

Answers to review 1 of manuscript: How frames and narratives in press releases shape newspaper science articles: the case of ocean plastic pollution.

Thank you for the opportunity to review this manuscript. You've done a great job demonstrating how the frames and narratives used in press releases can shape subsequent newspaper coverage. This study makes a timely and valuable contribution to the existing literature, and your writing is both clear and well grounded in prior research. To help clarify your findings, I've provided a few section-by-section suggestions below. I hope you find them useful as you refine your manuscript.

Thank you very much for your thoughtful and encouraging feedback. We truly appreciate your kind words about the clarity and contribution of the manuscript. Your detailed comments and section-by-section suggestions have been helpful in refining the paper, and in this response we address each of them. In our response, we have italicized all the information from the manuscript, the text that has been added is highlighted in red and we have added your feedback in blue.

Abstract and Introduction

The abstract clearly presents the main findings and their significance. The introduction clearly explains the different challenges that readers and journalists face when learning about ocean science.

1. In paragraph 1.1, split the challenges faced by the general public (e.g., need for prior knowledge, complex methods, physical distance) from those faced by journalists (e.g., limited scientist access, interpreting findings) into two separate paragraphs for greater clarity.

Thank you for this comment. The paragraph would indeed be more clearly structured if we addressed journalistic challenges and public challenges in understanding ocean science separately. We rewrote the text to two separate paragraphs. We have also added information on the journalistic challenges in communicating about ocean issues:

Understanding the impacts ocean problems, like ocean plastic, can be challenging for people, as ocean problems are deeply interconnected and influenced by multiple stressors, making it difficult to isolate and fully understand the impact of a single issue (Kelly et al., 2022). Moreover, ocean science often requires the use of complex biological, chemical and physical methods. Understanding these methods can be complicated as they require a relatively large amount of prior knowledge to comprehend it properly. Additionally, the ocean, and particularly the deep sea, is largely invisible and physically remote, contributing to a sense of detachment and making it harder for the public to perceive its relevance to society (Schuldt et al., 2016). These communication challenges highlight the important role of journalists in making ocean science accessible to the public.

However, communicating about ocean science presents challenges for journalists too. In several European countries, journalists report that ocean science receives limited attention in newspapers, partly due to understaffed newsrooms and a shortage of specialized science reporters. Additionally, the complexity and technical nature of ocean science makes it difficult to accurately interpret research findings. Journalists often emphasize the need to consult directly with scientists to clarify and verify information, but such access is not always feasible. Time pressures further complicate their work, leaving journalists with little opportunity for in-depth investigation. As a result, they tend to rely more heavily on easily accessible international sources, often copying content related to ocean issues (Pinto & Matias, 2023).

Theoretical Framework

You've defined the key concepts: framing, narrative use, overall tone, and actor roles, well.

1. In Section 2.1 you explain the concept of frame-building elements but don't discuss the effects frames can have on readers. (You do cover these effects in Sections 2.2 and 2.3 when discussing narratives

and story tone.) After defining frame-building elements in Section 2.1, include a brief overview of how frames influence readers' perceptions and interpretations.

Thank you for this valuable suggestion. To clarify the effects that frames can have on readers, alongside our definition of frame-building elements, we have added the following paragraph to the end of Section 2.1:

Understanding how ocean plastic research is framed in newspaper articles, and the role press releases play in shaping this framing, is important, as media communication directly influences how the public perceives and understands marine risks (Kramm et al., 2022). Scientific press releases often address both the environmental and human health impacts of ocean plastic pollution, though they tend to emphasize environmental concerns (Vonk et al., 2024). Similarly, newspaper articles more frequently present ocean plastic as a threat to marine ecosystems rather than to human health (Henderson & Green, 2020). However, studies show that environmental issues are perceived as more urgent and personally relevant when linked to human health rather than to distant ecological effects (Nisbet, 2009). Consequently, this ecosystem-focused framing may reinforce the perception of ocean plastic as a remote issue with little relevance to people's daily lives (Henderson & Green, 2020). How ocean science is framed in the media therefore shapes not only public understanding but also people's motivation to engage with and act on marine environmental issues (Caruso et al., 2022; Kelly et al., 2021).

Methods

The coding process is described clearly.

1. Please specify the timeframe during which the press releases and articles were published.

To clarify the timeframe of our dataset, we've added the following extra information to the second paragraph of 3.1:

This dataset is a subset of a larger collection compiled by Vonk et al., (2024b), which includes 84 EurekAlert! press releases published between January 2017 and December 2021, along with 495 related newspaper articles. These articles were published within one month of the corresponding press release, under the assumption that they were likely triggered by the publication of the peer-reviewed research, rather than by unrelated events that made the topic newsworthy. All newspaper articles were identified via NexisUni and Altmetric. By drawing from this pre-existing dataset, we focus on studies that received broad media coverage (i.e., at least nine newspaper articles based on a press release). To analyse how peer-reviewed studies are framed, only newspaper articles that discuss the research as their central topic are included; articles that cover multiple unrelated studies are excluded. The full selection criteria are provided in Appendix A, a visual overview of the selection process is added to the supplementary materials.

2. You note that inter-coder reliability for the stylistic elements did not reach an acceptable threshold. It may be cleaner to drop those elements from the analysis.

Thank you for this observation. It is correct that inter-coder reliability for the stylistic elements did not reach an acceptable threshold. While both coders identified a similar number of stylistic elements, they did not consistently identify the same instances. As a result, we do not draw any qualitative conclusions about the use or meaning of these elements in the Results or Discussion sections.

