WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

Fishing Communities Component Team for Revising Territorial BMUS Lists
A subgroup of the Archipelagic Fishery Ecosystem Plan Team

Draft Report

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Introduction of Island Fishing Communities

Historically, voyagers in the Pacific Islands relied on the ocean and marine resources on their long journeys in search of new islands, as well as in sustaining established island communities. Today, the population of the region also represents many Asian cultures from Pacific Rim countries, which have a similar reliance on marine resources. Thus, fishing and seafood are integral to local community ways of life, which is reflected in the amount of seafood eaten in the region relative to the rest of the United States, as well as the language, customs, ceremonies, and community events.

In 1996, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) National Standard 8 specified that conservation and management measures take into account the importance of fishery resources to fishing communities, to provide for their sustained participation in fisheries and to minimize adverse economic impacts, provided that these considerations do not compromise the achievement of conservation. The MSA defines a fishing community as a community that is substantially dependent on or engaged in the harvest or processing of fishery resources to meet social and economic needs, which includes fishing vessel owners, operators, and crew and U.S. fish processors that are based in such a community. *Based on the MSA definition of fishing communities, the proposed action to revise the territorial bottomfish management unit species (BMUS) lists would have little to no effect on the definition of island fishing communities required to be specified in the fishery ecosystem plans (FEPs).*

Description of Island Fishing Communities

As island communities in the Western Pacific Ocean, the surrounding ocean and its resources have long provided residents of American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands (CNMI) with a source of food and opportunities for maritime commerce and recreation. The islands of these territories are relatively small with most towns and villages located along the coast, and the ocean is a constant presence in the lives of all residents. Unlike other regions of the U.S., the settlement of the Western Pacific region was intimately tied to the ocean, which is reflected in local culture, customs, and traditions. Understanding the social and economic connections between residents of the U.S. Pacific Islands territories and the surrounding ocean environment is necessary to describe community life in these areas.

Between 1999 and 2002, the Western Pacific Regional Fishery Management Council (Council) recommended that the Secretary of Commerce designate all of the islands of the American Samoa and Mariana Archipelagos as one fishing community under the MSA (i.e., National Standard 8) because fishery participants tend to live in small towns and villages and because fishing, seafood, and fishing-related businesses hold large social and economic importance in the territory. The National Marine Fisheries Service (NMFS) Pacific Islands Fisheries Science Center (PIFSC) has since developed a general profile of the fishing communities in each of these territories (Levine and Allen 2009; Allen and Bartram 2008; Allen and Amesbury 2012).

American Samoa is the only U.S. territory possession in the southern hemisphere, and goods must be transshipped on or over thousands of miles of ocean to reach the archipelago. This has led to a relatively high cost of living and limited availability of certain products and services. The tourism economy is closely related to recreation and leisure opportunities along the shoreline but is also conditioned by the distance of travel to the territory. Various aspects of local and indigenous history, culture, and society are closely related to the surrounding ocean and use of its resources. Fishing activities are important across American Samoa, and residents use living marine resources for commercial sale, household consumption, and cultural ceremonies and traditions.

In the Mariana Archipelago, the conditions of Guam and the CNMI are similar to that of American Samoa, including the high cost of living and limited availability of goods and services associated with the need for goods to be transshipped over large areas of the ocean. As the populations of the two territories have increased, so has the number of imports for fresh and processed seafood. Also similarly, the tourism industry continues to expand while remaining dependent on recreation and leisure opportunities in the coastal zone. Military buildup and expansion of training exercises in the Mariana Islands impact access to traditional fishing grounds and continues to be a topic of concern. Various aspects of local and indigenous history, culture, and society are closely related to the surrounding ocean and use of its resources. Fishing activities are important across the Mariana Islands, and residents use living marine resources for commercial sale, household consumption, and as a source of recreation. The cultural tradition of fishing communities working together to harvest seasonal runs of atulai (bigeye scad, *Selar crumenophthalmus*) and mañahak (juvenile rabbitfish, *Signaus spinus* and *S. argenteus*) persists, with the catch being shared or sold.

