Profitability Analysis of Crayfish Harvesting in Oron Business Cluster of Akwa Ibom State, Nigeria

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ABSTRACT

Crayfish production involves crayfish harvesting, which is a prominent livelihood activity in many coastal and riverine communities in Nigeria. The study analyzes the profitability of crayfish harvesting in Oron Business Cluster in Akwa Ibom. The specific objectives were to; describe the socio-economic profile of crayfish harvesters in the study area; analyze the cost structure, revenue profile and returns of crayfish harvesters; examine the determinants of profitability in crayfish production and identify the constraints militating against crayfish harvesting in the study area. A multistage sampling procedure was used in selecting 129 respondents for the study. Primary data were obtained using structured questionnaire and the data obtained were analyzed using descriptive statistics, budgetary analysis, multiple linear regression analysis and Henry Garrett ranking method. The results showed that crayfish harvesting in the study area was entirely dominated by males, with 100.0% of respondents being male. The average age of the respondents was 36 years while marital status further shows that 93.0% of the respondents were married, while only 7.0% were single. The profitability analysis results showed that crayfish harvesting is profitable with a net revenue of ₦5,546,976. On a per-trip basis, revenue was ₦345,600.00 compared with a total cost of ₦40,790.40, producing a net return of ₦100,848.00. The determinants of profitability were age, household size, experience, crew size and membership of cooperative. The major constraints were large start-up capital and high cost of equipment in the study area. Based on the findings, the study recommends that Akwa Ibom State Ministry of Agriculture and commercial micro-lenders should establish revolving, low-interest credit schemes structured around seasonal catch cycles to enable harvesters to purchase outboard engines and nets without incurring predatory debt.

Keywords: Harvesting, Profitability, Business Clusters

BACKGROUND STUDY

One of the most important components of the stream ecosystem is crayfish (Galib, Sun, Gröcke & Lucas**,** 2022) they are significant links in the complex aquatic and terrestrial food webs in the ecosystem and by their feeding, burrowing and foraging activities, they help to maintain a high level of water quality in our streams which has great benefit to human lives. Crayfish production involves crayfish harvesting (Dvoretsky & Dvoretsky, 2025), which is a prominent livelihood activity in many coastal and riverine communities in Nigeria, contributing to rural incomes, food security, and local employment (George, Akinrotimi & Nwokoma, 2021). Globally, crayfish are typically marketed live and consumed fresh or boiled; however, the Nigerian market relies primarily on smoked and sun-dried crayfish as essential culinary ingredients nationwide, particularly within the southern states. Additionally, because these organisms are strictly aquatic, crustaceans like crayfish, shrimp, and crabs alongside other marine fauna enjoy widespread acceptance across diverse cultural, traditional, and religious demographics in Nigeria.

In Akwa Ibom State, and specifically within the Oron Business Cluster, crayfish production serves as a daytime occupation for fishers, traders, and small-scale processors, linking upstream input suppliers with downstream markets that include domestic consumers and urban traders (Etim, 2022; Effiong, Akwo & Samuel, 2024). The sector's appeal lies in relatively short production cycles, low entry barriers, and the potential for value addition through processing and marketing. According to Esheya (2023), understanding the cost structure and returns of crayfish production in this locale is essential for assessing profitability, informing targeted rural development policies, and guiding investment in inland and coastal fisheries value chains. This study situates the Oron cluster within Akwa Ibom's broader aquaculture and capture-fisheries framework, acknowledging that factors such as seasonality, access to credit, infrastructure, and market access shape production decisions and economic outcomes. By quantifying costs, revenues, and profitability indicators, the research aims to illuminate the economic viability of crayfish harvesting and its contribution to household welfare and community development in Oron based on the potentials of crayfish production.

