

Marine Protected Areas:

Legal Framework for the Gully off the Coast of Nova Scotia (Canada)

*David L. VanderZwaag**

*Paul Macnab***

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* Canada Research Chair (Tier 1) in Ocean Law and Governance, Marine & Environmental Law Institute, Dalhousie University.

** Gully Marine Protected Area Manager, Fisheries and Oceans Canada.

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Abstract

The Gully, a submarine canyon hosting a rich diversity of marine life off Nova Scotia, was designated in 2004 under Canada's Oceans Act 1996 as a marine protected area (MPA). This case study reviews the Gully MPA legal and management framework through a five-part discussion. First described is the overall Canadian law and policy context for establishing MPAs. Next, specific legislative and regulatory provisions governing the Gully MPA are summarized including the three types of management zones adopted, ranging from strict preservation to multi-use. Management approaches to control human activities in and around the MPA are then described, with a focus on the Gully Marine Protected Area Management Plan. Ongoing management challenges are highlighted including implementation of the ecosystem approach, unresolved legal issues, such as what constitutes a disturbance of the Gully MPA for prosecution purposes, and governance limitations, in particular limited financial and human resources.

The case study concludes with lessons to be learned from the Gully MPA experience. Key lessons include: the time-consuming nature of MPA establishment, the usefulness of multi-purpose zoning, the need for a multi-agency approach, the value of strong communication with user groups, the importance of linking MPA designation to integrated management planning, and the need for ongoing law and policy review.

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Acronyms and abbreviations

GAC	Gully Advisory Committee
IMO	International Maritime Organization
IUCN	International Union for Conservation of Nature
MPA	marine protected area
RSC	Revised Statutes of Canada
SC	Statutes of Canada
SOR	Statutory Orders and Regulations

1 Introduction

The Gully is the largest submarine canyon in eastern North America. It is located approximately 200 km south-east of Nova Scotia near Sable Island (Figure 1) and hosts a spectacular diversity of marine life.¹ Over 65 km long and 15 km wide, the canyon contains deep-sea corals, a variety of commercial and non-commercial fish species, and at least 14 species of marine mammals.² The deep-water portion of the canyon, at a depth of more than 2,500 m at the mouth, provides key habitat for the Scotian Shelf population of northern bottlenose whales.³ The population is estimated at only 130 individuals⁴ and has been listed as endangered.⁵

In light of various human threats to the Gully, including offshore oil and gas exploration and exploitation, commercial fisheries, and shipping, the Gully was designated as a marine protected area (MPA) in May 2004.⁶ The Gully became the first east coast MPA to be established under Canada's Oceans Act 1996.⁷

This case study reviews the Gully MPA legal and management framework through a five-part discussion. The overall Canadian law and policy context for establishing MPAs is first described. Specific legislative and regulatory provisions governing the Gully MPA are next summarized. Following an overview of management approaches taken to restrict and control human activities in and around the MPA area, and a synopsis of ongoing management challenges, the paper concludes with key lessons to be learned.

2 Canadian law and policy context

With the longest coastline in the world, stretched across more than 243,000 km along three oceans,⁸ and an oceans estate of approximately 7.1 million sq km,⁹ Canada has great geographical potential for MPA establishment, with three main federal statutes empowering three different departments or agencies to create MPAs. The Oceans Act authorizes the Minister of Fisheries and Oceans to develop and implement a network of MPAs for one or more reasons including the conservation of fishery resources and marine mammals, the protection of endangered or threatened marine species, the conservation of unique habitats, and the conservation of areas of high biodiversity or biological productivity.¹⁰ The Canada Wildlife Act 1985 provides the legal foundation for Environment Canada (Canadian Wildlife Service) to establish marine wildlife areas for the protection of a range of wildlife including migratory birds and endangered species.¹¹ The Canada National Marine Conservation Areas Act 2002 allows Parks Canada to establish national marine conservation areas for the protection of Canada's natural and cultural heritage.¹²

1 Fisheries and Oceans Canada, undated a.

2 Charles and Wilson, 2009, p. 6.

3 Fisheries and Oceans Canada, 2004b.

4 Government of Canada, undated.

5 Species at Risk Act 2002, Schedule 1.

6 See the Gully Marine Protected Area Regulations 2004.

7 The first marine protected area (MPA), the Endeavour Hydrothermal Vents off British Columbia, was designated pursuant to the Oceans Act 1996 in March 2003.

8 Fisheries and Oceans Canada, 2008b, p. 1.

9 Fisheries and Oceans Canada, 2007a, p. 1.

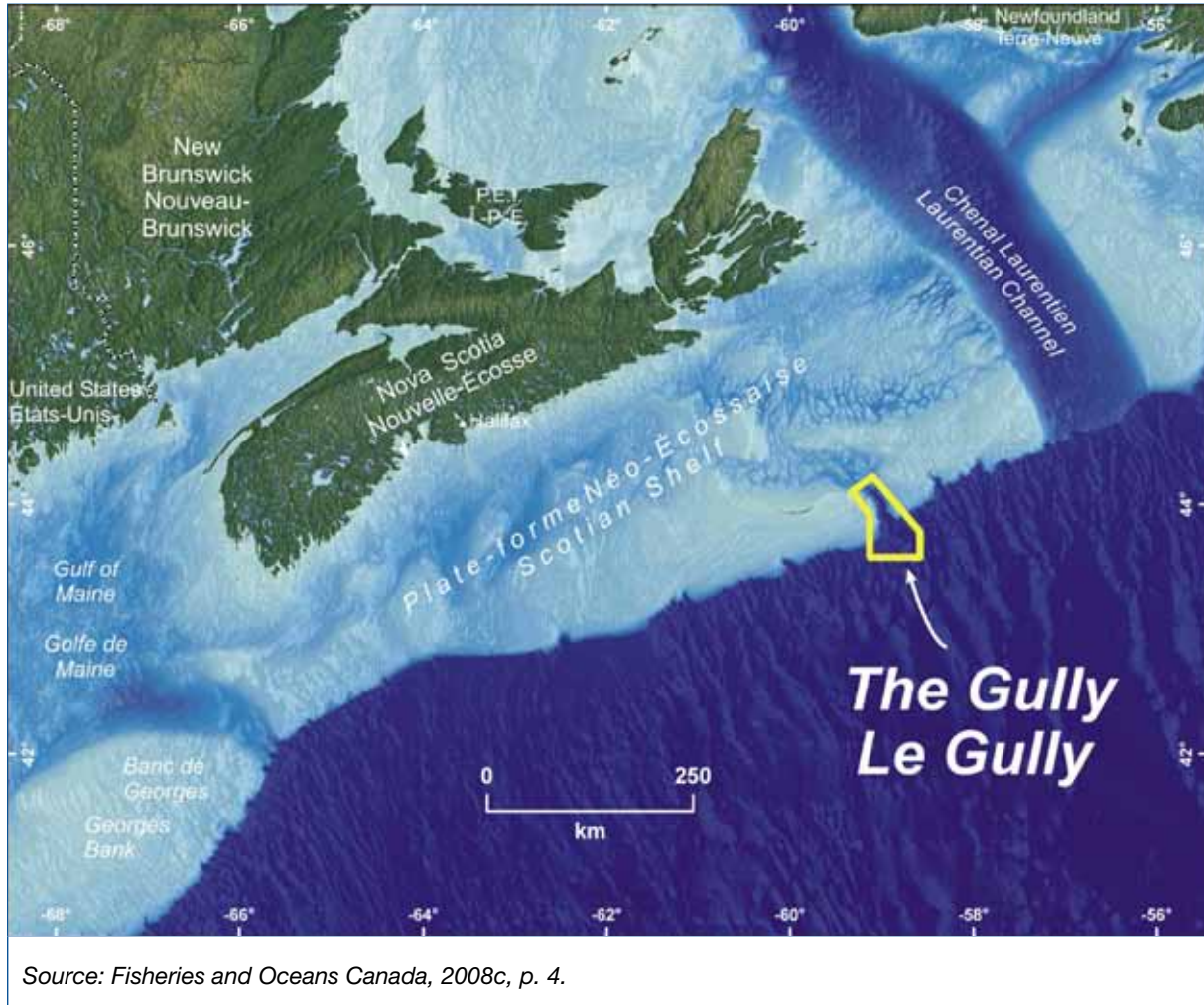
10 Oceans Act, s. 35.