Based on the description of island fishing communities from the FEPs, the proposed action to revise the territorial BMUS lists would have little to no effect on the description of these fishing communities. Contributing factors impacting fishing communities associated with the COVID-19 pandemic are documented through catch summaries and fisher observations in the Council's annual stock assessment and fishery evaluation (SAFE) reports (WPFMC 2022a; WPFMC 2022b).

Indigenous Programs for Island Fishing Communities

MSA section 305(i)(2) authorizes the Council and the Secretary of Commerce, through NMFS, to establish a Western Pacific Community Development Program (CDP) for any fishery under the authority of the Council and NMFS. The intent of the program is to provide Western Pacific communities access to fisheries upon which they have traditionally depended but may not have

the capabilities to support continued and substantial participation, possibly due to economic, regulatory, or other barriers.

The Western Pacific CDP includes two components: (1) the Development Plan Program; and (2) the Demonstration Projects Program. Under the CDP, the Council provides support for fishery projects in Western Pacific and indigenous communities through administrative processes. The Western Pacific Community Demonstration Project Program (CDPP) is a grant program that provides funds to Western Pacific indigenous communities for the demonstration of traditional, cultural fishery, fishery management, and fishery conservation projects

To be eligible to participate in the Western Pacific CDP, a fishing community must meet the following criteria:

1. Be located in American Samoa, Guam, Hawaii, or the Northern Mariana Islands (collectively, the Western Pacific);
2. Consist of community residents descended from aboriginal people that are indigenous to the Western Pacific and who conducted commercial or subsistence fishing using traditional fishing practices in the waters of the Western Pacific;
3. Consist of individuals who reside in their ancestral homeland;
4. Have knowledge of customary practices relevant to fisheries of the Western Pacific;
5. Have a traditional dependence on fisheries of the Western Pacific;
6. Are currently experiencing economic or other constraints that have prevented full participation in the Western Pacific fisheries and, in recent years, have not had harvesting, processing or marketing capability sufficient to support substantial participation in fisheries in the area; and
7. Develop and submit a community development plan to the Council and NMFS.

Under the Development Plan Program, an eligible community seeking access to a fishery under the authority of the Council and NMFS must submit a community development plan to the Council that includes the following information in sufficient detail for the Council and NMFS to determine consistency with the FEPs, the MSA, and other applicable laws:

1. A statement of the purposes and goals of the plan;
2. A description and justification for the specific fishing activity being proposed, including:
    - Name, address, and telephone number of the vessel owner(s) and operator(s),
    - Location of the proposed fishing activity,
    - MUS to be harvested, and any potential bycatch,
    - Gear type(s) to be used, and
    - Frequency and duration of the proposed fishing activity;
3. A statement describing the degree of involvement by the indigenous community members, including the name, address, telephone and other contact information of each individual conducting the proposed fishing activity;
4. A description of how the community and or its members meet each of the eligibility criteria; and
5. If a vessel is to be used by the community to conduct fishing activities, for each vessel:
    - Vessel name and official number (U.S. Coast Guard documentation, state, territory, or other registration number),
    - Vessel length overall, displacement, and fish holding capacity, and

- Any valid Federal fishing permit number(s).

Based on the description of indigenous programs in the FEPs, the proposed action to revise the territorial BMUS lists would have little effect on these programs. This revision would change the MUS that would be covered under the programs but would not change the criteria for the eligibility of CDP and CDPP for indigenous fishing communities in the territories.

