

Abandoned, Undeveloped, and Underutilized Fishponds

Implications on Aquaculture Productivity and
Coastal Biodiversity

*Victor Marco Emmanuel N. Ferriols , Lynn Angelo A. Bonitillo,
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Conservation and Biodiversity Program

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Cover Image Credit

"Assessment of abandoned fishponds at the UP Visayas Brackishwater Aquaculture Center in Leganes, Iloilo with teams from the UPV Institute of Aquaculture and the Zoological Society of London."

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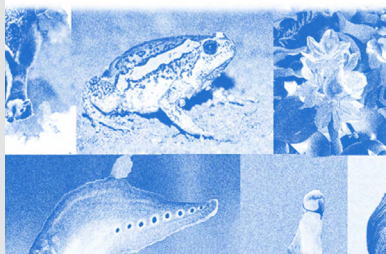


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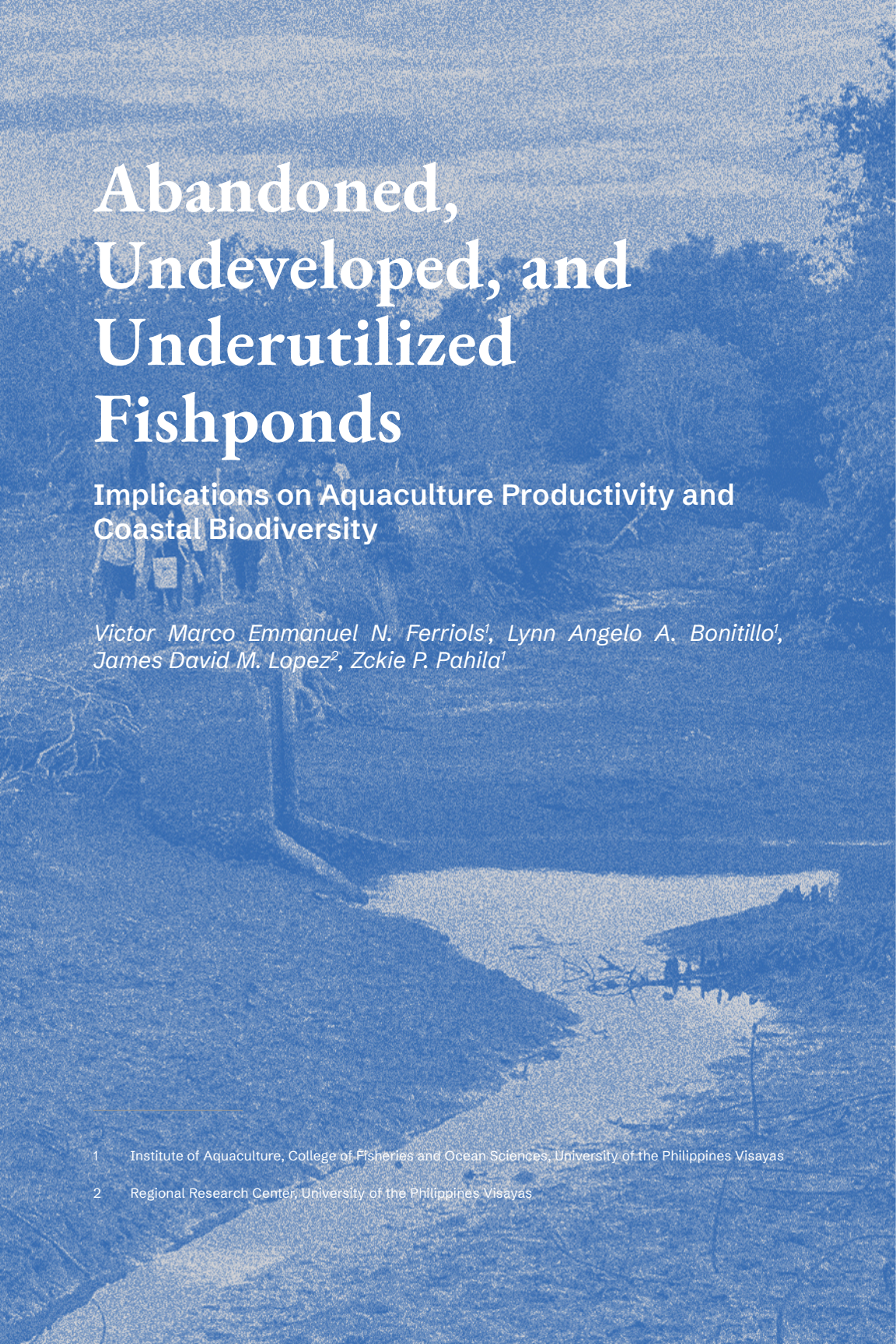


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DISCUSSION PAPER

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Abandoned, Undeveloped, and Underutilized Fishponds

Implications on Aquaculture Productivity and
Coastal Biodiversity

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Abstract

Aquaculture has played a central role in coastal development in the Philippines, particularly in Iloilo Province, where extensive mangrove areas were historically converted into fishponds. In recent years, a considerable percentage of these ponds have become abandoned, undeveloped, or underutilized (AUU), reflecting declining productivity, operational constraints, and governance challenges. This paper examines the current status of aquaculture in Iloilo, with emphasis on the increasing number of AUU fishponds and their ecological implications. Using secondary data from regional statistics, remote sensing studies, and biodiversity assessments, the paper highlights the decline of aquaculture production in Iloilo and its relationship to the province's brackish-water fishponds, many of which are now partially or fully inactive. Despite their degraded origins, these AUU fishponds exhibit significant potential for biodiversity recovery and ecosystem restoration. The study identifies key policy gaps in enforcement, tenure, and spatial planning, and proposes integrated, ecosystem-based management approaches. The findings suggest that Iloilo's AUU fishponds represent a critical opportunity to reconcile aquaculture productivity with biodiversity conservation and climate resilience.

