy Ed San Nicolas

A local beer distributor put up a \$10,000 cash prize challenge to the first boat to return with a marlin and break the 500-pound threshold, but unfortunately no one claimed this coveted prize. One interesting trivia about the winning marlin that weighed 494.5 pounds—the fish had a large chunk of its torso eaten by a shark. Many guessed the piece that was bitten off weighed more than 5 pounds and would have easily qualified this billfish to win the \$10,000! 🐟

Youth Try Out Their Fishing Skills

The Guam Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR) hosted the last of three summer Kids' Fishing Derbies for boys and girls aged 7-12 on Sept. 28, 2019, at the War in the Pacific Memorial Park beach in Asan with 30 young participants. The event rules required the kids to cast and retrieve themselves while the parents were allowed to tie hooks or lures, attach bait, remove hooked fish and support their children.

Category winners:

Most fish	Tiana Vasquez-Bilon	17 fish
Longest fish overall	Gavin Maibusan	9 in.
Longest triggerfish	Gavin Alcantara	8 in.

The Saturday before the event, youth were encouraged to participate in a fishing clinic held by DAWR staff. The clinic provided an opportunity for kits to learn and practice knot-tying, gear set-up, hook-tying, bait and lure choices and casting.

Some of the kids were repeat participants so their fishing skills were better than others. But

even the most novice caster was able to hook and land a fish, much to the joy of their parents. The DAWR staff helped to retrieve snagged lures in the water, remove and identify fish and gather important fish data.

After the fishing was done, everyone gathered under canopies to see who won prizes and to get their pictures taken with Council member Chelsa Muna-Brecht, director of the Guam Department of Agriculture. All participants received gifts and prizes donated by local vendors, DAWR and the Council. Muña-Brecht said she appreciated the support of the community and parents in making this event very successful. She hoped the kids learned a few things, not just about catch-and-release fishing, but also about conservation and Guam's natural resources. 🐟



The top three longest fish prize winners with DAWR Dept. of Agriculture Director/Council Member Chelsa Muña-Brecht.

2019 Mariana Islands Fishing and Seafood Festival



Left: Festival escorts pose before delivering tasting samples to judges. Right: Acting DFW Data Manager Jude Lizama weighs and collects catch data from derby participants.



The 4th annual Mariana Islands Fishing and Seafood Festival (www.maraianasfishfestival.com) was held Sept. 27-28, 2019, on Saipan. The festival celebrates the richness of the sea and cultural traditions of indigenous fishermen in the Marianas. The festival supports ecological fish harvesting and encourages families to go fishing by requiring that each four-person team that enters the fishing derby has a member under 16 years old.

The 23-hour fishing derby included five fishing categories: *talaya* (throw net), deep bottom, shallow bottom, trolling and spearfishing. Event organizers offered \$5,000 in prizes (\$1,000 per category). In addition, the festival included a fish cook-off consisting of three categories: *poke*, *kelaguen* (marinated fish) and open (any style), with first, second and third prizes bringing home \$3,000 in cash. This year, 19 teams participated in the derby (see winners below) and four chefs competed in the cook-off with CNMI Rep. Ivan Blanco's "Carmen Tuna Tower" winning first place.

The festival also included a shallow-bottom charter fishing excursion for families living in shelters and families with a member in a drug recovery program. Vendors displayed handmade crafts, and local agencies had information tables on boating safety, fishing, turtle preservation and

the environment. Various island music and dance groups performed to give a wholesome family experience, and a large display of locally caught fish provided color, including a 58-pound ehu caught in the northern islands.

All event fees were waived this year due to contributions made by Gov. Ralph DLG Torres and Lt. Gov. Arnold Palacios, a former CNMI Director for the Division of Fish and Wildlife (DFW) and Secretary of the Department of Lands and Natural Resources (DLNR), who wanted to encourage community members to join the festival and celebrate indigenous fishing practices at no cost.



Rep. Ivan Blanco and wife Carmen display their winning Tuna Tower.

KKMP Radio, the Indigenous Affairs Office and the Carolinian Affairs Office were the main event coordinators. Event planner Gary Sword was thankful for the festival growth and all the support in the past four years, including from the Western Pacific Regional Fishery Management Council. Sword, a previous Council Advisory Panel member from American Samoa and Saipan, shared that the idea for the festival was inspired by a similar event that was hosted in Hawai'i. Former Council member and CNMI DLNR Secretary Richard Seman brought the idea back to CNMI. Unfortunately, he passed away before the first festival, but it has continued forward in his memory since he dedicated his life to the preservation and protection of the CNMI environment and fisheries. 🐟

Winners for this year's tournament:

TALAYA (CAST NET) CATEGORY

1st Place	Team "Tye"	19.55 lbs.	Misc. small reef fish
2nd Place	Team "Firehouse"	12.45 lbs.	Misc. small reef fish
3rd Place	Team "Aquaholics"	10.15 lbs.	Misc. small reef fish

SPEARFISH CATEGORY

1st Place	Team "Surf Raiders"	46.95 lbs.	Giant trevally
2nd Place	Team "Aquaholics"	19.25 lbs.	Barracuda
3rd Place	Team "Salty Blue"	12.05 lbs.	Giant trevally

