



## Stakeholder Satisfaction Level in the Delivery of Services of a Fish Port Complex in the Philippines

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### Abstract

Fish port complexes play a crucial role in the post-harvest fisheries sector, serving as central hubs for landing, processing, and distributing fish products. This study assessed stakeholder satisfaction with service delivery at a fish port complex in the Philippines, focusing on 325 stakeholders (fish brokers, buyers, and ice dealers/crushers). Employing a mixed-methods approach, combining both quantitative and qualitative research designs, data were collected through an adapted questionnaire administered face-to-face with respondents, along with semi-structured interviews to capture in-depth qualitative insights. The quantitative data were analyzed using frequency, percentage, weighted mean, and Pearson correlation coefficient. Thematic analysis was employed to analyze the qualitative responses, identifying key themes and recurring patterns within the data. The findings revealed that stakeholders were satisfied with the services delivered at the fish port complex in terms of billing, payment, accreditation, and renewal of permits, as well as the issuance of permits to conduct business. Furthermore, perceptions of respondents in the four service areas showed no significant differences across demographic profiles, indicating that improvements in these areas would likely benefit all stakeholders. However, challenges including billing and payment issues, bureaucratic delays, slow processing, and complex permit processes, have negatively impacted the satisfaction of the fish brokers. Based on these findings, the study proposed strategies to enhance the service quality of the fish port complex. These improvements are also deemed essential for other fish port complexes aiming to enhance their operational efficiency, build stakeholder trust, and ensure the sustainable development of the fisheries sector.

**Keywords:** *Customer Satisfaction, Fish Port Complex in the Philippines, Fish Port Services, Operational Efficiency, Service Delivery, Service Quality, Stakeholder Trust*

### INTRODUCTION

The satisfaction level in the delivery of services at fish port complexes is a critical factor influencing the efficiency of port operations. These complexes serve as vital hubs for the unloading, processing, and distribution of fish products, acting as a link between the fishing industry and the market. By providing a range of essential services, fish ports play a significant role in supporting the livelihoods of fishermen and other stakeholders in the fisheries sector. Efficient operations within fish port complexes are crucial for maintaining high standards in fish handling, processing, and distribution, thereby enhancing the overall competitiveness of the fishing industry. Consequently, the effectiveness of these operations directly impacts the satisfaction of key users, including fishermen, traders, and processors.

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Global studies emphasized the significance of port service quality as an essential factor influencing customer satisfaction, particularly in fish port complexes. Research conducted at Salalah Port in Oman highlights that dimensions such as tangibility, empathy, reliability, responsiveness, and assurance significantly enhance customer satisfaction, with reliability being particularly impactful (Ba Awain et al., 2024; Sukati et al., 2024). Similarly, a study at Mersin International Port revealed that reputation and social accountability are crucial for customer contentment, emphasizing the need for effective management practices (Mermertas, 2024). Furthermore, an assessment of Belawan Samudera Fishing Port in Indonesia indicated that while overall user satisfaction is relatively high, there are areas for improvement in empathy and assurance to meet regulatory standards and boost operational efficiency (Syahrianda et al., 2024). These findings collectively demonstrate that optimizing service quality in fishing ports is vital for achieving customer satisfaction and gaining a competitive edge in the logistics sector.

In the Philippines, several studies have shown that the satisfaction level in the delivery of services at fishing ports is influenced by various factors, including service quality, facility adequacy, and user responsiveness. Studies on fishing ports in the Philippines, such as Golimlim and De Castro (2023), highlighted that service satisfaction is influenced by factors like service quality, facility adequacy, and user responsiveness, with the Philippine Fisheries Development Authority- Bulan Fish Port Complex performing well overall despite facing challenges to efficient service delivery. Similarly, Swee et al. (2019) evaluated the service quality of Batangas Port using the SERVQUAL model and found that respondents were satisfied overall, with assurance rated highest and reliability lowest. They also noted that frequent visitors reported higher satisfaction levels and recommended improving reliability and empathy to enhance customer satisfaction. Despite these studies, research gaps remain, particularly in understanding which specific dimensions of service delivery significantly influence stakeholders' perceptions and the challenges encountered. There is limited local research examining how aspects such as billing, payment, accreditation, permit renewal, and business permit issuance affect stakeholders' perceptions of fish port complexes. Ports play a crucial role in both domestic and international trade, yet research on their operational dynamics, particularly in developing countries, remains limited. This gap is especially evident when examining service quality and satisfaction within the context of fish port complexes. While general research on service quality exists, studies specifically focusing on these complexes are insufficient. The lack of empirical studies dedicated to the unique challenges faced by such complexes further underscores the need for focused research that could guide improvements in service delivery.

Thus, this study aimed to address these gaps by focusing on the satisfaction level and problems across multiple dimensions, while also developing an action plan to address the identified issues. Specifically, it explored key dimensions of service delivery at the subject fish port complex in the Philippines, including billing, payment, accreditation, permit renewal, and issuance of business permits. The study also examined the significant differences in respondents' perceptions of service delivery and identified the specific problems fish brokers faced regarding service delivery at the fish port complex. Drawing on the SERVQUAL model, the study assessed service quality across dimensions such as reliability, responsiveness, and assurance. It also integrated principles from lean logistics, particularly in identifying and minimizing service bottlenecks and non-value-adding activities. The proposed strategies emphasized customer-oriented service delivery to align with port users' expectations and enhance overall operational efficiency. By focusing on this specific context, the study not only fills a gap in local research but also contributes to broader discussions on supply chain efficiency and port logistics, where streamlined service delivery can reduce transaction delays, improve stakeholder coordination, and support more resilient fisheries-based economic activity.

## LITERATURE REVIEW

This section presents readings on issues, viewpoints, concepts, and theories from authoritative books and articles. This also includes both published and unpublished study materials. The study uses cited documents and materials as a frame of reference.

### The SERVQUAL Model

This study is anchored in the SERVQUAL model, a widely applied framework for assessing service quality and customer satisfaction. SERVQUAL evaluates the gap between customers' expectations and their perceptions of actual service delivery across five key dimensions: reliability, responsiveness, assurance, empathy, and tangibles (Wider et al., 2024). This model is particularly relevant to fish port complexes, as it captures both tangible elements, such as infrastructure and equipment, and intangible aspects like service efficiency, communication, and courtesy.

