PERCEPTIONS OF HYBRID *COPTODON* RESULTING FROM THE CROSSBREEDING OF *COPTODON ZILLII* AND *COPTODON GUINEENSIS* IN THE ÉBRIÉ LAGOON (CÔTE D'IVOIRE)

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Abstract

The Coptodon fish is a species highly prized by the Ivorian population. This situation has repercussions on both the cost and the consumption patterns of Coptodon. Indeed, there is a noticeable scarcity of certain fish species, particularly Coptodon zillii and Coptodon guineensis from the Ébrié Lagoon, especially in the localities of Dabou, Jacqueville, and Songon, with a predominance of the hybrid Coptodon. The purpose of this study is to explore the perceptions held by the population regarding the hybrid Coptodon resulting from the crossbreeding of Coptodon zillii and Coptodon guineensis. The methodological approach adopted was a mixed one. Research tools included interview guides, questionnaires, and observation grids. A total of 390 individuals were surveyed: 6 for the qualitative component and 384 for the quantitative component. Participants included fisheries officers in each village concerned, MIRAH service heads of each locality, fishermen, fishmongers, as well as consumers.

The results show that the hybrid Coptodon is a species appreciated by the population but remains inaccessible due to a local production deficit and financial constraints caused by its high price. This inaccessibility is linked to intense pressure on the lagoon and to fishing practices such as the use of chemicals and other techniques. However, when production is abundant, its financial profitability generally enables the various stakeholders to meet their needs.

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***Keywords**: Hybrid Coptodon, perception, profitability, Ébrié Lagoon, Côte d'Ivoire.*

Résumé

Le poisson Coptodon est une espèce prisée par la population ivoirienne. Cet état de fait a des répercussions sur le coût et le mode de consommation du Coptodon. En effet, il faut noter une rareté de certaines espèces halieutiques, surtout le Coptodon zillii et le Coptodon guineensis de la lagune Ébrié, plus précisément dans les localités de Dabou, Jacqueville et Songon, avec une prédominance du Coptodon hybride. L'objectif de cette étude consiste à connaître les perceptions que les populations se font du Coptodon hybride issu du croisement entre Coptodon zillii et Coptodon guineensis.

L'approche méthodologique s'inscrit dans une démarche mixte. Les instruments de recherche sont le guide d'entretien, le questionnaire et la grille d'observation. Au total, 390 personnes ont été interrogées, dont 6 pour le volet qualitatif et 384 pour le volet quantitatif. Il s'agit des chefs de poste halieutique de chaque village concerné par l'étude, des chefs de service du MIRAH de chaque localité, des pêcheurs, des mareyeuses ainsi que des consommateurs.

Les résultats de l'étude montrent que le Coptodon hybride est une espèce prisée par les populations, mais qu'il demeure inaccessible à cause d'un déficit de production locale et de contraintes financières dues au coût trop élevé de ce poisson. Cette inaccessibilité est liée à une forte pression lagunaire et à l'utilisation de pratiques de pêche telles que l'usage de produits chimiques et d'autres techniques. Toutefois, lorsque la production est abondante, sa rentabilité financière permet en moyenne de subvenir aux besoins des différents acteurs.

***Mots-clés** : Coptodon hybride, perception, rentabilité, lagune Ébrié, Côte d'Ivoire.*

Introduction

The hybrid *Coptodon* resulting from the crossbreeding of *Coptodon zillii* and *Coptodon guineensis* was first reported in Lake Ayamé I by L. Pouyaud (1994). A presence/absence allele matrix was constructed from raw allele frequency data. A multivariate analysis (Correspondence Factorial Analysis) was carried out with the Biomeco software (J. D. Lebreton et al.,

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1990), on 194 individuals and 36 genetic variables. Linkage disequilibrium calculations were also performed. It should be specified that linkage disequilibrium, or gametic disequilibrium, is a parameter which describes the statistical association between two genes at different loci. In cases of hybridisation, it makes it possible, through the study of the different genotypes encountered, to estimate the intensity of the selective forces resulting from the association of the two parental gene pools (L. Pouyaud, 1994).

