

WOMEN IN AQUACULTURE: A STUDY OF THE CAMP 74 FISH FARM SETTLEMENT ANWAI, ASABA, DELTA STATE, 2000-2020

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Abstract

African women face multilayered challenges in numerous sectors and facets of life. Despite this existential challenge, women remain the informal economy's pillars of several sectors and subsectors. Though women are active players in the formal economic sector, their impact is more pronounced in the informal sector. Women's activities are redefining gendered vocations in key aspects. One of the areas in which women have reframed gendered vocation is in the area of aquaculture. Women in aquaculture are beginning to exert enormous influence, as the Camp 74 Fish Farm Anwai, a suburb of Asaba, the capital city of Delta State, Nigeria, has proven. This article examined women's roles in aquaculture: socioeconomic contributions and the challenges they have had to confront, among others. It also explored women's engagement in other ancillary businesses associated with aquaculture, such as sales, processing, and other farm services. The data for the study were collected through both primary and secondary sources. Findings suggest that with targeted interventions and the minimization of the obstacles faced by women, they can become key players in sustainable aquaculture development in Nigeria with its inherent benefits. The study offers recommendations such as providing access to the necessary resources, including land, credit, and inputs such as seed, feed, and equipment for women in aquaculture. The study concludes that by addressing the challenges facing women in rural aquaculture, as highlighted in this study, and leveraging the potential of women in aquaculture, the sustainability and productivity of rural aquaculture systems can be enhanced, ultimately benefiting entire communities.

Keywords: African women, gender, women empowerment, Camp 74 Fish Farm, Vocationism

Introduction

The economic contributions of women have been downplayed across many sectors of the African economy. According to the African Union, empowering women can bring about economic benefits for societies at large, yet progress on gender equality and women's economic empowerment, particularly in Sub-Saharan Africa, has been retarded and will require intensive efforts to achieve.¹ In Nigeria, the traditional involvement of women in subsistence-level activities means they are historically equipped with entrepreneurial skills, capacity, and experience that can be leveraged for inclusive growth and lasting national prosperity. Nigerian women are, nonetheless, underrepresented in formal wage employment requiring higher education and specialized skills and overrepresented in vulnerable/informal employment.² Additionally, the entrenched masculinist idea about men being the breadwinners of the family undermines the important economic roles women play in society, yet women and children form a greater proportion of the rural population, and therefore, they bear the brunt of rural poverty.³ It has been adduced that Nigeria's future growth is irrevocably tied to the status of its women and its ability to adequately leverage its considerable economic potential. However, rather than enabling

¹ AU, Available at <https://au.int/en/pressreleases/20201015/end-african-womens-decade-tracking-progress-commitments>, 2020.

² EFINA *Access to Financial Services in Nigeria 2020 Survey*, <https://efina.org.ng/wp-content/uploads/2021/10/A2F-2020-Final-Report.pdf>, Published June 3, 2021

³ Bala, A.H., Babaji, A. U., Garba, A. and Yakubu, I. "Analysis of Factors Influencing the Adoption and Development of Fish Farming among Women in Misau Local Government Area of Bauchi State, Nigeria." *International Journal of Applied Research and Technology*. (2016, 5) (11): 3 – 9.

women to contribute to the economy, Nigeria still has several laws that make it harder for women to work than men.⁴

Since the twentieth century, women appear to have been more active and deliberate in their economic endeavors than was obtainable in the past. When women can work, economies grow. It is estimated that Nigeria's gross domestic product (GDP) could grow by 23 percent (or US\$229 billion) by 2025 if women participated in the economy to the same extent as men.⁵ Women's economic equality is good for business; it is also estimated that companies with three or more women in senior management functions score higher in all dimensions of organizational performance.⁶

Economic hardship in Nigerian society has made the capacity of many men to singlehandedly bear the economic responsibilities of their families impossible. Other societal factors have made it imperative for women to contribute alongside men for economic benefits and the well-being of their families and societies at large. There is also an increasing number of single mothers occasioned by many reasons, such as the death of husbands, high rate of divorce, teenage pregnancy, and sometimes personal choice. While some of these women are career-oriented and financially stable enough to handle the demands of single parenthood, many others are simply incapacitated and have had to engage in one form of economic activity or the other. Many of these women have been found to engage in petty trading and skilled crafts such as hair making, tailoring, and other related activities.⁷

Women have become increasingly involved in the aquaculture economy over the years as evidenced by the number of women that are now part of the Camp 74 Fish Farm in Delta State, Nigeria.⁸ Local women have become an integral part of the Camp 74 Fish Farm settlement located at the banks of the popular Anwai River, near Asaba, Delta State. Apart from the Camp 74 Fish Farm, there are numerous fish farms in Delta State, ranging from large-scale to medium and small-scale farms, best known as "Tank Farms." Some of these farms are located in different parts of the state, such as Ughelli, Warri, Ekpan, etc. The Ughelli Fish Farm Estate has over 6,000 ponds. In the Ekpan Fish Farm, the state has over 5,000 farmers, while the Warri fish farm is even larger. Delta State stands out as one of the states with the biggest natural water bodies in Nigeria.