Introduction

Aquaculture is a major contributor to food security and economic activity in the Philippines, currently making up more than 50 percent of the total fishery production of the Philippines. Coastal provinces such as Iloilo have long been centers of brackish-water aquaculture, particularly for milkfish (*Chanos chanos*) and shrimp species. Next to the production of seaweeds, brackish-water fishponds contribute the largest amount of fish production by volume, equivalent to 12.6 percent of total Philippine aquaculture in 2024 (BFAR 2025). The expansion of fishponds, however, has historically occurred at the expense of mangrove ecosystems, which serve as critical habitats for marine biodiversity and provide essential ecosystem services such as shoreline protection and carbon sequestration.

Between the 1950s and 1980s, large-scale conversion of mangrove forests into fishponds significantly altered coastal landscapes across the Philippines. Iloilo represents one of the most heavily transformed provinces, with studies indicating that up to 95 percent of its original mangrove cover was converted into aquaculture areas (Primavera et al. 2011). While these developments initially supported economic growth, many fishponds have since experienced declining productivity due to environmental degradation, disease outbreaks, and economic constraints.

Despite the considerable contribution of brackish-water fishponds to overall fish production, assessment of the policies affecting their management and studies monitoring their productivity is very scant. Proof of this can be seen from the *Philippine Fisheries Profile* data that has been released by the Bureau of Fisheries and Aquatic Resources (BFAR) annually since 2013, wherein the total area dedicated to brackish-water fishponds has been pegged at 239,323 ha for nearly a decade (2013–22). This number has not changed despite growing evidence through satellite imagery that considerable swaths have been abandoned and taken over by new growth mangrove forests.

In recent years, the proliferation of abandoned, undeveloped, and underutilized (AUU) fishponds has emerged as a significant issue. These areas, while often unproductive from an aquaculture standpoint, present opportunities for ecological restoration and biodiversity recovery. This paper examines the status of aquaculture in Iloilo in relation to AUU fishponds and explores their implications for biodiversity and policy.

Discussion

Signals of Decline in Iloilo's Fisheries Sector

A report by the Institute of Contemporary Economics (a local think-tank organization) released in June 2024 set off alarm bells when it highlighted a drastic decline of 42.1 percent in fisheries production for the province of Iloilo between 2020 and 2023. This was equivalent to a roughly ₱4.5 billion drop in the value of fisheries output over this period. Although several factors were mentioned, including overfishing, environmental degradation, and climate change, the steep dive also noticeably coincided with the COVID-19 pandemic, which drastically affected supply chains and mobility for economic activities. Although it was easy to peg such a decline to the pandemic, as seen in other industries as well, this prompted a more nuanced perspective on the contributors to the fisheries industry of Iloilo.

The top commodity contributing to the overall fisheries production of the province is milkfish (*Chanos chanos*) or *bangus*, which contributed 18.5 percent of the total fisheries volume of Iloilo in 2020. Analysis of data from the Philippine Statistics Authority shows that milkfish production in Iloilo followed a similar trend to the reported decline in total fisheries production for the province for the period 2020–23 (see figure 1; red box). Again, although this decline can be conveniently attributed to the pandemic, further analysis of the data actually shows that drastic declines in milkfish production started as early as 2011 (see figure 1; yellow box), with the drop in production from 2011 to 2014 actually being larger than the 2020–23 decline. This points to other underlying factors behind the drastic downturn for a fishery commodity once touted as a major economic contributor for the province, with the COVID-19 pandemic mainly playing an additional exacerbating role in recent years.

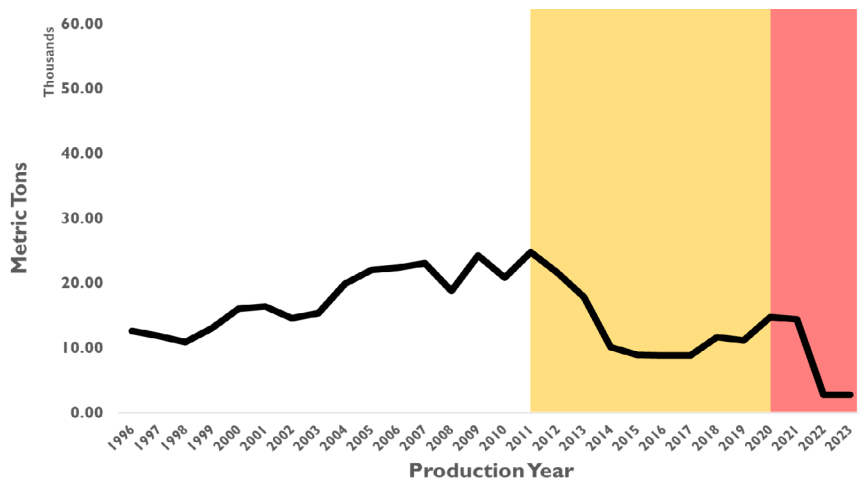


Figure 1: Milkfish production (by volume) in Iloilo, Philippines from 1996 to 2023 (source: Philippine Statistics Authority).

Taking note of the extent of the decline in milkfish production in Iloilo, further data mining showed that most, if not all, of the province’s milkfish production is sourced from brackish-water fishpond aquaculture (see table 1). Despite the emergence of other culture systems such as marine pens and cages in more recent years, production from these systems has not contributed significantly (less than 1 percent) in stemming the decline in the overall production of milkfish. This data now highlights the importance of brackish-water fishponds in the overall aquaculture and fisheries productivity of Iloilo, and any changes to these culture systems and how they are operated can have drastic effects on the economy of the province.

Table 1: Milkfish production volume (in metric tons) in Iloilo by culture system from 2019 to 2023.