Socioeconomics

The pertinent economic, social, and community information available for assessing the successes and impacts of management measures or the achievements of the Council's FEPs for the American Samoa and Mariana Archipelagos are provided in the annual SAFE reports (WPFMC 2022a; WPFMC 2022b). Additionally, the annual SAFE reports identify the various social and economic groups within the region's fishing communities and their interconnections. A selection of adapted information is provided in the following sections, and the full text can be found in the most recent annual SAFE reports (WPFMC 2022a; WPFMC 2022b). *The potential action to revise the territorial BMUS lists is not likely to have any adverse impacts on the social, cultural, or economic aspects of the bottomfish fisheries in American Samoa, Guam, and the CNMI.*

Background

American Samoa

Fishing has played a crucial role in American Samoan culture and society since the Samoan archipelago was settled. The FEP for the American Samoa Archipelago (WPFMC 2009a) and the annual SAFE report (WPFMC 2022a) describe the importance of marine resources in cultural, economic, and subsistence aspects of American Samoan village life, as well as a brief history of fishery development. Fishing was held in high regard in traditional Samoan culture, with fishing skill bringing high social status and fishing activities figuring prominently in mythology. The basic components of Samoan social structure are the family and village, with the family acting as the central unit. The village leadership decides, according to season, what sort of community fishing should take place. The *tautai*, or master fishermen, of the village were key decision makers who were awarded higher status than others who might otherwise outrank him when it came to matters of fishing. Village-level systems of governance and resource tenure are still largely intact, and American Samoan cultural systems and representation are formally incorporated into the Territorial Government. Reciprocity is emphasized over individual accumulation. Gifts of food, especially fish and other marine resources, mark every occasion and are a pivotal part of American Samoan social structure to this day. Contemporary American Samoan culture is characterized by a combination of traditional Samoan values and systems of social organization with a strong influence from Christianity. Maintaining *fa'a samoa*, or "the Samoan way", was considered a priority under the Territorial constitution.

Over the last half century, fishing has become less prominent as a central and organized community force. During this time, modern fishing gears and technologies were introduced, tuna canneries became a major economic force in Pago Pago, the population more than tripled, and the gradual but continuous introduction of Western cultural norms and practices altered American Samoans' relationship with the sea. The introduction of outboard engines and other technology in

the 1950s and 1960s allowed American Samoan boats to go farther and faster, but also made it necessary for boat owners and operators to sell a portion of their catch to pay for fuel and engine maintenance. The disruption of other traditional values, as well as the introduction of a cash economy based primarily on government jobs and cannery employment, also decreased reliance on traditional, subsistence fishing; this allowed commercial fishing to develop on the islands (Levine and Allen 2009). While many traditions and village-based systems of governance have been maintained, the islands have experienced a shift from a subsistence-oriented economy, where sharing of fish catch was extremely important, to a cash- based economy, where fishing is often viewed as a more commercial venture.

Guam

Guam is the largest and southernmost island of the Mariana Archipelago and is also the largest and most heavily populated island in Micronesia. The FEP for the Mariana Archipelago (WPRFMC 2009b) and the Mariana Archipelago annual SAFE report (WPFMC 2022b) provide an overview of Guam's history, culture, geography, and relationship with the U.S. in addition to details about the role of fishing and marine resources for residents of Guam and information about the people who engage in the fisheries and/or utilize fishery resources. The ancestors of the indigenous Chamorro first arrived in the Mariana Islands around 3,500 years ago, being expert fishers and seafarers and relying on seafood as their principal source of protein (Allen and Bartram 2008; Grace McCaskey 2014; Hospital and Beavers 2012). They fished on the high seas in large sailing canoes and used a wide range of methods to harvest reef and bottomfish. Fish and marine resources have played a central role in shaping the social, cultural, and economic fabric of Guam that continues today.

The occupation of Guam by foreign nations dramatically changed the island's ecosystems, reshaped communities, and disrupted fishing traditions. In the 17th and 18th centuries, Spanish colonizers destroyed the Chamorro' seagoing canoes, suppressed offshore fishing practices, and relocated populations from their traditional homes. Following the Spanish-American War in 1898, the U.S. Navy took control of Guam until it was occupied by Japan from 1941 to 1944. Guam became a U.S. territory in 1950, and the U.S. military is currently in the process of building up an even greater presence on the island. Fishing remained an important activity throughout this time, but indigenous peoples had lost many of their seafaring skills, fishing skills, and even the native names of many of the offshore species by the time Guam became an American territory. Despite rapid socioeconomic change, households still reflect the traditional pattern of extended families with multigenerational clustering of relatives. Social occasions such as neighborhood parties, wedding and baptismal parties, wakes and funerals, and village fiestas that follow the religious celebrations of village patron saints all require large quantities of fish and other traditional foods, reflecting the role of fish in maintaining social ties and cultural identities. Sometimes fish are also sold to earn money to buy gifts for friends and relatives on important Catholic religious occasions such as novenas, births and christenings, and other holidays.

