NOAA FISHERIES

In April 2020, NOAA Fisheries prepared its first national report on the regional impacts of COVID-19 on the commercial, recreational and aquaculture sectors. This report updates that initial assessment, capturing economic changes experienced by the fishing industry as the country began its phased reopening along with infusion of Federal funding through the CARES Act. NOAA Fisheries will continue to use this information to identify economic hardship where it exists and identify pathways for enhancing the resilience of the U.S. seafood and fisheries industries.

Pacific Islands Fisheries Impacts from COVID-19

Hawaiʻi

The State of Hawaiʻi implemented numerous protective measures to prevent the spread of the novel coronavirus beginning in mid-March, including social distancing (March 13) and cancellation of public gatherings (March 15), a state-wide stay-at-home work-at-home order (March 25), and all persons entering the State of Hawaiʻi (visitors and returning residents) were required to self-quarantine for 14 days or for the duration of their stay in Hawaiʻi, whichever is shorter (March 26).[1]

Along with many other states, these restrictions were slowly relaxed between the months of May and July, as the islands staged an incremental reopening strategy. However, surges in domestic cases in June and July precluded the State of Hawaiʻi from relaxing travel quarantine restrictions. Initial efforts to roll out a program that would allow for travelers with pre-travel negative test results to bypass quarantine was planned to take effect on August 1, but this has since been pushed back to September 1, later to October 1, and is currently proposed to launch in mid-October.[2] While outside the time period for this analysis, it should be noted that local case counts spiked during August and September, and the islands returned to a strict lockdown with renewed state-wide stay-at-home orders for a period of 4 weeks (August 27-September 23).[3]

Hawaiʻi's largest industry, tourism, which provides high demand for Hawaiʻi seafood products, remains shuttered, creating significant economic hardship statewide. Cumulative visitor counts for the months of April-July 2020 (53 thousand visitors) are down 98.5% from this same April-July period in 2019 (3.6 million visitors).[4] Unfortunately, the forecast is bleak with the State of Hawaiʻi Department of Business, Economic Development, and Tourism (DBEDT) predicting annual visitor counts in 2020 to be down 72% from 2019, with visitor spending to be approximately 68% less than 2019.[5] While seasonally-adjusted unemployment rates for the State of Hawaiʻi have improved from 23.8% (April) to 13.1% (July), these levels have consistently exceeded national unemployment rates of 14.4% and 10.5% for the months of April and July, respectively. While fishing and seafood markets are classified as an "Essential Business", the Hawaiʻi fishing and seafood industry has experienced significant economic impacts as a result of global COVID-19 spread.

The Hawaiʻi fishing and seafood industry is an integrated food production and supply system that links fishermen to our nation's only fresh tuna auction, the fish auction buyers (mainly wholesalers), and ultimately retailers and restaurants in Hawaiʻi and across the United States. The COVID-19 pandemic has virtually eliminated market demand for Hawaiʻi seafood in local restaurants, which are heavily dependent on tourism, and severely restricted the mainland US retail market. What has remained is the local retail market in Hawai'i. This significant reduction in market demand has cascaded through market channels to the fishing sector, which has faced significant reductions in fish prices, and the market has struggled to balance supply with reduced demand. The economic viability of fishermen, the fish auction, and fish processors continue to be threatened by the economic effects associated with pandemic restrictions and shifts in demand.

Despite these challenges the fishing community (commercial fishers, non-commercial fishers, seafood distributors) in the Pacific Islands Region plays a vital role in supporting local food systems, nutrition, food security, and social cohesion.[6] This importance is amplified in the face of natural disasters and human health crises, and fishing communities across the Pacific Islands Region have adapted to continue these crucial functions in the face of this unprecedented disruption.

Commercial Fisheries Landings Trends and Impacts through July 2020

In 2018, Honolulu was the nation's #6 port in seafood value ($106 million).[7] On average, the Hawai'i longline fishery comprises approximately 97% of Honolulu fishery revenues and over 85% of fishery revenues for the State of Hawai'i. Other important commercial fisheries in Hawai'i include small boat fishers targeting tunas and other highly-migratory species, as well as bottomfish, nearshore, and reef fish species. State of Hawai'i commercial fisheries are year-round fisheries, with revenues peaking in the months from March through June, with a second seasonal peak during the holiday months of December and January. During 2018, there were 121 active seafood dealers, over 2,500 licensed fishers with commercial sales, and a world-renowned charter/for-hire industry.