	2019	2020	2021	2022	2023
BW Pond	11,161.35	14,726.18	14,384.57	2,789.74	2,724.76
FW Pond	-	5.62	5.38	10.25	18.57
Marine Pen	-	-	4.65	7.02	3.33
Marine Cage	-	-	4.00	2.90	0.59
TOTAL	11,161.35	14,731.80	14,398.60	2,809.91	2,747.25

*(source: Philippine Statistics Authority)

The fisheries economy of Iloilo remains deeply anchored in brackish-water fishpond aquaculture, particularly for the production of milkfish, which continues to be one of the most important aquaculture commodities in the Philippines. National production data consistently show that milkfish culture is overwhelmingly pond-based, with alternative systems such as marine cages and pens contributing only marginally to total output (BFAR 2024). This structural dependence creates a narrow production base, where the performance of a single culture system largely determines overall fisheries output.

Evidence from provincial production trends reinforces this vulnerability. As shown in figure 1, milkfish production in Iloilo has experienced a sustained decline beginning as early as 2011—well before recent disruptions such as the COVID-19 pandemic. This long-term downward trajectory suggests that the issue is not merely cyclical or externally driven, but rather indicative of systemic inefficiencies within fishpond-based aquaculture systems. Given that brackish-water ponds account for nearly all milkfish production in the province, any reduction in their productivity directly translates into a decline in total fisheries output.

Proliferation of AUU Fishponds Across Iloilo's Coastal Belt

The classification of fishponds as abandoned, undeveloped, and underutilized (AUU) has become a broad and convenient classification of areas with drastically reduced productivity in relation to deliberate aquaculture activities. With the importance of brackish-water fishponds and their contribution to aquaculture productivity for Iloilo now emphasized, it has become more evident that the decline in aquaculture production in the province since 2011 could considerably be linked to the reduction in the actual area dedicated to aquaculture activities, or in part, to the reduced aquaculture activities within these ponds. Using historical satellite imagery from Google Earth, some examples of areas once used as brackish-water fishponds are highlighted below.

In the La Paz District of Iloilo City, one of the most drastic changes to its landscape was the construction of the 164-megawatt coal-fired power plant in 2016. The power plant, located in Barangay Ingore, now stands on what used to be several hectares of brackish-water fishponds (see figure 2A). North of La Paz, across the Jaro–Tigum River, several hectares of brackish-water fishponds in Barangay Hinactacan, Jaro, are now also nonoperational. Unlike the fishponds in La Paz that were converted for industrial activities, these fishponds in Jaro now appear to have been taken over by new mangrove growth (see figure 2B).

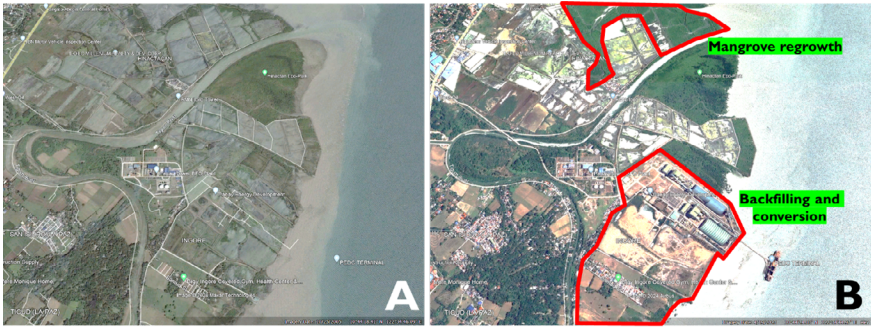


Figure 2: Satellite imagery of the La Paz and Jaro districts of Iloilo City taken in 2005 (A) and 2023 (B). Areas outlined in red in (B) were former brackish-water fishponds.

In the municipality of Leganes, north of Iloilo City, considerable swaths once dedicated to brackish-water fishponds are now also unproductive from an aquaculture perspective. With an initial estimated area of approximately 591 ha of brackish-water fishponds (Batislaon 2013), which made up roughly 18 percent of the total land area of the municipality, approximately 25–35 percent of these fishponds have either been converted for industrial activities or have seen considerable mangrove regrowth based on historical satellite imagery (see figure 3). Mangrove regrowth in these areas has occurred either naturally (as in the case of fishponds formerly under the UPV Brackish-Water Aquaculture Center) or has been planted strategically (as in the case of the Leganes Integrated Katunggan Ecopark). In the case of the Katunggan Ecopark, the fishponds originally situated in the area were left considerably damaged by Typhoon Frank (Fengshen) in 2008. The area was eventually identified by the Zoological Society of London (ZSL) as a pilot site for mangrove rehabilitation and now stands as a model for community-based mangrove restoration efforts. It is also interesting to note that despite the increasing proliferation of AUU fishponds in Leganes, there are still signs of efforts to maintain and repair some of the existing fishponds (see figure 3B, highlighted by blue arrows).