While previous studies have examined crayfish marketing and processing in Akwa Ibom State and other regions, few have focused specifically on the harvesting stage of the value chain, and none have provided a comprehensive profitability analysis within the Oron Business Cluster context. The present study addresses this gap by quantifying the cost structure, revenue profile, and returns to crayfish harvesting, while also identifying the socio-economic determinants of profitability and the constraints facing harvesters. This analysis provides the empirical basis for targeted policy interventions to support the sustainability and profitability of this important livelihood activity." This would strengthen the logical progression from the literature review to the study objectives.

LITERATURE REVIEW

Esheya (2023) analyzed the profitability of crayfish marketing in the South-South states of Nigeria. The specific objectives were to; estimate the profitability of crayfish marketing; examine the factors influencing gross margin in crayfish marketing; and describing the constraints to crayfish marketing in the study area. Data were analyzed using gross margin formulae, an ordinary least square model and a four-point likert type rating scale. The result showed that the total gross margin realized by crayfish marketers was ₦2,748,650 in the study area. The major factors influencing the gross margin of crayfish marketers were age, marketing experience, market levy, labour cost and shop rent.

Similarly, Chinasa, Nnanna and Ekene (2017) assessed farmer's practices in processing and marketing of crayfish in Akwa-Ibom State, Nigeria. Ninety crayfish farmers systematically selected from two zones, four blocks and twelve circles formed sample for the study. Data obtained were analyzed using percentage, mean score and multiple regression. Findings show that the majority (95.6%) of the respondents processed their crayfish by smoking, using fire wood (87.7%). On the average, they produced 12.52 bags (1bag=19 kg) of crayfish monthly and packaged/stored them in big cellophane (73.3%) and raffia (72.2%) bags. They earned ₦169,000 and made expenses worth ₦57,400 monthly from crayfish business. Hence, their monthly profit was ₦111,600. The determinants of monthly income of the crayfish farmers were age and quantity (bags) of crayfish processed in a month. The constraints were inability to pay for labour during processing due to lack of cash and having eye problem due to smoke from the open fire and backache due to prolonged bending down during smoking/processing of crayfish, unavailability of credit and competition from other crayfish marketers.

Ahamefule, Okpara, and Peter (2021) carried out a study on "Economic Analysis of Crayfish Processing in Akwa Ibom State, Nigeria". Multistage random sampling procedure was used to select 120 crayfish producers. Quantitative analytical techniques were employed in the analysis. Socioeconomic characteristics and constraints were assessed using descriptive statistical tools, while the level of profit and its determinants were evaluated using the farm budgeting technique and ordinary least square multiple regression techniques, respectively. Crayfish production is a profitable venture with a return on investment of ₦45,585.1. Primary occupation, household size, processing experience, and quantity processed positively affected the performance of the enterprise while labor cost, association membership, and processing costs negatively influenced the enterprise.

METHODOLOGY

Study Area

The Oron business cluster is comprised of five Local Government Areas (LGAs) in Akwa Ibom State, namely; Oron, Udung-Uko, Mbo, Urue-Offong/Oruko, and Okobo (Figure 3.1). The area is located within the Coordinates of 5°3′N and 7°56′E. It is inhabited by the people of Oro, the third largest ethnic group in the state. Its political and economic headquarters is Oron town which is the third largest city in Akwa Ibom state after Uyo and Eket. Lying on the Cross River, the predominant occupation is fishing and farming. Oron is found in the flood plain of South Eastern Nigeria, with the land mainly intersected by numerous streams and tributaries flowing into Cross River. The estimated catch composition of the artisanal maritime fishery of the Cross River basin is as follows; Bonga (22.3%), crayfish (17.5%), catfishes (8.7%), croakers (8.5%), threadfins (7.0%), and others (Moses, 1985). Thus, crayfish is the second largest fishery in the marine/estuarine fisheries in the lower Cross River Basin. Crayfish is used as seasoning in most food prepared in Nigeria. Crayfish production and marketing seems to be synonymous with "Oron" from where it is exported to other parts of Akwa Ibom state and other states of the federation.

Sample Size Determination

The study used Cochran's (1963) formula to obtain representative sample from a large population of crayfish harvesters in the study area.

