

# From Science to Decisions: Influence of Marine Environmental Grey Literature

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## Abstract

Our research studies the influence of information published as “grey literature” by four governmental marine environment and resource organizations. Results to date are enhancing our understanding of the production, diffusion, and use of such information, which is now largely available online. Barriers to effective use of information are also being identified.



## Introduction

- There is wide recognition that the world’s marine ecosystems are at risk due to environmental problems.
- Numerous environmental and resource studies could inform policy makers who must make timely decisions, manage risks effectively, and take action when warranted.
- Many agencies publish in grey literature formats.
- Grey literature is that which is produced at all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers.
- Awareness problems may occur, even with open access systems and powerful search engines.

Publications of four governmental organizations are being studied:

- GESAMP** (UN-Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection)
- GOMC** (Gulf of Maine Council on the Marine Environment)
- FAO** (UN-Food and Agricultural Organization)
- Environment Canada**

## Guiding Questions

- What have the 4 organizations published, where, and how?
- What is the evidence for distribution and use of these publications?
- Which approaches will demonstrate influence of the publications?
- How can marine environmental information in grey formats be more influential in decision making?

## Methods

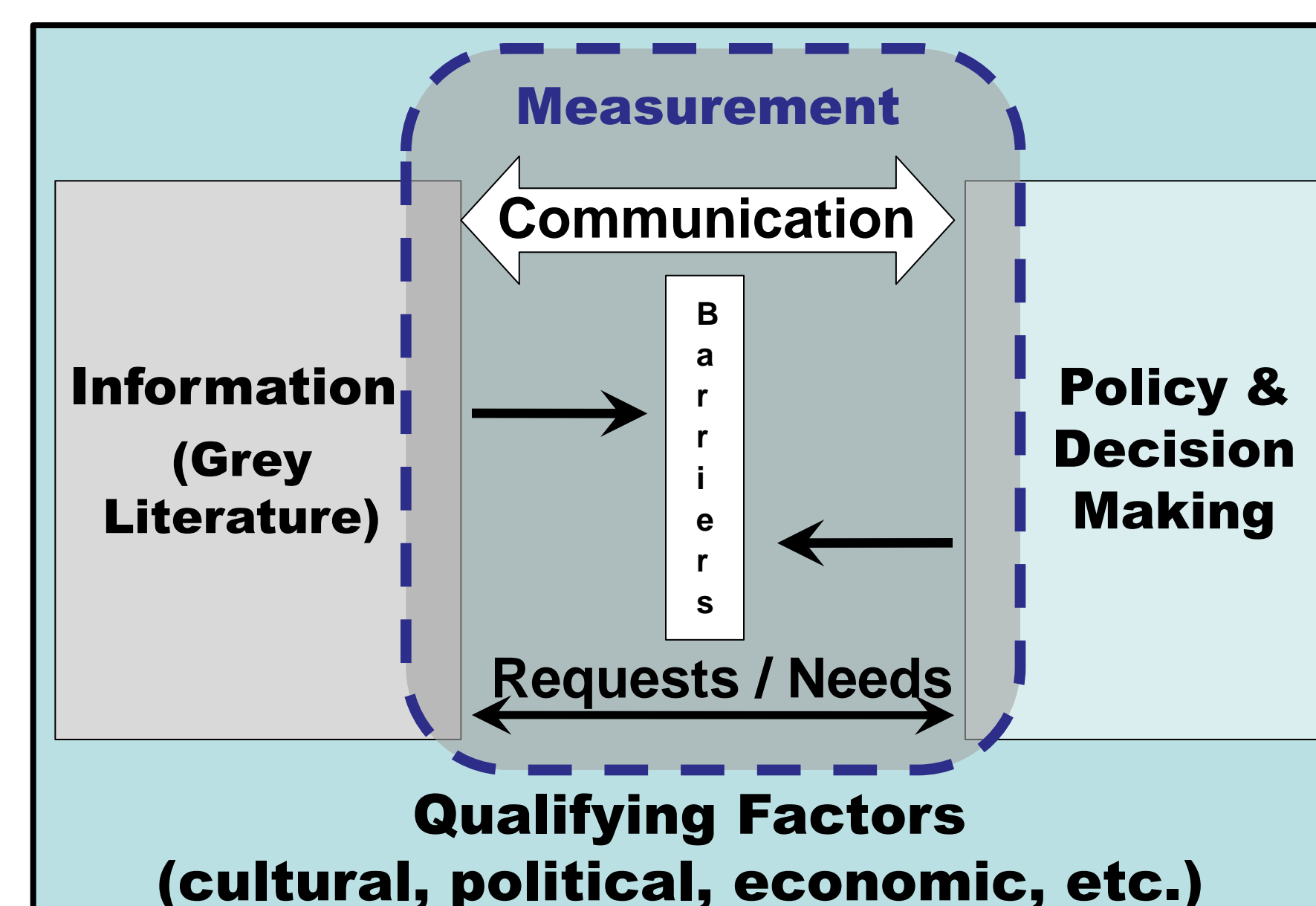
Our methods have included:

- Creation of databases of each organizations’ publications and citations.
- Analysis of citations to determine
  - Frequency and pattern of citations over time.
  - Sources of citations.
  - Geographic location of citing authors.
  - Subject areas of citing publications.
- Content analysis of publications for characteristics promoting distribution and awareness.

## Results

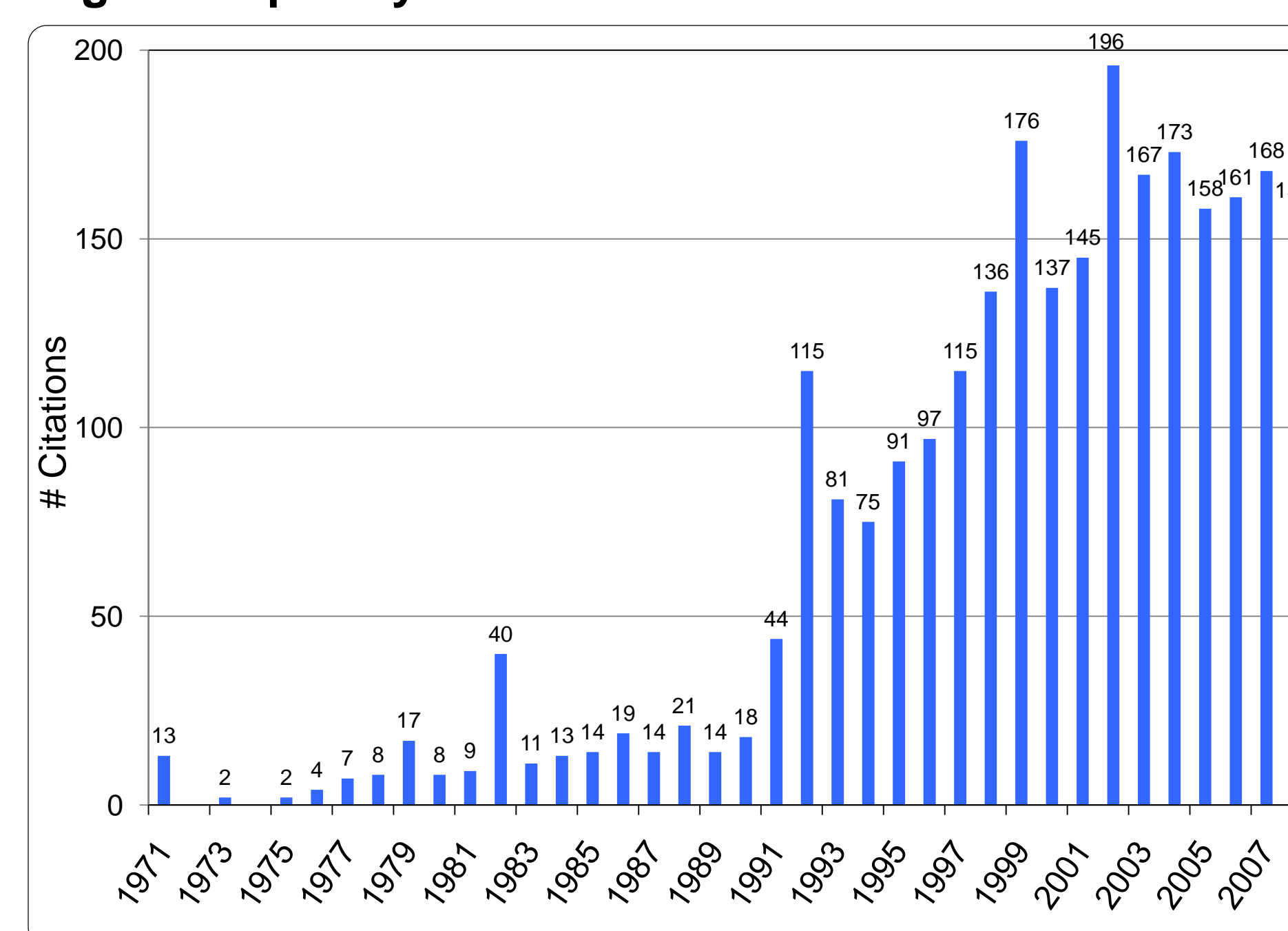
This research on the influence of marine environmental information on policy and decision making is guided by the framework outlined in Fig. 1.

