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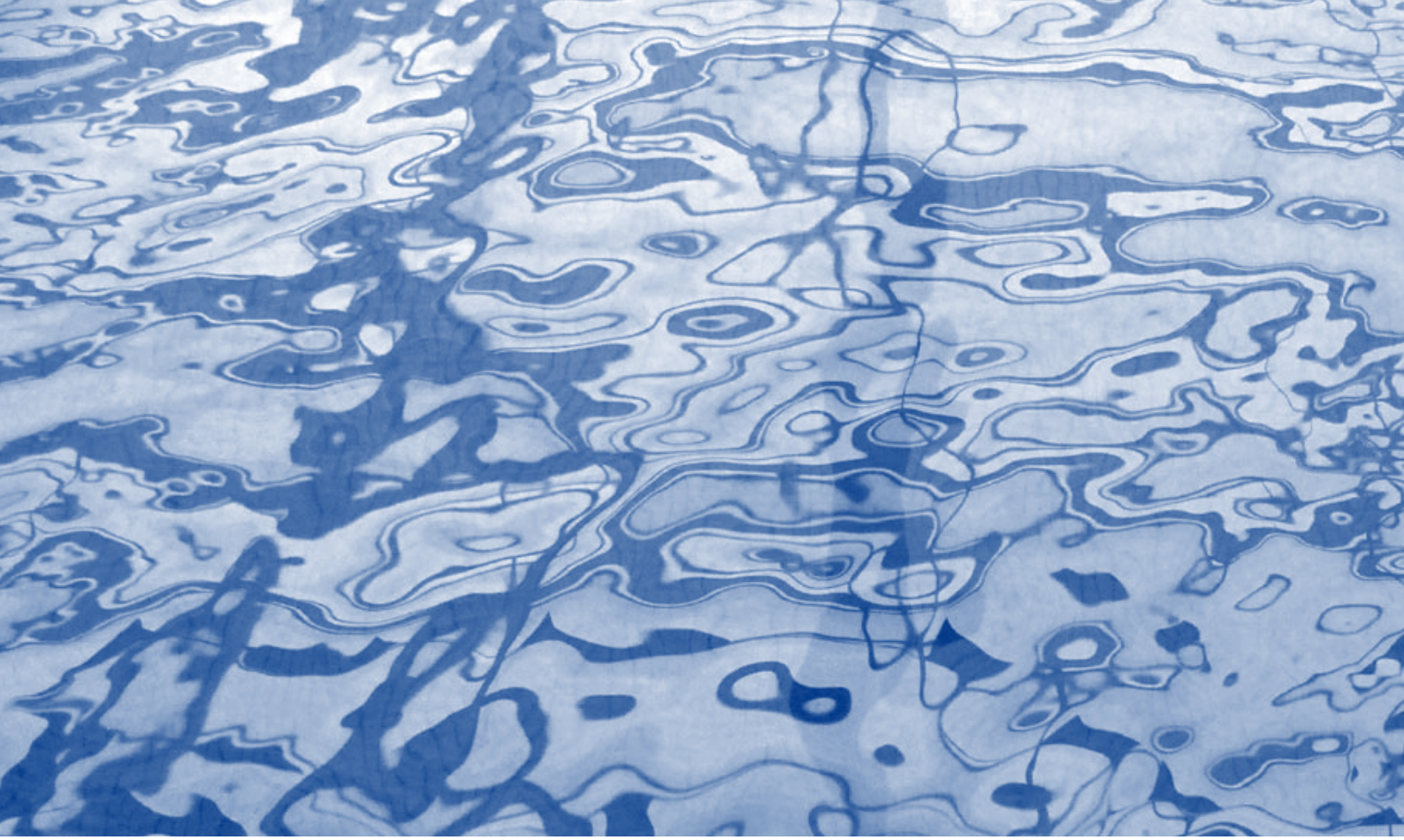

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Bilateral management of transboundary fish stocks: an informal approach to ecosystem based management

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Table of contents

Abstract	v
Introduction	1
Context	3
Milestones	9
Analyses	11
Conclusion	15

Abstract

Systematically integrating the efforts of various working groups, using informal governance regimes, can result in ecosystem based management, industry stability and an overall increase in both environmental and economic well being for those involved.