SHALLOW BOTTOM CATEGORY

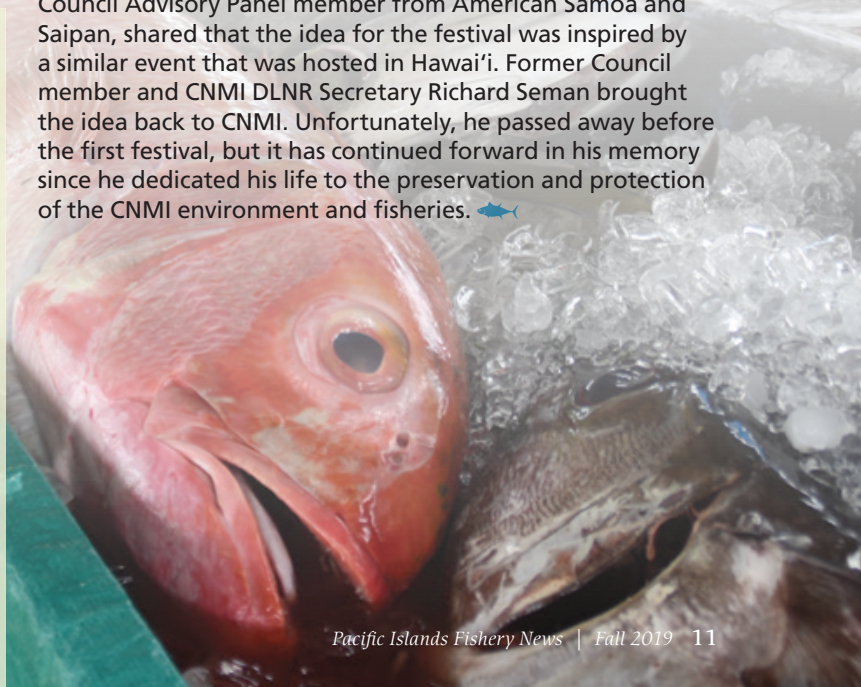
1st Place	Team "Chinese Poksu"	1.55 lbs.	Island trevally
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DEEP BOTTOM CATEGORY

1st Place	Team "Bottoms up"	7.1 lbs.	Onaga
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TROLLING CATEGORY

1st Place	Team "Tweedy"	40.90 lbs.	Sailfish
2nd Place	Team "Sweet Candy"	19.4 lbs.	Wahoo
3rd Place	Team "Peska' dudes"	8.75 lbs.	Skipjack tuna



The Quest for the Fishery Data Collection Grail

The Israelites wandered the desert for 40 years after their exodus from Egypt. Similarly, the fishery data collection programs in the Western Pacific Region have wandered for 37 years with only a few small oases to meet fishery science and management needs. To address the situation, the Western Pacific Regional Fishery Management Council and NOAA Pacific Islands Fisheries Science Center and Pacific Islands Regional Office organized a Pacific Insular Fisheries Monitoring and Assessment Planning Summit. Fishery agency leaders and their technical staff from American Samoa, Guam and the Commonwealth of the Northern Mariana Islands were invited to participate in the Aug. 19-23, 2019, meeting in Honolulu to discuss data collection and develop solutions for the data-limited situation.

Three independent reviewers—Steve Turner from the Southwest Fisheries Science Center and Robert Ryznar and Jenny Suter from the Pacific States Marine Fisheries Commission—listened to the discussions and provided their recommendation through a written report.

The reviewers recommended prioritizing the use of mandatory fishing licenses and reporting in the territories and utilizing electronic reporting and machine learning technology to support data collection. Given the low fishery participation and numerous potential sources of bias in a randomly stratified survey, mandatory license and reporting for everyone in the fishery would be a more direct approach to collecting information. Electronic reporting would make the data more real-time, and machine learning to identify fish species and measure the fish would make

the data collection more efficient.

Another recommendation was to bring in a survey statistician to review and redesign the shore-based creel survey. This would be done through the NMFS Marine Recreational Information Program (MRIP) certification process. The majority of the shoreline fisheries are non-commercial; therefore, the MRIP program is a better vehicle to support the shore-based data collection.

Regarding the commercial receipt books, the recommendation was to enhance the capacity of the vendors to identify fish to the species level. This can also be supported by the machine learning technology.

Any data collection improvement effort should be coupled with a strong outreach component. The importance of accurate fishery catch reporting, how these data are used in science and management and, ultimately, how they affect fishermen's livelihoods should be broadcast to the broader fishing community. Effective communication can be done by being sensitive to regional languages and cultures. Messaging should be tailored to various audiences, such as vendors, fishermen and staff of local agencies.

Can we finally attain the holy grail of good data collection through this collaborative summit? It will take the coordinated effort by the local fishery agencies, the Council and NOAA Fisheries to settle on a data collection program that will provide the best information to support management of the culturally important stocks in the Western Pacific Region.



Hawai'i Longline Industry, Council and NMFS Collaborate to Trial Seabird-Scaring Tori Lines



The crew on E/V Janthina tests line material for potential tori line designs. Photo courtesy Holly Naholowaa.

