ETHNOSCIENTIA – ano 10, número 01 - 2025 - [ISSN: 2448-1998]
http://dx.doi.org/10.18542/ethnoscientia.v10i1/17738

RESEARCH ARTICLE

ETHNOZOOLOGY OF FIN-FISHES FROM ITSEKIRI FISHING COMMUNITIES, DELTA STATE NIGERIA

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Abstract:

Fin-fishes are important human nutrient source, with documented versatile indigenous utility in medicine, social, cultural, traditional and religious rites and, celebrations. Nigeria, endowed with tremendous fin-fish resources has limited reports of utilization of fin-fishes by its numerous ethnic civilizations. An ethnozoological survey of fin-fish species was conducted in selected Itsekiri fishing communities of Delta State, Nigeria. 300 participants were interviewed, 271 were from Itsekiri fishing communities, while the remaining 29 were from non-Itsekiri fishing communities (controls), within Niger Delta, for accuracy of responses. Qualitative fin-fish data were also collected at all fishing jetties in study areas. Data were explored using ethnozoological indices of Use Value of Species (UVs), Relative Frequency of Citation (RFC) Index and Relative Importance Index (RI). Fifty-two fin-fish species were identified. 29 species were associated with medicinal purposes, 14 species for religious/spiritual rites, and 11 species for cultural practices and rites. Fertility-related issues were identified as the most-metioned health condition requiring fin-fish bearing medicinal interventions. *Malapterurus electricus* was the only species with same uses across all the communities visited. Furthermore, UVs, RFC and RI indicated the use of different fin-fishes, by some communities, for similar spiritual, cultural, religious and medicinal interventions. Indigenous fin-fish names from the study area were mono-specific in nature. 24 identified species are on list of species nationally, with conservation challenges. *Chrysichthys aluuensis* (Claroteidae) and *Pentanemus quinquarius* (Polynemidae) are additionally listed on IUCN redlist, as endangered and vulnerable respectively. Ethnozoological data on the use of fin-fishes in indigenous medicine, religious rites, social, cultural and traditional celebrations in Itsekri civilization, indicated intimate and, extant interrelationships. Primacy of medicinal uses reinforced the use of fauna in indigenous medicine, however use of fin-fishes needs more research and understanding, comparable with

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other faunal groups, and correct misgivings associated with ethnic medicine in Nigeria.

Keywords: Ethnozoology; Fin-fishes; Itsekiri; Medicinal uses; Nigeria.

1. Introduction

Indigenous knowledge of fauna, and the culturally mediated relationships with people, has been experiencing resurgence, especially their uses in natural and complementary medical interventions and therapies. Nigeria had benefitted from this renewed interest in understanding the relationships of indigenous population with fauna in their immediate surroundings. Terrestrial fauna has received a disproportionately higher attention and documentations (ADEOLA, 1992; TAYLOR AND FOX, 1992; SODEINDE AND SOEWU, 1999; BANJO et al., 2003; DEDEKE et al., 2006; LAWAL AND BANJO, 2007; SOEWU, 2008; IJEOMA AND ALAGOA, 2012; SOEWU et al., 2012; SOEWU, 2013; SOEWU AND ADEKANOLA 2013; ADEMOLU et al., 2015; SOEWU et al., 2020), compared with aquatic fauna as reflected by limited reports (LAWAL AND BANJO, 2007; SOWUNMI, 2007; ORILOGBON AND ADEWOLE, 2011; EHINMORE AND OGUNODE 2013; AGHOGHOVWIA et al. 2018) on ethnozoology of aquatic animals. Reasons for the disparity has been difficult to ascertain, but Sowunmi (2007) suggested easy availability, visibility and accessibility of terrestrial resources, compared with the aquatic counterpart. However, interaction of humans with aquatic fauna is widely documented and reported in many parts of the world (SIMAO SEIXAS AND BEGOSSI, 2001; ALVES AND ROSA, 2005; MAJUMDER AND DEY, 2007; ALVES AND SOUTO, 2011; VALLEJO AND GONZALEZ, 2014; NOBLE et al., 2016; KENDIE et al., 2018; PINTO et al. 2018; BRAGA et al. 2019; SVANBERG AND LOCKER, 2020), making its understanding imperative, considering the diversity, distribution and magnitude of aquatic resources in Nigeria. Such studies have additional benefits of providing information for effectively understanding past fishery systems, development of ecological and cultural baselines for effective management strategies for over-fishing, habitat loss, climate change, and other consequences of human activities (QUINTANA MORALES et al., 2017).