Several studies have demonstrated SERVQUAL's effectiveness in evaluating service-oriented public facilities. For example, Salleh et al. (2019) highlighted the importance of balancing tangible and intangible service dimensions to ensure stakeholder satisfaction in port and terminal services. Andi and Jufriyanto (2023) further showed how SERVQUAL can guide service audits and the development of improvement strategies in marine infrastructure settings.

Drawing on these insights, the current study adopts SERVQUAL dimensions as a framework for designing the questionnaire, analyzing satisfaction levels, and categorizing service delivery issues. Each service aspect, such as billing, permit issuance, and customer interaction, was mapped to corresponding SERVQUAL dimensions to facilitate targeted analysis. This integration not only strengthens the study's methodological grounding but also ensures that recommendations align with empirically validated service quality dimensions relevant to fish port operations.

### Delivery of Services in the Fish Port Complex

The delivery of services in fish port complexes is essential to the fishing industry, supporting various operations essential for efficient fish handling, processing, and distribution. This study delves into four dimensions of service delivery and their contribution to the overall efficiency and effectiveness of the port operations.

Billing and payment services are central to operational efficiency and customer satisfaction. Research on service quality at fishing ports highlights that operational efficiency is closely linked to user satisfaction, underscoring the need for improvements in service delivery and compliance with regulatory standards (Syahrianda et al., 2024).

Moreover, the integration of systems that manage both inventory and billing has been shown to provide a comprehensive solution that automates tasks such as invoice generation and inventory management, resulting in smoother operations and improved customer satisfaction (Pawar & Patil, 2024).

Accreditation and permit renewals are also essential administrative functions that, when streamlined, can significantly enhance public satisfaction. According to Guerra-Mondragon (2016), implementing digital platforms to manage permits can reduce processing times and improve tracking, leading to increased client satisfaction. In addition, the quality of staff interactions during the renewal process plays a critical role in shaping user perceptions and overall satisfaction.

The process of issuing permits to conduct business is a key interaction point between service providers and users. Bautista (2021) identified factors influencing satisfaction in this area, including clear requirements, timely processing of applications, and staff responsiveness to inquiries. Inefficiencies or a lack of transparency in the permitting process can lead to dissatisfaction and disrupt business operations.

The relationship between service quality and stakeholder satisfaction in the delivery of services at the Fish Port Complex appears complex and context-dependent. The importance of adequate facilities and service quality, including staff friendliness and service speed, has been highlighted as critical factors enhancing customer satisfaction in port environments ([Handari et al., 2023](#)). However, while the delivery of services in the Fish Port Complex influences differences in stakeholders' perceptions, its effects may be moderated by other factors, suggesting that a direct, significant relationship may not universally apply.

In consideration of the study's objective and grounded in the SERVQUAL model, the authors propose the following null hypothesis:

Ho: There is no significant direct relationship between service quality (including tangibles, reliability, responsiveness, assurance, and empathy) and stakeholder satisfaction in the Fish Port Complex.

This hypothesis reflects the SERVQUAL assumption that service quality dimensions directly affect satisfaction, yet it also allows for the possibility that other moderating factors (such as context or operational constraints) play a pivotal role. In this way, the study aims to test and potentially challenge existing empirical findings, refining our understanding of how service quality operates in the unique environment of a Fish Port Complex.

Furthermore, this hypothesis can be supported by the SERVQUAL Model, which says that different user groups may have different expectations as well as experiences based upon their roles, needs, or interactions with the service provider. That is why these variations in understanding are critical for tailoring interventions to address specific issues.

### **Challenges in the Delivery of Services**

The delivery of services in fish port complexes faces several challenges, as highlighted by various studies. A significant issue is the inadequacy of port facilities and services, which fail to meet established standards, as seen in the Tanjungpandan Islands Fishing Port, where facilities scored only 60.46% in terms of quality and accessibility, impacting the fish supply chain negatively ([Nur et al., 2023](#)). Additionally, limited funding and regulations, along with a lack of technical innovation, hinder the development of infrastructure at ports like Banten's Labuan Fisheries Beach Port, affecting their efficiency and capacity to support the fishing industry ([Winaryanto et al., 2024](#)). Poor infrastructure, limited storage and preservation technology, and restricted market access further complicate fish distribution, as observed in Mangunsari Village, exacerbated by ineffective government policies and low community participation ([Salam & Aarsal, 2024](#)). Regulatory frameworks, while crucial, need to be more effective in enhancing port services by improving infrastructure and supporting local economies, as demonstrated in East Java's fishing ports ([Dirman, 2024](#)). These multifaceted challenges underscore the need for comprehensive strategies that address infrastructure, regulatory, and social issues to improve service delivery in fish port complexes.

### **RESEARCH METHOD**

This study employed a mixed-methods approach, combining both quantitative and qualitative data collection methods to enhance the rigor and depth of the findings. This approach, as advocated by [Pierce \(2023\)](#), is particularly effective in complex organizational settings like the Fish Port Complex, as it integrates the strengths of both quantitative and qualitative techniques.

A survey questionnaire was administered to 325 stakeholders or service users of a fish port complex within a district in the Philippines, selected through simple random sampling from a population of 2,098. This sample size, calculated using the Raosoft sample size calculator with a 95% confidence level and a 5% margin of error, was deemed sufficient to represent the target

population. Simple random sampling was chosen because it allows every stakeholder an equal chance of being selected, making it well-suited for capturing the diverse perspectives and experiences within a relatively heterogeneous user group (Noor et al, 2022).

For the quantitative part, the questionnaire was adapted from the study of Golimlim and De Castro (2023), which focused on the status of facilities and satisfaction in the delivery of services of the Philippine Fisheries Development Authority (PFDA) Bulan Fish Port Complex. Because of its similarities between the service delivery of the fish port complex, the researchers considered the same questionnaire to fit the purpose of the study. In this regard, the researchers assumed its content to be valid and reliable; thus, no further validation and reliability testing of the questionnaire items were done. The questionnaire is composed of 27 items to gather information on the respondents' perspective on four dimensions. The items in the four dimensions were measured with a five-point Likert scale: 1.00-1.49 = Very Dissatisfied; 1.50 – 2.49 = Dissatisfied; 2.50 – 3.49 = Neutral; 3.50 – 4.49 = Satisfied; and 4.50 – 5.00 = Very Satisfied.