CNMI

As described for Guam, the ancestors of the indigenous Chamorro first arrived in the Marianas around 3,500 years ago and relied on seafood as their principal source of protein (Allen and Amesbury 2012; Grace McCaskey 2014). The FEP for the Mariana Archipelago (WPRFMC

2009b) and the Mariana Archipelago annual SAFE report (WPFMC 2022b) provide an overview of CNMI history, culture, geography, and relationship with the U.S. alongside the role of fishing and marine resources across CNMI and those who engage in the fisheries or use fishery resources. Many of the historical factors shaping the CNMI into its current sociocultural makeup are similar to Guam, including the dependency on fish and marine resources and the occupation of the CNMI by foreign nations. The CNMI was briefly occupied by Germany from 1899 to the beginning of World War 2. During the war, the CNMI was occupied by the Japanese military before being captured by the United States. Today, only Saipan, Rota, and Tinian are permanently inhabited, with 90% of the territory's population living on the island of Saipan. Although the CNMI has transitioned to a tourism-based economy, fishing still plays an important cultural role and serves as a reliable source of local food (Ayers 2018).

Fishery Economic Performance

American Samoa

Figure 1 presents the trends of commercial pounds sold and revenue for BMUS harvested in the American Samoa bottomfish fishery from 2012 to 2021. Commercial landings data in 2021 are confidential due to fewer than three vendors and/or dealers reporting, though the total pounds sold and revenue for bottomfish were below the 10-year average (WPFMC 2022a).

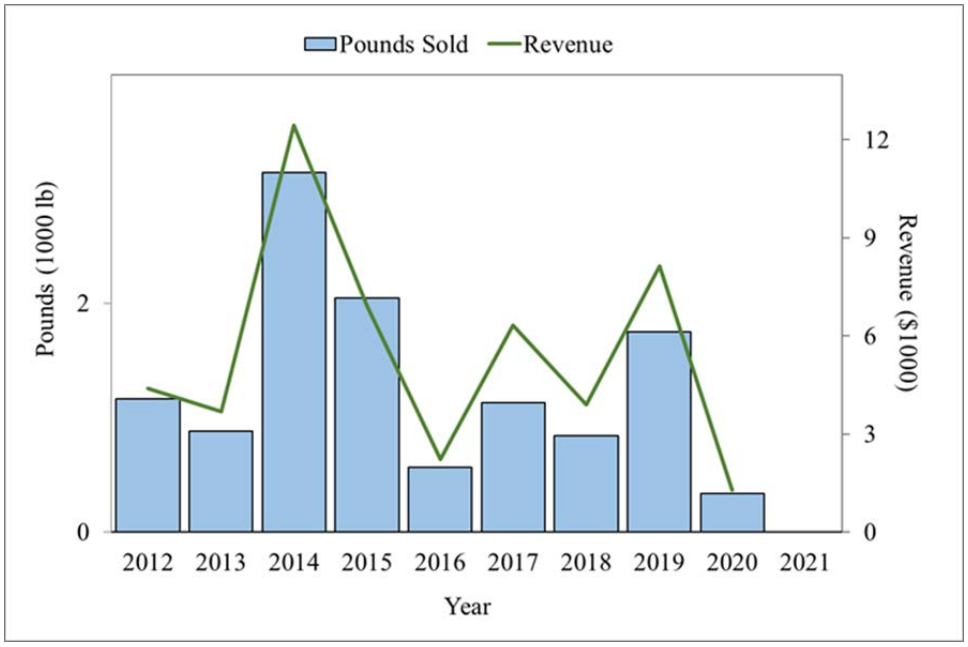

Figure 1. Pounds sold and revenue for the American Samoa bottomfish fishery from 2012–2021.