Building on this genetic perspective, C. S. K. Nobah et al. (2006) provided further experimental evidence by successfully producing reciprocal hybrids of *Coptodon zillii* and *Coptodon guineensis* under controlled conditions, demonstrating that such hybrids are viable. Their study documented the development of caudal fin colour patterns as a key trait distinguishing hybrids from the parental species. At juvenile stages, three distinct phenotypes were observed, but above 13 cm standard length, the hybrid population became homogeneous, characterized by a bicoloured caudal fin with dots. This confirmed that hybrids display intermediate morphology and specific external features that facilitate their identification, thereby complementing Pouyaud's genetic findings.

These results together strengthened the understanding of hybridisation dynamics between the two species in both natural and artificial environments. This paragraph highlights the technical expertise required for scientific awareness of this hybridisation. According to the author, hybridisation remains occasional and often occurs during seasonal fluctuations of environmental factors (such as variations in dam water levels), which modify the behaviour of the two species and bring them into contact.

The presence of hybrid *Coptodon* from the natural crossbreeding of *Coptodon zillii* and *Coptodon guineensis*, two native species of the artificial Lake Ayamé and the entire Bia hydrographic

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system, was revealed by A. Adépo et al. (2006) through genetic identification using hybrid markers. The occurrence of this hybridisation in sectors IV and V of the Ébrié Lagoon was later demonstrated by H. Bopo (2018) using morphometric tools.

Awareness of the existence of this hybridisation has therefore been possible through the use of scientific methods, meaning that recognition is first and foremost scientific. However, what about the awareness and implications of this hybridisation, resulting from the cross between *Coptodon zillii* and *Coptodon guineensis*, among those directly involved in fishing activities—particularly in the Ébrié Lagoon sector? This constitutes one of the key rationales for the present study: to test the awareness of fisheries stakeholders.

For the purposes of this study, fisheries stakeholders are understood to include fishermen, fishmongers, and consumers. If awareness exists, it makes it possible not only to understand how these actors identify this *Coptodon*, but also to account for the knowledge they hold about this fish, which E. Nobah et al. (2019) refer to as the hybrid *Coptodon*.

1. Methodology

The study was conducted using a mixed-methods approach, combining qualitative and quantitative methods in order to capture both detailed perceptions and general trends concerning the hybrid *Coptodon*. Data collection instruments included an interview guide, a standardised questionnaire, and an extensive documentary review on the subject.

With regard to sampling, for the qualitative component, 6 individuals were purposively selected, including 2 MIRAH service heads, 1 fisheries station chief, and 3 head fishermen, in order to gather in-depth and contextual information on the perception of hybridisation. For the quantitative component, 384 participants were surveyed, comprising 25 fishermen, 26

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fishmongers, and 333 consumers, thereby representing the various stakeholders involved in the fisheries sector.

The analysis was guided by the theory of social representations (S.Moscovici, 1984), which makes it possible to understand how populations construct and share knowledge about the hybrid *Coptodon*, and by the theory of profitability (R. H. Coase, 1937), which is useful for assessing the economic motivations of stakeholders and the perceived value of the fish in the sector. The theoretical framework of this research is mainly based on two complementary approaches: Moscovici's (1984) theory of social representations and Coase's (1937) theory of profitability. The former makes it possible to understand how populations construct and share their knowledge about the hybrid Coptodon. Indeed, the observed perceptions whether it is the rejection of the idea of hybridisation, the identification of the fish through sensory criteria such as size, colour, or taste, or even the lack of awareness of the crossbreeding—reflect collective representations derived from empirical knowledge and cultural practices. The latter, focused on the economic logic of actors, sheds light on the choices related to the consumption and marketing of the hybrid Coptodon: despite its scarcity and high price, its profitability and gustatory appreciation make it a valued resource, capable, in times of abundance, of meeting the financial needs of the different stakeholders in the sector. The articulation of these two theories thus shows that the perception of the hybrid Coptodon is not only rooted in cognitive or cultural frameworks, but is also conditioned by economic logics, which accounts for the complexity of its acceptance and valorisation within the riparian communities of the Ébrié Lagoon.

