

DETAILED FINAL PROJECT REPORT

Rufford Small Grant 37204-1

Conserving the red list threatened fish species by raising awareness, strengthening local rules and diversifying livelihood in fishing communities in Benin

By

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1. Introduction

Aquatic organisms constitute an important reservoir of biological diversity and valuable assets for livelihoods and food provision. In Benin, aquatic ecosystems are subject to fishing, which occupies an important place in the economy of the country. Artisanal inland fishing is of a great socio-economic importance to local communities and employs thousands of professional fishermen (Belco Latifou et al., 2020). There is no doubt about the importance of fish and its vital place in the diet of the populations nationwide. However, several threats linked to human activities menace the conservation of fish species. It is documented that several anthropogenic pressures mainly overfishing, and habitat degradation seriously threaten large and small fish biodiversity, respectively (Lalèyè and Moreau, 2004). According to Maxwell et al. (2016), human pressures can lead to the loss of fish biodiversity. In fact, fish catches have started decreasing some fish species are rarely or even no longer found mainly in Benin inland waters (Lalèyè and Moreau, 2004). These waters harbor many fish species that need more attention since they are already classified as threatened in the global IUCN red list (five species) and national red list (25 species). Several species were classified as near threatened in Benin Red list in 2011. Their current local conservation status remains questionable due to increasing human pressures and threats that need to be updated. Therefore, the need to undertake conservation actions becomes a major concern. These actions, to be effective, require a good knowledge of these species by fishing communities, fishery managers, decision makers and schoolchildren. Unfortunately, from southern to northern, fishing communities exploiting those ecosystems remain unaware of the conservation status of the species. Against this background, the present project entitled *Conserving the red list threatened fish species by raising awareness, strengthening local rules and diversifying livelihood in fishing communities in Benin* has been designed and financially supported by the Rufford Foundation in a perspective of protecting and sustainably managing the threatened fresh and brackish waters fish species in Benin. As it is impossible to cover all the inland fisheries of Benin in the frame of this funding opportunity, we worked within fishing communities exploiting the main ecosystems that harbor fish species listed in Red lists (Martin et al, 2011; Lalèyè, 2011) in both southern (Ouémé River at Agonlin- Lowé, Lake Nokoué, Porto-Novo Lagoon) and northern part (Niger River) of the country.

The present document is the final detailed report of the implementation of this project over a period of 13 months from April 2022 to April 2023.

2. Objectives

The objectives of the project were to:

1. Assess the stakeholders' knowledge levels and the factual menaces on threatened species.
2. Create awareness through environmental education and sensitization of inland fishing communities, managers, decision makers and schoolchildren.
3. Develop local management and conservation measures.
4. Promote fish farming as a sustainable additional livelihood for conservation.

3. Methodology

To start the implementation phase, we organised a field reconnaissance survey and public consultations with communities, fisheries managers and communal authorities to inform them about the objectives of the project. We also stressed the importance of their role as stakeholders for the success of the planned activities. The methodology used for each of the project objectives is described below.

Objective 1: Assess the stakeholders’ knowledge levels and the factual menaces on threatened species.

We conducted study entitled *Evaluation of the levels of knowledge of threatened fish species and the level of awareness of the impacts of anthropogenic activities among stakeholders in the continental fishing sector in Benin*. Prior to that, pictorial checklists of the threatened fish species (**Vulnerable, Endangered and Critically Endangered**) listed in both national Benin and global IUCN red lists as well as those of fish classified near threatened were developed (Annex 1). We also conceived a survey questionnaire, which was digitized via KoboCollect and deployed on mobile phone tablets that were used by the recruited enumerators during data collection phase. The enumerators were trained in the concepts behind the questions in order to be able to translate them into the local languages without losing their meaning. Supervisors monitored the surveys in the fields to ensure discipline and motivation and, ultimately, the completion of activities within the stipulated timeframe and production of high-quality data. Mainly, the questionnaire contains:

- socio-economic and demographic characteristics of the respondents and their level of knowledge of threatened fish species.
- species-specific threats and the level of awareness of the communities of the impacts of their activities.
- the sanctions and measures proposed to safeguard threatened species and their aquatic habitats.
- and the willingness of fishermen to practice fish farming as additional livelihood options.

Data collection covered four fishing localities using different aquatic ecosystems in both southern and northern parts of Benin, including Agonlin-Lowé for Ouémé River, Sô-Ava for Lake Nokoué, Aguégus for Porto-Novo Lagoon, Malanville for Niger River. In addition, we included the fish markets namely Calavi-Tokpa in Abomey-Calavi, Djassin-Topka in Porto- Novo. We surveyed fishermen, fishmongers, local authorities, and fisheries managers at both local and national levels (National Directorate of Capture fisheries and Aquaculture Production, DPH). In total 281 informants were surveyed (Table 1).