The literature on aquaculture and women's involvement in it has been interesting and also disparate. Oghenero Owharhe *et al.* asserted that "fishing has been a major source of food for humanity and a provider of employment and economic benefits to those engaged in this activity."⁹ The aquaculture economy also speaks to the improved livelihood of the populace, especially those benefitting directly and indirectly from the business. The above-mentioned researchers described livelihood "as a means through which people secure the necessities of life; it is a means of survival."¹⁰ Yung Shang noted that

⁴ Enhancing Financial Innovation and Access (EFInA), 2022 *Survey Report*, <https://efina.org.ng/wp-content/uploads/2022/07/Womens-Economic-Empowerment-in-Nigeria-A-critical-look-at-Access.pdf>, accessed, April 17, 2024

⁵ World Bank, Financial Inclusion Overview (worldbank.org), 2022.

⁶ McKinsey & Company, *Women Matter: Time to accelerate. Ten years of insights into gender diversity* Available at: <https://www.mckinsey.com/featured-insights/gender-equality/women-matter-ten-years-of-insights-on-gender-diversity>, 2018.

⁷ HR Aspas, *Heading Households, and Heading Business: Rural Kenyan Women in the Informal Sector* (*Professional Geographer*, 1998), 50 (2), 192-204.

⁸ O. J Owharhe, F. O.Achoja, G. F. Okwukenye, & U. O. Joe-James., *Appraisal of Backyard Farming among Households: Implications for Rural Development and Food Security in Nigeria. Asian Journal of Agriculture and Rural Development* (2020) 10 (1), 160 – 170.

⁹ Oghenero Owharhe, Albert Ofuoku, Francis Nwachi, Markson Osekete, "Assessment of Fish Farmers in Delta State, Nigeria: Livelihoods Strategies" *YuzuncuYil University Journal of Agricultural Science* Volume 30, Issue 4, 31.12. (2020)

¹⁰ Oghenero Owharhe, Albert Ofuoku, Francis Nwachi, Markson Osekete, "Assessment of Fish Farmers in Delta State, Nigeria: Livelihoods Strategies" *YuzuncuYil University Journal of Agricultural Science* Volume 30, Issue 4, 31.12. (2020)

“the economics of aquaculture is reviewed on two levels: micro and macro. Micro-economics in aquaculture deals mainly with the management measures and elements affecting the efficiency of operation at the farm level, while macro-economics addresses the assessment of social benefits and costs of an aquaculture project.”¹¹ The aquaculture economy in Delta State is remarkably robust at both the micro and macro levels. Over the years it has provided direct and indirect employment to thousands of individuals, especially women. The Delta State government established the “Beyond Oil Initiative” with massive investments in fish farming and other forms of aquaculture.¹² Through this initiative, the government hopes to make more youth self-employed, thereby halting the growing unemployment rate in the state and reducing youth restiveness.

Olaoye et al. & Ovharhe submitted that fish farming, which is an important component of aquaculture, is a vastly growing business in the tropics. Africans, especially Nigerians are beneficiaries of this livelihood and economic sector.¹³ Shaleesha and Amelan posited that although women have proved to be competent in adopting new aquaculture technologies, their role is very much restricted and often ignored. One of the major reasons is the location of aquaculture sites and several socio-cultural taboos against women who strive to earn for their family’s subsistence in rural areas.¹⁴

The review of the literature above shows that scholarly interest in aquaculture is staggered what is even more bewildering is that no study seems to exist on the Camp 74 Fish Farm Settlement in Anwai, not to talk more about women’s involvement in it. Despite that, aquaculture has created job opportunities in Delta State, both directly in fish farming and indirectly in the ancillary businesses, such as feed production and fish processing. In the Camp 74 Fish Farm Settlement, for instance, over 300 women are indirectly involved with aquaculture, accounting for over 60% of the number of participants in aquaculture at the farm. The farm has contributed to the income of many local farmers and entrepreneurs, boosting the local economy. By increasing local fish production, aquaculture has played a role in enhancing food security and reducing the reliance on imported fish. The aquaculture economy in Delta State has experienced significant growth since 1991, marked by advancements in technology, increased production, and diversification. The above reasons make this research salient and expedient. The study is divided into six sections. Following the introduction, the second section examines the history and establishment of the Camp 74 Fish Farm Settlement. The third and fourth sections examine the emergence and roles of women on the fish farm, respectively, while the penultimate section reflects on the contributions of women at the farm. The sixth section contains the conclusion.

