

Research Article

Critical Discourse Analysis of Media Texts on Unexplored Marine Discoveries: Constructing Mystery and Wonder

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Abstract

This study applies Critical Discourse Analysis (CDA) to examine how contemporary news media construct discourses of mystery and wonder around unexplored marine discoveries, including deep-sea exploration, newly documented species, submerged geological formations, and unidentified oceanic phenomena. Drawing on Fairclough's three-dimensional model of discourse, van Dijk's socio-cognitive approach, and Halliday's systemic functional linguistics, the analysis identifies recurring lexical, rhetorical, and narrative strategies through which media texts frame the ocean as a frontier of the unknown. A purposive corpus of thirty English-language news articles and documentary transcripts published between 2019 and 2025 was analyzed using qualitative textual analysis supported by corpus-assisted keyword extraction. Findings reveal four dominant discursive strategies: (1) the lexicalization of mystery through modal and evidential hedging, (2) the personification and mythologization of marine environments, (3) the strategic juxtaposition of scientific authority with speculative narrative, and (4) the use of visual-verbal intertextuality to amplify affective engagement. The study argues that these strategies serve both an epistemic function, popularizing marine science, and an ideological function, reproducing anthropocentric and sometimes sensationalist framings of nature that can shape public perception of ocean conservation priorities. The paper concludes with implications for science journalism practice and recommendations for further multimodal CDA research on environmental reporting.

Keywords

Critical Discourse Analysis, Media Discourse, Marine Science Communication, Mystery and Wonder, Science Journalism, Ocean Exploration, Framing

1. Introduction

The ocean remains one of the least explored environments on Earth, with a substantial proportion of the seafloor still unmapped in high resolution. This persistent gap between the scale of the unexplored and the reach of scientific instrumentation has made marine discovery a recurring and productive subject for media narratives. News outlets, documentary producers, and popular science platforms routinely report on newly observed deep-sea creatures, unusual acoustic signals,

submerged structures, and previously undocumented ecosystems, often framing these findings within a broader narrative of mystery, wonder, and the unknown Halliday [3].

Media language is never a neutral conduit for scientific information; it actively constructs the meanings audiences attach to that information. Critical Discourse Analysis (CDA) provides a set of analytical tools for examining how such con-

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structions operate at the level of vocabulary, grammar, narrative structure, and intertextual reference, and how they relate to broader social and ideological formations. This paper asks: through which discursive strategies do media texts construct unexplored marine discoveries as mysterious or wondrous, and what social and epistemic functions do these strategies serve Van Dijk [4].

The study is motivated by three considerations. First, science communication research has documented that media framing significantly influences public understanding of, and attitudes toward, environmental issues, yet marine environments remain comparatively understudied relative to other domains such as climate change reporting. Second, the ocean occupies a distinctive symbolic position in Western media culture, frequently coded as an alien or otherworldly space, which invites particular rhetorical treatment. Third, the increasing use of multimodal digital journalism, combining text, video, and interactive graphics, calls for updated discourse-analytic attention to how mystery is constructed across modes, not only in written text Van Dijk [5].

2. Literature Review

2.1. Media Discourse and the Popularization of Science

Research on science journalism has long emphasized the transformative work that occurs when specialized knowledge is translated for lay audiences. This translation is not a simple simplification but a recontextualization, in which scientific claims are embedded within new generic conventions, narrative arcs, and evaluative language. Studies of science popularization note that journalists routinely employ narrative devices, analogy, and affective vocabulary to render technical findings accessible and engaging, often at the cost of hedging the epistemic certainty present in the original scientific reporting Wodak [6].

2.2. Discourses of Nature, Wilderness, and the Unknown

Environmental communication scholarship has shown that media representations of natural environments frequently draw on culturally sedimented tropes such as the sublime, the frontier, and the wilderness. The deep ocean, in particular, has historically been represented through metaphors of alien space, the abyss, and uncharted territory, positioning it as a site of both scientific promise and existential unease. These tropes are not incidental; they perform ideological work by naturalizing particular relationships between humans and non-human environments, including narratives of conquest, stewardship,

or awe Baker [7].

2.3. Critical Discourse Analysis: Theoretical Foundations

CDA treats language as a form of social practice that both reflects and constitutes social relations, identities, and power structures. Fairclough's three-dimensional framework analyzes text, discursive practice, and social practice as interlocking levels of analysis, allowing researchers to move from close linguistic description to broader claims about ideology and power [1]. Van Dijk's socio-cognitive model foregrounds the mental models and social cognitions that mediate between text and context, emphasizing how discourse structures such as topic selection, lexical choice, and rhetorical figures shape audience interpretation. Wodak's discourse-historical approach further stresses the importance of situating texts within their historical and institutional context. Complementing these approaches, Halliday's systemic functional linguistics provides tools for analyzing how grammatical choices, such as modality, transitivity, and nominalization, encode ideational, interpersonal, and textual meaning.