Since 2009, PIFSC economists have maintained a continuous economic data collection program in American Samoa through collaboration with the PIFSC Western Pacific Fisheries Information Network (WPacFIN) that gathers fishing expenditure data for boat-based reef fish, bottomfish, and pelagic fishing trips on an ongoing basis. Data for fishing trip expenses include gallons of fuel used, price per gallon of fuel, cost of ice used, cost of bait and chum used, cost of fishing gear lost, and the engine type of the boat. Figure 2 shows the average trip costs for American

Samoa bottomfish trips from 2012 to 2021. In 2021, the average trip cost of bottomfish trips was $172, which is higher than 2020 due to increases in fuel price.

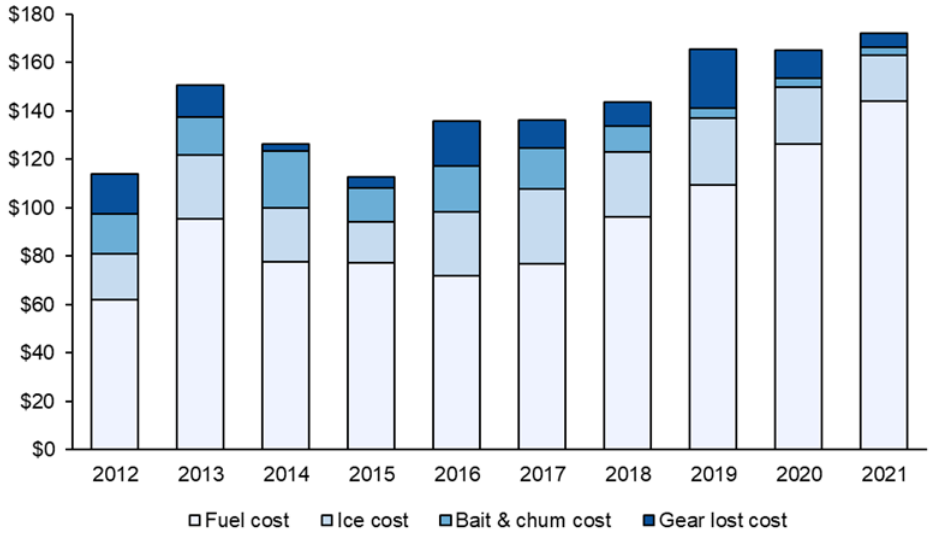

Figure 2. Average cost for American Samoa bottomfish trips from 2012–2021.

Guam

Figure 3 presents the trends of commercial pounds sold and revenue for BMUS harvested in the Guam bottomfish fishery from 2012 to 2021. Commercial landings are confidential in all but two years provided (i.e., 2017 and 2018) due to fewer than three vendors and/or dealers reporting. However, the total commercial landings in 2021 represented a decadal high for the fishery (WPFMC 2022b).

