



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada



## Capelin Observers Network – Summary 2016



Published by:

Oceans Management Division  
Fisheries and Oceans Canada  
Mont-Joli, Quebec  
G5H 3Z4

©Her Majesty the Queen in Right of Canada, 2016  
Fs121-10E  
ISSN 2371-6398 (Print)

Fs121-10E-PDF  
ISSN 2371-6401 (PDF)  
*Cette publication est aussi disponible en français.*

The electronic version of the kit is available on the St. Lawrence Global Observatory Web site at:

<https://slgo.ca/en/biodiversity/fish/dfo-capelin/information/observation.html>.

**Cover Photo:** Todd Gallant

Written by: Pierre Nellis, Mélanie Bourgeois, Geneviève Faille and Claude Tremblay  
Maps: Gilles Fortin and Johanne Noël  
Linguistic Reading: Johanne Noël and Sylvie Sirois

Information contained in this publication or product may be reproduced, in part or in whole, and by any means, for personal or public non-commercial purposes, without charge or further permission, unless otherwise specified. You are asked to exercise due diligence in ensuring the accuracy of the materials reproduced, indicate both the complete title of the materials reproduced, as well as the author organization, and indicate that the reproduction is a copy of an official work that is published by the Government of Canada and that the reproduction has not been produced in affiliation with, or with the endorsement of, the Government of Canada.

Commercial reproduction and distribution is prohibited except with written permission from the Government of Canada's copyright administrator, Public Works and Government Services Canada (PWGSC). For more information, please contact PWGSC at 613-996-6886 or [droitdauteur.copyright@tpsgc-pwgsc.gc.ca](mailto:droitdauteur.copyright@tpsgc-pwgsc.gc.ca)

**Dear observer,**

*In the midst of the Capelin Observers Network's **fourteenth season** of capelin spawning data gathering, we would like to thank you for your involvement in 2016. It is thanks to your efforts and your support that, year after year, we are able to learn more about capelin habits and their spawning sites. This year, the observation of capelin presence in Sainte-Rose-du-Nord led to the creation of a new observation area: Saguenay.*

*The present report brings together important facts to be considered during your observations as well as practical maps for location finding. It also includes your observations usually compiled in the annual report. This way a single document holds all the available information on the presence of capelin in the St. Lawrence. Some of the previous sections were removed from the paper document and are now available on the St. Lawrence Global Observatory's website.*

**The Crowdsourcing webtool to share your observations is available at the following link:**

<https://slgo.ca/roc/login/auth?lang=en>

**You can also have access to the network's documentation, as well as to the capelin spawning observation data archives here:**

<https://slgo.ca/en/biodiversity/fish/dfo-capelin/network.html>

**Where and when will capelin roll in 2017?** *Once again, the Capelin Observers Network is already inviting you to participate in a new year of data gathering. Your sustained commitment helps us provide the most accurate possible picture of the distribution of capelin spawning along our coasts and also enables us to better track the evolution of its spawning habits.*

*It is noteworthy that new collaborations with institutions in the Newfoundland and Labrador region will allow, as early as 2017, to gather even more information on this territory and to obtain an even broader view of capelin spawning patterns.*

**We hope to keep your interest and generate new collaboration by the increased visibility of the Capelin Observers Network. We wish you a good reading and a great season of observations for the coming year. We also thank you for your continued interest in the Capelin Observers Network!**



## Acknowledgements

Fisheries and Oceans Canada would like to thank the organizations listed opposite for their support in promoting the Network and its data collection activities. Thanks to these organizations, more people are learning about the Capelin Observers Network, which is essential to its objectives.



**Comité ZIP Baie des Chaleurs** – Tel.: 418-759-5880

Email: [zonebdc@globetrotter.net](mailto:zonebdc@globetrotter.net)

Web site: [www.zipbaiedeschaleurs.org](http://www.zipbaiedeschaleurs.org)



**Comité ZIP du Sud-de-l'Estuaire** – Tel.: 418-722-8833

Email: [zipse@globetrotter.net](mailto:zipse@globetrotter.net)

Web site: [www.zipsud.org](http://www.zipsud.org)



**Comité ZIP de la Rive nord de l'estuaire**

Tel.: 418-296-0404 Email: [zip.rne@zipnord.qc.ca](mailto:zip.rne@zipnord.qc.ca)

Web site: [www.zipnord.qc.ca](http://www.zipnord.qc.ca)



**Comité ZIP Côte-Nord du Golfe** – Tel.: 418-968-8798

Email: <mailto:info@zipcng.org> Web site: [www.zipcng.org](http://www.zipcng.org)



**Réseau d'observation de mammifères marins (ROMM)**

Email: [info@romm.ca](mailto:info@romm.ca) Tel.: 418-867-8882

Web site: [www.romm.ca](http://www.romm.ca)



**Le Réseau de Suivi de la Biodiversité Aquatique (RSBA)**

Tel.: 418-737-4628 Web site: [www.rsba.ca](http://www.rsba.ca)



**Amphibia-Nature**

Tel.: 418-782-1808 Email: [info@amphibia-nature.org](mailto:info@amphibia-nature.org)

Web site: [www.amphibia-nature.org](http://www.amphibia-nature.org)



**Gros Morne Beach Watch**

Tel.: 709-458-3567

Email: [grosmornebeachwatch@gmail.com](mailto:grosmornebeachwatch@gmail.com)

Facebook: [www.facebook.com/grosmornebeachwatch](http://www.facebook.com/grosmornebeachwatch)

## ***Table of contents***

<b><i>Dear observer,</i></b> .....	<b><i>3</i></b>
<b><i>Acknowledgements</i></b> .....	<b><i>4</i></b>
<b><i>Table of contents</i></b> .....	<b><i>5</i></b>
<b><i>List of tables</i></b> .....	<b><i>6</i></b>
<b><i>List of figures</i></b> .....	<b><i>6</i></b>
<b><i>1.0 Capelin Observers Network (CON)</i></b> .....	<b><i>8</i></b>
<b><i>2.0 Capelin Biology</i></b> .....	<b><i>8</i></b>
2.1 General.....	8
2.2 Distribution .....	9
<b><i>3.0 Observations for the 2016 Season by Zone</i></b> .....	<b><i>10</i></b>
3.1 Upper Estuary .....	11
3.2 Lower Estuary .....	13
3.3 Middle North Shore – Gulf.....	16
3.4 Lower North Shore – Gulf .....	19
3.5 Northern Gaspé Peninsula – Gulf .....	21
3.6 Chaleur Bay – Gulf .....	23
3.7 Magdalen Islands .....	24
3.8 Newfoundland and Labrador .....	26
3.9 Prince Edward Island .....	28
3.10 Saguenay.....	29
<b><i>4.0 Number of observers and record of observations of abundance</i></b> .....	<b><i>30</i></b>
<b><i>5.0 Conclusion</i></b> .....	<b><i>31</i></b>
<b><i>Appendix 1. User Guide for WEB entries</i></b> .....	<b><i>32</i></b>
<b><i>Appendix 2. Network and partner contact information</i></b> .....	<b><i>36</i></b>

## ***List of tables***

Table 1: Dates of observation of capelin spawning or presence between 2012 and 2016 in Upper Estuary. ....	11
Table 2: Dates of observation of capelin spawning or presence between 2012 and 2016 in Lower Estuary.....	14
Table 3: Dates of observation of capelin spawning or presence between 2012 and 2016 in Middle North Shore. ....	17
Table 4: Dates of observation of capelin spawning or presence between 2012 and 2016 in Lower North Shore.....	19
Table 5: Dates of observation of capelin spawning or presence between 2012 and 2016 in Northern Gaspé Peninsula. ....	22
Table 6: Dates of observation of capelin spawning or presence between 2012 and 2016 in Chaleur Bay. ....	23
Table 7: Dates of observation of capelin spawning or presence between 2012 and 2016 in Magdalen Islands. ....	25
Table 8: Dates of observation of capelin spawning or presence between 2012 and 2016 in Newfoundland and Labrador.....	26
Table 9: Dates of observation of capelin spawning or presence between 2012 and 2016 in Prince Edward Island.....	28
Table 10: Dates of observation of capelin spawning or presence between 2012 and 2016 in Saguenay.....	29
Table 11: Average yearly capelin abundance (spawning or presence) in percentage of observations.....	30

## ***List of figures***

Figure 1: Probability surfaces (%) of capelin presence for multidisciplinary surveys conducted in the Estuary and northern and southern Gulf of St. Lawrence between 1990 and 2012. ....	9
Figure 2: Observation zones of the Capelin Observers Network.....	11
Figure 3: Period of observation of capelin spawning in Upper Estuary between 2003 and 2016. ....	12
Figure 4: Locations of observation of capelin spawning and presence in Upper Estuary between 2003 and 2016. ....	13
Figure 5 : Period of observation of capelin spawning in Lower Estuary between 2003 and 2016. ....	15

