

# 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 overexploitation and various human pressures.
- 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 information produced at all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers.
- Awareness and retrieval of grey literature is not guaranteed despite 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 Agriculture Organization)
- Environment Canada**

## Guiding Questions

- What have the four organizations published, where, and how?
- What is the evidence of 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

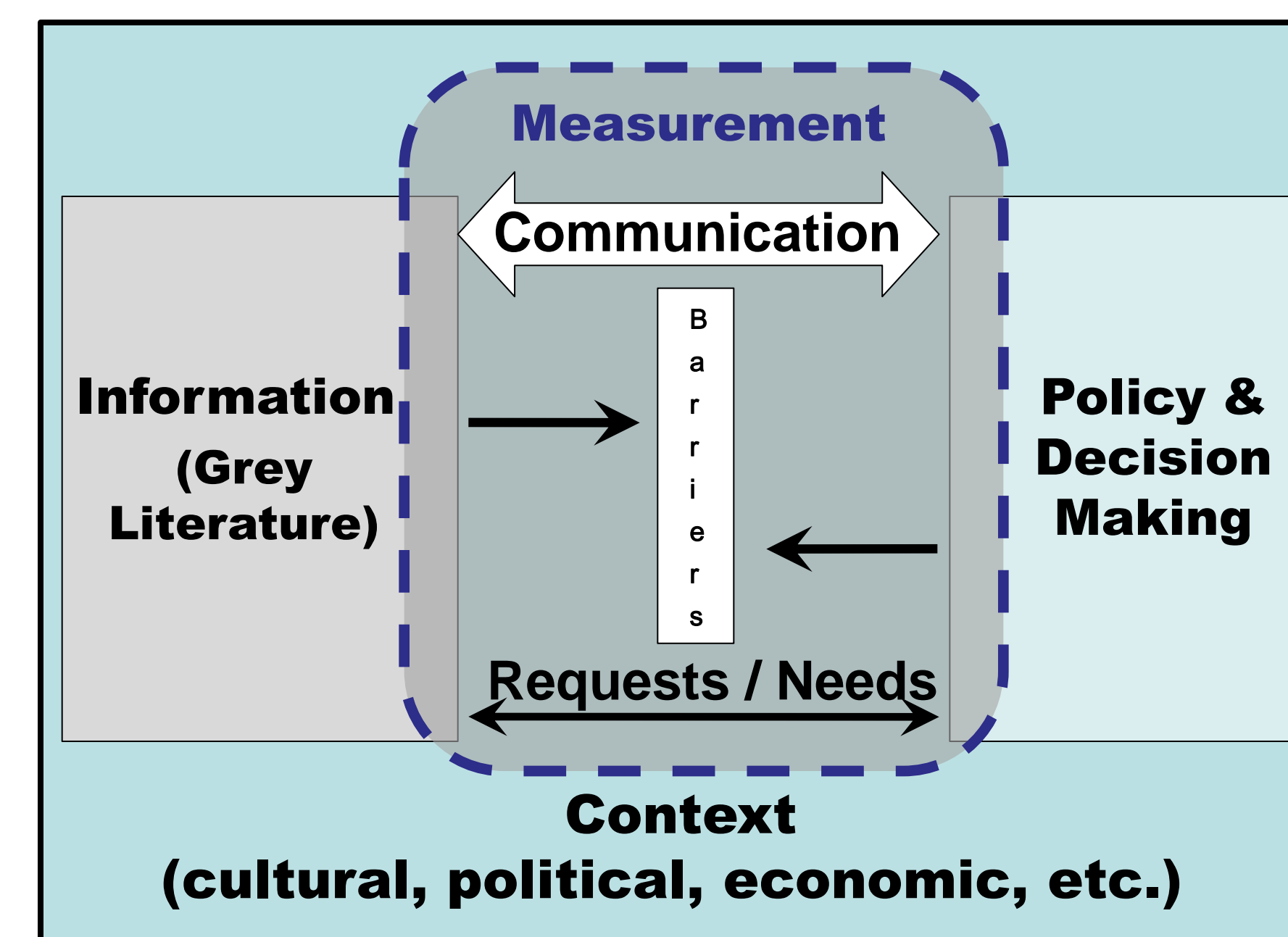
Our methods have included:

- Creation of databases of each organization’s 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