Itsekiri is an ethnic nationality primarily found in the westernmost part of Niger Delta of Nigeria, along coastal areas in Delta (Warri south, Warri southwest and Warri north local government areas), Ondo and Edo states. Traditionally they produced fish, crayfish and salt, exchanged for the agricultural products of their hinterland neighbors. The traditional capital of the Itsekiri, now called Ode Itsekiri or Big Warri, is 6.5 km (4 miles) from the modern town of Warri, on an island within the creeks. Historically, Itsekiris were the first to establish contact with the Portuguese who were exploring the West African coast, largely due to their fishing trades and habitation. When the Portuguese missionaries were spurned in Benin, the Itsekiri rulers welcomed them; the early development of the kingdom is believed to owe much to this contact with Europeans. The Itsekiri language bears a striking similarity to either Ekiti, Igara, or Ilaje (Mahin), thus considered a dialect of Yoruba. However, Itsekiri customs in most material respects are identical to the Bini (Edo) (LLOYD, 1963; MOORE, 1970; ATSENUWA, 2021).

Indigenous populations have been reported to have premium social, cultural and religious attachment to resident fauna with which they have intimate contacts (ALVES AND BARBOZA, 2018). Details of such interactions between Itsekiri and fin-fishes, with which they historically associate intimately, is presently not available. Therefore, this study seeks to provide details of social, cultural and therapeutic uses of fin-fishes in Itsekiri communities from Delta State. Nigeria.

2. Materials and methods

Total of 300 consenting respondents were recruited from fisherfolks, fish-sellers, indigenous medicine recipe traders, custodians and practitioners of indigenous medicine, priests, and other residents of the communities. 271 respondents were from Itsekiri communities (Delta state), with 18 and 11 from Andoni and Ahoada (Rivers state) and Nedugo-Gbaran kingdom (Bayelsa state) fishing communities respectively, as controls. Consent of participants were obtained after duly informing them, orally, of the purpose of the survey, following ISE (2006) Code of Ethics. In some communities, homes were also visited. However, the choice of participation was based on the availability and willingness of the participate.

Demographic and ethnoichthyological information were collected from each respondent. Ethnoichthyological information were: common and indigenous names of finfish, uses (medicinal, cultural, ceremonial or spiritual), nature/methods of use (whole, parts, fresh, dried/smoked, number specifications), associated premium/importance, sacred restrictions/limitations imposed or associated with the use and/or contact with the fishes. Interpreters were used where necessary during the collection of information. Prior to interviews fishing/fish landing jetties were visited daily for one week, samples of fin-fish species harvested were collected and/or photographed. Information on species harvested but not available at time of visits were also collected, by showing participants printed photograph of fin-fishes reported from previous studies, on Niger Delta, to assist in identification and data collection. Fin-fishes collected were properly identified by Amadi, PI and Sowunmi, AA at the Department of Zoology, University of Ibadan, using zoology museum references, and identification keys of Schneider (1990), Idodo-Umeh (2003) and Olaosebikan and Raji (2013).

Ethnozoology data were analyzed using the following ethnozoological indices:

2.1 Relative Frequency of Citation (RFC) Index:

This index depicts the importance attached to each species by natives or indigenous population and is given by the Frequency of Citation (FC) (the number of informants mentioning the use of the species) divided by the total number of informants participating in the survey (N), without considering the use value (TARDI´O AND

PARDO-DE-SANTAYANA, 2008; VITALINI et al., 2013). RFC index varies from 0 to 1 When RFC index is 0, it means that no respondent refers to the animal as useful and when RFC=1, it means that all informants in the survey refer to the animal as useful (MOOTSAMY AND MAHOMOODLY, 2014; SHARMA et al., 2021).

2.2 Use Value of Species (UVs):

The Use Value (UVs) demonstrates the relative importance of fishes known locally. It was calculated using the following formula: UVs =ΣUs/N

Where Us is the number of uses mentioned by each informant for a given species and N is the total number of informants (ALBUQUERQUE et al. 2006; TARDÍO AND PARDO-DE-SANTAYANA, 2008).

2.3 Relative Importance Index (RI):

The relative importance of species cited by the informants is calculated as suggested by Tardío and Pardo-de-Santayana (2008),

$$RI = \frac{RFC_{max} + UV_{max}}{2}$$

Where; RFC_{max} = the relative frequency of citation over the maximum, i.e., it is obtained by dividing FCs by the maximum value in all the species of the survey, UV_{max} = the use value of species over the maximum, i.e., it is obtained dividing the number of uses of the species by the maximum value in all the species of the survey

The RI index theoretically varies from 0, when nobody mentions any use of the fish, to 1 in the case where the fish was the most frequently mentioned as useful and in the maximum number of use value.

3. Results

3.1 Demographic Information:

Respondents from the selected communities interviewed were: Delta State (Itsekiri) 271 (90.33%), Rivers State (Andoni and Ahoada communities) 18 (6.00%) and Bayelsa State (Nedugo-Gbaran kingdom) 11 (3.67) (Table 1). 203 (67.67%) males compared with 97 (32.33%) females, participated in the study. Itsekiri had 184 (67.90%) males and 87 (32.10%) females, Ahoada and Andoni of Rivers State had 12 (66.67%) males and 8 (33.33%) females, and Nedugo-Gbaran Kingdom of Yenegoa in Bayelsa state was 7 (63.64%) males and 4 (36.36%) females. Age distribution of the interviewees ranged from below 19 to above 80 years; the age range with highest frequency was within 20-29 (28.78%) for Itsekiri, 40-49 (44.44%) for Rivers communities and 30-39 (54.55%) for

Nedugo-Gbaran kingdom. The age range having least frequency was age >80 (0.37%), 60-69 (5.56%), and 50-69 (9.09%) for Delta, Rivers and Bayelsa respectively.