Figure 6: Locations of observations of capelin spawning and presence in Lower Estuary between 2003 and 2016. ....	16
Figure 7: Period of observation of capelin spawning in Middle North Shore between 2002 and 2016. ....	18
Figure 8: Locations of observation of Capelin Spawning and Presence in Middle North Shore between 2002 and 2016. ....	19
Figure 9: Period of observation of capelin spawning in Lower North Shore between 2002 and 2016. ....	20
Figure 10: Period of observation of capelin spawning in Lower North Shore between 2002 and 2016. ....	21
Figure 11: Period of observation of capelin spawning in Gaspé Peninsula between 2003 and 2016. ....	23
Figure 12: Period of observation of capelin spawning in Chaleur Bay between 2003 and 2016. ....	24
Figure 13: Location of observations of capelin spawning and Presence in Gaspé Peninsula, Chaleur Bay and Magdalen Islands between 2003 and 2016.....	25
Figure 14: Period of observation of capelin spawning in Newfoundland and Labrador between 2002 and 2016. ....	27
Figure 15: Location of observation of capelin spawning or presence in Newfoundland and Labrador between 2002 and 2016.....	27
Figure 16: Location of observation of capelin spawning or presence between 2003 and 2016 in Prince Edward Island.....	28
Figure 17: Location of observation of capelin spawning or presence between 2003 and 2016 in Saguenay .....	29

## **1.0 Capelin Observers Network (CON)**

The Capelin Observers Network's (CON) objective is to better understand capelin spawning and spawning patterns within the Estuary and Gulf of St. Lawrence. Efforts to monitor capelin spawning began in 2002 on the North Shore. In 2003, the Department of Fisheries and Oceans Canada (DFO), (Quebec Region,) along with different partners such as certain Committees from the Priority Intervention Zones organisation, known in French as (ZIP), developed a formal network in order to collect capelin reproduction data.

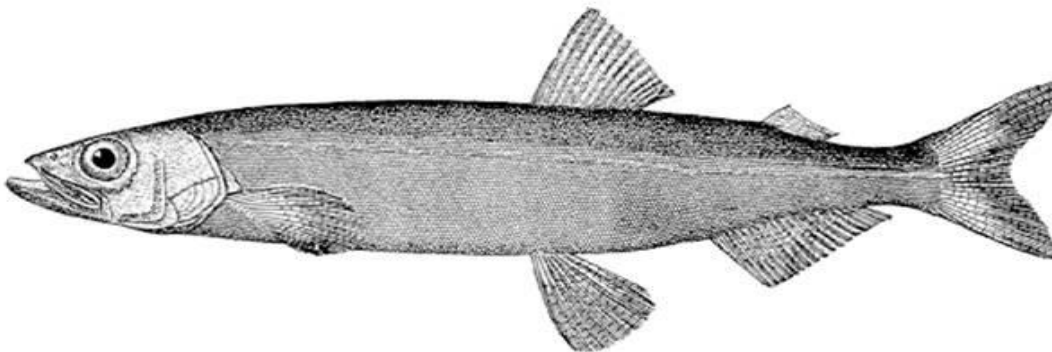
Observers are invited to participate in the Capelin Observers Network by visiting the Internet registry at: <https://slgo.ca/en/biodiversity/fish/dfo-capelin/observation.html>

Your participation in the Network in 2017 is more than necessary to help track capelin spawning and identify new trends, as well as help confirm trends of recent years. It is also important that your observations be as documented as possible, (see [Appendix 1. User Guide for WEB entries](#)).

## **2.0 Capelin Biology**

### **2.1 GENERAL**

Capelin is a small pelagic fish in the same family as rainbow smelt. It averages 13 to 20 cm in length, but can reach up to 23 cm in some locations. Capelin has a villous band on the lateral line, which separates its olive green back from its silvery sides, hence its Latin name *Mallotus villosus*, "villosus" meaning villous or hairy, which refers to the hairy appearance of the ridges of elongated scales of the males during spawning.







Capelin male (top) and female (bottom)

## 2.2 DISTRIBUTION

Capelin is a cold-water fish of the Northern Hemisphere. It is found in the Atlantic, Pacific and Arctic oceans, from northern Europe across Russia to northern Japan. In Canada, it occurs on both the west and east coasts. In the Northwest Atlantic, it is found along the shores of Newfoundland and Labrador, on the Grand Banks and in the Estuary and Gulf of St. Lawrence.

Interestingly, capelin distribution can vary locally from year to year depending on ocean temperatures. Indeed, it is considered an indicator species for temperature. During years when the water is colder, its range extends further southward, sometimes as far as the Gulf of Maine.

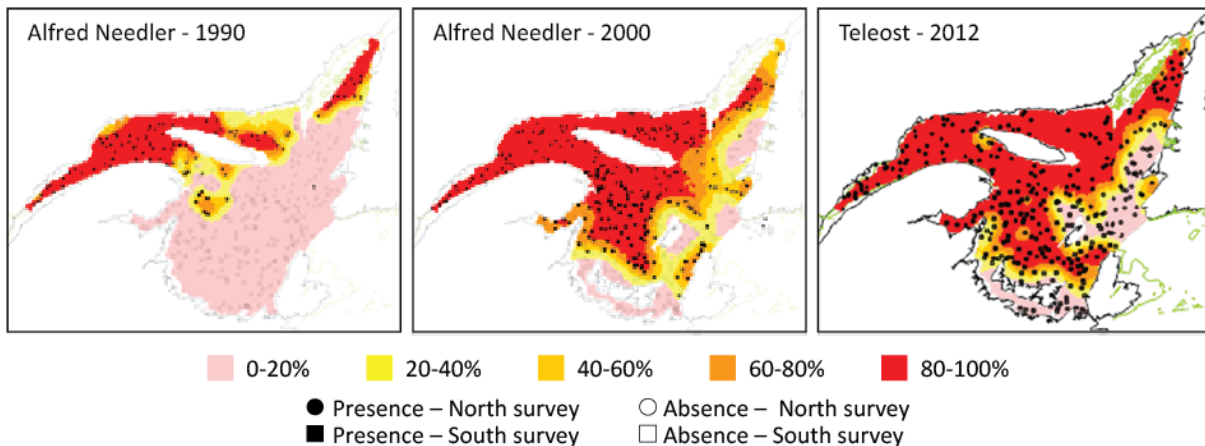


Figure 1: Probability surfaces (%) of capelin presence for multidisciplinary surveys conducted in the Estuary and northern and southern Gulf of St. Lawrence between 1990 and 2012.

Significant changes have been observed in the spatial distribution of capelin in the Estuary and Gulf of St. Lawrence. In the 1990s, the distribution of this species was limited to the

estuary, the northern Gulf of St. Lawrence and the Gaspé Peninsula. Between 2000 and 2012, the species' range expanded to cover virtually the entire southern Gulf (Figure 1). The increased presence of capelin in this region of the Gulf may be explained by a change in water temperature regime. The 1990s were characterized by a cooling of the Gulf of St. Lawrence caused by an inflow of cold water from the Strait of Belle-Isle and Cabot Strait. Given that capelin is a cold-water species, the inflow is believed to have expanded the species' range.<sup>1</sup> The increased presence of capelin in the multidisciplinary surveys of the southern Gulf could also be explained by increased abundance or an increasingly large presence of this species in bottom habitat abandoned by declining groundfish stocks.<sup>2</sup>

### **3.0 Observations for the 2016 Season by Zone**

In 2016, 26 observations were reported in 5 of the Network's zones, including 14 spawning observations, 9 signs of capelin presence and 3 records of capelin absence. These observations were reported in 17 different sectors. One new spawning site was reported in 2016 at Sainte-Rose-du-Nord in the Saguenay which led to the creation of a new zone as this is the first mention of the presence of capelin in this area.

These observations were compiled in table formats accompanied by maps. This year again, the tables help distinguish spawning observations from signs of capelin presence (e.g. presence of diving birds or dead capelin on the beach) with a symbol (‡) provided alongside each date entry. For practical reasons, the St. Lawrence Estuary and Gulf were divided into ten observation zones (Figure 2). Note below that the boundaries have been illustrated and are properly described by virtue of each of their result entries.

---

<sup>1</sup> Grégoire, F. and B. Bruneau. 2011. Capelin (*Mallotus villosus*) of the Estuary and Gulf of St. Lawrence (NAFO Divisions 4RST) in 2010. Canadian Science Advisory Secretariat, Research document. 2011/023.

<sup>2</sup> McQuinn, I. H. 2009. Pelagic fish outburst or suprabenthic habitat occupation: legacy of the Atlantic cod (*Gadus morhua*) collapse in eastern Canada. Canadian Journal of Fisheries and Aquatic Sciences. 66: 2256-2262.