The equation is specified as thus:

$$S_n = \frac{z^2 P(1-P)}{D^2}$$ ----------Equation 1

Where:

S_n is the required sample size;

Z is the 95% confidence interval (1.96);

P is the expected proportion of crayfish harvesters in the study area (0.915);

D is the absolute error or precision at 5% type 1 error

The sample size was obtained as shown in equation 2

$$S_n = \frac{1.96^2(0.915)\,(1-0.915)}{0.05^2} = 130$$ ---------- Equation 2

To maintain equal representation across selected clusters, the sample was adjusted to 129 respondents.

Sampling Technique

A multistage sampling procedure was adopted. In the first stage, three LGAs (Oron, Mbo, and Udung-Uko) were selected through simple random sampling from the five cluster LGAs. In the second stage, comprehensive lists of registered crayfish harvesters were compiled in collaboration with local fishing settlement registers and community cooperative leaders across selected landing sites. From these sampling frames, 43 active harvesters were systematically selected per LGA using random number tables, yielding a final analytical sample of 129 respondents.

Analytical Technique

Objective 1: To identify the socio-economic profiles of crayfish harvesting. Descriptive statistics such as frequency count, percentages and means were used.

Objective 2: To analyze the cost structure, revenue profile and returns of crayfish harvesting, budgetary analysis was used to determine the costs and returns

Net Income = Total revenue – Total Cost

Where

Total Cost = Total Variable Cost + Total Fixed Cost

Total Revenue = Py x Y

Py = Price of harvested crayfish

Y = Total quantity of crayfish harvested

For fixed cost inputs, the straight-line depreciation technique was adopted to estimate annual costs Profitability measure such as Returns to Capital or Investment (ROI) was estimated.

Straight-line depreciation technique = $\frac{Cost-Salvage\ value}{Useful\ life}$ ---------- Equation 3

Returns on Investment = $\frac{Net\ Return}{Total\ Cost}$ ---------- Equation 4

Objective 3: To identify the determinants of profitability in crayfish harvesting. Multiple regressions technique was utilized to estimate the determinants, the explicit form of the regression is shown below:

$Y_1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + e_i$ ------ Eq 5

Y_1 = Crayfish harvest (kg)

X_1 = Age (years)

X_2 = Marital status (dummy; 1 - married, 0 - otherwise)

X_3 = Household size (numbers)

X_4 = Education (years spent in school)

X_5 = Experience (years)

X_6 = Crew size (numbers)

X_7 = Quantity of Fresh shrimp (numbers)

X_8 = Contract Fishing (dummy; 1 - yes, 0 - no)

X_9 = Cooperative membership (dummy; 1 - yes, 0 - no)

β_o = Constant term

β_{1-9} = parameters to be estimated

e_i = error term

Objective 4: To identify the constraints militating against crayfish production.

The Henry Garrett ranking method (Aleeswari, Merline and Martin, 2018) was adopted. It is a four-step procedure that culminates in deriving the Percentage Position of each of the constraints before they are ranked according to the percentage positions.

It was derived from the formula;

Percentage Position = $\frac{100(R_{ij}-0.5)}{N_{ij}}$ ---------- Equation 6

Where

Rij = Rank given for the i^{th} variable by the j^{th} respondent

Nij = Number of variables ranked by the respondent.