11 Canada Wildlife Act 1985, s. 4.1. Marine wildlife areas refer to wildlife protected areas beyond the 12 nautical mile territorial sea limit out to the 200 nautical mile exclusive economic zone limit. See Environment Canada, undated.

12 Canada National Marine Conservation Areas Act 2002, s. 4.

- 5 The cornerstone for MPA establishment to date has been the Oceans Act. Besides the Gully, six other MPAs have been designated pursuant to the Act: the Endeavour Hydrothermal Vents¹³ and Bowie Seamount¹⁴ off British Columbia; Basin Head¹⁵ off Prince Edward Island; the Musquash Estuary¹⁶ off New Brunswick; Eastport¹⁷ off Newfoundland; and Gilbert Bay¹⁸ off Labrador.

Figure 1: Location of the Gully



- 6 The establishment of marine wildlife areas and offshore national marine conservation areas has lagged far behind. No marine wildlife areas have been established to date, with one site, the Scott Islands archipelago off British Columbia, being proposed in order to protect over two million seabirds nesting there each year.¹⁹ While Parks Canada has set a goal of establishing a national marine conservation area within each of the country's 29 distinct marine regions,²⁰ only three sites have been designated: the Fathom Five National Marine Park in Georgian Bay, Ontario; the Saguenay–St Lawrence Marine Park in Quebec; and the Lake Superior National Marine Conservation Area of Canada.²¹

13 Endeavour Hydrothermal Vents Marine Protected Area Regulations 2003.

14 Bowie Seamount Marine Protected Area Regulations 2008.

15 Basin Head Marine Protected Area Regulations 2005.

16 Musquash Estuary Marine Protected Area Regulations 2006.

17 Eastport Marine Protected Area Regulations 2005.

18 Gilbert Bay Marine Protected Area Regulations 2005.

19 Environment Canada, undated.

20 Parks Canada, 1995.

21 Parks Canada, undated.

In addition to the three core MPA programmes, the federal government may also designate migratory bird sanctuaries,²² national wildlife areas²³ and national parks²⁴ with marine components. There are currently 51 national wildlife areas and 92 migratory bird sanctuaries, safeguarding some 1.5 million hectares of Canada's aquatic habitat.²⁵ 7

To guide MPA establishment under the Oceans Act, Fisheries and Oceans Canada adopted a Marine Protected Areas Policy in 1999.²⁶ The policy, among other things, sets goals for a system of MPAs;²⁷ urges identification and establishment of MPAs within the context of integrated management planning; calls for detailed management plans to be developed through participatory processes for individual MPAs; and encourages a flexible approach to MPA zoning, from strict no-take zones to sustainably managed zones.²⁸ 8

To facilitate a more systematic and collaborative approach to MPA planning and establishment, a Federal Marine Area Strategy was released in June 2005.²⁹ The Strategy calls for various actions including: establishment or formalization of mechanisms for interdepartmental cooperation; conclusion of collaborative management arrangements for individual MPAs (including with aboriginal groups); conduct of joint or complimentary enforcement activities; development of a regional MPA action plan with the United States and Mexico; and completion of a representative network of MPAs by 2012, in line with Canada's commitment at the World Summit on Sustainable Development.³⁰ 9

3 Specific legislative and regulatory provisions 10

Canada's Oceans Act, the umbrella legislation under which the Gully was established and is managed, might be described as rather skeletal in nature. While the Act requires the Minister of Fisheries and Oceans to lead and coordinate the development and implementation of a national system of MPAs,³¹ and authorizes the Governor in Council (Federal Cabinet) to make regulations designating MPAs and prescribing measures such as zoning,³² the Act does not set out any process or procedures for selecting MPAs for designation or for determining appropriate restrictions. The legislation leaves the steps and timelines for identifying, selecting and developing MPAs to bureaucratic discretion. No provision is made for the designation of buffer zones. Nor does the legislation provide explicitly for MPA management plans. 10

The Oceans Act, through its definition of a marine protected area, makes clear the geographical limitation of MPAs to Canada's maritime zones of jurisdiction and casts a wide net of purposes for MPA establishment. The Act states: 11

22 Migratory Birds Convention Act 1994.

23 Pursuant to the Canada Wildlife Act, national wildlife areas may include terrestrial protected areas and areas of internal waters and the territorial sea. See Environment Canada, Canadian Wildlife Service, undated.

24 Canada National Parks Act 2000.

25 Canadian Wildlife Service, undated.

26 Fisheries and Oceans Canada, 1999.

27 The three overarching goals are to proactively conserve and protect the ecological integrity of each MPA site, to contribute to the social and economic sustainability of coastal communities by providing for uses compatible with the reasons for designation, and to further knowledge and understanding of marine ecosystems. *Ibid.*, p. 4.

28 *Ibid.*

29 Government of Canada, 2005.

30 *Ibid.*, pp. 12–13.

31 Oceans Act, s. 35(2).

32 *Ibid.*, s. 35(3).

A marine protected area is an area of the sea that forms part of the internal waters of Canada, the territorial sea of Canada or the exclusive economic zone of Canada and has been designated under this section for special protection for one or more of the following reasons:

- (a) the conservation and protection of commercial and non-commercial fishery resources, including marine mammals, and their habitats;
- (b) the conservation and protection of endangered or threatened marine species, and their habitats;
- (c) the conservation and protection of unique habitats;
- (d) the conservation and protection of marine areas of high biodiversity or biological productivity; and
- (e) the conservation and protection of any other marine resource or habitat as is necessary to fulfill the mandate of the Minister.³³

- 12 The Oceans Act provides considerable enforcement powers in relation to MPAs. Persons contravening an MPA regulation may be fined up to 100,000 Canadian dollars on summary conviction and up to 500,000 Canadian dollars for an indictable offence.³⁴ The convicting court may also order the forfeiture of any seized thing (such as a vessel) by means of or in relation to which the offence was committed.³⁵ The court is given broad powers to impose other sentencing conditions through an order, including: directing the person to remedy any harm caused to ocean waters or their resources, requiring the person to publish the facts relating to the commission of the offence, directing the person to pay the Minister or government of a province compensation for remedial or preventative actions taken as a result of the offence, and directing the person to perform community service.³⁶ The Minister of Fisheries and Oceans is empowered to designate any person or classes of persons to act as enforcement officers,³⁷ and broad inspection powers are granted to enforcement officers including search and seizure powers without a warrant by reason of exigent circumstances where it would not be feasible to obtain a warrant.³⁸
- 13 Effective prosecutions in Canada for environmental offences have been facilitated by the category of strict liability responsibility recognized by the Supreme Court of Canada.³⁹ Strict liability offences only require a guilty act (*actus reus*), such as the deposit of a deleterious substance in contravention of legislation or regulations, and not a guilty mind (*mens rea*), such as negligence or intent.⁴⁰ Strict liability offences allow the accused to avoid liability by proving he or she took all reasonable care.⁴¹ Unless legislation is clear about the need to demonstrate *mens rea* or that an absolute liability offence (where no due diligence defence would apply) is intended, the presumption of strict liability applies.⁴²
- 14 The Oceans Act offence and punishment provisions are in line with a strict liability approach. No *mens rea* requirement, such as negligence or recklessness, is specified and only a guilty act, such as damaging or destroying aspects of an MPA, is required. A due diligence defence is not expressly excluded.⁴³
- 15 The Gully Marine Protected Area Regulations, issued pursuant to the Oceans Act in May 2004, designate the water column above the Gully and the seabed to a depth of 15 m as an MPA covering 2,364 sq km

33 Ibid., s. 35(1).

34 Ibid., s. 37.

35 Ibid., s. 39.7.

36 Ibid., s. 39.9.

37 Ibid., s. 39(1).

38 Ibid., s. 39.2.

39 *R. v. Sault Ste.-Marie (City)*, (1978) 2 S.C.R. 1299.