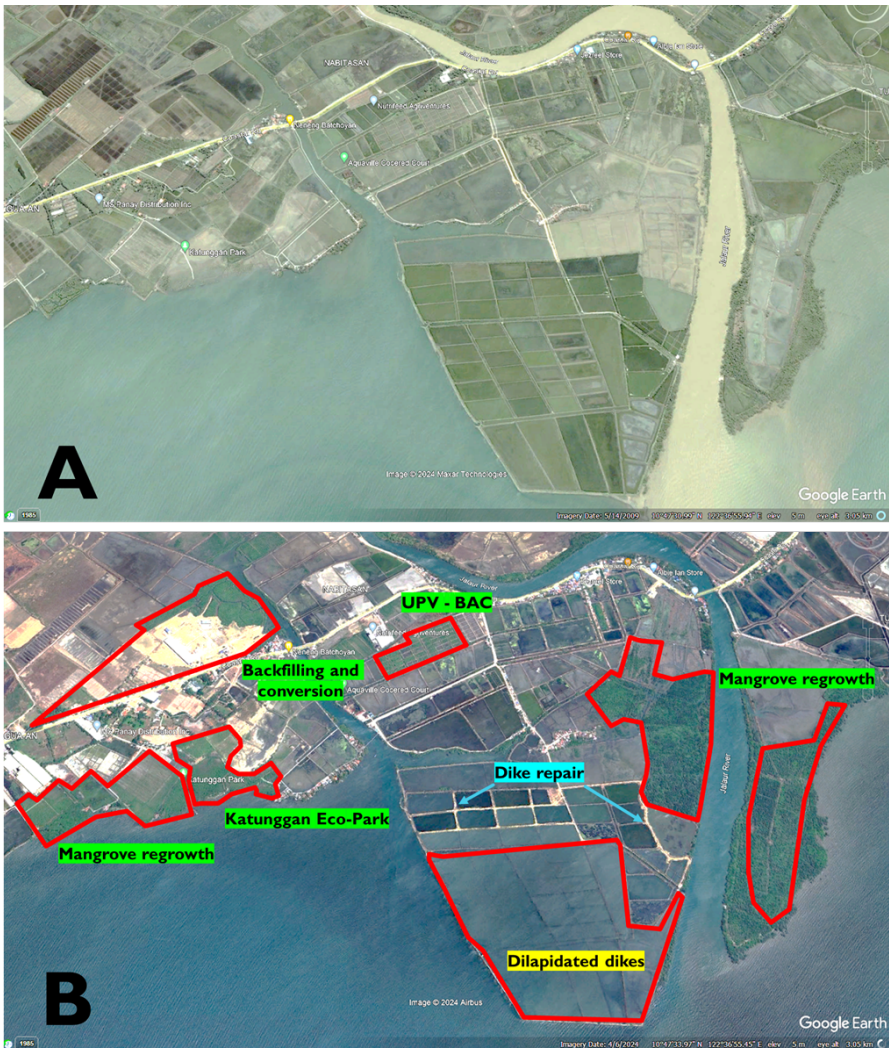


Figure 3: Coastal areas of Leganes, Iloilo that were once dominated by brackish-water fishponds in 2009 (A) with signs of conversion and mangrove regrowth as of 2024 (B).

Drivers of Abandonment, Underutilization, and Aquaculture System Decline

With the initial documentation of the proliferation of AUU fishponds in Iloilo as presented above, the Institute of Aquaculture of UPV was given the opportunity share these initial findings across several fora to gather

more feedback from various stakeholders. Among the events were a Fisheries Management Area 11 Scientific Advisory Group Meeting (organized by BFAR 6; 23 July 2024), the Iloilo Milkfish Stakeholders' Meeting (organized by the Provincial Agriculture Office of the Iloilo Provincial Government; 6 September 2024), and *Pagtalupangod 3: Marrying Economic Growth with Climate Change Adaptation and Resiliency—The Case for Aquaculture* (organized by the Institute of Contemporary Economics and the Zoological Society of London; 8 August 2025).

Throughout these events, trends in both current understandings and perceptions among stakeholders were shared in relation to the proliferation of AUU fishponds in the province. It became more evident that the underutilization and neglect of fishponds is the result of interacting biophysical, climatic, economic, and institutional pressures (see table 2). These drivers do not operate independently; rather, they reinforce one another, creating a cycle of declining productivity and eventual abandonment.

One of the most critical factors contributing to fishpond failure is the progressive degradation of pond environments. Many fishponds in Iloilo were established on former mangrove areas, which are characterized by acid sulfate soils. When exposed through excavation and prolonged use, these soils oxidize and release hydrogen sulfide, lowering pH levels and creating harmful conditions for cultured species (Primavera 2006). In addition, years of continuous operation without adequate pond preparation or rehabilitation have led to the accumulation of organic matter and the deterioration of water quality. These factors then contribute to an increased susceptibility to disease outbreaks. These conditions reduce growth rates, increase mortality, and ultimately lower yields. As production declines, operational costs per unit output rise, making fishpond operations increasingly unprofitable.

Climate variability and extreme weather events have increasingly affected coastal aquaculture systems. Iloilo, like many coastal provinces in the Philippines, is highly exposed to typhoons, storm surges, flooding, salinity fluctuations, and more recently, extreme heat events. Such events have led to pond dike damage beyond reasonable repair, disruption of water management systems, and stock losses and escape due to flooding. Recent experiences of extreme heat during summer seasons have also resulted in farmers facing difficulty in growing natural food in ponds, especially *lab-lab* (benthic algal mats initially grown in shallow pond water). In some cases, repeated exposure to such disturbances renders fishponds physically unsuitable for continued aquaculture use, accelerating their transition into AUU status. The Intergovernmental Panel

on Climate Change (IPCC 2022) has highlighted that coastal aquaculture systems in Southeast Asia are among the most vulnerable to climate impacts, particularly where infrastructure and adaptive capacity are limited.

Beyond environmental limitations and climatic events, fishpond operators have faced mounting economic pressures that further discourage continued operation. The cost of key inputs such as feeds, fry, fuel, and labor has steadily increased, while market prices for aquaculture products remain volatile. The COVID-19 pandemic further exposed these vulnerabilities by disrupting supply chains, limiting market access, and constraining labor mobility. While the pandemic contributed to short-term declines, it also amplified preexisting structural weaknesses within the sector (FAO 2020). Among the key inputs, feed costs and fry availability were particularly highlighted by milkfish pond operators in Iloilo, thus pointing to the need for strategic interventions for these factors within the region. The Bureau of Fisheries and Aquatic Resources–Region 6, for its part, has initiated partnerships with both the Southeast Asian Fisheries Development Center and other state universities and colleges (SUCs) in the establishment of a localized aquaculture feed mill and possible satellite hatcheries for milkfish. The impact of these, though, is yet to be determined, and their operational feasibility is yet to be seen within the next three to five years.

