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Domestic markets and value chain assessment

Blue swimming crab in the Visayan Sea, Philippines

Monterey Bay Aquarium

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Executive summary

The small-scale blue swimming crab fishery in the Philippines is a crucial source of income for many coastal communities. It is dominated by the municipal fisheries sector, contributing approximately 94% of total national blue swimming crab production (Philippine Statistics Authority, 2017). The Philippines is the world's fourth-largest producer of blue swimming crab as of 2022 (Food and Agriculture Organization, 2024) and the heart of this fishery is in the Visayan Sea, encompassing the provinces of Masbate, Capiz, Iloilo, Negros Occidental, and Cebu. This area alone produces around 40% of the Philippines' blue swimming crab harvest, supporting the livelihoods of an estimated 8,000 to 10,000 crab fishers and processors. The dependency on this fishery is particularly pronounced in communities surrounding the Visayan Sea, where nearly half of the country's crab-picking stations are situated.

Initial interviews conducted by the Monterey Bay Aquarium indicated significant interest in blue swimming crab from local market actors who raised the question of whether there might be a viable domestic market for sustainable blue swimming crab, potentially improving income for fishers following harvest control rules. Consistent and premium prices set by domestic buyers can, to some degree, mitigate the frequent price fluctuations seen in the export supply chains.

Blue swimming crab fishers in the Visayan Sea face an intertwined challenge of managing their fisheries resources amidst insufficient incomes. Profits are lower due to dwindling catch sold at inconsistent prices, which are further reduced by debt; fishing activities being regularly interrupted by extreme weather events; rising expenses for fishing operations and basic needs because of inflation; and sudden costs from emergencies when they arise.

Overall, fisher cooperatives or other consolidators may have the potential to earn a higher, more consistent income for a portion of their total blue swimming crab catch volume by establishing regular sales to the domestic mid- to high-end hotel, restaurant, and catering sector. There are also opportunities for picked crab meat — extracted from the crab shell, ready to eat — in the hotel, restaurant, and catering sector, and the supermarket and specialty retail sectors. These linkages could be strategically developed initially for the domestic market near the fishery, and later for urban areas like Manila, Cebu, and Davao.

While there is significant interest from domestic buyers alongside a willingness to pay a premium for sustainable products, altering the supply chain as it currently exists may be challenging for three key reasons:

- Many fishers are currently stuck in debt cycles with middlemen that prohibit them from shifting who they sell to.
- There are no logistical arrangements to support the shipment of quality and live products across distances to metropolitan areas, such as Manila.
- Many fishers currently lack the resources to make, monitor, and share the management changes required to meet buyers' requirements.

Additionally, caution will need to be taken that sustainable practices are both understood and agreed upon by all actors and successfully enforced, so as not to inadvertently encourage overfishing or other poor management practices.

Critical interventions identified to support domestic market growth are adherence to and tracking of domestic sustainability standards, the logistical and financial facilitation of hyper-local as well as national direct sales, and the standardization of blue swimming crab product requirements. This includes size-based grading on top of the legal minimum requirements, logistical expansions, value chain transparency, and some level of traceability and information exchange. Additionally, offering alternative financing solutions for communities and other supply chain actors may be crucial to addressing current market dynamics.

Objectives and methodology

This research was conducted by the Monterey Bay Aquarium Global Programs team, to assess the current situation and future prospects for developing a sustainable domestic market for blue swimming crab (*Portunus pelagicus*) in the Philippines. The research focused on evaluating the feasibility of establishing direct buyer partnerships with the hotel, restaurant, and catering (HORECA) sector. These findings are intended to guide strategies and interventions, particularly in support of the Adopt-A-Village Program.

The research was implemented in two parts. First, a desk-based market assessment to ascertain the current volumes, demand, and infrastructure necessary for domestic market sales of blue swimming crab. The team then conducted in-depth interviews with 47 key informants during two weeks in August 2023 in blue swimming crab fishing communities within the Visayan Sea, specifically in four *barangays* (small administrative districts):

- Barangay Igbon, Municipality of Concepcion, Province of Iloilo
- Barangay San Salvador, Municipality of Banate, Province of Iloilo
- Barangay Tortosa, Municipality of Manapla, Province of Negros Occidental
- Barangay Tomongtong, Municipality of Enrique B. Magalona, Province of Negros Occidental.

The team also conducted interviews with several blue swimming crab canning plants, as well as HORECA establishments that were known to sell blue swimming crab or had previously expressed interest in sourcing it. Interview results were used to model and estimate the potential for a price premium through the development of partnerships with market actors from the local HORECA sector.

As a result of the combined desk research and field interviews, a pilot was initiated between the blue swimming crab model village in Barangay Igbon, Concepcion, Iloilo, and the Courtyard by Marriott hotel in Iloilo City to deliver a set quantity of blue swimming crab weekly, at a pre-agreed price. With knowledge sharing and facilitation by the Bureau of Fisheries and Aquatic Resources (BFAR), Better Seafood Philippines, and Agro-DigitalPH, this arrangement has held firm for several months through 2024. While this initiative has yet to be further evaluated, community leaders have spoken positively of how participating fishers have benefited from the drop in export prices in 2024. The hotel has been promoting blue swimming crab as a more sustainable seafood offering to its dining customers and as a case study for other Marriott properties.

Value chain and market assessment

Operating environment

The blue swimming crab supply chain in the Visayan Sea is complex and variable, with actors at all nodes in the supply chain largely functioning independently of one another. Fishing, trading, cooking, picking, and canning for export or sale at wet markets are not vertically integrated and remain highly vulnerable to shifting international market prices. Business relationships are driven not just by proximity and price but also by personal ties, debt cycles, and variable power dynamics.

The number of steps between landing the raw material to a canned product varies depending on the number of intermediaries involved (Figure 1). The key actors involved include fishers, sub-collectors, collectors, picking stations, and retailers or market sellers involved in the blue swimming crab value chain.