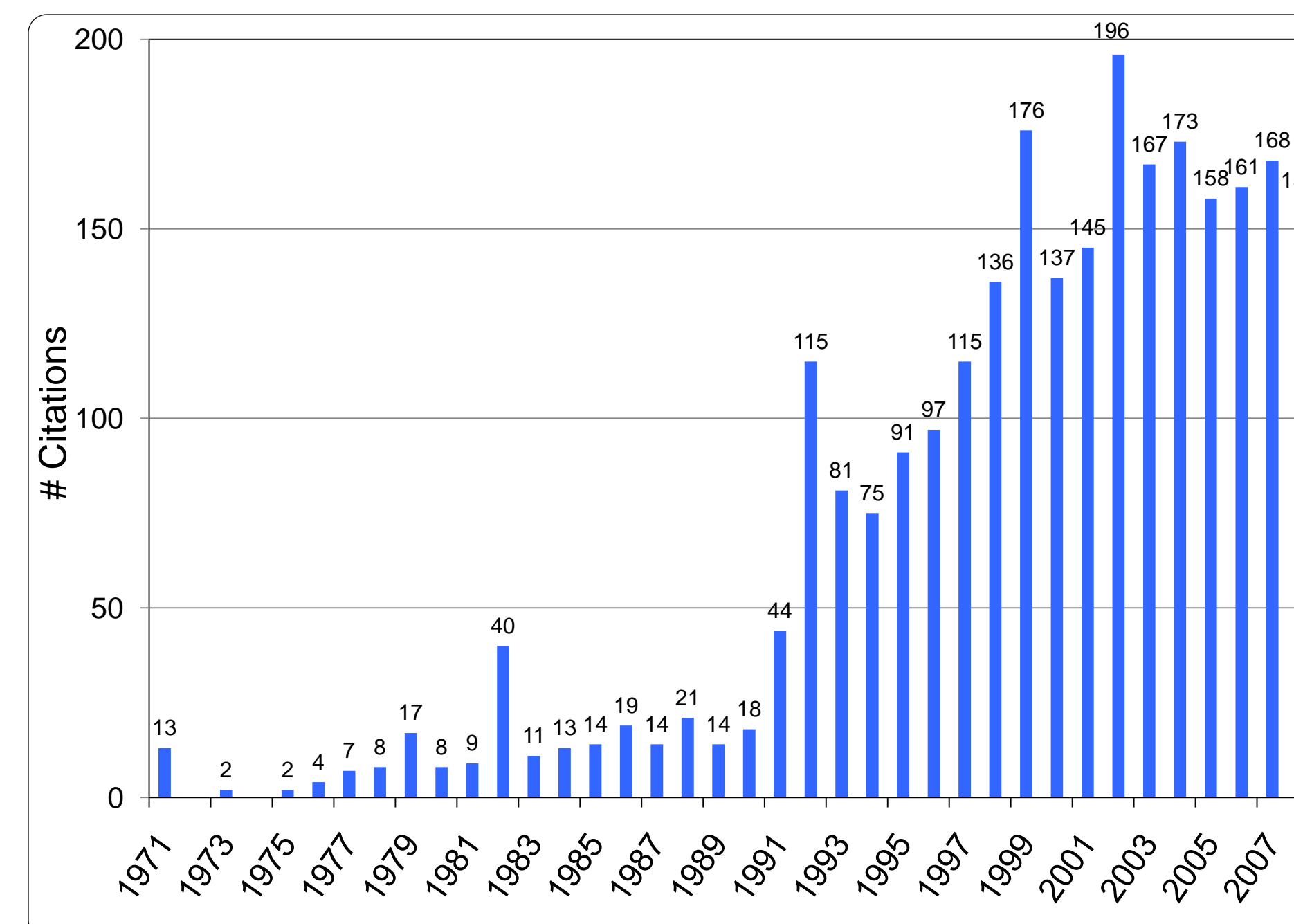
This research on the influence of marine environmental information on policy and decision making is guided by the framework outlined in Fig. 1.

