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# **Basin Head Marine Protected Area: 2014-2015 Management Plan Implementation Progress Report**

Fisheries and Oceans Canada, Gulf Region  
343 Université Avenue, P.O. Box 5030  
Moncton, NB, E1C 9B6

2015

**Gulf Region Basin Head Management Series 2015/03**






## **Gulf Region Basin Head Management Series**

The Gulf Region Basin Head Management Series of publications are reports on management initiatives and monitoring undertaken in the Basin Head Marine Protected Area in the Gulf Region. This series consist of monitoring progress reports, operational management plan, consultant reports, scientific studies, workshops and other public documents related to the Basin Head Marine Protected Area. The Basin Head Management Series was established in 2014. Reports in this series have been written by or prepared under the guidance of staff of the Department of Fisheries and Oceans - Gulf Region. The content of this series is meant as a source of information for public and internal dissemination.

## **Série sur la gestion de Basin Head dans la Région du Golfe**

La série de publications sur la gestion de Basin Head de la Région du Golfe regroupe des rapports au sujet d'initiatives de gestion et de monitoring entreprit dans la zone de protection marine de Basin Head dans la région du Golfe. Cette série se compose principalement de rapport de progrès sur le monitoring effectué à Basin Head, plan de gestion opérationnel, d'études scientifique, de rapports de consultants, d'ateliers et d'autres documents publics relié à la zone de protection marine de Basin Head. La série sur la gestion de Basin Head a été créée en 2014. Ces rapports ont été rédigés par le personnel du Ministère de Pêches et Océans ou ont été préparés sous la direction de ceux-ci – dans la Région du Golfe. Le contenu de cette série se veut une source d'information pour une diffusion publique et interne.




Gulf Region Basin Head Management Series

2015

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2014-2015 MANAGEMENT PLAN IMPLEMENTATION PROGRESS REPORT

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DFO/2015-1963  
Cat. No. Fs146-1E-PDF  
ISSN 2368-5999

Published by:

Fisheries and Oceans Canada  
Gulf Region  
343 Université Avenue  
P.O. Box 5030  
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Correct citation for this publication:

DFO 2015. Basin Head Marine Protected Area: 2014-2015 Management Plan Implementation Progress Report. Gulf Region Basin Head Management Series. 2015/03: vii + 12p.



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## **ABSTRACT**

This Progress Report for the Basin Head Marine Protected Area outlines the activities and monitoring associated with the four regulatory conservation objectives that occurred during the 2014-15 fiscal year. This report also highlights the different management actions taken in 2014-15 and the future steps and priorities for the integrated management of the Basin Head Marine Protected Area.

## **RÉSUMÉ**

Ce rapport de progrès pour la zone de protection marine de Basin Head décrit les activités et la surveillance associé avec les quatre objectifs de conservation réglementaires qui ont eu lieu au cours de l'année financière 2014-15. Ce rapport met également en lumière les différentes mesures de gestion prises en 2014-15 ainsi que les prochaines étapes et les priorités pour la gestion intégrée de la zone de protection marine de Basin Head.

## 1.0 INTRODUCTION

The Basin Head Marine Protected Area (MPA) was designated on September 26, 2005. This MPA has been established via regulations under the statutory authority of Canada's *Oceans Act* (Basin Head Marine Protected Area Regulations).

The MPA encompasses Basin Head, a tidal inlet and harbour, as well as an adjacent offshore buffer zone, in eastern Prince Edward Island within the Gulf of St. Lawrence bioregion (Figure 1). The MPA was designated by regulations to conserve and protect a unique form of an otherwise common marine alga, Irish moss (*Chondrus crispus*). This form of *Chondrus* is thought to exist only within the confines of Basin Head. It is believed that certain habitat conditions within the inlet, not yet understood, give rise to this form of *Chondrus*. Thus the MPA was designated under the *Oceans Act* Section 35, paragraph (1) c (conservation and protection of unique habitats), as well as paragraph (1) e.