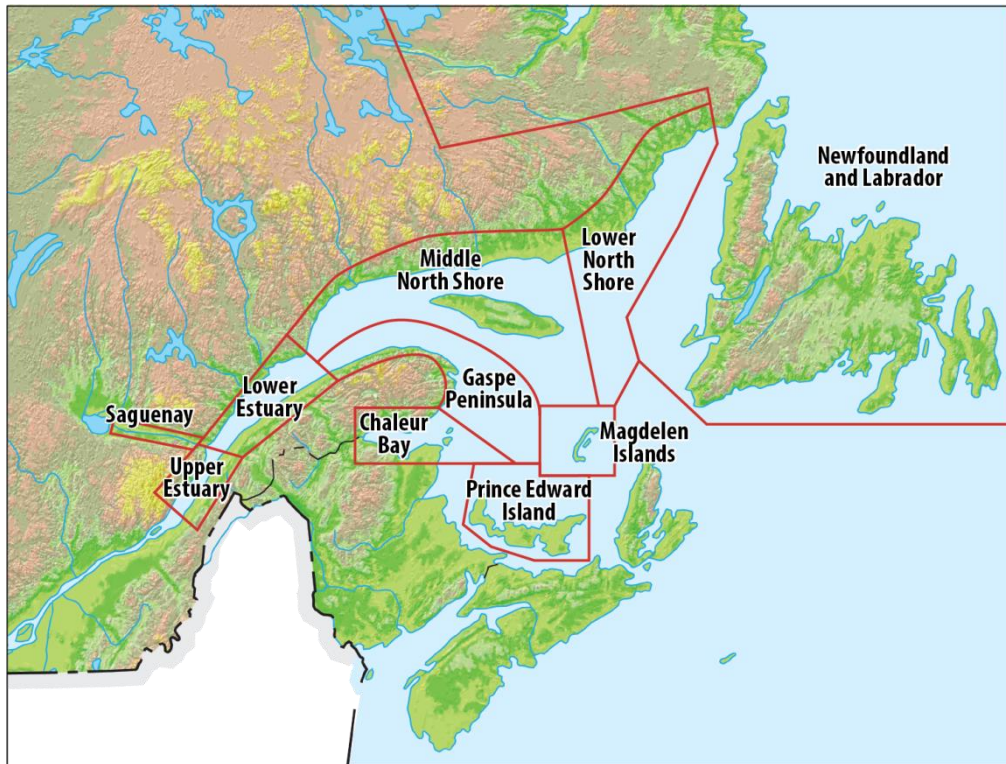


Figure 2: Observation zones of the Capelin Observers Network.

### 3.1 UPPER ESTUARY

This zone extends to both sides of the Middle St. Lawrence Estuary from Saint-Joachim to Baie-Sainte-Catherine on the north shore and from Montmagny to Cacouna on the south shore.

#### Observations

In 2016, no observations of capelin were reported in the area of the Upper Estuary. Over the last three years, 5 sightings of capelin presence have been reported for this zone (Table 1).

Table 1: Dates of observation of capelin spawning or presence between 2012 and 2016 in Upper Estuary.

Localisation	2012	2013	2014	2015	2016
Saint-Irénée	April: 8 <sup>†</sup> to 13 <sup>†</sup> , 16 <sup>†</sup> to 21 <sup>†</sup> , 26 <sup>†</sup> to 30 <sup>†</sup> May: 1 <sup>†</sup> to 16 <sup>†</sup> , 18 <sup>†</sup> to 21 <sup>†</sup> , 24 <sup>†</sup> to 27 <sup>†</sup>	March: 17 April: 28 <sup>†</sup> May: 1 to 2 <sup>†</sup> , 5 <sup>†</sup> , 9 <sup>†</sup> , 10 <sup>†</sup> to 11 <sup>†</sup> , 13 <sup>†</sup> to 15 <sup>†</sup> , 16, 18, 20 <sup>†</sup> to 23 <sup>†</sup> , 25 <sup>†</sup> to 31 <sup>†</sup> June: 1 <sup>†</sup> to 8 <sup>†</sup> , 10 <sup>†</sup> to	---	May: 21 <sup>†</sup>	---

Localisation	2012	2013	2014	2015	2016
		24 <sup>‡</sup>			
La Malbaie (Port-au-Saumon /Anse aux Indiens)	---	---	May: 29 June: 02, 03, 04	---	---
Île-aux-Coudres	---	---	---	---	---
Kamouraska	---	---	---	---	---
Rivière-du-Loup	---	---	---	---	---
Rivière-Ouelle	---	---	---	---	---

*Names in parentheses denote sections of municipalities. ‡ Denotes date of observation of capelin presence without mention of spawnin.*

Since 2003, capelin spawning in the Upper Estuary has been observed from May to June, with a peak in May (Figure 3). However, in 2013, a spawning sighting was reported in March. Spawning observations or presence of capelin in the zone were mapped for the years 2003 to 2016 (Figure 4).

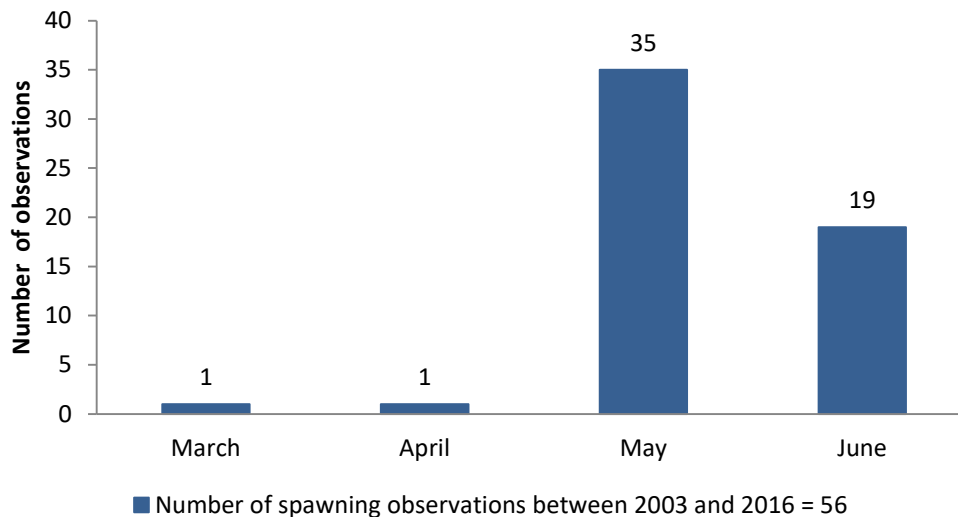


Figure 3: Period of observation of capelin spawning in Upper Estuary between 2003 and 2016.

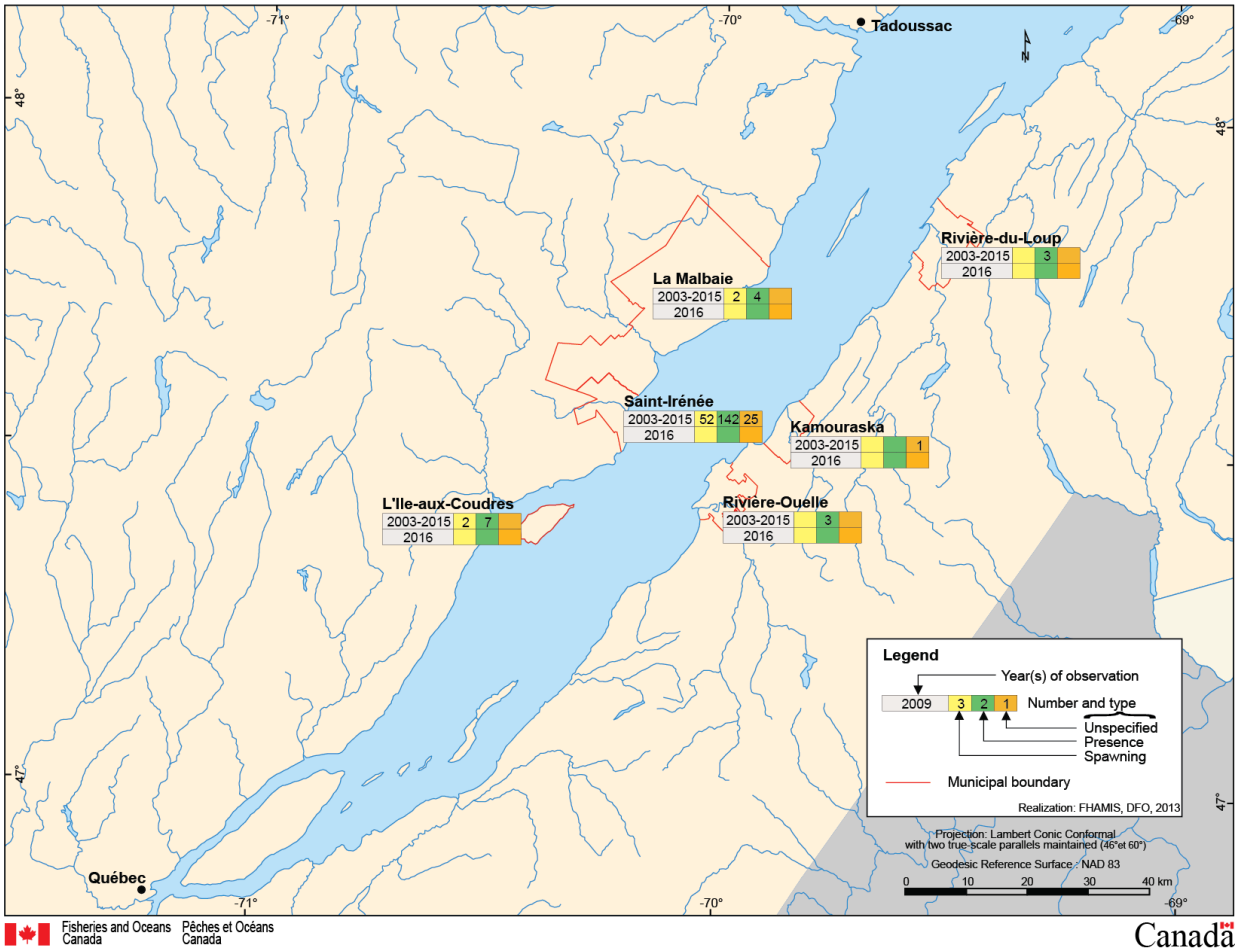


Figure 4: Locations of observation of capelin spawning and presence in Upper Estuary between 2003 and 2016.

