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REVIEWER'S REPORT

Manuscript No.: **IJAR-55043**

Title: MARINE POLLUTION BY HYDROCARBONS AND ITS IMPACT ON MICROFAUNA: THE CASE OF BENTHIC FORAMINIFERA IN THE CONGOLESE ATLANTIC BASIN

Recommendation:
Accept as it is .....
Accept after **minor revision**.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		Good		
Techn. Quality		Good		
Clarity		Good		
Significance		Good		

Dr Thirunahari Ugandhar
Reviewer Name:

Date: 3rd Dec 2025

Detailed Reviewer's Report

The manuscript presents a **scientifically valuable micropaleontological and geochemical assessment** of hydrocarbon-related marine pollution in the Congolese Atlantic Basin. The study is original for the region and highly relevant to current environmental concerns surrounding petroleum exploitation in Central Africa.

- **Elevated heavy metal concentrations** far above natural background values.
- **Severe ecological stress** visible in benthic foraminifera (deformations, reduced diversity, abnormal growth).
- **High proportion of unidentifiable specimens**, indicating advanced biological degradation.
- **Differential impact across infralittoral, circalittoral, and bathyal zones**.
- **Family-level vulnerability**, with Ammoniidae, Bolivinidae, Buliminidae, Cassidulinidae, Cibicididae, Eponididae, Nonionidae, Rhabdamminidae, Textulariidae, and Uvigerinidae most affected. The research is thorough, data-rich, and supported by robust laboratory and analytical methods.

Strengths

1. Strong Scientific Importance

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The study provides the **first clear documentation** of morphological deformations and taxonomic loss in benthic foraminifera in the Congolese Atlantic Basin due to hydrocarbon contamination. This is a major regional contribution.

2. Solid Methodological Framework

Use of: ICP for heavy metals, TOC analysis, Bengal Rose staining for live/dead foraminifera, Detailed taxonomic identification and Morphogroup analysis (Koutsoukos & Hart, 1990)

All strengthen the scientific rigour.

3. Rich Dataset: 252 sediment samples, 1749 foraminifera studied, Inclusion of **complete species lists**, rare in regional studies.

4. Logical Interpretation

The link between heavy metal enrichment and morphological abnormalities is well reasoned and supported by published literature.

Weaknesses & Improvement Suggestions

1. Language and Grammar: Several long sentences and grammatical errors reduce clarity. The writing should be tightened for publication.

2. Structure: Some sections (especially Discussion) are excessively long and lose focus. Shorter thematic subsections would improve readability.

3. Referencing

Some references are incomplete (e.g., "Illou 1999", "Lei et al. 2016"). You must provide full citation details.

4. Figures & Tables

Clarify:

- Figure numbering (some appear incomplete).
- Improve graphical clarity for pie charts (Figures 4–6).
- Table formatting should follow journal style.

5. Final Recommendation

With moderate revision in structure, grammar, and clarity, the manuscript is suitable for publication in journals related to:

- Marine Pollution
- Micropaleontology
- Environmental Geology
- Marine Ecology