The Hawai'i longline fishery is required to use mitigation measures to minimize accidental interactions (hookings or entanglements) with seabirds, such as weighted branch lines, side-setting, and blue-dyed bait. One of the measures currently not required in the fishery is called a tori line, also known as streamer lines or bird-scaring lines (tori means "bird" in Japanese). Tori lines usually consist of a towed line with streamers suspended above the area where fishing gear is entering the water, which creates a barrier that prevents seabirds from accessing baited hooks while longline gear is deployed.

Tori lines were previously tested in the Hawai'i longline fishery in the late 1990s, which showed that the deterrents were effective in reducing seabird contact rates with bait and gear. However, these early studies also identified issues with practicality and crew safety resulting from tori line entanglement with gear. Although tori lines have not been required in the Hawai'i longline fishery, the measure has been tested and implemented in a number of other US and international fisheries. A Hawai'i longline vessel captain

attending the Council's 2018 Workshop to Review Seabird Bycatch Mitigation Measures for Hawai'i's Pelagic Longline Fisheries had experience using tori lines in Alaska fisheries and noted that the design used in that fishery is easy to deploy. Another vessel captain at the workshop had voluntarily used a simple design of a tori line in the deep-set longline fishery constructed from leftover, readily available materials found on their vessel.

The Council, industry and NMFS are now conducting a cooperative research project to test tori lines in the Hawai'i longline fishery. The project aims to inform the development of tori line minimum standards specific to the Hawai'i fishery that would allow flexibility in design while maintaining efficacy and ensuring crew safety if tori lines are to be considered for implementation. The project will also evaluate the operational practicality and effectiveness of tori lines through a field trial using electronic monitoring technology to collect data. The project was initiated in June 2019 and is expected to wrap up by late summer 2020. Stay tuned for project results in future issues of the newsletter! 🐟

NMFS Proposes Critical Habitat for Humpback Whales but None in Western Pacific

On Oct. 9, 2019, the National Marine Fisheries Service (NMFS) announced a proposed rule to designate critical habitat for humpback whale populations listed under the Endangered Species Act (ESA). One of the populations listed under the ESA is the Western North Pacific distinct population segment (DPS), which includes a small breeding population in the Mariana Archipelago. However, NMFS did not propose critical habitat for waters around Guam or the Commonwealth of the Northern Mariana Islands at this time because data are limited on the extent to which the Western North Pacific DPS of humpback whales relies on waters in the Mariana Archipelago. Humpback whales in Hawai'i and American Samoa belong to populations that are no longer listed under the ESA, so critical habitat will not be designated in either of these areas.

Critical habitat is defined under ESA as an area that contains habitat features that are essential for the conservation of a species that is listed under the ESA. In practice, critical habitat adds a layer to an existing ESA consultation process to ensure that activities that are federally funded, authorized or permitted (i.e., have a federal nexus) do not destroy or severely modify the species' habitat. It does not, by itself, create a protected area or restrict access, and it does not directly impact activities without the federal nexus. In addition, a critical habitat designation does not stop development or activities with a federal nexus, and many projects will likely move forward without modifications after consultation with NMFS. 🐟



Humpback whale in the Marianas. Photo courtesy Pacific Cetaceans.

Council Recommends International Measures to Sustain Local Fisheries

Western Pacific Regional Fishery Management Council

Executive Director Kitty Simonds and staff participated in the Oct. 10-12, 2019, meeting of the Permanent Advisory Committee (PAC) to advise the US Commissioners of the Western and Central Pacific Fisheries Commission (WCPFC) in Honolulu. Members of the PAC listened to presentations from NOAA staff on WCPFC issues ranging from scientific matters to compliance and compliance monitoring. PAC members made recommendations to US Commissioners as part of the US platform on international fisheries policy and negotiations. Many of these recommendations were reiterated and endorsed by the Council at its 180th Meeting in Pago Pago, American Samoa in October.

Simonds and her staff made numerous recommendations specifically to ensure the viability of fisheries in American Samoa. American Samoa leaders say the local fisheries are suffering because of a drastic South Pacific albacore catch per unit effort (CPUE) decline. This keystone species for the territory and other small island developing states (SIDS) is determined to not be overfished and above a limit reference point, but the stock needs a fair and reasonable target reference point based on fishery performance to mitigate economic difficulty. The Commission did not develop an interim target reference point based on CPUE of SIDS fisheries at its 15th Regular Session in 2018, even though several delegations preferred that a target be based on an increase in CPUE. Last year, the Commission made an interim target to increase spawning stock biomass by just 4 percent of beginning levels. The Council has pushed for achieving a target reference point as soon as possible and under a 20-year timespan. Additionally, the Council wishes the Commission to adopt a target for the fishery based on American Samoa CPUE or some performance metric in the islands. An allocation scheme for South Pacific albacore would be needed. SIDS and Participating Territories, like American Samoa, should be exempt from catch reductions as the overwhelming majority of the catch is attributed to distant-water fishing nations, such as China.