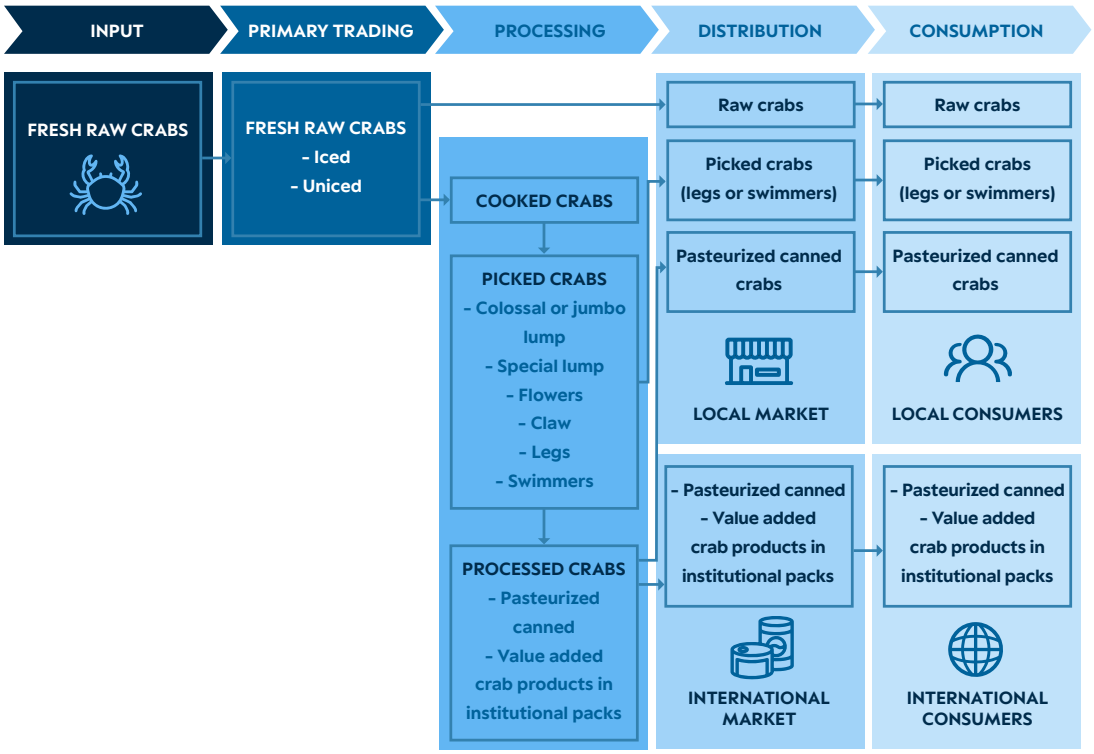


Figure 1. Product flow along the blue swimming crab supply chain in the Philippines, from the blue swimming crab national management plan (Philippines Bureau of Fisheries and Aquatic Resources, 2022).

The management of the blue swimming crab fisheries in the Philippines is based on the blue swimming crab national management plan (NMP), which was developed at a national level by a coalition of stakeholders in the crab industry in collaboration with BFAR in 2011, and the "*Regulation for the Conservation of Blue Swimming Crab (Portunus pelagicus)*" (Department of Agriculture and Department of Interior and Local Government Joint Administrative Order No. 01 series of 2014), which lays out prescriptive guidelines for sustainable blue swimming crab production. These include (a) the minimum size of blue swimming crab allowed; (b) mesh size for entangling nets and hole diameters for pots and traps; (c) the prohibition on possession or trading of berried blue swimming crab; (d) establishment of a closed fishing season; and (e) other possible regulations, such as on allowed number of crab fishers, limits on crab pots or traps per boat, limit on the length or depth, and the number of nets a fisher could own and operate. Provincial ordinances, such as those of Iloilo and Negros Occidental, as well as municipal ordinances, may impose additional, more stringent or more specific conditions.

In 2020, the NMP was fully updated and expanded, with explicit consideration of global sustainability indicators, including the Seafood Watch Program, which has rated the blue swimming crab fisheries in the Philippines as red since 2018 (Philippines Bureau of Fisheries and Aquatic Resources, 2022). The 2020 NMP also calls for Fishery Management Area (FMA)-specific management plans. As of 2025, the actions and procedures outlined in the management plan are still in their initial implementation phases in the Visayan Sea / FMA 11, with an initial focus on the three blue swimming crab model village sites.

Blue swimming crab fishers

Eight blue swimming crab fishers participated in the interviews conducted for this report, and all respondents were male. Their ages varied between 37 and 59 years, and they had an average fishing experience of 27 years. Six of eight interviewees shared that blue swimming crab fishing constituted their sole income source, contributing to 80 to 100% of their family's overall household income.

Image 1. Typical fishing vessels and gears (entangling nets and traps) are used by blue swimming crab fishers in the Visayan Sea (photo credit: Gerald Hulleza).

The appendix includes details shared by the interviewees on blue swimming crab fishing practices, perceptions on abundance, and capture of bycatch. Overall, the fisher interviews reveal apprehension regarding weather conditions, fuel costs, low crab prices, gear loss, operational costs, illegal fishing, and lean seasons. Notably, half of the interviewees identified low crab prices as their primary concern, and fishers have limited to no individual power to pressure buyers to increase purchasing prices.

Several interviewees reported that they refrain from fishing or reduce fishing activities between August and January due to the typhoon season. Fishers recognize July to December as the peak season for catching blue swimming crab, although more frequent and intense storms during this period directly affected fishers' safety and earning capabilities. Most communities had a fishers' association that organized the fishers and enforced local prohibitions. While none of the associations engaged in commercialization activities or collective bargaining with buyers, some expressed interest in developing direct sales of blue swimming crab.

CRAB SALES AND PRICES

There was limited commonality between the communities on which first-mile businesses bought crab from the fishers. In Igbon, fishers sell to one of four picking plants or one of three village collectors. However, in Tomongtong, fishers sell to one of three picking stations or a regional collector; fishers' wives from this community also sell crab outside of the village using motorbikes to access regional markets. In San Salvador, there were two picking plants and seven village collectors who bought from fishers. In all cases, crab would be sold every day of the week. Geographically, however, crab prices are consistent across the various communities, irrespective of their proximity to picking plants or canneries.

Price trends for blue swimming crab have been highly variable for fishers over the last few years, leading to financial instability for fishers that did not allow them to save or plan. Many were frustrated because they were aware that the blue swimming crab sold locally outside the village could be worth 100 Philippine Pesos (PHP) more. Table 1 reports the range of prices for both the high season and low season for each fishing community.

Table 1. Fisher self-reported selling prices (PHP per kg) to the next value chain node for blue swimming crab during both high (June to December) and low (January to April) seasons in the Western Visayas.

	High season selling prices (PHP per kg)		Low season selling prices (PHP per kg)	
Location	**Sub-collector**	**Wet market**	**Sub-collector**	**Wet market**
Igbon	320	350	150	200
Cabatuhan	320	400	150	200
Punta-ayan	310			200
Tomongtong	240	400	180	250
Tuburan	210		210	
San Salvador	205		205	
Average	237	310	222	273

Some fishers in Igbon said that they also have experience selling crab through online orders on Facebook. One fisher relied on his daughter to coordinate with potential buyers and set up logistics, another organized everything himself, while another cooked crabs before shipping them through contacts to his clients in other villages or cities. However, the fishers chose not to continue to sell directly or do so infrequently because of the time commitment required.

CRAB PROCESSING AND POST-HARVEST LOSSES

Fishers did not process crabs onboard their vessels, beyond using twine or strips of coconut leaves to tie crab pincers flush against the body. They then stored crabs in a self-fashioned mesh bag crafted from nets called a *sibot* (50%), in a bucket (37%), or left in a pile on the bottom of their boat (13%). All fishers wet (63%) or submerged (37%) their crabs in water to keep them alive until landing, however, only 25% reported covering their catch to prevent the sun from drying out the crabs. Fishers did not believe tanks or bins on board vessels were needed because the fishing grounds were close to the landing site, even though they later reported dead or damaged crabs upon landing. They stated most crab is sold directly to picking plants upon landing, and does not need to be stored or handled to maintain quality.

When landing crab, fishers reported bringing in 10% dead product, which is sold at the same price as live product or used for household consumption. All fishers in Igbon reported that the local picking plants buy dead crab for processing alongside higher-quality live crab at the same price. The fishers in other regions use the dead crabs for household consumption; approximately 1.6 kg per fisher during the high season and 0.3 kg per fisher during the low season. In general, the crab meat destined for export is of a higher quality, with processors performing checks at the plants before canning. However, some crabs found in local domestic markets may be sold several days after capture, leading to both quality and health concerns. Hotels such as Marriott Manila, which focus on sourcing locally, have historically discarded a significant percentage of the product, supplementing fresh crab with canned meat. Hotel partners have expressed frustration with poor local quality and are interested in the opportunity to switch to purchasing crab cooked immediately upon landing, crab meat with an effective cold chain process, or product caught the same day (for more local retailers only).