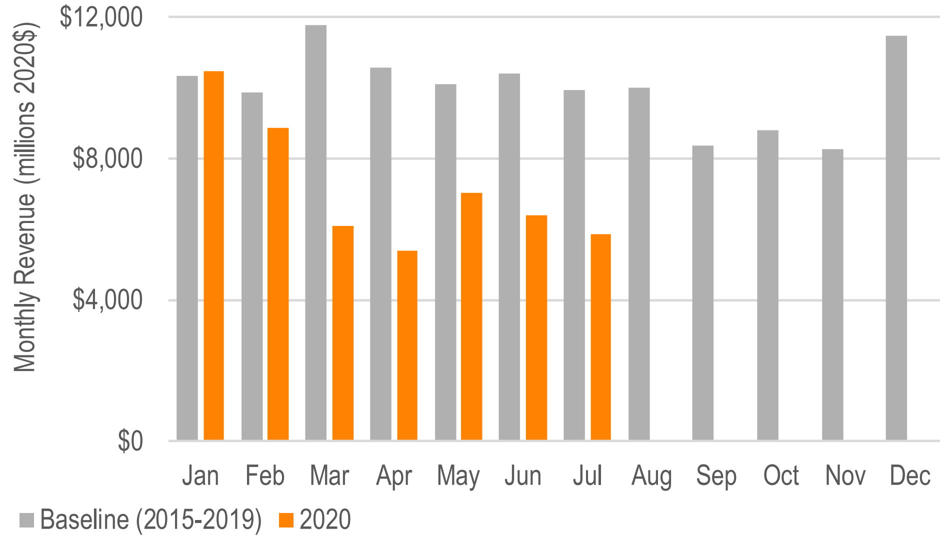

Figure 1. **Monthly Hawai'i commercial landings revenue, 2020 relative to 2015-2019 (Inflation-adjusted, 2020 dollars).**

Average monthly State of Hawai'i commercial fishing inflation-adjusted revenues over the baseline period of 2015-2019 was approximately $10 million (adjusted to January 2020 dollars, using Bureau of Labor Statistics Hawai'i all-urban consumer price index). Preliminary monthly revenue estimates for 2020 show clear impacts from COVID-19. Market price declines of just under 75% that hit in mid-March[8] and held over the last two weeks of the month, coupled with industry-imposed landing limits, resulted in industry revenue declines of approximately 48% for the month of March relative to baseline monthly averages. The expectation, at the time, of sustained industry struggles has been realized.

Throughout this report, where possible, 2020 data are presented. These data are preliminary and subject to change.

Hawai'i commercial fishery revenues (March-July 2020) have experienced an approximate 42% decline relative to the 5-year baseline (2015-2019) for the months of March-July. Cumulative preliminary 2020 commercial fishery revenues (March-July 2020) are approximately $22 million below the 5-year baseline for this period (March-July 2015-2019). Similarly there have been reductions in active fishers and seafood dealers, on account of COVID-19 impacts and restrictions.

Table 1. Hawai'i Commercial Fisheries Performance: Percentage Change, 2020 compared to Baseline (2015-2019).*

Month	Revenues	Landings	Prices	Fishers**	Dealers**
March	-48.4	-24.3	-31.8	-28.6	-16.7
April	-49.1	-29.4	-27.8	-38.8	-36.7
May	-30.4	-25.0	-7.2	-36.7	-28.2
June	-38.7	-43.4	+8.3	-32.4	-33.1
July	-41.1	-34.4	-10.3	-37.4	-33.9
Average (March-July)	**-41.5**	**-31.3**	**-13.8**	**-34.8**	**-29.7**

*** Source: State of Hawai'i Division of Aquatic Resources, 2020 data are preliminary (as of 9/11/20).**
**** Number of unique fishers submitting commercial reports, number of unique dealers submitting dealer reports.**

Commercial Fishing Impacts

LONGLINE FISHERY

During 2019, there were 150 active longline fishing vessels, landing approximately 26.5 million pounds, valued at nearly $95 million. Due to the recent sharp decline in landed fish prices, beginning on March 14, longline fishing operations have seen significant revenue losses. The Hawai'i longline fishery has taken nearly the full impact (approximately 94%) of cumulative preliminary 2020 Hawai'i commercial fishery revenue declines between March and July 2020 relative the 5-year baseline for this period (March-July). Preliminary Hawai'i Longline commercial fishery revenues (March-July 2020) have experienced an approximate 45% (or $20.7 million) decline relative to the 5-year baseline (2015-2019) for the months of March-July.

Between March 14 and July 31, the average weekly price at the United Fishing Agency (UFA) auction for the two primary target species (bigeye tuna and swordfish) were down approximately 20% compared to pre-COVID 2020 prices (January 4 – March 13). Price improvements were seen during mid-May through June. However, this was largely due to a nearly 50% reduction in landings levels as the market worked to balance supply with local demand (industry-imposed vessel-level and daily landings restrictions have been maintained since mid-March). It should be noted, during May and June there also was improved access to mainland markets as states began to open up, coupled with the relaxing of local restrictions which helped pick up prices for these key target species. However, as restrictions heightened in many states during July to match rising case counts, the industry saw these price gains disappear, highlighting the direct impacts of COVID-19 restrictions on the Hawai'i seafood market.

Counter to fishery target species, the average weekly price at the UFA auction for combined mix/whitefish species,[9] primarily marketed to the foodservice sector were down approximately 54% compared to pre-COVID 2020 prices. These species have seen little to no rebound in recent months and comprise a large portion of fishery landings, significantly dampening industry revenues.