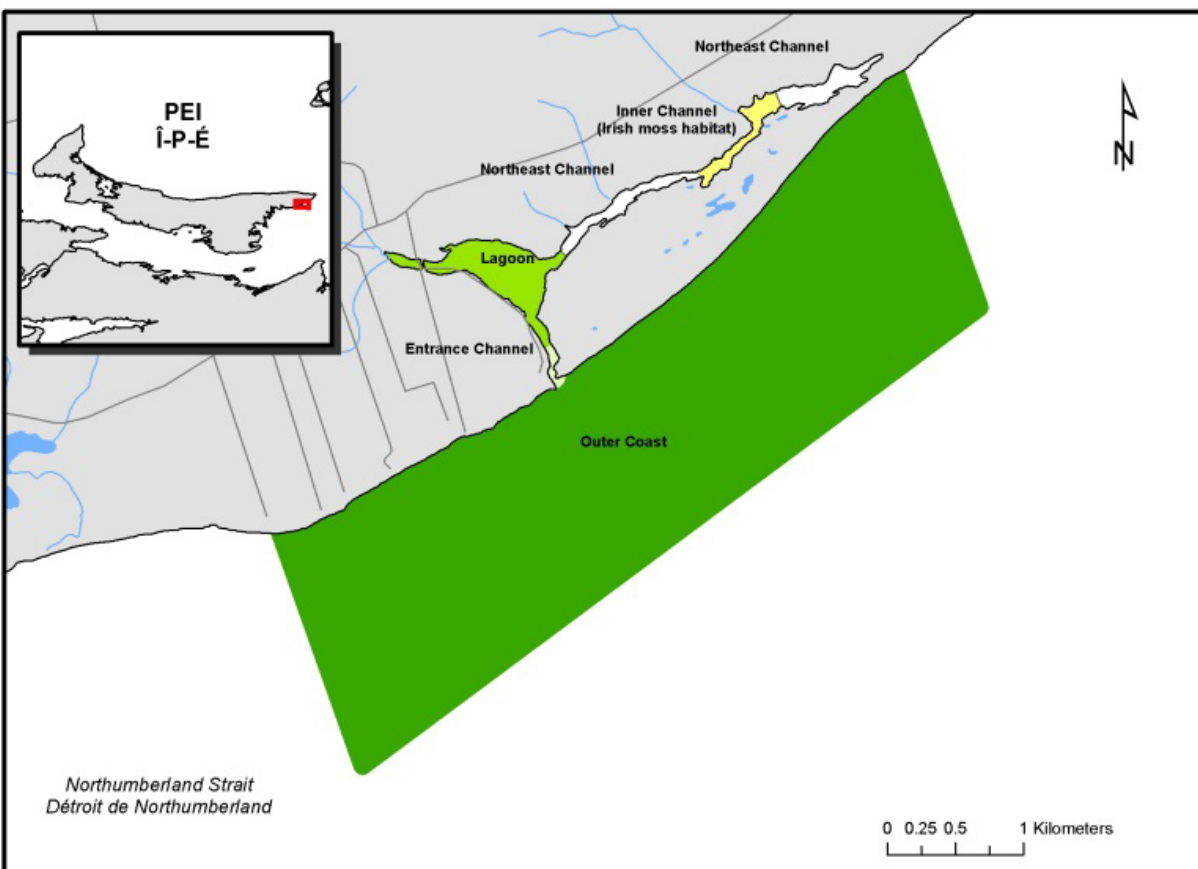


Figure 1: Basin Head Marine Protected Area

The Basin Head MPA Operational Management Plan (OMP) was updated in 2015, to serve as a guide for informed decisions in the management of this unique ecosystem. The management plan forms the basis for development of comprehensive conservation and management strategies. It provides information on regulatory measures, monitoring, enforcement and compliance, managing certain human activities via an activity approval process and other non-regulatory management measures. It also provides the detail required to ensure that





management decisions, prohibitions, and activity applications processes are clearly understood.


Personnel from Ecosystems Management, Fisheries and Oceans Canada (DFO), Gulf Region are responsible for efforts at achieving the objectives described in the OMP. Management of the MPA is also guided by the advice of the local community and stakeholders, other federal and provincial government departments, and Aboriginal groups, acting through the Basin Head MPA Advisory Board.

The Basin Head MPA OMP is intended to serve as a “living” document which may be amended as required to ensure management objectives and monitoring requirements are met. The OMP is scheduled to be reviewed every five years with provisions for amendments on a continuing basis. The periodic reviews will examine the conservation objectives of the MPA to determine if they remain appropriate, evaluate the success of management actions in achieving the conservation objectives, and identify emerging priorities for subsequent reviews of the OMP.