The Council has asked for purse-seine vessels operating primarily out of American Samoa to enjoy the privileges of Participating Territories and not be subject to strict measures limiting high-seas fishing days for the vessels. American Samoa's largest private employer is a single tuna cannery, which relies heavily on US-caught tuna—primarily skipjack—from its purse-seine fleet. The high volume of product needed to sustain operations in the cannery depends on the ability of US purse seiners to harvest sufficiently. However, current Effort Limit Area for Purse Seine (ELAPS) restrictions force US purse seiners to pay exorbitant fees to fish in foreign waters or to relocate elsewhere away from American Samoa. Additionally, the presence of US fisheries in the South Pacific is imperative for US economic and food security.

The Council has also provided recommendations on curbing the rapid fishing capacity expansion of distant-water fishing nations. China was attributed to 45 percent of the 2017 catch for albacore while increasing its longline fleet to 525 registered vessels within the WCPFC from less than 12 a decade ago. Meanwhile, the American Samoa longline fleet has diminished from about 40 vessels to 13 currently active vessels. US-flagged vessels maintain the highest observer coverage and compliance monitoring and do not transship. By contrast, the fleets of some distant-water fishing nations continue to increase their fishing capacity without control, transship nearly 5,000 metric tons of South Pacific albacore a month and display a disregard for WCPFC compliance or observer requirements, with no apparent recourse.

The PAC also made recommendations on a rebuilding plan for striped marlin and for US Commissioners to press for an increase in bigeye tuna quota for the Hawai'i longline fleet. The latter is a top priority of the Council, given the existing catch limit of 3,554 metric tons is not commensurate with the fleet's capacity and there is no bigeye tuna overfishing. The Commission met most recently from Dec. 4 to 11, 2019 in Port Moresby, Papua New Guinea. 🐟

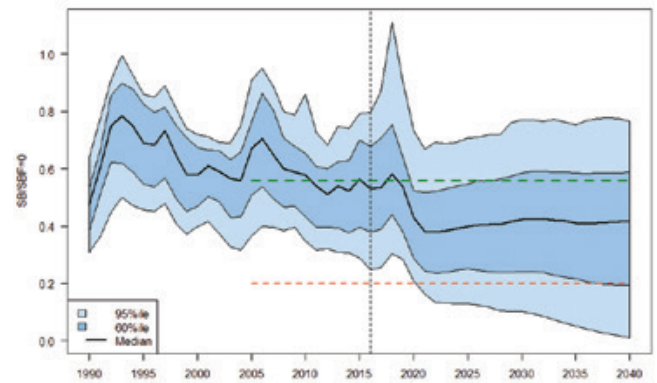
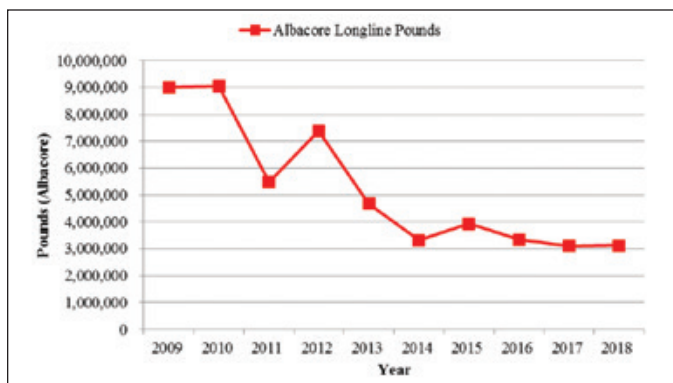


Figure 1, left: American Samoa longline catch (pounds) from 2009 to 2018. Source: Annual Stock Assessment and Fishery Evaluation Report: American Samoa Archipelago Fishery Ecosystem Plan 2018. **Figure 2, right:** Spawning stock biomass relative to unfished biomass ($SB/SB_{F=0}$) by year under current status quo catch scenarios. After 2020, under status quo catch levels, median stock biomass declines and never reaches the Commission's interim target reference point level of biomass (green line). Source: Piling 2019.

Piling G. 2019. Alternative trajectories to achieve the South Pacific albacore interim TRP. 15th Science Committee of the WCPFC, Pohnpei Federate States of Micronesia. 2019/MI-WP-02

Indigenous Community Vows to Work with Ocean Observers



Council Executive Director Kitty Simonds presented the Aha Honua declaration to Vladimir Ryabinin, the executive secretary of the UN Intergovernmental Oceanographic Commission, during the morning plenary on the closing day.

The ocean observation community held its third decennial conference on Sept. 16-20, 2019, in Honolulu. OceanObs'19 was the first to proactively include indigenous representatives as well as scientists, manufacturers of observation instruments and policymakers globally. Approximately 1,500 persons, including nearly 100 indigenous members, attended the event, which culminated in a conference declaration on how ocean observation should move forward the next 10 years as well as a supplemental indigenous declaration. Both are available online at oceanobs19.net/statement.