The Camp 74 Fish Farm in Historical and Temporal Perspectives

The foundational impetus for the Camp 74 Fish Farm in Anwai, Asaba, Delta State, came from the state government. This is because, during the early 1990s, the Delta State government began to explore aquaculture as a viable economic activity. The focus was on developing fish farming to boost local fish production and reduce dependence on wild fisheries. The state government initiated various programs to encourage fish farming. These included providing technical support, training for farmers, and access to resources. Funding was also provided to aid the exploratory works in this regard. In the area of funding, for instance, the Delta State government provided a bailout for the fish farmers in the aftermath of the 2015 flooding, which led to the loss of over 80% of fish at the farm.¹⁵ Idris Momoh of Business Day reported that the Delta State government has presented a Toyota Hilux van and a cheque of N35.2

¹¹ Shang Yung, “Aquaculture economics: An overview”, *Geo Journal* 10, 299–305 (1985). <https://doi.org/10.1007/BF00462130>

¹² Idris Umar Momoh, *Flood: Okowa Presents N35.2m Grant, Utility Van to Fish Farmers*, October 14, 2015, <https://businessday.ng/agriculture/article/flood-okowa-presents-n35-2m-grant-utility-van-to-fish-farmers>

¹³ O. J Olaoye, S. S Ashley-Dejo, E. O Fakoya, Assessment of socioeconomic analysis of fish farming in Oyo State, *Nigeria Global Journal of Science frontier Research Agriculture and Veterinary* (2013) 13 (9), 45-55

¹⁴ Shaleesha, A., Stanley, V.A., The involvement of Local Women in Aquaculture: An Innovative Approach, (2000), <https://www.researchgate.net/publication/42763412>

¹⁵ Vincent A. Yusuf, *Delta Beyond Oil: The Massive Fish Production Initiative*, 20th February, 2014, <https://dailytrust.com/delta-beyond-oil-the-massive-fish-production-initiative>

million to 234 fish farmers in Camp 74 fish farm settlement to alleviate losses incurred during recent flooding in the state. The sum of N150, 000 was each presented to the 234 fish farmers of the camp.¹⁶ In 2018, the state government presented another cheque of N42.8 million to the Coalition of Fish Farmers at camp 74 in the state capital, Asaba, to assuage the effect of the 2017 flood that swept off their farms.¹⁷ The aquaculture sector in the state, owing to some of the support of the state government later witnessed significant growth with the establishment of numerous small and medium-sized fish farms. One of these farms is the Camp 74 Fish Farm which was established by majorly young graduates in the early 2000's.

There were efforts to improve infrastructure, including the construction of fish ponds and hatcheries. These attempts are in line with the views of Shang who suggested that improved infrastructure impacts the aquaculture economy.¹⁸ However, challenges such as inadequate facilities, limited access to quality feed, and insufficient technical knowledge persisted.¹⁹ Delta State has continued to develop and implement a more structured framework for aquaculture, including regulatory measures and support programs. Institutions such as the Delta State Fisheries and Aquaculture Department play several roles in providing guidance and support. Close to Camp 74 Fish Farm Settlement is Dennis Osadebey University, which has a vibrant Department of Fisheries and Aquaculture. Remarkably, students of the former Delta State University Abraka, Anwai Campus originally from the Department of Agriculture played a leading role in the establishment of the Camp 74 Fish Farm Settlement.²⁰ The Farm is located a few meters away from the university campus (now Dennis Osadebey University).



Fig. 1 - A Typical Fish Pond at the Camp 74 Fish Farm (Source: Camp 74 Fish Farm)

The Camp 74 Fish Farm in Asaba has over 1000 ponds. The farm is located on Anwai Road on lands owned by the Delta State University, Asaba Campus. The university initially leases a space of 20 by 24 feet, which can take four ponds, to each of the farmers at N10, 000 annually, but the terms of the lease and ownership of ponds have been altered.²¹ The farm is open to all youth who are willing to take up fish farming as a means of self-employment. Some of the farmers are not necessarily university graduates, as more and more individuals outside of the university or academic community keep getting involved in farming activities at the fish farm. It has been reported at a point that at least two new people join the farm every day. However, the trend has slowed for a while because of the difficulty experienced by the youth in assessing finance to join the business, as well as other challenges involved in running a

¹⁶ Elekwachi L.O., "The Challenges of Fish Farming in Delta State, Nigeria", *Nigerian Journal of Fisheries*, Vol. 15 No. 2 (2018), <https://www.ajol.info/index.php/njf/article/view/266091>

¹⁷ Vincent A. Yusuf, *Delta Beyond Oil: The Massive Fish Production Initiative*, 20th February, 2014, <https://dailytrust.com/delta-beyond-oil-the-massive-fish-production-initiative>