RESULTS AND DISCUSSION

Socio-economic profiles of crayfish harvesting

The socio-economic profile in Table 1 shows that crayfish harvesting in the study area was entirely dominated by males, with 100.0% of respondents being male. This indicates that the activity is highly gendered, likely because of the physical demands, time intensity, and exposure to water-based operations associated with crayfish harvesting. The result also reflects the male-dominated nature of many artisanal fisheries in riverine communities (Bwalya, Bwalya, Mbewe, Ndhlovu, Mbewe & Hasimuna, 2026), where men often control harvesting while women participate more in trading or processing. Based on gender dynamics in the value chain, while harvesting is exclusively male-dominated in this study area, women play pivotal, near-monopolistic roles in post-harvest drying, smoking, bulk purchasing (Etim, Baba, Ojo & Ndanitsa, 2019), and retail distribution across the Oron cluster. Excluding processors and traders from direct harvesting operations reflects functional gender disaggregation rather than an absence of female economic participation. The age distribution suggests that crayfish harvesting was mainly carried out by people in their economically active years (Dvoretsky & Dvoretsky, 2025), with the largest share of respondents falling within the 31–40 age group (46.5%), followed by those above 40 years (30.24%) and those aged 20–30 years (23.26%). The mean age of 36 years confirms that the enterprise attracted relatively young to middle-aged operators who are likely strong enough for the labor-intensive nature of fishing. This age structure is important because it implies that crayfish harvesting has the potential to support livelihoods among active rural households.

Marital status further shows that 93.0% of the respondents were married, while only 7.0% were single. This suggests that crayfish harvesting is not only a source of individual income but also a household-supporting occupation for family men with dependents. The mean household size of 7 persons also indicates relatively large households, which may increase family labor availability but also raise household consumption pressure. Such household composition can influence both labor allocation and the need for stable income from the business. Experience levels point to a fairly seasoned group of operators. The mean experience of 18 years, with 48.8% having 10–19 years of experience and 28.0% having above 19 years, implies that most respondents had long exposure to crayfish harvesting. This level of experience may contribute to knowledge of fishing grounds, seasonal patterns, and operational management. At the same time, the presence of 23.2% with 1–9 years of experience suggests that new entrants are still joining the enterprise, possibly because of its livelihood value.

Educational status reveals that the respondents were not highly schooled, though they were not completely deprived of formal education. About 38.76% had primary education, 34.90% had secondary education, and 26.34% had no formal education. This implies that crayfish harvesting is accessible to individuals with modest educational attainment and may function as a livelihood option in communities where advanced formal schooling is limited. Cooperative membership was almost evenly split, with 50.39% belonging to cooperatives

and 49.61% not belonging, suggesting mixed levels of collective organization among harvesters. Cooperative membership can matter for access to credit, input purchase, and market information.

Table 1. Socio-economic Profile of Crayfish Harvesters in the Study Area

Socio-economic Profile	Frequency (n=129)	Percentage (%)
Sex		
Male	129	100
Female	0	0
Age (Mean = 36 years)		
20–30	30	23.26
31–40	60	46.5
Above 40	39	30.24
Marital Status		
Single	9	7
Married	120	93
Separated/Widowed	0	0
Household Size (Mean = 7)		
1–4	31	24.4
5–8	77	59.3
Above 8	21	16.3
Experience (Mean = 18 years)		
1–9	30	23.2
10–19	63	48.8
Above 19	36	28
Education		
No formal education	34	26.34
Primary	50	38.76
Secondary	45	34.9
Cooperative Membership		
Yes	65	50.39
No	64	49.61

Source: Field survey (2025).

Cost Structure, Revenue Profile and Returns of Crayfish Harvesting

The profitability analysis results displayed in Table 2 show that crayfish harvesting is profitable, as total revenue of ₦17,791,200 exceeded total cost of ₦12,424,224, leaving a net revenue of ₦5,546,976. On a per-trip basis, revenue was ₦345,600.00 compared with a total cost of ₦40,790.40, producing a net return of ₦100,848.00. The per-kilogram net revenue of ₦729.62 further confirms that the enterprise generated a positive margin. This means that, at the study period, crayfish harvesting was economically viable for operators in the Oron Business Cluster.