Table 2. Hawai'i Longline Fishery Performance: Percentage change, 2020 compared to Baseline (2015-2019).*

Month	Revenues	Landings	Prices	Fishers**
March	-48.9	-21.3	-35.0	-2.2
April	-51.5	-31.3	-29.4	-16.2
May	-33.6	-28.0	-7.7	-8.8
June	-47.5	-52.0	+9.4	-19.6
July	-45.3	-38.2	-11.4	-6.1
Average (March-July)	**-45.3**	**-34.2**	**-14.8**	**-10.6**

*** Source: State of Hawai'i Division of Aquatic Resources, 2020 data are preliminary (as of 9/11/20).**
**** Number of unique fishers submitting commercial reports.**

To support the local community and alleviate challenges in matching supply and demand, the Hawai'i seafood industry has established new partnerships with community organizations. In late April, the Hawai'i seafood industry donated approximately 2,000 pounds of fresh fish to the Hawai'i Foodbank, and through this partnership Hawai'i Foodbank purchased $50,000 worth of seafood landed by Hawai'i longline vessels.[10] In early July, the City of Honolulu has committed $2.6 million in federal coronavirus relief funds to help the fishing industry via a "fish-to-dish" program[11] which will work in partnership between the Hawai'i Foodbank and the Hawai'i Longline Association, the United Fishing Agency, which runs the fish auction, and the Hawai'i Seafood Council to distribute fish to people in need in the community. An estimated 350,000 servings of fresh fish are expected to be distributed to the community over the next five months through the Hawai'i Foodbank and its partner agencies. The long-term financial outlook for the Hawai'i longline fishery remains highly uncertain and depends on both local and national recovery efforts.

The top COVID-19 related factors affecting business for the Hawai'i longline fishing sector continue to be:

- Reduction of market prices and landed value (particularly for mix/whitefish species).
- Reduced market demand from foodservice sector.
- Market competition with cheaper foreign imported frozen products.
- Reduced opportunities for credit offered by supply companies (e.g. fuel).

OTHER COMMERCIAL FISHERIES

Other important commercial fisheries in Hawai'i include small boat, spear, and nearshore fishers targeting tunas and other highly-migratory species, as well as bottomfish, nearshore, and reef fish species. During 2018, there were just under 1,700 commercially-licensed fishers in the State of Hawai'i, landing nearly 5 million pounds valued at approximately $16 million. These fishers have faced similar negative pricing impacts as the longline fishery on account of COVID-19 as they market their fish through the UFA auction, dealers/processors, restaurants, retail storefronts, and within their community. Historically low prices and state-wide stay-at-home orders severely limited commercial small boat fishing effort during March. However, as local restrictions relaxed, while there were fewer active fishers, difficult economic conditions likely drove increased fishing activity (preliminary 2020 revenues in June exceeded baseline revenues). Many commercial small boat fishers have been forced to and/or chose to shift to marketing their fish via social media, within community networks, and developing value-added products (e.g., smoking) with their catch. Pursuing these marketing channels, coupled with significant reductions in longline fishery landings, likely helped prices during this time period.