¹⁸ Shang Yung, "Aquaculture economics: An overview", *Geo Journal* 10, 299–305 (1985). <https://doi.org/10.1007/BF00462130>

¹⁹ Elekwachi L.O., "The Challenges of Fish Farming in Delta State, Nigeria", *Nigerian Journal of Fisheries*, Vol. 15 No. 2 (2018), <https://www.ajol.info/index.php/njf/article/view/266091>

²⁰ Vincent A. Yusuf, *Delta Beyond Oil: The Massive Fish Production Initiative*, 20th February, 2014, <https://dailytrust.com/delta-beyond-oil-the-massive-fish-production-initiative>

²¹ Vincent A. Yusuf, *Delta Beyond Oil: The Massive Fish Production Initiative*, 20th February, 2014, <https://dailytrust.com/delta-beyond-oil-the-massive-fish-production-initiative>

fish farm business.²² This situation is even worse and more daunting for women in the aquaculture business on the farm.

The vegetation of the Camp 74 Fish Farm is largely rainforest. Though the pond areas have experienced massive deforestation to accommodate the ponds, some trees, and shrubs, including palm trees and plantains, etc., can be seen still standing to serve as covers for the ponds and to give the farm its natural ambiance. Several footpaths link one pond to the other in asymmetrical forms.



Fig. 2 - Makeshift Farm House with water pumping machines (Source: Camp 74 Fish Farm)

Camp 74 Fish Farm is a public-private initiative. The government provided the farmlands and leased/rented the spaces to the farmers for the construction of the fish ponds. Some established farmers have several ponds, which they, in turn, rent or lease to others. The Fish Farm is a significant player in the region's aquaculture sector. The farm was founded to boost local fish production and improve the livelihoods of those involved in the aquaculture industry.

The farm focused on cultivating popular fish species, such as catfish and tilapia, utilizing modern aquaculture techniques to improve productivity and efficiency. This included innovations in breeding, feeding, and pond management. Camp 74 Fish Farm has contributed to the local economy by providing employment opportunities and supporting related industries, such as feed production and fish processing. It has also played a role in improving food security by increasing the availability of fish. Olaoye, *et al* reviewed the socio-economic impact of fish farming in Oyo State.²³ Their findings are in tandem with the views of these researchers that the activities of the Camp 74 fish farm have a positive socio-economic impact on the community. Ovharhe, *et al* also expressed similar views.²⁴

Emergence of Women in Aquaculture Business at the Camp 74 Fish Farm

Aquaculture, especially in the harsh terrains of the Camp 74 fish farm, was initially dominated by men. However, the emergence of women in aquaculture at the farm may not be unconnected with the harsh economic realities of recent times. It was not clear the year women made their entry into the farm settlement, but what is obvious is that women did not come to the farms initially as farm or pond owners. Some were farmhands who helped feed the fish and kept farm records, while others were relatives or acquaintances of farm owners who eventually picked interests in the activities of the farm. The first set of women who officially set up businesses around the perimeters of the farms were involved in the sale of fish feed and other farm supplements and implements. There were women in petty trading who came to buy harvested fish at the farm and those who were into drying and packaging fish. Therefore, women's involvement in the activities of the farm settlement was basically on the side businesses

²² Food and Agricultural Organization, "A Review Study of the Sungai Merbok floating Cago Culture Project." Project Code TCP/MAI./403 Technical Report2, (Rome, 1985).

²³ O. J Olaoye, S. S Ashley-Dejo, E. O Fakoya "Assessment of socioeconomic analysis of fish farming in Oyo State, Nigeria", *Global Journal of Science Frontier Research, Agriculture and Veterinary* 13 (9), (2013): 45-55.

²⁴ Ovharhe, Oghenero Joseph ; Odemero, Achoja Felix ; Folunsho, Okwukenye Goddey ; Oghenefejiro, Joe-James Uduak, "Appraisal of Backyard Farming among Households: Implications for Rural Development and Food Security in Nigeria", *Asian Journal of Agriculture and Rural Development* 10 (1), (2020): 160 – 170. [10.22004/ag.econ.342239](https://doi.org/10.22004/ag.econ.342239)

(ancillary businesses) other than fish rearing and cultivation. Over time, some of these women acquired their own ponds and went into active farming, competing with the men in a business environment where the odds appeared to be against them.²⁵



Fig. 3 – A woman pond owner with customers at the Camp 74 Fish Farm (Source: Camp 74 Fish Farm)

The emergence of women in the fish farming business at Camp 74 Fish Farm in Delta State, Nigeria, represents a significant development in the aquaculture sector, highlighting gender inclusivity and the impact of women in this traditionally male-dominated field. Women's involvement in fish farming at Camp 74 began as part of broader efforts to engage local communities in the aquaculture industry. Some of these women later began to take on more diverse and substantial roles, including management positions, technical roles, and entrepreneurial activities as many of them now own and manage their own ponds.²⁶ These women were involved in overseeing day-to-day operations, managing staff, and handling administrative tasks. Women also have emerged in leadership and management roles within the farm. This shift has been crucial in driving the farm's growth and success, as women bring unique perspectives and approaches to management and problem-solving. Women's involvement in fish farming has contributed to their economic empowerment.²⁷ The emergence of women in the aquaculture business at Camp 74 Fish Farm reflects broader trends toward gender inclusivity and empowerment in the aquaculture sector. Women have progressively taken on more significant roles, contributing to the farm's success and influencing the local community and industry positively. Their involvement has highlighted the potential for gender diversity to enhance productivity, innovation, and economic growth within the aquaculture industry.