### 3.2 LOWER ESTUARY

This zone covers both shores of the Lower St. Lawrence Estuary from Tadoussac to Baie-Trinité (Pointe-des-Monts) on the north shore and from L'Isle-Verte to Les Méchins on the south shore.

#### Observations

In 2014, 2 observers reported capelin presence on May 14<sup>th</sup> and 20<sup>th</sup> (Table 2). In 2015, 6 observers have reported 7 observations, 5 of which were spawning in municipalities already known for capelin, those are Portneuf-sur-Mer, Baie-des-Sables, Saint-Ulric, Matane and Grosse Roche. In 2016, 12 observations were made in the Rimouski-Matane area by 10 observers between mid-April and the end of June. This year, no observations were reported on the northern shore of the Lower Estuary.



Table 2: Dates of observation of capelin spawning or presence between 2012 and 2016 in Lower Estuary.

<b>Localisation</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>NORTH SHORE</b>					
Tadoussac	---	---	---	---	---
Les Escoumins	---	---	---	---	---
Portneuf-sur-Mer	May: 19, 21	May: 17	May: 14 <sup>‡</sup>	May: 9	---
Forestville	---	---	---	---	---
Colombier	---	---	---	---	---
Baie-Comeau	---	---	---	---	---
Godbout	---	---	---	---	---
<b>SOUTH SHORE</b>					
Saint-Simon (Saint-Simon-sur-Mer)	---	---	---	---	---
Saint-Fabien (Saint-Fabien-sur-Mer)	June: 7	May: 24 to 25, 30, 31 <sup>‡</sup> June: 1 <sup>‡</sup>	May: 20 <sup>‡</sup>	---	---
Rimouski (Bic)	---	---	---	---	June: 9, 26 <sup>‡</sup>
Rimouski (Cap-à-l'Orignal)	---	---	---	---	---
Rimouski (Rivière-Hâtée)	---	---	---	---	---
Rimouski (Rimouski)	---	---	---	---	April: 11 June: 7, 8, 9
Rimouski (Pointe-au-Père)	---	---	---	---	---
Sainte-Luce	June: 5 <sup>‡</sup>	---	---	---	June: 3, 13 <sup>‡</sup>
Sainte-Flavie	---	---	---	---	May: 23 <sup>‡</sup> , 24
Métis-sur-Mer	---	---	---	---	---
Baie-des-Sables	---	---	---	May: 31 <sup>‡</sup>	---
Saint-Ulric	---	---	---	May: 28 <sup>‡</sup>	---
Matane	---	---	---	May: 15, 16, 24	June: 11 <sup>‡</sup>
Grosse-Roche	---	---	---	June: 28	---
Les Méchins	---	---	---	---	---

*Names in parentheses denote sections of municipalities. ‡ Denotes date of observation of capelin presence without mention of spawning.*

The data collected by the network supports findings that capelin spawning occurs primarily during May and June, peaking in June (Figure 5). Spawning locations or presence of capelin in the zone were mapped for the years 2003 to 2016 (Figure 6).

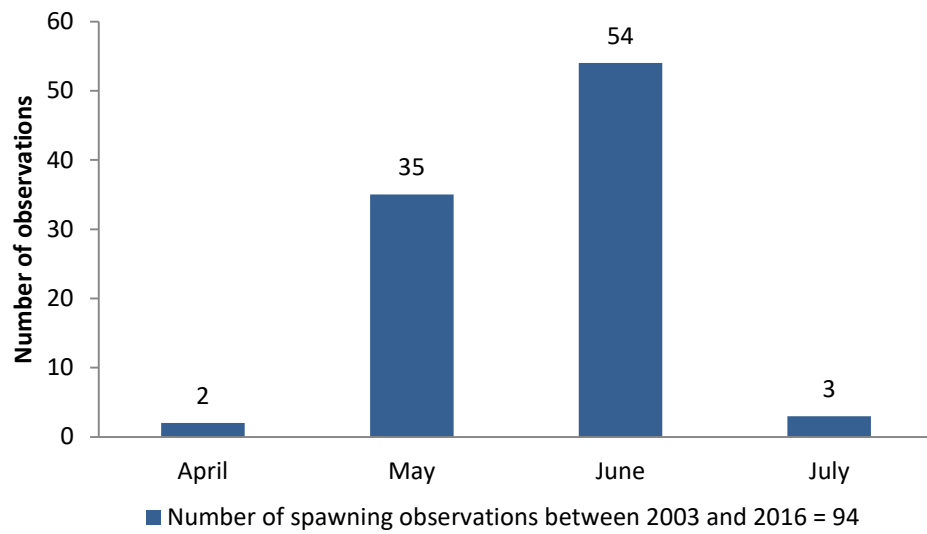


Figure 5 : Period of observation of capelin spawning in Lower Estuary between 2003 and 2016.

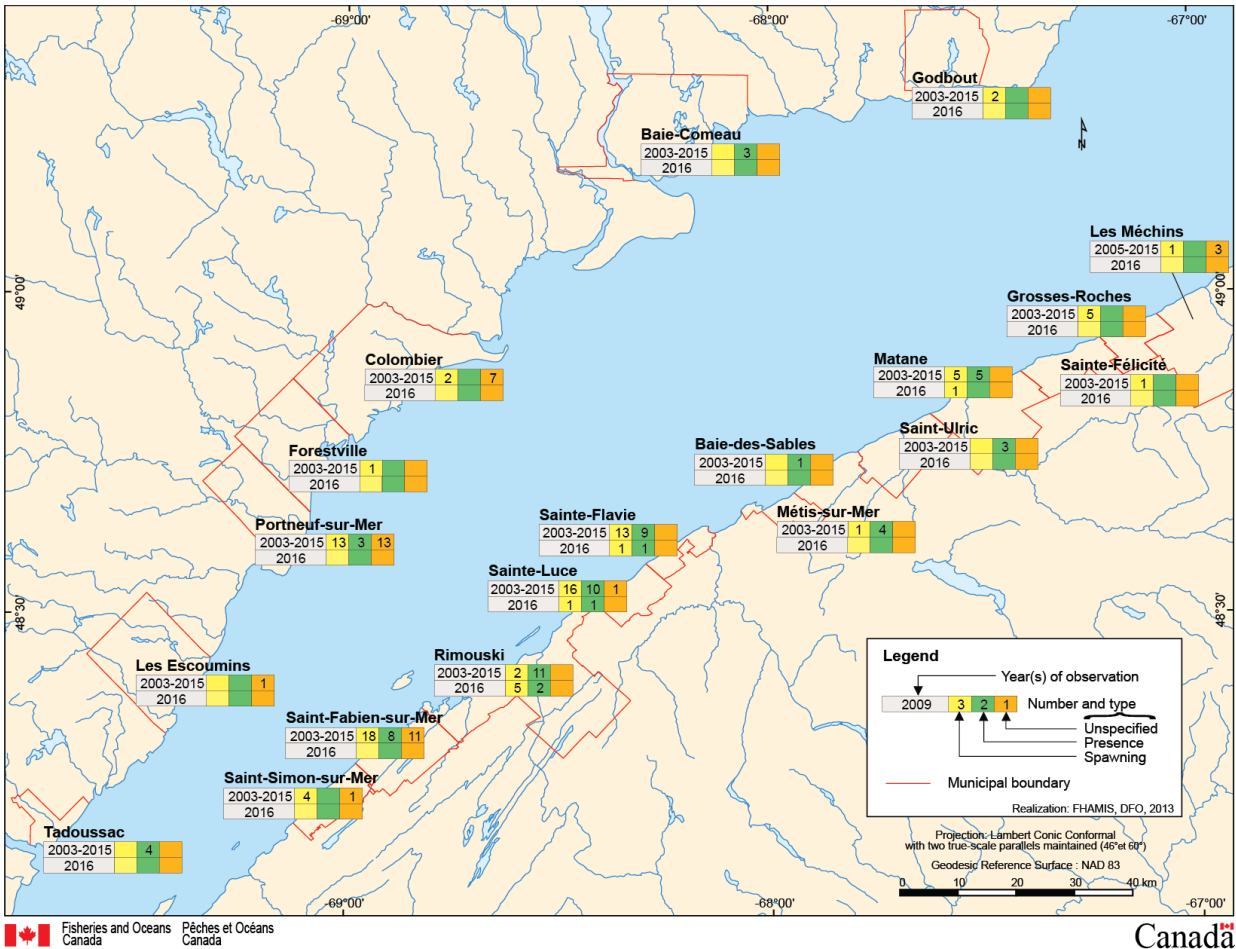


Figure 6: Locations of observations of capelin spawning and presence in Lower Estuary between 2003 and 2016.