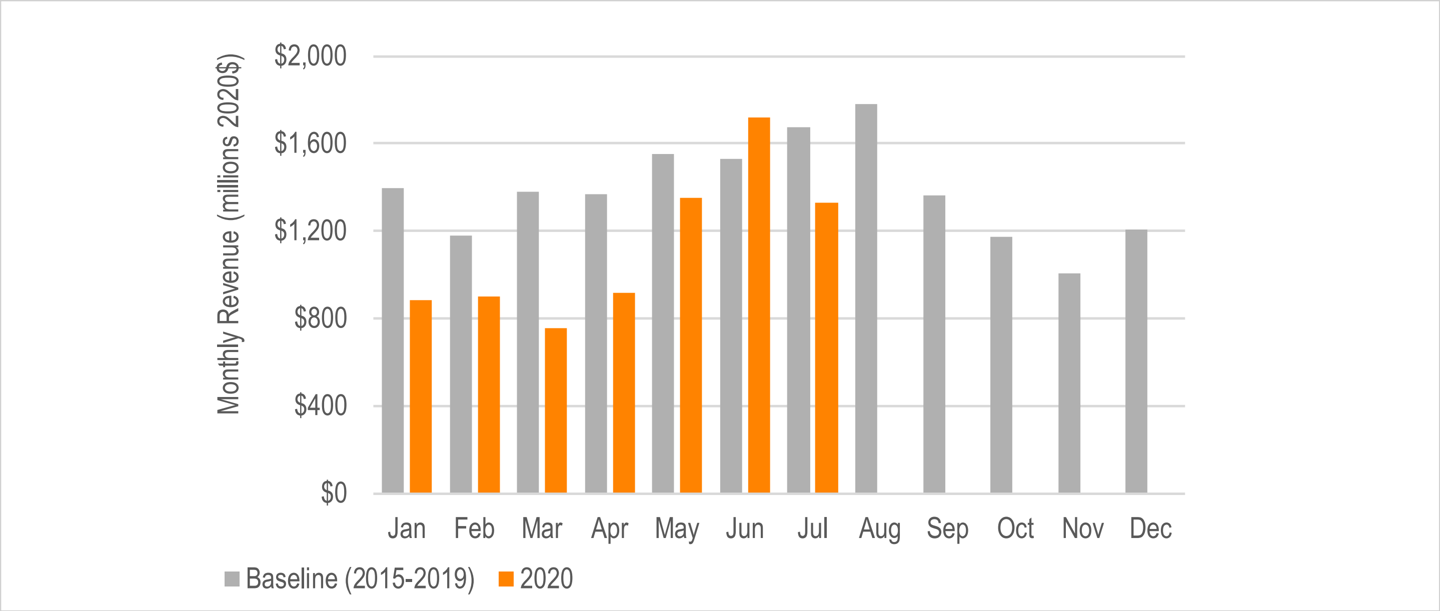

Figure 2. **Monthly Hawai'i other (non-longline) commercial fisheries landings revenue, 2020 relative to 2015-2019 (Inflation-adjusted, 2020 dollars).**

Preliminary Hawai'i other (non-longline) commercial fishery revenues (March-July 2020) experienced an approximate 20% decline relative to the 5-year baseline (2015-2019) for the months of March-July. Preliminary cumulative 2020 fishery revenues March through

July 2020 are approximately $1.4 million below the 5-year baseline for this period (March-July). There have been notable reductions in active fishers and seafood dealers, on account of COVID-19 impacts and restrictions.

Table 3. **Hawai'i Other (Non-Longline) Commercial Fisheries Performance: Percentage Change, 2020 compared to Baseline (2015-2019).***

Month	Revenues	Landings	Prices	Fishers**	Dealers**
March	-45.0	-46.0	+2.0	-33.4	-16.9
April	-32.8	-16.8	-19.2	-42.7	-37.4
May	-12.9	-6.8	-6.5	-41.0	-28.7
June	+12.3	+2.9	+9.2	-34.2	-33.6
July	-20.5	-17.3	-3.9	-41.9	-34.7
Average (March-July)	-19.7	-16.8	-3.7	-38.7	-30.2

*** Source: State of Hawai'i Division of Aquatic Resources, 2020 data are preliminary (as of 9/11/20).**
**** Number of unique fishers submitting commercial reports, number of unique dealers submitting dealer reports.**

These fishers (along with thousands of non-commercial fishers) play vital roles in supporting local food systems, nutrition, food security, and community social cohesion.[12] This importance is amplified in the face of natural disasters and human health crises. A public Facebook group *Hawai'i Fishers Feeding Families* was established in mid-April to promote fisher contributions to local food security. As of July, over 1,200 individual fishers have posted a cumulative estimate of over 10,500 pounds of fish that have helped to feed over 11,500 people across the State of Hawai'i.

Seafood Dealers/Processors

The Hawai'i longline fishery supplies ice-chilled, high quality fresh fish that seafood dealers and processors distribute to Hawai'i and U.S. mainland foodservice and retail markets. The Hawai'i seafood industry produces over 80% of U.S. domestic landings of bigeye and yellowfin tuna and 55% of the Nation's domestic supply of swordfish. There are around 1,000 workers in the State of Hawai'i (directly) employed in wholesale seafood and supply businesses and thousands (indirectly) employed in local restaurants supplied by Hawai'i commercial fisheries. As shown in previous tables, between March and July 2020 there were approximately 30% fewer active dealers in the State of Hawai'i relative to the 5-year baseline (2015-2019) for the months of March-July.

The Hawai'i seafood market was hit extremely hard beginning in mid-March.[13] Beginning March 15, vessel landing limits and daily target total volume restrictions have been imposed by the Hawai'i Longline Association (HLA) and the United Fishing Agency (UFA) auction, and these restrictions hold to date. The Hawai'i longline fishery is Hawai'i's largest food producing industry and severely reduced supply has important food security considerations.

Current challenges for the industry are similar to those outlined in the early days of the COVID-19 shock and involve matching fishery supply with local consumer retail demand as fresh air freight for all seafood products is limited, reducing US mainland market access. In an effort to mitigate low prices, more than one processor has begun direct marketing in an effort to generate cash flow and move product. An additional concern is competition with cheaper frozen import product inventories, and with no disruption to ocean shipping channels, this poses a significant short term challenge due to price competition in local retail markets, as local communities endure harsh economic conditions and dramatic increases in statewide unemployment stressing food budgets.