Beyond the issue of key inputs for milkfish production operations, another factor that has discouraged milkfish farmers from continuous operations is the entry of cheaper milkfish into the Iloilo market from other regions. During the Iloilo Milkfish Stakeholders' Meeting in 2024, upon showing that milkfish production decline in Iloilo actually started as early as 2011, several pond operators pointed to the entry of larger volumes of milkfish at lower prices from provinces such as Pangasinan, Pampanga, and, more recently, Bulacan. Notably, Pangasinan, long associated with milkfish aquaculture, has seen a steady increase in its production volumes since the 2010s. This coincides with the expansion of their milkfish operations to marine cages. The intensive nature of milkfish cage aquaculture in this area has allowed Pangasinan operators to produce larger volumes of milkfish at relatively cheaper costs. Although this has been beneficial for consumers in Iloilo, it has put a strain on local producers and puts an impetus on finding strategies to make milkfish produced in Iloilo more competitive in the market.

Institutional and governance challenges further exacerbate the proliferation of AUU fishponds. Many fishponds in the Philippines are operated under fishpond lease agreements (FLAs) issued by the government. However, enforcement of FLA conditions, particularly those related to productivity and proper use, has historically been weak. This has led to compounding factors such as idle or underperforming fishponds often remaining under lease for extended periods, limited incentives or mechanisms for the rehabilitation or reallocation of near-expiring FLAs, and policy decisions that are constrained by outdated or incomplete data on actual pond utilization. Primavera et al. (2011) noted that many AUU fishponds have remained idle for years, reflecting gaps in monitoring and enforcement as well as institutional fragmentation between fisheries and environmental agencies.

Table 2. Key Drivers of AUU Fishpond Formation and Their Impacts

Driver	Mechanism	Impact on Productivity	Supporting Source
Environmental degradation	Acid sulfate soils, eutrophication	Reduced or slow growth, mortality	Primavera (2006)
Climate impacts	Typhoons, heat waves	Infrastructure damage, stock loss, reduced natural food	IPCC (2022)
Economic constraints	Rising input costs, price volatility, competing markets	Lower profitability	FAO (2020)
Governance issues	Weak FLA enforcement	Idle and non-reallocated ponds	Primavera et al. (2011)

The combined effects of these drivers have led to a gradual but significant erosion of effective and productive aquaculture areas in Iloilo. While official statistics continue to report stable fishpond coverage, field observations and satellite imagery indicate that a substantial portion of these areas is no longer actively contributing to production.

The implications for the fisheries sector of Iloilo are profound. If left to spiral, the reduced productivity of AUU fishponds will lead to reduced aquaculture output and declining contribution to total fisheries production in the region. It also reflects the inefficient allocation of coastal resources, which can eventually lead to the loss of livelihood opportunities for fishpond operators and workers. The proliferation of AUU fishponds also stands as a missed opportunity for system diversification such as polyculture or integrated aquaculture approaches. Moreover, the persistence of AUU fishponds limits the ability of the sector to respond to increasing demand for fish and aquaculture products. Without targeted interventions, these trends may continue to undermine the long-term viability of brackish-water aquaculture in Iloilo.

Ultimately, the failure of fishpond systems in Iloilo is not the result of a single factor, but rather the outcome of interacting environmental degradation, changing climate realities, economic pressures, and governance gaps. Addressing these challenges requires a shift from isolated interventions toward a systems-based approach that integrates production efficiency, environmental sustainability, and institutional reform.

From Abandonment to Opportunity: Biodiversity, Ecosystem Functions, and Coastal Implications

The current state of AUU fishponds in Iloilo cannot be understood without examining the historical transformation of coastal ecosystems, particularly the large-scale conversion of mangrove forests into aquaculture areas. From the 1950s through the 1980s, national policies actively promoted fishpond development to increase fisheries production, resulting in widespread clearing of mangrove forests across the Philippines (Primavera 2006).

This conversion has had long-term ecological consequences. Mangroves are widely recognized as critical nursery habitats for fish and crustaceans, supporting both capture fisheries and aquaculture systems. Their removal has contributed to declines in fish recruitment and coastal productivity (Mumby et al. 2004). In addition, mangroves function as natural coastal defenses, attenuating wave energy and reducing the impacts of storm surges. Their loss has increased the vulnerability of coastal communities to extreme weather events (Alongi 2008). At the national scale, it is estimated that more than 50 percent of mangrove cover in the Philippines has been lost, with fishpond development identified as the primary driver of this decline (Primavera 2006; Pulhin, Gevaña, and Pulhin 2017). The situation in Iloilo

is even more pronounced. Studies indicate that up to 95% of the province's original mangrove cover was converted into fishponds, making it one of the most heavily transformed coastal areas in the country (Primavera et al. 2013).

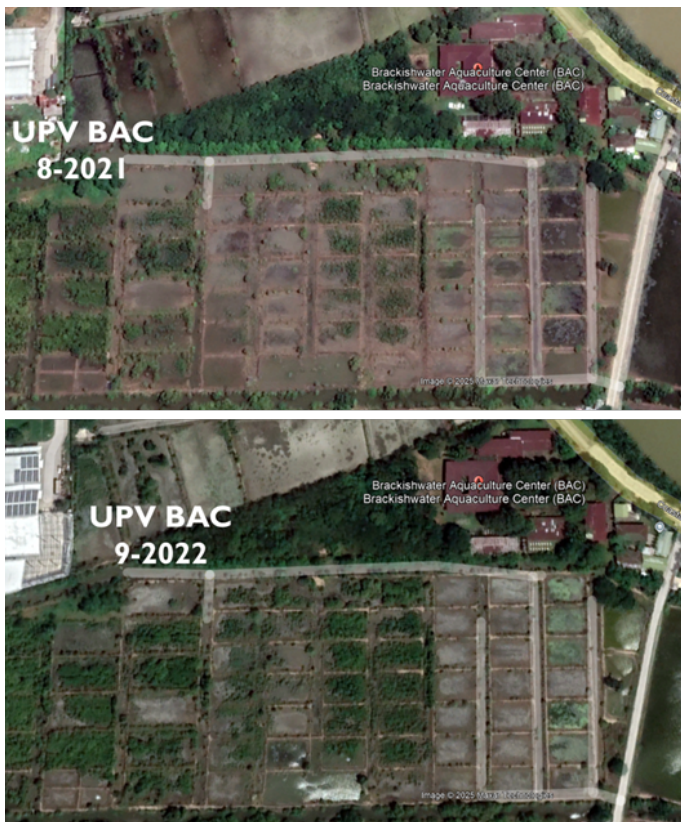
Beyond habitat loss, mangrove conversion has also reduced the capacity of coastal ecosystems to store carbon. Mangroves are among the most carbon-dense ecosystems globally, storing significant amounts of carbon in both biomass and sediments. Their removal therefore contributes not only to local ecological degradation but also to global climate change through the release of stored carbon (Donato et al. 2011).