The indigenous declaration, entitled Aha Honua, calls on the ocean observing community to formally recognize the traditional knowledge of Indigenous peoples worldwide as well as the articles within the United Nations (UN) Declaration on the Rights of Indigenous Peoples. It asks the ocean observing community to establish meaningful partnerships with Indigenous communities, organizations and Nations to learn and respect each other's ways of knowing; negotiate paths to design, develop and carry out ocean observing initiatives; and share responsibility and resources. In the Aha Honua, the Indigenous community commits to working with the ocean observing community to advance the UN Sustainable Development Goals and the goals of the UN Decade of Ocean Science for Sustainable Development. That decade runs from 2021 to 2030 and is currently in the preparatory phase. See oceandecade.org for more.

The conference incentive to include indigenous representatives was driven by Jan Newton of the Northwest Association of Networked Ocean Observing Systems and Kim Juniper of Ocean Networks Canada (ONC). The Western Pacific Regional Fishery Management Council was asked by them and the local representative on the conference planning committee to organize a two-hour special indigenous event on the opening day and to participate in the indigenous activities being spearheaded by ONC. The Council organized a delegation from the Western Pacific Region, including *kanaka maoli* (Native Hawaiians) from Maui, O'ahu and Kaua'i; Erika Radewagen from American Samoa; and Cecilio Raiukiulipiy from the Northern Mariana Islands. The overall indigenous group also included members of the First Stewards board from the Makah and Quinault tribes and Nunavut Alaska; native representatives from throughout Canada; and about three dozen indigenous representatives from Aotearoa (New Zealand), Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Palau, Papua New Guinea, Solomon Islands, Tonga,



Tuvalu and Vanuatu. The South Pacific participants were on island to attend a workshop hosted by Pacific Islands Ocean Observation System (PacIOOS) (pacioos.hawaii.edu).

The indigenous presence at the conference made an impact, and several researchers have reached out on how they can contact indigenous communities where they plan to do research as well as how they can include indigenous observation in their grant proposals. In providing indigenous community contact information, the Council stressed the proper protocol for asking, receiving and using traditional knowledge. These protocols were part of the outcomes of the puwala series with traditional practitioners that the Council organized and co-sponsored in Hawai'i beginning in 2006. Postcards with the protocol were shared with conference participants (view and download a copy at wpcouncil.org/educational-resources). ONC, the Council, PacIOOS and others have been working by teleconference since the conference to further the Aha Honua declaration. 🐟



Indigenous representatives from the OceanObs'19 were interviewed on two programs of the Mike Buck radio talk show, Go Fish! The interviews can be heard at wpcouncil.org/educational-resources/educational-audio-files.

SCIENCE AND MANAGEMENT 101: BYCATCH



Opah at the Hawai'i fish auction.

When out fishing, fishermen do not always keep all of their catch and throw some fish back for a variety of reasons. This is called bycatch.

The legal definitions are a bit more complicated, and it depends on which domestic law or international agreement is consulted. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) defines bycatch as fish that are harvested in a fishery that are not sold or kept for personal use. This

does not include fish released alive under a recreational catch-and-release fishery management program. Fish, as defined by MSA, means finfish, mollusks, crustaceans and all other forms of marine animal and plant life other than marine mammals and birds.

The MSA definition includes economic and regulatory bycatch, which are two main reasons fishermen might throw catch back.

- **ECONOMIC DISCARDS** are fish that are discarded because they are of undesirable size, sex or quality, or for other economic reasons.
- **REGULATORY DISCARDS** are fish that are caught but discarded because regulations do not allow fishermen to retain the fish; for example, fishermen may be required to discard fish under a certain size or of a specific species for conservation reasons.

The MSA requires Fishery Management Councils to minimize bycatch when developing management

measures for federal fisheries under its jurisdiction. If bycatch cannot be avoided, the Councils are required to minimize the mortality of the bycatch and released fish to the extent practicable to ensure the extended survival of the fish.

In the Western Pacific Region, fishermen tend to keep and utilize many different types of fish, so bycatch is minimal in many fisheries. In Hawai'i, one of the species that went from a bycatch to a retained status is opah. There wasn't much of a market for them until a popular local chef started using them in his restaurants. Now opah is very popular and gets a good price so fishermen know to bring them back. Less bycatch!

In the Hawai'i and American Samoa longline fisheries, the Western Pacific Regional Fishery Management Council has treated protected species, such as sea turtles, seabirds and marine mammals, similar to bycatch and has long supported efforts to reduce fishery impacts on them. 🐟

US Pacific Territories Fishery Capacity-Building Scholarship Program Updates

Scholarship applications are being accepted now through March 2, 2020, for the academic year 2020-2021. Up to three scholarships will be available for college students entering their junior/senior year or graduate studies at specific educational institutions in pursuit of specific fisheries-related degrees. These scholarships support the aspiration of American Samoa, Guam and the Commonwealth of the Northern Mariana Islands to build their capacity to effectively manage their fisheries and related resources through employment of their own people. Students with strong ties to these territories are eligible for scholarships that cover the cost of tuition and fees and some living expenses. For more

information and the application, go to wpcouncil.org/2020-2021-us-pacific-territories-fishery-capacity-building-scholarship. For further details, contact Amy Vandehey at info@wpcouncil.org or (808) 522-8220.