The Western Pacific Fishery Management Council (WPFMC) undertook communications[14] with Hawai'i seafood dealers and processors during the months of May and June. Approximately 28 businesses engaged in these communications. A majority (86%) experienced negative revenue impacts in the first quarter of 2020, ranging from -5% to -95%, with an average of -43%. Over 72% of businesses reduced their workforce in the past year, with an average of 35% staff reduction (47 workers, with a minimum of two and maximum of 140). A combined 80% indicated that the COVID-19 pandemic has been somewhat, substantially, or completely responsible for these losses. Seafood businesses whose most important customers were restaurants experienced the greatest average loss of employees, followed by businesses whose most important customers were retail establishments, and then businesses whose most important customers were distributors. A majority expect negative impacts for the remaining quarters of 2020, in the -25% to -75% range.

As stated by one representative, "COVID 19, combined with the effects of the Hawai'i travel quarantine, has almost destroyed our business, it's been extremely impactful and making it hard for all of us [in the seafood industry] to survive."

The top COVID-19 related factors affecting business for seafood dealers/processors continue to be:

- Reduced demand across all markets (mainland and Hawai'i; retail and particularly restaurants).
- Managing inventory (decreasing storage capacity for fresh local product).
- Shipping/distribution constraints - reduction in air cargo capacity as airlines have limited flights.

Charter/For-Hire Impacts

As the only state in the U.S. where marlin and other trophy billfish can be reliably caught year-round, Hawai'i is well known among serious anglers as a destination for big game fishing trips. Although Kailua-Kona (Big Island) draws in many return and regular patrons with its world renowned tournaments, historical harbor and promises of trophy fish, for the most part, Hawai'i's charter operations host first-time patrons visiting the state. The Hawai'i charter/for-hire industry has been effectively closed for business as of mid-March on account of social distancing mandates, stay-at-home orders, drastic reduction in visitor numbers,[15] visitor quarantine mandates, and suspension of harbor operations and commercial ocean activities, including tournaments.[16] Charter/for-hire permit restrictions were relaxed in late-May/early June, but social distancing and tourism restrictions have precluded any industry rebound to date.

Preliminary estimates of reported charter fishing trips for the month of March were down 66% relative to the baseline of 2015-2019. Approximately 39 charter/for-hire fishing trips were reported statewide between April and July 2020, a 99.3% decline from the cumulative average of 3,200 trips taken during this time period, using the baseline of 2015-2019. The 2020 Hawai'i International Billfish Tournament (HIBT) was cancelled due to COVID-19, and several local tournaments scheduled between March and July were also cancelled. The 2020 Hawai'i Marlin Tournament series has been held as scheduled (it began in early July), but with significant reductions in participation from previous years (about one-third of traditional participation levels).[17]

To date, COVID-19 and the restrictions in place to mitigate spread have imposed catastrophic financial burden on charter operators in Hawai'i and deprive the state of significant economic contributions through supporting industries,[18] the scientific community of valuable tagging data, and many operators indicate the viability of the operations in the near future is highly uncertain.

American Samoa

American Samoa implemented strict protective measures to prevent the spread of the novel coronavirus including social distancing and cancellation of public gatherings associated with a public emergency declaration (March 18), and island-wide stay-at-home work-at-home order (March 24). Businesses have been subject to a curfew, and restaurants, bars and nightclubs, which are primary destinations for island seafood can serve only 10 or fewer customers, leading many to shut down entirely, unable to cover payroll, rent, utilities, and other fixed costs. Perhaps most significantly, on March 30, all flights between Hawai'i and American Samoa were suspended for 30 days,[19] and these flight restrictions have been extended and broadened, resulting in no commercial flights, so the island is effectively closed. As of July, there are no reported positive cases of COVID-19 in American Samoa.

The American Samoa Government imposed a 15-day quarantine on foreign vessels that have visited other ports, met up with another vessel, or fueled via a tanker. These vessels supply the StarKist Samoa cannery. Cannery staff and stevedores are allowed onboard to offload product, but the crew are not allowed to depart vessels. The Department of Health has maintained diligence to ensure crew are safe and limiting exposure to local populations. Given ongoing travel restrictions many skippers and crews have not been able to return home for over 6 months.

Commercial Fishing Impacts

PURSE SEINE FISHERY

In 2020, there have been 24 active purse seine fishing vessels delivering product to the StarKist Samoa cannery in American Samoa. Due to ongoing travel restrictions, these operations are under continued strain maintaining morale for skippers and crew facing long onboard confinement. While observer requirements continue to be waived on a case-by-case basis, a significant operational cost borne by industry was the repatriation of fishery observers. Concerns expressed in March by Bill Gibbons-Fly, executive director of the American Tunaboat Association (ATA) which represents the U.S. Pacific tuna purse-seine fleet, continue to date, "The increasing travel constraints throughout the Pacific are complicating efforts to get crew, repair parts, technicians and supplies to boats in a timely fashion". Operational difficulties associated with COVID-19 restrictions such as limited at-sea transshipment, inability to change crews and conduct routine maintenance, quarantine periods associated with port calls, on top of other factors (low prices [particularly March-June][20] and fully utilized high seas allocation) will likely negatively impact fishery effort and performance.