Table 1: Number of informants per locality

Locality	Category of stakeholders	Number of informants
Malanville	Fishermen	27
	Fishmongers	17
	Fisheries managers	04
	Local authorities	04
So-Ava/ Calavi Tokpa- Abomey Calavi	Fishermen	44
	Fishmongers	40
	Fisheries managers	0
	Local authorities	0
Aguégus/Djassin Tokpa- Porto-Novo	Fishermen	44
	Fishmongers	40

	Fisheries managers	3
	Local authorities	6
Agonlin-Lowé/Adjohoun	Fishermen	42
	Fishmongers	0
	Fisheries managers	1
	Local authorities	0
DPH	Fisheries managers at national level	9
Total		281

Generated data were verified, curated and exported in Excel for descriptive statistics and charts/diagrams. We also used the kobotoolbox web tool to create and analyse summary reports.

Objective 2: Create awareness through environmental education and sensitization of inland fishing communities, managers, decision makers and schoolchildren.

Apart from the pictorial checklists above-mentioned, we conceived and designed two awareness creation toolkits in the form of posters. The messages for sensitization and awareness raising were based on the findings of the surveys. We used easily understandable language in the writing of all the posters and made sure that the content was explained in local languages without changing the meaning on the fields. The same four localities considered during the surveys were involved in the awareness creation activities. Fishermen, fishmongers, fisheries managers and local authorities were the participants.

We also educated schoolchildren (classes 4, 5 and 6 of the primary school) and their teachers at Agonlin-Lowé and Malanville in order to build a generation of environmentally conscious youth and responsible adults who will care for their environment and can sensitize in their localities.

Objective 3: Develop local management and conservation measures.

During the surveys, we collected proposals of measures from respondents for the protection of the rivers and water bodies and the conservation of threatened fresh and brackish fish species in Benin. The respondents also proposed sanctions to those who will not respect the measures. A compendium of the measures and sanctions were summarised in a one-page compendium/booklet. A review and validation workshop were organised for stakeholders to approve the measures and sanctions. We also organised a workshop to set up local committees that will work together with fisheries managers to monitor compliance with the approved measures within fishing communities in each of the four localities. A policy brief was produced to communicate findings and provide recommendations to policy makers.

Objective 4: Promote fish farming as a sustainable additional livelihood for conservation.

During the surveys, we assessed the willingness of fishermen to use fish farming as supplementary activity to fishing. Especially in Ganvié in South-Benin, we investigated the bad/poor practices in the current traditional pen farming of Atlantic tarpon *Megalops atlanticus* and designed a training material to train fishermen to improve the farming techniques. We also designed training material to introduce the above-ground tank farming of *Clarias gariepinus* feasible in household yards at Tounga, Malanville. Fishermen were supported with juveniles,

culture infrastructures, commercial fish feed and local fish feed. They were also trained in techniques for the production of fish feed using locally available ingredients.

4. Results

4.1. Objective 1: Assess the stakeholders' knowledge levels and the factual menaces on threatened species.

Table 2 showed the socio-economic and demographic characteristics of the respondents. About 70% of the respondents are males and the majority are married. More than half mainly fishermen have not received any education through the formal education systems. However, the majority of them were literate in local language and belonged to a professional association with 17.54 ± 9.36 years of experience in fishing. Ethnic groups that are dominant are Guen, Toffin and Fon in Southern Benin, and Zerma in Northern Benin.

Table 2: Socio-economic and demographic characteristics of the respondents

Characteristics	Modalities	Percentage of respondents
Sex	Male	69.75
	Female	30.25
Marital status	Married	94.31
	Single	4.63
	Windowed	1.06
Religion	Christian	64.77
	Indigenous religion	19.57
	Islam	15.66
Education level	None	66.9
	Primary	17.79
	Junior High	6.41
	Senior High	6.05
	Tertiary	2.85
Literacy	Yes	75.44
	No	24.56
Fishermen Association	Yes	75.09
	No	24.91

In addition to the ecosystems mentioned above, the fishermen interviewed also exploit Lake Ahémé (South-Benin) and the Alibori River (North-Benin). As Table 3 shows, the majority of respondents are not aware of the existence of national and global red lists of fish species. Overall, more than half of the respondents knew the species from the pictorial checklists but did not know

their conservation status including fisheries managers and local authorities.

Table 3: Knowledge levels of the threatened fish species.

Modalities	Aware of the existence of national red list of fish species	Aware of the existence of global IUCN red list of fish species
No (% of respondents)	78.65	89.68
Yes (% of respondents)	21.35	10.32

Figure 1 shows the main (those selected by more than 25% of the respondents) anthropogenic activities considered as threats to the fish species and their habitats. Apart from the activities listed in list put in the questionnaire, almost all respondents mentioned the use of prohibited fishing gear, namely MEDOKPOKONOU, DOGBO and WAN in southern Benin, as practices with considerable negative impacts.