Fig. 1. Guiding framework



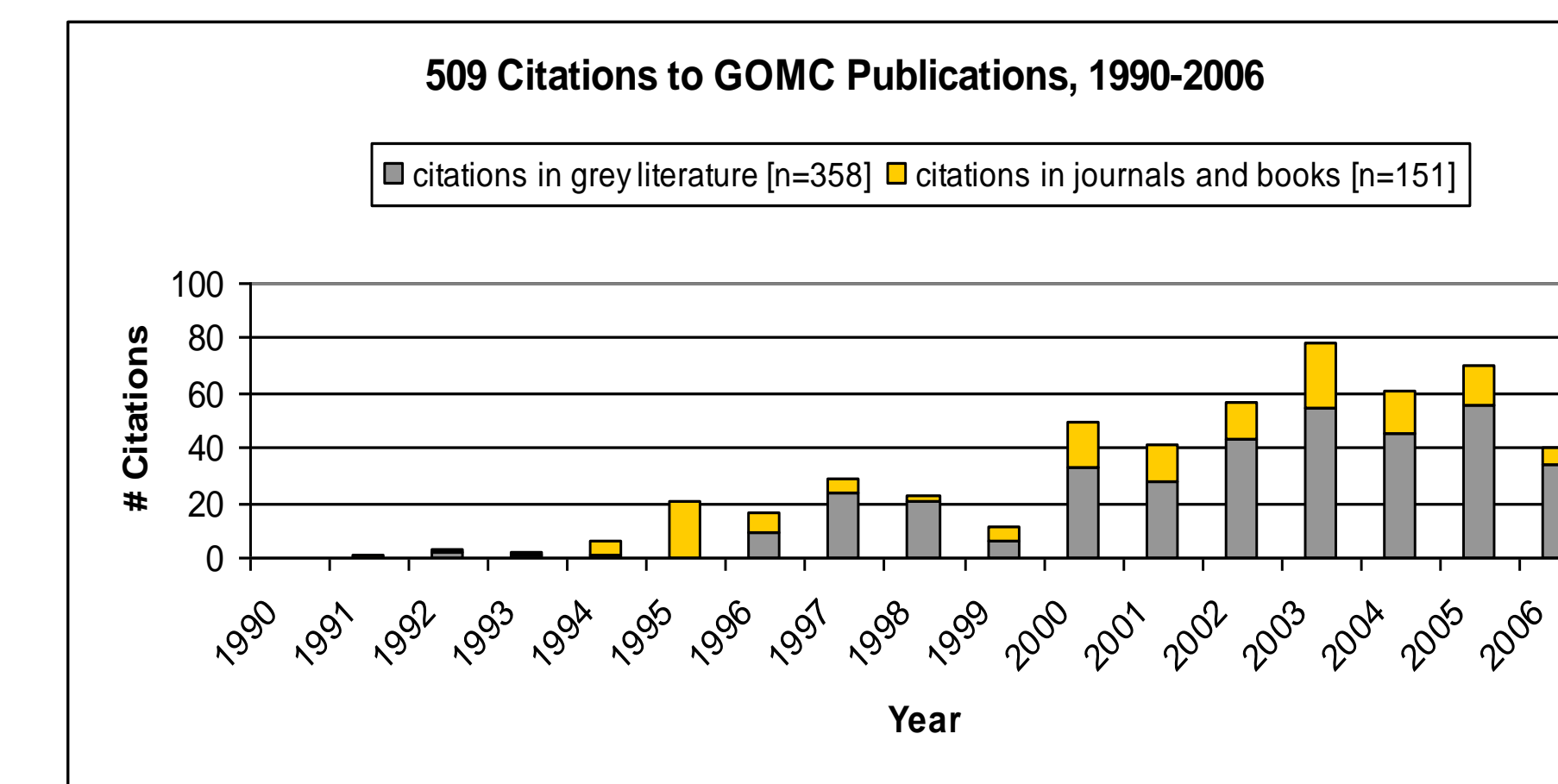
Citation data extracted from Web of Science shows increased use of GESAMP reports over time (Fig. 2).