Collectors (middlemen)

Collectors are intermediaries who buy crab directly from fishers and resell to either nearby picking stations or in the barangay. A total of four blue swimming crab local collectors were interviewed, of which one was female. Local collectors' experience ranged from four to 20 years, with an average of 13.5 years buying and selling blue swimming crabs. Though trading blue swimming crab was the primary livelihood (upwards of 70% of working time spent buying and selling blue swimming crab), village collectors also had other livelihoods. Of the four interviewees, three also fished blue swimming crabs, and two worked in public service as barangay captains. The woman respondent was both a barangay captain and restaurant owner in addition to her fish trading business.

BUSINESS PRACTICES

Only one of the village collectors, located in Igbon in Concepcion, Iloilo, depended exclusively on blue swimming crabs to support their business. The rest traded in at least three species, with some depending on up to seven species, including blue swimming crab, to sustain their business. The scale of the interviewed collectors' operations varied, with the collector with the smallest operations reporting securing 30 to 60 kg (depending on the season) two or three times a week, and the largest operator securing 80 to 300 kg daily.

The collectors interviewed worked in different supply chains.

- Two of the buyers (in Igbon, Concepcion, and Tomongtong, EB Magalona) deliver live crab directly to a local picking station after buying it from fishers.
- The collector of Barangay Punta Mesa, Manapla, which neighbors Barangay Tortosa, has a standing informal agreement with the Tortosa picking station, which is uniquely owned and operated by the barangay fishers' association, to prioritize supplying blue swimming crab to this picking station as a means of mutual support between the two communities.
- A fish broker in the Concepcion fish port sells 50% of the live crab to local wet market sellers. The other 50% is sold to a wholesaler in Manila, however, transport to Manila takes up to two days, and upon arrival, all the crabs are dead.

Collectors preferred to buy crabs caught by gill nets because they tend to be larger and female, which indicates a higher yield of crab meat when picked. Most collectors (75%) reported that they refused to purchase undersized (<3.5") crabs, believing that to be the minimum size, even though the legal limit is 4".

All collectors mentioned that their activities are dependent on having good weather, characterized by low winds and limited rain. Crab production is limited on days of poor weather, with some collectors choosing not to visit communities to purchase crab or decreasing the frequency of trips.

CRAB SALES AND PRICES

The average buying price offered by picking plants for blue swimming crab across the four communities was PHP 258 +/- 55 per kg over the previous year. The prevailing selling price in the region stood at PHP 270 per kg at the time of the interviews.

Comments from collectors indicate that the local crab price hinged more on the purchasing influence of the principal canneries than on production volumes. Larger purchasing volumes did not result in a lower price, or vice versa. All collectors set their purchase prices based on what the picking plants were offering for blue swimming crab, rather than calculating the price based on their operational costs or those of the fishers. Half of the collectors expressed dissatisfaction with the buying price, considering it both unfair and unstable. In contrast, the remaining half reported an upward trend in the picking plant's buying price. This upward trajectory was attributed to lower crab landings, despite a perceived increase in the number of crab fishers.

POST-HARVEST LOSSES

Most collectors engaged in same-day sales to picking plants or market vendors (75%), employing pragmatic storage solutions for the crab. This involved utilizing the self-made *sibot* bag or relying on polystyrene coolers. In a different approach, one collector promptly froze cooked crab alongside fish, storing it for up to two days before the sale. Their rationale was to amass a sufficient volume to offset the transportation costs to their client. In San Salvador, Banate, two tanks owned by a sub-collector are used to store live crabs, which have been sorted by size and species before sale to a picking plant or collector (Image 2).

Image 2. Tanks used to temporarily store live blue swimming crabs in San Salvador, Banate (photo credit: Patrick Co).

For collectors handling smaller volumes (less than 60 kg), post-harvest losses were minimal. However, with larger volumes, collectors reported a loss ranging between 4 and 6 kg per 200 kg (2.5%) during transportation to their clients. Half of this loss was allocated for self-consumption, while the other half was discarded.

Picking stations

Crabs purchased by picking stations typically undergo immediate steam cooking and picking on the same day. Picking stations were completely dependent on blue swimming crab production to remain operational. All picking stations processed blue swimming crab exclusively to produce either lump, jumbo, flower, or special crab meat grades. Representatives of eight picking stations were interviewed. Interviewees were 63% female, ranging from two to 25 years of experience, with an average of nine years.

Image 3. Blue swimming crab cooking and picking operations (photo credit: Gerald Hulleza).

BUSINESS PRACTICES

The majority of picking stations (75% of those surveyed) purchased most of their crab directly from fishers. These stations are strategically situated within 300 m of a waterfront landing site frequently utilized by fishers. In contrast, the remaining quarter relied on an unrefrigerated truck with coolers to collect crab from a designated landing site, maintaining a routine of daily deliveries. Picking stations may also purchase crab from intermediaries or from cooking stations that do not offer picking operations.

Among the interviewed picking stations, half sourced crab from more than one landing site or community. In cases where the second community was located at a distance, transportation methods varied, with half utilizing boats and a quarter opting for trucks. Although a station could potentially source all its blue swimming crab exclusively from one community, diversifying sources provided a stable supply. This approach has historically helped stations navigate fluctuations in landing volumes; if one community's crab production was low, the other could fill the gap, ensuring the picking station daily operational costs were covered at least. This multi-sourcing tactic not only mitigated risks but also fueled competition. Most of the picking stations actively engaged in competition with at least two others for crab in any community they sourced from.

In instances where pickers struggle to pick all the raw material supplied within a day, a practice emerged: steaming the crab, removing the carapace, then storing it in plastic bags within ice-filled Styrofoam containers or refrigerators for picking the following day. Notably, freezing is universally avoided by picking plants due to its perceived negative impact on meat quality, however, this experience is based on conventional or slow freezing, and blast freezers are not used.

Picked crab meat is packed separately by grade in hard reusable plastic food storage containers for storage and delivery. The crab meat is stored in these containers around one day on average but can extend to three days during periods of low production to accumulate a target delivery volume. The containers are then packed in Styrofoam containers with ice at a ratio of one block of ice (approximately 60 to 70 kg) per 100 kg of crab meat.

Most picking stations process four batches of blue swimming crab in a week, independent of the fishing season. Not all picking stations were willing to share processing volumes but did share output volumes of crab meat, which ranged from 20 to 500 kg per day. Reporting stations (n=4) sourced an average of 390 kg of whole blue swimming crab per batch, with all picking stations (n=8) producing an average of 200 kg of crab meat per processing batch. The self-reported yields ranged from 25% to 27%; i.e., for every 10 kg of whole cooked crab, 2.5 to 2.7 kg of crab meat would be picked. Picking stations stated that the true yield each day depended on the size of the crab and the years of experience of the individual picker. Larger crabs and more experienced pickers had higher yields of crab meat, especially jumbo.

Several picking stations utilized distinctive practices aimed at encouraging fishers to capture larger and higher-yielding crabs. Notably, one station implemented a differential pricing strategy, offering higher rates for blue swimming crabs caught using gill nets compared to pots. The rationale behind this was the belief that gill net-caught crabs tended to be larger, healthier, and produced superior meat clumps. Additionally, another station adopted a size-based pricing approach, where larger crabs fetched a higher price per kilo than their smaller counterparts. This incentivized fishers to target larger individuals, potentially enhancing both the yield of the crab meat and the economic returns for the fishers. These grading and pricing practices were not explicitly mentioned during interviews with fishers, suggesting a potential gap in communication between fishers and picking stations regarding these incentivizing measures.

