Solving the Puzzle of Information Influence: Assembling Evidence of the Use of Scientific Grey Literature

Gregory R.G. Hutton
School of Information Management, Dalhousie University

Abstract

This study identifies a methodology to improve understanding of the influence of grey literature published in print and digital formats. The study is based on analyses of citation data regarding the UN-based Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), the data collected from Web of Science, Google, and Google Scholar.

Introduction

- The quantity of scientific information has increased significantly over the past century and much of this information is published as grey literature.
- This literature, often freely available online, can contain important information for local or international issues .
- Methodologies for determining use and influence of grey literature are currently underdeveloped.
- Citation analysis techniques provide evidence of influence, but, are limited by relying on Web of Science data.
- Grey literature's influence can be better understood by using multiple sources of citation data.

Guiding Questions

- What sources of unique citation data are overlooked when citation analysis relies only on data from Web of Science?
- What sources of citation data contribute to a more comprehensive metric for measuring the influence of grey literature?

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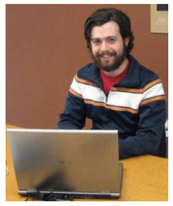
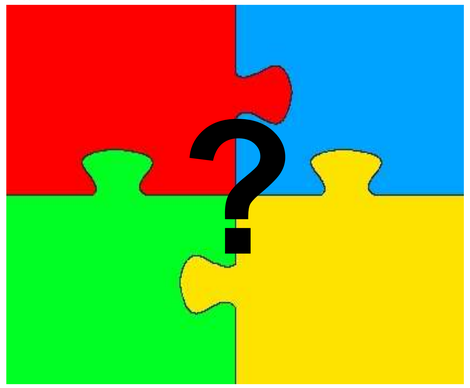


Gregory Hutton
greg.hutton@dal.ca
Bertrum MacDonald
bertrum.macdonald@dal.ca
Peter Wells
oceans2@ns.sympatico.ca

Methods

- A case study using GESAMP's publications was undertaken**.**
- Citation data was collected from Web of Science, Google, and Google Scholar.
- Specialized searches conducted in Google identify websites linked to www.gesamp.net.
- Citation data from multiple sources was assembled and evaluated. Each source contributed a piece to the puzzle representing grey literature's influence.
- Each piece shows part of the total which can only be understood when assembled.

Fig 1. The influence "puzzle."



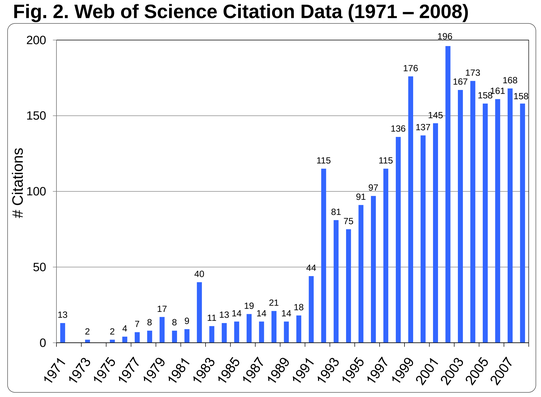
Results & Discussion

- Web of Science, Web links, Google and Google Scholar each contributed unique citation data.

Web of Science

- Citations to GESAMP publications indexed by Web of Science demonstrate use in top peer-reviewed journals over time (Fig 2).

Fig. 2. Web of Science Citation Data (1971 – 2008)



Web Links

- Links between websites show connections closely resembling direct citation.
- Nineteen websites link directly to www.gesamp.net (Table 1), the majority of which come from UN agencies. Other government and NGO links were also identified.

Table 1. Google Link Search Results

UN Sources (13 links)	# of Links
FAO, UNEP, WMO, etc.	9
GESAMP	4
Non-UN Sources (6 links)	
European Commission	1
Oceanographic Center	1
Environmental Directories	1
Peri-urban mangrove forests as filters and potential phytoremediators of domestic sewage in East Africa	1
Conservation International	1
Large Marine Ecosystems of the World	1
Total	**19**

Google & Google Scholar

- Citations from Google Scholar and Google, either represent influence (e.g., online reports or papers) or are perfunctory (web ephemera).
- Over 99% of the citations in Google Scholar represent influence (Table 2a) compared to 75% of Google results (Table 2b).

Table 2a. Citations Located With Google Scholar

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

Table 2b. Citations Located With Google

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

Conclusion & Next Steps

- The three datasets described here show evidence of the use of GESAMP's literature from several different sources.
- Producers of grey literature need to look beyond Web of Science for evidence of their publications' influence.
- Future studies will examine other potential sources of citations, including monographs (i.e., books and government documents).

Relevance to APLA

- The study shows that multiple sources of citation data identify various uses of scientific information.
- Effective dissemination of scientific information can be bolstered by public and academic libraries.
- Increased awareness of information may lead to increased use in both scientific and policy contexts.

References

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