Fig. 2 Frequency of Citations to GESAMP Publications



Citation data extracted from Web of Science and from the Internet also shows increased use of GOMC reports over time (Fig. 3).

Fig. 3. Frequency of Citations to GOMC Publications



GESAMP’s influence is shown by citations from Google Scholar and Google, which represent influence (e.g., online reports or papers) or are superfluous (web ephemera). In Google Scholar 99.5% of the citations represent influence (Fig 4a) compared to 75% of Google searches (Fig 4b).

Fig. 4a. Citations Located With Google Scholar

Most Cited GESAMP Reports	Google Scholar Hits	Citations Showing Influence	Superfluous Citations
Top 5	352	352	0
Next 5	235	232	3
Total	587	584	3
Percentage		99.5	0.5

Fig. 4b. Citations Located With Google

Most Cited GESAMP Reports	Google Hits	Citations Showing Influence	Superfluous Citations
Top 5	253	186	67
Next 5	215	164	51
Total	468	350	118
Percentage		74.8	25.2

## Recent Presentations & Publications

- B.H. MacDonald, P.G. Wells, & Ruth E. Cordes. “Who Reads and Uses Grey Literature? The Case of Publications of Two Intergovernmental Environmental Groups.” Paper presented to Society for the History of Authorship, Reading and Publishing, Oxford Brookes University, Oxford, 25 June 2008.
- B.H. MacDonald, R.E. Cordes, and P.G. Wells. “Assessing the Diffusion and Impact of Grey Literature Published by International Intergovernmental Scientific Groups: The Case of the Gulf of Maine Council on the Marine Environment,” *Publishing Research Quarterly* 23, no. 1 (2007): 30-46.

## Discussion & Next Steps

- Our results clearly demonstrate use and influence of publications of two of the intergovernmental organizations, GESAMP and GOMC.
- Multiple data sources are needed to build comprehensive understanding of use and influence of grey literature.

Our current research includes:

- Addressing further questions about use and influence of grey literature by adding Environment Canada and FAO publications to the analytical databases.
- Extending citation analyses of all four organizations.
- Analysing content of public policy publications (reports, working documents).
- Interviewing selected public sector managers in Canada, US, the Caribbean, and Europe regarding use of grey literature.
- Surveying readers of publications and analysing usage of grey literature on the web.
- Developing new methods for evaluating the influence of such literature on decision making in environmental fields.

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