The data were processed and coded using computer software (Word, Excel, Sphinx, KoboCollect). The qualitative approach relied on content analysis, allowing the identification of dominant themes, perceptions, and representations. Quantitative data were analysed statistically to reveal trends, frequencies, and

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relationships between variables, thus offering a global and synthetic understanding of the situation.

This integrated methodology makes it possible to combine the depth of perception analysis with the representativeness of quantitative data, thereby ensuring the reliability and relevance of the results for understanding local perceptions of the hybrid *Coptodon* in the Ébrié Lagoon.

The choice of a mixed-methods approach is justified by the very nature of the research topic. Indeed, the analysis of perceptions related to the hybrid Coptodon requires both an in-depth understanding of social representations and a statistical measurement of their dissemination within riparian populations. The qualitative component, based on targeted interviews with MIRAH officials, fisheries post chiefs, and experienced fishermen, made it possible to gather contextualised and nuanced information on local knowledge, beliefs, and practices. The quantitative component, involving a larger sample of consumers, fishermen, and fishmongers, provided the opportunity to quantify these perceptions and identify general trends. The combination of these two components ensures internal validity through the depth of qualitative analysis, as well as external validity through statistical representativeness. This methodological choice thus makes it possible to account for both the diversity of discourses and the magnitude of the phenomena under study, thereby strengthening the robustness and relevance of the results.

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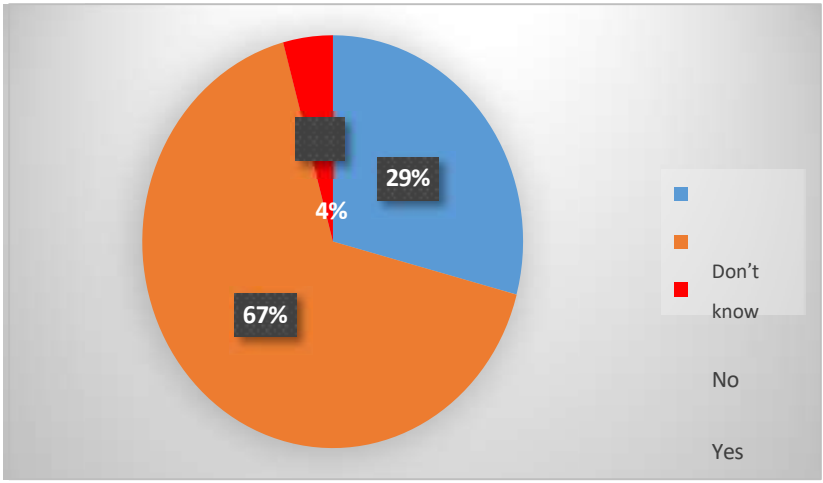
2. Results

2.1. Social representation of two different types of fish mating to produce another type of fish



Source: Fieldwork, 2024

Figure 1: Social representation of two different types of fish mating to produce another type of fish

According to Figure 1, 254 respondents (67%) believe it is impossible for two different types of fish to mate. In addition, 111 respondents (29%) reported not knowing whether this was possible. Only 16 respondents (4%) considered that hybridisation could occur.

These results show that the majority perception rejects the idea of hybridisation between *Coptodon*. According to Moscovici's (1984) theory of social representations, individuals' opinions are influenced by collective constructions shared within the

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community. The majority rely on informal knowledge and everyday experience of fish species. The minority who accept or are uncertain about the phenomenon reflect limited exposure to scientific information or direct observation.

This cognitive uncertainty illustrates the variability of social representations regarding hybridisation. Local perceptions influence how stakeholders interpret and respond to the hybrid tilapia. Thus, the study reveals that social representations play a central role in the understanding and acceptance of hybridisation by local populations.