Knowledge content was least among 20-29 age group and richest among age group >80. Eight midwives, representing 2.95% of respondents, were encountered only in Itsekiri communities. Traditional medicine traders/practitioners and priests were present respectively in Itsekiri 8 and 4 (2.95 and 1.48%) and Rivers 2 and 1 (11.11 and 5.55%) communities. Sixty fisherfolks and 20 fishsellers representing (20.00%) and (6.67%) respectively were interviewed across the communities. Other residents totalling 197 (65.67%) also provided information across the communities.

3.2 Fish Ethnozoology

Twenty-four fin-fish families, made up of 52 species, identified during study, their habitats and common names are presented as Table 2. Sharks (Carcharhindae) were exclusively marine; Moon fish (Citharinidae), African catfishes (Clariidae), climbing gouramies (Anabantidae), trunkfish (Gymnarchidae), African pike (Hepsetidae), African bony tongue (Osteoglossidae), Nile perch (Latidae), electric catfish (Malapteruridae), African lungfish (Protopteridae), snakeheads (Channidae), birchir (Polypteridae), butterfish (Schilbeidae), upside down catfish (Mochokidae) were exclusively freshwater fishes. The remaining families were able to transit across multiple water habitats. Indigenous names of the fin-fish collected are presented as Table 3. *P. africana*, *H. odoe* and *M. electricus* were the species with indigenous names from all the communities visited; these three species are exclusively freshwater.

Diversity of uses of the fish species (Table 4-6), the part (s) (Table 7) required, and ethnozoological use reports and categorization (Table 8) are presented according to the communities. Medicinal preparations and interventions had highest (29 species) mention and use of fish species, followed by spiritual/religious (14 species) and cultural (11species) respectively. *M. electricus* was mentioned and used for spiritual and physical protection/fortification and; treatment of seizures (stroke, convulsion, epilepsy) across all the communities (Tables 4-6).

Species with highest UV (0.02) in the Itsekiri study areas (Table 4) were *C. nigrodigitatus, L. niloticus, P. quinquarius*, and *P. quadrifilis* respectively followed by *H. odoe* and *M. electricus* (0.01). Fin-fish species from Rivers study area (Table 5) had highest number of use value as *G. niloticus* (0.44) followed by *P. obscura* and *M. electricus* (0.39); *P. quadrifilis* and *Sphyraena spp.* (0.28); *C. nebulosum*, *L. niloticus* and *P. bichir* (0.22) and, *H. odoe* (0.17). *P. annectens* had the highest UV = 0.73 in Bayelsa (Table 6) communities, followed by *H. bidorsalis* and *M. electricus* (0.55), *P. obscura* and *G. niloticus* (0.18).

Relative Frequency of Citation (RFC), an indicator of the local importance for species showed most cited species in Itsekiri community (Table 4) were: *M. electricus* (0.22), *P. quadrifilis* and *H. odoe* (0.21), *L. niloticus* (0.18), P. *obscura* (0.17), *B. africanus* and *P. quinquarius* (0.15). While that of Rivers (Table 5) was: *E. calabaricus* (0.61) followed by *P. quadrifilis* (0.55), *Sphyrna spp*. (0.50), *P. mariae* and *S. intermediatus* (0.39), *N. afer* (0.33) and that of Bayelsa (Table 6) were: *P. annectens* and *M. electricus* (0.27), *P. mariae* (0.18),

P. birchir, *P. obscura*, *H. niloticus*, *H. odoe*, *G. niloticus*, *D. margarita*, *H. bidorsalis*, *C. gariepinus*, *C. anguillaris*, *C. citharius* (0.09).

Relative Importance (RI) indicative of the availability of named species of value in the study areas. *P. quadrifilis* (0.98) has the highest in Itsekiri study areas (Table 4) followed by *C. nigrodigitatus* (0.95); *L. niloticus* (0.90); *M. electricus* (0.84); *P. quinquarius* (0.75); *H. odoe* (0.73); *B. africanus* (0.52). Table 5 shows that *P. quadrifilis* (0.77) recorded highest in Rivers followed by *N. afer* (0.68), *P. obscura* (RI = 0.62) and others, while in Bayelsa as shown in Table 6, *P. annectens* recorded the highest with a relative importance value of 1.00, followed by *M. electricus* (0.88), *H. bidorsalis* (RI = 0.54) and others.