To complement the quantitative data and gain deeper insights into fish brokers' experiences, qualitative data were collected through open-ended questions within the survey. These open-ended questions, validated by a fish port manager whose suggestions were solicited and adopted, were pre-tested with a small group of fish brokers to assess clarity, reliability, and relevance. The test allowed the researchers to refine the wording of questions, adjust the structure of the instrument, and confirm its appropriateness for the target population, thereby strengthening the overall methodological rigor of the study. Five fish brokers who have been regularly transacting business with the fish port for the last two years were selected to provide their qualitative responses on the problems besetting them. Their actual experiences with the fish port made them qualified to elaborate on their concerns and identify specific issues or service gaps that need to be addressed. The statements of these five selected fish brokers with assigned coded labels (FB1, FB2, FB3, FB4, and FB5) were quoted in this study to maintain confidentiality. Triangulation of data sources was employed through the verification of the data gathered from the different stakeholder groups, including several fish port staff. According to Carter et al. (2014), this type of triangulation is appropriate in obtaining multiple perspectives and validation of data. Moreover, thematic analysis was employed to analyze these qualitative responses, identifying key themes and recurring patterns within the data. This approach provided valuable insights into the specific challenges and concerns experienced by the stakeholders, particularly the fish brokers.

Data collection was carried out through face-to-face surveys using a paper-based questionnaire. The survey was administered from October 20 to October 30, 2024, spanning a total of 11 days. The face-to-face interviews were conducted from November 11 to November 15, 2024, covering five days, allowing for direct interaction with respondents and facilitating clarification of any questions. This approach was preferred over online alternatives due to the nature of the target population, many of whom have limited access to or familiarity with digital platforms. The in-person method ensured higher response quality, reduced misunderstanding of questions, and improved overall data reliability, making it more suitable for capturing nuanced perceptions within the Fish Port Complex.

To ensure data confidentiality, a confidentiality note was included in the questionnaire. The data were analyzed using SPSS software to present descriptive and inferential statistics. Frequency and percentage is used to present the demographic profile of the respondents, while weighted mean is employed in the assessment of the level of satisfaction with service delivery, as it offers a more precise depiction of the general trend or average by allocating weights to every data point, indicating its relative significance. The study also employed the Pearson correlation coefficient, a statistical measure of the degree of linear correlation between two variables (El-Hashash & Raga Hassan, 2022). This test is applicable as it quantifies the strength and direction of the relationship

between the four dimensions of delivery services (billing, payment, accreditation and renewal of permits, and issuance of permits to conduct business) and three dimensions of demographic profile of respondents (age, sex, and work inside the port). Assumption checks were done to ensure the appropriateness of the test; these are: the two variables used a continuous scale; variables have a linear relationship; no spurious outliers; and variables are normally distributed.

## FINDINGS AND DISCUSSION

This section outlines, examines, and interprets the data collected by the researchers, aligning it with the study's objectives.

### Profile of the Respondents

Table 1 presents the respondents' profile information.

**Table 1.** Profile of the Study Respondents

Indicator	Frequency	Percentage
<b>Age</b>		
20-30	41	13%
31-40	121	37%
41-50	102	31%
51 and above	61	19%
<b>Total</b>	<b>325</b>	<b>100%</b>
<b>Sex</b>		
Male	122	38%
Female	203	62%
<b>Total</b>	<b>325</b>	<b>100%</b>
<b>Work inside the Port</b>		
Fish Broker	129	40%
Buyer	182	56%
Ice Dealer/Crusher	14	4%
<b>Total</b>	<b>325</b>	<b>100%</b>

The data shows that the majority of respondents are buyers, middle-aged, with most falling within the 31-50 age range. Women make up the larger portion of the sample, suggesting a predominantly middle-aged, female demographic. This demographic representation aligns with research by [Rejula et al. \(2023\)](#) that women constitute approximately 75% of those engaged in fish marketing in India, highlighting their critical role in postharvest fisheries. In Nigeria, women also play a vital role in fish processing and packaging, with a majority being married and literate, which suggests a stable demographic base for these activities ([Anyim et al., 2021](#))

### Level of Satisfaction in the Delivery of Services

The following section presents the results regarding the level of satisfaction with service delivery at the Fish Port Complex. The services evaluated include Billing, Payment, Accreditation, and Renewal of Permits, as well as the Issuance of Permits to Conduct Business.

#### *Billing*

Billing is a critical service that ensures timely and accurate charges for the use of facilities and services at the port. Understanding the satisfaction level with this process helps in assessing



the effectiveness and efficiency of billing operations. Table 2 presents the detailed results regarding the level of customer satisfaction with the billing process, providing insight into areas of potential improvement.

**Table 2. Billing**

<b>Statement</b>	<b>Weighted Mean</b>	<b>Description</b>
Attends to clients politely	3.57	Satisfied
Attends to the client promptly.	3.58	Satisfied
Shows sufficient knowledge and ability towards the process.	3.60	Satisfied
Shows honesty during the process	3.57	Satisfied
Explains to clients the importance of the document.	3.56	Satisfied
Advises the clients when to pay and the consequences of not meeting the due date.	3.58	Satisfied
<b>Average Weighted Mean</b>	<b>3.57</b>	<b>Satisfied</b>

Table 2 shows the level of satisfaction in the delivery of services related to billing, with an overall average weighted mean of 3.57, indicating that respondents are generally satisfied with the service. Respondents expressed the highest level of satisfaction regarding the staff's knowledge and ability in handling the billing process, as well as advising clients on payment schedules and the consequences of late payments. This suggests that respondents appreciate the staff's expertise and guidance in these areas. However, the lowest satisfaction rating pertains to explaining the importance of the documents, indicating a potential area for improvement. While respondents are still satisfied, better communication about the significance of billing documents may further enhance the service.