40 Benidickson, 2007, pp. 160–161.

41 Berger, 2002, p. 5-2.

42 Benidickson, 2007, p. 161.

43 Thus, an interpretation of absolute liability appears unlikely. See Berger, 2002.

and divided into three management zones (Figure 2).⁴⁴ Zone 1, comprising the deepest parts of the canyon, is a strict preservation zone. Zone 2, covering the canyon head and sides, feeder canyons and the continental slope, is a strict protection zone where some longline commercial fisheries are allowed. Zone 3, including the canyon's adjacent sand banks, is a potential multi-use zone where activities may be granted ministerial approval if they do not cause disturbance beyond the natural variability of the ecosystem.⁴⁵

The Regulations adopt a three-pronged approach to controlling human activities that may impact the MPA. The Regulations first set out general prohibitions. No person is allowed to:

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- Disturb, damage or destroy in the Gully MPA, or remove from it, any living marine organism or any part of its habitat;
- Disturb, damage or destroy in the Gully MPA, or remove from it, any part of the seabed including the subsoil to a depth of 15 m; or
- Carry out any activity—including depositing, discharging or dumping any substance, or causing any substance to be deposited, discharged or dumped—in the Gully MPA or in its vicinity that is likely to result in the disturbance, damage or destruction of a living marine organism, or its habitat or the seabed.⁴⁶

The second regulatory prong is to allow some activities in the Gully MPA, subject to the submission of a plan by the activity proponent and approval by the Minister of Fisheries and Oceans.⁴⁷ The activity plan must include an environmental assessment report and must consider cumulative effects.⁴⁸ Scientific research and monitoring activities may be allowed in the three management zones. Other approved activities will be limited to Zone 3, and may be authorized provided they do not result in disturbance, damage, destruction or removal of living marine organisms or parts of habitats in Zones 1 or 2, and will only result in a disturbance or damage in Zone 3 that is within the natural variation of the ecosystem.⁴⁹

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The third regulatory dimension is to provide exceptions, allowing certain activities in the MPA without an activity plan or approval. Such uses are viewed as not compromising the conservation objectives of the MPA and include:

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- Fishing for halibut, tuna, shark and swordfish in Zones 2 and 3 but subject to federal fishing licence conditions;⁵⁰
- Other fishing activities in Zones 2 and 3 provided they meet various conditions including, among others, that the removal of living marine organisms must be within the natural variation of the ecosystem;⁵¹
- Various government shipping and aircraft activities, such as for the purpose of search and rescue, law enforcement, national security or emergency response;⁵²
- Marine scientific research activities carried out or sponsored by a foreign government where that government has received the consent of the Minister of Foreign Affairs under the Coasting Trade Act 1992 and the research is carried out in accord with the consent terms and conditions;⁵³ and

44 Gully Regulations, ss. 2, 3.

45 Fisheries and Oceans Canada, undated b.

46 Gully Regulations, s. 4.

47 *Ibid.*, s. 5.

48 *Ibid.*, s. 5(g).

49 *Ibid.*, s. 6.

50 *Ibid.*, s. 8.

51 *Ibid.*, s. 9.

52 *Ibid.*, s. 10.

53 Gully Regulations, s. 10(b).

- The passage of ships exercising international navigational rights in the Gully MPA and in compliance with the Canada Shipping Act 2001 and any International Maritime Organization (IMO) requirements.⁵⁴

- 19 The latter two exceptions, foreign marine scientific research and ship transit, are only exempted from activity planning and Ministerial approval. The Regulations do not exempt these activities from the restrictions that apply to causing disturbance, damage or destruction to living marine organisms or their habitats.
- 20 The Gully Regulations also address accidents that are likely to result in the disturbance, damage or destruction of living marine organisms, habitats or the seabed. Persons involved in such an accident are required to report the accident to the Canadian Coast Guard within two hours of the accident's occurrence.⁵⁵
- 21 While the Oceans Act and Gully Regulations do not refer to the IUCN protected area management categories,⁵⁶ the Gully's three-tiered zoning system would seem to correspond with three of the IUCN categories. Zone 1 matches IUCN category Ia, a strict nature reserve. Zone 2 seems to fit with IUCN category IV, a habitat/species management area. Zone 3 appears equivalent to IUCN category VI, a managed resource protected area where sustainable use is the main purpose of management.

4 Management approaches

- 22 The Gully MPA Management Plan⁵⁷ contains a comprehensive set of conservation and management strategies for broad ecosystem protection. The Management Plan also describes four priority conservation issues that emerged from the MPA assessment and planning phases. There was early recognition that certain activities like fisheries and hydrocarbon exploration were immediate sources of pressure and would therefore require more focused management attention.⁵⁸ The key management drivers were recast as four priority conservation issues for the Management Plan: protecting whales from the impact of human activities; protecting sea-floor habitat and benthic communities from alteration; maintaining and restoring water and sediment quality; and conserving commercial and non-commercial living resources.
- 23 The MPA Management Plan interprets the Gully Regulations for operational purposes and provides detailed requirements for user groups. Management measures for those sectors most active in and around the Gully—fisheries, marine scientific research, shipping and hydrocarbon exploration—are profiled here.⁵⁹

4.1 Fisheries management

- 24 Fisheries are completely prohibited from Zone 1, the deep-water core of the MPA where no commercial extractive activities of any kind are permitted. Limited hook and line fisheries for halibut and large pelagics (such as swordfish, shark and tuna) are allowed in Zones 2 and 3 by way of an exception to the general prohibition against biological removals. These restrictions and exceptions have been