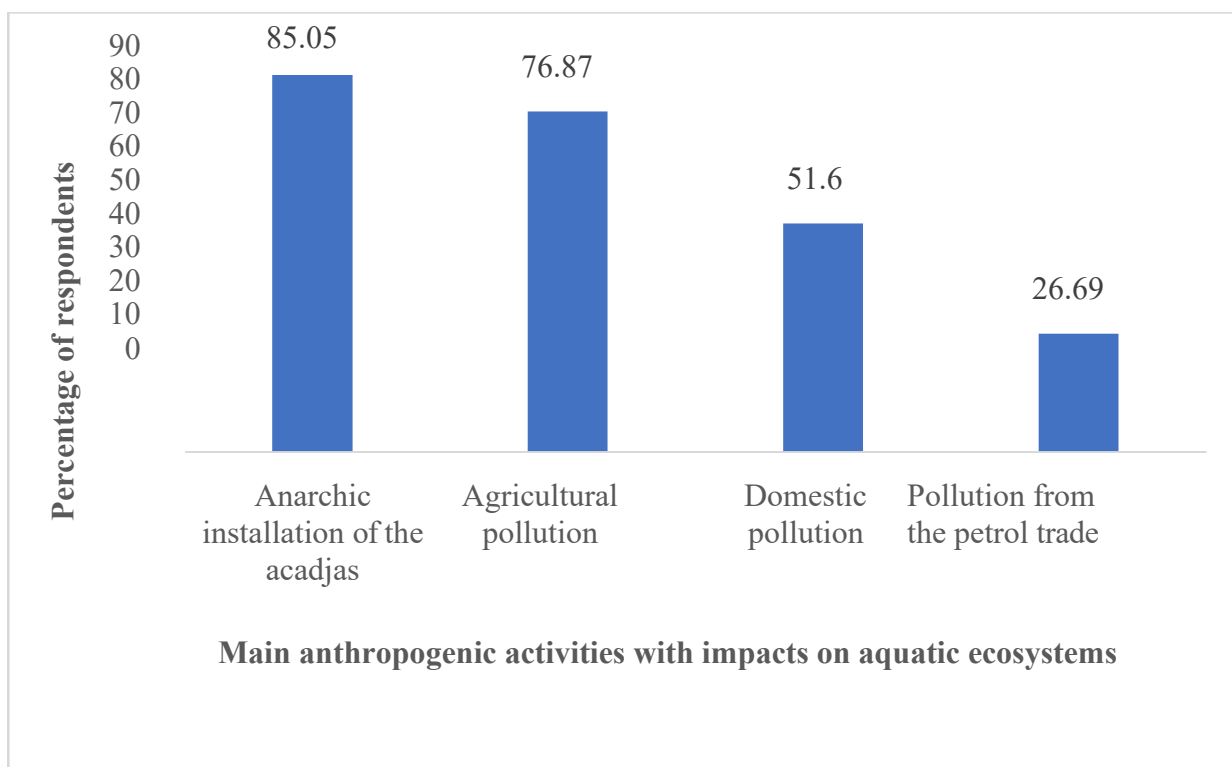


Figure 1: Main anthropogenic activities considered a threat to fish species and their habitats.

More than half of the respondents were not aware of the impacts of those anthropogenic threats on the fish in red lists (Table 4). For those who were aware, the impacts are habitat destruction, massive death of fingerlings, reduced growth and reproduction performance. Almost 99% of the respondents mentioned that the threats are not specific to the threatened species in the pictorial checklists (Table 4). However, it has been reported that *Fundulopanchax filamentosus* and *Procatopus aberrans* are over-exploited for aquarium use.

Table 4: Awareness level of the impacts of anthropogenic activities on fish species

Modalities	Aware of the impacts of anthropogenic activities on fish species especially those in red list	Existence of species-specific threats to fish listed in red lists
No (% of respondents)	63.7	98.93
Yes (% of respondents)	36.3	1.07

More than 90% of the respondents knew each of the fish species listed as near threatened in the 2011 national red list of Benin. Those species also face the general threats listed above. However, capture of juveniles is an important emerging threat to *Heterobranchus longifilis*, *Lates niloticus*, and *Gymnarchus niloticus*. Some species of fish have medico-magic usages. They are used to heal spiritual diseases and for Vodoun rituals.

4.2. Objective 2: Create awareness through environmental education and sensitization of inland fishing communities, managers, decision makers and schoolchildren.

The toolkits for awareness creation, training and environmental education are in annex 2. In each of the four project sites, fishermen, fishmongers, fisheries managers and local authorities were sensitised. Some photos are shown in figure 2.



Figure 2: Some photos taken during sensitisation and awareness creation.



Figure 3: Environmental education sessions with schoolchildren.

Figure 3 presents photos captured during environmental education sessions with schoolchildren and teachers at Agonlin-Lowé in Adjohoun and Tounga in Malanville. We also succeeded in making the teachers understand the need to preserve endangered species and they assured us that they would continually remind the schoolchildren of this need.

4.3. Objective 3: Develop local management and conservation measures.

Figure 4 shows the compendium of the measures and sanctions validated by stakeholders for the protection of aquatic ecosystems of interest in this project and their fish biodiversity. The measures are awareness raising, control of catches and fishing gear, registration of fishermen and promotion of fish farming. The sanctions to those who do not respect the measures are payment of a fine, handing over to the police, seizure and destruction of the gears, banning their fishing activity for a certain period.