The purpose of this Progress Report is to record activities in the Basin Head MPA during the 2014-2015 fiscal year. This report and past reports will serve as guides for the Operational Management Plan review, which was completed in 2015.

## **2.0 MANAGEMENT HIGHLIGHTS FOR 2014-15**

- In 2014, DFO began to deploy dissolved oxygen continuous recorders in the northeast arm in addition to regular monitoring for water quality (May – November) and aquatic species populations (May – September), which was performed during the spring, summer and autumn.
- The number and location of mussel spat on natural substrates in northeast arm were collected and assessed at monthly intervals from June through October 2014.
- In 2014 the diameter, location and means of attachment of each mussel-moss clump located during surveying the bed was recorded.
- Sock cultivation of Irish moss at the mouth of northeast arm resumed in 2014 using free-floating fronds. The aim was to conserve free-floating fronds and develop biomass for field experiments.
- Because of difficulties relocating clumps using the wading transect method, Irish moss clumps were marked using numbered agricultural flags. Later the GPS positions of each clump were recorded and some clumps were protected using open or closed cages. Throughout the field season, portions of the Irish moss beds were resurveyed to record the presence or absence of marked clumps, flagging newly appearing clumps and note changes in frond size and condition.
- The June 2014 wading survey discovered 58 isolated clumps of Irish moss attached to mussel clumps that covered only 1.26 m<sup>2</sup> of bottom, down from 1.88 m<sup>2</sup> in 2013. Snorkelling surveys performed throughout the summer of 2014 found additional Irish moss plants that were missed in the June wading survey. In addition, swimming transects performed on July 2, 2015 revealed a second small mussel-moss bed further up the northeast arm at the site called Sonde / Corduroy Road. By the end of the 2014 field



season, a total of 313 Irish moss – mussel clumps covering 6.5 m<sup>2</sup> of bottom had been found in the northeast arm.

- To monitor rates and processes of settlement of Irish moss on hard substrate, six native sandstone rocks were placed in the main Irish moss bed in 2014. Each rock was scored on top to provide recessed areas for algal settlement and two settling plates were attached to each rock (side and top). These rocks will be monitored to assess the utility of enhancing the habitat for settlement of Irish moss spores. The settling plates will be monitored for evidence of Irish moss settlement in 2016.
- In early October 2014, 25 fronds were collected from the following sub-populations: fronds lacking holdfasts in southeast arm main bed, fronds attached by holdfasts in southeast arm main bed, fronds lacking holdfasts in southeast arm Corduroy Road site, fronds with holdfasts in the Cannery rock population and photographed to document their morphology and examined for reproductive structures.
- In 2014, Irish moss was collected within the MPA and at other locations on PEI and sent for genetic analysis. It was determined that although the two populations harbouring the “giant” form, which lacks a holdfast, do appear to be somewhat genetically distinct, the exact relationship between the exaggerated morphology (and possibly high carrageenan content) and genetic makeup is not clear. It is possible that morphology may simply reflect phenotypic response to the surrounding environment (exposure, wave action, etc.), rather than being genetically determined. Furthermore, it is not currently possible to determine any causal relationship between the switch to asexual reproduction and morphology / habitat. Nevertheless, the apparent genetic and morphological distinctness of the “giant” type populations of Basin Head suggests that they be managed as a separate unit.
- A study was initiated with the University of Prince Edward Island in 2014 to evaluate Irish moss – green crab interactions at Basin Head. This project includes four milestones that will be developed at different degrees during three consecutive field seasons (fall 2014, and spring-fall 2015 and 2016): green crab population assessment, Irish moss – crab interactions, measures to help sustain Irish moss and data handling. Densities reported in 2014 were relatively low compared to numbers seen in the past in Basin Head. This may be due to the unusually long (and cold) winter prior the 2014 field season.
- The Memorandum of Understanding between DFO Gulf Region and the National Research Council (NRC), for the maintenance of 10 kg of Basin Head *Chondrus* at the NRC’s Sandy Cove facility, was renewed for 2014-2015.
- The Basin Head Marine Protected Area Advisory Board held meetings on April 16, 2014 and November 26, 2014 at the Fisheries and Oceans Area Office in Charlottetown, PEI. At the April 26, 2014 meeting, there was an update on 2013 Science activities, a review of advice provided by the Director General of Ecosystems Management on Irish moss conservation measures for 2014. The Board agreed on the 2014 MPA Operational Management Plan review and the review of the Advisory Board Terms and Reference and membership list. The status of the MPA interactive display was also given. On November 26, 2014, members were provided updates on research, communication and winter activities taking place at the MPA. Status updates were also presented on the 2013-2014 Progress Report and the 2015 Operational Management Plan and signage.

