

Environmental Information: Impact on Decision Making

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Abstract

This study examines diffusion, use and impact of information produced by three organizations responsible for strategic environmental issues. The research uses citation analysis, content analysis, surveys, and interviews of key informants, and will develop new methodologies to measure impact, i.e., influence on decision making.



Introduction

- Environmental policy and decision-makers must make timely decisions, manage risks effectively, and act when action is warranted.
- The vast quantity of accessible environmental information that should inform decisions is a challenge.
- Much information is grey literature (reports); distribution of and access to it can be problematic, even with open access systems and powerful search engines.
- We are examining information from three governmental organizations:
 - GESAMP** (UN-Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection)
 - GOMC** (Gulf of Maine Council on the Marine Environment)
 - Environment Canada.**

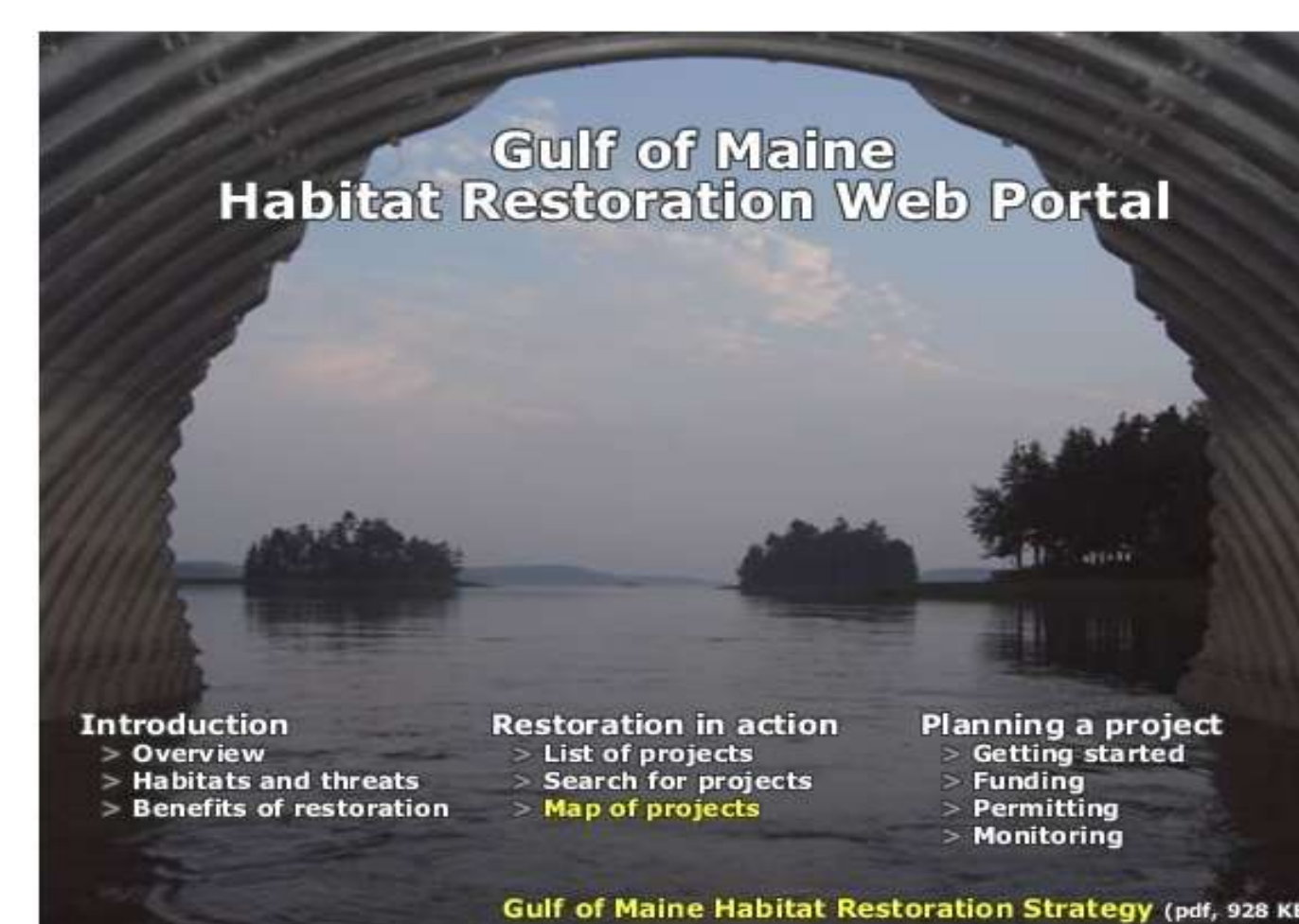
Guiding Questions

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

Methods

Our initial methods have included:

- Identification and creation of a database of all the organizations' publications and citations.
- Analysis of citations to determine
 - Frequency and pattern of citations over time.
 - Subject areas of citing publications.
 - Geographic location of citing authors.
 - Who cited the publications.
- Analysis of publications for characteristics promoting diffusion and awareness.
- Preliminary analysis of web use.