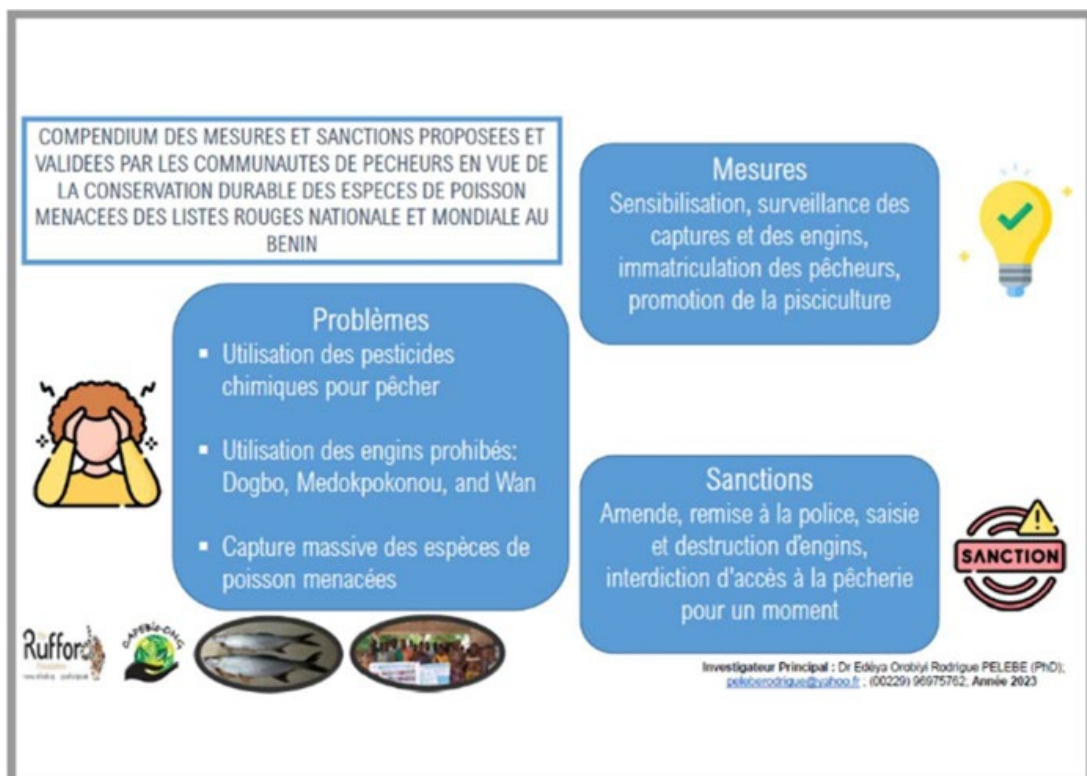


Figure 4: Compendium of measures and sanctions validated by stakeholders to achieve ecosystem protection and conservation of fish biodiversity.

In each locality, a gender-balanced monitoring committee was set up during a workshop. It is composed of:

- 1 President,
- 1 Secretary,
- 1 Treasurer
- 2 Organisers

The agreed roles for the committees are as follows:

- Monitor compliance within fishing communities.
- Report any cases of non-compliance to fisheries managers.
- Carry out periodic awareness-raising activities on the protection of aquatic ecosystems and the preservation of fish biodiversity, particularly threatened species, within the communities.

Figure 5 is a photo taken with the monitoring team installed for Lake Nokoué.



Figure 5: Photo of the monitoring committee installed for Lake Nokoué

We developed a policy brief (Annex 3). It was shared with the Directorate of Capture fisheries and Aquaculture Production as well as the fisheries managers and authorities at local level. This policy brief contains:

- background information.

- key messages from the implementation of this project.
- the main threats to fish biodiversity include red-listed species.
- proposed measures and sanctions for the protection of aquatic ecosystems and their biodiversity.
- information on the monitoring committees installed to support in a sustainable way the project initiative.
- the project's initiative on promoting fish farming as an additional income-generating activity, as revealed by the survey results; and
- some policy recommendations.

4.4. Objective 4: Promote fish farming as a sustainable additional livelihood for conservation.

From the surveys, about 80% of respondents are ready to practice fish farming as an additional income generating activity to reduce the fishing pressure as shown in figure 6.