### 3.3 MIDDLE NORTH SHORE – GULF

The Middle North Shore zone extends from Baie-Trinité (Pointe-des-Monts) eastward as far as Natashquan (Pointe-Parent) including Anticosti Island.

#### Observations

As during the previous two years, spawning in the zone in 2014 was also observed in May, totaling 6 spawning observations between the 14<sup>th</sup> and the 30<sup>th</sup> of the month (Table 3). In 2015 and 2016, observations were made in May and June. For the year 2015, a total of 16 observations was reported by 9 observers. In 2016, 5 observers recorded 6 spawning events and 2 capelin occurrences. These observations were reported in the Port-Cartier and Sept-Îles sectors and on the south shore of Anticosti.

Table 3: Dates of observation of capelin spawning or presence between 2012 and 2016 in Middle North Shore.

<b>Localisation</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Baie-Trinité (Îlets-Caribou)	---	---	---	---	---
Port-Cartier (Pointe-aux-Anglais)	May: 15 <sup>†</sup>	---	---	---	---
Port-Cartier (Rivière-Pentecôte)	---	---	May: 14	---	---
Port-Cartier (Grand-Ruisseau)	---	---	---	---	May: 24
Sept-Îles (Gallix)	May: 18 <sup>†</sup>	---	---	May: 11, 16, 17, 23 <sup>†</sup> , June: 30 <sup>†</sup>	May: 22 <sup>†</sup> , June: 10, 25 <sup>†</sup>
Sept-Îles (Sept-Îles)	May: 18 to 23, 26	May: 14, 19, 24, 27, 30	May: 15, 17 <sup>†</sup> , 24 <sup>†</sup> , 25 <sup>†</sup> , 28, 29 <sup>†</sup> , 30 <sup>†</sup>	Mai: 23, 26, 27, 29	---
Sept-Îles (Moisie)	---	---	---	---	---
Sept-Îles (Matamec)	---	---	May 21	May: 31	---
Uashat mak Mani-Utenam (Uashat)	May: 15 <sup>†</sup>	---	---	---	---
Rivière-au-Tonnerre (Sheldrake)	---	---	---	---	---
Rivière-au-Tonnerre (Rivière-au-Tonnerre)	---	---	---	---	---
Rivière-au-Tonnerre (Rivière-aux-Graines)	---	---	---	---	---
Rivière-Saint-Jean (Magpie)	---	---	---	---	---
Rivière-Saint-Jean (Rivière-Saint-Jean)	---	---	---	---	---
Longue-Pointe-de-Mingan (Longue-Pointe-de-Mingan)	---	---	---	Mai: 26, 29 <sup>†</sup> , Juin: 3, Mai: 5 <sup>†</sup>	---
Longue-Pointe-de-Mingan (Mingan)	May: 20	---	---	---	---
Havre-Saint-Pierre	---	---	---	Mai: 05 <sup>†</sup> , Juin: 12	---

<b>Localisation</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Aguanish	---	---	---		---
Natashquan	---	---	---		---
Île d'Anticosti	June: 7 and 28 July: 04 <sup>‡</sup>	---	---		June: 13, 14

*Names in parentheses denote sections of municipalities. ‡ Denotes date of observation of capelin presence without mention of spawning.*

Since 2002, capelin spawning in the Middle North Shore has been mainly observed in May and June, though some years until mid-July (Figure 7). Spawning observations or presence of capelin for the area were mapped for the years 2002 to 2016 (Figure 8).

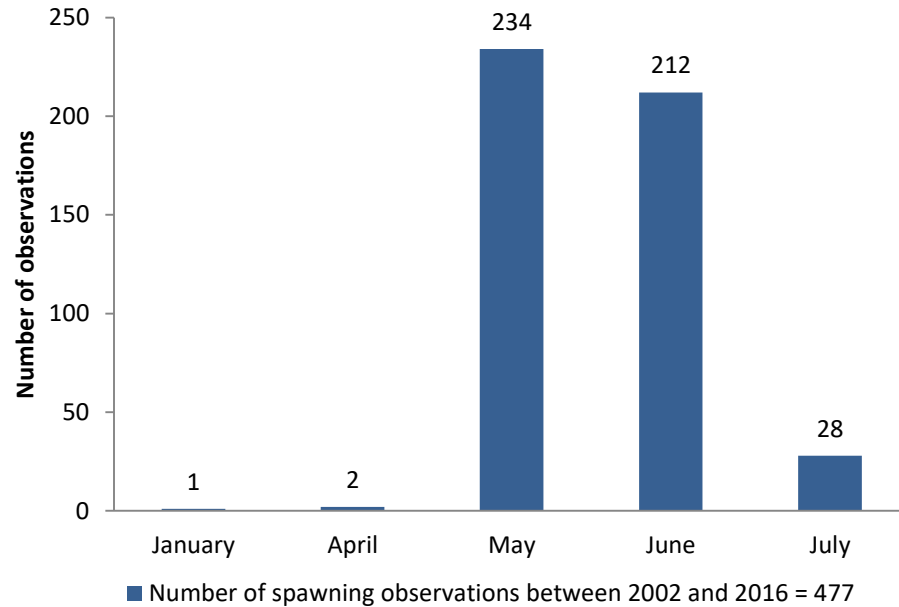


Figure 7: Period of observation of capelin spawning in Middle North Shore between 2002 and 2016.



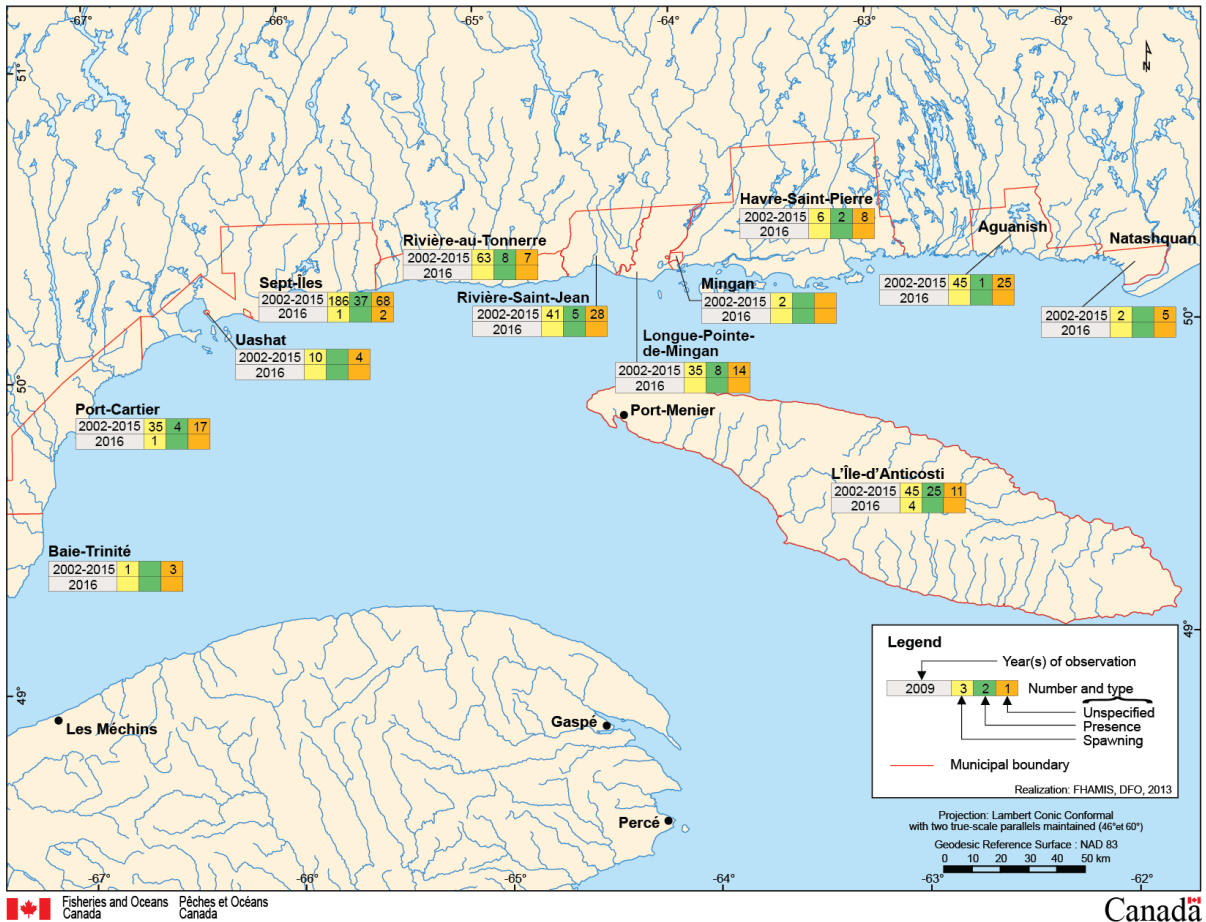


Figure 8: Locations of observation of capelin spawning and presence in Middle North Shore between 2002 and 2016.

### 3.4 LOWER NORTH SHORE – GULF

The Lower North Shore zone extends from Natashquan (Pointe du Vieux Poste area east of the Natashquan River) to the Labrador border.

#### Observations

No observations of the presence of capelin or capelin spawning were reported regarding this zone since 2013. (Table 4).