The low satisfaction rating regarding the explanation of the importance of billing documents at the Fish Port Complex highlights a critical area for improvement in service delivery. Enhancing communication about the significance of these documents could lead to better customer understanding and satisfaction, as effective document handling is crucial for operational efficiency in port services ([Handari et al., 2023](#)). By clearly explaining the role and benefits of accurate and timely document submission, the Fish Port Complex will not only build trust and transparency with stakeholders but also reduce delays and errors in processing. In practical terms, this improvement can streamline billing and record-keeping, minimize operational bottlenecks, and ultimately support the overall efficiency, reliability, and sustainability of the port's services.

#### *Payment*

Payment is an essential aspect of service delivery, ensuring that transactions between the port and its users are processed smoothly and efficiently. Understanding the satisfaction level with payment procedures helps measure the convenience, reliability, and timeliness of this service. Table 3 presents the detailed results regarding the level of customer satisfaction with the payment process, offering valuable insights into the overall experience and areas of potential improvement.

**Table 3. Payment**

<b>Statement</b>	<b>Weighted Mean</b>	<b>Description</b>
Attends the client promptly.	3.56	Satisfied

Statement	Weighted Mean	Description
Shows sufficient knowledge and ability in the process	3.59	Satisfied
Shows honesty during the process	3.58	Satisfied
Explains the payment process	3.61	Satisfied
Attends to clients politely	3.52	Satisfied
<b>Average Weighted Mean</b>	<b>3.57</b>	Satisfied

Table 3 shows the level of satisfaction in the delivery of services related to payments, with an overall average weighted mean of 3.57, indicating that respondents are generally satisfied with the payment process. Respondents expressed the highest satisfaction regarding the staff's honesty and knowledge during the payment process, suggesting that these attributes are key strengths in service delivery. However, the lowest satisfaction rating was observed for staff politeness, indicating that while respondents are still satisfied, there is room for improvement in this area. Enhancing staff politeness could further elevate the satisfaction level.

The study of [Syahrianda et al. \(2024\)](#) supported this finding, highlighting that service quality dimensions, including empathy and assurance, are critical in influencing user satisfaction at ports, with deficits noted in these areas at various facilities. Furthermore, a study in the food and beverage sector emphasized the importance of customer support and service elements, suggesting that a focus on staff interactions, including politeness, can substantially elevate satisfaction levels ([Dharmayanti et al., 2024](#)). The findings of the present study and those of Syahrianda et al. and Dharmayanti et al. collectively emphasize the importance of not only staff expertise but also interpersonal skills in enhancing the overall customer experience during payment transactions.

#### ***Accreditation and Renewal of Permits***

Accreditation and renewal of permits is a key service that ensures businesses operating within the Fish Port Complex meet regulatory standards and maintain their operational status. Understanding the satisfaction level with this process is vital for assessing the efficiency, clarity, and timeliness of the permit renewal system. Table 4 presents the detailed results regarding customer satisfaction with the accreditation and renewal of permits, highlighting areas of strength and opportunities for improvement.

**Table 4.** Accreditation and Renewal of Permits

Statement	Weighted Mean	Description
Attends to clients politely	3.55	Satisfied
Attends to the client promptly.	3.60	Satisfied
Shows sufficient knowledge and ability toward the process.	3.51	Satisfied
Provide a checklist of requirements	3.57	Satisfied
Checks the completeness, correctness, and accuracy of the requirements	3.52	Satisfied
Attends to other queries related to the application	3.55	Satisfied
Explains the accreditation and renewal process.	3.58	Satisfied
Advises clients when to claim the documents once available	3.60	Satisfied



Statement	Weighted Mean	Description
Informs applicants the availability of requested documents through text message or phone call	3.60	Satisfied
<b>Average Weighted Mean</b>	<b>3.55</b>	Satisfied

Table 4 shows the level of satisfaction in the delivery of services related to accreditation and renewal of permits, with an overall average weighted mean of 3.57, indicating that the services meet customer expectations in terms of timeliness, communication, and procedural efficiency. The highest-rated aspects, such as prompt client attention, timely updates, and clear communication, underscore the importance of these factors in fostering satisfaction. However, the slightly lower scores in staff knowledge and ability highlight an area for improvement, suggesting the need for enhanced technical training to strengthen service delivery.

These findings align with prior studies, which emphasized the critical role of key service quality dimensions in shaping positive customer experiences. The study of [Taylor \(2024\)](#) highlighted the pivotal role of reliability, responsiveness, and assurance in influencing customer perceptions and satisfaction. Similarly, [Syahrianda et al. \(2024\)](#) found that user satisfaction at Belawan Samudera Fishing Port was significantly influenced by these dimensions, with a notable emphasis on improving empathy and assurance to meet regulatory standards. Collectively, these studies support the findings of this research, affirming that a combination of responsiveness, effective communication, and expertise is essential for achieving high levels of client satisfaction in service delivery.

#### *Issuance of Permit to Conduct Business*

Issuance of permits to conduct business is a crucial service that enables businesses to legally operate within the Fish Port Complex, ensuring compliance with regulatory requirements. Understanding the satisfaction level with this process helps assess the ease, transparency, and efficiency of obtaining permits. Table 5 presents the detailed results regarding customer satisfaction with the issuance of permits to conduct business, offering insights into the overall effectiveness of this service and identifying areas for potential improvement.

**Table 5.** Issuance of Permit to Conduct Business

Statement	Weighted Mean	Description
Attends to clients politely	3.55	Satisfied
Attends to the client promptly.	3.54	Satisfied
Shows sufficient knowledge and ability in the process	3.60	Satisfied
Explains the process	3.60	Satisfied
Explains to clients the purpose and importance of having certification	3.58	Satisfied
Attends to other queries related to PTCB	3.61	Satisfied
Explains to clients the correct procedure and requirements before being issued a PTCB certification	3.59	Satisfied
<b>Average Weighted Mean</b>	<b>3.58</b>	Satisfied

Table 5 presents the level of satisfaction in the delivery of services related to accreditation and renewal of permits, with an overall average weighted mean of 3.58, indicating general satisfaction among respondents. This satisfaction is particularly evident in areas where staff

demonstrated strong expertise and communication skills. Respondents highly rated the staff's effectiveness in addressing client inquiries, demonstrating their knowledge, and explaining processes clearly. With trained staff, the level of satisfaction of the clients with the service quality of the organization is expected to increase (De Ramos & Briones, 2024; Parilla et al., 2022). However, the lowest-rated aspect, promptness, suggests a need for improvement in response times to further enhance overall satisfaction. Furthermore, the implementation of technology, such as a computer platform for managing permits, has been shown to streamline processes and reduce application times, potentially increasing customer satisfaction (Guerra-Mondragon, 2016). This aligns with the finding regarding the importance of promptness, as technology can contribute to faster service delivery.