### 3.0 CONSERVATION OBJECTIVES AND ACTIONS TAKEN

Conservation objectives describe the desired ecological outcome of establishing an MPA and are based on the best available scientific and traditional ecological knowledge. These objectives guide the MPA establishment and management process by providing the basis for determining management measures. They also allow the setting of limits within which the nature and magnitude of human impacts on ecosystems and/or key ecological features of the MPA are assessed. Economic opportunities compatible with these conservation objectives may be permitted within the MPA or within specific zones.

There are four conservation objectives for Basin Head MPA:

**Conservation objective 1:** Maintain the quality of the marine environment supporting the *Chondrus crispus*.

**Conservation objective 2:** Maintain the physical structures of the ecosystem supporting the *Chondrus crispus*.

**Conservation objective 3:** Maintain the health (biomass and coverage) of the Basin Head *Chondrus crispus*.

**Conservation objective 4:** Maintain the overall ecological integrity of the Basin Head lagoon and inner channel. This includes avoidance of excessive *Ulva* growth, maintenance of adequate oxygen levels, and maintenance of diversity of indigenous flora and fauna.

Management actions taken during the 2014-15 fiscal year to fulfill short and long-term management goals for both regulatory and non-regulatory conservation objectives are shown in Table 1 and 2, respectively.

Table 1. Basin Head MPA Regulatory Conservation Objectives and Management Actions

	Management Goals	Action Taken in 2014-2015
<p><b>Regulatory Conservation Objective:</b></p> <p>Maintain the quality of the marine environment supporting the <i>Chondrus crispus</i></p>	<p><b>Short Term:</b></p> <ul style="list-style-type: none"> <li>To maintain twice-monthly water quality monitoring (May through October) at 6 water stations within the MPA. Information will be collected on nitrate, nitrites, phosphates, suspended solids, temperature, oxygen and salinity. (Note: the monitoring in this goal has been expanded to the end of November, when possible).</li> <li>To monitor water temperature in the inner channel station and the main basin.</li> <li>To monitor 3 stations in the basin to test for <i>E.coli</i> contamination</li> </ul>	<p>11 sites sampled weekly to biweekly from May 22 to November 12, 2014 near high tide.</p> <p>Dissolved oxygen continuous recorders were deployed in the northeast arm in 2014.</p> <p>Temperature loggers at three permanent locations were retrieved, downloaded, and re-deployed.</p> <p>Canadian Shellfish Sanitation Program (CSSP) sampling was not conducted in 2014.</p>

	Management Goals	Action Taken in 2014-2015
	<p><b>Long Term:</b> By using the data collected, determine if there is a significant decline in the quality of the marine environment supporting the <i>Chondrus crispus</i>.</p>	<p>Young's Hill Road continued to be monitored in 2014 as a point source of sedimentation. The Boat Slip condition was once again reported. In 2014 the Souris &amp; Area Branch enhanced the main branch (1-2 km) from East Point Road to a hanging culvert on the Snake Road and reported that the culvert on East Point Rd needs to be assessed.</p>
<p><b>Regulatory Conservation Objective:</b></p> <p>Maintain the physical structures of the ecosystem supporting the <i>Chondrus crispus</i></p>	<p><b>Short Term:</b></p> <ul style="list-style-type: none"> <li>Establish the limits of the barrier dune structure at the ocean entrance and northern limit.</li> </ul> <p><b>Long Term:</b></p> <ul style="list-style-type: none"> <li>Using underwater video imaging, monitor the usage and erosion of the watershed area. (Note: this goal changed from using aerial photography)</li> <li></li> <li>Monitor municipal land use and permit approval data.</li> <li>Develop water circulation model to evaluate any water circulation changes.</li> </ul>	<p>An estuary model, which was developed in 2011, can be used to study scenarios of physical changes to the dune system and entrance channel. No further action taken in 2014-2015.</p> <p>Aerial and underwater photography deemed no longer feasible due to extent of <i>Chondrus</i> decline, however drone photography was conducted on October 2, 2014 by Perry Williams.</p> <p>On-going; no issues arising in 2014-2015.</p> <p>Hydrological model integral to the estuary model noted above, which is consistent with field results. No further action taken in 2014-2015.</p>
<p><b>Regulatory Conservation Objective:</b></p> <p>Maintain the health (biomass and coverage) of Basin Head <i>Chondrus crispus</i></p>	<p><b>Short Term:</b></p> <ul style="list-style-type: none"> <li>To initiate a photo mosaic of the entire basin every three years to quantify the <i>Chondrus crispus</i> and green algae coverage.</li> <li>Establish 3 permanent monitoring transects within the <i>Chondrus crispus</i> bed.</li> </ul> <p><b>Long Term:</b></p> <ul style="list-style-type: none"> <li>Maintain the biomass and coverage of <i>Chondrus crispus</i> to baseline data collected over the last 20 years.</li> </ul>	<p>Photographs taken at Chings Bridge, Elliot's Look Off and Foul Bay from May to November, to establish record of green alga (<i>Ulva</i>) growth.</p> <p>The wading transect method was augmented using numbered agricultural flags, recording GPS positions and a snorkelling survey.</p> <p>This has not been successful; immediate cause of the <i>Chondrus</i> decline may be the invasive green crab, as per draft scientific paper (Cairns <i>et al.</i>).</p>