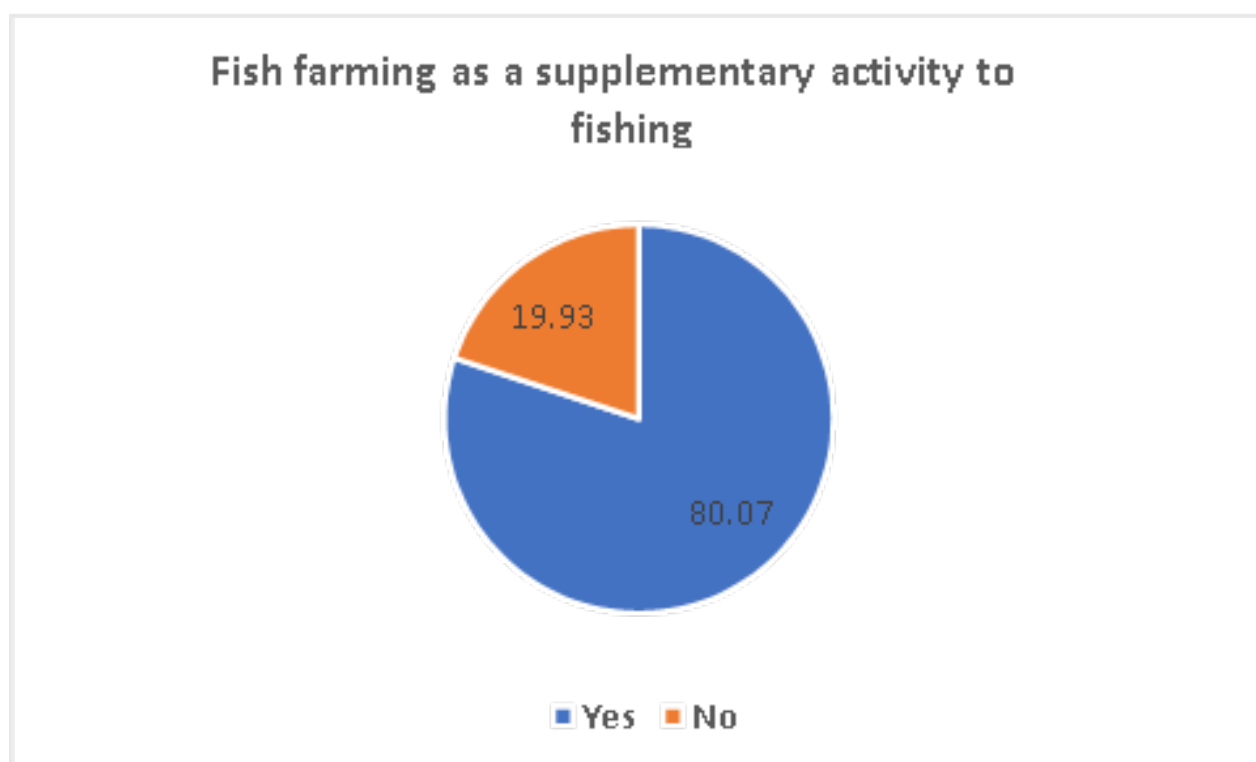


Figure 6: Willingness to practice fish farming as an income-generating supplementary activity to reduce pressure from fishing.

Therefore, two training toolkits were developed (See annex 2). They are entitled:

- *Gestion améliorée de la qualité de l'eau et de l'alimentation dans l'élevage extensif du Tarpon de l'Atlantique *Megalops atlanticus* (Adawè) à Ganvié sur le lac Nokoué, Bénin*
- *Formation des communautés des pêcheurs dans la commune de Malanville au nord du Bénin: techniques d'élevage en Bacs Hors Sol (BHS) du poisson-chat africain (*silure*) et de production de provende*

In Ganvié, Sô-Ava, fishermen farming *Megalops atlanticus* were trained on how to well manage water quality and the feeding of the stocked fish in traditional pens (Figure 7). We also discussed the criteria for choosing the appropriate culture site and the adequate period for collecting juveniles. One of the important aspects is that we have encouraged farmers to release some of the cultured individuals into the natural environment to replenish the stock.



Figure 7: Group photo with farmers of the Atlantic tarpon in Ganvié on Lake Nokoué

In Malanville, fishermen were trained in farming technique of *Clarias gariepinus* in above-ground tanks (Figure 8). The training sessions covered juvenile fish selection and transport, site selection, stocking technique, water quality management, fish feed production and feeding process, fish growth monitoring and harvest planning according to market needs. We also showed the trainees the benefits/advantages of using the renewed water for growing vegetables. We set-up the farming infrastructures, stocked them with juveniles and provided fishermen with fish feed (commercial and local produced). We also shared with them techniques for producing maggots and collecting earthworms to feed the farmed fish. In both project sites, fishermen were made aware of some of the environmental risks associated with uncontrolled aquaculture development during the training sessions.



Figure 8: Some photos from the training on fish farming and fish feed production techniques in Malanville, Northern Benin

5. Conclusion

The project was implemented within the initial timeframe. Planned research and conservation activities were successfully executed. The fact that most of the respondents in surveys are not aware of the conservation status of fish species should be a major concern. In addition, the level of knowledge of threatened species by fisheries managers needs to be improved. It is hoped that the installed monitoring committees will work with local fisheries managers using the established conservation materials and measures to support the achievements of this project and that policy and makers will take the necessary steps to implement the recommendations made in policy g note.

6. References

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7. Annexes

Annex 1: Pictorial checklists of fish species used during surveys.