The medicinal use of fin-fishes was highest across the communities (Table 8), with 75.76%, 58.21% and 52.78% respectively from Bayelsa, Rivers and Itsekiri communities. The religious/spiritual (27.78%) and cultural (19.44%) uses of fin-fish was highest in Itsekiri communities compared with communities in Rivers (22.39% and 19.40%) and Bayelsa (12.12% and 12.13%) respectively.

4. Discussion

The premium on fin-fishes by fishing communities is probably not duly appreciated, because of overarching visibility of fish consumption compared with other more important, but less visible uses of fin-fishes. The tacit nature of information associated with indigenous population, according to Makinde and Shorunke (2013), has contributed to the diminished knowledge on diversity of community-level uses of finfishes. Fin-fishes have been reported as essential in Nigerian ethnic religious, spiritual, cultural and medicinal civilizations (AGHOGHOVWIA et al. 2018; NGODIGHA et al. 2017; ORILOGBON AND ADEWOLE, 2011; SOWUNMI, 2007; ALADE et al. 2018).

Indigenous knowledge custody by men and women on uses of fin-fishes has never been investigated however, present study indicated higher proportion of men, provided information on the use of fin-fishes in the communities visited. Orilogbon and Adewole (2011) earlier reported similar observation, but the ethnoichthyology was not limited to fishing communities. Ajagun et al. (2017) in a broad-based ethnozoology study, indicated possible gender-related specialization between priests and ingredient vendors; Alade et al. (2018) however, reported higher female respondents from fishing communities, but the scope was not limited to ethnozoology of fishes. Gender responsibility and/or livelihood specialization at community level, as suggested by Fernández (1994), and labour intensive nature of fishing might be the underlying reasons for the unequal access and hence, provision of information related to the use of fin-fishes in the present study.

Fin-fish families and species identified were higher than numbers reported from earlier exclusive studies on ethnozoology of fin-fishes by Sowunmi (2007), Orilogbon and Adewole (2011), Ehinmore and Ogunode (2013) and Ngodigha et al. (2017); with exception of Sowunmi (2007), these studies were conducted in fishing communities like the present report.

The diversity of medical conditions identified as requiring use of fish or fish product was lower than those reported by Sowunmi (2007). But similar kinds of spiritual, cultural or religious uses of fin-fishes were reported by Orilogbon and Adewole (2011) and Ehinmore and Ogunode (2013). Sowunmi (2007) exlusively used documented family records as sources of information in the reported study; contrary to Orilogbon and Adewole (2011) and Ehinmore and Ogunode (2013) and present study, which solely depended on solicited information from residents/inhabitants, priests/spiritualist, natural healing practitioners and ingredient vendors.

Fertility, ante natal and gynecological treatments and management appeared to be most sought intervention by residents; reinforcing the premium associated with legacies and lineages by humans throughout history. Previous reports on fish ethnozoology, based on number of fish species associated with such interventions, supported this position. The contrary was however observed for wildlife, as limited use in fertility, ante natal and gynecological treatment and management were reported. Furthermore, medicinal uses or interventions dominated the use of fishes similar to previous ethnozoology reports for fish (SOWUNMI 2007; ORILOGBON AND ADEWOLE, 2011; EHINMORE AND OGUNODE, 2013; AGHOGHOVWIA et al. 2018) and wildlife (TAYLOR AND FOX, 1992; SODEINDE AND SOEWU, 1999; BANJO *et al.*, 2004; LAWAL AND BANJO, 2007; SOEWU, 2013; SOEWU et al., 2020).

The use of different species by different communities for similar purposes showed the pivotal nature of presence of a fin-fish and/or fish parts. This provided the basis to suggest a convergence of the following in fishing communities or communities located along, or adjacent to, water bodies: i. certain cultural/ceremonial rites ii. spiritual interventions and, iii. natal/fertility challenges and management. This is supported by ethnozoological indices of Use Values (UVs), citations (RFC) and availability (RI) which additionally indexed and suggested multiple origins and evolution of spiritual, cultural, religious and medicinal uses of fin-fish species across the communities, ethnic civilizations, and associated uses. *M. elecricus, P. obscura, Clarias* spp. and *H. odoe* reported from all the communities for similar purposes were earlier reported by Sowunmi (2007), Orilogbon and Adewole (2011), Ehinmore and Ogunode (2013) and Ngodigha et al. (2017), Alade et al. (2018) for same uses, suggesting universal and similar use of these species.

Fish ethnotaxonomy and documentation is limited in Nigeria, thus the underlying cultural and linguistic peculiarities for naming fin-fishes in the Niger Delta was not available. However, using the suggestion of Berlin (1992), most fishes appeared to have mono-specific names as terminal nomenclature. This differed from binomial naming of fishes observed in Southwest Nigeria (SOWUNMI, 2007). None of the other studies attempted an explanation of ethnotaxonomic peculiarities of fishes identified. The nature of the names indicated diversity of features described by Berlin (1992). Most were mononomial, synonymy appeared to be a feature as similarly observed by Sowunmi (2007) in *Yoruba* names of fishes. Relationships between names and physical characteristics or habitat also appeared to be a feature of fish taxonomy from Niger Delta.