Roles of Women in Camp 74 Farm Settlement

Women have played vital roles in active aquaculture at the Camp 74 Fish Farm, contributing significantly to the operations and success of the farm. Their involvement has evolved from initial support roles to more substantial and diverse responsibilities. Women are actively involved in managing the daily operations of the fish farm, including overseeing pond maintenance, fish feeding, and harvesting activities. They participate in technical tasks such as water quality management, disease monitoring, and implementing best practices in aquaculture.

The participation of women in aquaculture at Camp 74 Fish Farm Settlement extends to different aspects such as fish farming with roles like pond preparation, cultivation of fingerlings, feeding, cleaning of nets/cages, and general maintenance and upkeep of the pond or cages.²⁸ Some were also involved in aquaculture ancillary businesses like the sale of fresh catfish either as retailers or as major distributors, roasted/dried fish, running catfish cuisine outlets, etc. According to Okoro and Amaechi, the involvement of women in both productive and reproductive tasks (like fish farming) means that they

²⁵ Patience Bassey, Female Fish Farmer, interviewed at the Camp 74 Fish Farm, Asaba, 12th March, 2022

²⁶ Patience Bassey, Female Fish Farmer, interviewed at the Camp 74 Fish Farm, Asaba, 12th March, 2022

²⁷ P Singh, S Maqsood, et al, Women in Fish Farming and Gender Perspectives. *Nigerian Journal of Fisheries*, Vol. 5 No. 2 (2008)

²⁸ Vincent Yusuf., *Delta Beyond Oil: The Massive Fish Production Initiative*, Daily Trust, 20 February, (2014), <https://dailytrust.com/delta-beyond-oil-the-massive-fish-production-initiative>

invariably work longer hours per day than men do.²⁹ This may not be exactly the case with women at the Camp 74 Fish Farm settlement, but women involved in aquaculture and related businesses do indeed work long hours. According to Patience Bassey, a female fish farmer at Camp 74 Fish Farm Settlement, the aquaculture business gives women more time for the family.³⁰ With a background in banking before transitioning to aquaculture, she believed that most women in aquaculture have more time for other family businesses. A typical day at the farm will start very early with a visit to the farm to feed the fish and attend to other matters at the farm. Those involved in sales will also have to visit the farm early to make purchases before heading to the market. Therefore, the work rate and the time expended may not be the same for all the women in their various businesses in aquaculture.

Women have assumed leadership positions on the farm, including roles such as farm managers, supervisors, and team leaders. These positions involve strategic planning, staff management, and decision-making. Experienced women on the farm often take on mentoring roles, providing training and guidance to other women interested in fish farming. Women handle financial aspects such as budgeting, accounting, and managing farm expenditures. Their involvement ensures the economic viability and sustainability of the farm. They also manage administrative tasks, including record-keeping, regulatory compliance, and coordination with suppliers and buyers. In the views of Anita Spring, women can engage in more entrepreneurial activities than they are given credit for.³¹ Women play other roles at the farms, corporate society, or associations. Women's involvement in aquaculture at the Camp 74 Fish Farm Settlement has led to improved efficiency and productivity in farm operations, contributing to higher fish yields and better management practices.³²

By participating in various aspects of the fish farming business, women have created income-generating opportunities for themselves and their families. Their economic contributions extend beyond the farm, benefiting the local communities through increased household incomes and community investments. Many women manage multiple responsibilities, including family. However, the active involvement of women in fish farming at Camp 74 Fish Farm represents a positive trend toward gender inclusivity and empowerment in the aquaculture industry. As more women take on significant roles and responsibilities, the farm is likely to see continued growth and innovation, benefiting from diverse perspectives and skills. Efforts to support and enhance women's participation will further strengthen the sector and contribute to its overall success. An FAO survey reveals that 42% of women in 82 developing countries are engaged in farming in all sectors.³³ This figure shares similarities with the data obtained at the Camp 74 Fish Farm Settlement on the percentage of women in aquaculture at the Farm Settlement as could be seen in the data table below.