### Significant Differences in the Respondents' Perception of the Level of Satisfaction in the Delivery of Services

The relationships between four dimensions of delivery services and three dimensions of demographic profile were analyzed using by Pearson correlation coefficient. In reference to the null hypothesis described by the researchers that there is no significant difference among respondents' perceptions of delivery services in the Fish Port Complex, Table 6 presents the results of the statistical analysis.

**Table 6.** Significant Difference in the Respondents' Perception of the Level of Satisfaction in the Delivery of Services

Delivery of Services	Demographic Profile	p-value	Interpretation
<b>Billing</b>	Age	0.378	Not Significant
	Sex	0.776	Not Significant
	Work Inside the Port	0.561	Not Significant
<b>Payment</b>	Age	0.807	Not Significant
	Sex	0.834	Not Significant
	Work Inside the Port	0.511	Not Significant
<b>Accreditation &amp; Renewal of Permits</b>	Age	0.732	Not Significant
	Sex	0.548	Not Significant
	Work Inside the Port	0.807	Not Significant
<b>Issuance of Permits to Conduct Business</b>	Age	0.646	Not Significant
	Sex	0.474	Not Significant
	Work Inside the Port	0.608	Not Significant

The analysis reveals that there are no significant differences in respondents' satisfaction levels across demographic variables such as age, sex, or whether they work inside the port, when considering four service areas: billing, payment, accreditation and renewal of permits, and issuance of permits. Therefore, the null hypothesis is accepted. This finding suggests that these services are being delivered consistently across different demographic groups, demonstrating fairness and uniformity in their delivery. This finding likewise implies that the respondents, regardless of demographic or stakeholder differences, are in the same opinion in terms of the acceptable satisfaction level relative to the services provided by the fish port complex.

This aligns with previous researches that emphasize the importance of fair and consistent service delivery in enhancing satisfaction across various groups. [Liu and Salari \(2024\)](#) found that implementing fair solutions in service delivery improved fairness measures by up to 98% with minimal impact on overall service quality. Similarly, the development of a continuous berth allocation algorithm maximizes fairness by optimizing operational efficiency while considering the varying needs of vessels ([Yuping et al., 2017](#)). Regulations aimed at improving fishing port services further demonstrate a positive relationship between governance and service quality, enhancing accessibility and service delivery for diverse user groups ([Dirman, 2024](#)). Studies on fishing ports in Indonesia and Gunungkidul also supported these findings, highlighting high user satisfaction with no significant demographic disparities ([Syahrianda et al., 2024](#); [Gede et al., 2022](#)).

Overall, these findings underscore the importance of delivering standardized and consistent services in public settings, such as the Fish Port Complex, to ensure equitable satisfaction across all users. In terms of the practical application of the results of the study, the fish port complex should at least maintain or make further operational improvements in the service delivery across functional areas of billing, payment, accreditation and renewal of permits, and issuance of permits to fully satisfy their stakeholders, regardless of demographic differences.

### **Problems Encountered by the Respondents in the Delivery of Services of Fish Port Complex**

The issues that fish broker respondents had with the delivery of services at the Fish Port Complex are compiled in Table 7. It provides a comprehensive analysis of the identified problems, highlighting recurring themes that offer valuable insights into the key challenges faced. These details are used to prioritize areas for service delivery improvement and to comprehend the main issues that fish brokers experience.

**Table 7.** Problems Encountered by the Fish Broker Respondents on the Delivery of Services of Fish Port Complex

<b>Service Delivery of the Fish Port Complex</b>	<b>Problems Identified</b>
Billing and Payment	Lack of Clarity in Billing Irregular Bill Delivery Delays in Bill Delivery Delays in Updating Accounts Incorrect Payment Deductions Poor Customer Service Unexpected Charges
Accreditation and Permit Renewal, and Issuance of Permit to Operate	Complexity of Requirements and Documentation Delays in Processing and Response Times Technical Challenges with Online Systems
Overall Service Delivery	Slow Processing Time Lack of Clear Communication Excessive Bureaucratic Requirements

The satisfaction level in the delivery of services at the Fish Port Complex is affected by various billing and payment issues. Fish broker respondents reported a lack of clarity in billing, irregular and delayed bill delivery, and delays in updating accounts, leading to confusion and frustration. Additionally, incorrect payment deductions, unexpected charges, and poor customer service further contribute to dissatisfaction, eroding trust in the efficiency and reliability of the

billing system. These concerns were clearly indicated in the following statements:

*"The billing statement is sometimes delivered late, and there are times the details in the billing statement are not clearly presented." – FB1*

*"Billing statement is not consistently delivered promptly". – FB2*

*"There are times when there are changes in the billing statement, but the customer is not informed. This concern leads to the delay in updating the customer account." – FB3*

*"The process is often slow, and sometimes I encountered poor service in terms of providing immediate response to my queries regarding their billing and payment concerns." – FB4*

*"There are charges that are not clearly indicated in the initial agreement." – FB5*

Addressing these concerns through improved transparency, timely billing updates, and enhanced customer support could significantly improve user satisfaction. Several studies supported the idea that clearer billing processes and better communication can significantly improve client satisfaction and trust ([American Hospital Association, 2021](#); [Metz et al., 2020](#)). Without addressing these problems, the overall satisfaction with billing services is likely to remain low.