54 Ibid., s. 10(c).

55 Ibid., s. 7.

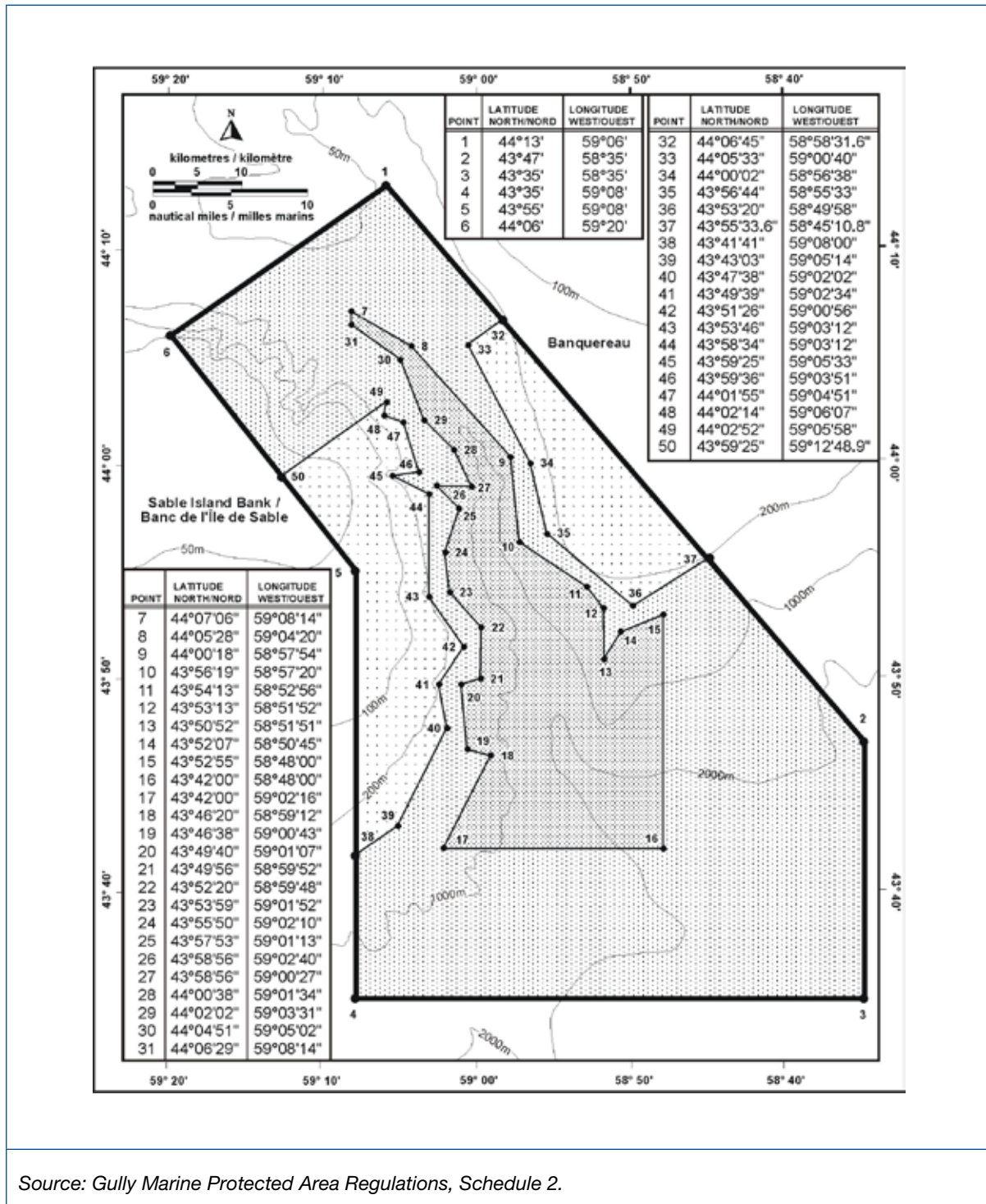
56 See Dudley, 2008.

57 Fisheries and Oceans Canada, 2008c.

58 Fenton et al., 2002, pp. 1,343–1,355.

59 For general descriptions and cartographic representations of these sectors see Fisheries and Oceans Canada (Maritimes Region), 2005.

Figure 2: Management zones within the Gully MPA Boundary



Source: Gully Marine Protected Area Regulations, Schedule 2.

translated into control measures consistent with Canadian fisheries management measures. Complete prohibitions for most fleets and spatially limited access by some are administered and enforced with licence conditions issued pursuant to the Fisheries Act 1985. Licences issued for the fisheries permitted in Zones 2 and 3 provide Zone 1 coordinates as a closed area, while all other fishing licences employ a closed area comprising the outer MPA boundary. Giving effect to the MPA in this manner may seem duplicative but it provides greater certainty that all legally entitled fishers are made aware of the MPA restrictions.

- 25 To further reinforce the requirements for licence holders, a Gully MPA section has been added to the relevant integrated fishery management plans. Use of the customary tools for managing fisheries also ensures that standardized monitoring, reporting and enforcement procedures are applied directly for management of the MPA. This is a particular concern owing to the offshore location and the challenge of providing adequate surveillance coverage. A stand-alone programme of MPA surveillance would have been inefficient and prohibitively expensive, so the Government of Canada opted to utilize the information gathering programmes and surveillance platforms already in place for fisheries management.
- 26 The general complexity and evolving nature of fisheries intelligence prompted MPA staff to work closely with fisheries data specialists, computer programmers, and the Department of Fisheries and Oceans enforcement branch to develop an automated compliance monitoring system. The system compiles available information sources for real-time integration and analysis. Data feeds include sightings from aerial patrols, hourly locations from vessel monitoring systems (VMS), logbook entries for catch and effort, observer reports, and hail-out, hail-in radio calls. Queries have been written to automatically check for potential infractions such as unauthorized fishing and misreported positions along with variance between reported and observed fishing locations. Email reports are sent to MPA staff and enforcement personnel who can then launch investigations or respond with fisheries officers as necessary when suspicious activity is detected. The compiled information can ultimately support decisions to deploy surveillance assets including aircraft, vessels and dockside monitoring programmes.
- 27 Although the compliance monitoring system was initially developed to monitor fisheries within the MPA, it has proven quite useful for tracking fishing activities near and adjacent to the MPA boundary. Important patterns such as fishing right next to the MPA, along the outer boundary, have clearly emerged and warrant further investigation for both compliance purposes and ecological understanding; for example, do fishers perceive or detect a spillover effect? Work on fisheries monitoring was a priority for the MPA owing to the continuance of several fisheries, though it was clearly recognized that comparable investment would be required to track other marine uses, particularly shipping, as described below.

4.2 Marine scientific research

- 28 Marine scientific research in the MPA has become one of the primary activities requiring oversight and direct management—perhaps second only to fisheries. Scientific activities are encouraged, with an emphasis on MPA understanding and evaluation. The Gully Regulations allow scientific research and monitoring to be conducted in all three zones of the MPA but this is not an open door. All domestic scientists proposing to undertake work in the MPA must prepare an assessment of environmental impacts and apply for Ministerial approval. In cases where the research might not contribute to the MPA, proponents must demonstrate conclusively that their activities will cause minimal disturbance. The MPA Advisory Committee and subject matter experts review and evaluate these submissions before the Minister of Fisheries and Oceans will issue an approval.
- 29 With the exception of whale studies conducted by Dalhousie University, most of the Gully research and monitoring activities undertaken by domestic scientists have originated in federal government laboratories within Fisheries and Oceans Canada. Many of the researchers who worked closely with the MPA programme to help build the case for designation now find themselves subject to the Gully Regulations. In practice, the department ends up applying to itself for Ministerial approval. Although the science and management functions reside in different branches of the department, there is potential for conflict of interest—real or perceived—that must be addressed. Scrutiny and oversight of department

investigators must be as stringent as that exercised for academic, industry and non-government scientists.