Picking stations also highlighted challenges occurring during the typhoon season when crab availability dwindled. During these periods, some picking stations temporarily halted operations until a sufficient supply of blue swimming crab became available again. In response to these seasonal constraints, stations employed various strategies to maintain financial viability. For instance, one station mentioned a reduction in personnel and the extended storage of steamed blue swimming crab to ensure earnings covered operational costs during periods of scarcity. Another station indicated a specific threshold for supply, stating that operations would cease if the available quantity dropped below 60 kg per batch.

The respondents all reported using the *pakyaw* system of paying crab pickers, which is based on output and depending on the crab part that they pick. For example, jumbo is PHP 100 per kg, special is PHP 30 per kg, flower is PHP 130 per kg, claw is PHP 35 per kg, and backfin meat is PHP 40 per kg. The best and fastest pickers often get a higher salary.

CRAB SALES AND PRICES

Picking stations had two distinct commercialization channels when supplying crab meat to canning plants. Picking stations interviewed in Iloilo engaged in a direct sales model, establishing a direct transactional link with a cannery. In contrast, picking stations in Negros Occidental sold their product through intermediaries; who would often aggregate crab meat from two or more picking stations. (It should be noted, however, that given the limited number of respondents, it is unclear if this is representative of the standard practice of picking stations in the area.) Picking stations typically do not bear the responsibility of managing transport logistics. Instead, this is outsourced to a separate business entity, typically through a contractual arrangement initiated by the canning plant.

The consensus among all picking stations was that the pricing of crab meat is determined by canning plants. The average price for crab meat at the time of the assessment ranged from PHP 1,020 per kg to PHP 1,250 per kg. This is a single straight or flat buying price for all the different grades of meat (i.e., lump, jumbo, flower, or special). The respondents were aware of the prices offered by canners that they were not supplying. Factoring in both high and low production periods, the price range was PHP 1,157 +/-103 (n=5). A majority (63%) of interviewed picking stations expressed the view that this pricing structure is unfair, due to instability. Some clients set a minimum percentage of higher grades, i.e., 25% of delivered meat should be jumbo; failing to meet this minimum would result in a lowered buying price (i.e., less PHP 100 per kg).

CRAB POST-HARVEST LOSSES

While picking stations assert a public policy of purchasing only fresh, live crabs, observations reveal that 75% of stations acquire both live and dead crabs delivered by fishers or local collectors. Respondents acknowledge an average of 10% of dead crabs when initially brought to the picking station by fishers. Purchase standards typically include crabs of 5" or larger, non-berried, and devoid of any unpleasant odor. However, instances of buying small (approximately 4" to 4.5") and berried crabs were noted. Respondents stated that different canneries had varying quality standards, with some being more rigorous than others. During transport from the picking station to the cannery, 63% of stations reported post-harvest losses, typically amounting to 2% or less of the crab meat per shipment. In cases of crab meat that does not meet the canning plant's quality standards, the canning plant may inquire whether the picking station recalls the below-standard product or if they are willing to sell it at a reduced (i.e., half) price. According to the respondents, most agree to sell it at a lower price, and the canning plant will sell the crab meat rejected for export canning in the local market for human consumption. Two picking stations noted instances when canning plants rejected an entire delivery, leading to a major financial loss absorbed by the picking station.

Wet market vendors

Interviewed retailers were dependent on trading seafood for income, but not restricted to blue swimming crab. On average, the sale value of blue swimming crab was worth 49% of their income (n=5), while only representing 33% of the total catch. Other species sold included small pelagic, shrimps, or prawns (n=2).

The retailers either sold blue swimming crab in municipal wet markets or transported product into the countryside as mobile traders. Vendors reported that they could have up to eight other competitors that sell blue swimming crab alongside other seafood. The mobile trader would travel upwards of an hour to sell seafood to small communities. While market vendors consistently offer blue swimming crab as a product, it was clear that mobile traders would only sell it when the price was low and competitive with other species.

BUSINESS PRACTICES

Only 43% of respondents sourced directly from fishers, with most retailers reporting at least one intermediary between them and the fisher. Direct purchases of blue swimming crab would happen at the landing site, and the retailer would then transport the crab to their stall or seafood shop to sell to individuals or other businesses. Transport times for direct purchases were all less than 15 minutes, but purchasing through an intermediary meant the blue swimming crab could travel over an hour from the landing site to the wet market.

Retailers did not know how many communities or fishers their aggregate product came from when bought through an intermediary but were able to share the number of landing sites or wholesale markets they sourced from. Only two respondents sourced from more than one location and only two respondents had a fixed buyer for their blue swimming crab. Where there was a fixed buyer, market vendors said the relationship had developed because the intermediary consistently provided a quality product.

When sourcing blue swimming crab, all retailers prefer larger, whole crabs that are still moving. However, it was clear that most of the crabs for sale were already dead during afternoon interviews. All market vendors stated that there was less available crab of the size and quality their buyers preferred, with one vendor suggesting a 30% decline over the past five years. Most attributed this not to a decline in fishery abundance, but rather competition with picking plants.

Some market vendors were observed selling berried alongside legal crabs, while others were selling a variety of species of crablets – crab below minimum size – including juvenile blue swimming crab, with each individual no larger than 3cm in carapace width, and reported buying them at PHP 10 to 140 per kg depending on the season. From the perception of market vendors, these were not crabs, but a separate product because of their final use. Crablets would be added as flavor additives for soups, or fried and eaten whole with vegetables.

Image 4. Market vendor selling blue swimming crab and crablets in Bacolod, Negros Occidental (photo credit: Gerald Hulleza).

CRAB SALES AND PRICES

Across market vendors, it appears that the sale price was calculated utilizing a standard flat rate. A vendor might add PHP 20 to 50 per kilogram to the buying price, rather than calculating the selling price based on their costs. One retailer in Bacolod City, who only sells cooked crab and personally selects the blue swimming crab he buys for size and freshness, added PHP 50 to 100 to the standard buying price for fishers and PHP 150 to the standard buying price for intermediaries to secure a consistent supply of high-quality crab. The retailer shared that by adding the markup, he was able to secure the top 10% of crab for his business, rather than going to the picking stations, and is also able to charge a premium to his customers.

The average selling price for whole crab across vendors and sizes was PHP 350 per kg, and PHP 500 per kg for picked crab meat. Market vendors sell on average 85% of their large blue swimming crab to individual customers buying for daily consumption. The other 15% was sold to hotel and restaurant clients. Undersized crabs were sold for PHP 130 per kg to individuals, even though all respondents mentioned that their clients prefer larger crabs when available.