Annex 2: Toolkits for awareness creation, trainings and environmental education.

Annex 3: Policy brief from the implementation of the project.

ESPECES DE POISSON AU BENIN PRESENTES DANS LA LISTE ROUGE MONDIALE DE L'UICN

Espèces Vulnérables



Megalops atlanticus



Denticeps clupeioides



Barboides gracilis

Espèces en Danger



Neolebias axelrodi



Phractura ansorgii

Par : Dr. Rodrigue PELEBE
dans le cadre du Projet Rufford-
37204-1 avec CAPE-BIO ONG

GROS POISSONS DANS LA LISTE ROUGE NATIONALE

Espèces Vulnérables (Bassin du Niger)



Auchenoglanis biscutatus



Clarotes laticeps

Espèces en Danger (Bassin de l'Ouémé)



Synodontis sorex

Par : Dr. Rodrigue PELEBE
dans le cadre du Projet Rufford-
37204-1 avec CAPE-BIO ONG

ESPECES DE PETITS POISSONS DANS LA LISTE ROUGE NATIONALE DU BENIN

Espèces Vulnérables



Phractura ansorgii



Fundulopanchax filamentosus



Pelvicachromis taeniatus



Gymnallabes typus



Parauchenoglanis monkey



Barboides gracilis



Periophthalmus barbarus



Monodactylus sebae



Malapterurus beninensis



Mastacembelus cryptacanthus



Isichthys henryi



Procatopus aberrans



Schilbe brevianalis



Tetraodon lineatus

Espèces en Danger



Neolebias ansorgii

Barboides britzi

Espèces en Danger Critique



Enteromius leonensis



Denticeps clupeioides



Neolebias axelrodi



Synodontis vermiculatus



Pantodon buchholzi

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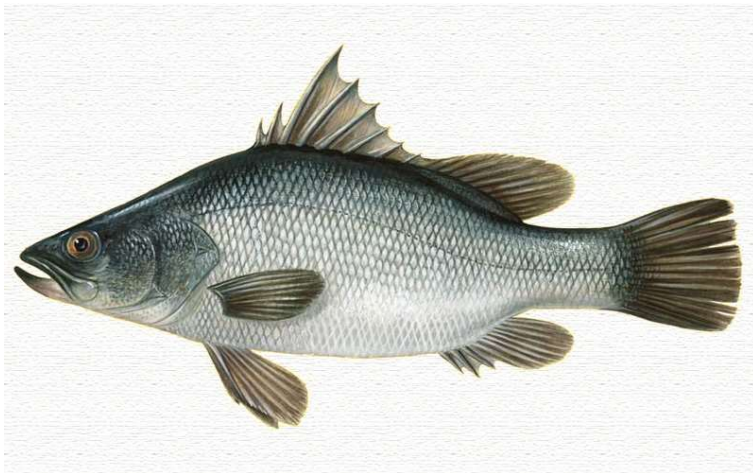
ESPECES DE POISSONS CLASSEES QUASI-MENACEES DANS LA LISTE ROUGE DU BENIN EN 2011



Bagrus bajad



Bagrus docmak



Lates niloticus



Heterobranchus longifilis



Chrysichthys nigrodigitatus



Parachanna africana



Gymnarchus niloticus



Xenomystus nigri

Par : Dr. Rodrigue PELEBE
dans le cadre du Projet Rufford-
37204-1 avec CAPE-BIO ONG



Conservation des espèces de poisson menacées figurant sur les listes rouges nationale et mondiale par la sensibilisation, le renforcement des mesures locales et la diversification des moyens de subsistance des communautés de pêcheurs au Bénin

UNE NOTE DE POLITIQUE

Par

Dr Edéya Orobiyi Rodrigue PELEBE

MESSAGES CLES

- 1- La majorité des acteurs connaît les espèces sur les listes rouges nationale (Bénin) et mondiale (UICN) mais ignore leur statut de conservation
- 2- Près de la moitié des enquêtés ne sont pas conscients des impacts de leur activité sur les poissons menacés
- 3- Les menaces anthropiques pèsent sur l'ensemble des poissons menacés; les menaces espèce-spécifiques sont quasi-rares
- 4- Les espèces quasi-menacées dans la liste rouge nationale du Bénin en 2011 sont bien connues des acteurs ; toutefois, il existe des menaces émergentes sur certaines espèces telles que *Heterobranchus longifilis*, *Lates niloticus*, et *Gymnarchus niloticus*

CONTEXTE DU PROJET

Les eaux continentales du Bénin abritent de nombreuses espèces de poissons nécessitant plus d'attention car elles sont déjà classées comme menacées dans la liste rouge mondiale de l'UICN (cinq espèces) et dans la liste rouge nationale du Bénin (25 espèces). De même, plusieurs autres espèces sont classées quasi-menacées dans la liste rouge du Bénin en 2011. L'état actuel de conservation au niveau local de ces dernières espèces reste douteux en raison de l'augmentation des pressions et menaces anthropiques qui doivent être mises à jour. Dans ce contexte, il devient nécessaire de développer des initiatives et d'entreprendre des actions de conservation impliquant les communautés à la base.