²⁹ C.N. Okoro, and E.C.C Amaechi, "Gender issues in agricultural transformation." Proceedings of the seventeenth annual congress of the Nigerian Rural sociological association held at National Root Crops Research Institute, Umudike, Abia State, Nigeria, (2008).

³⁰ Patience Bassey, Female Fish Farmer, interviewed at the Camp 74 Fish Farm, Asaba, 12th March, 2022

³¹ Anita Spring, "African Women in the Entrepreneurial Landscape: Reconsidering the Formal and Informal Sectors", *Journal of African Business*, DOI 10.1080/15228910802701296 (2009): 11-30

³² Adegoke Abeni, Adewumi and Oyedapo Adewale Fagbenro, "Fisheries and Aquaculture Development in Nigeria: An Appraisal," International Conference on Bioinformatics and Biomedical Technology, (2010), DOI: [10.1109/ICBBT.2010.5478927](https://doi.org/10.1109/ICBBT.2010.5478927)

³³ FAO "The Role of Women in Aquaculture." Food and Agriculture Organization of the United Nations, (2020).

Table 1 – Frequency table of women Fish Farmers

Variable (Sex)	Frequency	Percentage
Male	68	56.7%
Female	52	43.3%
Total	120	
Marital Status (Women Only)	Frequency	Percentage
Married	40	76.9%
Single	12	23.1%
Total	52	
Educational Status (Women Only)		
No formal education	0	0%
Primary School	0	0%
Secondary School	8	15.4%
Tertiary Education	44	84.6%
Total	52	
Age (Women Only)		
20 – 30	17	32.7%
30 – 40	25	48.1%
40 – 50	10	19.2%
50 and above	0	0%
Part time farmers (Women Only)	50	100%

As of 2014, a Daily Trust Newspaper report quoted that there are over 71 fish farmers at the Camp 74 fish farm. The report equally stated that over 80% of them are graduates from various fields of endeavor.³⁴ This number has significantly increased to over 120 farmers presently, though the number constantly changes because as new farmers enter the farm, old ones leave for various reasons, including the inability to meet the demands of running the ponds. The farm, with its massive land mass, has well over 1000 ponds presently and the capacity to expand far beyond that number.

The demographic representation of women at Camp 74 Fish Farm is quite interesting. The spread of representation cuts across educated and uneducated (semi-educated women), married and single, as well as by age, among other considerations. As can be seen in the data table above, about 43.3% of active farmers (pond owners) at the Camp 74 fish farm settlement are women. However, over 90% of ancillary businesses on the farm are run by women, and these include the sale of feeds and fish supplements, the sale of dried and fresh fish, fish cuisine vendors, etc. There are more than 300 women involved in fish farming and ancillary businesses at the Camp 74 Fish Farm Settlement. Available statistics revealed that 76.9% of the women involved in active fish farming at Camp 74 Farm Settlement are married women, while 23.1 are single. The percentage of single women may include single mothers. The researcher's preconceived notion about the educational level of the women involved in fish farming at the farm was completely misconceived as available data showed that all the women have at least secondary education and an overwhelming percentage of 84.6% as university graduates, leaving just 15.4% with secondary education. The interesting thing about this particular data is the fact that the farm was said to be started by young university graduates who were trying to find alternative means of survival. Therefore, the farm has not broken away from the tradition of hosting young university graduates as well as career women (and) men who are willing to seek alternative means of employment and economic relevance.

³⁴ Vincent A. Yusuf, *Delta Beyond Oil: The Massive Fish Production Initiative*, 20th February, 2014, <https://dailytrust.com/delta-beyond-oil-the-massive-fish-production-initiative>

Most of the women at the farm are young, with a median age of about 30. Over 80% of the women are between the ages of 20 – 40. A further breakdown of the statistics showed that about 17 women representing 32.7% are between the ages of 20 – and 30 years. 25 women representing 48.1% are between the ages of 30 – 40, while the rest (10 women), representing 19.2% are between the ages of 40 – 50 years. Of course, this is expected as the works at the farm are rigorous and the terrains are not very friendly, requiring that the farmers must be physically fit to adapt to the challenging terrains of the farm. It is also easier for younger women as they easily socialize with the young men who offer support services at the farm as well as pond owners at the farm who are males. Ademola, J noted that aquaculture in Nigeria involves a lot of physical strength and this declines with age.³⁵ The statistics mentioned above reflect only women involved in fish farming at the Camp 74 Fish Farm. However, aquaculture, or fish farming in this context, encompasses much more than just rearing fish. Overall, there are over 300 women participating in the entire aquaculture community at Camp 74 Fish Farm. On a typical day, one will likely see more women than men engaged in various activities at the farm, particularly in relation to the ancillary businesses within the aquaculture industry.