CRAB POST-HARVEST LOSSES

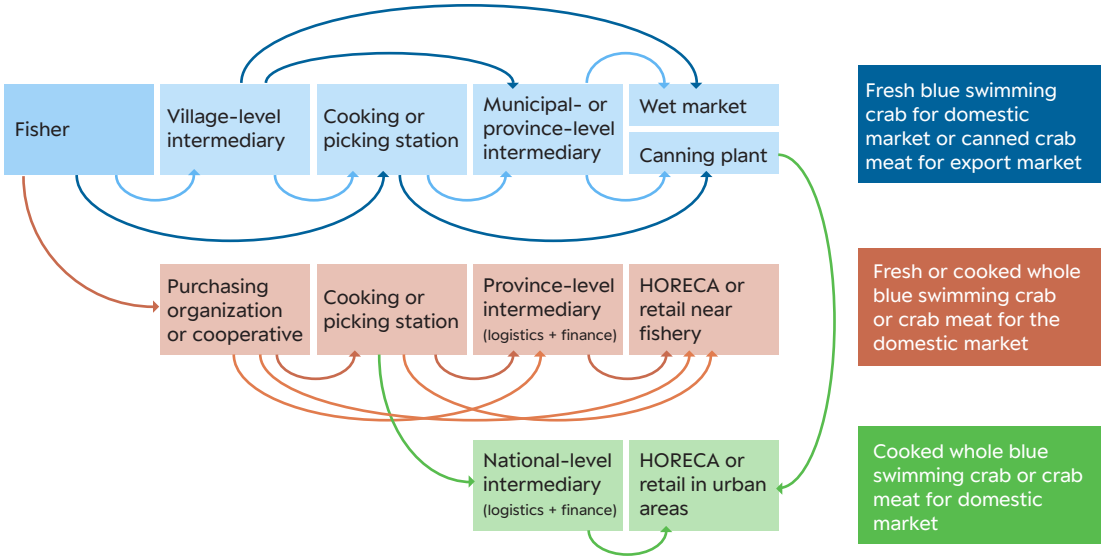
While at the wet market stall, live or dead crabs would be placed into a Styrofoam cooler with ice. As the day progressed, the crab would be taken out of the cooler to replace whatever had been sold. Blue swimming crab could be stored like this for up to two days after purchase. However, 75% of respondents said they can sell all their products within a day. One respondent said that it was common practice that any crab left over at the end of the day would be cooked, picked, and then sold as crab meat. When there is low demand, market vendors will drop the cost of the whole crab by 5 to 10% to at least break even for about half of their crab volume. However, this did not guarantee that all the crab was sold. Vendors said they would have between 10 and 20% of their blue swimming crab left over at the end of the day, and most (57%) would then use the crab for household consumption rather than resale.

Market vendors claim that about once a month, around 2 kg of whole blue swimming crab would need to be thrown away because it had spoiled, while mobile traders reported they can lose 3 kg per month of whole blue swimming crab to spoilage. Vendors stressed this loss as a key issue, but were unsure about how to address it and increase the profitability of their business. There was a general lack of methods to preserve crab for longer periods, or limited working capital to make investments to improve business efficiency.

Restaurants and hotels

Interviews with representatives of restaurants and hotels, all of which offered blue swimming crab alongside other seafood options, tended to offer two crab products to their customers: freshly cooked whole blue swimming crab or picked crab meat mixed with other ingredients. To illustrate some of the current demand shared by restaurants and hotels:

- Marriott Iloilo is interested in pilot purchasing 30 kg of whole blue swimming crab per week for its weekly seafood buffet
- A seafood restaurant in Iloilo buys 210 kg or more of whole blue swimming crab per week
- A five-star hotel in Manila sources 450 kg of whole blue swimming crab weekly, in addition to around 100 cans of crab meat
- A hotel and casino in Manila sources whole blue swimming crab, specifying two to six pieces per kilo, along with canned super lump, jumbo lump, and lump crab meat.



Note: hotel, restaurant, and catering sector (HORECA)

Figure 2. Current supply chain (blue) and additional pathways to domestic markets near the fishery (orange) and in urban areas (green) (Monterey Bay Aquarium).

BUSINESS PRACTICES

Most restaurants and hotels had at least one intermediary sourcing blue swimming crab multiple times a week from local wet markets or ordering delivery from wholesalers. Smaller restaurants in Iloilo and Bacolod usually paid their suppliers immediately in cash, and were aware of the exact number and villages they sourced from. Restaurants and hotels require product availability at volume and proper inventory management, so given a choice, respondents preferred coordinating with one actor who could consistently supply blue swimming crab of middling quality, rather than with several fishers who could inconsistently supply higher-quality products. Another issue mentioned by the larger international hotel chains and casinos was the lack of formalization within the sector. Their businesses are unable to legally source blue swimming crab from fisher or fisher organizations if they are not properly registered and have no food safety protocols in place. In addition, they have established payment terms, with payments to their suppliers taking up to 45 days.

Two direct suppliers, Tindagat and Agro-DigitalPH, started to address these concerns by serving as an intermediary between fishing communities and the hospitality sector, shortening the domestic supply chain. These start-up social enterprises provide the necessary documentation for legal sales and work with producer communities directly, which is the unique value proposition of their business models.

One restaurant did admit to buying crablets, which were used as a flavor or texture additive to other plates, rather than being the central ingredient. The two hotel and casino chains interviewed in Manila both sourced canned crab meat from outside the Philippines to make up for the perceived lack of local supply. It was not clear if their procurement teams had tried to source from local canners; at least two canners interviewed had reported supplying other local hotels and restaurants. All actors mentioned weather as a key issue affecting their ability to both buy and sell blue swimming crab, with the typhoon season severely limiting access.

CRAB SALES AND PRICES

In Iloilo and Bacolod, the average sales price was PHP 400 per kg, while in Manila, higher-end hotels and restaurants catering to foreigners were able to pay substantially more (average PHP 600 per kg). There was also a market for picked crab meat in Manila. One restaurant mentioned sourcing picked crab meat at PHP 1,000 per kg, while another bought it at PHP 1,120 per kg.

CRAB POST-HARVEST LOSSES

In restaurants in Iloilo, fresh (live, uncooked) whole crab was immediately steamed and then stored at low temperatures with ice or in a refrigerator to be used over the course of the workday. Despite knowing the origin, likely landing date, and the fishers, restaurants in these shorter value chains preferred live or fresh crab rather than pre-cooked crab. If not all crab was sold, it would either be frozen and re-served, or picked in the restaurant, and the crab meat used in specific preparations, or given away to employees.

For one hotel respondent in Manila, all crab was expected to arrive dead, and, on occasion with a foul odor. This crab would be cooked in the restaurant, with about 75% of good quality to be steamed and served whole to customers, 20% being of poor-quality fit for soups and dish flavorings, and 5% completely spoiled and discarded.

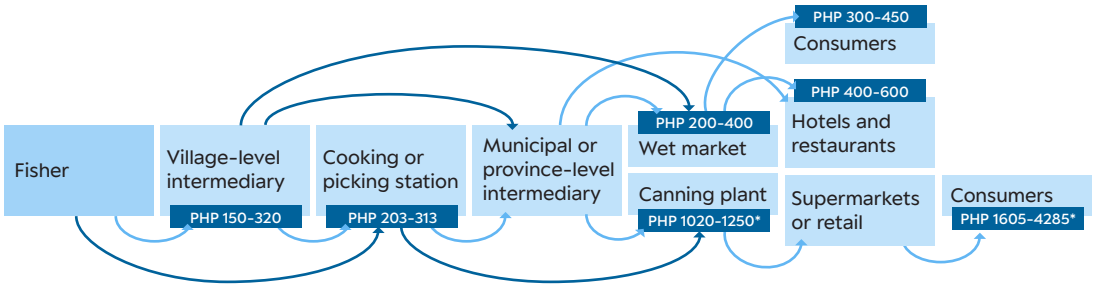
Modern trade

At least two Philippine blue swimming crab canning companies, namely Saravia Blue Crab Inc. (under its own brand) and RGE Agridev Corp. (under the Pier 717 brand), have marketed their canned blue swimming crab products in mid-to-high-end local supermarkets and specialty stores in Manila, though this is a small fraction of their sales at present (Image 5). Prices varied widely per brand and crab meat grade; for example, a 454 g tub of claw meat from RGE Agridev cost PHP 729 in April 2020, while 280 g cans from Saravia Blue ranged from PHP 670 for claw meat to PHP 1,200 for colossal in October 2022. Whole blue swimming crab is likewise available at the seafood counters of supermarkets, though not as regularly as staples such as milkfish, tilapia, shrimp, or squid.