	Management Goals	Action Taken in 2014-2015
		<p>Sock cultivation of Irish moss at the mouth of northeast arm resumed in 2014 using free-floating fronds.</p> <p>To monitor rates and processes of settlement of Irish moss on hard substrate, six native sandstone rocks were placed in the main Irish moss bed in 2014.</p> <p>MOU with NRC was renewed for maintenance of Basin Head <i>Chondrus</i> culture (10 kg) at the NRC research facility in Sandy Cove, Nova Scotia.</p>
<p><b>Regulatory Conservation Objective:</b></p> <p>Maintain the overall ecological integrity of the Basin Head lagoon and inner channel.</p>	<p><b>Short Term:</b></p> <ul style="list-style-type: none"> <li>To continue the Community Aquatic Monitoring Program (CAMP) to monitor trends in community abundance and diversity of fish and benthic invertebrates within Basin Head.</li> <li>To create detailed contour maps of percent of cover by major plant species.</li> </ul> <p><b>Long Term:</b></p> <ul style="list-style-type: none"> <li>Maintain the diversity of indigenous flora and fauna within the Basin Head Marine Protected Area.</li> </ul>	<p>The CAMP Program was conducted in 2014 from May to September at Basin Head.</p> <p>Ongoing monitoring via CAMP.</p> <p>Not initiated but baseline exists for <i>Ulva</i> and <i>Chondrus</i>.</p> <p>The number and location of mussel spat on natural substrates in northeast arm were collected and assessed at monthly intervals from June through October 2014.</p> <p>In 2014 the diameter, location and means of attachment of each mussel-moss clump located during surveying the bed was recorded.</p>

Table 2. Basin Head MPA Non-Regulatory Conservation Objectives and Management Actions.

	Management Goal	Action Taken in 2014-2015
<p><b>Non-Regulatory Objective:</b></p> <p>To ensure the participation of</p>	<p><b>Short Term:</b></p> <ul style="list-style-type: none"> <li>Continuation of Advisory Board meetings to ensure stakeholder support and involvement.</li> </ul>	<p>Advisory board meetings were held in Charlottetown on April 16, 2014 and on November 26, 2014.</p>