Foreign scientists are not subject to the Management Plan's submission and Ministerial approval requirements because they already apply to conduct research in Canadian waters under another statute, the Coasting Trade Act. Consent issued under that Act does not, however, exempt foreign research proponents from the general prohibitions set out in the Gully Regulations. This special legal circumstance required some administrative alignment between departments as well as modifications to internal departmental review procedures in order to secure compliance with the Gully Regulations. 30

When the Canadian Department of Foreign Affairs receives a foreign research application submitted under the Coasting Trade Act, the proposal is circulated to other government departments with membership on Canada's Foreign Vessel Review Committee. The Fisheries and Oceans representative on that body ensures that MPA-related research applications are routed to the Gully management team for screening against the Gully Regulations. 31

4.3 Marine transportation

The Gully's offshore location, well beyond Canada's 12 nautical mile territorial sea, limits the country's ability to impose restrictions on vessel transit. Thus navigation rights are protected under the Gully Regulations. Although the regulation-making authority of the Oceans Act could not be invoked to alter or otherwise govern shipping in this particular MPA, mariners are still bound by the Canada Shipping Act and seagoing best practice as stipulated by the IMO. Put another way, all domestic and international provisions intended to limit the risks associated with vessel traffic (such as pollution prevention, invasive species control and whale collision avoidance) are understood to apply in the Gully MPA. 32

Legal designation of the Gully MPA triggered immediate responses by operational branches of Fisheries and Oceans Canada including several actions taken to communicate with mariners. Paper and digital navigation charts published by the Canadian Hydrographic Service were updated to show the MPA boundary and a Notice to Mariners was issued by the Canadian Coast Guard to provide voluntary guidance for vessel operation in the area: avoid the MPA if possible, slow down, post a watch for whales, and no discharges.⁶⁰ 33

Shortly after the MPA was created, Transport Canada, the federal shipping authority, started to develop offshore ballast water exchange zones with a view to preventing the introduction of aquatic invasive species. Fisheries and Oceans undertook a science advisory process to inform this regulatory initiative.⁶¹ In response to Fisheries and Oceans advice that such zones be placed away from the Gully MPA boundary, Transport Canada declared an exchange zone that terminates 5 nautical miles south of the MPA boundary.⁶² 34

Establishment of the MPA prompted the requirement for vessel traffic monitoring, much like it did for fisheries surveillance. Offshore intelligence data collected by several government agencies are already compiled daily to assemble the 'recognized maritime picture', basically a map showing the location of all known vessels at a recent point in time. Rather than develop a Gully-specific application, MPA staff worked with Canadian navy, coast guard and transport officials to obtain access to this comprehensive inventory of maritime activity in and near the MPA. 35

60 See Fisheries and Oceans Canada, 2009b.

61 Fisheries and Oceans Canada, 2004a.

62 See Ballast Water Control and Management Regulations 2006, s. 7(3)(a).

36 To supplement traditional sources of shipping information, initial efforts are underway to collect, log and integrate positional information received from vessel-based Automatic Identification Systems (AIS). AIS uses VHF radio signals to broadcast navigational information as per the IMO carriage requirement for all vessels over 300 tonnes. By collecting and analyzing this data, the Government of Canada can substantially increase its awareness and fine-scale understanding of vessel traffic patterns in and near the Gully MPA. Such knowledge will ultimately help with risk assessment and the formulation of any additional communication and management measures that might be required for the sector.

4.4 Oil and gas

37 Much of the initial conservation interest in the Gully originated during the 1990s in parallel with increasing exploration and development of Nova Scotia's offshore oil and gas resources.⁶³ The presence of endangered whales and sensitive habitats cemented the Gully as a valued ecosystem component in environmental assessment. The Gully also became an important operational consideration for the at-sea conduct of geophysical surveys, exploration drilling and production. This section profiles regulatory, policy, management and voluntary responses to the threats posed by this particular industry.

38 The Gully Regulations themselves do not expressly prohibit hydrocarbon activity in the MPA but the general prohibitions have the effect of restricting access—at least with current technologies. Activities inside the MPA are explicitly prohibited by policy. Joint federal-provincial regulator, the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB), adopted a Gully Policy that prevents the authorization of activities or the issuance of new exploration licences within the MPA.⁶⁴ Restrictions inside the MPA have served their conservation purposes but hydrocarbon development remains a major transboundary issue for the MPA owing to exploration and production activities occurring nearby.

39 The Gully Regulations include a vicinity clause that prohibits activities such as depositing, discharging or dumping outside the MPA boundary that cause damage or disturbance within. This somewhat novel 'beyond the boundary' clause was inserted to address marine connectivity and related concerns over harmful impacts that might be caused by transboundary anthropogenic stressors, especially those associated with offshore oil and gas. Sediment transport and the same circulation patterns that carry primary productivity to the canyon have the potential to carry chemical-laden discharges and drill cuttings to the MPA. There is also considerable potential for exploration- and construction-related noise to reach the MPA at unacceptably high amplitudes. The industry thus typifies the need to address the potential impact of activities external to open ocean MPAs.

40 Notwithstanding scenarios in which there might be a clear infraction with enough evidence to charge and prosecute, the vicinity clause had to be made operational for hydrocarbon decision making and active management. As with the fisheries, research and shipping measures described above, Fisheries and Oceans worked with appropriate regulators—primarily the CNSOPB—to leverage the relevant advisory and statutory processes. The MPA was placed into pre-existing management frameworks such as those in place under the Canadian Environmental Assessment Act 1992.

41 Environmental impact assessment review processes and approval mechanisms were adjusted to reflect the uncertainty surrounding potential effects on the Gully. For example, special requirements

63 Macnab, 2005, pp. 1–13.

64 Canada-Nova Scotia Offshore Petroleum Board (CNSOPB), undated a.

and guidance documents were developed for expanded assessments, enhanced mitigation measures, effects monitoring programmes and marine mammal observation.⁶⁵

Voluntary actions by industry have also been integral to precautionary management in and near the Gully MPA.⁶⁶ Several companies have developed codes of conduct for personnel that restrict vessel and aircraft transit in all but emergency situations.⁶⁷ Operators have also implemented enhanced mitigation measures beyond the conditions of their activity authorizations.⁶⁸ Finally, industry has freely participated in collaborative research projects with government and academia to better assess the impact of their activities.⁶⁹

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5 Ongoing management challenges

Offshore MPAs have unique management challenges and the Gully is no exception. The distance from shore, the lack of information about deep-sea ecosystems, and the complex mix of jurisdictional and management responsibilities have affected the development of the Gully MPA. Limitations posed by awareness, access and cost will continue to influence how management and monitoring plans are implemented. This section provides a synopsis of ongoing challenges in three key areas: ecosystem management, unresolved legal issues and governance.

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5.1 Ecosystem management

The design, regulatory intent and fundamental nature of the Gully MPA embody and demonstrate many principles of an ecosystem approach to oceans management. It is clear that environmental factors have been placed ahead of economic or social concerns in the MPA. The fundamental challenge lies in the need to translate evolving theories and methods for practical application at the MPA site level.

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Fisheries and Oceans has adopted an approach for Canadian waters that follows some fairly standard steps: identify the ecosystem values, establish conservation objectives, select indicators, set thresholds for management action, monitor the indicators, and adjust management measures as necessary when the thresholds are met or exceeded.⁷⁰ This generic process works well in theory and holds great

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65 A strategic environmental assessment of potential exploration rights issuance for Eastern Sable Island Bank, Western Banquereau Bank, the Gully Trough and Eastern Section Shelf, issued in June 2003, recommended various mitigation measures for protecting the Gully area from exploration activities, such as shut-down procedures for seismic operations upon endangered whale encounters and placement of trained marine mammal observers on board seismic vessels, to be imposed through exploration licensing conditions. See CNSOPB, 2003. A scoping document developed by the CNSOPB gave notice to seismic operators that they would be required to adhere to marine mammal observer protocols stated in the most recent version of the Statement of Canadian Practice on the Mitigation of Seismic Noise in the Marine Environment. See CNSOPB, undated b.

66 While the Oceans Act gives preambular mention of the precautionary approach, sectoral oil and gas legislation does not expressly require application of precaution. See VanderZwaag et al., 2002–2003, p. 141.

67 See Exxon Mobil, undated; and EnCana, 2005. Both codes commit vessels to avoid the Gully MPA. The Exxon Mobil code calls for company-related aircraft to avoid the Gully area while the EnCana code restricts flying over the Gully to a height of at least 500 m.