C. aluuensis (Claroteidae) and *P. quinquarius* (Polynemidae) are the species, from this study, listed on International Union for Conservation of Nature (IUCN) redlist, as

endangered and vulnerable respectively. However, 24 species from 18 families (Table 1) have been previously reported from contiguous (OGUNTADE et al. 2014; EKPO et al. 2016) and other water bodies (BANKOLE et al. 1994; OLAOSEBIKAN AND BANKOLE, 2005; MUSTAPHA, 2010) in Nigeria to be facing intense conservation challenges. Human-faunal interface has contributed to faunal depletion, but fin-fish depletion intensity associated with indigenous uses, aside consumption in Nigeria, has never been ascertained. Therefore, the reported conservation challenges suggested, were reflective of totality of human contacts with the aquatic environment, and associated consequences on the fin-fish assemblages.

5. Conclusion

The limited information on the use of fin-fishes by ethnic groups in Nigeria, has diminished the importance of this faunal group in ethnozoological considerations. However, the scope of its use in medicine, social, cultural, traditional and religious rites, and celebrations presented in this study, provided additional bases for further studies, among the numerous ethnic nationalities of Nigeria. The diversity, magnitude and the utilitarian values of these information has been greatly underestimated, often attracting limited or no enthusiasm. In addition, the overwhelming use in medicinal interventions suggests the need to understand the roles and possible mechanisms of action, of fin-fishes or their components.

Acknowledgements

We are extremely grateful to all the respondents who provided invaluable information and knowledge, the interpreters who assisted with overcoming the communication difficulties; without their contribution, this study would have been impossible. Finally, we appreciate the community leaders for their support and willingness to participate and, also convince residents to be part of this study. No funding support was obtained for this research.

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Table 1: Demographic Characteristics of Respondents

		Delta		**Rivers**		**Bayelsa**		**Total**	
Demography	**Category**	**No**	**Percentage (%)**	**No**	**Percentage (%)**	**No**	**Percentage (%)**	**No**	**Percentage (%)**
Gender	Male	184	67.90	12	66.67	7	63.64	203	67.67
	Female	87	32.10	6	33.33	4	36.36	97	32.33
Total		**271**		**18**		**11**			
Marital Status	Single	94	34.69	5	27.78	2	18.18	101	33.67
	Married	152	56.09	6	33.33	8	72.73	166	55.33
	Divorced	13	4.79	2	11.11			15	5.00
	Widow (er)	12	4.43	5	27.78	1	9.09	18	6.00
Total		**271**		**18**		**11**			
Age	≤ 19	15	5.54					15	5.00
	20 – 29	78	28.78					78	26.00
	30 – 39	76	28.04	3	16.67	6	54.55	85	28.33
	40 – 49	69	25.46	8	44.44	3	27.27	80	26.67
	50 – 59	26	9.59	6	33.33	1	9.09	33	11.00
	60 – 69	4	1.48	1	5.56	1	9.09	6	2.00
	70 – 79	2	0.74					2	0.67
	80 and Above	1	0.37					1	0.33
Total		**271**		**18**		**11**			
Communities	Itsekiri (Delta)							271	90.33
	Ahoada and Andoni (Rivers)							18	6.00
	Nedugo-Gbaran (Bayelsa)							11	3.67
Categories of Participants/Respondents	Midwives	8	2.95					8	2.67
	Traditional Medicine Traders/ Practitioner	8	2.95	2	11.11			10	3.33

	Traditional Priest	4	1.48	1	5.55			5	1.67
	Fisherfolks	51	18.82	4	22.22	5	45.45	60	20.00
	Fish Sellers	16	5.90	2	11.11	2	18.18	20	6.67
	Others	184	67.90	9	50.00	4	36.36	197	65.67
Total		**271**		**18**		**11**			

Table 2: Fin-fish of ethnozoological importance, habitats and common names from the study area.