	Management Goal	Action Taken in 2014-2015
interested and affected stakeholders in the operation of the MPA.	<p><b>Long Term:</b></p> <ul style="list-style-type: none"> <li>Investigate the possibility of establishing an Irish moss centre of expertise within the area.</li> <li>Increase Aboriginal involvement in the MPA.</li> </ul>	<p>Deferred to next fiscal year.</p> <p>Deferred to next fiscal year.</p>
<p><b>Non-Regulatory Objective:</b></p> <p>To increase the public awareness of the <i>Chondrus crispus</i>, the ecosystem of the Basin Head MPA and its conservation measures.</p>	<p><b>Short Term:</b></p> <ul style="list-style-type: none"> <li>To develop a Basin Head MPA website.</li> <li>To enhance the existing on site laboratory to maximize education potential.</li> </ul> <p><b>Long Term:</b></p> <ul style="list-style-type: none"> <li>To increase public awareness through publication of brochures and involvement in community events.</li> <li>Support the establishment of an Irish moss centre of expertise within the area.</li> </ul>	<p>No action taken in 2014-15; existing info link to DFO site; Prince Edward Island Wildlife Federation (PEIWF) site partnering in highlighting the MPA.</p> <p>No further action required in 2014-15.</p> <p>On-going. Brochures available at the Basin Head Fisheries Museum. An interactive computer kiosk installed in Basin Head Museum in 2014. In addition, an interpretive sign and updated brochures are in progress and will be ready for the next fiscal year.</p> <p>Eco tours were conducted by the PEIWF – Souris and Area Branch.</p> <p>PEIWF – Souris and Area Branch communicates regularly to local stakeholders through the “Souris &amp; Area Watershed News” on activities that involved Basin Head</p> <p>Deferred to next fiscal year.</p>
<p><b>Non-Regulatory Objective:</b></p> <p>To promote scientific research to increase the level of understanding of the Basin Head MPA.</p>	<p><b>Short Term:</b></p> <ul style="list-style-type: none"> <li>To continue to collaborate with the Island Nature Trust and the University of Prince Edward Island to meet the monitoring requirements identified in the Operational Management Plan.</li> <li>Development of Activity Plans and Approvals as outlined in Section 5.0 of the Basin Head MPA</li> </ul>	<p>A contract with PEIWF – Souris and Area Branch, was in place to provide assistance with the summer and fall monitoring program.</p> <p>Approval Process in Place; activity plans for 2014 season were submitted and approved.</p>



	Management Goal	Action Taken in 2014-2015
	<p>Regulations.</p> <p><b>Long Term:</b></p> <ul style="list-style-type: none"> <li>To continue to identify potential partners for collaborative research projects.</li> </ul>	<p>On-going; PEIWF – Souris and Area Branch contracted to provide monitoring assistance plus engagement in the greater watershed initiative.</p>
<p><b>Non-Regulatory Objective:</b></p> <p>To maintain and enhance the quality of the Basin Head ecosystem.</p>	<p><b>Short Term:</b></p> <ul style="list-style-type: none"> <li>To continue to collaborate with Island Nature Trust and University of Prince Edward Island to meet the monitoring requirements identified in the Operational Management Plan.</li> <li>Development of Activity Plans and Approvals as outlined in Section 5.0 of the Basin Head MPA Regulations.</li> </ul> <p><b>Long Term:</b></p> <ul style="list-style-type: none"> <li>To implement best management practices to reduce the impact of nutrient enrichment on marine environmental quality within the Basin Head ecosystem.</li> <li>To reduce the spread of aquatic invasive species in the Basin Head ecosystem.</li> </ul>	<p>A contract with PEIWF – Souris and Area Branch, was in place to provide assistance with the summer and fall monitoring program.</p> <p>Approval Process in Place; activity plans for 2014 season were submitted and approved.</p> <p>No action taken in 2014-2015. It has been reported that farmers are more diligent in the use of fertilizer, partly because of the cost; also new farm practices are being examined or considered for soil conservation.</p> <p>Monitored through the Aquatic Invasive Species program (AIS) and CAMP; no additional invasive species reported in the Lagoon in 2014.</p> <p>A study was initiated in 2014 to evaluate Irish moss – green crab interactions at Basin Head.</p> <p>Continued implementation of the Basin Head Watershed Management Plan</p>

#### 4.0 ACTIVITY PERMIT APPLICATIONS

MPA regulations recognize that certain activities within an MPA may be consistent with conservation objectives. For some of these activities, Basin Head MPA regulations stipulate requirements for activity plan submissions and specify approval conditions. Ministerial approval of activity plans is one of the primary means of governing the activities proponents undertake in

MPAs.

Proposed activity plans are reviewed to assess environmental impacts of the individual activity along with cumulative effect of all activities in the MPA, and to ensure that the activity is for the purpose of the conservation and/or management of the MPA, or for allowable scientific or educational purposes. Thus the requirement of the submission of an activity plan for certain activities is an important regulatory mechanism used to limit human impacts in MPAs before they occur.

Table 3. Activity Approvals in Basin Head MPA during 2014-15.