An informal yet transparent governance regime featuring effective working groups, open communication, rigorous science, and collaboration amongst scientists, resource managers and industry representative from both Canada and USA has been key to the success of this highly effective relationship. The paper analyzes the challenges faced by resource managers and outlines recent advancements.

In 1984 the International Court of Justice rendered its decision on the maritime boundary that divides Canadian from American waters in the Gulf of Maine. This boundary cuts through important fishing grounds on Georges Bank. In these circumstances parochial resource management typically results in overfishing that compromises both fish stocks and economic potential. While failure to manage fish stocks in this area could have had disastrous consequences - successful collaboration has contributed to rebuilt haddock stocks with biomass levels well beyond previous maxima, as well as industry stability.

In 2003 Canada and USA reached a ten-year sharing agreement for three groundfish stocks on Georges Bank. This agreement institutionalized the governance regime and defined approaches for consistent management in both countries. Canada and USA continue to move forward with collaborative management in the Gulf of Maine for other fish stocks and in areas such as acid rain, residual boundary issues and species at risk.

Introduction

Introducing the principles of ecosystem based management to trans-boundary fisheries management governance frameworks continues to be a critical issue worldwide as governments balance interests associated with sustainable development, jurisdiction and accrual of resource rents. The United Nations has established a foundation that includes United Nations Convention on the Law of the Sea (UNCLOS), UN Code of Conduct and United Nations Fish Agreement (UNFA) as well as several declarations, and which governments can build upon to continue their efforts to attempt to ensure robust management of the world's major trans-boundary fisheries.

Canada, notwithstanding its status as a signatory to many UN agreements and participation in the negotiations that led to the convening on the UN conference that developed UNFA, has expended considerable effort to operationalize the principles of ecosystem based management within the context of bilateral governance. Typically bilateral and multilateral governance of shared fish stocks has taken the form of Regional Fish Management Agreements (RFMA), Regional Fish Management Organizations (RFMO), treaties, and memoranda of understanding (MOU). While these tools have been effective each has limitations including lack of flexibility, lack of adaptability, and in some cases tightly structured dispute resolution components. As such they may be most effective in static environments where a high level of structure is required if predictable outcomes are to be delivered.

Context

Located in Northwest Atlantic Fisheries Organization (NAFO) division 5Z, Georges Bank is situated approximately 100 miles southwest of Nova Scotia and extends to the approaches of Cape Cod in USA waters. Canada and the USA have a long and shared history with respect to these waters and with the associated fisheries. The importance of the Gulf of Maine and Georges Bank to the Atlantic Canadian fishing industry cannot be overstated. The bank is one portion of this area that is highly productive from a fisheries perspective. It is a gravelly-sand bottom bank that is rich in various fish resources such as groundfish (cod, haddock, pollock and yellowtail flounder), both large (tunas and swordfish) and small (herring and mackerel), pelagic species, invertebrates (lobster, scallop). It is suspected that the area also has great potential for hydrocarbon development however a moratorium on such development is in place.

In addition to fisheries resource wealth the Gulf of Maine is rich in benthic areas of interest such as corals and habitat conducive to large aggregations of the Northern Right Whale (currently on the endangered species listings of both Canada and the USA).

In 1977 both Canada and USA declared Exclusive Economic Zones (EEZ) to two hundred miles. With this extension of jurisdiction came overlapping claims by both nations to Gulf of Maine resources and in particular the fishing grounds of Georges Bank. The subsequent 1984 decision by the International Court of Justice (ICJ) at The Hague created an international maritime boundary that divided these waters, with the exception of an area, known as the grey zone, north of Machias Seal Island that remains in dispute.