2.2. Social representation of the hybrid Coptodon resulting from the cross between Coptodon. zillii and Coptodon guineensis

Source: Fieldwork, 2024

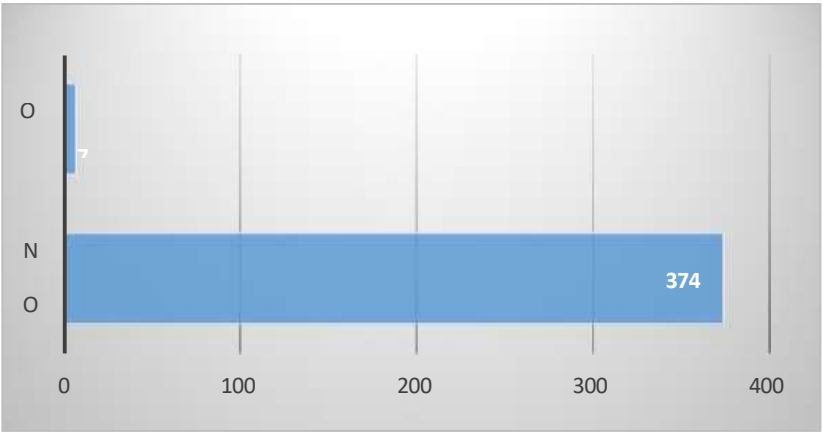

Figure 2: Social representation of the hybrid *Coptodon* resulting from the cross between *Coptodon. zillii* and *Coptodon guineensis*

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As shown in Figure 2, the vast majority of respondents (374 individuals) declared that they did not know about the hybrid resulting from the cross between *T. zillii* and *T. guineensis*. Only 7 respondents claimed to know of this hybrid.

This distribution highlights an almost general lack of knowledge about the existence of the hybrid *Coptodon* among stakeholders. Moscovici's (1984) theory of social representations notes that such ignorance reflects the absence of diffusion and integration of scientific information within the community.

Dominant collective representations are therefore built on traditional knowledge and direct experience of fish species, rather than on scientific knowledge. The small proportion of individuals aware of the hybrid may correspond to those exposed to specialised information or direct observation.

This situation illustrates the existence of a cognitive uncertainty zone, where scientific knowledge on hybridisation has not yet been incorporated into social representations. It also shows the importance of awareness and education in improving the perception of this hybrid species. The results suggest that knowledge and identification of the hybrid *Coptodon* remain limited among fishermen, fishmongers, and consumers. This lack of awareness may influence how stakeholders perceive, consume, and exploit this fish resource.

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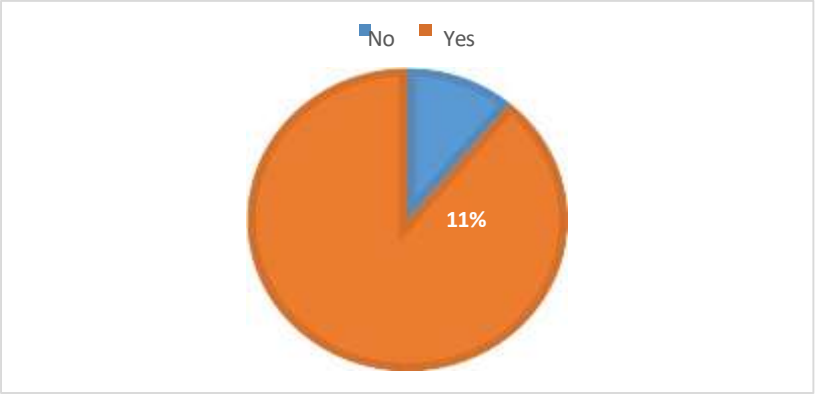
2.3. Social representation of the hybrid Coptodon when shown a photograph



Source: Fieldwork, 2024

Figure 3: Social representation of the hybrid *Coptodon* when shown a photograph

Data in Figure 3 show that 339 respondents (89%) were able to recognise the hybrid *Coptodon* when presented with a photograph, whereas 42 respondents (11%) could not identify it. These results indicate that visual recognition of the hybrid *Coptodon* is widely acquired among local stakeholders. According to Moscovici's (1984) theory of social representations, this ability to recognise reflects the gradual integration of information and concrete experiences into collective representations.

Most stakeholders rely on visual cues and their direct fishing experience to identify the hybrid. The minority who fail to recognise it illustrate a cognitive uncertainty zone, where neither scientific nor empirical knowledge has yet been assimilated.

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These findings suggest that perceptions of the hybrid *Coptodon* are largely shaped by practical experience and familiarity with the species. Visual recognition therefore constitutes an important vector for disseminating knowledge about the hybrid within the community. It also indicates that awareness and education can strengthen understanding of hybridisation.