Family	Species	Habitat	Common Name
*Eleotridae	*Bostrychus africanus* (Steindachner, 1880)	Brackish water	Smooth Mudfish
*Claroteidae	#*Chrysichthys nigrodigitatus* (Lacépède, 1803) #*Chrysichthys aluuensis* (Risch, 1985)	Fresh and Brackish water	Silver Catfish Catfish
*Citharinidae	#*Citharinus citharus* (Geoffroy Saint-Hilaire, 1809)	Freshwater	Moonfish
	#*Citharinus distichodoides* Pellegrin, 1919	Freshwater	Moonfish
*Clariidae	#*Clarias anguillaris* (Linnaeus, 1758)	Freshwater	Mud Catfish
	#*Clarias gariepinus* (Burchell, 1822)	Freshwater	Sharp-tooth Catfish
	#*Heterobranchus bidorsalis* (Geoffroy Saint-Hilaire 1809)	Freshwater	Catfish
*Anabatidae	*Ctenopoma petherici* Gunther, 1844 *Ctenopoma kingsleyae* Gunther, 1896	Freshwater	Climbing perch Two spot Climbing perch
*Dasyatidae	#*Dasyatis garouaensis* (Stauch & Blanc, 1962) #*Dasyatis margarita* (Gunther, 1870)	Freshwater	Smooth Freshwater stingray Daisy stingray
*Gymnarchidae	#*Gymnarchus niloticus* Cuvier, 1829	Freshwater	Trunkfish
*Hepsetidae	#*Hepsetus odoe* (Bloch 1794)	Freshwater	African Pike
*Osteoglossidae	#*Heterotis niloticus* Cuvier 1829	Freshwater	African bony-tongue
*Latidae	#*Lates niloticus* (Linnaeus, 1758)	Freshwater	Nile Perch
*Malapteruridae	#*Malapterurus electricus* (Gmelin, 1789)	Freshwater	Electric Catfish
*Notopteridae	#*Xenomystus nigri* Gunther, 1868 #*Papyrocranus afer* Gunther, 1868	Fresh and Brackish water	African Knife-fish Featherback
*Protopteridae	#*Protopterus annectens* (Owen, 1883)	Freshwater	West African Lungfish
*Channidae	#*Parachanna obscura* (Gunther, 1861) *Parachanna africana* (Steindachner, 1879)	Freshwater	Snakehead
Cichlidae	*Chromidotilapia guentheri* (Sauvage, 1882) *Hemichromis bimaculatus* (Gill, 1862) *Hemichromis fasciatus* (Peters, 1857) *Oreochromis niloticus* (Linnaeus, 1758) *Oreochromis aureus* (Steindachner, 1864) *Sarotherodon galilaeus* (Linnaeus, 1758) *Sarotherodon melanotheron* (Ruppell, 1852) *Coptodon guineesis* (Bleeker, 1862) *Pelmatolapia mariae* (Boulenger, 1899) *Coptodon zilli* (Gervais, 1848)	Freshwater	Tilapia Cichlid Jewel fish/ Banded jewel Nile tilapia Blue tilapia Mango tilapia Blackchin tilapia Guinean tilapia Spotted tilapia Redbelly tilapia

*Polynemidae	#*Pentanemus quinquarius* (Linnaeus, 1758)	Marine and Brackish water	Royal Threadfin
	#*Polydactylus quadrifilis* (Cuvier, 1829)	Marine, Fresh and Brackish water	Giant African Threadfin
*Polypteridae	#*Erpertoichthys calabaricus* (Smith, 1866)	Fresh and Brackish water	Reed fish/Calabar reed
	#*Polypterus bichir birchir* Lacepede, 1803	Freshwater	Bichir fish
*Schilbeidae	*Schilbe intermedius* (Rupell, 1832) #*Schilbe mystus* (Linne, 1758)	Freshwater	Butter Catfish African Butter catfish
Sphyraenidae	*Sphyraena barracuda* (Walbaum, 1792) *Sphyraena guachancho* Cuvier, 1829 *Sphyraena afra* Peters, 1844 *Sphyraena sphyraena* Linnaeus, 1758	Marine and Brackish water	Great barracuda Guachanche barracuda Guinea barracuda European barracuda
Sphyrnidea	*Sphyrna zygaena*	Marine and Brackish water	Smooth Hammerhead
*Mochokidae	*Brachysynodontis batensoda (Ruppel 1832)* *Synodontis budgetti* Boulenger, 1911 #*Synodontis membranaceous* (Geoffrey Saint-Hilaire, 1809) *Synodontis gambiensis* Gunther, 1864 *Synodontis nigrita* Cuvier and Valenciennes, 1864	Freshwater	Upside down Catfish Upside-down catfish Upside-down catfish Catfish Upside-down catfish
Carcharnidae	*Carcharinus brachyurus*	Marine water	Copper Shark
Ariidae	*Arius heudeloti* Valenciennes 1840 *Arius latiscutatus* Gunther, 1864	Fresh, Brackish and Marine water	Smooth-mouth Sea Catfish Rough-head Sea catfish
Monodactylidae	*Psettias sebae* (Cuvier 1831)	Fresh, Brackish and Marine water	African moony