Similarly, accreditation and permit renewal processes, and permit issuance are hindered by complex requirements, lengthy documentation, and delays, which frustrate clients, particularly small businesses. The paperwork involved is often seen as excessive and confusing, leading to errors and delays that further contribute to dissatisfaction. FB1, FB2 and FB3 shared:

*"While there are too many documents required for submission, the guidelines are not clearly indicated." – FB1*

*"I encountered technical challenges with the online system regarding the submission of required documents." – FB2*

*"I encountered delays in the approval of my accreditation and permit renewal, which affected my business operations" – FB3*

Similarly, FB4 and FB5 noted the complexity of documentation required:

*"The process is complex and takes time before the permit can be issued." – FB 4*

*"There are too many documentation processes required before the permit can be issued. I have experienced talking to almost everyone in the office just to process my documents." – FB5*

This is consistent with [Guerra-Mondragon's \(2016\)](#) findings, which highlighted that excessive paperwork often leads to confusion, errors, and further delays, intensifying client dissatisfaction. Furthermore, [Bell-James et al. \(2023\)](#) reiterated that the bureaucratic nature of permitting processes across sectors stifles innovation and discourages stakeholders from pursuing high-potential projects due to the cumbersome task of obtaining necessary permits. The lack of integration among governmental agencies further exacerbates the issue, resulting in prolonged

approval times that can take years, thus hindering economic development and operational efficiency (Kaiser et al., 2013). Implementing streamlined systems, such as e-licensing and one-stop shops, has been suggested to alleviate these challenges and enhance the overall experience.

Moreover, the overall service delivery is affected by systemic inefficiencies, such as slow processing times, bureaucratic hurdles, and unclear regulations. These are evident in the statements of FB1, FB3, and FB5.

*“Slow processing of documents is very evident. I have to wait for hours just to my finish my transaction with them”. – FB1*

*“There are some guidelines being imposed which are not clearly provided to all stakeholders.” – FB3*

*“Sometimes there are no clear coordination between the port management and their stakeholders.” – FB5*

These challenges, according to the interviewed fish brokers, significantly diminish client trust and overall satisfaction. Without addressing these systemic issues, the fish port's service delivery will continue to fall short of client expectations, underscoring the urgent need for reforms. According to Dewangan and Rao (2024), effective service operations enhance customer satisfaction.

### **Proposed Strategies for Improving the Overall Service Quality of the Fish Port Complex**

Table 8 outlines the proposed strategies for improving the overall service quality of the Fish Port Complex, focusing on enhancing communication, streamlining processes, and increasing customer satisfaction through staff training and technological improvements.

**Table 8.** Proposed Strategies for Improving the Overall Service Quality of the Fish Port Complex

<b>Indicators</b>	<b>Proposed Strategies</b>	<b>Expected Outcomes</b>
Billing	Improve communication on the importance of billing documents through clear explanations and documentation. Provide more transparency and detail in the billing process	Enhanced customer understanding, leading to improved satisfaction and fewer billing-related inquiries.
Payment	Improve staff politeness and customer service training, along with more convenient payment options (e.g., online portals or faster processing systems).	Increased customer satisfaction due to smoother transactions, improved staff-client interactions, and timely payments.
Accreditation & Renewal of Permits	Simplify the application process by providing clear guidelines, reducing paperwork, and improving staff knowledge through regular training. Implement e-licensing systems	Faster and more efficient permit renewal process, reduced delays, and improved customer satisfaction.

	for faster processing.	
Issuance of Permits to Conduct Business	Automate parts of the process, provide detailed process guidance, and ensure faster response times. Increase use of technology for tracking and updating permit applications.	Faster permit processing, increased transparency, reduced customer frustration, and better regulatory compliance.

The proposed strategies aim to enhance the service quality of the Fish Port Complex by focusing on key areas: improving communication, increasing transparency, streamlining processes, and leveraging technology. This multifaceted approach is expected to lead to greater customer satisfaction, faster processing times, and improved regulatory compliance. As noted by [Syahrianda et al. \(2024\)](#) in their study of Belawan Samudera Fishing Port, enhancing operational efficiency through better regulatory compliance and quality management is crucial for achieving high levels of user satisfaction. Their research highlighted deficits in empathy and assurance at this port, emphasizing the importance of addressing these service quality dimensions. This is further supported by [Nur et al. \(2023\)](#), who found that addressing facility deficiencies and improving service performance at Tanjungpandan Islands Fishing Port can significantly bolster the fish supply chain. On the other hand, [Chibaro et al. \(2024\)](#) and [Chaudhary and Niroula \(2023\)](#) considered that the use of innovative technologies can also provide a positive impact on service delivery improvements.

## CONCLUSION

This study highlighted the level of stakeholder satisfaction in the delivery of services of the fish port complex. The respondents, primarily middle-aged buyers within the complex, are a key stakeholder group whose satisfaction significantly impacts the overall success of the port's operations. In terms of the level of satisfaction in the delivery of services of the fish port complex, the findings revealed that the respondents are generally satisfied with the services in terms of billing, payment, accreditation and renewal of permits, and issuance of permits to conduct business. This implies that the fish port complex has an acceptable delivery of services catering to the needs of its stakeholders. The test of significant differences on the stakeholders' perceptions on the level of satisfaction in the delivery of services revealed no significant differences. This indicates that respondents, regardless of demographic differences, perceive that the services of the fish port complex are being delivered consistently across different demographic groups.

Moreover, among the significant problems of the fish brokers regarding the service delivery are billing and payment issues, bureaucratic delays, slow processing, and complex permit processes, all of which need to be addressed to enhance overall service delivery and customer trust. The proposed strategies forwarded by the researchers aim to enhance the service quality of the fish port complex, focusing on improving communication, increasing transparency, streamlining processes, and leveraging technology. These initiatives, such as implementing online platforms for permit applications and renewals, providing clear and concise information on fees and procedures, and conducting regular stakeholder consultations, are expected to improve service quality, if not fully eliminate operational inefficiencies, and enhance the overall user experience.

In conclusion, the study empirically validated the relevance of SERVQUAL dimensions in understanding the operational practices of a fish port complex. While stakeholders expect a high level of satisfaction with the delivery of services, management of the fish port complex should always strive to deliver excellent services at all times. Thus, this study serves as a reference as to



what service areas to improve to increase the satisfaction of its stakeholders. It also contributes to management practice as port managers can use the data on stakeholders' satisfaction to justify investments in improving fish port service quality in order to further enhance the efficiency of its logistics management.