2.4. Social representation of the difference between local Coptodon and hybrid Coptodon

Table 1: Social representation of the difference between local *Coptodon* and hybrid *Coptodon*

How do you make the distinction	No. of citations	Frequency
Others	2	0.5%
Others, by taste	1	0.3%
Others, by taste, by fish colour, by size	3	0.8%
By asking the seller	15	3.9%
By asking the seller, by fish colour	4	1.0%
By asking the seller, by fish colour, by taste	1	0.3%
By fish colour	46	12.1%
By fish colour, by asking the seller	2	0.5%
By fish colour, by taste	27	7.1%
By fish colour, by taste, others	3	0.8%
By fish colour, by taste, by size	10	2.6%
By fish colour, by taste, by size, others	1	0.3%
By fish colour, by size	31	8.1%
By fish colour, by size, others	4	1.0%
By fish colour, by size, by taste	15	3.9%
By fish colour, by size, by taste, others	1	0.3%
By taste	56	14.7%
By taste, others, by fish colour	1	0.3%
By taste, by fish colour	12	3.1%
By taste, by fish colour, by size	9	2.4%
By taste, by fish colour, by size, others	1	0.3%
By taste, by size	3	0.8%
By taste, by size, by fish colour	7	1.8%
By size	2	0.5%
By size, others	1	0.3%

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By size, by fish colour	**66**	**17.3%**
By size, by fish colour, others	**13**	**3.4%**
By size, by fish colour, by taste	**30**	**7.9%**
By size, by fish colour, by taste, others	**5**	**1.3%**
By size, by taste	**2**	**0.5%**
By size, by taste, others, by fish colour	**1**	**0.3%**
By size, by taste, by fish colour	**5**	**1.3%**
By smell after storage	**1**	**0.3%**
TOTAL OBSERVATIONS	**381**	**100%**

Source: Fieldwork, 2024

It is essential to understand how consumers distinguish between local *Coptodon* and imported or hybrid *Coptodon*. According to Table 1, 66 respondents (17.3%) made this distinction based on size and colour. Additionally, 56 respondents (14.7%) relied on taste, while 46 respondents (12.1%) differentiated the two types solely by colour. Twenty-seven respondents (7.1%) used both colour and taste to identify the local *Coptodon*. Finally, 30 respondents (7.9%) combined size, colour, and taste to make the distinction.

These results show that consumers use a variety of sensory criteria to recognise local *Coptodon*. The predominance of size and colour as main criteria underscores the importance of visual cues in social representations related to fish. The use of taste reflects direct gustatory experience and sensory memory in the differentiation process. The combination of several criteria indicates a more refined knowledge among some consumers. Thus, the ability to identify local *Coptodon* relies on empirical knowledge and shared representations within the community.

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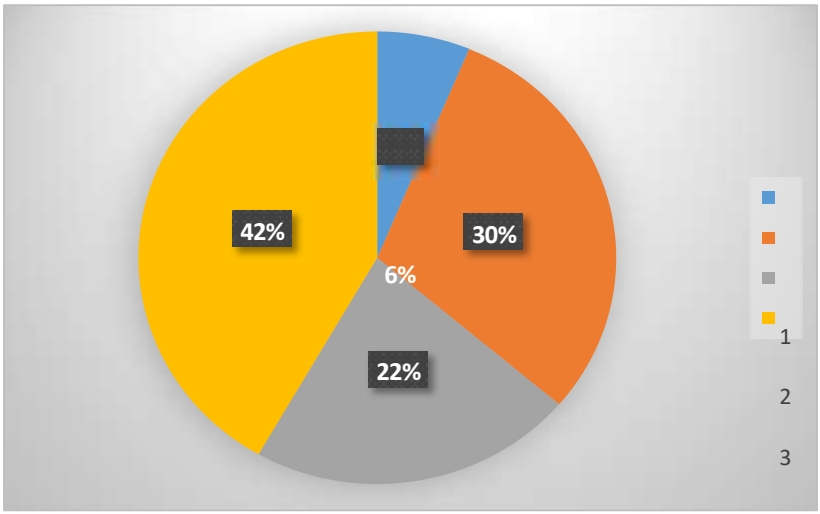
2.5. Social distribution of the type of Coptodon consumed by respondents