While the conversion of mangroves to fishponds represents a major source of ecological degradation, the subsequent abandonment of these ponds has created conditions that are conducive to ecosystem recovery. AUU fishponds, despite their degraded origins, often retain key environmental characteristics that allow for the reestablishment of mangrove vegetation. In many cases, abandoned fishponds exhibit reduced anthropogenic disturbance, allowing natural processes to resume. In AUU fishponds with damaged and breached dikes, restored tidal connectivity allows for the expansion of ecological services of these areas to wider coastal habitats. It also sees the return of appropriate sediment and salinity conditions, inherited from their original mangrove ecosystems.

These factors make AUU fishponds highly suitable for natural regeneration, a process whereby mangroves recolonize areas without intensive human intervention. Empirical studies have shown that, when hydrological conditions are restored, mangrove recovery can occur relatively quickly and with higher ecological success compared to conventional planting approaches (Lewis 2005; Primavera et al. 2012). In fact, poorly planned mangrove planting programs, especially those that ignore site suitability and hydrology dynamics, often result in low survival rates. In contrast, assisted natural regeneration, which focuses on restoring tidal flow and removing barriers to natural recruitment, has been shown to be more cost-effective and ecologically sound.

A prominent local example is the Leganes Integrated Katunggan Ecopark in Iloilo, where abandoned fishponds were successfully reverted to mangrove forests through community-based initiatives. This project demonstrates how AUU fishponds can be transformed into functional ecosystems that provide both environmental and socio-economic benefits, including ecotourism, fisheries enhancement, and coastal protection.

In the case of UPV's Brackishwater Aquaculture Center (BAC) in Leganes, Iloilo, the rapid natural recolonization of mangroves was observed for portions that were returned to the local government unit of Leganes. After the end of a long-term lease of some portions originally under the management of the BAC in 2021, these areas encountered minimal anthropogenic activity. This led to the deterioration of dikes, allowing a larger area to be influenced by more natural tidal currents. Based on satellite imagery data from 2021 to 2024, mangrove regrowth in abandoned BAC fishponds progressed at an estimated 20–25 percent increase in vegetated area per year, with peak expansion rates of up to 30 percent per year during mid-successional stages (see figure 4; table 3). This rate of natural, unassisted mangrove regeneration exhibits evidence of increased and sufficient tidal connectivity and suggests considerable proximity to propagule sources (either natural or from other AUU fishponds in the area). Overall, the natural mangrove regeneration observed for the BAC within this period equates to a total mangrove cover increase of around 60–70 percent over three years.



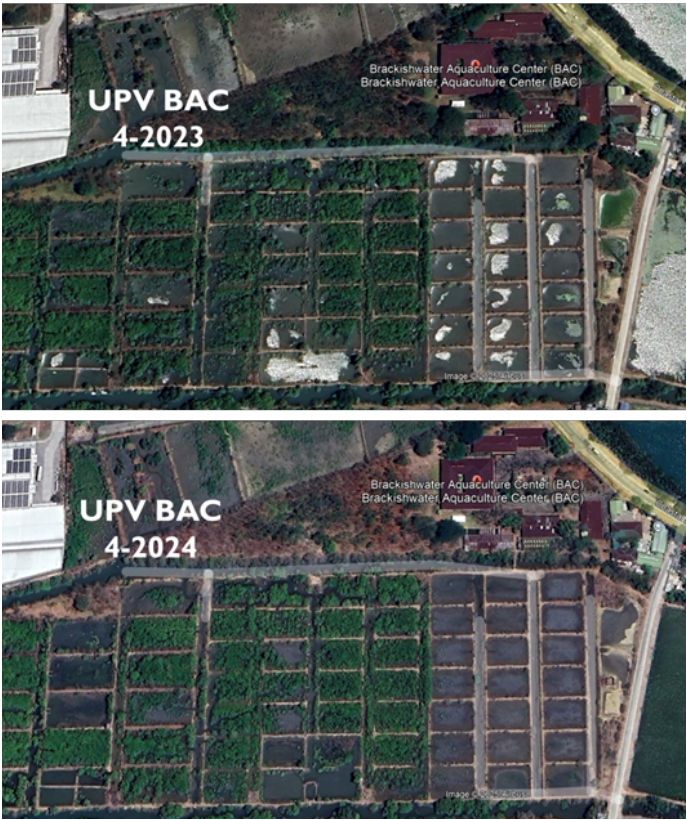


Figure 4: Rapid natural mangrove regrowth in abandoned ponds at the UPV Brackishwater Aquaculture Center in Leganes, Iloilo from 2021 to 2024.

Table 3: Estimated mangrove regeneration rates at the Brackishwater Aquaculture Center between 2021 and 2024 based on historical satellite imagery.