68 EnCana utilized passive acoustic monitoring for marine mammal detection during a seismic exploration programme near the Gully in 2003. At the time, this was unproven technology that was not yet required by the regional hydrocarbon regulator. See Potter et al., 2007, pp. 469–483.

69 Concurrent seismic programmes undertaken in 2003 presented the opportunity for an interdisciplinary investigation of oil and gas exploration near the Gully. Engineers, physical acousticians and marine mammal specialists from government, industry and academia joined forces to study and monitor underwater sound transmission and potential impacts on whales. See Lee et al., 2005.

70 The general Canadian framework is described by O’Boyle et al., 2005. Similar approaches are described in Pomeroy et al., 2004.

potential for nearshore areas where ecosystems are well-documented and monitoring programmes can be mounted at reasonable cost. In practice, it has proven difficult to effectively apply this framework for a complex offshore site like the Gully.

- 46 With MPA designation, the Gully's ecosystem values and conservation objectives were clearly articulated by the Government of Canada. These values and objectives were given additional treatment in the MPA Management Plan. The Plan sets out one overall conservation objective, of protecting the health and integrity of the Gully ecosystem, along with three sub-objectives: protect the natural biodiversity of the Gully, protect the physical structure of the Gully and its physical and chemical properties, and maintain the productivity of the Gully ecosystem.⁷¹
- 47 Fundamental research, baseline characterization studies and some oceanographic monitoring programmes were well underway at designation. What was lacking was an overall framework to formally identify indicator species and associated parameters for measurement.
- 48 Fisheries and Oceans scientists have initiated work on a Gully MPA Monitoring Plan that will provide some definitive guidance and direction for monitoring. Several indicator species have also been collected at sea with a view to testing sampling protocols and analytical processes. For example, krill was netted and sent to a laboratory for chemical analysis to determine whether this short-lived organism might be a suitable indicator species for contaminant monitoring. The challenge remains to select an optimal set of indicators that is feasible, affordable and directly linked to the MPA conservation objectives.⁷² This exercise is further complicated by the many instances where baseline information is simply not available to establish normal or ambient conditions.

5.2 Unresolved legal issues

- 49 The Gully Regulations contain vague terms like "disturbance", "vicinity" and "natural variation" that require definition for operational and legal purposes. If taken to extremes, it could be argued that a ship's bow wave 'disturbs' the near-surface habitat of phytoplankton or that a one-litre water sample results in the 'removal' of live microbial organisms. The ecological significance of these impacts is negligible and making such interpretations would be a clear stretch of the regulatory intent. That said, until such time as the regulatory terms are defined in policy or through judicial interpretation, there remains some potential for spurious charges and unanticipated rulings.
- 50 It is possible to conceive of a mature ecosystem management framework for the MPA that would prescribe legal thresholds for disturbance or damage. This approach has been applied successfully in the Canadian nearshore for aquaculture installations where measured levels of sulphides below salmon farms have exceeded pre-established regulatory limits. However well-conceived such a framework, getting to this advanced stage with defensible reference points and monitoring programmes for multiple indicators will take considerable time and effort in the Gully.
- 51 The Gully Regulations have been in place for over five years but there has yet to be a test of their absolute power by way of the courts. There have been no arrests or charges since designation. While management efforts have emphasized compliance promotion for pragmatic reasons, it is broadly understood that the Gully Regulations will eventually be subjected to legal proceedings. With the possible exception of fishery violations, it remains uncertain what kind of evidence would be needed to

71 Fisheries and Oceans Canada, 2008c, p. 18.

72 For a recent review of possible indicator species and the still limited knowledge of contaminants in the Gully region, see Fisheries and Oceans Canada, 2009a.

go forward with a prosecution. Demonstrating cause and effect conclusively will be important to avoid setting any ‘paper park’ legal precedents.

Several inter-statute issues have been resolved in principle though it may take additional regulatory steps and possibly legal action to work out all of the practical details. For example, Canada’s Species at Risk Act 2002 requires the declaration of critical habitat for an endangered population of northern bottlenose whales. Zone 1 of the MPA comprises the primary habitat for this population, so it has been presumed that the MPA provisions will deliver the protections legally required under the Species at Risk Act.

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A second issue is the choice of the appropriate statute for pursuing prosecutions against those committing offences relevant to the Gully MPA. Besides the Oceans Act, other statutes might provide a basis for prosecution, for example the Canadian Environmental Protection Act 1999 in relation to ocean dumping,⁷³ the Canada Shipping Act for vessel-source pollution violations and the Fisheries Act for fisheries offences. Prosecutors will likely weigh various factors in choosing the preferable legislative foundation for prosecution including the severity of penalties⁷⁴ and the scope of persons subject to prosecution.⁷⁵

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The vicinity clause appears to be a powerful legal tool for controlling transboundary threats though in practice it is laden with challenges for interpretation, definition, application and enforcement. As with the shipping and hydrocarbon discussions above, this section of the Gully Regulations has been given operational effect by way of modifications to other planning processes, legal frameworks and related approval mechanisms. In part, this approach recognizes the inherent difficulty of observing or otherwise detecting an offshore infraction.

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There is extremely limited capacity to collect evidence that might demonstrate causal effect and wilful intent. It has therefore been critical to influence plans and set precautionary conditions in advance of activities being conducted. This has been accomplished within the MPA by way of Ministerial approvals. Outside the MPA this has been undertaken on a case-by-case basis, for example by pushing for mitigation measures when environmental assessments have been submitted in relation to offshore hydrocarbon exploration and development proposals.

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Fisheries and Oceans has proposed the derivation of activity- and ecosystem-dependent zones of influence to provide a more robust framework and technical guidance for nearby activities. For example, if it were determined that received sound levels above a certain decibel threshold constituted acoustic ‘disturbance’, a safe operating range for seismic survey vessels could be modelled to define an area beyond which the Department of Fisheries and Oceans would regard the Gully Regulations as having been being met.

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5.3 Governance

The MPA management model depicted in Figure 3 comprises Fisheries and Oceans as the lead authority with other government departments and the multi-stakeholder Gully Advisory Committee (GAC) playing

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73 Canadian Environmental Protection Act 1999, Part 7, Division 3 (Disposal at Sea) and s. 272.

74 For example, the Canada Shipping Act 2001 in s. 191 provides that a person discharging a pollutant in contravention of regulations may be subject to a fine of not more than 1,000,000 Canadian dollars or for imprisonment for a term of not more than 18 months or both, while the Oceans Act in s. 37 sets a maximum penalty of 500,000 Canadian dollars for violation of regulatory provisions.

75 For example, while the Oceans Act restricts prosecutions to persons (including corporations), the Canada Shipping Act allows prosecution against both persons and vessels for pollution discharges pursuant to s. 191(2).