<b>Study Name</b>	<b>Researcher</b>	<b>Affiliation</b>	<b>Purpose</b>	<b>Date Approved</b>
a) Temperature loggers and b) Irish Moss monitoring by visual observation and recording	David Cairns	DFO - Gulf	Provide a long-term and continuous temperature record and estimate the quantity of Irish Moss in the Basin Head MPA by wading transects at low tide (January – December 2014)	March 17, 2014
Annual water quality monitoring	David Cairns	DFO - Gulf	Weekly water sampling for nutrient load and hydrographic parameters (May – December 2014).	March 17, 2014
Irish moss population assessment through substrate placement	David Cairns	DFO - Gulf	To determine whether placement of rock substrate increases the population of Irish moss in the former moss bed (May - December 2014).	March 17, 2014
Community Aquatic Monitoring Program	Marie-Hélène Thériault	DFO - Gulf	Monitor the diversity of fauna and flora captured in the Basin Head lagoon (May 1 – September 30, 2014)	March 24, 2014
Beach Seine – Eco-Tourism	Jillian MacPhee	Souris and Area Branch of the PEI Wildlife Federation	The educational activity will consist of a beach seine haul which will provide “hands-on” experience to further explore the marine community within the Basin Head MPA. This	April 8, 2014




			activity is part of the eco-tourism venture of Basin Head organized by the local watershed group and will occur up to a maximum of four times per week (June 1 – September 15, 2014).	
Cultivation of Irish moss	Irené Novaczek	DFO - Gulf	Enhancing the Irish moss biomass by cultivation (August 18, 2014 – June 30, 2019)	August 6, 2014
Irish moss population dynamics	Irené Novaczek	DFO - Gulf	To establish how Irish moss in Basin Head is currently maintaining its population (August 18, 2014 – December 31, 2015)	August 6, 2014
Irish moss and mussel clump dynamics	Irené Novaczek	DFO - Gulf	Documenting the Irish moss and mussel clump dynamics (August 18, 2014 – September 30, 2015)	August 6, 2014
Dissolved oxygen and pH measurements	Marie-Hélène Thériault	DFO - Gulf	Measure dissolved oxygen and pH levels using loggers (August 12 – December 31, 2014)	August 8, 2014
Effects of green crab on the Irish moss	Pedro A. Quijon	UPEI	Assessing the effects of green crab on the Irish moss (August 15, 2014 – November 30, 2017)	August 11, 2014

## 5.0 ENFORCEMENT AND COMPLIANCE

No enforcement issues were identified in the fiscal year 2014-2015.

## 6.0 PUBLIC AWARENESS AND EDUCATION

Public education and outreach are critical factors in ensuring the long term success of an MPA.



Compliance with MPA regulations is higher when community members, MPA users and the general public are aware of objectives and management strategies of an MPA. Education and outreach tools are most effective when they target appropriate user groups, stakeholders and the public, present a straightforward message, and use the most appropriate product to communicate the message.

Currently brochures and display panels explaining the purpose of the MPA are available to the public at the nearby Basin Head Fisheries Museum.

An interactive display kiosk was installed at the Basin Head Museum in 2014 using a computer monitor with touch-screen technology to give historical and biological information on Basin Head, as well as general information on the Canadian MPA program.

An interpretive sign and updated brochures are currently in progress and will be completed during the next fiscal year.

During the summer of 2014, the Souris and Area Branch of the PEIWF conducted educational activities consisting of a beach seine haul, which provided “hands-on” experience to explore the marine community within the Basin Head MPA. This activity was part of an eco-tourism venture and occurred up to four times per week throughout the summer.

## **7.0 NEXT STEPS AND PRIORITIES**


Fisheries and Oceans Canada will focus on several priorities related to the implementation of the management plan in the next fiscal year. Priorities include:

- Continue annual monitoring of water quality and biota, at established levels of effort likely to be sustainable for the mid- and long-term.
- Continue multi-year studies, which include Irish moss cultivation and studies on population dynamics, clump dynamics and the effects of green crabs on the Irish moss.
- The Basin Head Operational Management Plan will be published and available electronically in FY 2015-16.
- Complete interpretive sign and updated brochures during FY 2015-16.
- Follow up on the condition and potential repair of the Basin Head boat slip.

## **8.0 REFERENCES**

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