Given the seasonal nature of crayfish harvesting in the Cross River Basin, annual averages were disaggregated into wet and dry season estimates as shown in Table 3. The wet season (May–October) is characterised by higher water levels, greater fishing ground accessibility, and larger catch volumes, while the dry season (November–April) features lower water levels, reduced accessibility, and higher operational costs due to increased travel distance. Seasonal dynamics significantly impact income stability for crayfish harvesters. During the wet season, higher catch volumes offset lower market prices due to peak supply, driving the bulk of annual profit generation. Conversely, during the dry season, increased travel distances to reach deeper waters elevate fuel costs while lower catch rates reduce overall gross income, despite higher market prices per unit.

The cost structure shows that variable costs were much higher than fixed costs, which is typical of artisanal fishing enterprises. Total fixed cost was ₦1,771,200, while total variable cost stood at ₦10,653,024, meaning

that day-to-day operating expenses absorbed most of the expenditure. Within fixed costs, pirogue rental and engine depreciation were major items, while among variable costs, fuel and wages were the largest cost drivers. This suggests that fuel availability and labor cost are central to the profitability of crayfish harvesting. Fuel alone accounted for ₦4,752,000 annually, making it the single largest cost item in the enterprise. Wages for two assistants amounted to ₦4,852,224, which was even higher than fuel cost, showing the importance of labor in the fishing process. According to Ahamefule et al. (2021), these high recurring costs mean that profitability is sensitive to changes in fuel price, wage levels, and trip frequency

Table 2. Fixed and variable Cost of Crayfish Harvesters

Item Description	**Annual (₦)**	**Per Trip** (₦)**	**Per Kg of Crayfish (₦)**
Fixed Cost (Depreciation)			
Pirogue rental	600,000	1,999.99	86.95
Engine	576,000*	1,920.00	83.47
Fishing purse seine net	408,000	1,360.01	59.13
Anchor	76,800	256.01	11.13
Floater	48,000	160.01	6.96
Twines	48,000	160.01	6.96
Anchor stakes	14,400	48	2.09
Total Fixed Cost	**1,771,200**	**5,904.03**	**256.7**
Variable Cost Item	**Total Cost**	**Cost per Trip**	**Cost per Unit**
Fuel (PMS) – 33 litres	4,752,000	15,840.00	688.7
Engine oil (1 bottle)	288,000	960	41.73
Food items for 3-man crew	576,000	1,920.00	83.47
Wages (2 assistants)	4,852,224	15,552.00	676.18
Maintenance of engine/net	184,800	616.8	26.78
Total Variable Cost	**10,653,024**	**34,888.80**	**1,516.87**
Particulars	**Value 1**	**Value 2**	**Value 3**
Total Fisher Cost (FC + VC)	12,424,224	40,790.40	1,773.58
Total Revenue	17,791,200	345,600.00	2,503.20
Net Revenue	5,546,976	100,848.00	729.62

* The cost of engine is N1.2m with payments of N100,000 per month for 12 months and estimated useful lifespan of 5 years. ** On the average fishers make 300 trips per annum

Table 3: Seasonal Disaggregation of Costs and Profitability

Indicators	**Wet Season (May–October)**	**Dry Season (November–April)**
Water Level & Accessibility	High / Optimal	Low / Reduced
Average Catch Volume per Trip	Higher	Lower
Travel Distance & Fuel Usage	Moderate	Higher (Increased operational cost)
Market Prices	Lower (High supply)	Higher (Scarcity premium)
Operational Costs Share	Lower per unit catch	Higher per unit catch
Estimated Net Margin Share	~65–70% of Annual Profit	~30–35% of Annual Profit

Determinants of Profitability in Crayfish Harvesting

The regression results on the determinants of catch presented in Table 4 shows that across the estimated models, some variables had stronger explanatory power than others, with the double-log model showing the highest R^2 value of 0.564, indicating that it explained about 56.4% of the variation in catch. This suggests that the included socio-economic and operational variables had a moderate to strong influence on crayfish output. However, the R^2 values indicate that unexplained variance remains, driven by unobserved environmental parameters such as tidal cycles, water salinity levels, seasonal streamflow variations, and water temperature fluctuations