However, we prefer to keep this part of the analysis in the Methods and Results sections, as it reflects an important limitation of the codebook. By transparently reporting on the steps we took during our research and the limitations this caused, we want to make clear what conclusions can and cannot be drawn from our analysis and hope that others can learn from the limitations that emerged from our research.

Results

Figures 1–3 contain a lot of information. They're informative but require time to interpret.

1. You coded 38 elements (frame variables, narrative elements, actors, actor roles) but analyzed only 10 press releases. In the Results or Limitations section, discuss whether this sample size provides a sufficient basis for assessing all 38 coded elements.

Thank you for this important observation. In total, we analyzed framing across 140 data points (10 press releases and 130 newspaper articles), which provides a broader empirical basis for examining how these frame elements are transferred into news reporting.

This study builds on a previous analysis of framing in scientific press releases (see Vonk et al., 2024). Because our aim was to explore whether newspapers adopt similar framing as found in press releases, we used a comparable coding scheme. As a result, not every coded element appears in all ten press releases. For example, economic consequences are not discussed in the press releases included in our sample. However, what is particularly noteworthy is that such elements also do not appear in the corresponding newspaper articles. This suggests that journalists did not introduce them either and highlights the influence of the press release on the framing of news coverage.

2. In line 315, you refer to “press.” I think you meant “press release.”

Thank you for catching this. We have corrected the mistake.

3. For framing and for actors, you report the number of articles that mirror, add to, or omit elements compared to the press release. Please include similar counts for the narrative elements.

Thank you for your comment, we to make sure all results are in line, we have added counts for the narrative elements, like you suggested. The following information is added to the narratives’ result section:

Overall, most newspaper articles (N = 57) retained the same story tone as the corresponding press releases. Only one article shifted the tone to positive, 27 newspaper articles shifted to a negative tone, 13 articles shifted to a passionate or fatalistic tone and 19 articles changed the tone of the story to neutral. All press releases (N=10) and almost all newspaper articles (N=129) contain personalization. The inverted pyramid style is used in all press releases (N=10) and most newspaper articles (N=115). A few press releases (N = 3) included emotional expressions from scientists. These emotions were reproduced in a limited number of newspaper articles (N = 10). In a larger number of cases (N = 39), newspaper articles introduced additional human emotion beyond what was present in the original press release.

Conclusions and Discussion

You link your results back to theory, suggest ways for journalists and scientists to improve communication, and identify the study’s limitations and avenues for future research.

1. The structure of the Discussion does not mirror the order of the theoretical framework and Results. Reordering the Discussion subsections to follow frame-building, narratives, then actors would improve logical flow.

Thank you for this comment. You are correct that the structure of the Discussion does not mirror the order of the theoretical framework and Results sections. In an earlier version, the discussion was structured to match the manuscript; however, this led to substantial repetition, as the findings on frames, narratives, and actor roles are closely interrelated. For instance, the introduction of new actors or quotes often influenced the framing. To reduce redundancy and better highlight these interconnections, we chose to organize the discussion thematically rather than sequentially. We hope this approach improves coherence by emphasizing how these elements interact rather than treating them in isolation.

2. You mention article length in several places but do not integrate it fully into your findings. Either expand the analysis of length to show how it affects your results or remove those mentions if they do not support your main argument.

Thank you for this helpful feedback. Article length is indeed visualized in the figures, and for framing, we examined its influence more explicitly. In our results, we note that longer newspaper articles tended to include more framing elements, while shorter articles often omitted contextual details. This supports the idea that article length may influence the richness of framing.

For narrative elements, the influence of article length on the results is less evident. While article length is included in the figure presenting the narrative analysis, no clear pattern emerged. Framing is measured cumulatively, multiple frame variables add up, so longer articles often include more context and thus more frames, whereas shorter articles may omit these. In theory, this could also apply to narratives. However, since most articles follow the inverted pyramid structure and already include personalization by default, the cumulative effect is less visible in our results. Some articles include stylistic elements or emotional expressions from actors, but because these narrative indicators are limited in number, we observed no consistent link with article length. For this reason, we chose not to elaborate on article length in the narrative results or discussion.

Since we elaborate on text length only in the result section of framing, we have modified the discussion. Based on your previous feedback, we now mention that newspaper articles are often more negative than the press release they are based on (Results-3). Here, we do not address text length. We have changed the discussion as followed:

Text removed from the discussion: *In our dataset, shorter newspaper articles often focused only on the main research findings, without a broader context or discussion of societal implications. In our dataset, scientific findings were often linked to biological problems, causing the limited focus to contribute to a more negative overall tone in newspaper articles compared to press releases on which they are based.*

Text added to discussion: *Overall, most newspaper articles either retained the tone of the corresponding press releases or adopted a more negative one. Notably, around half of the press releases already conveyed a negative or alarmist tone, which contributed to newspaper coverage of ocean plastic often emphasizing the harmful and alarming aspects of pollution.*

3. You cannot be certain that press releases alone drive the framing of news articles, journalists may also draw on other sources. Please address this possibility in the Limitations section.

Thank you for this valuable observation. You are absolutely right that journalists may draw on a variety of sources beyond press releases when framing their news articles. We therefore have included the following information in the limitations section of the paper:

We created our newspaper dataset by assessing which newspaper articles are based on the same research as discussed in press releases. As a result, we cannot be completely sure that the newspaper article is based on the press release or even that the journalist who wrote the newspaper article saw the press release. We recognize that other factors, such as prior knowledge or other press material, can also influence framing. The qualitative analysis of the type of framing and the large overlap in framing between press releases and newspaper articles and the copying of quotes from press releases, however, suggests that in most cases, the journalists did read the press release and used parts of it to write the newspaper article.