2.4. Research Gap

While CDA has been extensively applied to political discourse, news framing of conflict, and climate change reporting, comparatively little discourse-analytic work has focused specifically on media coverage of marine exploration and discovery. This gap is notable given the ocean's growing salience in public discourse around biodiversity, deep-sea mining, and climate regulation. The present study addresses this gap by offering a systematic CDA of how mystery and wonder are linguistically and rhetorically constructed in this specific domain Partington [8].

3. Theoretical Framework

This study adopts an integrated framework combining Fairclough's three-dimensional model with elements of van Dijk's socio-cognitive approach and Halliday's systemic functional grammar [2]. At the textual level, analysis focuses on lexical choice, modality, metaphor, and transitivity patterns. At the level of discursive practice, attention is paid to production and consumption conventions of digital science journalism, including headline construction, source attribution, and intertextual reference to scientific reports. At the level of social practice, the analysis situates findings within broader cultural narratives about nature, exploration, and the limits of human knowledge, and considers the ideological implications of persistently framing the ocean as mysterious rather than as a knowable, if under-resourced, object of scientific study.

4. Methodology

4.1. Research Design

The study employs a qualitative, corpus-assisted CDA design. Qualitative close reading is combined with basic corpus techniques, including keyword frequency and concordance analysis, to support the systematicity and replicability of the qualitative findings, following established practice in corpus-assisted discourse studies Hansen [9].

4.2. Data and Sampling

A purposive sample of thirty English-language media texts was compiled, comprising online news articles, science-section feature stories, and documentary transcripts published between 2019 and 2025 by outlets with substantial general readerships and dedicated science or environment sections. Texts were selected on the basis of thematic relevance to unexplored marine discoveries, including deep-sea species documentation, submerged geological or archaeological findings, unexplained acoustic or sonar phenomena, and previously unmapped habitats. Texts explicitly framed as opinion or satire were excluded to maintain a focus on ostensibly factual reporting Cox [10].

4.3. Analytical Procedure

Analysis proceeded in three stages. First, all texts were coded for recurring lexical items associated with mystery, uncertainty, and wonder, such as hedging expressions, evaluative adjectives, and metaphorical vocabulary. Second, headlines and lead paragraphs were analyzed for transitivity patterns and agency attribution, examining how scientific actors, marine organisms, and unknown phenomena were positioned grammatically. Third, a subset of multimodal texts, those including images, video, or interactive graphics, were analyzed for visual-verbal intertextuality, considering how visual framing interacted with verbal hedging and evaluative language Nerlich [11].

4.4. Limitations

As with all qualitative CDA studies, the analysis is interpretive and the corpus, while purposively diverse, is not statistically representative of global science journalism. The exclusive focus on English-language texts also limits generalizability to other media traditions and linguistic contexts. These limitations are addressed further in the concluding section, alongside recommendations for future comparative research Machin [12].

5. Findings and Analysis

5.1. Lexicalization of Mystery Through Hedging and Modality

Across the corpus, a consistent pattern emerged in which epistemic modality was used not to minimize uncertainty, as is conventional in cautious scientific writing, but to amplify a sense of intrigue. Expressions such as “scientists are baffled,” “researchers cannot yet explain,” and “what lies beneath remains unknown” recur with high frequency, particularly in headlines and opening paragraphs. Rather than functioning purely as accurate hedges on scientific claims, these constructions perform an interpersonal function, inviting reader curiosity and constructing the text itself as an unfolding revelation. Modal verbs such as “could,” “may,” and “might” frequently co-occur with dramatic evaluative adjectives, such as “bizarre,” “alien,” and “mysterious,” producing a rhetorical pattern in which scientific caution is repurposed as narrative suspense Kress [13].

5.2. Personification and Mythologization of Marine Environments

A second recurring strategy involves the personification of marine environments and organisms, whereby the ocean or its inhabitants are attributed intentionality, secrecy, or agency. Phrases describing the deep sea as “hiding its secrets,” or newly observed creatures as having “emerged from the darkness,” construct the marine environment as an active, quasi-sentient withholder of knowledge rather than a passive object of study. This mythologization draws on long-standing cultural tropes of the ocean as an alien or otherworldly frontier, discussed in the literature review, and works to sustain reader engagement by framing scientific discovery as a form of encounter or confrontation rather than measurement Bucchi [14].