PRINCIPAUX PROBLEMES

- ✓ Installation anarchique des Acadjas
- ✓ Pollution agricole
- ✓ Pollution domestique
- ✓ Pollution liée au commerce illicite de l'essence
- ✓ Utilisation de méthodes et d'engins de pêche prohibés : Dogbo, Medokpokonou, et Wan

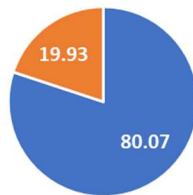
MESURES PROPOSEES

- ✓ Sensibilisation
- ✓ Surveillance des captures et des engins
- ✓ Immatriculation des pêcheurs
- ✓ Promotion de la pisciculture

SANCTIONS PROPOSEES

- ✓ Amende
- ✓ Remise à la police
- ✓ Saisie et destruction d'engins
- ✓ Interdiction d'accès à la pêche pour un moment

Pisciculture comme activité lucrative additionnelle pour diminuer la pression de la pêche



■ Yes ■ No

INSTALLATION DES COMITES DE SURVEILLANCE

Comités installés localement pour poursuivre les activités de sensibilisation et travailler de commun accord avec les agents de pêche pour le suivi du respect des mesures

PROMOTION D'ACTIVITES ADDITIONNELLES POUR REDUIRE LA PRESSION LIEE A LA PECHE

- Ganvié (Sô-Ava) : Renforcement des capacités des pêcheurs-éleveurs du tarpon, *Megalops atlanticus*, Adawè sur la gestion de la qualité de l'eau, l'alimentation, le choix du site de l'élevage, la collecte des juvéniles et le repeuplement
- Tounga (Malanville) : Formation sur la pisciculture en bacs hors sol (BHS) du silure *Clarias gariepinus* et sur la technique de production d'aliment à base des sous-produits agricoles localement disponibles
- Appui de groupes de pêcheurs en juvéniles, aliment et BHS pour lancer la production commerciale

RECOMMANDATIONS

- Multiplier des actions pour faire connaître les espèces menacées par les communautés locales
- Promouvoir d'activités génératrices de revenus additionnelles à la pêche
- Initier des programmes spéciaux de monitoring régulier des espèces de poisson menacées
- Impliquer les communautés locales spécialement les comités installés dans la surveillance des espèces menacées
- Encourager le développement des mesures locales de protection initiées par les communautés elles-mêmes
- Instaurer une collaboration objective entre les gestionnaires des pêches et les comités locaux pour la conservation des espèces de poisson menacées

Nous remercions la Fondation Rufford pour avoir financé le projet ayant abouti à l'élaboration de la présente note de politique. Nos gratitude vont également à l'endroit des communautés de pêcheurs sur l'ensemble du territoire nationale, des agents gestionnaires de pêche, et les autorités locales pour leur esprit de partage et la franche collaboration durant les phases d'activités sur le terrain. **Contact :**

peleberodrique@yahoo.fr ; 00229 9697576 ; Mars 2023

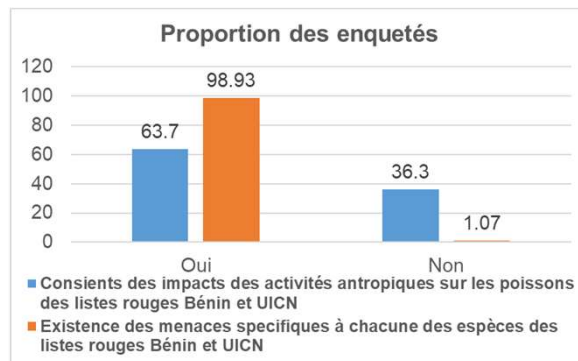
Activités de l'homme dans les communautés des pêcheurs menaçant les habitats aquatiques continentaux et la biodiversité des poissons notamment ceux des Listes Rouges au Bénin



Enquête nationale (Pêcheurs, Mareyeuses, Agents de pêche et autorités locales)

NIVEAU DE CONNAISSANCE

Majorité connait les espèces Bénin et IUCN **mais ne sait pas** si elles sont menacées



ESPÈCES QM, MESURES ET SANCTIONS PROPOSEES

Connaissances des espèces QM de la liste rouge du Bénin: **90%**
Menaces émergentes: **capture des juvéniles** pour *H. longifilis* et *L. niloticus*, *G. niloticus* **maintenant rares**

PRINCIPALES ACTIVITÉS ANTHROPIQUES IDENTIFIÉES (PLUS DE ¼ DES ENQUÊTÉS)

- 1 Installation anarchique des d'acadjas (85%)
- 2 Pollution agricole (77%)
- 3 Pollution domestique (52%)
- 4 Pollution lié au commerce illicite de l'essence (27%)

Autres: engins prohibés, Dogbo et Medokpokonou, Wan

Mesures proposées: sensibilisation, Surveillance des captures et des engins, immatriculation des pêcheurs, promotion de la pisciculture