Table 4: Dates of observation of capelin spawning or presence between 2012 and 2016 in Lower North Shore.

Localisation	2012	2013	2014	2015	2016
St. Lawrence North Shore (Kégaska)	---	---	---	---	---

<b>Localisation</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
St. Lawrence North Shore (Chevery)	---	---	---	---	---
Bonne-Espérance (Vieux-Fort)	---	---	---	---	---
Blanc-Sablon (Lourdes-de-Blanc-Sablon)	---	---	---	---	---
Blanc-Sablon (Blanc-Sablon)	June: 30	---	---	---	---

*Names in parentheses denote sections of municipalities. † Denotes date of observation of capelin presence without mention of spawning.*

Since 2002, capelin spawning in the Lower North Shore was observed mainly in June and in early July (Figure 9). Spawning observations or the presence of capelin in the zone were mapped for the years 2002 to 2016 (Figure 10).

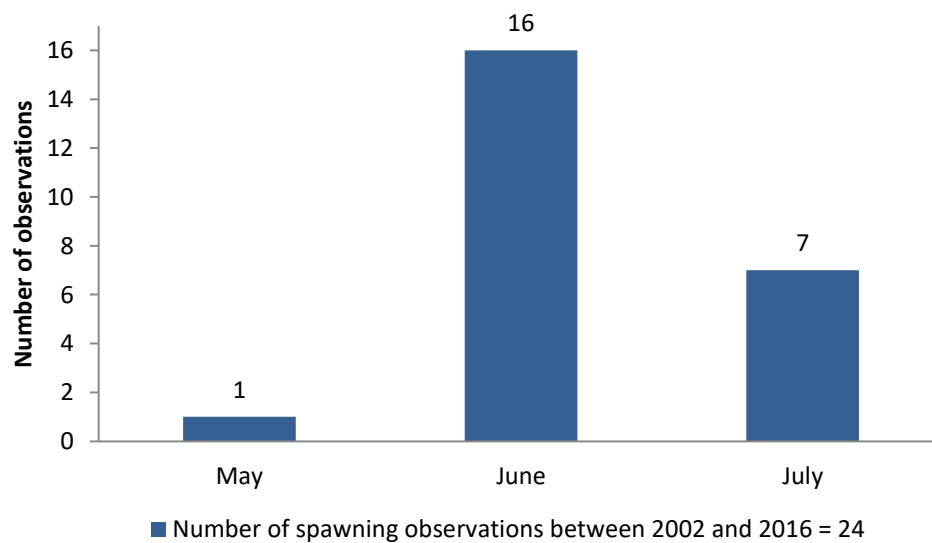


Figure 9: Period of observation of capelin spawning in Lower North Shore between 2002 and 2016.

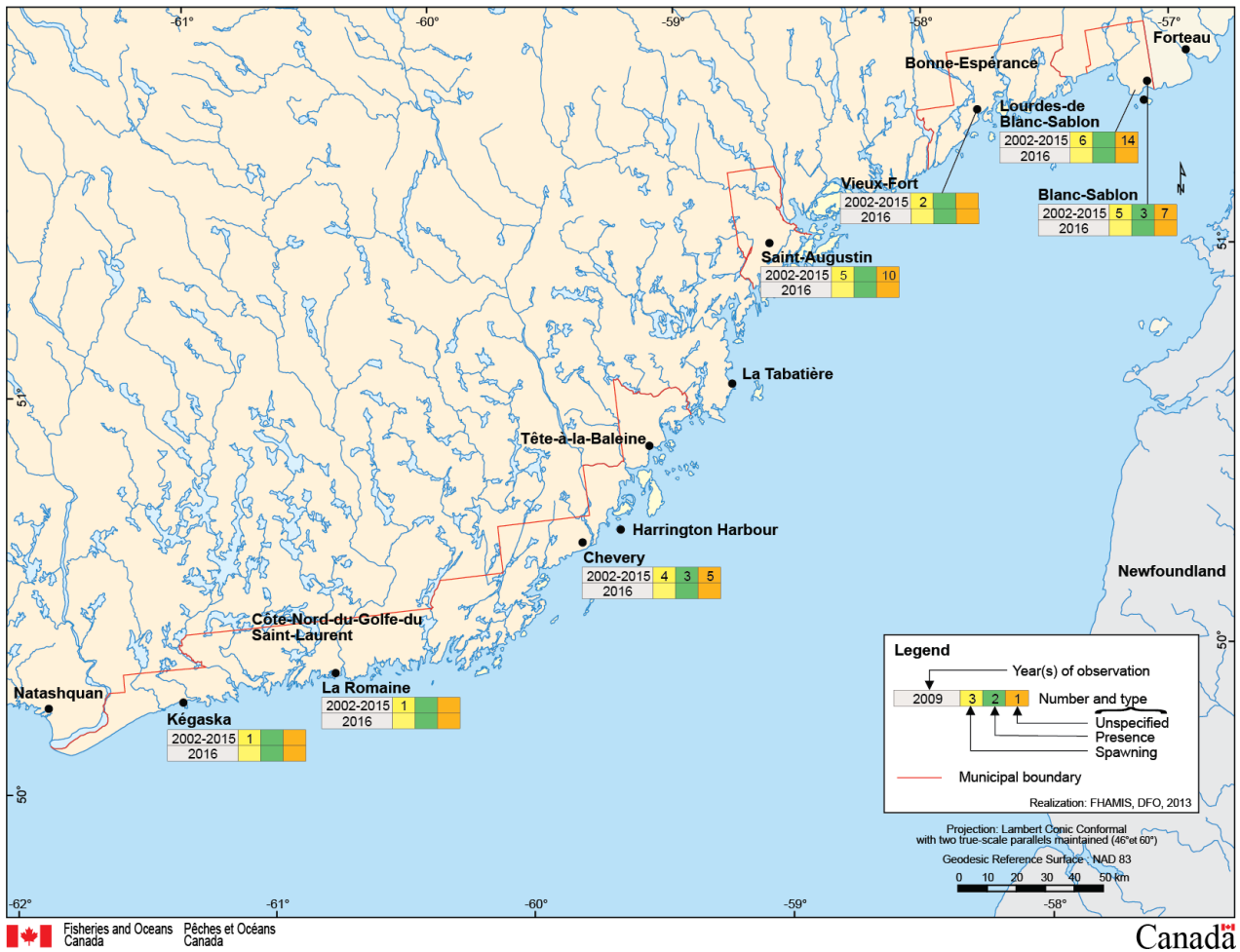


Figure 10: Period of observation of capelin spawning in Lower North Shore between 2002 and 2016.

### 3.5 NORTHERN GASPÉ PENINSULA – GULF

This zone covers the north shore and the tip of the Gaspé Peninsula from Cap-Chat (Capucins sector) to Gaspé.

#### Observations

Between 2013 and 2015, no observations were reported regarding this zone (Table 5). This year, an observation of capelin presence was reported at Sainte-Anne-des-Monts.

Table 5: Dates of observation of capelin spawning or presence between 2012 and 2016 in Northern Gaspé Peninsula.

<b>Localisation</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Cap-Chat (Capucins)	---	---	---	---	---
Cap-Chat (Cap-Chat)	---	---	---	---	---
La Martre	June: 17 <sup>‡</sup>	---	---	---	---
Sainte-Anne-des-Monts	---	---	---	---	June: 6 <sup>‡</sup>
Marsoui	June: 4 <sup>‡</sup> , 12 <sup>‡</sup> , 15 <sup>‡</sup> , 16, 17, 18 <sup>‡</sup> , 19 <sup>‡</sup>	---	---	---	---
Rivière-à-Claude	---	---	---	---	---
Mont-Saint-Pierre	---	---	---	---	---
Saint-Maxime-du-Mont-Louis (Mont-Louis)	---	---	---	---	---
Saint-Maxime-du-Mont-Louis (L'Anse-Pleureuse)	---	---	---	---	---
Sainte-Madeleine-de-la-Rivière- Madeleine (Manche-d'Épée)	---	---	---	---	---
Sainte-Madeleine-de-la-Rivière- Madeleine (Rivière-Madeleine)	June: 14	---	---	---	---
Grande-Vallée	---	---	---	---	---
Gaspé (Anse-à-Valleau)	---	---	---	---	---
Gaspé (Saint-Maurice-de- l'Échourie)	---	---	---	---	---
Gaspé (Petit-Cap)	---	---	---	---	---
Gaspé (Rivière-au-Renard)	---	---	---	---	---
Gaspé (Cap-des-Rosiers)	---	---	---	---	---
Gaspé (Anse-aux-Amérindiens)	---	---	---	---	---
Gaspé (Cap-Bon-Ami)	---	---	---	---	---
Gaspé (Cap-aux-Os)	July: 29	---	---	---	---
Gaspé (Gaspé)	---	---	---	---	---

*Names in parentheses denote sections of municipalities. ‡ Denotes date of observation of capelin presence without mention of spawning.*

The data from the Capelin Observers Network indicate that capelin spawning in the Northern Gaspé Peninsula begins in late May though it was mainly observed in June (Figure 11). Spawning observations or presence of capelin in this zone were mapped covering the sectors of Chaleur Bay and Magdalen Islands for the years 2003 to 2016 (Figure 13).