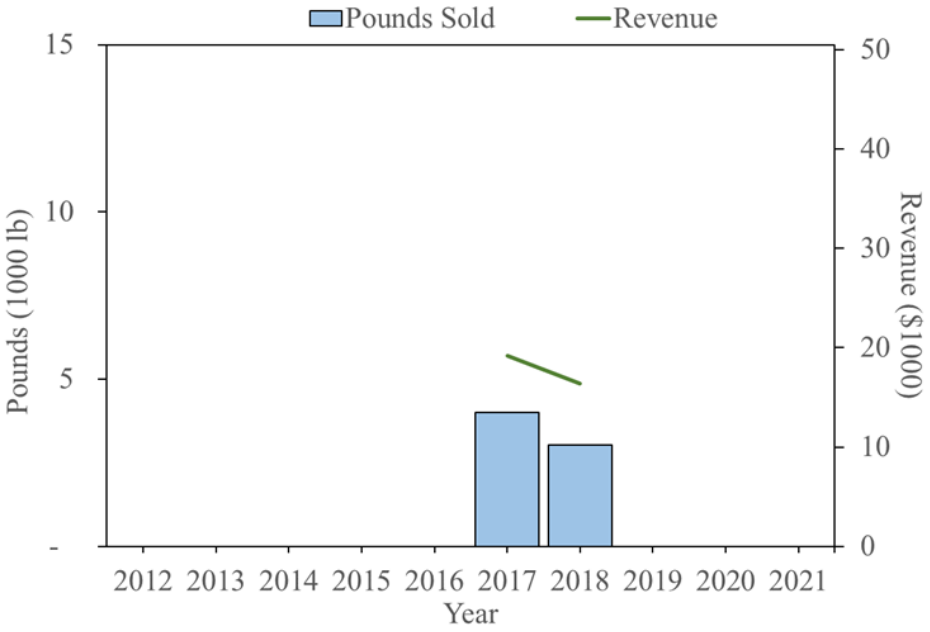

Figure 3. Pounds sold and revenue for the Guam bottomfish fishery from 2012–2021.

Since 2011, PIFSC economists have maintained a continuous economic data collection program for small boat fishing on Guam that gathers fishing expenditure data for boat-based reef fish, bottomfish, and pelagic fishing trips on an ongoing basis. Data for fishing trip expenses include gallons of fuel used, price per gallon of fuel, cost of ice used, cost of bait and chum used, cost of fishing gear lost, and the engine type of the boat. Figure 4 shows the trend of average trip cost for Guam bottomfish trips from 2012 to 2021. Cost appeared to be in a declining trend from 2012 to 2016 before increasing substantially in 2017. Trip cost in 2021 also increased notably compared to 2020 due to increasing costs for all analyzed expenses.

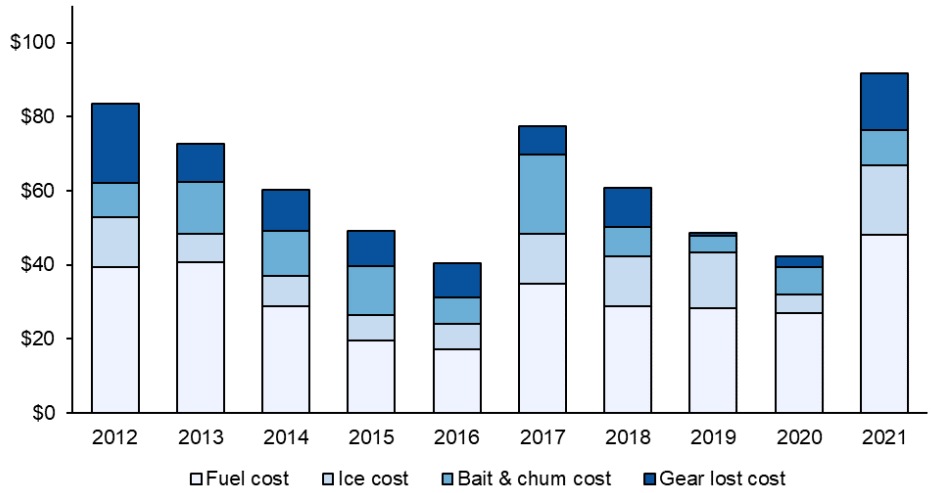

Figure 4. Average cost for Guam bottomfish trips from 2012–2021.

CNMI

Figure 5 presents the trends of commercial pounds sold and revenue for BMUS harvested in the CNMI bottomfish fishery from 2012 to 2021. Both commercial landings and revenue in 2021 represented decadal highs for the fishery, likely associated with improvements in reporting from vendors. A mandatory reporting requirement was implemented in the regulations of the CNMI in 2019 and recent outreach efforts have likely resulted in more vendors complying with the new requirements; 37 out of an estimated total of 42 vendors provided data in 2021 (WPFMC 2022b).