LONGLINE FISHERY

The American Samoa longline fishery operates out of Pago Pago, American Samoa. In 2019, there were 17 active vessels that took approximately 100 trips, landing approximately 3 million pounds valued at about $4 million. The primary target is albacore tuna and the fishery delivers primarily to StarKist Samoa.

The months of May through July are typically the most productive season for this fishery. The fishery has faced significant economic struggles in recent years,[21] but preliminary 2020 estimates would suggest that despite some reductions in the number of active vessels in 2020, fishery performance appears to mirror 2019. However, local fisheries experts observed that the longline fleet has struggled to recruit fishing crew. Many of the fishing crew originate from Apia in Western Samoa, and travel restrictions have prevented international workers from returning to American Samoa. Some longline boats have adapted by sharing crew members.

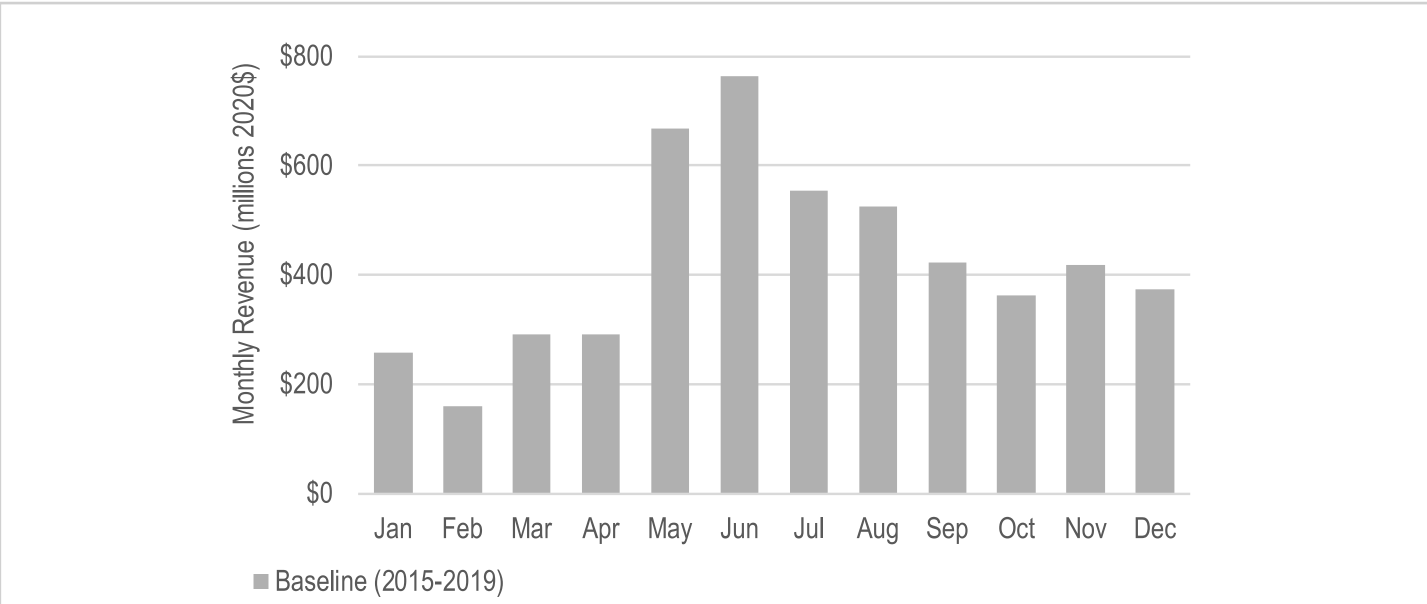

Figure 3. **American Samoa longline average monthly fishery revenues: 2015 - 2019 (Inflation adjusted to 2018 dollars).**

OTHER COMMERCIAL FISHERIES

American Samoa alia and small boat fisheries are a mix of subsistence, cultural, recreational, and quasi-commercial fishers. Fish and fishing are an integral part of the culture and important component of the social fabric in American Samoa. In addition to social importance, most fishers consider the fish they catch to be an important source of food for their families. Fishing is critically important in terms of building and maintaining social and community networks, perpetuating fishing traditions, and providing fish to local communities as a source of food security. During the baseline period of 2015-2019, average annual commercial fishery revenues for American Samoa other commercial fisheries was approximately $339 thousand.[22]

A group of local fishing experts reported that, in spite of COVID-19, part-time alia and small boat fishing has continued as normal, including sports fishing events. They also confirmed that strong cultural traditions of sharing and resource distribution as a source of community resilience have mitigated any effects of private sector job loss.