Image 5. Canned crab meat in modern retail outlets in Manila (photo credit: Patrick Co).

Price development in the blue swimming crab domestic supply chain

At the time of this research, and from a limited number of interviews, the buying price was reported to be within the following ranges shown in Figure 3.



*crabmeat, approx. 25-30% recovery from raw material

Figure 3. Buying price per node of the domestic supply chain (Monterey Bay Aquarium).

All interviewed hotels, restaurants, and their suppliers in Manila, Iloilo, and Bacolod expressed interest in purchasing blue swimming crab via intermediaries closer to the fishers if it could be guaranteed to arrive live or "very fresh". Overall, this sector preferred large or extra-large whole live crabs, especially restaurants specializing in seafood or catering to foreign clients. Large crabs were considered those upwards of 6", or five pieces per kilo. All actors mentioned that blue swimming crabs of appropriate size were much harder to source, but believed it was due to environmental degradation rather than market forces.

Supply chain relationships, sustainability standards, and local demand

Fishers and collectors or picking stations

All fishers interviewed have experienced or are currently dealing with debt to the picking station or a village collector through an informal system known as *suki*. This involves offering short-term loans by verbal agreement to fund fishing expenses such as fuel, bait, fishing gear, or other items, as well as personal needs.

Fishers repay these debts by selling their catch exclusively to that collector or picking station, which then deducts the credit. Some settle their debts through fixed installments, while others opt for a variable rate, paying between 3% to 5% of their daily earnings. These payments are deducted from the sale price of the blue swimming crab. For instance, while a buyer might quote PHP 240 per kg, indebted fishers could receive a reduced price from the suki ranging from PHP 200 to 220 per kg.

The fisher's indebtedness is advantageous to the lender as it ensures a steady fish supply. However, they will often engage in non-competitive practices by setting commodity prices below market value and demanding immediate repayment if the fisher sells their catch to another trader. Despite potential disadvantages, many fishers stick with this system as they lack better means of obtaining credit. One fisher expressed, "It has affected us a lot. As long as we owe them, we are obligated to sell them our catches even though we know another fisher is getting a better price from another village collector."

Representatives of picking plants also reported financially supporting fishers and local collectors in return for reduced prices paid for crab, and preferred to source from them because it required less daily cash flow. For example, one picking station implemented a "rent-to-own" boat program, benefiting 20 fishers. Under this program, the station provided a boat to the fisher, with the understanding that the fisher would exclusively supply crab to the picking station until the boat was fully paid off. Out of the 20 fishers who participated, 17 successfully paid off their boats through a flat PHP 10 per kg rate on sales to the picking plant.

Some fishers who have cleared their debt with a village collector have turned to microfinance institutions or microcredit village savings and loans programs. For example, in Tortosa, beyond a fisher association, a savings club existed where members could apply for loans at a 5% interest rate. This savings group operated like a bank, with weekly contributions from members pooled to provide microfinance loans for various purposes, including paying off debts, covering educational expenses, or addressing medical costs, as examples given by the group's president.

Picking stations and canning plants

Like fishers, picking stations heavily depend on credit to sustain their operational activities. Some picking stations secure credit from a canning plant to facilitate their regular picking operations. Typically, this credit manifests as an advance, covering 80% of the expenses associated with the purchase of crab meat. The repayment of this credit occurs through a deduction of the advance amount from the final purchase. One plant successfully utilized credit from a canning plant to enhance its fleet by acquiring additional trucks and repaying the loan through a 20% deduction from the sales made to the company.

The remaining three-quarters of picking stations maintained financial viability without going into debt. They operate within the range of current margins, although some acknowledge the persistent challenge of securing ample working capital, which poses a significant hurdle to expanding their business operations.

Market vendors

Among the wet market vendors involved in the blue swimming crab value chain, three out of seven opted for a credit-based approach to finance their business. The remaining retailers leveraged personal savings or relied on profit margins to meet the demands of their business operations. Credit sources include collectors that supply the vendors with blue swimming crab in advance, and the ensuing debt would be settled the next day. Conversely, retailers who chose the avenue of formal finance secured a loan from a local lending company that could be paid off through weekly installments in a set amount.

Domestic market sustainability initiatives

Unlike fisheries production in the Philippines, which is governed by a raft of regulations, historically, supporting sustainable domestic seafood consumption in the Philippines has not been prioritized by the government or industry. No incentives are in place domestically to recognize buyers or promote sellers, nor are there assurance mechanisms to build credibility and competitiveness in the local market, like traceability or audits (United Nations Development Programme, 2020).

Sustainability does not currently seem to be a concern driving the seafood buying behavior (Budhathoki et al., 2022); it is unlikely for government agencies and domestic industry actors to act on this. However, a 'chicken and egg' scenario may be averted by local markets or supply chain actors, for example, by successfully demanding and participating in sustainable seafood programs, which may then be replicated in the broader market.

Larger hotel chains operating in the Philippines are largely driven by internal procurement guidelines and purchasing standards, many of which have a bias toward certification, which has traditionally limited domestic procurement in favor of imported products. However, there is a growing interest by some actors in the multi-national hotel segment in supporting sustainable local seafood sales; as evidenced by hotels showcasing local seafood in the annual Philippine Sustainability Movement Event in Manila (Javellana, 2024), or Courtyard by Marriott Iloilo's Sustainable Seafood weekly dinners which include blue swimming crab from the Model Village in Igbon, Concepcion, and other seafood from Iloilo and Western Visayas.

Under the USAID Fish Rights program, the Sustainable Fisheries Partnership launched the Better Seafood Philippines initiative, which is focused on promoting consumer awareness, sustainable management, and responsible sourcing practices along the Philippines' seafood supply chains. As part of this initiative, USAID and the Sustainable Fisheries Partnership subsequently created the Responsible Seafood Sourcing Standard, which establishes domestic criteria to assess current supply chain practices in the capture, sourcing, and trading of wild-caught seafood (Better Seafood Philippines, 2022). As of 2025, the standard is being trialed by the Sustainable Fisheries Partnership and its retail and HORECA partners across several supply chains.

Independent of government or development programs, local organizations have also collaborated to support local fishers' responsible practices. For example, seafood grocery store Cold Storage partnered with the non-governmental organization Save Philippine Seas in 2024 to launch products focused on local fisheries (Hidalgo, 2024). Social enterprise Tindagat has partnered with chefs and restaurants to create ready-to-eat products from the catch of small-scale fishing communities, which it markets online.

Local market demand

While there is limited data available regarding domestic seafood consumption rates, the Philippines is a major consumer of seafood, with an annual consumption of 40 kg per capita. However, local fisheries production has been declining steadily for close to a decade, leading to increasing import volumes because of unmet domestic demand. As of 2021, the Philippines imported close to US$ 1 billion worth of fish, crustaceans, molluscs, and other aquatic invertebrates (United States Department of Agriculture, 2022). Although the high consumption level of fresh fish among urban and rural consumers is almost equal, there is a wealth disparity, as less affluent consumers tend to eat significantly greater amounts of processed and canned fish, dried fish, fish paste, and various other fish and crustacean species. As income levels rise, the amount of processed seafood consumed decreases, with only the wealthier households able to afford more valuable products such as crustaceans or molluscs (MRAG Asia Pacific, 2022).