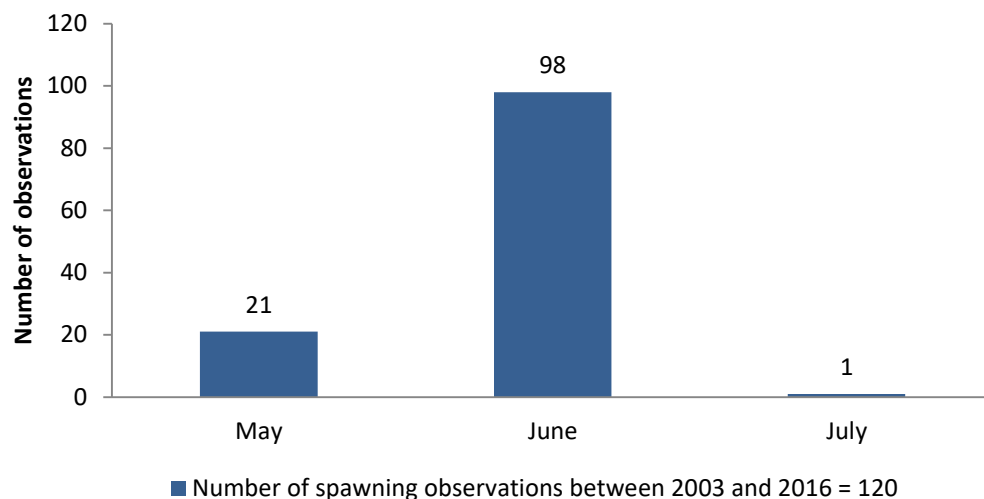


Figure 11: Period of observation of capelin spawning in Gaspé Peninsula between 2003 and 2016.

### 3.6 CHALEUR BAY – GULF

The Chaleur Bay zone covers the southern Gaspé Peninsula from the mouth of the Restigouche River to Percé (Barachois sector).

#### Observations

In 2013, two observers reported 3 cases, including 1 case of spawning in this zone (Table 6). These observations were reported between May 15 and 29. No data were reported regarding this zone in 2014 and 2015. In 2016 in this area, 1 observer reported a spawning sighting at Chandler and recorded 3 capelin absences.

Table 6: Dates of observation of capelin spawning or presence between 2012 and 2016 in Chaleur Bay.

<b>Localisation</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Maria	---	---	---	---	---
Bonaventure	---	---	---	---	---
New Carlisle	May: 28 <sup>‡</sup>	---	---	---	---
Paspébiac	May: 25	---	---	---	---
Port-Daniel-Gascon (Port-Daniel)	---	---	---	---	---
Chandler (Newport)	---	---	---	---	June: 11
Chandler (Chandler)	---	May: 15 <sup>‡</sup>	---	---	---
Chandler (Pabos)	---	---	---	---	---
Grande-Rivière	June: 3 <sup>‡</sup> ,	May: 16 <sup>‡</sup> ,	---	---	---



<b>Localisation</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
	6 <sup>‡</sup> , 8, 16 <sup>‡</sup>	29			
Sainte-Thérèse-de-Gaspé	---	---	---	---	---
Percé (Percé)	June: 2, 3 and 19 <sup>‡</sup>	---	---	---	---
Percé (Anse-à-Beaufils)	---	---	---	---	---
Percé (Barachois)	---	---	---	---	---

*Names in parentheses denote sections of municipalities. ‡ Denotes date of observation of capelin presence without mention of spawning.*

Since 2003 in the Chaleur Bay region, capelin spawning was observed mainly in May, and to a lesser extent, in June (Figure 12). Spawning observations or presence of capelin for this zone were mapped covering the Gaspé Peninsula sectors and the Magdalen Islands for the years 2003 to 2016 (Figure 13).

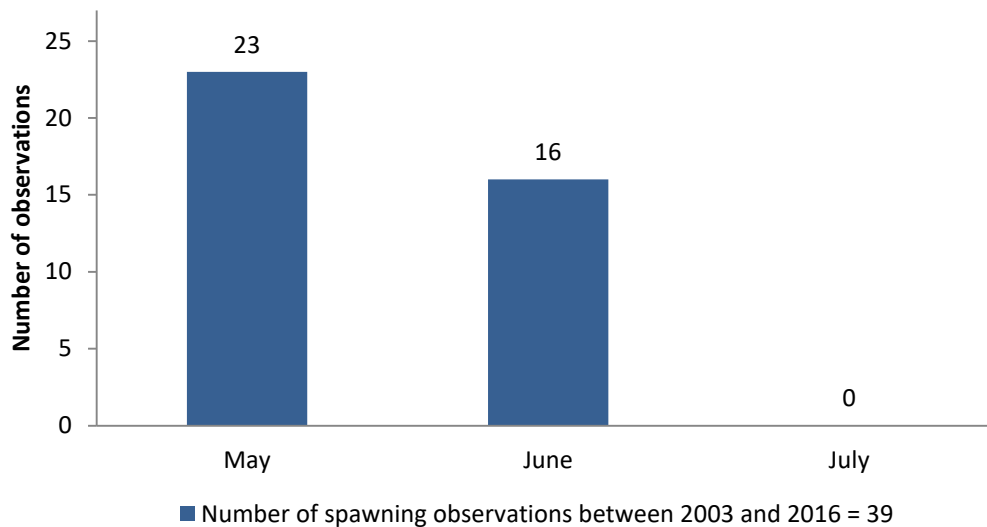


Figure 12: Period of observation of capelin spawning in Chaleur Bay between 2003 and 2016.

### **3.7 MAGDALEN ISLANDS**

The Magdalen Islands zone encompasses all islands in that archipelago.

#### **Observations**

The first observation of capelin presence, since the network’s establishment, was reported by lobster and flounder fishermen in June 2008, at Cap de l’Hôpital, in Fatima (Table 7). Since 2012, no sighting was reported. However, local fishermen have reported sightings of

abundant capelins along the coast as well as floating dead on the northwestern side of the archipelago. Spawning observations or presence of capelin for this zone were mapped covering the Gaspé Peninsula sectors and the Chaleur Bay for the years 2003 to 2016 (Figure 13).

Table 7: Dates of observation of capelin spawning or presence between 2012 and 2016 in Magdalen Islands.

Localisation	2012	2013	2014	2015	2016
Fatima	---	---	---	---	---
Étang-du-Nord	---	---	---	---	---
Pointe-aux-Loups	---	---	---	---	---

‡ Denotes date of observation of capelin presence without mention of spawning.

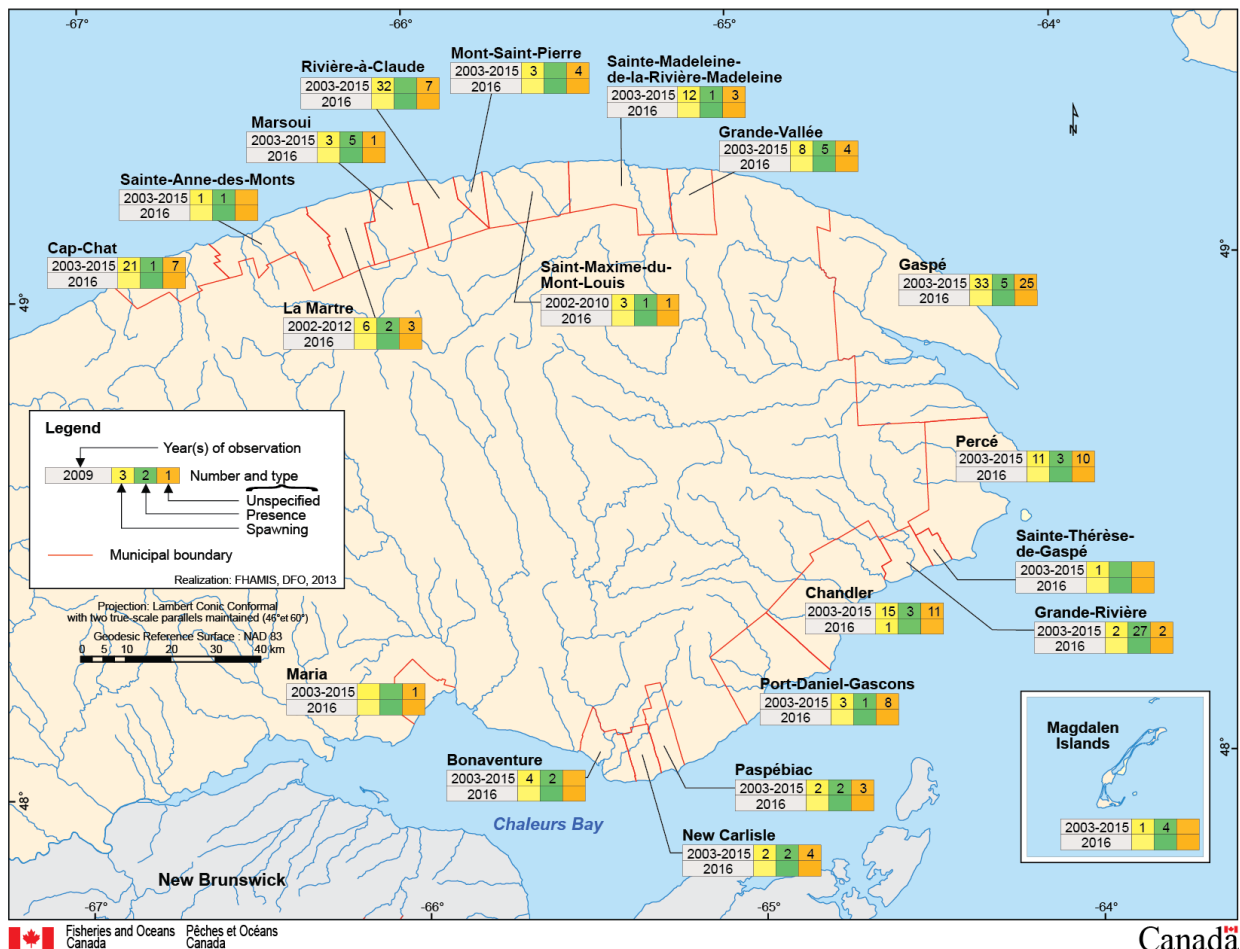


Figure 13: Location of observations of capelin spawning and Presence in Gaspé Peninsula, Chaleur Bay and Magdalen Islands between 2003 and 2016.

