

Understanding the Influence of Marine Environmental Information on Policy-Making in a Changing Climate

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Summary

Marine ecosystems globally are at great risk due to human pressures, especially climate change. Much key scientific data and information for finding solutions is in grey literature (e.g. peer-reviewed technical reports), an increasingly important knowledge base for policy-making. This information can remain hidden even in the face of digital technologies (search engines, open access, and social networks).

Studies of information pathways and barriers and enablers to information flow are needed to understand the science-policy interface in marine environmental decision-making. To date, our results indicate awareness remains a major barrier to effective and widespread communication and use of marine information in coastal and ocean management.

Relevance

Efficient access to and effective use of current, reliable information is critical to solving coastal and ocean management issues and addressing human and national security concerns.

Despite improved information technologies, challenges to effective use of information for much needed policies still remain.

Interaction between science and policy making needs to be improved through enhanced communication and outreach.

Communicating with diverse audiences and engaging stakeholders outside of established knowledge networks can increase awareness of environmental issues.

Analytical Framework

Figure 1. Environmental Information: Use and Influence Research Initiative. (Studying government-sponsored, marine publications in policy making contexts)

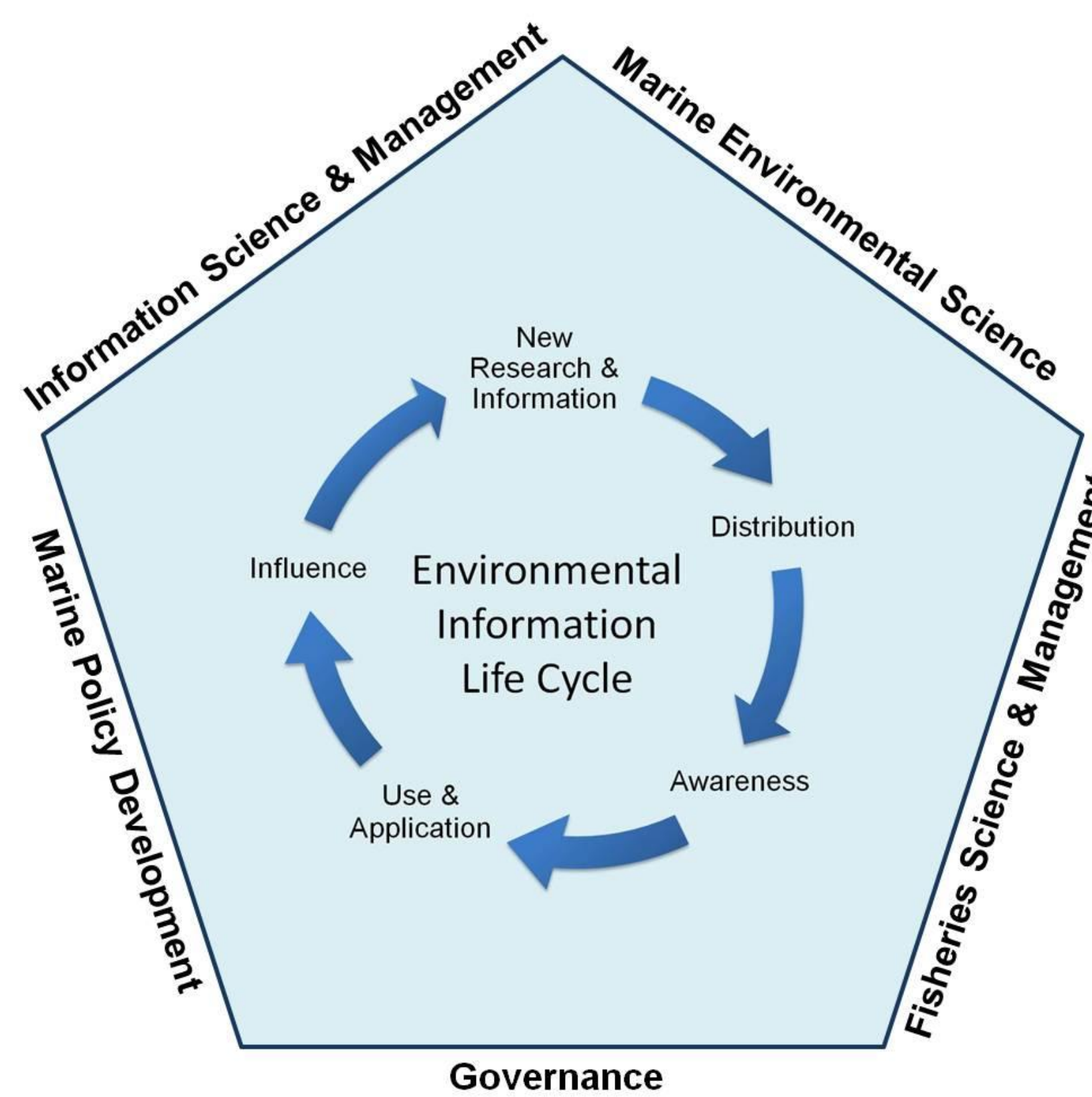
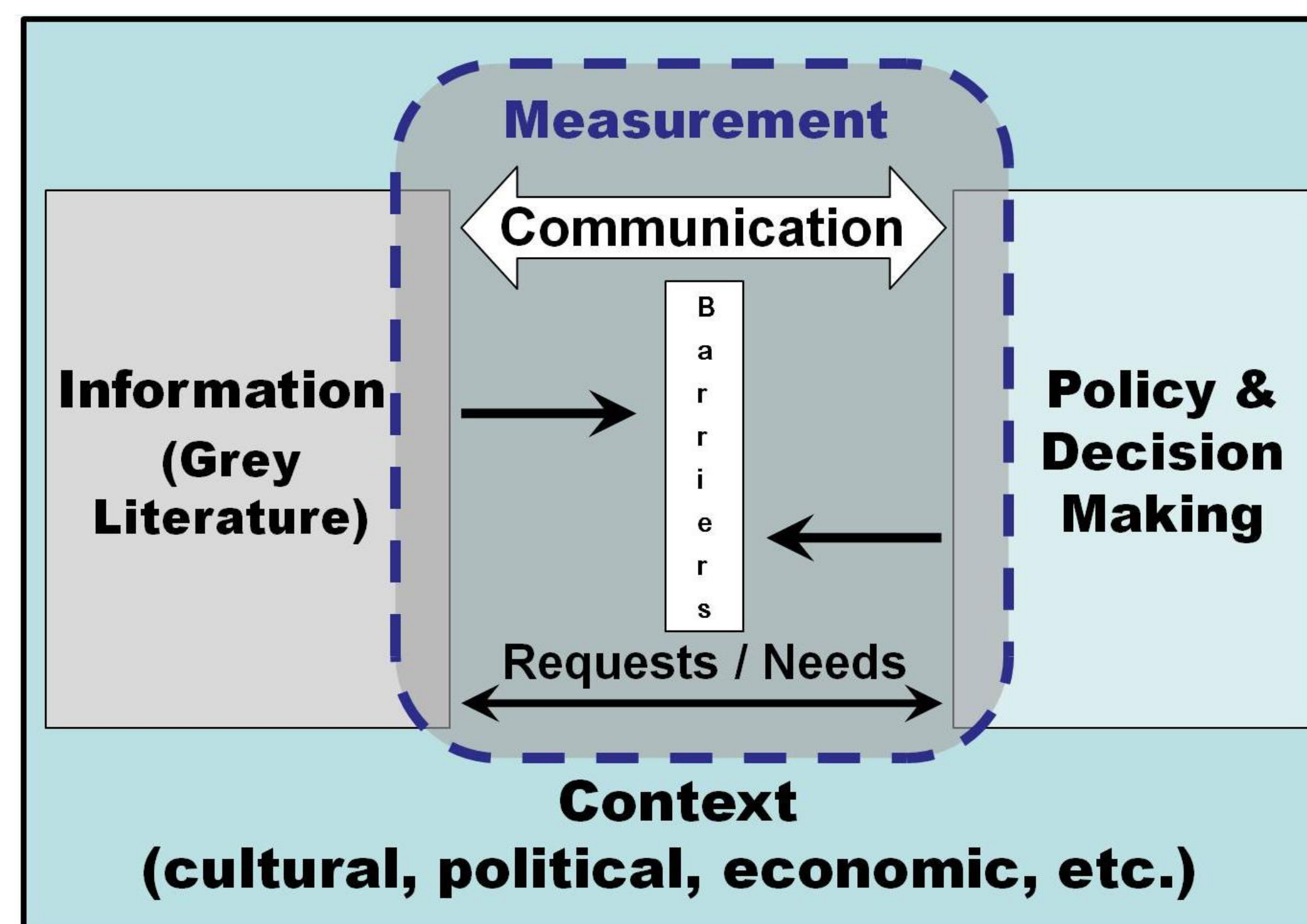