Period	Estimated mangrove cover	Estimated net increase	Approx. annual growth rate
2021 - 2022	~10–15% → ~25–35%	15–20%	~15–20%/yr
2022 - 2023	~30% → ~55–65%	25–30%	~25–30%/yr
2023 - 2024	~60% → ~75–85%	15–20%	~15–20%/yr

Through the reversion of AUU fishponds back to mangrove ecosystems, the restoration of ecosystem services of such areas can also be enhanced. Restored mangrove stands in AUU fishponds have been linked, directly or indirectly, to fisheries productivity and biodiversity, coastal protection, and climate resilience. Mangroves serve as critical nursery habitats for a wide range of commercially important species, including fish, crustaceans, and mollusks. Juvenile stages of many species depend on mangrove environments for shelter and food before migrating to offshore habitats. Studies have shown that areas adjacent to mangroves support higher fish biomass and catch rates, highlighting their importance in sustaining fisheries production (Mumby et al. 2004).

As a preliminary case study, initial biodiversity assessments of the abandoned ponds at the UPV-BAC in Leganes, Iloilo were conducted through rapid field surveys. Within the area, a total of five different mangrove species were tentatively identified, namely from the genera *Scyphiphora* (*nilad*), *Lumnitzera* (*kulasi*), *Sonneratia* (*pagatpat*), *Excoecaria* (*buta-buta*), and *Avicennia* (*bungalon*) (see figure 5). One beach forest tree species was also putatively identified as *Pongamia pinnata* (*bani*). Among the mangroves identified, growth within the abandoned ponds was mainly dominated by *Avicennia* and *Excoecaria*, suggesting the suitability of these species for possible future restoration efforts of other AUU fishponds within the area.

Within the same area, fish traps were also set during high tide to obtain an initial assessment of fish and crustacean species that could be passively caught within the vicinity of the abandoned ponds at the UPV-BAC. The traps were able to attract and catch 11 different species of fish and nine different species of crustaceans. These have been tentatively identified in table 4, with some representative photos in figure 6.

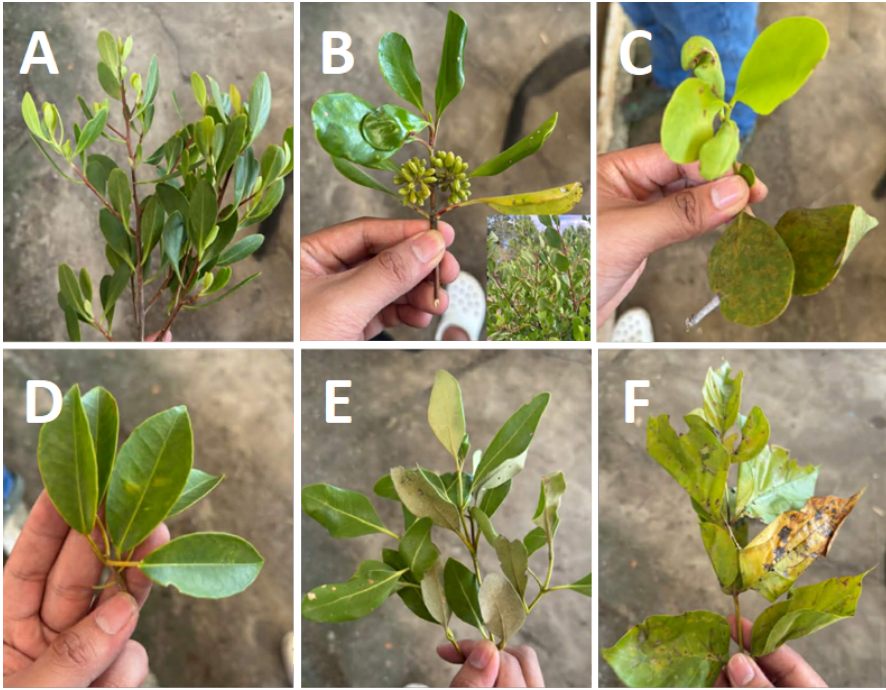


Figure 5: Leaf samples of mangrove and beach forest genera identified within abandoned ponds formerly managed by the UPV Brackishwater Aquaculture Center. (A) *Lumintzera* sp., (B) *Sciphyphora* sp., (C) *Sonneratia* sp., (D) *Excoecaria* sp., (E) *Avicennia* sp., (F) *Pongamia pinnata*.

Table 4: List of aquatic species caught or observed in abandoned ponds and adjacent areas of the Brackishwater Aquaculture Center in Leganes, Iloilo

Species caught/ observed	Common Name	Local Name (PH/Iloilo)	Notes
Fish			
<i>Ambassis kopsii</i>	Glassy Perchlet	Parangan	Adults; non-commercial
<i>Butis butis</i>	Crimson tip Gudgeon	Piyang	Adults; non-commercial
<i>Elops hawaiiensis</i>	Tenpounder / Ladyfish	Bidbid	Juvenile; commercial
<i>Glossogobius giuris</i>	White Goby	Sisiro	Adults; commercial
<i>Lates calcarifer</i>	Barramundi / Asian Seabass	Apahap	Juvenile; commercial
<i>Mugil sp.</i>	Flathead Grey Mullet	Gisao / Agwas	Juvenile; commercial
<i>Ophiocara porocephala</i>	Spangled Gudgeon	Pugot/ Palo	Adults: non-commercial
<i>Parioglossus philippinus</i>	Philippine Dartfish	Biya	Adults; non-commercial
<i>Sarotherodon melanotheron</i>	Blackchin Tilapia	Tilapya (itim)	Adults; commercial; invasive
<i>Scatophagus argus</i>	Spotted Scat	Kitang	Juvenile; commercial
<i>Terapon sp.</i>	Target Fish / Tiger Perch	Bugaong	Adult; commercial
Crustaceans - Shrimp/Prawn			
<i>Alpheus euprosyne</i>	Pistol Shrimp	Pitik-pitik	—
<i>Macrobrachium sp.</i>	Freshwater Prawn	Ulang	Adults; Multiple berried females
<i>Metapenaeus ensis</i>	Greasyback Shrimp	Hipon	Sub-adult; commercial
<i>Stomapod</i>	Mantis Shrimp	Alupihang-dagat / Tåtampal	Sub-adult; commercial
Crustaceans - Crabs			
<i>Aratus pisonii</i>	Mangrove Tree Crab	Kamarón-kawayan	Adult; non-commercial
<i>Metopograpsus sp.</i>	Purple Climber Crab	Karamis	Adult; non-commercial
<i>Portunus pelagicus</i>	Blue Swimming Crab	Kasag	Sub-adult; commercial
<i>Scylla sp.</i>	Mangrove Crab	Alimango	Adult; commercial
<i>Thalamita crenata</i>	Crenate Swimming Crab	Dawat	Adult; commercial