Age had a positive coefficient in all the model specifications, suggesting that older harvesters tended to have better catch outcomes, likely because age is associated with experience (Agom & Okon, 2024), decision-making, and fishing knowledge. In artisanal fisheries, age serves as a strong proxy for accumulated tacit knowledge, ecological awareness, and localized navigational expertise. Older fishers possess a deeper understanding of hydrological patterns, seasonal crayfish spawning grounds, and micro-habitat variations in the Cross River Basin. Furthermore, mature harvesters often display superior risk-management skills, efficient crew coordination, and better decision-making capabilities regarding when and where to deploy purse seine nets. The findings disagrees with the result of Mramba and Mkude (2022), who reported that younger adults tend to have better catch outcomes than the older adults.

Household size also showed a positive sign, which may reflect the availability of family labor or support that can improve operational capacity (Agom, 2026; Mansouri & Chafai, 2025). A larger household size enhances the enterprise's operational capacity by providing a reliable and low-cost supply of family labor. In the context of artisanal crayfish harvesting, family members contribute significantly to pre- and post-harvest operations, including net repair, bait preparation, boat maintenance, and sorting catch at landing sites. This internal labor reserve reduces reliance on expensive hired labor, lowers operational overhead, and allows primary harvesters to concentrate their effort on fishing trips.

Education similarly entered positively, implying that schooling may improve the ability to organize fishing activities, manage finances, or adopt better practices. These positive signs are consistent with the idea that human capital supports better performance in artisanal fishing. Higher formal education enhances cognitive ability, managerial competence (Jafari-Sadeghi, Kimiagari & Biancone, 2020), and information processing among harvesters. Educated fishers are better equipped to keep basic financial records, evaluate input costs (such as fuel and engine maintenance), and adopt modern navigation or gear technologies. Education also improves a harvester's ability to negotiate prices, comprehend market trends, and implement safety-at-sea protocols, thereby minimizing gear loss and optimizing operational efficiency.

Marital status and crew size generally showed negative coefficients in some specifications. This may mean that larger social or labor obligations do not always translate into better catch, especially if they increase pressure on the operator or create inefficiencies in labor use. Cooperative membership also appeared negative in some model forms, which may indicate that membership alone does not guarantee productivity gains unless it provides practical access to credit, equipment, or market advantages. This also suggests that current cooperative arrangements in the study area may focus more on informal social welfare rather than providing direct operational benefits, such as subsidized gear, modern fleet assets, or strategic fishing information. Contract fishing also had mixed and generally small effects, suggesting that the institutional arrangement may not be strongly determining catch in this context.

Table 4: Regression results on determinants of catch of Crayfish Harvesters

Variable	Linear	Semi-Log	Double-Log	Exponential
	39.292	39.728	0.689	40.866
Constant	(3.407)***	(3.438)***	-1.25	(14.724)***
	0.14	0.088	0.635	0.12
Age	-1.481	-0.295	(5.220)***	-1.373
	-0.247	-0.311	0.021	-0.309
Marital Status	(-2.989)**	(-3.267)***	-1.141	(-3.371)***
	0.203	0.095	-0.101	0.119
Household Size	(2.443)**	-0.824	(-2.046)**	-1.317
	0.163	0.044	0.076	0.231
Education	(1.907)*	-0.228	-0.952	(2.534)**
	0.008	-0.091	0.164	-0.051
Experience	-0.09	(-0.448)	(1.972)*	(-0.585)
	-0.168	-0.071	-0.173	-0.175
Crew Size	(-2.005)**	(-2.322)	(-2.322)**	(-1.892)*

	-0.064	-0.128	0.002	-0.093
Contract Fishing	(-0.774)	(-1.348)	-0.061	(-1.056)
	-0.151	-0.17	-0.073	-0.062
Coop Membership	(-1.811)*	(-1.813)*	(-1.900)*	(-0.697)
R	0.482	0.433	0.63	0.459
R^2	0.233	0.228	0.564	0.211

*, ** and ***-Significant at the 10, 5% and 1% levels respectively.