Figure 2. Interaction between Information Production and Policy-Making. (Framework for understanding information flows in the science-policy divide)



Research Questions

How does scientific information inform marine environmental policy decisions? Can grey literature be more influential in decision making?

What, where, and how have selected marine environmental and fisheries organizations published? What drives the production?

What is the evidence of distribution and use of these publications? What institutional enablers and barriers affect information use at the science / policy interface?

What methods best measure the influence of information in marine environmental decision-making?

Methods

Citation analysis of publications to determine:

- Sources, frequency, and patterns
- Location of citing authors
- Subjects of citing publications.

Content analysis of publications for characteristics promoting distribution and awareness.

Questionnaires, interviews, and direct observations of stakeholders (policy / decision-makers, scientists, industry, general public) to determine information pathways.

Web analytics (usage statistics and web links to determine awareness and use of publications).

Partnering with environmental research groups to strengthen the interdisciplinarity of the project and optimize findings.

Case Study Results

| Topic | Organisation & Focus of Study | Production & Distribution | Use | Influence in Policy-Making |
|---|--|--|--|--|
| State of the Ocean and Marine Pollution | GESAMP UN-Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (www.gesamp.org) | Rigorously reviewed reports are published in a Technical Report series, distributed by UN agencies, and available on the GESAMP website. | Frequency of citations | The case studies presented opportunities for organizations interested in learning how their publications are used and how awareness of coastal issues can be increased. |
| State of the Environment Reports | GOMC Gulf of Maine Council on the Marine Environment (www.gulfofmaine.org); <i>Bibliographic Study</i> | Publication practices are not uniform; but a new publication policy addresses this matter. An informal distribution process results in uneven awareness of and access of publications. | Frequency of citations | Several organisations have taken up recommendations to increase awareness, use, and influence of their publications. |
| | GOMC <i>State of the Gulf of Maine Report</i> | Deliberate strategy behind its production. Five theme papers and a context paper are available on the GOMC website. A publication notice appeared in the <i>Gulf of Maine Times</i> . | The report is used by Council and Working Group Members primarily as baseline information on coastal issues in the Gulf of Maine / Bay of Fundy region. Low reported use by the public. | Stakeholders considered environmental reports to be important information on regional coastal issues. |
| | NSFA Nova Scotia Department of Fisheries and Aquaculture; (www.gov.ns.ca/fish/); <i>2009 State of Nova Scotia's Coast Report</i> | Well-planned strategy for the project. Three types of documents available in print and on the Web. Distributed by mail, email, at public meetings, and through press releases (2009 to 2010). | The report is used by multiple stakeholders primarily as baseline information and to provide input in development of knowledge-based coastal policy for Nova Scotia. | Stakeholder consultation can result in indirect benefits, e.g. inter/intra agency cooperation increased. A policy endpoint can drive information production and vice versa. |
| Fisheries Stock Assessment Reports | FAO/CRFM UN-Food and Agriculture Organization Caribbean Regional Fisheries Mechanism (www.fao.org / www.caricom-fisheries.org); <i>Shrimp & Groundfish Scientific Working Group</i> | A formal fisheries Technical Report series on the Brazil-Guianas Shelf is distributed by agencies and available on the Web. Distribution is informal in Trinidad and Tobago (case study country). | Reports are used primarily within the scientific community. Limited evidence of use and impact on policy making. | The interdisciplinary research framework enabled the design of methodologies to measure communication of information at the science-policy interface. |