Women in fish farming ancillary businesses

Table 2

Ancillary Business	No. of women involved	Percentage of Distribution
Farm Hands/Helps	30	9.7%
Sale of feeds and other farm products	15	4.8%
Major Fish Distributors	20	6.4%
Retail sellers (fresh fish)	150	48.4%
Smoking/Drying of fish	25	8.1%
Cold Room Operators	10	3.2 %
Restaurant/Fishing Cuisine operators	20	6.4%
Others, including consultancy	40	12.9%
Total number of women involved =	310	100%

Women are increasingly making their mark in the fish farming industry at the Camp 74 Fish Farm Settlement, both directly and through ancillary businesses as can be seen from the above table. Women are involved in various support roles at the Camp 74 Fish Farm Settlement as highlighted by the table. Women are active in the production and distribution of fish feed, an essential component of aquaculture. Their expertise helps ensure the health and sustainability of fish farms among other important benefits. In fish processing and packaging at the Camp 74 Fish Farm Settlement, 25 women, accounting for about 8% of women in the ancillary business play crucial roles in ensuring that fish products are processed to satisfy diverse market needs. They work in processing plants (which are mostly locally made ovens), manage packaging operations, and handle logistics to get products to market.

Additionally, women are involved in marketing and sales of fish and fish products, including branding, market research, and customer relations. They help fish farming businesses navigate market demands and expand their reach. Over 60% of women’s engagement in ancillary businesses at the farm centered around the sale and marketing of fish either as distributors, retailers, private customers who buy for domestic consumption, fish cuisine operators, etc. Women contribute to the development and implementation of new technologies in aquaculture. This includes advancements in fish farming equipment, water treatment technologies, and data management systems. Furthermore, women are often at the forefront of promoting sustainable and ethical practices in fish farming. They work with organizations and communities to develop and advocate for environmentally friendly practices and policies. They also engage in community outreach and education, raising awareness about fish farming,

³⁵ J. Ademola, Participation of Youth in Aquaculture, (2015)

its benefits, and best practices.³⁶ Similar views are also expressed by Adegoke Abeni, et al.³⁷ According to Susana V. Siar, at least 15% of women across the world are involved in all aspects of the fishery, and these include production (actual fish farming), fish processing, which includes salting, drying and packaging, and fish marketing, trade, and distribution.³⁸ At the Camp 74 Fish farm, more women are into ancillary businesses than in actual culture and cultivation of fish. Earlier, the researchers noted that there are over 300 women involved in the aquaculture community at Camp 74 Fish Farm, as tabulated earlier.



Fig 4 - Fish smoking facility at the Camp 74 Fish Farm Settlement. (Source: Camp 74 Fish Farm)

The researchers identified eight major areas in which women are mostly involved, apart from active fish farming or owning ponds at the farm settlement. About 10% of the over 300 women involved in the ancillary business at farm work as farm hands. Women who work as farm hands help feed the feeds, work as secretaries to keep inventories, help take stocks, and generally manage the farms for the owners, some of which have other businesses outside the farms. During the sale of the fish, women are also better negotiators, so they are usually on hand to manage that process, especially when over 90% of the fish buyers are women.



Fig. 5 – market women ‘scrambling’ for fish in a pond at Camp 74 Fish Farm

³⁶ Cashin Paul Anthony, Mauro Paolo, Pattillo Catherine and Sahay Ratna, *Macroeconomic Policies and Poverty Reduction: Stylized Facts and an Overview of Research*, IMF Working Paper No. 01/135, <https://ssrn.com/abstract=879917> (September 2001).

³⁷ Adegoke Abeni, Adewumi and Oyedapo Adewale Fagbenro, “Fisheries and Aquaculture Development in Nigeria: An Appraisal,” International Conference on Bioinformatics and Biomedical Technology, (2010), DOI: [10.1109/ICBBT.2010.5478927](https://doi.org/10.1109/ICBBT.2010.5478927)

³⁸ V. Susana, *The role of women in fisheries*. Food and Agricultural Organization, (2014), [Htpps://www.youtube.com/watch?v=CBIsW3IwA](https://www.youtube.com/watch?v=CBIsW3IwA)

Though there are many outlets where farmers can source their fish feeds and other farm supplements, the ones located closer to the farm come in handy. Different outlets deal in fish feeds and farm supplements at the Camp 74 fish farm that are run and managed by women. About 15 women are active in the feed supply business at the farm. These numbers represent about 4.8% of the about 310 women involved in aquaculture ancillary business at the Camp 74 Farm Settlement.³⁹ These women ensure a constant supply of fish feeds to the farmers. However, in some instances, farmers can source their supply outside the outlets. With the help of the farmers' cooperative, they sometimes get fish feeds at subsidized rates from government agencies and distribute them among themselves. In any case, the services rendered by these outlets run by women at the farm or locations very close to the farm offer tremendous help and support to the rest of the farmers.