Species with conservation challenges * Families with conservation challenges

Table 3: Indigenous Name (s) of Fin-fish from the Study Area

S/N	Names					
	Scientific	**Itsekiri**	**Ijaw**	**Ekpeye Name**	**Obolo**	**Isoko/Urhobo**
1	*H. bidorsalis*		*Toruye*			*Orhuere*
2	*G. niloticus*		*Aba*	*Asa*	*Asa*	*Eba*
3	*L. niloticus*	*Obira*		*Agbara/ Ikiriki*	*Nken*	
4	*Sphyraena spp.*	*Oduror*		-	*Udute*	
5	*C. nebulosum*			*Unuwe-ukudhor*	*Isioh*	
6	*X. nigri*	*Oteke*		*Obele-Obu*	*Pina*	
7	*P. afer*	*Oteke*		*Obele-Obu*	*Pina-Emuawaji*	
8	*Parachanna spp.*	*Gbime*	*Eyoro*	*Nwigbiozor/Ikpoo*	*Olailai/ Efene*	*Ovuoro/ Ophoro*
9	*H. niloticus*	*Agbadagiri*		*Apa-Ele*	*Efen-nkata*	*Ohorhe*
10	*D. margarita*	*Opuepue*	*Sika*	*Sika*		
11	*P. quadrifilis*	*Ebe*		*Ndah*	*Ndah/ Urah*	
12	*P. quinquarius*	*Oluoror/ Ebe*			*Ofunbo*	
13	*S. batensoda*	*Efen*	*Opuwei-Ikpoki*	*Okpor*	*Ekwa-nmala*	
14	*H. odoe*	*Jekere*	*Desowe*	*Okea*	*Ekpoelea-mudu*	*Egbeje*
15	*P. annectens*		*Ebieseni*			*Ebi-ame'*
16	*M. electricus*	*Eja Ojiji*	*Ama*	*Egbi-Egbi*	*Ajuoku/ Akpalele*	*Orhirhi*
17	*E. calabaricus*	*Osie*		*Ewulu*	*Oluomu*	
18	*P. sebae*	*Ologudo*		*Abali-li-eye*	*Uwebuo*	
19	*P. bichir bichir*	*Ifin*		*Agbagoro/ Akata*	*Asa-lede*	*Ama-Akata*
20	*C. distichodoides*		*Kolo*	*Iwuro*		
21	*C. brachyurus*	*Ologure*			*Oforima*	
22	*S. zygaema*	*Udele*			*Utonton*	
23	*C. citharus*		*Ofou*			*Evru*
24	*C. gariepinus*	*Oligun*	*Umunu*	*Awashi*		*Emeruo'*
25	*C. anguillaris*		*Imunu*	*Ogholi*		
26	*S. intermedius*	*Iyhansi*			*Ababa*	
27	*C. guentheri Hemichromis spp. Oreochromis spp.*	*Ekpiye/ Ekoko/ Kpekpere*		*Apa Epirima/ Asa-Ekele*		*Omofe*

	Sarotherodon spp. *Coptodon spp.* *P. guentheri* *P. mariae*					
28	*Clarias spp.*	*Iruoh*				
29	*A. heudeloti*	*Uji-Iruoh*		*Egeli*		
30	*C. nigrodigitatis*	*Igangan*	*Unguli*			
31	*B. africanus*	*Kuri*				

Table 4: Ethnozoology and associated indices of fin-fishes from Itsekiri fishing communities

Scientific Name of Fish	Ethnozoological Use	UVs	RFC	RI
P. quinquarius	Burial rites; marriage rites; ancestral/religious worships; impotency; ante-natal management	0.02	0.15	0.75
P. quadrifilis	Burial rites; marriage rites; ancestral/religious worships; ante-natal; impotence; male infertility treatment	0.02	0.21	0.98
M. electricus	Seizures; amnesia; spiritual/physical protection; deity veneration/propitiation	0.01	0.22	0.84
P. obscura	Ante-natal management	0.004	0.17	0.46
L. niloticus	Marriage rites; burial rites; ancestral/religious worships spriritual protection; impotency; fertitlity treatments/remedies in men and women	0.02	0.18	0.90
B. africanus	Broken wrist (tendonitis wrist); Ante-natal management	0.007	0.15	0.52
H. odoe	Ante-natal management; spiritual/physical protection; ancestral/religious worships	0.01	0.21	0.73
C. nigrodigitatus	Fertility treatments/enhancement in women; postnatal; general wellness; ante-natal mangement; antidotes	0.02	0.03	0.95
S. intermedius	Spiritual attack antidotes	0.004	0.004	0.10
S. batensoda	Post-natal management; chest Issue	0.007	0.007	0.18
D. margarita	Skin irritation; Deity veneration/propitiation	0.007	0.007	0.18
H. niloticus	Deity veneration/propitiation	0.004	0.004	0.10
P. mariae	Burial rites	0.004	0.02	0.13
Clarias spp.	Ante-natal management	0.004	0.02	0.13

Table 5: Ethnozoology and associated indices of fin-fishes from fishing communities in Rivers State