Seafood Dealers/Processors

StarKist Samoa, the largest local private employer on island with about 2,000 workers, has received exempt status from the American Samoa Governor's emergency declarations, allowing it to maintain operations, given it operates evening and sometimes weekend shifts.[23] While fish supply has remained steady, given contributions from U.S. and foreign purse seine vessels, and the plant has been operating at full capacity, keeping up with demand has been challenging and the cannery has faced numerous challenges due to COVID-19 restrictions. Flight restrictions to and from American Samoa have increased the cost of airfreight for the cannery. Additionally, flight restrictions have hampered plant maintenance projects, constrained professional service contracts, and disrupted new recruitment for cannery workers. Despite these challenges, StarKist Samoa continues to play a vital role in the U.S. food supply chain with average annual canned tuna exports to the United States of approximately $400 million per year, in recent years.[24] The risk of COVID-19 to cannery operations cannot be overstated as any positive cases in American Samoa would likely put cannery operations at significant risk, jeopardizing the American Samoa economy and U.S. seafood supply chain.

Commonwealth of the Northern Mariana Islands

The Commonwealth of the Northern Mariana Islands (CNMI) implemented strict protective measures to prevent the spread of the novel coronavirus including, social distancing and cancellation of public gatherings associated with a public emergency declaration coupled with a stay-at-home work-at-home order (March 17),[25] and all inbound travelers, including returning residents are required to undergo a 14-day quarantine (March 23).[26]

Tourism is by far the largest industry in the CNMI and COVID-19 impacts began in February, with 11 major hotels collectively reporting the lowest occupancy rates ever recorded at less than 20%. Hotels started the planning stage of laying off employees, closing entire wings, closing restaurants, and suspending contracts for outsourced services.[27] March 2020 visitor arrivals were down 85% from last year and tourism was effectively shut down in recent months due to flight suspensions for all non-residents. This loss of livelihood, coupled with federal immigration work visa policies, has led to significant out-migration of international workers from the Philippines, the Marshall Islands, and the Federated States of Micronesia (FSM). As of July 1, the Marianas Visitors Authority has outlined procedures[28] that would allow non-resident visitors to avoid a 14-day quarantine, a first step to rebuilding tourism in the islands.

A recent survey conducted by the Saipan Chamber of Commerce[29] found that 55% of responding businesses have either made large operational reductions or are temporarily closed; 72% have either reduced staff or decreased hours; 40% have had to reduce over a quarter of their total staff; 79% have seen a reduction in revenue for more than four weeks; and 47% have potentially lost more than $100,000 in revenue due to COVID-19 and the economic downturn.

In response to this drastic and dramatic decline in tourists, the CNMI government implemented austerity measures to balance projected budget shortfalls, which among other measures include 16-hour cuts (shift to a 64 hour bi-weekly work schedule) for government employees.[30] The first two confirmed positive cases for COVID-19 in the CNMI occurred on March 29. Since then there have been 59 COVID-19 cases, half of which were detected in people arriving from outside CNMI.

CNMI small boat fisheries are a mix of subsistence, cultural, recreational, and quasi-commercial fishers. Fish and fishing are an integral part of the culture and important component of the social fabric in the CNMI. In addition to social importance, most fishers consider the fish they catch to be an important source of food for their families. Fishing is critically important in terms of building and maintaining social and community networks, perpetuating fishing traditions, and providing fish to local communities as a source of food security.[31] During the baseline period of 2015-2019, average annual commercial fishery revenues for CNMI fisheries were approximately $686 thousand.[32]

In considering COVID-19 impacts to the CNMI fishing community, the Saipan Fishermen's Association cancelled their annual Mahimahi Fishing Derby scheduled for March 28. In response to the first two positive cases, one of which had travelled to Tinian, on March 30 the Tinian government implemented a "sunset–to-sunrise" curfew and closed the harbor to recreational and commercial fishing.[33] This restriction was also enforced in Saipan and effectively shut down night-time spear and bottom fishing. The following day, fishing outside the reef was also banned, and all but one boat ramp was closed so that fishing activities could be closely monitored. This shut down the small boat pelagic fisheries. This also effectively shut down the fresh fish market. The community petitioned to relax the restrictions on fishing, and in April and May changes were made to the curfew, and boat ramp access which has allowed for fishing again.

COVID-19 regulations have had a sudden and severe impact on fishing in CNMI. While access to fishing has returned, the market for fresh fish, which relied heavily on a tourism economy, has been greatly reduced with low demand. The majority of fresh fish available to the population now come from people who fish for themselves or their family.

Guam

Guam implemented strict protective measures to prevent the spread of the novel coronavirus, including social distancing, cancellation of public gatherings, public emergency declaration (March 14), an island-wide stay-at-home work-at-home order, and closure of non-essential businesses (March 19).[34] Tourism impacts began in February, with major hotels experiencing roughly 30% reductions in occupancy rates.[35] March arrivals were down nearly 77% relative to 2019, creating significant economic hardships. Reopening of travel to Guam from the countries of Japan, South Korea, and Taiwan (originally scheduled for July 1) has been postponed until further notice. Military personnel movement and patronage of restaurants and bars has also been restricted intermittently.[36]