Source: Fieldwork, 2024

Figure 4: Social distribution of the type of *Coptodon* consumed by respondents

Figure 4 reveals consumption preferences among respondents. Of these, 42% (159 individuals) prefer to consume fresh *Coptodon*, while 30% (114 individuals) prefer frozen. Twenty-two per cent (84 respondents) consume both fresh and frozen depending on availability or context. Finally, 6% (24 respondents) stated they had no particular preference.

These results indicate that *Coptodon* consumption is predominantly oriented towards fresh fish, likely reflecting perceptions of quality, freshness, and taste. The significant proportion consuming frozen *Coptodon* reflects the impact of storage and availability constraints in certain areas. The

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combined consumption of fresh and frozen fish indicates flexibility in eating habits depending on circumstances. Consumer preferences are therefore influenced by sensory, practical, and economic factors.

2.6. Social representation of what determines the choice of the best fish

Table 2: Social representation of what determines the choice of the best fish

What matters to you	No. of mentions	Frequency (%)
Others	2	0.5%
Size, taste	2	0.5%
Taste	325	85.3%
Taste, others	1	0.3%
Taste, shelf life	1	0.3%
Taste, size	2	0.5%
Taste, price	21	5.5%
Price	10	2.6%
Price, taste	17	4.5%
TOTAL OBSERVATIONS	381	100%

Source: Fieldwork, 2024

Table 2 shows that 325 respondents (85.3%) selected taste as the main factor in choosing the best fish, while 21 respondents (5.5%) based their choice on both taste and price. Ten respondents (2.6%) chose solely on the basis of price, and two respondents (0.5%) took both taste and size into account.
The perception of the hybrid *Coptodon* by local stakeholders is therefore based on several criteria: knowledge of the species, size, shape, and taste. Some respondents recognised the hybrid simply by sight, while others could only distinguish it after cooking. As one respondent stated: *"For me, it is the colour that*

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allows me to make the difference between the hybrid Coptodon and the local one."

Coptodon remains one of the most consumed species in Côte d'Ivoire. The survey shows that most households mainly consume farmed or imported *Coptodon*, as the local species has become rare. Although widely appreciated, some people abstain for customary reasons; for instance, one respondent explained: *"I am Beninese; in my family we do not eat Coptodon, it is considered as a family member with whom we do not interact."* This perception confers a quasi-symbolic role upon *Coptodon*, regarding it as a protective totem in some families.
Finally, each ethnic group has its own name for the hybrid *Coptodon*, along with specific practices for its consumption and preservation, reflecting the cultural diversity and social representations surrounding this species.

3. Discussion

Theorists of social representations, including E. Durkheim, argue that representations refer to a broad class of mental forms, encompassing sciences, religions, myths, space, time, as well as opinions and knowledge, without distinction. Within the framework of our study, they allow us to gather information from populations regarding their perceptions, opinions on the hybrid *Coptodon*, and its socio-economic impact.
Following investigation, it appears that the perception of hybrids resulting from the cross between *Coptodon guineensis* and *Coptodon zillii* by local actors in Songon, Jacqueville, and Dabou is influenced by their method of identifying the species and the knowledge they possess. In recognizing tilapia, some respondents are able to distinguish it solely by size, shape, and taste. These findings are consistent with those of M. Legendre et al. (1996), who reported that, in enclosures, female hybrids reach

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maturity at a smaller size and produce smaller but more numerous oocytes than in natural environments.
Conversely, other actors do not distinguish between the hybrid *Coptodon* and the local *Coptodon*, being unaware of the existence of the hybrid, which leads them to consume or sell it without precise knowledge of the type of fish. Actors in the studied areas (fishermen, fish vendors, and consumers) commonly refer to *Coptodon* as "carp fish."