Fig. 1. Guiding framework



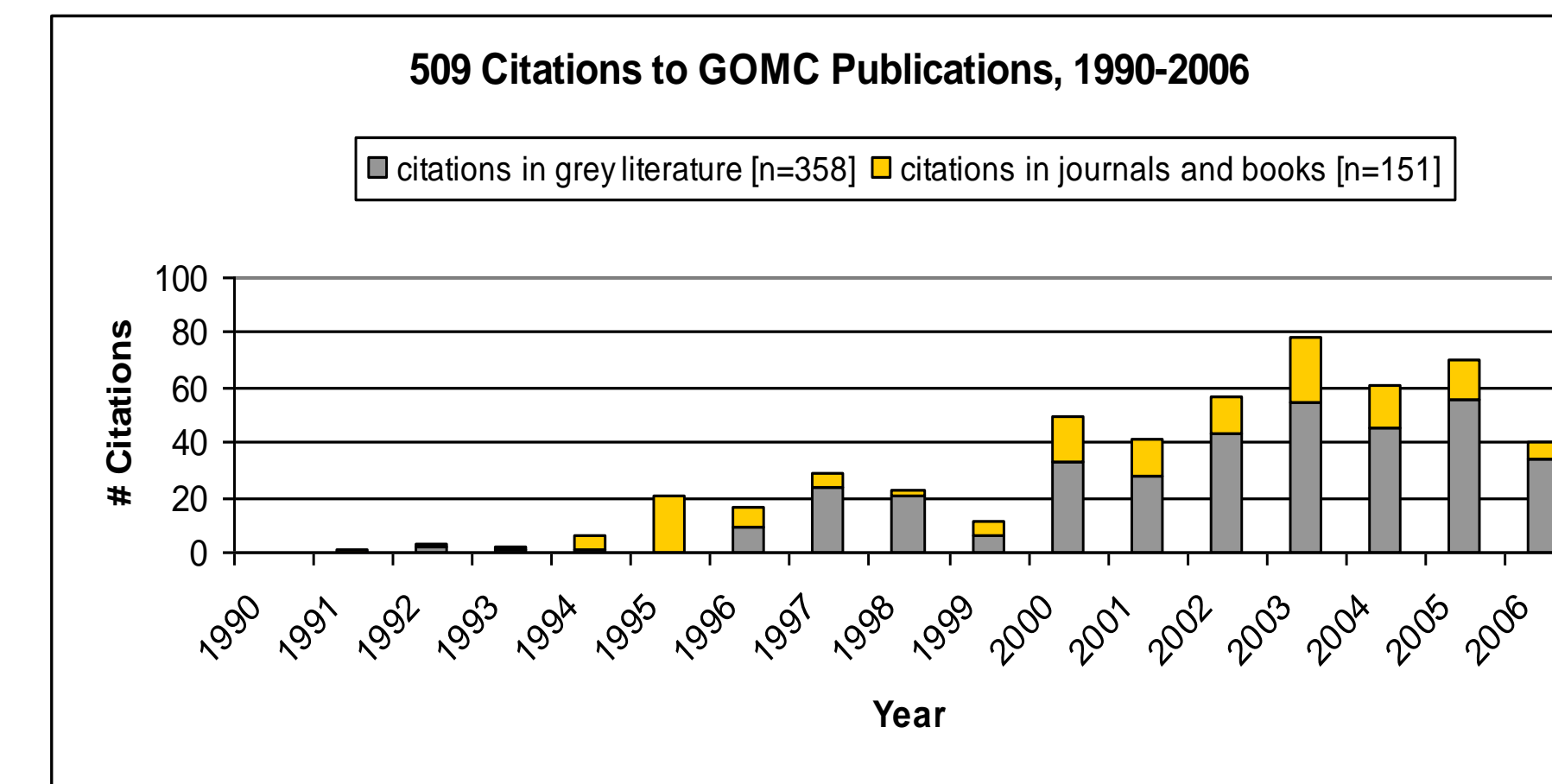
Citation data extracted from Web of Science shows increased use of GESAMP reports over time (Fig. 2).

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 (Table 4a) compared to 75% of Google searches (Table 4b).

Table 1a. 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

Table 1b. 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, & R.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, & 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.

## Benefits to BoFEP

- Assistance with
  - Selection of appropriate measures for evaluating use and influence of information on the Bay of Fundy.
  - Dissemination of Fundy Information generated through BoFEP to maximize its use in policy decisions.
- Generation of new research questions and projects for the Fundy Informatics WG.

## Discussion & Next Steps

- Our results clearly demonstrate use and influence of publications of two of the intergovernmental organizations, GOMC and GESAMP.
  - Multiple data sources are needed to build a comprehensive understanding of use and influence of grey literature.
- Our current research includes:
- Extending citation analyses of all four organizations.
  - Interviewing public sector managers in Canada, US, the Caribbean, and Europe regarding use of grey literature.
  - Developing methods for evaluating the influence of such literature on decision making in environmental fields.

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