While boundaries may clearly define areas of exclusive access they do not necessarily improve working relationships particularly in situations where perceived inequities in resource sharing exist. Such has been the case in the Gulf of Maine and Georges Bank areas. The ICJ decision on the Canada/USA marine boundary did not in itself immediately foster collaborative resource

management in this area. However, since 1984 and following a great deal of bilateral work, a governance structure has evolved. There have been a number of important developments including the establishment of the Canada USA Steering Committee, and the most recent construct, the Canada-USA Integration Committee which institutionalizes ecosystem based management. Canada and the USA, working closely with their respective fishing industries, have developed a regionally focused approach (increasingly integrated management) in order to manage human behaviour and axiomatically the resources associated with this ecosystem in a sustainable manner over the long term. This evolution is consistent with the spirit of worldwide efforts to strengthen the governance frameworks to manage trans-boundary fish stocks and ecosystems.

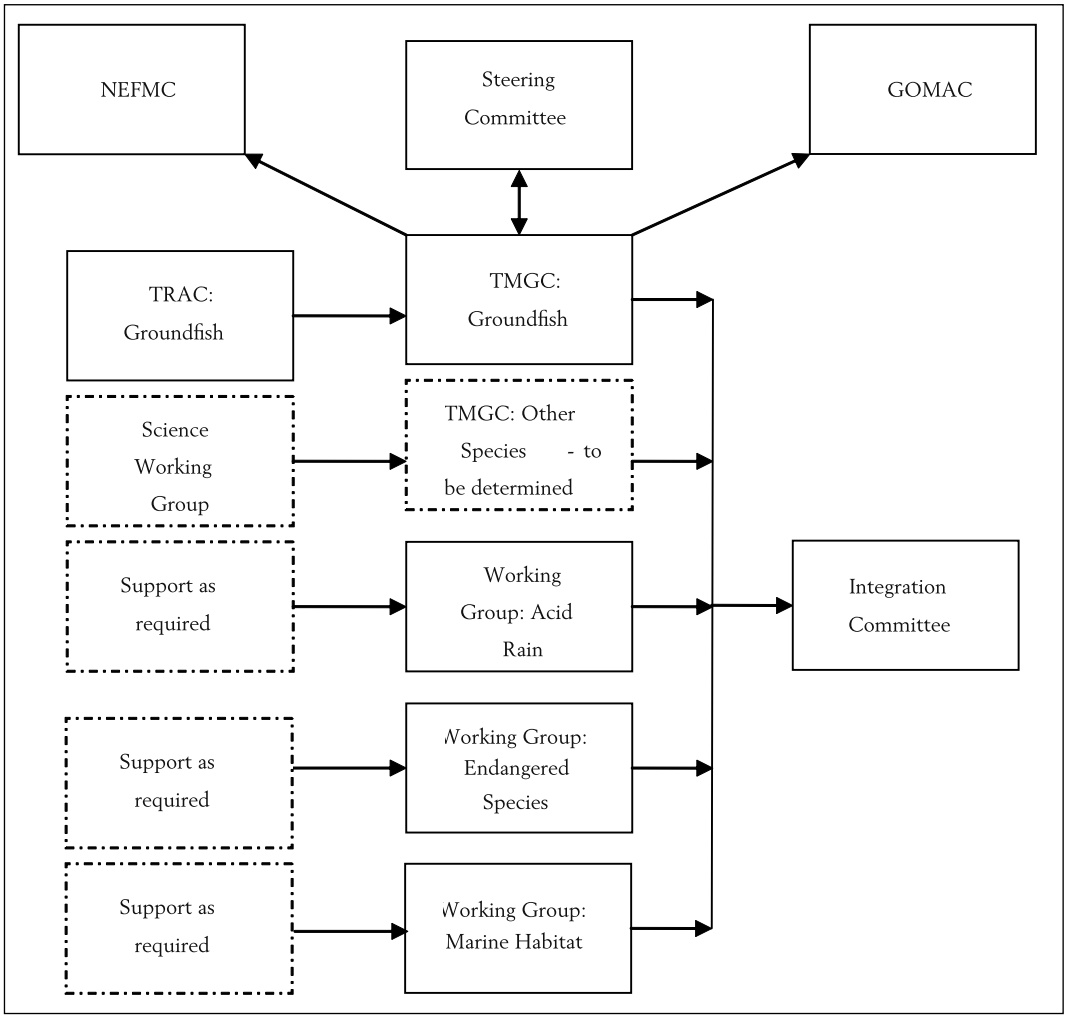
Over approximately the past 10 years Canadian and USA fisheries managers, industry stakeholders and scientists have agreed on professional standards, achieved a level of trust and goodwill, and have identified common concerns and objectives. The collapse of groundfish stocks in the North East Atlantic, a rise in public awareness of oceans issues, the International Year of the Ocean (1998) and, in Canada, the introduction of legislation such as the Oceans Act[1] – and the companion document Canada's Ocean Strategy – created a unique set of circumstances whereby decision makers in Canadian and American fisheries management regimes could work cooperatively to move toward ecosystem based management.