Results

Examples of our results follow.

Citation analysis, for both GESAMP and GOMC, shows increased use of their publications over time (Fig. 1 & 2). GOMC publications showed greater use in other grey literature (Fig. 2).

Fig. 1 Frequency of Citations to GESAMP Publications

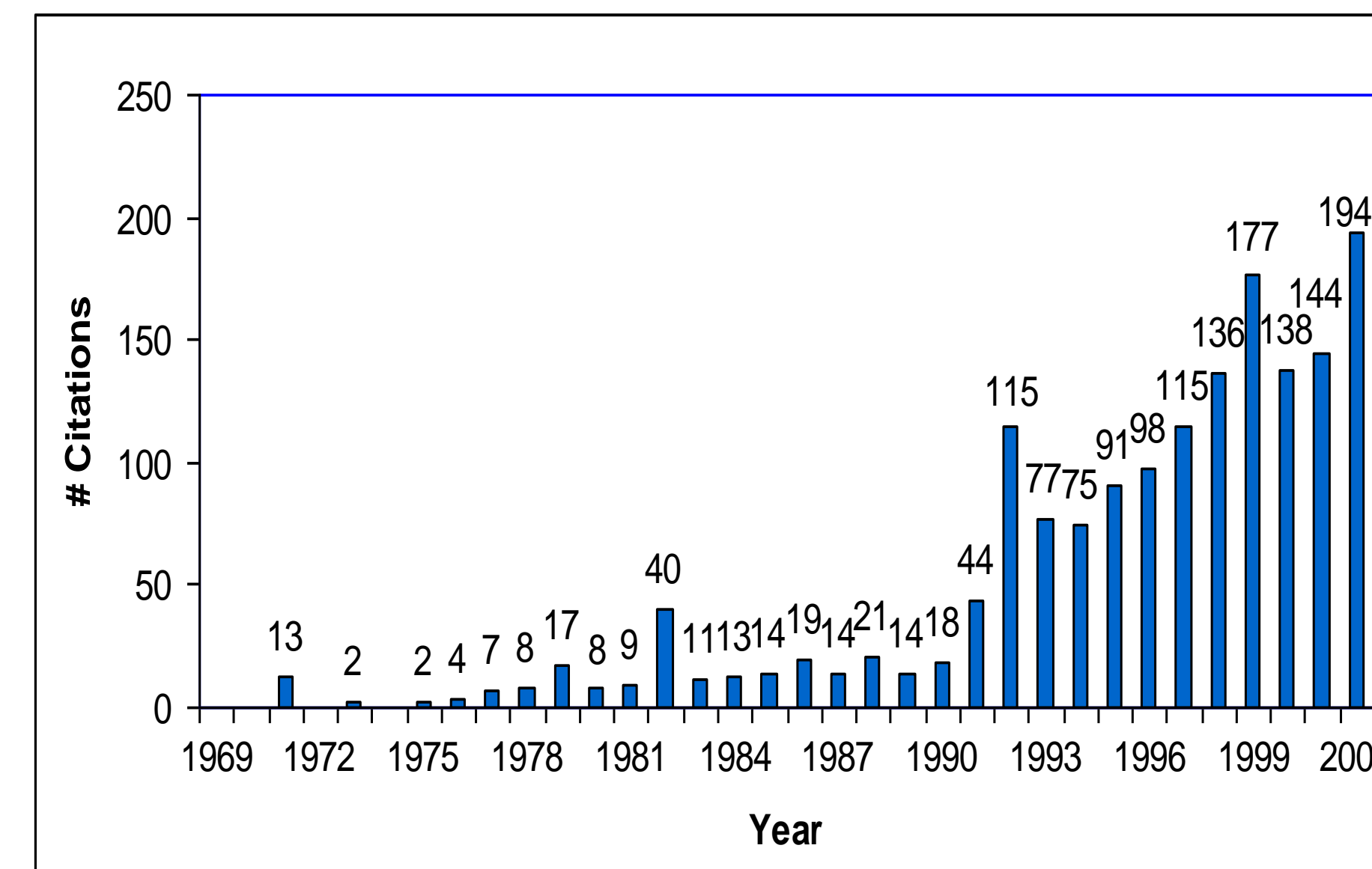
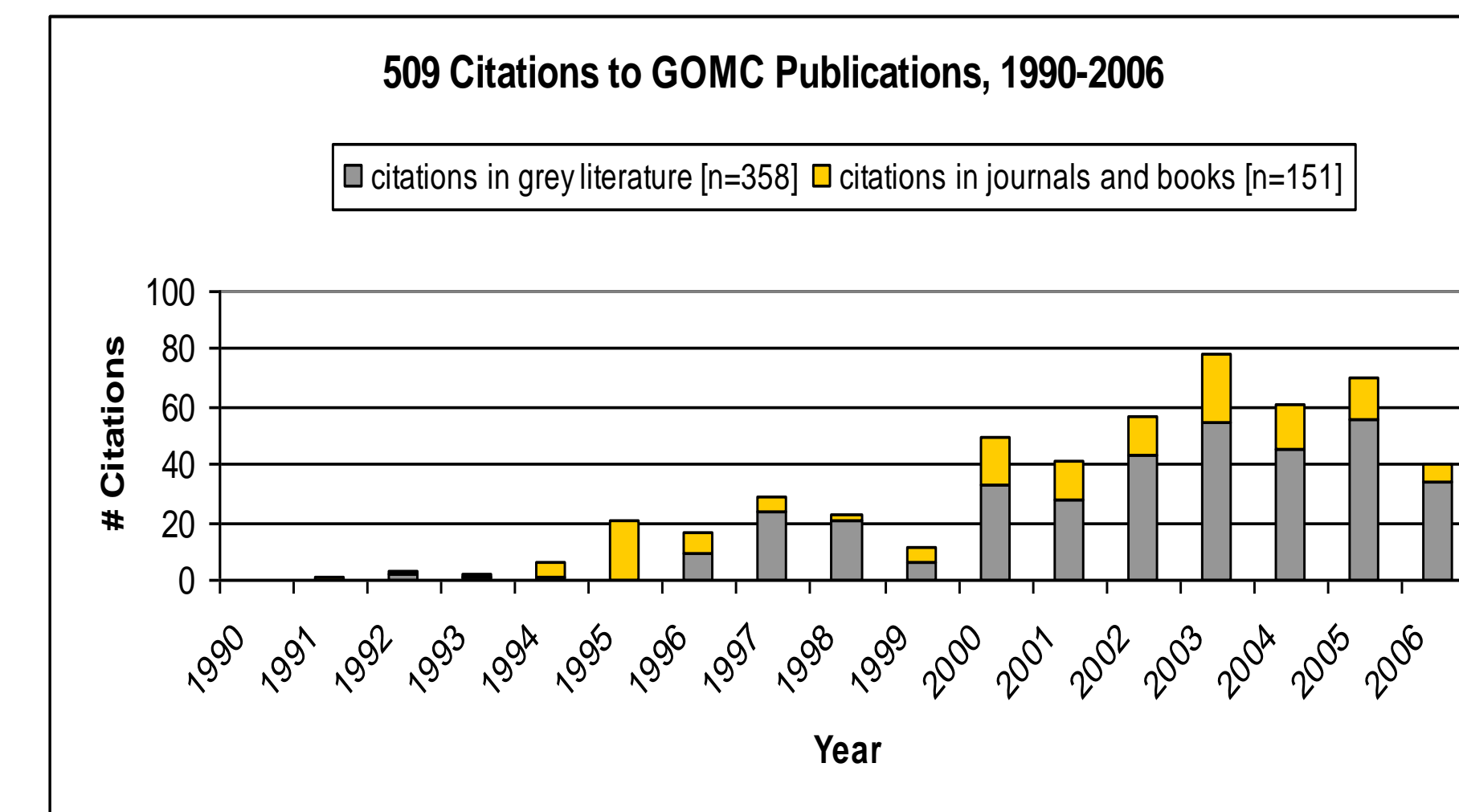
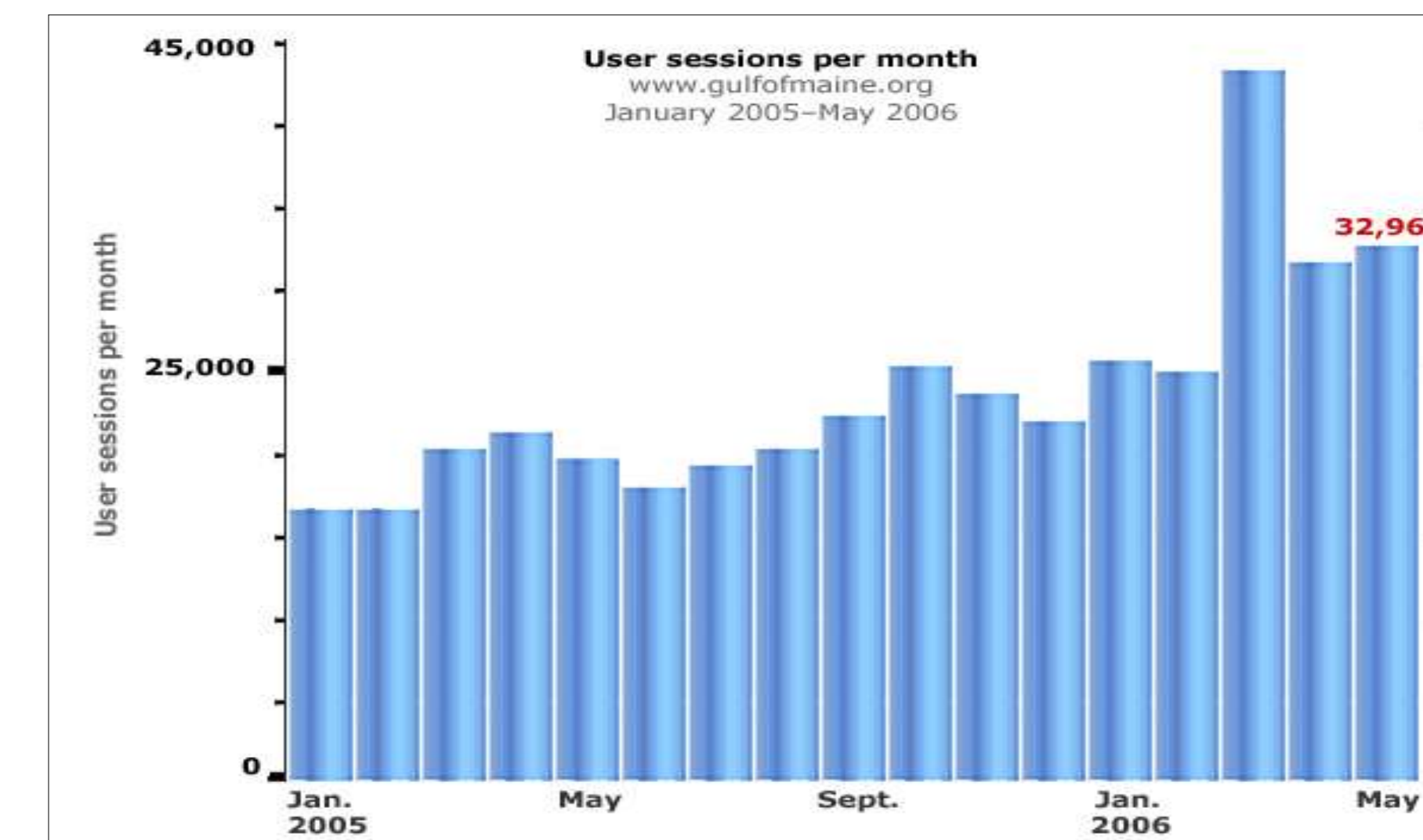