Guam small boat fisheries are a mix of subsistence, cultural, recreational, and quasi-commercial fishers. Fish and fishing are an integral part of the culture and important component of the social fabric on Guam. In addition to social importance, most fishers consider the fish they catch to be an important source of food for their families. Fishing is critically important in terms of building and maintaining social and community networks, perpetuating fishing traditions, and providing fish to local communities as a source of food security.[37] During the baseline period of 2015-2019, average annual commercial fishery revenues for Guam were approximately $550 thousand.[38]

The Guam Fishermen's Cooperative Association (GFCA) is a central component of Guam's contemporary fishing industry that continues to pursue and broaden its original mission of providing marketing services, fuel, and ice for its small-boat fishermen members. Organized in 1976, GFCA's influence has become pervasive, providing a variety of benefits not just to its members, but for fisheries conservation, marine education, and the greater Guam community.[39] Amid coronavirus concerns, the GFCA remains open to support fishers and provide seafood to the local community, whose restaurant options for fresh fish have dwindled. Stay-at-home measures, however, have had negative impacts on GFCA operations due to a limited customer base.

The GFCA has reported a 70-80% decline in sales due to declines in tourism, tough economic conditions, and a shift in local consumers' preferences away from fresh product toward emergency supplies. Additionally, the timing of Guam's SCUBA spearfishing ban coincided with the start of COVID-19 impacts, limiting reef fish availability for the GFCA until the start of the bottomfish season. The GFCA is currently selling more non-traditional products, including tilapia and shrimp. Concerns about NOAA's discontinued bio-sampling and commercial receipt data collection arose during discussions with the GFCA, given their provision of key insights into COVID-19 impacts to Guam's fisheries and fishing community.

Discussions with members of the local fishing community indicate that the charter fishing industry has been mostly shut down since March. However, charter businesses and their employees have maintained their credentials and boat basin infrastructure at personal expense (e.g. drug tests, licenses, registration, harbor slips).

Observations from local fishers and business owners indicate that older fishers' (50-60+ years old) participation has declined during the pandemic given health concerns. This has implications for local seafood supply, given this age group's association with the regular provision of fresh seafood to Guam and more frequent fishing trips. Discussions suggest that younger fishers have sustained participation better than their older counterparts, but tend to fish less frequently. Logistical considerations for fishing activity have also shifted given COVID-19 concerns. One fisher described creating a "bubble" with 1-2 consistent fishing partners, gathering fishing supplies on fewer, more intentional trips to local shops, and embarking on fewer fishing trips lasting all day to maximize catch.

Overall, however, discussants from Guam's fisheries described an increase in fishing participation, given that many other activities have been classified non-essential. One discussant described inconsistencies between local government and enforcement officers' understanding of the essential classification of subsistence fishing. Given gathering restrictions and health concerns, the sharing of seafood has become less tied to community socializing. Instead, discussants described fishers prioritizing the food security of close family and friends, with remaining catch used for bartering or sale, for example, at the GFCA. Fishing has thus provided a mechanism for resilience during the pandemic.

A discussion with a Hagåtña restaurant owner revealed challenges in acquiring local fresh fish as quasi-commercial fishers prioritize fish for their close family and friends, and commercial fishers seek alternative sources of income. The discussant noted high hotel vacancy rates and closing restaurants which have made it difficult for commercial fishers to sell their catch. The discussant described her restaurant's revenues declining by 50-75%, with less than half of the original restaurant staff still actively working. The type of fish available has also changed. Where before tuna, mahimahi, marlin, and wahoo were commonly purchased from local fishers, now many fishers are focusing on bottomfish, perhaps for their high comparative market value. The restaurant owner estimated that fishing revenues are at an all-time low, despite that fishing activity has increased overall.

Social Impacts

In addition to the concern facing the rest of the United States over the strain COVID-19 will bring to the health care system, the Pacific Islands Region experiences a number of unique concerns. Residents tend to live in large, crowded, multi-generational households[40] with a higher proportion of older residents than most other states,[41] placing the population in the region at higher risk. In addition, extended families are often spread throughout the region, which includes many remote island-based communities where medical facilities are limited. In American Samoa, arriving passengers from one flight on 3/26/2020 filled the capacity of their health care center and resulted in a halt on passenger travel between Honolulu and Pago Pago.[42] Airlines have significantly limited flights across the Pacific Islands Region. As time progresses, increasing travel restrictions are forcing individuals into indefinite periods of separation from loved ones causing significant added anxiety. The fishing communities (both commercial and non-commercial) in the Pacific Islands Region play a vital role in supporting local food systems, nutrition, food security, and supporting community social cohesion. This importance is amplified in the face of natural disasters and human health crises, and fishing communities are adapting their operations to be able to continue these crucial functions in the face of unprecedented disruptions and increasing isolation.

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U.S. Secretary of Commerce
Wilbur Ross

Acting Under Secretary of Commerce
for Oceans and Atmosphere
Dr. Neil Jacobs

Assistant Administrator for Fisheries
Chris Oliver

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www.fisheries.noaa.gov

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