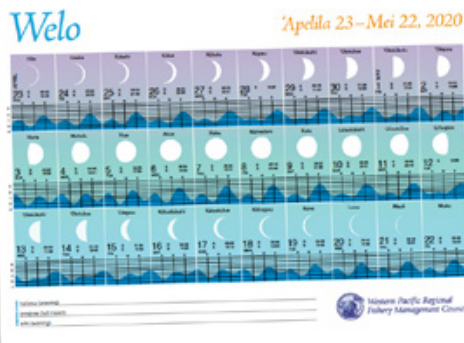


Francisco Villagomez

Scholarship recipient Francisco "Frank" Villagomez (CNMI) earned a Master of Science degree from the University of Guam after successfully defending his thesis on Nov. 22, 2019.

His thesis, "Age-Based Life History of the Mariana Islands' Deep-Water Snapper, *Pristipomoides filamentosus*," focused on a commercially valuable deep-water bottomfish species commonly known as opakapaka, which inhabits many areas of the Pacific. His research analyzed the growth zones of otoliths, which are calcified ear stones that may demonstrate annual patterns of growth in many fish species, to estimate fish age for opakapaka. He validated his visually estimated ages

by also measuring carbon-14 in the oldest region of otolith formation and comparing it against an independent record of ^{14}C in a coral core from Guam. Finally, he determined the sex of his fish samples using histological and microscopical analyses of opakapaka gonads. One important finding is that opakapaka from the Marianas appear to grow more slowly and reach a smaller asymptotic length than conspecifics from higher latitudes, such as from Hawai'i. Overall, opakapaka from the Marianas are more similar in their growth to opakapaka from the lower latitudes. Villagomez also determined that males reach maturity at a younger age and shorter length than females. A paper will be forthcoming, hopefully within the next year. His committee members included Dr. Kate Moots (Associate Dean, UOG College of Natural and Applied Sciences), Dr. Allen Andrews (formerly of the Pacific Islands Fishery Sciences Center Life History Program) and Dr. Frank Camacho (Associate Professor, UOG Biology Program) as his thesis committee chair. 🐟



2020 traditional lunar calendars.

New Outreach Resources

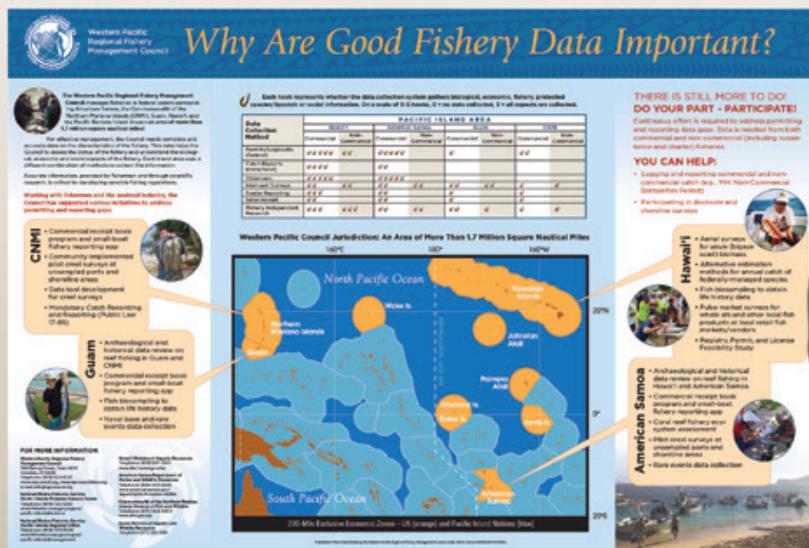
The 2020 traditional lunar calendars are now available for Hawai'i, American Samoa, Guam and the Commonwealth of Northern Mariana Islands (CNMI). The calendars aim to raise awareness about traditional ecological knowledge and enhance community involvement in fishery management. Copies can be downloaded for printing by going to [www.wpcouncil.org/educational-](http://www.wpcouncil.org/educational-resources/lunar-calendars/)

resources/lunar-calendars/. For more information or to request a print version of a calendar (available in limited numbers), please contact the Council at info@wpcouncil.org.

Several new outreach visuals have also been developed. A 3- by 7-foot vertical banner describes the status and future for the South Pacific albacore fishery, and another highlights projects in American Samoa funded through the Western Pacific Sustainable Fisheries Fund in support of that Territory's Marine Conservation Plan. Also

developed was a 10-foot popup display and 4 by 6-foot vertical banner that answered the question "Why are good fishery data important?" They list several initiatives the Western Pacific Regional Fishery Management Council has supported to address permitting and reporting gaps in Hawai'i, American Samoa, Guam and the CNMI and ways that the public can get involved. Outreach materials can be found on the Council website at wpcouncil.org/educational-resources/educational-displays. 🐟

Displays for American Samoa.





Frank stood with Hawai'i fishermen through decades of legislative battles, from the inclusion of tuna as a management species to the closing of the sustainable and highly managed Northwestern Hawaiian Islands (NWHI) bottomfish fishery. Pictured with Frank are some of the last NWHI fishermen with representative samples of their catches in 2006.