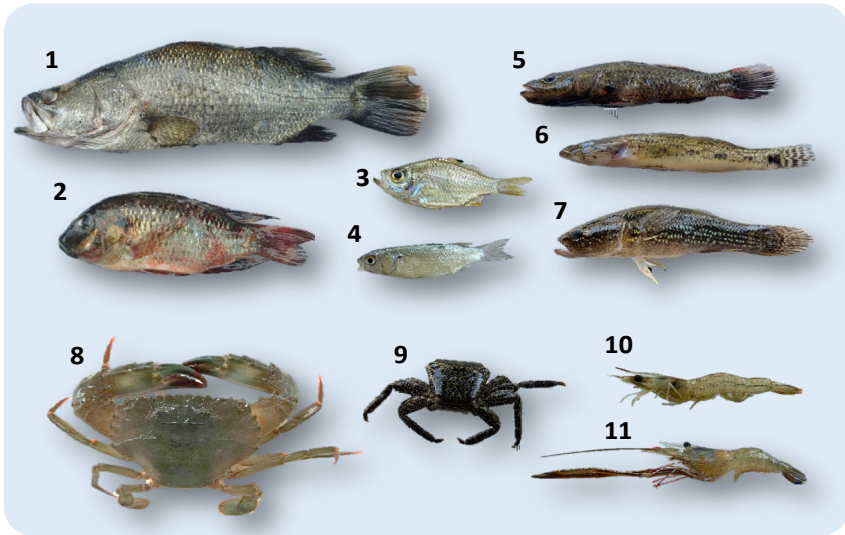


Figure 6: Representative samples of select captured fish and crustaceans in the abandoned fishponds at the Brackishwater Aquaculture Center in Leganes, Iloilo. (1 – *Lates calcarifer*; 2 – *Sarotherodon melanoptthalmus*; 3 – *Ambassis kopsii*; 4 – *Mugil* sp.; 5 – *Butis butis*; 6 – *Glossogobius giurus*; 7 – *Ophiocara porocephala*; 8 – *Thalamita crenata*; 9 – *Aratus pisonii*; 10 – *Metapeneus ensis*; 11 – *Macrobrachium* sp.) *Note: Images are not presented to scale.

Among the fish and crustaceans caught and observed within the abandoned ponds of the BAC, several are actually of commercial value, either as commodities already cultivated through existing aquaculture systems such as the Asian seabass and mangrove crabs or as subsistence commodities usually caught and directly consumed by surrounding communities like *Terapon*, *scats*, and swimming crabs.

The considerable biodiversity observed in the abandoned BAC ponds, as well as the range of life stages noted (with juveniles and adults of various species), is also a good indicator of the improving health of the ecosystem within the area. Other species not commonly considered for aquaculture, such as the smaller species of freshwater prawns observed in the area, could also hold potential as species to be used for aquasilviculture efforts wherein holding facilities for cultured organisms are integrated within active mangrove stands. The fact that several berried (carrying eggs) female freshwater prawns were observed hints at the possibility of a more sustainable source of cultured organisms within an aquasilviculture system if managed properly.

Conclusion

The increasing extent of abandoned, undeveloped, and underutilized (AUU) fishponds in Iloilo underscores a significant decline in the performance and efficiency of brackish-water aquaculture systems. As shown in this paper, the sustained reduction in milkfish production, well before recent external shocks, points to underlying structural constraints within fishpond-based production systems, including environmental degradation, rising operational costs, and weak governance mechanisms.

Given that brackish-water fishponds remain the primary production system for milkfish in the province, the proliferation of AUU areas directly translates to a reduction in effective aquaculture area and overall fisheries output. This highlights a critical gap between reported fishpond coverage and actual productive capacity, resulting in inefficient utilization of coastal resources and diminished contributions to local food security and fisheries-based livelihoods. At the same time, the ecological transition observed in many AUU fishponds introduces important considerations for fisheries management. The natural regeneration of mangroves within these areas can enhance nursery functions and support adjacent capture fisheries or the diversification of aquaculture commodities, indicating that AUU fishponds may still contribute indirectly to fisheries productivity through ecosystem services.

Addressing the AUU issue therefore requires a fisheries systems approach that integrates production efficiency with ecosystem functionality. Strategic interventions should focus on: (1) rehabilitating viable fishponds to improve yields and operational efficiency; (2) reallocating nonviable or environmentally degraded ponds toward ecological restoration to support fisheries enhancement; and (3) promoting integrated systems such as aquasilviculture that balance production with habitat function. Furthermore, strengthening the monitoring and enforcement of FLAs, improving spatial and production data, and enhancing institutional coordination are essential to ensure that fishpond resources are actively contributing to fisheries production.

In this context, AUU fishponds should not be viewed solely as idle or unproductive assets, but as key leverage points for optimizing fisheries productivity and resource allocation. A more adaptive and spatially informed management strategy will be critical in restoring the contribution of brackish-water aquaculture to Iloilo's fisheries sector while sustaining the ecological processes that underpin long-term productivity.

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