Since 2009, PIFSC economists have maintained a continuous economic data collection program for small boat fisheries in Saipan that gathers fishing expenditure data for boat-based reef fish, bottomfish, and pelagic fishing trips on an ongoing basis. Data for fishing trip expenses include gallons of fuel used, price per gallon of fuel, cost of ice used, cost of bait and chum used, cost of fishing gear lost, and the engine type of the boat. Figure 6 shows the trend of average trip cost for CNMI bottomfish trips from 2012 to 2021, which seems to have substantial interannual variability. The average cost for a bottomfish trip was $66 in 2021, which was notably higher than the trip costs in 2020 due to increased fuel costs.

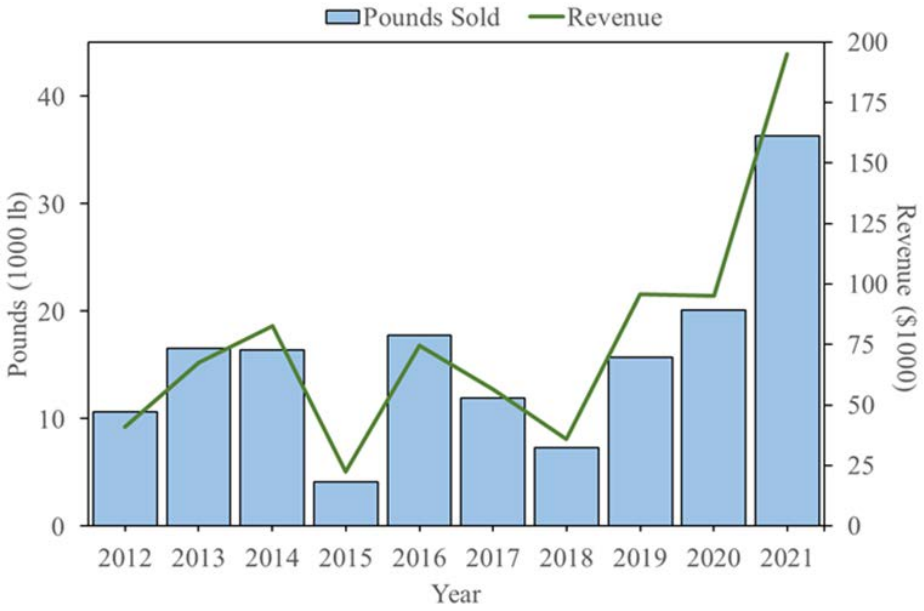

Figure 5. Pounds sold and revenue for the CNMI bottomfish fishery from 2012–2021.