While the men slightly dominate in active fish farming, women are by far greater players in the ancillary businesses associated with aquaculture. Without the roles of these women, men would not have any business on the farm. The roles of women at Camp 74 Fish Farm Settlement not only contribute to the growth and success of the fish farming industry but also demonstrate the diverse opportunities available for women in this field, especially as more local women try to find alternatives to various economic challenges. In the next session, the study examines the general contributions of women involved in active fish farming as well as the ancillary businesses associated with fish farming.

General Economic Contributions of Women in Aquaculture

The contribution of women is important in food production systems of agriculture and fisheries. However, the contribution of women to fisheries economies globally continues to be overlooked, in part because "fishing" is often narrowly defined as catching fish at sea from a vessel using specialized gear. Both men and women are involved in fisheries, but often in different roles and activities. Fisheries research, management, and policy have traditionally focused on direct, formal, and paid fishing activities—that are often dominated by men, ignoring those that are indirect, informal, and/or unpaid—where women are concentrated. This has led to a situation where men's and women's contributions to fisheries are not equally valued or even recognized and has resulted in women being largely excluded from fisheries decision-making processes.⁴⁰

According to J. Yahaya, the conventional method of defining "economically active population" and "wage earner" precludes women's work within the household or family responsibilities. Consequently, the contributions of women are not counted in the GNP, and women's work is usually not recognized as being economically productive. This is aggravated by the fact that rural women are primarily engaged in subsistence rather than commercially oriented activities, and female labour is customarily classified as "unpaid family workers."⁴¹ Though this challenge has been identified as a global trend, it is even more pronounced in Nigeria. The scenario is not quite different at the Camp 74 Fish Farm settlement, where most women at the farm devote their efforts, talents, and skills to the well-being of their families through their participation in the fishing business. Their role in food production, like fish farming, has become more important as a way of escaping poverty to improve or enhance food security. Women in fish farming and its ancillary businesses have been observed to make significant economic contributions to society and play essential roles in enhancing the livelihood of their families. The study identifies that the contributions of women in this area are mostly classified as informal, though a few of these women have been able to engage in the formal sector. Nonetheless, their economic contribution is quite significant, though largely unacknowledged.

³⁹ Patience Bassej, Female Fish Farmer, interviewed at the Camp 74 Fish Farm, Asaba, 12th March, 2022.

⁴⁰ Sarah Harper, Charlotte Grubb, Margot Stiles, and Ussif Rashid Sumaila, *Contributions by Women to Fisheries Economies: Insights from Five Maritime Countries*, (February, 2017), <https://doi.org/10.1080/08920753.2017.1278143>

⁴¹ J. Yahaya, *The Role, Status and Income-earning Activities of Women in Small-Scale Fisheries*, Peninsular Malaysia, (2023)

Anita Spring lauded the entrepreneurial spirit of the African woman and her ability to make meaningful economic contributions to society through the informal sector. She stated in part, “Entrepreneurship is a major catalyst for economic growth in both industrialized and developing countries. Entrepreneurs establish new businesses that create employment and provide services and products to increase the wealth of their local and national economies. Gender influences the entrepreneurial landscape. In Africa, most women-owned enterprises are micro- and small-scale informal sector ones. Women have played a more limited role as owners and managers in the formal sector, although they are increasing in numbers and business levels.”⁴² The involvement of women in fish farming has brought significant economic benefits to both the sector and broader communities.

Conclusion

Women in aquaculture at the Camp 74 Fish Farm, Anwai, Asaba, Delta State, Nigeria are demystifying the myth of gendered vocationism, which tends to presume certain professions, including aquaculture are more suitable for one gender (male) than another (female). By carefully examining the roles women play in aquaculture at the Camp 74 Fish Farm, it is obvious that women contribute more to the aquaculture industry than the credits they get. Women do not just engage in the business of fish rearing but are actively involved in the other ancillary businesses associated with aquaculture to a far greater degree than men who are part of the farm.

Women in aquaculture face several challenges, such as access to credit, gendered threats, lack of prerequisite training and capacity, etc. Despite these challenges, many women are successfully breaking down barriers and achieving success in rural aquaculture. They are demonstrating their skills, knowledge, and entrepreneurial abilities, contributing to the sustainability and economic development of the aquaculture industry. Supporting and empowering women in aquaculture is crucial for creating a more equitable and prosperous future for not just women but families, entire communities, and, ultimately, on the national scale. This study, therefore, concludes that by addressing the challenges facing women in rural aquaculture and leveraging the potential of women in aquaculture, the sustainability and productivity of the aquaculture economy can be enhanced, especially in rural communities, and this will have a multiplier effect on the aquaculture industry in Nigeria.

⁴² Anita Spring, “African Women in the Entrepreneurial Landscape: Reconsidering the Formal and Informal Sectors”, *Journal of African Business*, DOI 10.1080/15228910802701296 (2009): 11-30