### LIMITATIONS AND FURTHER RESEARCH

Despite the valuable insights gained from this study, certain limitations must be acknowledged. The research focused on customer satisfaction in port operations within a specific setting, which may not fully represent the broader experiences of port users across different locations. As a result, the findings may not be entirely generalizable to all port facilities, industries, or regions that rely on similar services. Variations in infrastructure, regulatory environments, and customer expectations across different ports could influence service perceptions and satisfaction levels differently. Moreover, the study focused exclusively on four dimensions of service delivery: billing, payment, accreditation and renewal of permits, and issuance of permits to conduct business. The exclusion of other dimensions, such as facilities management, logistics services, and other service procedures, may result in an incomplete understanding of service delivery areas of the fish port complex.

The researchers suggest that future research should include a more diverse representation of the fisheries industry and expand the sample to cover a broader range of stakeholders and users of fish port complexes across the country. Involving a larger and more diverse pool of stakeholders could improve the generalizability of the findings and offer a more comprehensive understanding of the level of satisfaction and problems in the fish port complex. Likewise, inclusion of other dimensions not considered in the study would provide richer insights into customer grievances and service improvement strategies. Finally, for future research, this study could serve as a preliminary study to examine the cause-and-effect relationships between the research variables employed in the study.

### REFERENCES

- Andi, A., & Jufriyanto, M. (2023). Integration of the SERVQUAL, IPA, and CSI methods to analyze customer satisfaction. *SITEKIN: Jurnal Sains, Teknologi dan Industri*, 21(1), 42–50. <https://doi.org/10.24014/sitekin.v21i1.23017>
- Anyim, C. O., Odoemelum, L. E., & Okorie, N. U. (2021). Women's participation in fish processing and packaging in rural communities of Delta State, Nigeria. *Journal of Agricultural Extension and Rural Development*, 13(1), 34–43. <https://doi.org/10.5897/jaerd2020.1172>
- American Hospital Association. (2021). *Improving the patient billing experience: Strategic imperative for hospitals and health systems* (pp. 1–4). [https://www.aha.org/system/files/media/file/2021/10/Improving-Patient-Billing-Experience\\_IB\\_Final\\_10-22-21.pdf](https://www.aha.org/system/files/media/file/2021/10/Improving-Patient-Billing-Experience_IB_Final_10-22-21.pdf)
- Ba Awain, A., Sulaiman, M., Sheyadi, A., & Al-Ansi, A. (2024). Logistics service quality and customer satisfaction: Evidence from Salalah Port in Oman. *Journal of Infrastructure, Policy and Development*, 8(14), 8054. <https://doi.org/10.24294/jipd8054>
- Bautista, M. L. (2021). Efficiency in business permitting processes: A study on service quality in public administration. *Journal of Public Service Management*, 15(2), 125–138. <https://doi.org/10.4324/9781351059671-9>
- Bell-James, J., Foster, R., & Shumway, N. (2023). The permitting process for marine and coastal restoration: A barrier to achieving global restoration targets? *Conservation Science and Practice*, 5(12). <https://doi.org/10.1111/csp2.13050>
- Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation

- in qualitative research. *Oncology Nursing Forum*, 41(5), 545–547. <https://doi.org/10.1188/14.ONF.545-547>
- Chaudhary, P., & Niroula, P. K. (2023). Third-party logistics practices in e-commerce of Nepal: A narrative study of the supply chain professionals. *Logistic and Operation Management Research (LOMR)*, 2(2), 58–71. <https://doi.org/10.31098/lomr.v2i2.1871>
- Chibaro, M., Mataba, A. T., & Mupfiga, C. (2024). Influence of warehouse management practices on service delivery in Zimbabwean local authorities. *Logistic and Operation Management Research (LOMR)*, 3(1), 1–16. <https://doi.org/10.31098/lomr.v3i1.1882>
- De Ramos, J. R., & Briones, J. P. (2024). Level of functioning of service quality of a private higher education institution in the Philippines: Personnel and student perspectives. *Education Policy and Development*, 2(2), 28–45. <https://doi.org/10.31098/epd.v2i2.2365>
- Dewangan, A., & Rao, V. S. (2024). Enhancing customer satisfaction through effective operations management. *International Journal of Advances in Engineering and Management*, 6(5), 637–646. [https://ijaem.net/issue\\_dcp/Enhancing%20Customer%20Satisfaction%20through%20Effective%20Operations%20Management.pdf](https://ijaem.net/issue_dcp/Enhancing%20Customer%20Satisfaction%20through%20Effective%20Operations%20Management.pdf)
- Dharmayanti, D., Anak Agung Ayu Puty Andrina, & Nur Fathin Shaida Muhammad Nadhirin. (2024). Factors influencing customer satisfaction in the food and beverage industry: A case study of Fish Grill Company. *Review of Management and Entrepreneurship*, 8(2), 181–195. <https://doi.org/10.37715/rme.v8i02.5144>
- Dirman, E. N. (2024). The effectiveness of regulation in improving the fishing port services. *Jurnal Pembangunan dan Alam Lestari*, 15(2), 67–76. <https://doi.org/10.21776/ub.jp.al.2024.015.02.02>
- El-Hashash, E. F., & Raga Hassan, A. S. (2022). A comparison of the Pearson, Spearman rank, and Kendall tau correlation coefficients using quantitative variables. *Asian Journal of Probability and Statistics*, 20(3), 36–48. <https://doi.org/10.9734/ajpas/2022/v20i3425>
- Gede, I. I. G. S. A. P., Suadi, S., & Budhiyanti, S. A. (2022). Users' satisfaction levels toward Sadeng Coastal Fishing Port service at Gunungkidul Regency. *Marine Fisheries: Journal of Marine Fisheries Technology and Management*, 13(2), 149–160. <https://doi.org/10.29244/jmf.v13i2.41020>
- Golimlim, J. T. F., & De Castro, E. G. (2023). Status of facilities and satisfaction in the delivery of services of Philippine Fisheries Development Authority–Bulan Fish Port Complex. *United International Journal for Research and Technology*, 4(7), 33–45. <https://uijrt.com/articles/v4/i7/UIJRTV4I70005.pdf>
- Guerra-Mondragon, M. (2016). *System and method for managing and handling permits*. FreePatentsOnline. <https://www.freepatentsonline.com/y2016/0300239.html>
- Handari, W., Haniifah Putri, D., Alam, S., & Errol, J. V. (2023). Pengaruh fasilitas dan kualitas layanan pelabuhan terhadap kepuasan pelanggan. *Public Service and Governance Journal*, 4(1), 124–130. <https://doi.org/10.56444/psgj.v4i1.818>
- Kaiser, I. M., Bezerra, B. S., & Ivana, L. (2013). Is the environmental policies procedures a barrier to development of inland navigation and port management? A case study in Brazil. *Transportation Research Part A: Policy and Practice*, 47, 78–86. <https://doi.org/10.1016/j.tra.2012.10.025>
- Liu, S., & Salari, N. (2024). Fairness in accessibility of public service facilities. *Operations Research Letters*, 55, 107141. <https://doi.org/10.1016/j.orl.2024.107141>
- Mermertaş, F. (2024). Investigating the effect of service quality on customer satisfaction: The case of Mersin International Port. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 64, 199–213. <https://doi.org/10.30794/pausbed.1445607>