Furthermore, the study reveals that, in some Beninese families, *Coptodon* is considered a protector or a family member, playing a totemic role in consumption, sale, and fishing practices. The species also serves as a channel of communication with spirits. These findings align with those of Van Everbroeck (1974), who stated that the Creator entrusted the management of His creation to invisible overseers, vested with the power to judge and punish in the event of misfortune or bad luck.
Thus, social representations among populations influence not only the perception and use of the hybrid *Coptodon*, but also its symbolic and cultural value within certain communities.

Conclusion

This study highlighted local perceptions of the hybrid Coptodon resulting from the cross between *Coptodon zillii* and *Coptodon guineensis* in the Ébrié Lagoon. While the findings confirm limited scientific knowledge of the hybridisation phenomenon, they reveal, on the other hand, an empirical and sensory recognition of the fish, as well as significant economic valorisation when it is available. These results go beyond the academic dimension and have a clear socio-utilitarian scope. On the one hand, they provide public decision-makers and fisheries institutions (MIRAH, fisheries posts) with useful insights to guide awareness campaigns and the dissemination of scientific

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knowledge among riparian populations. On the other hand, they offer a basis for improving sustainable resource management practices, by integrating both local knowledge and conservation imperatives. Finally, this study provides fisheries stakeholders (fishermen, fishmongers, consumers) with a better understanding of the issues related to the hybrid Coptodon, paving the way for fairer economic valorisation and for the inclusion of cultural and symbolic dimensions in fisheries management policies. Thus, the results of this research are not limited to theoretical analysis but directly contribute to the development of practical strategies for a sustainable and socially accepted exploitation of the hybrid Coptodon in Côte d'Ivoire.

References

ADEPO André, KOUDOU Ange & OUATTARA Bakary, 2006. *Genetic identification of tilapia hybrids in the Bia hydrographic system*, University of Cocody, Abidjan.

BOPO Hervé, 2018. *Morphometry and hybridisation of tilapias in sectors IV and V of the Ébrié Lagoon*, Doctoral Thesis, Université Félix Houphouët-Boigny, Abidjan, Côte d'Ivoire.

COASE Ronald H., 1937. « The nature of the firm », *Economica*, vol. 4, n°16, pp. 386-405.

LEBRETON Jean-Dominique, BURNHAM Kenneth P., CLOBERT Jean & ANDERSON David R., 1990. « Modelling survival and testing biological hypotheses using marked animals: A unified approach with case studies », *Ecological Monographs*, vol. 60, n°1, pp. 67-118.

LEGENDRE Marc et al., 1996. « Reproduction and growth of tilapia hybrids in enclosures », *Aquatic Living Resources*, vol. 9, n°3, pp. 211-218.

MOSCOVICI Serge, 1984. *The phenomenon of social representations*. In R. FARR & S. MOSCOVICI (dir.), *Social*

ISBN : 978-2-493659-12- 5 COLLECTION RECHERCHES & REGARDS D'AFRIQUE VOL 4 N ° 14 Septembre 2025

representations, Cambridge University Press, Cambridge, pp. 3-69.

NOBAH Céline Sidonie Koco, KOUAMELAN Essetchi P., N'DOUBA Vamoussa, SNOEKS Jos, TEUGELS Guy G., GOORE-BI Goore-Bi G., KONÉ Tidiani & FALK Thomas M., 2006. « The colour pattern of the caudal fin, a useful criterion for identification of two species of Tilapia and their hybrids », *Journal of Fish Biology*, vol. 69, n°3, pp. 698-707. https://doi.org/10.1111/j.1095-8649.2006.01142.x

NOBAH Emmanuel, KOFFI Eugène & TANO Bruno, 2019. « Hybrid Coptodon and local perceptions in Côte d'Ivoire », *Ivorian Journal of Fisheries Science*, vol. 12, n°2, pp. 45-58.

POUYAUD Laurent, 1994. *Natural hybridisation of tilapias in Lake Ayamé I: Genetic analysis and implications*, Doctoral Thesis, Université de Montpellier, Montpellier, France.

VAN EVERBROECK Joseph, 1974. *Spirits and beliefs in the management of natural resources in Africa*, Éditions Karthala, Paris.

ISBN : 978-2-493659-12- 5 COLLECTION RECHERCHES & REGARDS D'AFRIQUE VOL 4 N ° 14 Septembre 2025