While the international demand and price for blue swimming crab have varied widely in recent years, the overall trends point to a potentially declining stock and fishers that may struggle to meet current consumption levels while using approved management practices. While blue swimming crab fishing remains a significant contributor to the production value of municipal fisheries, whether production volumes can sustainably meet both international and domestic market demand under the current management systems remains uncertain (MRAG Asia Pacific, 2022).

Key takeaways and opportunities

Facilitating a domestic market for blue swimming crab in the Philippines could help provide meaningful incentives to fishers to pursue and maintain robust environmental practices, as long as appropriate guidelines for domestic sustainable seafood are clearly defined and enforced. Extra caution should be exercised to ensure that the creation of a stronger domestic market is seen as a replacement for (rather than an addition to) international sales, to avoid increased rates of overfishing.

In addition to potentially increasing earnings for blue swimming crab fishers, a domestic market approach can also potentially offer them more stable incomes. Regardless of actual catch volume or seasonality in the Philippines, prices fluctuate depending on several factors such as international competition with blue swimming crab fisheries in Indonesia, China, and Thailand, which all produce greater volumes (Monterey Bay Aquarium, 2024), and whether United States importers have purchased or stocked quantities of products that match end-buyer demand. These price fluctuations are passed down through the export supply chain, with the fishers being the ultimate price-takers. As such, local buyers who buy blue swimming crab on a regular schedule and at a consistent price can contribute to the predictability of fishers' livelihoods.

Since blue swimming crab is a low-volume, high-value product, the most strategic approach may be to promote it to the premium HORECA sector as well as to modern trade (supermarkets). Both domestic supply chains target a higher-income segment of consumers, and so can offer competitive or better prices as compared to the export supply chain.

We have identified three key opportunity areas regarding the development of this new market. While by no means comprehensive, these opportunities focus on critical first steps to address domestic development. These are:

Opportunity 1: Build trusted relationships with the domestic HORECA and retail sectors

The high-value segment of the HORECA sector in the Philippines is interested in investing in increased access to premium, sustainable, locally caught seafood, and more information on when, where, and how it is caught, with assurances that fishers receive a fair price. To engage this sector, options may include the following:

1. **Facilitate long-term relationships between fishers and the regional HORECA sector that promote sales of local, environmentally sustainable products to buyers with existing sustainability commitments and interest in purchasing seafood from local communities:**
    - Collaborate with existing local fisher cooperatives and picking stations already practicing sustainable sourcing, and include trusted intermediaries where needed to assist with aggregating and transporting products for hyper-local sales (i.e., Iloilo City, Bacolod, Boracay)

- Expand sales to larger urban markets in collaboration with groups such as Agro DigitalPH or Tindagat to cities such as Manila, Davao, or Cebu, all of which have buyers interested in purchasing sustainable, quality products and willing to pay a premium
- Support training in quality control and improved product handling for fishers.

2. **Ensure agreements on harvest controls and other fisheries management measures, or other relevant sustainability targets or guidelines, to prevent the propagation of overfishing practices to supply a new domestic market (see opportunity 2 for additional information).**

3. **Engage directly with mid-chain supply actors to ensure product sustainability and legality, improve product quality, and expand existing logistical or technical opportunities. The success of nationwide distribution is likely dependent on the acceptability of cooked and chilled whole blue swimming crab and chilled or frozen crab meat, delivered via air freight, to HORECA and retail buyers. Facilitating these sales may include initiatives such as:**
    - Enable partnerships to provide reliable product transportation from the first to the last mile, which may involve multiple actors and government agencies
    - Consider holding tanks like those utilized by consolidators in Banate, Iloilo, which could enable aggregation of live or fresh blue swimming crab catch over 1–2 days, to mitigate the risks of missing committed volumes for delivery and processing due to low catch on the same day
    - Explore whether blast-freezing fresh or cooked blue swimming crab or picked crab meat is acceptable and viable, and make such facilities or services available if there are sufficient economic benefits
    - Provide training on improving handling techniques at sea and immediately after landing.

Opportunity 2: Leverage domestic sales to standardize and enforce blue swimming crab product requirements

An equitable and sustainable domestic market will rely on buy-in and participation from actors across the supply chain, particularly processors and distributors. Supply chain actors can both ensure and improve existing standards and actively support value chain transparency measures that are aligned both in the domestic and export markets. This includes actions such as:

1. **Establish size-based purchasing standards and legal requirements:** Define and enforce a standardized grading system so that higher prices are paid for large crabs, in combination with no payments for berried females and juvenile crabs below the minimum carapace size (10.2 cm nationwide per the 2014 administrative order and 11cm in Iloilo and Negros Occidental). Domestic and export supply chain actors purchasing blue swimming crab by size and weight, and not simply by total weight, incentivize fishers to target bigger crabs, while also eliminating the purchase of undersized juveniles or berried females. While grading should be agreed upon, prices for different sizes are not necessarily prescribed, so buyers and sellers can independently seek out and negotiate with trading partners.

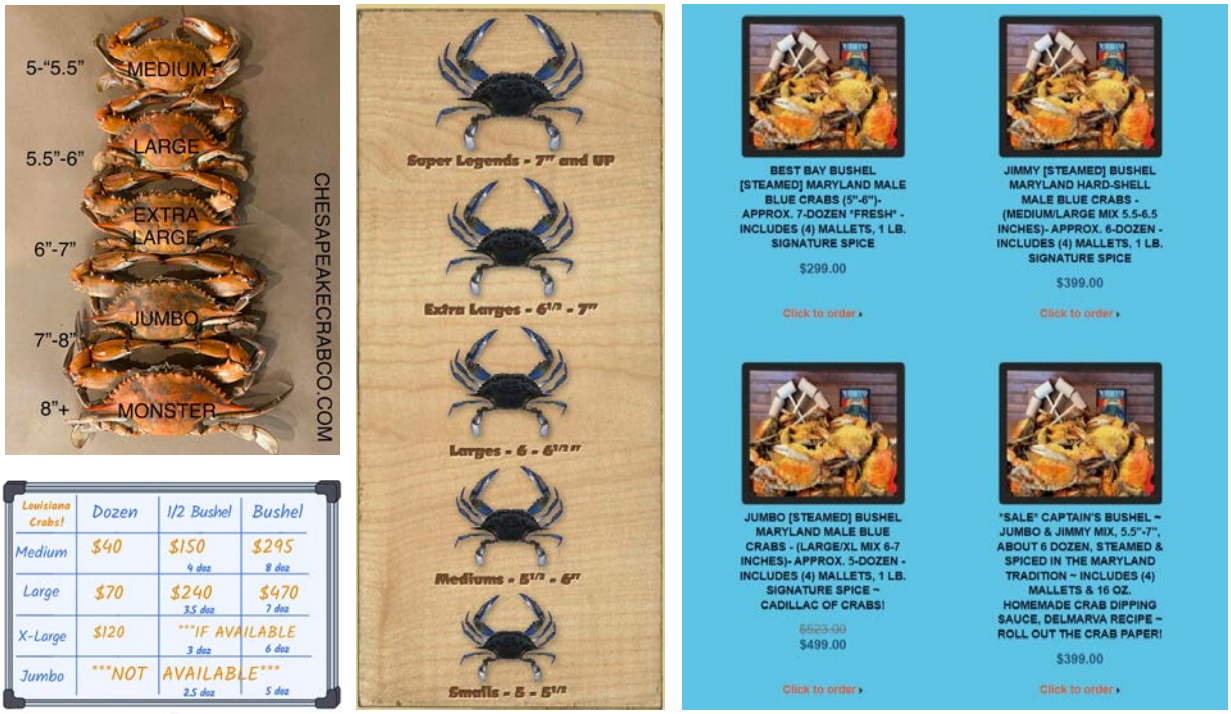


Figure 4. Example of standardized size grading and price differentiation by size from United States-based retailers' websites (left: Chesapeake Crab Co., middle and right: Maryland Blue Crab Express).