Prior to the establishment of the Steering Committee (SC) bilateral coordination of fisheries management_strategies had progressed slowly. With increasingly intense fishing effort directed toward the groundfish fishery during the late 1980s it was recognized that consistent management by Canada and USA was desirable for transboundary cod, haddock and yellowtail flounder resources. Canada and USA subsequently engaged in bilateral discussions between scientists, managers and industry at the regional level in both countries. This engagement led to the formation of the SC, and ultimately to the governance structure now in place which also includes the Transboundary Resource Assessment Committee (TRAC), the Transboundary Management Guidance Committee (TMGC), and the Canada-USA Integration Committee (IC). The structure continues to evolve as collaborative efforts expand to include additional species and non-species

1 In January 1997 Canada enacted the Oceans Act and in July 2002 Canada's Ocean Strategy was released. The act and associated strategy mark a paradigm change for Canadian fisheries management from single species management towards ecosystem based management. Moving towards a more integrated management regime is expected to yield positive results in a number of areas including: a reduction in marine pollution, reduction of conflict, increased public awareness of oceans issues, and increased international collaboration in oceans management. This change in approach recognizes the complexity of ecosystems and the importance of the precautionary approach. The act authorizes the Minister of Fisheries and Oceans to, among other things, establish Marine Protected Areas (MPA), establish and enforce Marine Environmental Quality (MEQ) guidelines, and develop integrated management plans.

specific issues. This evolution is represented on Figure 1 with working groups having been formed to address marine habitat, acid rain and endangered species. As with groundfish the natural next steps may be the establishment of science focused working groups to support the existing structure.

Figure 1. Framework schematic diagram of working relationships



The SC is comprised of representatives from Fisheries and Oceans Canada (DFO), the U.S. National Marine Fisheries Service (NMFS) and industry representatives from each country. Among other initiatives it guided the TRAC and TMGC processes that led to a sharing agreement for Georges Bank 5Zjm cod, haddock and yellow tale flounder resource in 2003.

Since 1998 the TRAC, a body comprised of scientists from Canada and USA, has reviewed stock assessments and projections to support management of shared groundfish resources in the Gulf of Maine-Georges Bank region. These assessments advise decision makers on the status of these resources and likely consequences of policy choices. The formation of the TMGC in 2000 and

the recent development of arrangements for consistent management of cod, haddock and yellowtail on eastern Georges Bank have placed new demands on TRAC processes and documentation. TRAC advice to the TMGC is provided in the TRAC Status Reports. NMFS and DFO each appoint one representative to act as TRAC co-chair to administer the review process, publication of product documents and schedule review meetings.[2]

Established in 2000, the TMGC is an industry\government committee with representatives from Canada and the United States. The mandate of the committee is to develop and propose harvest strategies as well as resource sharing and management processes for Canadian and US management authorities. In Canada final approval authority for resource management decisions remains with the Minister of Fisheries and Oceans.[3]

The IC is the most recent development in the evolution of this governance framework and has been introduced as a pilot project. It is expected to play an increasingly pivotal role in as it discharges its responsibilities in 5 key areas to:

- ensure consistency in approach across working groups;
- provide multi-disciplinary feedback to working groups on reports and proposed recommendations;
- provide analyses and submit recommendations to Steering Committee co-chairs;
- recommend dispute resolution processes to working groups and to the Steering Committee;
- and provide record keeping, archival, coordination and general secretariat services to the Steering Committee and to working groups.