Sanctions proposées: Amende, remise à la police, saisie et destruction d'engins, interdiction d'accès à la pêche pour un moment

ESPECES DE POISSON D'EAUX CONTINENTALES CLASSEES MENACEES DANS LA LISTE ROUGE DU BENIN

GROS POISSONS

Espèces Vulnérables



Auchenoglanis biscutatus



Clarotes laticeps

Espèces en Danger



Synodontis sorex

Espèces Vulnérables



Phractura ansorgii



Fundulopanchax filamentosus



Pelvicachromis taeniatus



Periophthalmus barbarus



Monodactylus sebae



Malapterurus beninensis



Schilbe brevianalis



Tetraodon lineatus

PETITS POISSONS



Gymnallabes typus



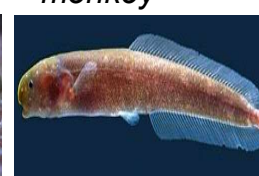
Parauchenoglanis monkey



Barboides gracilis



Mastacembelus cryptacanthus



Isichthys henryi



Procatopus aberrans

Espèces en Danger



Neolebias ansorgii

Barboides britzi



Enteromius leonensis



Neolebias axelrodi



Denticeps clupeoides



Gnathonemus petersii



Pantodon buchholzi

Espèces en Danger Critique

Gestion améliorée de la qualité de l'eau et de l'alimentation dans l'élevage extensif du Tarpon de l'Atlantique *Megagalops atlanticus* (Adawè) à Ganvié sur le lac Nokoué, Bénin

CONNAISSANCE DE L'ESPECE (ESPECE VULNERABLE IUCN)



Aliments

- **Régime alimentaire** : majoritairement zooplancton et benthos
- **Reproduction** en milieu côtier/marin, recrutement des larves dans les habitats marais des estuaires pour développement des juvéniles, adultes en milieu côtier/marin
- Pêche sportive dans d'autres régions du monde (Florides, Mexique, etc.) avec faible valeur pour la consommation
- Forte valeur économique et commerciale en Afrique de l'Ouest avec faible valorisation touristique

VS

ELEVAGE EXTENSIF DE L'ESPÈCE À GANVIÉ



Implications de la mise en captivité: mouvement limité (conditions environnementales, alimentation et prédation)



RELACHEMENT DANS LA ZONE ESTUARINE DE 1/4 DES POISSONS GARDEES EN CATIVITES PAR CAHQUE PECHEUR ELEVEUR

1 Taille et période de capture : 15 cm période sèche, 32 cm en période pluvieuse et 60 cm en période de crue (Hinvi et al., 2014)

Période conseillée: celle de disponibilité accrue du zooplancton et benthos

2 Pratique alimentation actuelle: reste d'aliments et déchets de cuisine

Pratique conseillée: aliments vivants (asticots, vers de terre, etc.)

3 Emplacement de l'élevage: en dessous des pilotis d'habitations

Pratique conseillée: zone aérée et protégée pour améliorer la qualité de l'eau et éviter la prédation (prédateurs et vols)

4 Suivi de la qualité de l'eau: pratique inexistante actuellement

Pratique conseillée: Mesure bimensuelle de la température, l'oxygène dissous et la transparence de l'eau

Formation des communautés des pêcheurs dans la commune de Malanville au nord du Bénin: techniques d'élevage en Bacs Hors Sol (BHS) du poisson-chat africain (silure) et de production de provende

ELEVAGE EN BHS DU SILURE

Volonté à faire la pisciculture

Pisciculture comme activité lucrative additionnelle pour diminuer la pression de la pêche



■ Yes ■ No

Espèce, *Clarias gariepinus*



Types de BHS: circulaire, carré, rectangulaire; dimensions variables



1- Emplacement et approvisionnement en eau

- ❑ Endroit calme, sous un abri, bien ventilé et partiellement éclairé,
- ❑ Eau de bonne qualité, niveau d'eau est en fonction de la densité mais jamais au-dessus du trop plein

2- Mise en charge et densité

- ❑ 75 à 100 alevins de 10-15 g par m cube
- ❑ Jusqu'à 150 par m cube s'il n'y a pas un problème d'oxygénation

3- Aliments et nourrissage

- ❑ Provende locale ou importée en granulés riches 40-45% de protéines (2 fois/jour)
- ❑ Aliments naturels (asticots, vers de terre)

FAFRICATION DE PROVENDE LOCALE APRES FORMULATION

4- Cycle d'élevage et pêches

- ❑ Le cycle d'élevage est de 4 à 5 mois
- ❑ Pêche mensuelle de contrôle (15% du stock)
- ❑ A la pêche finale le poids dépend de la qualité de l'aliment et du nourrissage

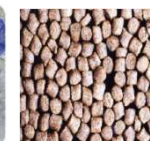
①

Peser et mélanger les ingrédients en poudre



②

Ajouter le lipide, bien mélanger



③

Ajouter de l'eau (20-40 %), bien mélanger



④

Transformer en granulés et sécher