Fig. 2. Frequency of Citations to GOMC Publications



Both GESAMP and GOMC publications have been on their web site for over a decade. These websites are increasingly accessed (Fig. 3).

Fig. 3. User sessions per month for GOMC website

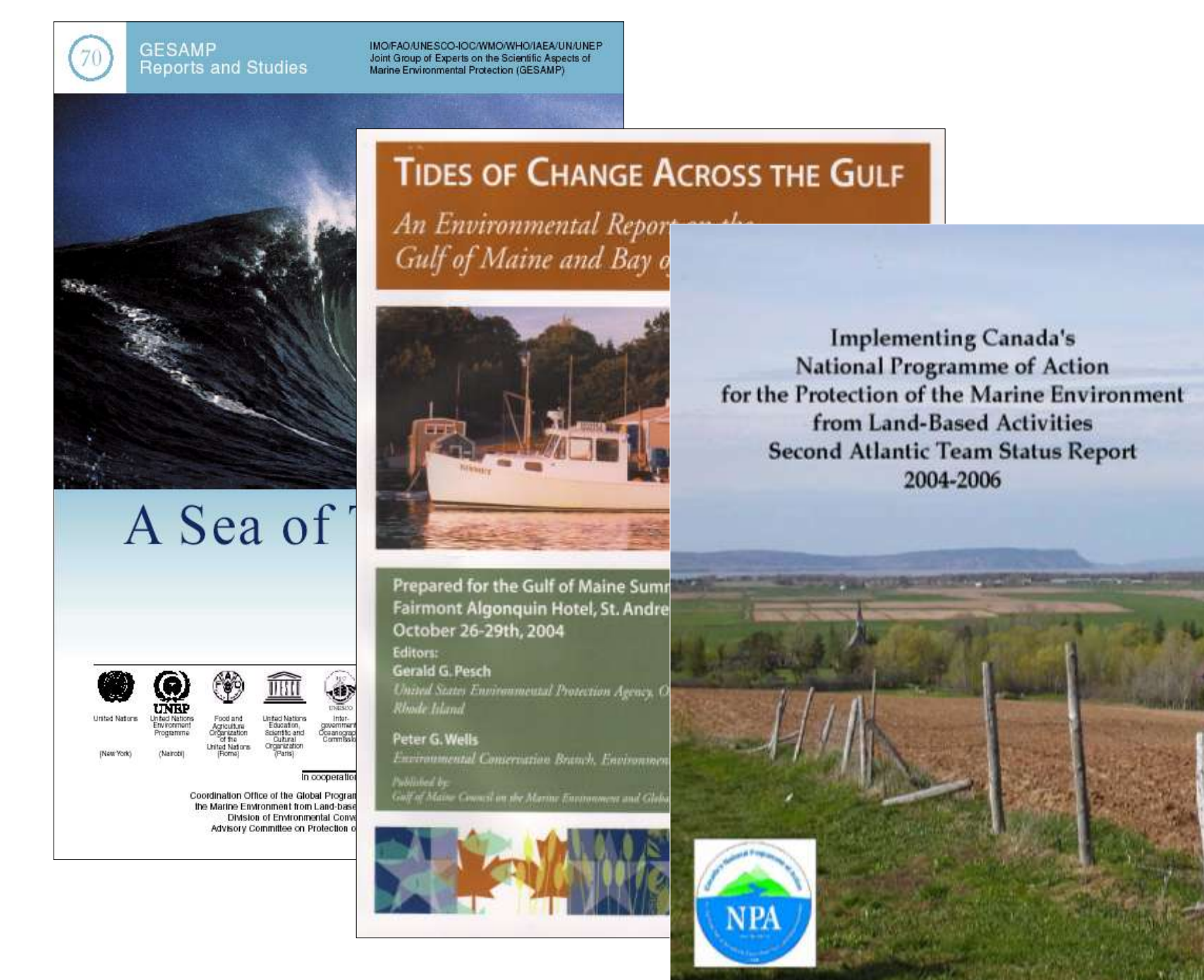


Courtesy of P. Taylor & J. Craddock

Citations to GESAMP publications appear in a wide range of journals, illustrating use across disciplines and outside of science itself (Table. 1).

Table 1. Where GESAMP reports are cited

Top Science Categories	# citations	# journals
• Environmental Sciences	641	58
• Marine & Freshwater Biology	385	43
• Oceanography	223	27
• Geosciences, Interdisciplinary	135	28
• Meteorology & Atmospheric Sciences	115	11
Top Social Science Categories		
• International Relations	64	8
• Environmental Studies	52	5
• Law	26	7
Other Diverse Science Categories		
• Engineering, Environmental	78	8
• Fisheries	51	14
• Public, Environmental & Occup. Health	17	7
• Food Science & Technology	10	6



Further details are found in our publications.

Selected Project Publications

- 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.
- B.H. MacDonald, R.E. Cordes & P.G. Wells, "Grey Literature in the Life of GESAMP, an International Marine Scientific Advisory Body," *Publishing Research Quarterly* 20, no. 1 (2004): 25-41.

Discussion & Next Steps

We are particularly interested in the impact of grey literature on decisions and policies in environmental protection and conservation. Our studies to date on GESAMP and GOMC show its extensive use but not its influence. Our continuing study, funded primarily by SSHRC, is addressing further core questions regarding both the use and influence of grey literature.

Our current research includes:

- Adding Environment Canada publications to the analytical databases.
- Extending citation analysis of all three organizations.
- Analysing content of public policy publications (reports, working documents)
- Interviewing selected public sector managers in Canada, US, and Europe regarding use of grey literature.
- Surveying readers of publications.
- Surveying web access and usage of grey literature on the websites.
- Developing new methods for evaluating the impact of such literature on decision making in environmental fields.

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