IC Terms of Reference, authorized by the SC, provide for sitting members from each country as well as rotating members who participate on an issue by issue basis. In providing feedback to various working groups and to the SC, the IC allows for integrated oceans management and ultimately ecosystem based management. This function will allow decision makers to identify and resolve potential problems proactively. The committee secretariat will carry out an archiving function that will promote consistent resource management over time, and will be a valuable information resource for researchers, government, industry and the public large. In particular it is envisaged that resources will be available on-line. The IC will provide additional policy support to the SC and to working groups. In so doing it will increase confidence in the entire regime and help to establish longer term management approaches.

2 http://www.mar.dfo-mpo.gc.ca/science/TRAC/rd.html
3 http://www.mar.dfo-mpo.gc.ca/science/tmgc/tmgc.html

With an expanded set of species and issue specific working groups there is a possibility that inconsistent approaches will develop and that objectives will be in opposition. The IC will help the SC anticipate and resolve potential inconsistencies that may arise as the working groups separately pursue their individual terms of reference. The IC will work to ensure that each group considers the broader range of potential impacts to other resources, and not just its particular species or area of interest, consistent with principles of sound ecosystem management.

At regular intervals stakeholders come together in bilateral working committees. Committee members work to achieve consensus on issues such as stock assessments, total allowable catch, country quotas (i.e. distribution), or changes to the governance structure such as the introduction of new working groups. This consensus is presented in the form of recommendations or guidance to domestic bodies which are the Gulf of Maine Advisory Council (GOMAC) in Canada and the New England Fisheries Management Council (NEFMC) in the USA. Upon ratification normal domestic implementation schedules are followed. Alternatively, if recommendations are rejected bilateral forum(s) will reconvene to resolve outstanding issues.

Conflict avoidance and resolution are thus embedded in the governance framework and to this extent this governance arrangement complies with, and indeed supports, the dispute resolution principles expounded in UNFA. In cases where differences remain irreconcilable it may be necessary to revert to UNFA provisions and processes.

These results are achieved without prohibitive cost in a timely manner and without barriers associated with formalized governance structures such as treaties, MOUs or RFMOs. Domestic jurisdictions related to access, allocation, monitoring, control and surveillance are not compromised. Ultimately this governance framework can expand as necessary to adapt to readily adapt to change and further application as necessary.

Milestones

The 1996 Canada/USA scientific discussions noted that it would be desirable to conduct joint assessments of Georges Bank groundfish stocks during the 1997 assessment cycle. In April 1997, scientists from Canada and the USA combined efforts to prepare assessments of Georges Bank cod, haddock, and yellowtail flounder. Peer review of these assessments was conducted through the Regional Advisory Process (RAP) in Canada and then by the Stock Assessment Review Committee (SARC) in the USA. On completion of the 1997 process, it was evident that efficiencies could be realized by eliminating duplication in the peer review process. This also ensured that RAP and SARC would produce consistent status reports.

In 2003 Canada and USA reached a formal agreement on sharing arrangements for the three groundfish stocks on Georges Bank. The10-year sharing program established defined approaches for consistent management in both countries. Canada implemented the sharing agreement in 2003. The US moved forward with implementation in 2005 subsequent to Amendment 13 to the Magnuson Stevens Act. The sharing arrangement accounts for historical catch and resource distribution. Over time the weighting shifts to greater emphasis on stock distribution.

Analyses

The key features of this structure are: accountability and transparency; adaptability, flexibility and efficiency; and ecosystem based management

Accountability and transparency

The governance structure inspires confidence and credibility because it institutes both accountability and transparency. Working groups operate on agreed upon decision rules and methodology that is based on science. The primary illustration of this is the collaboration on groundfish stock assessments. TRAC conducts stock assessment surveys relying on the expertise from both Canadian and American scientists. Peer review is inherent in the work of this committee. Process and criteria for Total Allowable Catch recommendations as well as country quotas have been agreed upon by officials from both countries. Working group membership features appropriate government as well as industry representation. As such crucial stakeholder "buy-in" and compliance issues are minimized. Viewpoints are expressed in an environment characterized by process and criteria. Further, at present both TRAC and TMGC have web sites that are rich with information. These are soon to be supported with on-line documents from the Integration Committee. Observers can determine how and why recommendations have been made as well as examine the data and metadata.