- Metz, D., Ilieş, L., & Nistor, R. L. (2020). The impact of organizational culture on customer service effectiveness from a sustainability perspective. *Sustainability*, 12(15), 6240. <https://doi.org/10.3390/su12156240>
- Noor, S., Tajik, O., & Golzar, J. (2022). Simple random sampling. *International Journal of Education & Language Studies*, 1(2), 78–82. <https://doi.org/10.22034/ijels.2022.162982>
- Nur, F., Suadi, S., & Suwarman, S. (2023). Enhancing fishing port services quality to support fish supply chains of the island fisheries at Belitung Island. *Jurnal Perikanan Universitas Gadjah Mada*, 25(1), 31–40. <https://doi.org/10.22146/jfs.82811>
- Parilla, E., Evangelista, J., Aurelio, R., & Bullalayao, C. (2022). Inventory management practices and service delivery of healthcare facilities in Ilocos Norte, Philippines. *Logistic and Operation Management Research (LOMR)*, 1(1), 16–33. <https://doi.org/10.31098/lomr.v1i1.919>
- Pawar, V., & Patil, V. (2024). Inventory and bill management system. *International Journal of Advanced Research in Science Communication and Technology*, 4(3), 512–520. <https://doi.org/10.48175/IJAR SCT-17279>
- Pierce, C. (2023). Mixed methods action research: A creative and comprehensive research approach for complex practical problems. In *Edward Elgar Publishing EBooks* (pp. 365–380). <https://doi.org/10.4337/9781800887954.00033>
- Rejula, K., Ashaletha, S., Suresh, A., Gopal, N., & Mohanty, A. K. (2023). Women fish vendors in Kerala, India: An analytical study of access to inputs and services. *Gender, Technology and Development*, 27(3), 387–399. <https://doi.org/10.1080/09718524.2023.2260656>
- Salam, G. A., & Arsal, T. (2024). Problems faced by fishermen in distributing fish catches in Batang Regency. *Jurnal Sosiologi Dialektika Sosial*, 10(2), 156–166. <https://doi.org/10.29103/jsds.v10i2.17326>  
(Note: halaman asli “156–156” tampaknya salah; jika benar 1 halaman, tetap boleh.)
- Salleh, M. Z. M., Abdullah, A., Nawli, N. C., & Muhammad, M. Z. (2019). Assessing the service quality and customer satisfaction on Islamic banking by using SERVQUAL model. *Research in World Economy*, 10(2), 79–90. <https://doi.org/10.5430/rwe.v10n2p79>
- Sukati, I., Husda, N. E., Wangdra, Y., Suhardi, & Realize. (2024). Logistics service quality and customer satisfaction: Evidence from Salalah Port Oman. *Journal of Ecohumanism*, 3(6), 1–20. <https://doi.org/10.62754/joe.v3i6.3887>
- Swée, Y., Quincy, A., Atienza, L., Catapang, P., Mae, M., Dapul, C., Lei, D., Ilao, A., Lynette, L., Lara, S., & Felicen. (2019). Service quality of Batangas Port: Basis for a proposed action plan. *Asia Pacific Journal of Academic Research in Business Administration*, 5(1), 101–109. <https://research.lpubatangas.edu.ph/wp-content/uploads/2019/08/APJARBA-2019-012.pdf>
- Syahrianda, D. A., Suadi, S., & Djumanto, D. (2024). Service excellence at sea: User satisfaction with Belawan Samudera Fishing Port, Indonesia. *Maritime Technology and Research*, 7(1), 270067. <https://doi.org/10.33175/mtr.2025.270067>
- Taylor, R. (2024). Unveiling customers’ perceptions: A comprehensive analysis of service quality dimensions. *The USA Journals: The American Journal of Management and Economics Innovations*, 6(4), 1–6. <https://doi.org/10.37547/tajmei/volume06issue04-01>
- Wider, W., Tan, F. P., Tan, Y. P., Lin, J., Fauzi, M. A., Wong, L. S., Tanucan, J. C., & Hossain, S. F. A. (2024). Service quality (SERVQUAL) model in private higher education institutions: A bibliometric analysis of past, present, and future prospects. *Social Sciences & Humanities Open*, 9, 100805. <https://doi.org/10.1016/j.ssaho.2024.100805>
- Winaryanto, A. P., Ma’ruf Efendi, Muhammad, & Najwa Shannaya. (2024). Analysis of conditions and challenges in the development of facilities and infrastructure at fishery beach ports: Case study of BPPP Labuan Banten. *Jurnal Penelitian Ilmu Manajemen*, 8(3), 517–522.

<https://www.researchgate.net/publication/380922024>

Yuping, W., Zhe, X., Youfang, H., Yangyang, H., & Tianyi, G. (2017). Study of continuous berth allocation algorithm based on fairness maximization. *Journal of Engineering Science and Technology Review*, 10(5), 116–127. <https://doi.org/10.25103/jestr.105.15>