2. **Ensure legality and traceability:** Buyers may require all intermediaries to purchase from licensed or permitted fishers with registered boats who are using the correct gear types, and cooking or picking stations with all appropriate registrations and permits to operate. Documentation such as auxiliary invoices and land transport permits should be collected regularly and digitized where possible to enable electronic information sharing.

3. **Data sharing and traceability improvements:** Concerning all the above, buyers may consider establishing a platform among themselves and with the Department of Agriculture, BFAR and the concerned local government units (LGUs) to exchange information. This information could include the needs and concerns in their supply chains, as well as observed violations, so participating buyers could penalize persistent violators by collectively blacklisting them. At an advanced stage, this cooperation could include traceability to the point of landing- or community-level (at a minimum), and the sharing of aggregated trade information with BFAR and LGUs to better inform management and enforcement activities.

Opportunity 3: Alternative financing options

Debt cycles involving blue swimming crab fishers, collectors, cooking or picking stations, and canning plants may fill personal and operational financing gaps, but some of the debtors may be unable or unwilling to participate in a domestic market as a result. LGUs and NGOs can enable them to diversify their financing options for their daily needs as they explore this new sales channel. Options may include:

- For fishers, help communities form and maintain savings and credit groups (otherwise known as community-managed savings and credit associations, village savings and loan associations, self-help groups, etc.).
- Facilitate access to microfinance institutions or banks for established cooperatives or cooking/picking stations. For instance, if a buyer has standard credit terms (i.e., if products delivered to the local hotel, restaurant, or supermarket today are paid one month from now), the supplier can take out a short-term loan to cover the capital it needs for that length of time.
- Documentation and historical data may help the financial institution decide to offer loans or microloans at better rates, combined with evidence of regular sales, such as a written agreement between a buyer (or its intermediary) and its supplier cooperative.

Building a domestic market for higher, more consistent incomes should be considered a part of a suite of interventions at the community level, along with promoting supplemental (fishing or non-fishing) livelihoods and access to financing, as well as safety nets, access to social services, and lowering the cost of necessities. In conjunction with international market-based approaches such as ratings and the appropriate government interventions, domestic markets can provide direction and incentive for fishers and processors to work toward more socially equitable and environmentally sustainable practices.

Appendix

Blue swimming crab fishing practices

Most fishers reported operating within a distance of less than 7 km from their community, but approximately 25% traveled up to 15 km, crossing municipal jurisdictional waters to access areas suitable for blue swimming crab fishing. When asked about the distance, the fishers explained that the local environment did not suit their gear type (traps), and the earnings from blue swimming crab justified the travel costs. Though the fishers did not state the reason, BFAR confirmed that traps can only be set in shallower areas. For that reason, when catches are low (as in the case of these crab trap fishers), they are compelled to travel through deeper waters to reach other shallow fishing zones. These longer fishing trips can last up to 17 hours, but most fishers spend approximately one hour traveling for their daily fishing activities.

Individual fishing zones might extend farther, and fishers have been increasingly forming agreements with neighboring areas to counteract perceived declines in blue swimming crab catch. These agreements involve permits or licenses. Fishers rarely operated solo, often traveling with up to four other fishers on the same boat. All interviewed fishers owned their boat, and all but one owned their gear. The gear used fell into two categories: a 4" crab gillnet ranging from 15 to 50 100m panels, or crab traps (deploying 430 to 540 traps in the case of the two fishers using them). Fishers will spend up to half an hour setting either their nets or traps, but could spend three hours hauling in the nets. Bycatch, including milkfish, whiting, squid, mullet fish, and flatfish, is common. While a portion is sold for additional income, there is still significant direct consumption of bycatch or gifting it to friends, family, and neighbors.

All fishers were aware of fishery management regulations for the blue swimming crab fishery, mentioning prohibitions on landing berried crab and minimum crab size. Some also referenced prohibitions on the use of gill nets (likely to be related to minimum mesh size regulations) and planned non-blue swimming crab marine protected areas that would restrict crab fishing. Some fishers (25%) in Negros admitted to fishing beyond municipal waters during October, a violation as permits are required to operate in specific municipal waters. Overall, the use of extended fishing zones and the rate of moving to neighboring waters have increased in recent years, in response to the perceived decline in blue swimming crab catch over the past decade. Local management customs were also present, such as Igbon's prohibition on trawl gear and the use of children as crew during fishing, and Tomongtong's restriction on the use of compressors when diving for crab or reef fish.

Approximately 60% of fishers reported refraining from fishing or reducing their fishing activities between August and January due to typhoon season. Despite this, fishers recognize this period (July to December) as the peak season for catching blue swimming crab. This vulnerability is expected to be exacerbated by climate change, with more frequent and intense storms during this period directly affecting fishers' earning capabilities and the national export of blue swimming crab.

Most communities had a fishing association that organized the fishers and enforced local prohibitions. While none of the associations engaged in commercialization activities, Tomongtong expressed interest in developing direct sales of blue swimming crab. In Tortosa, beyond a fisher association, a

savings club existed where members could apply for loans at a 5% interest rate. This savings group operated like a bank, with weekly contributions from members pooled to provide microfinance loans for various purposes, including paying off debts, covering educational expenses, or addressing medical costs, as examples given by the group's president.

ABUNDANCE, BERRIED FEMALES, AND BYCATCH

All interviewed fishers uniformly expressed a pessimistic outlook regarding the current abundance of blue swimming crab. According to their collective perception, the current blue swimming crab population is estimated to be at least half of what it was a decade ago. However, most did not attribute this decline to overcapitalization of the fishery. Instead, they pointed to environmental factors beyond their control, such as seismic activities, weather patterns, water quality fluctuations, and the impact of typhoons.

Two fishers reported regularly landing berried crabs, a phenomenon most prevalent during the months of December and January. A lone fisher mentioned occasionally landing small crabs. Despite these occurrences, all fishers stated they returned berried, juvenile, or undersized crabs to the sea immediately upon retrieval from their nets, rather than bringing them to the port.

Beyond the primary target of blue swimming crab, fishers reported various incidental catches, including shrimps, bamboo sharks, rays, bream, and trevallies. Past research has identified that 65% of all bycatch is sold for additional income, while 25% is either consumed or given away, with only 10% returned to the water. All fishers interviewed stated that incidental catches were predominantly utilized for self-consumption within the community.

Approximately 75% of the fishers acknowledged having caught bamboo sharks, although specifics regarding the frequency or landing volumes were not disclosed. It's noteworthy that only in instances of substantial incidental catch would fishers consider selling the surplus, either within their village, to fellow community members, or a local collector. A detailed breakdown of the reported incidental catch species and corresponding village selling prices is provided in Table A1.

Table A1. High and low incidental catch prices for species or species groups reported by fishers (n=8) across the barangays of Igbon, San Salvador, Tomongtong.

Species	High price (PHP per kg)	Low price (PHP per kg)
Grouper	350	230
Small breams, oposan	80	50
Large breams	120	80
Goatfish	180	120
Octopus	100	60
Bamboo sharks	100	n/a
Flatfish	100	n/a
Flatheads	110	100

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