Adaptability, flexibility, efficiency

The evolution of this framework is testament to its adaptability. It originated in order to ensure the sustainable harvest of three groundfish stocks that straddle the maritime border that divides Canadian and American waters in the Gulf of Maine. It has since responded to other needs under the leadership of the SC. New working groups that can rely on scientific expertise, based on the TMGC/TRAC model that has been established, are in place to deal

with endangered species, marine habitat and acid rain. The same model can be used to address other concerns that may eventually include such things as issues related to the exploration and transport of liquefied natural gas.

Critical to the effectiveness of this regime is domestic implementation in each country. This approach ensures that each nation has all the flexibility afforded to it by its respective set of regulatory and legislative controls. The system is also efficient in that it allows both nations to achieve economies of scale such as in research surveys. It allows for timely decision making that is not unduly encumbered by protocol normally featured in more formal structures such as treaties, MOUs and with RFMOs. Working groups can freely and expeditiously draw from the expertise of industry and government officials from both countries.

The structure produces timely results in an environment where complexity can be managed effectively.

Ecosystem based management

Although groundfish was the original focus the addition of new species and issue-based working groups to the governance structure establish it as a cornerstone in ecosystem based management. The structure provides for a level of integration not previously considered to be realistic – without compromising domestic jurisdiction. Maintaining domestic implementation helps to minimize bureaucratic complications that might otherwise occur. Further, inter-sectoral conflicts can be avoided because stakeholders, including government and industry, have a vehicle through which they can hear and be heard. The rigour of science and resource management processes is assured as a result of peer review that occurs within working groups including the IC.

It is obvious that factors other than the bilateral governance framework impact on the level ecosystem based management given that implementation remains within the purview of domestic authorities. It would be overly simplistic to link environmental outcomes strictly to this structure. Further, the intent is not to institutionalize silos or to complicate the alignment of governance structures with management activities.

Gavaris *et al.* (2005) evaluate the results of resource management in the context of three principal objectives for ecosystem-based management: maintaining productivity, preserving biodiversity and protecting habitat. The authors are specifically concerned with "how human activities associated with particular ocean uses impact the ecosystem. These objectives are stated here in that context:

1 ensure that the activity does not cause unacceptable reduction in productivity of each component (primary, community and population) so that it can play its historical role in the functioning of the ecosystem;
2 ensure that the activity does not cause unacceptable reduction in biodiversity by maintaining enough components (biotopes/seascapes, species and populations) to preserve the structure and natural resilience of the ecosystem;
3 ensure that the activity does not cause unacceptable modification to habitat that is difficult or impossible to reverse in order to safeguard the 'container' (both physical and chemical properties) of the ecosystem." [4]

This study indicates that the resilience of the Georges Bank marine environment is notable. This is testament to the policy environment in place to govern fisheries in this area. Most notable among the indicators is the strong recovery of haddock stocks since the historic low biomass in 1992. This stock has now fully recovered and, while other groundfish stocks require vigilance, it is extremely unlikely that they will be subject to the intense harvesting effort that was witnessed leading up to the collapse of the stock in the early nineties.

4 Gavaris, S., Porter, J.M., Stephenson, R.L., Robert, G.R. & Pezzack, D.S. 2005. *Review of management plan conservation strategies for Canadian fisheries on Georges Bank: a test of a practical ecosystem-based framework.* ICES CM 2005/BB:05. Copenhagen.

Conclusion

This governance structure has been implemented and has proven to be effective. It has the capacity to expand on an as required basis as a function of priorities identified by the Steering Committee. The overall approach is flexible and adaptable enough to be implemented in other jurisdictions, particularly in cases where cost efficiency and timeliness are important, and where there may be legal or regulatory complexities.