Scientific Name of Fish	Ethnozoological Use	UVs	RFC	RI
P. quadrifilis	Marital rites/marriage excursion; surgical threads; Ward off evil; Prosperity; Reverse curse	0.28	0.55	0.77
G. niloticus	Marital rites/marriage excursion; Goodluck; Purification; hypertension; chronic cough; ear discharge, inflammation and infection; naturally capture husband's heart	0.44	0.11	0.59
M. electricus	Seizure and associated disorders; Stroke; protection	0.39	0.17	0.51
P. obscura	Infertility treatment; marital rites/marriage excursion; burial rites; fertility treatments; ante-natal management	0.39	0.22	0.62
L. niloticus	Final burial rites (farewell to dead); marital rites/marriage excursion; festivals	0.22	0.17	0.39
H. odoe	Infertility; rhesus factor treatment; oral poison antidotes	0.17	0.22	0.37
C. gariepinus	Ear inflammation; infertility treatment	0.11	0.05	0.17
C. anguillaris	Ante-natal management; fertility treatments	0.11	0.05	0.17
A. heudeloti	Scorpion anti-venom	0.05	0.17	0.20
S. intermedius	Ear discharge, inflammation and infection	0.11	0.39	0.45
D. margarita	Anti-venom (snake and Stingray)	0.11	0.11	0.22
H. niloticus	Long-life	0.11	0.05	0.17
P. mariae	Insomnia	0.05	0.39	0.39
E. calabaricus	Fertility improvement	0.05	0.61	0.56
P. sebae	General wellness and well being	0.05	0.05	0.11
P. b. bichir	Chronic cough; anti-snake venom; Increase agility/virility in men	0.22	0.05	0.30
X. nigri	Marital rites/marriage excursion; Anti-poison (Spiritual)	0.11	0.28	0.35
C. distichodoides	Fertility enhancement; Ante-natal management	0.11	0.11	0.23
S. batensoda	Tooth treatment; Long life	0.11	0.11	0.22
C. nebulosum	Chronic cough; marital rites/marriage excursion; Reverse spiritual attacks; Traditional rite propitiation	0.22	0.11	0.34
P. quinquarius	Reversal of spiritual attacks	0.05	0.05	0.11

C. brachyurus	Bone and muscle massages (physiotherapy)	0.05	0.17	0.20
Sphyraena spp.	Marital rites/marriage excursion; house warming; cultural prayers and blessings from elders; avert infidelity curse in women; propitiation.	0.28	0.11	0.40
S. zygaema	Stroke/paralyses management	0.05	0.50	0.47
P. afer	Treatment for Otorrhea; Thread for Surgical Operation	0.11	0.33	0.68

Table 6: Ethnozoology and associated indices of fin-fishes from fishing communities in Bayelsa State

Scientific Name of Fish	Ethnozoological Use	UVS	RFC	RI
M. electricus	Ante-natal management; Convulsion in children; spiritual/physical protection; enhancement of memory	0.55	0.27	1.00
P. obscura	Ante-natal management	0.18	0.09	0.29
H. odoe	Fertility enhancement	0.09	0.09	0.23
P. annectens	Anti-poison; ante-natal management; asthma treatment; spiritual protection; stomach ulcer management; indigestion; convulsion; anti-microbial infection especially from thorns or nail injuries	0.73	0.27	1.00
C. anguillaris	Treatmemt of skin irritation like Eczema	0.09	0.09	0.23
C. gariepinus	Enhance fertility in women	0.09	0.09	0.23
D. margarita	Snake anti-venom	0.09	0.09	0.23
H. bidorsalis	Ante-natal management; burial rites; marriage rites; infertility in women	0.55	0.09	0.54
P. obscura	Infertility treatment in women	0.18	0.09	0.29
C. citharus	Treatment of waist pain	0.09	0.09	0.23
P. bichir	Treatment of neck pain resulting from wrong sleeping posture	0.09	0.09	0.23
H. niloticus	Long life	0.09	0.09	0.23
G. niloticus	Burial and marriage rites	0.18	0.09	0.29
P. mariae	Appendicitis	0.09	0.18	0.40

Table 7: Fin-Fish part(s) used in preparations

S/N	Name of Fish	Part(s) Used
1.	*P. quadrifilis*	Head, Tail, Intestine
2.	*B. africanus*	Blood
3.	*S. intermediate*	Spine
4.	*G. niloticus*	Small Intestine, Tail
5.	*P. bichir*	Bile
6.	*M. electricus*	Bone, Live Fish
7.	*Citharinus spp.*	Bile
9.	*A. heudeloti*	Spine
10.	*S. batensoda*	Jaw-bone,Intestine
12.	*D. margarita*	Tail,Spine, Live Fish
13.	*C. anguillaris*	Intestine, Blood
16.	*H. niloticus*	Live Fish
18.	*X. nigri*	Spine
20.	*L. niloticus*	Head, Tail, Flesh
21.	*P. obscura*	Intestine, Flesh
26.	*E. calabaricus*	Bile
29.	*S. zygaena*	Oil
30.	*C. brachyurus*	Oil

Table 8: Relative use Categories in Selected Communities

Categories of Uses	Itsekiri	Rivers	Bayelsa
Cultural Usage	7 (19.44)	13 (19.40)	4 (12.12)
Religious/Spiritual Usage	10 (27.78)	15 (22.39)	4 (12.12)
Medicinal Usage	19 (52.78)	39 (58.21)	25 (75.76)
Total	**36 (100)**	**67 (100)**	**33 (100)**

Received in: 01/07/2025
Approved in: 12/03/2025
Published in: 17/03/2025