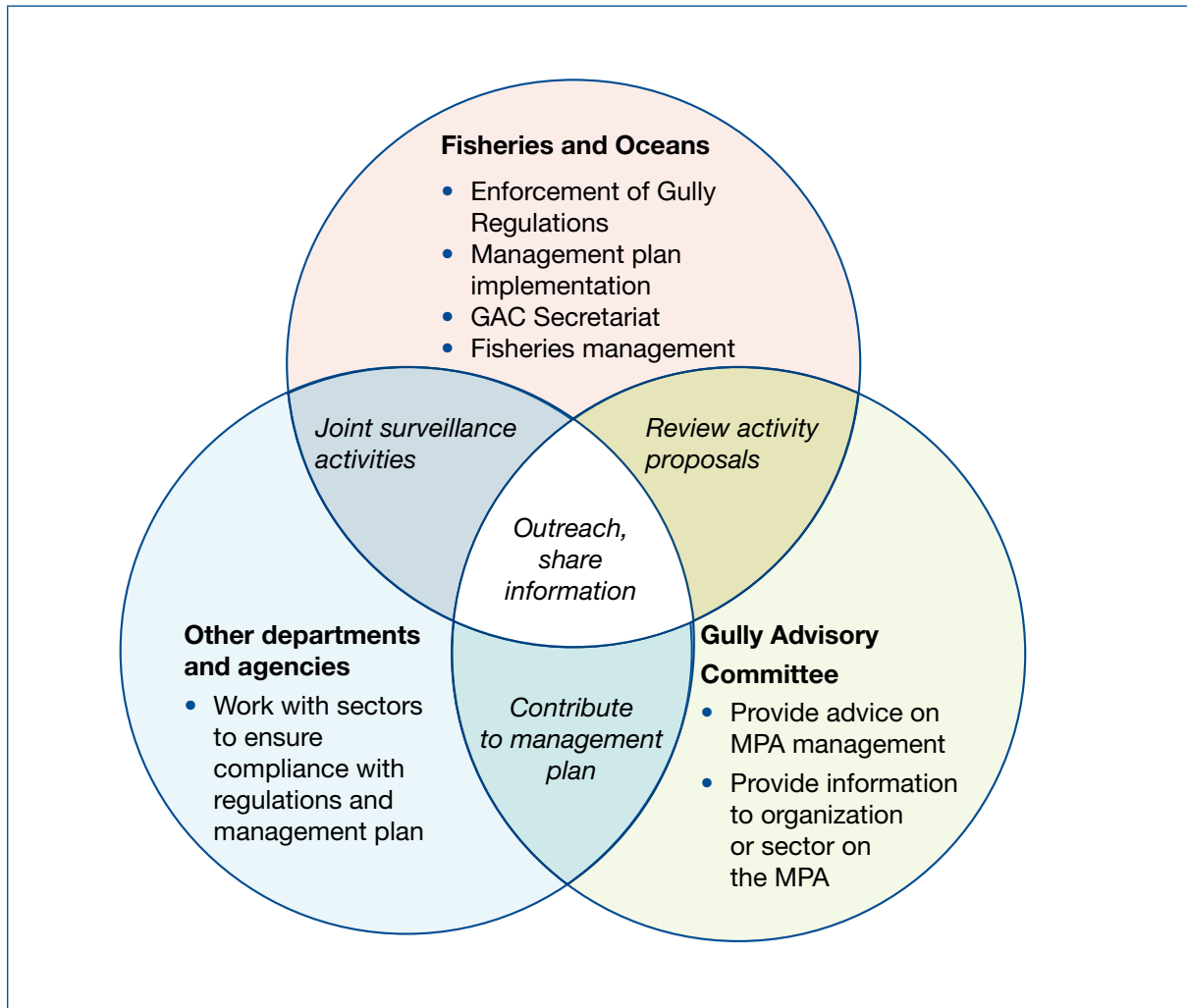
key roles. The Government of Canada employs one full-time MPA manager and provides a small amount of funding for MPA operations. In-kind support is leveraged from personnel across Fisheries and Oceans to undertake research, monitoring, environmental assessment, surveillance, enforcement and communications. Securing additional and adequate financial resources remains a challenge owing in part to a general understanding at designation that management would be exercised under existing departmental budgets.

- 58 Despite an expressed wish to build interest in participatory management approaches with Gully stakeholders, MPA management has proceeded largely with the government following a classic top-down model. Much of the work outside Fisheries and Oceans has been geared towards collaboration with other government departments and engagement with affected user groups in an effort to obtain regulatory compliance. The GAC has served an important role but there are gaps in membership and outstanding needs for better communication between sector representatives and their constituencies.⁷⁶
- 59 Not all marine users and interest groups choose to participate actively and there are other sectors, such as shipping, that do not have GAC membership despite their seeming importance for the MPA. First Nations are a special case for the Gully and indeed for all Canadian MPAs, particularly in view of recent court decisions providing access to fisheries resources for commercial, food, social and ceremonial use.
- 60 Terms of reference for the GAC, issued in November 2006, have established various ground rules:
- The GAC will be limited to 25 members at least at start-up with Fisheries and Oceans staff not counted within the membership limit.
 - Fisheries and Oceans and the GAC will review the membership annually, or as required, to ensure that composition remains appropriate for the GAC's mandate.
 - While Fisheries and Oceans will cover some costs of GAC operations, such as teleconferences and refreshments, government departments or agencies and non-government organizations agree to assume most expenses related to their involvement.
 - The GAC will hold at least two meetings a year, with additional meetings as necessary.
 - GAC meetings will be open to observers but requests for observer status should be made to Fisheries and Oceans as far in advance of the meeting as possible.
 - The GAC will seek to operate on a consensus basis but when consensus cannot be reached, dissenting and divergent opinions will be respected and noted.
 - The GAC will assume various functions including reviewing proposed activity plans for the Gully area, providing input in interpretation and application of the Gully Regulations, and recommending research priorities.
- 61 There are unique information and communication challenges associated with mariners heading to or from the eastern United States on the European great-circle route. Unlike ships entering and leaving

76 Gully Advisory Committee (GAC) members for 2006–07 included the CNSOPB, Canadian Coast Guard, Canadian Parks and Wilderness Society (Nova Scotia Chapter), Canadian Wildlife Service, Clearwater Seafood, community/fishing representative, Dalhousie University, Department of National Defence, Ecology Action Centre, EnCana, Fisheries and Aquaculture Management Branch (Fisheries and Oceans Canada), Frontier Lands Division (Nature Resources Canada), Geological Survey of Canada (Atlantic), Marathon Canada, Nova Scotia Department of Agriculture and Fisheries, Nova Scotia Department of Energy, Nova Scotia Swordfishermen's Association, Saint Mary's University, Science Branch (Fisheries and Oceans Canada), Seafood Producers Association of Nova Scotia, Shell Canada, Parks Canada, Unamuki Institute of Natural Resources and World Wildlife Fund. See Fisheries and Oceans Canada, 2008c, Appendix 5.

domestic ports, these vessels are not required to hail-in to Canadian authorities so their presence is only known if they are observed or detected by surveillance systems. Transiting mariners are not thought to pose a major threat to the MPA but they remain a difficult audience to reach.

Figure 3: Key roles and responsibilities related to the Gully MPA



Moving beyond knowledge and awareness to a collective sense of pride and ownership has been a major challenge for the Gully management team. The MPA protects a remote offshore site that few Canadians will ever visit. As for those who have the good fortune of making the 15- to 20-hour journey by boat, most will only see the surface layer. The kind of familiarity and first-hand attachment witnessed or cultivated for coastal protected areas is not so easily achieved in the offshore. For example, it is difficult to envision for an offshore MPA a public stewardship ethic or the kinds of citizen-based monitoring programmes found in terrestrial parks and nearshore MPAs.

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Off-site and virtual interpretation has been employed to create awareness and interest among the Canadian public. Brochures, posters, colouring books, virtual fly-throughs, interactive CD-ROMs, DVDs and a web page have been created to publicize and promote the Gully MPA.⁷⁷ A multimedia Gully theatre was also installed at the Bedford Institute of Oceanography to “bring the deep sea ashore” for students on school tours. As challenging as this facet of management remains, there is optimism that

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⁷⁷ Fisheries and Oceans Canada, undated a.

MPAs like the Gully have the potential to be Canadian focal points for marine conservation and oceans literacy.