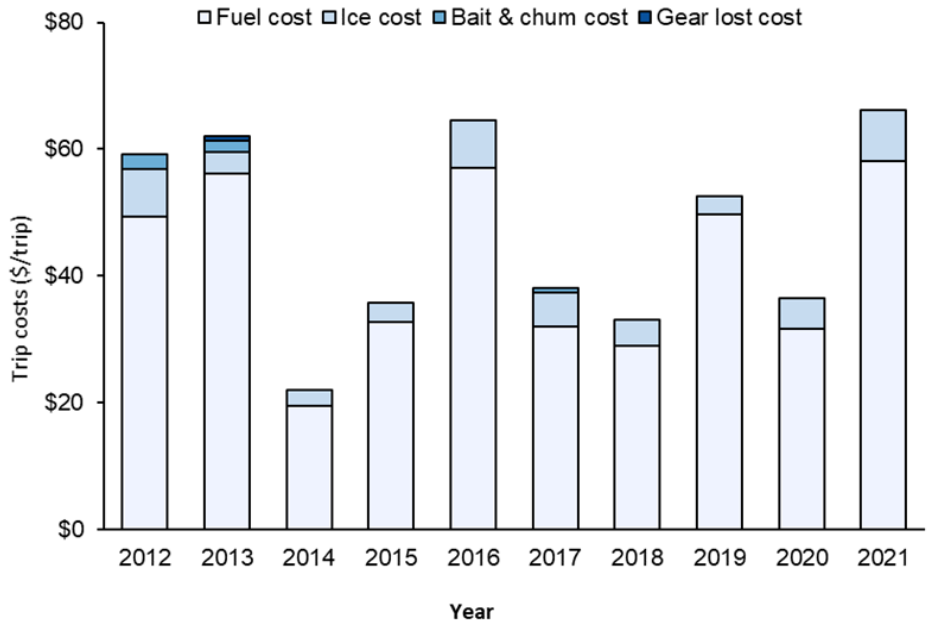

Figure 6. Average cost for CNMI bottomfish trips from 2012–2021.

Fisher Observations and COVID Impacts

In recent iterations of the Council's annual SAFE reports, new information has been included associated with both perceptions of and impacts on these territorial fishing communities. Fishers Observations sections, which provide empirical, "on-the-water" information contributed by fishers, were added to each of the annual SAFE reports (WPFMC 2022a; WPFMC 2022b). The initiative to collect fisher observations represents a collaborative effort by the Council and NMFS to better understand changes in the fishery over time based on the perception of fishery

participants, and the observations can be used to help verify the fishery-dependent data collected through creel surveys and commercial purchase programs (and vice versa). As a special section to the annual SAFE reports in 2020 and 2021, an evaluation of the impacts of the COVID-19 pandemic on each of the Western Pacific territories was incorporated. Fishing communities and island economies across the Pacific Islands experienced pandemic-related impacts across this time period, and this content presents information that may provide context for observed fishery shifts over the same time. While the sections in the annual SAFE reports regarding COVID impacts will not persist into the future as pandemic-related impacts subside, it is anticipated that the Council and NMFS will continue to invest in and contribute to the collection of fisher observation information. *The proposed action to revise the territorial BMUS lists would not impact the initiative to document empirical observations from fishers.*

Ongoing Research and Information Collection at PIFSC

Each year, PIFSC reports on the status of economic data collections for select regional commercial fisheries. This supports a national economic data monitoring effort known as the Commercial Fishing Economic Assessment Index (CFEAI). Details on the CFEAI and access to data from other regions are available at https://www.st.nmfs.noaa.gov/data-and-tools/CFEAI-RFEAI/. The most recent CFEAI metrics available for select regional commercial fisheries in 2021 were generated by the PIFSC small boat surveys conducted in 2021. The small boat survey in American Samoa in 2021 collected data on fishing revenue, operating costs, and fixed costs, while the surveys in Guam and the CNMI in 2021 collected data on just fishing revenue and operating costs. The most recent year in which fixed cost data was collected from the Mariana Archipelago surveys was 2019. Similarly, for all three territories, the latest publication of returns above operating costs (i.e., quasi-rent) and assessment of profits occurred in 2019.

PIFSC maintained the ongoing economic data collection in American Samoa, Guam, and the CNMI for small boat fisheries in 2021 (i.e., based on Chan and Pan 2019). Additionally, a cost-earnings survey of the American Samoa small boat fishery was completed during 2021. This survey provides updated data on fishing revenues, operating costs, and fixed costs, as well as numerous elements related to fishing behavior, market participation, and fishery demographics for American Samoa boat-based fisheries. PIFSC hopes to have survey results published by the end of 2022. Based on early projections, PIFSC intends to maintain ongoing economic data collections in all three territories for small boat fisheries during 2022.

Community social indicators have been generated for American Samoa (Kleiber et al. 2018) in accordance with a national project (https://www.fisheries.noaa.gov/national/socioeconomics/social-indicators-coastal-communities) to describe and evaluate community well-being in terms of environmental justice, economic vulnerability, and gentrification pressure. However, these indicators rely on Census data and cannot be updated until 2020 Census data becomes available, perhaps sometime in 2022.

These ongoing research and data collection efforts by PIFSC would continue regardless of the proposed action to revise the territorial BMUS lists.

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