In Memoriam: **FRANK KUNIO GOTO**



Frank K. Goto Sr., former manager of the United Fishing Agency, was laid to rest on Nov. 17, 2019. Council Executive Director Kitty M. Simonds provided one of several remarks to celebrate his life, which helped shaped Hawai'i's fishing industry. Below are excerpts from her remarks:



Frank Goto with Council Executive Director Kitty Simonds at the 2015 National Scientific and Statistical Committee meeting that formally honored Frank.

From the United Fishing Agency's bustling auction floor in Honolulu to the solemn rooms of our nation's capital in Washington, DC, we each hold memories of the pieces that constitute Frank's life. Frank was foremost a member of Hawai'i's fishing community. Born to Japanese immigrants, Frank spent his formative years in Kaka'ako, a coastal community of first-generation Japanese families who fished

and worked in the nearby tuna cannery at Kewalo. During Frank's youth in the 1920s and 30s, Kaka'ako alone included nearly 500 Japanese fishing families, and other large Japanese fishing communities existed in the Palama and River Street areas. It was Hawai'i's "golden age" of commercial fishing. With nearly 3,000 licensed commercial fishermen and 1,000 licensed fishing vessels, the local fishing industry provided \$1.2 million of canned fish, making it Hawai'i's third largest export commodity. Frank was undoubtedly inspired by the enterprising *issei* fishermen and fish vendors who rose to prominence during this time, and he eventually began working for Matsujiro Otani, one of the most important figures in Hawai'i's commercial fishing industry.

World War II devastated Otani's fishing enterprise, but like a phoenix, it was rebuilt. In 1952, Otani established the United Fishing Agency (UFA) and its Honolulu fish auction, fashioned after Japan's famous Tsukiji fish market. But the thousands of *issei* fishermen who had once made Kewalo Basin the Fisherman's Wharf of Honolulu were no longer to be found. As part of the bilingual *nissei* members of UFA, Goto joined Otani's second son, Akira, to successfully recruit a new generation of fishermen from Okinawa and other areas of the Pacific. Through decades of dedication, hard work and an infectious enthusiasm for Hawai'i's fishing industry, Frank eventually rose to become general manager of UFA and the fish auction, which today is the only fresh tuna auction in the nation.

Frank used his fishing expertise not only to rebuild Hawai'i's fishing industry after World War II but also to help our nation manage its marine resources. In 1975, he was appointed by the Secretary of Commerce to become one of the inaugural members of the Marine Fishery Advisory Committee, also known as MAFAC, to provide advice on matters pertinent to the Department of Commerce's responsibilities for the nation's marine fishery resources. The following year, with enactment of the Magnuson-Stevens Fishery Conservation and Management Act of 1976 and the United States claim to its 200-mile exclusive economic zone, Frank was also appointed by the Secretary to serve as an inaugural member of the Western Pacific Regional Fishery Management Council. As one of the Council's 13 voting members, Frank's responsibilities included co-creating the first federal fishery management plans for Hawai'i, American Samoa, Guam and, eventually, the Commonwealth of the Northern Mariana Islands and the US Pacific Remote Island Areas. Together, these federal waters of



Frank and grandson Michael Goto pose near the 2012 NOAA Fisheries Honolulu Service Center plaque that recognizes Frank for his leadership and many contributions to the commercial fishing and seafood industries in Hawai'i and the Pacific Islands Region.

the Western Pacific Region constitute half of the nation's entire exclusive economic zone.

As a Council member from 1976 to 1979 and then as chair of the Council's Advisory Panel from 1979 until 1989, Frank provided invaluable insight on how to manage federal fisheries in the Western Pacific Region. He was

the first to suggest a limited entry plan for the Northwestern Hawaiian Islands lobster fishery. His greatest contribution to the people of the US Pacific islands and the Pacific island nations was convincing US Sen. Daniel K. Inouye to consider amending the Magnuson Act to include the management of tuna.

Skipjack (or aku), yellowfin and bigeye (or ahi) and albacore—these were and are the greatest marine resources of the Pacific. In 1976, when the main fisheries in the Atlantic were highly developed and in some instances nearing collapse, the Pacific tuna were abundant and widely recognized as the single greatest underutilized fishery resource of the globe. Many nations and economic interests were moving rapidly to exploit them. However, tuna was not included as federally managed species under the Magnuson Act and so the Council could not develop a management plan for them.

Through the concerted efforts of individuals like Frank, then Council Chair William Paty, Sen. Inouye, Congresswoman Pat Saiki and others, the United States in 1992 formally recognized tuna as a federally managed resource. Eight years later, in 2000 in Honolulu, the United States joined other nations and territories to establish the Western and Central Pacific Fisheries Commission, to acknowledge that tuna resources in the Pacific do not belong to any one nation or territory. These migratory species are shared by all of the islands as well as the distant-water fishing nations. Thus management measures for them are co-developed through the Commission. Frank's grandson Michael Goto is one of the US Commissioners on this important international regional fishery management organization as well as a member of the Council.

Today, Pacific tuna accounts for two-thirds of the global value of tuna with an end value of approximately US\$30 billion. In Hawai'i, tuna landed by the local longline fleet and sold principally through the United Fishing Agency are worth \$110 million, which has consistently placed Honolulu as one of the nation's top 10 fishing ports in terms of value landed.