5.3. Juxtaposition of Scientific Authority and Speculative Narrative

A third strategy involves the careful juxtaposition of credentialed scientific voices with speculative narrative framing. Direct or paraphrased attributions to named researchers or institutions are frequently used to establish epistemic authority early in a text, which is then followed by speculative extensions beyond what the cited source explicitly claims. This pattern allows texts to claim the legitimacy of scientific sourcing while simultaneously expanding the interpretive possibilities of a finding, for instance moving from a documented anomaly to broader speculation about undiscovered species or unexplained phenomena. This juxtaposition exemplifies the recontextualization process described in the literature review, in which scientific claims are reframed within new generic and rhetorical structures Myers [15].

5.4. Visual-Verbal Intertextuality

In multimodal texts, verbal hedging and mythologizing language is frequently paired with visual material, such as dramatically lit underwater photography, dark or obscured video footage, and sonar imagery presented without extensive technical annotation. This visual framing reinforces verbal constructions of mystery, as visually ambiguous or low-visibility imagery iconically enacts the epistemic uncertainty being verbally described. The combined effect is a multimodal amplification of affective engagement, in which visual and verbal resources work together to sustain a sense of wonder beyond what either mode achieves independently.

5.5. Summary of Discursive Strategies

Taken together, these four strategies, evidential hedging, personification, authority-speculation juxtaposition, and visual-verbal intertextuality, constitute a recognizable discursive repertoire for constructing marine discovery as mysterious. This repertoire serves an evident epistemic function in making marine science engaging and accessible to lay audiences. However, it also performs ideological work by consistently figuring the ocean as an unknowable or alien domain rather than as an ecosystem subject to describable, if incomplete, scientific understanding, a framing which may have consequences for how audiences perceive the urgency and feasibility of ocean conservation and governance.

6. Discussion

The findings extend existing CDA scholarship on science and environmental journalism by demonstrating that the specific domain of marine exploration draws on a distinctive combination of hedging, personification, and multimodal strategies to construct wonder. This combination differs in emphasis from patterns documented in climate change reporting, where uncertainty language has often been analyzed primarily in relation to contested scientific consensus and political controversy. In the marine discovery corpus analyzed here, uncertainty is rarely contested; rather, it is aestheticized, treated as a source of narrative pleasure rather than epistemic risk.

This aestheticization of uncertainty raises questions for science communication practice. On one hand, the strategies identified may serve valuable functions in sustaining public interest in ocean science, an area historically underfunded relative to its ecological significance. On the other hand, the consistent framing of the ocean as fundamentally mysterious, rather than as a describable but under-resourced research frontier, risks naturalizing the idea that the deep sea is beyond meaningful human stewardship, potentially undermining public support for ocean governance and conservation initiatives that depend on the perception of the ocean as a knowable and manageable system.

These findings also have implications for journalistic practice. Science communicators seeking to balance engagement with epistemic responsibility might consider more precise sourcing of uncertainty claims, clearer distinction between established findings and speculative extension, and more contextualized use of visual material, particularly sonar and low-light imagery, to avoid inadvertently reinforcing a rhetoric of unknowability that exceeds the actual state of scientific knowledge.

7. Conclusion

This study has applied Critical Discourse Analysis to a corpus of media texts on unexplored marine discoveries, identifying four interrelated discursive strategies through which mystery and wonder are linguistically and multimodally constructed: evidential hedging repurposed for narrative suspense, personification and mythologization of marine environments, juxtaposition of scientific authority with speculative narrative, and visual-verbal intertextuality. These strategies perform both epistemic and ideological functions, popularizing marine science while potentially reinforcing culturally sedimented notions of the ocean as an unknowable frontier.

Future research would benefit from cross-linguistic and cross-cultural comparison, examining whether these discursive strategies are consistent across media traditions beyond English-language journalism, and from longitudinal analysis tracking whether framing patterns shift in response to increased public attention to ocean conservation and deep-sea mining debates. Further multimodal CDA work, incorporating systematic analysis of video and interactive digital genres, would also extend the present findings, which were necessarily limited in their treatment of dynamic and interactive media.

Abbreviations

CDA Critical Discourse Analysis

Author Contributions

Ali Kareem Ali: Conceptualization, Data curation, Methodology, Resources, Writing – original draft, Writing – review & editing

Conflicts of Interest

The author declares no conflict of interest.

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