6 Early lessons learned

64 Legal and management challenges confronted in the Gully MPA are likely to be encountered in other offshore and high seas areas where commercial interests and sensitive ecosystems overlap. Six early lessons emerging from the Gully experience stand out: the time-consuming nature of MPA establishment; the usefulness of multi-purpose zoning; the need for a multi-agency approach; the value of communication with user groups; the importance of linking MPA designation to integrated management planning; and the need for ongoing law and policy review.

6.1 Time-consuming nature of MPA establishment

65 Canada could have chosen to legislate a clear timeline for designating a network of MPAs but instead chose to leave MPA establishment to a flexible process, in light of the recognized time-consuming need to bring aboard a diverse range of players. Interests that need to be consulted and accommodated include provincial departments, ocean users, multiple federal agencies, First Nations and non-governmental organizations.

66 The Gully MPA establishment demonstrates the need for adequate time to ensure that these diverse interests are fully understood and recognized. While the Oceans Act was passed in 1996, it took nearly eight years (until 2004) before Regulations officially establishing the Gully MPA were issued.

6.2 Usefulness of multi-purpose zoning

67 Canada's resort to three types of zones in order to protect the Gully was useful in trying to accommodate social and economic interests along with environmental values. While the core of the Gully has been designated as a strict preservation zone, a limited fishery zone and potential multi-use zone have also been established.

6.3 Need for a multi-agency approach

68 Ecosystem knowledge and threats assessment largely dictated the final form of the MPA but the participation of operational specialists from many agencies was essential to derive boundaries, zones and management measures that were pragmatic, practicable and enforceable. In the offshore setting it was especially crucial that boundary descriptions be made compatible with contemporary information systems and navigation tools such as electronic charts and global positioning systems. It was also important to ensure that the boundary schemes worked for other resource managers such as those charged with the control and administration of fisheries.

69 Fisheries and Oceans functions as the lead MPA management authority but it is important to stress that the entire Government of Canada is obligated to uphold the Gully Regulations and conservation objectives. A major difference between marine and terrestrial protected areas lies in the singular management authority typical on land and the multiplicity of authorities common in oceans. Suffice it to say that cooperation with other marine regulators to access their statutory powers, legal instruments, policies and programmes has been essential for the Gully MPA, especially for matters covered under

separate legislation. Furthermore, as illustrated with ballast water exchange zones or the application of the fisheries manager’s toolkit to give effect to harvest restrictions in the Gully, there is much to be gained by utilizing sectoral management regimes and approval mechanisms, particularly when responding to external threats.

Surveillance and enforcement is another area where coordination, integration and a multi-agency approach has been essential. On and over the water, as well as in digital environments, fisheries surveillance programmes have been augmented by Canadian Navy patrols and other intelligence gathering programmes. Compiling, integrating and cross-referencing extant data has improved the overall picture of offshore activities. There is also considerable promise in the adoption of new and evolving technologies for surveillance.

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6.4 Value of communication with user groups

Perhaps most importantly from an offshore compliance perspective, the MPA had to be explained to user groups in unambiguous language using familiar media—be that a chart, fishing licence, Notice to Mariners, permitting process or some other customary outlet. Fisheries and Oceans also sought to provide clear regulatory interpretation and specific at-sea directions for affected sectors by answering the specific question, “What does the MPA mean for me?”, in the Management Plan. Delivery of these messages by way of informal networks, industry bodies and other communication channels will be reinforced whenever possible.

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6.5 Importance of linking MPA designation with integrated management planning

Linking the Gully MPA to integrated ocean management efforts has been instrumental for successful implementation. It has been a tremendous benefit that the MPA is nested within one of the country’s first large ocean management areas. A multi-stakeholder planning process for the Eastern Scotian Shelf Integrated Management (ESSIM) initiative has resulted in an ocean management plan for a large offshore area surrounding and including the Gully MPA.⁷⁸ In addition to improved government coordination and stakeholder involvement in ocean planning, the ESSIM initiative secures greater stewardship and responsible ocean use, both within and outside the MPA.

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6.6 Need for ongoing law and policy review

While Canada’s Oceans Act, entering into force in January 1997, laid a solid foundation for the establishment, designation and implementation of MPAs, law and policy development should not be viewed as frozen in time. The framework legislation requires additional policy formulation, particularly to further flesh out the approaches and processes to follow in developing integrated management plans for Canadian offshore areas⁷⁹ and in forging a network of MPAs.⁸⁰

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Numerous legal issues still surround the framework legislation and should be the subject of further discussion in Canada. These issues include:

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- Whether certain activities like hydrocarbon and mineral exploration and exploitation should be explicitly prohibited in MPAs.

78 Fisheries and Oceans Canada, 2008a.

79 Fisheries and Oceans Canada, 2002.

80 See Fisheries and Oceans Canada, 1999.

- Whether buffer zone establishment and permitting powers should be put into place.
- How to better address shipping operations near and across the MPA (for example, through possible designation of the Gully MPA as a particularly sensitive sea area under the IMO auspices)⁸¹ where restrictive measures would apply.
- Whether MPA management planning should be given a legislative basis.
- Whether integrated management planning provisions of the Oceans Act should be strengthened, for example by specific regulation-making powers to give legal teeth to integrated management plans that address ocean uses adjacent to MPAs.

75 Whether protecting just one submarine canyon important to the endangered northern bottlenose whale is sufficient also needs to be considered. At least two other canyons appear to be critical habitat, namely Shortland Canyon and Haldimand Canyon, to the east of the Gully.⁸²

76 The Gully Management Plan recognizes the need for periodic review. A complete review of the plan and its implementation is promised in 2010.⁸³

7 Conclusion

77 While the Canadian law and policy framework for MPA establishment and protection is far from perfect, Canada's Ocean Act has provided a strong foundation. Regulations have been passed pursuant to the Act, establishing three types of protective zones for the Gully, and substantial penalties are in place to discourage contravention of the zoning restrictions. Hydrocarbon exploration and exploitation has been prevented in the Gully while fisheries, marine scientific research and shipping have been substantially curtailed.

78 The greatest threats to the Gully may in fact prove to be from activities occurring outside the MPA. These activities include further oil and gas operations in the vicinity, and adjacent commercial fishing. Whether the Oceans Act should be amended to provide the Minister of Fisheries and Oceans with authority to establish buffer zones thus looms as perhaps the largest issue in the future evolution of MPA law and policy in Canada.

81 See International Maritime Organization (IMO), 2005.

82 Fisheries and Oceans Canada, 2007b.

83 Fisheries and Oceans Canada, 2008c, p. 62.

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Legal instruments

Most legal instruments discussed in this case study are available online. Readers may view the full text on the ECOLEX web site using the hyperlinks below, or at the URL provided.

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Canada National Marine Conservation Areas Act, SC 2002, c. 18	LEX-FAOC062910
Canada National Parks Act, SC 2000, c. 32	LEX-FAOC054040
Canada Shipping Act, SC 2001, c. 26	LEX-FAOC064703
Canada Wildlife Act, RSC 1985, c. W-9	LEX-FAOC023865
Canadian Environmental Assessment Act, SC 1992, c. 37	LEX-FAOC023696
Canadian Environmental Protection Act, SC 1999, c. 33	LEX-FAOC023763
Coasting Trade Act, SC 1992, c. 31	LEX-FAOC093353
Fisheries Act, RSC 1985, c. F-14	LEX-FAOC001077
Migratory Birds Convention Act, SC 1994, c. 22	LEX-FAOC023776
Oceans Act, SC 1996, c. 31	LEX-FAOC022382
Species at Risk Act, SC 2002, c. 29	LEX-FAOC081275

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