Source: Computed from field data, 2025

Constraints Militating against Crayfish Harvesting

The major constraints militating against crayfish harvesting is presented in Table 5. Based on the findings, the most serious problem was large start-up capital, with the highest average score of 74.2. This ranking shows that entry into the enterprise is capital-intensive, especially because boats, engines, nets, and related equipment require heavy upfront investment (FAO, 2020). The second most important constraint was the high cost of equipment. Together, these two constraints indicate that capital access is the biggest barrier to both entry and expansion in crayfish harvesting. Lack of government support ranked third, followed by loss of nets due to mud flats. The absence of public support may include weak access to subsidies, credit, extension services, or infrastructure, all of which can undermine fishers' productivity and resilience. Net losses due to muddy terrain reflect the physical risks associated with the fishing environment and can increase replacement costs. These results show that both institutional and environmental challenges affect the enterprise.

Market-related constraints were also important. The pricing structure controlled by processors and primary wholesalers ranked fifth, indicating that harvesters have limited bargaining power in the market chain. Limited outlets for sale of catch ranked seventh, suggesting that market access is not always assured, especially during peak harvest or in isolated landing sites. Pressure to sell immediately to pirogue assistants or to settle debt further weakens the harvesters' ability to hold their catch for better prices. These issues reduce income stability and may force sales under unfavorable conditions. Security and environmental hazards were also notable. Insecurity from non-state armed groups and militants ranked sixth, showing that risk and instability remain real concerns in the fishing environment. Loss of nets due to swift currents and strong winds ranked tenth, while limited fishing area ranked eleventh. These lower-ranked issues are still relevant because they affect catch volume, safety, and operational efficiency. Overall, the ranking reveals that the biggest bottlenecks are financial, institutional, and market-related, with environmental and security risks adding further pressure.

Table 5: Ranking of constraints of fishers in the crayfish value chain.

Rank	Constraint	Total Score	Average Score
1st	Large start-up capital	6,381	74.2
2nd	High cost of equipment	6,128	71.3
3rd	Lack of government support	5,423	63.1
4th	Loss of nets due to mud flats	5,208	60.6
5th	Price determined by Processors/Primary wholesalers	4,900	57
6th	Insecurity due to Non-state Armed groups (Militants)	4,764	55.4
7th	Limited outlet for sale of catch	4,372	50.8
8th	Pressure to sell on arrival by pirogue assistants for own share of proceeds	4,114	47.8
9th	Pressure to sell on arrival to defray debt	3,680	42.8
10th	Loss of nets due to swift current/strong wind	3,146	36.6
11th	Limited area of fishing that limits catch	2,538	29.5

Source: Computed from field data, 2025

CONCLUSION

The study showed that crayfish harvesting in the Oron Business Cluster is a male-dominated, experience-based, and economically active enterprise with clear profitability. The business generates positive net returns, but profitability is constrained by high operating costs, especially fuel and labor, as well as heavy initial capital requirements. The pattern of constraints suggests that improving access to credit, reducing equipment costs, and strengthening market organization could significantly improve returns. The study therefore presents crayfish harvesting as viable, but one that needs financial and institutional support to remain sustainable.

RECOMMENDATION

Based on the findings of the study, the following recommendations are suggested;

1. The Akwa Ibom State Ministry of Agriculture and commercial micro-lenders should establish revolving, low-interest credit schemes structured around seasonal catch cycles to enable harvesters to purchase outboard engines and nets without incurring predatory debt.
2. Public cold storage hubs, modern landing jetties, and solar-powered ice-making facilities should be constructed to reduce post-harvest deterioration and eliminate emergency distress sales.
3. Efforts should be made by the government to facilitate formal off-take contracts between harvester associations and industrial food processors or major urban wholesale buyers to bypass exploitative intermediaries. Concurrently, strengthen marine security patrols along estuarine channels to curb militancy and piracy.

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