Frank respected tuna as a valuable food commodity. Once, when stock assessments for tuna in the Western and Central Pacific were limited, the Council considered raising the minimum size limit of aku and ahi as a precautionary move to ensure sustainable levels of spawning and recruitment. Frank was opposed. He firmly and bluntly said to think about the old folks, those who are economically challenged and those with small households who can't afford and can't cook and eat larger fish.



From right to left: Frank and Sen. Daniel K. Inouye with Council members Jim Cook, Roy Morioka and Frank Farm.

For his achievements as a fishery industry leader and fishery management advisor, Frank has over the years been recognized by Senator Inouye, by NOAA Assistant Administrator for Fisheries William Hogarth, by the NOAA Fisheries Pacific Islands Region and by the National Scientific and Statistical Committee of the nation's eight Regional Fishery Management Councils. His achievements were earned through long hours of work. While it is difficult to put to rest someone whom one highly respects and depends upon for good, honest advice, there is comfort in knowing that Frank's time of rest is deserved and his legacy continues. Because of Frank, we have a fishing industry that has thrived through countless legal and legislative battles, a federally managed fishery that is recognized as a global model and a grandson who is following in his footsteps in the fishing industry. 🐟

Council Family Updates

At the 180th Council Meeting, the Council members elected the following officers:

Archie Soliai, chair

Ed Watamura, Hawai'i vice chair

Howard Dunham, American Samoa vice chair

John Gourley, CNMI vice chair

Mike Dueñas, Guam vice chair

Positions are elected annually and will take effect on Jan. 20, 2020.

The Council also approved the following advisory body changes:

Basil Oshiro and **Chad Pacheco** as Hawai'i Advisory Panel alternates.

Mealanie Hutchinson, NOAA Pacific Islands Fisheries Science Center (PIFSC), and **Trey Dunn**, CNMI Division of Fish

and Wildlife (DFW), on the Pelagic Plan Team and **Felipe Carvalho**, NOAA PIFSC, as an ex officio member.

Franciso Villagomez, CNMI DFW, on the Archipelagic Plan Team, and **Jude Lizama**, CNMI DFW, on the Archipelagic Plan Team and on the Data Collection Subpanel of the Fishery Data Collection and Research Committee. 🐟



2020 Council Calendar

Connect
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JANUARY

23

Archipelagic Plan Team
Intersession meeting,
Honolulu (teleconference)

FEBRUARY

9-12

Aquaculture America 2020,
Honolulu*

11-12

National Electronic
Monitoring Workshop (West
Coast), Renton, Wash.*

MARCH

14-18

8th South Pacific RFMO
Commission 2020,
Port Vila, Vanuatu*

3-5

135th Scientific &
Statistical Committee
meeting, Honolulu

9-12

181st Western Pacific
Regional Fishery
Management Council
meeting, Honolulu

APRIL

13-14

Archipelagic Plan Team
meeting, Honolulu

15-16

Fishery Data Collection
and Research Committee—
Technical Committee
meeting, Honolulu

28-30

Pelagic Plan Team meeting,
Honolulu

MAY

25-29

Councils Coordination
Committee meeting,
Honolulu

JUNE

9-11

136th Scientific &
Statistical Committee
meeting, Honolulu

15-18

182nd Western Pacific
Regional Fishery
Management Council
meeting, Honolulu

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

UPCOMING EVENTS

Council to Begin Scoping Management of Hawai'i Small Boat Pelagic Fisheries

At its 181st Council Meeting in March 2020, the Council will introduce a scoping document summarizing licensing, regulatory needs, data reporting and data needs for small boat pelagic fisheries. These fisheries include *palu ahi*, *ika shibi* and troll fisheries. These diverse fisheries provide a significant amount of high quality fish to the Hawai'i market. Many of these fisheries also provide non-commercial value to the Hawai'i economy. At present, these fisheries remain relatively unmanaged and underrepresented. The Council aims to ensure representation of these fisheries in its pelagic fisheries management plan and research program and better monitor their performance. Stay tuned as Council staff will be setting up meetings with fishermen in 2020!

Chamorro-Style Fish Stew

Courtesy of the Guam Fishermen's Cooperative Association

Ingredients

2 lbs. fish, sliced 2 inches thick
½ onion, chopped
¼ cup vinegar
½ cup water
1 clove garlic, chopped
1 green pepper, chopped
½ cup rich coconut milk
Salt and pepper, to taste

Preparation

Place all ingredients, except coconut milk, in a pot and cook for about 20 minutes on medium heat or until fish is cooked. Do not boil. Add coconut milk and remove from direct heat. Serve hot with steamed rice.

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Management Council
1164 Bishop St., Suite 1400
Honolulu, HI 96813
WPCouncil.org

Telephone: (808) 522-8220
Fax: (808) 522-8226
info@WPCouncil.org

CHAIR

Archie Soliai - American Samoa

VICE CHAIRS

Michael Duenas - Guam
John Gourley - CNMI
Ed Watamura - Hawai'i

EXECUTIVE DIRECTOR

Kitty M. Simonds



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