### 3.8 NEWFOUNDLAND AND LABRADOR

The Newfoundland and Labrador zone includes all municipalities throughout that province.

#### Observations

In 2016 as well as in 2012 and 2013, no sighting was reported (Table 8) unlike in 2014 where several observations were reported in the zone including, for the first time, at Drook Cove and Trepassey. In 2015, one new spawning site was mentioned at Raleigh. Spawning observations or the presence of capelin in the zone were mapped for the years 2002 to 2016 (Figure 15).

Table 8: Dates of observation of capelin spawning or presence between 2012 and 2016 in Newfoundland and Labrador.

<b>Localisation</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Forteau Labrador	---	---	---	---	---
Sandy Cove Bay	---	---	---	---	---
Port au Choix	---	---	---	---	---
Raleigh *	---	---	---	July: 28	---
Port Saunders	---	---	---	---	---
River of Pounds	---	---	---	---	---
Belburns	---	---	---	---	---
Trout River	---	---	---	---	---
Meadows	---	---	---	---	---
John's Beach	---	---	---	---	---
Ship Cove	---	---	---	---	---
Portugal Cove South	---	---	June: 24 <sup>‡</sup> July: 14 <sup>‡</sup> , 19 <sup>‡</sup> , 21 <sup>‡</sup>	---	---
Drook Cove	---	---	July: 7 <sup>‡</sup>	---	---
Middle Cove	---	---	---	---	---
Torbay	---	---	---	---	---
Trepassey	---	---	June: 25 <sup>‡</sup> July: 21 <sup>‡</sup>	---	---

*Names in parentheses denote sections of municipalities. ‡ Denotes date of observation of capelin presence without mention of spawning. \* 1st spawning report in this zone.*

Since the beginning of observations in Newfoundland and Labrador, capelin spawning seems to have occurred mainly in June, and to a lesser extent, in July (Figure 14).

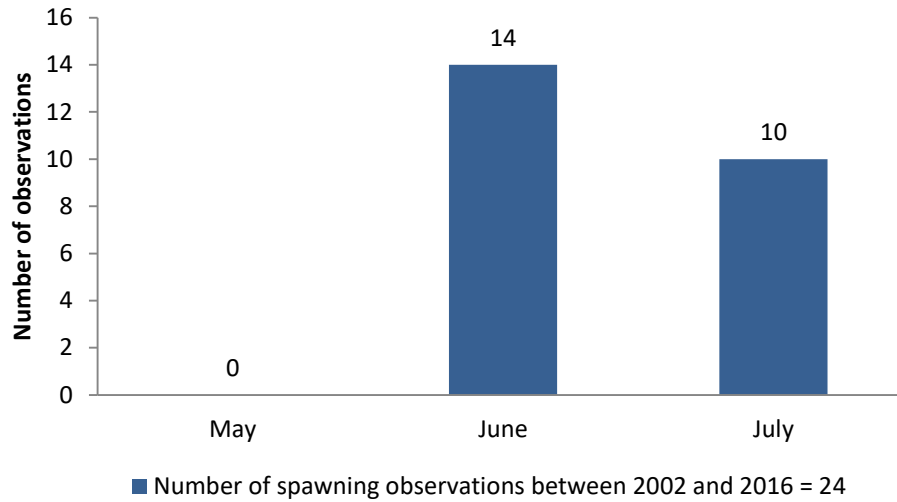


Figure 14: Period of observation of capelin spawning in Newfoundland and Labrador between 2002 and 2016.

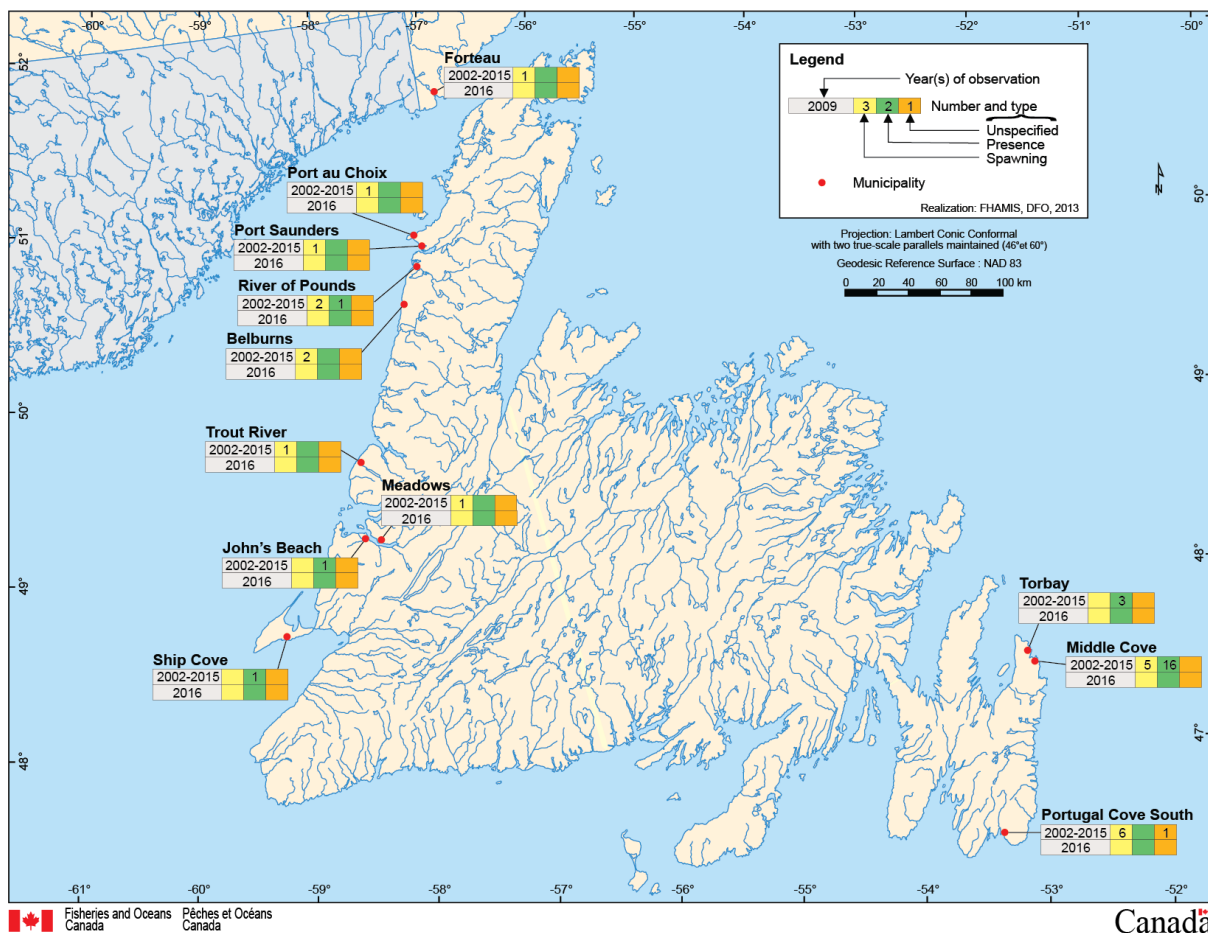


Figure 15: Location of observation of capelin spawning or presence in Newfoundland and Labrador between 2002 and 2016.

### 3.9 PRINCE EDWARD ISLAND

The Prince Edward Island CON zone includes all the municipalities of the island.

#### Observations

Since the establishment of the network, the first observation of the presence of capelin in Prince Edward Island was reported in 2015, although observed in May 2014 in Park Corner. In 2016, there was no new observation recorded. Spawning observations or the presence of capelin in the zone were mapped for the years 2002 to 2016 (Figure 16).

Table 9: Dates of observation of capelin spawning or presence between 2012 and 2016 Prince Edward Island.

Localisation	2012	2013	2014	2015	2016
Park Corner *	---	---	May 6 <sup>‡</sup>	---	---

<sup>‡</sup> Denotes date of observation of capelin presence without mention of spawning. \* 1st spawning report in this zone.

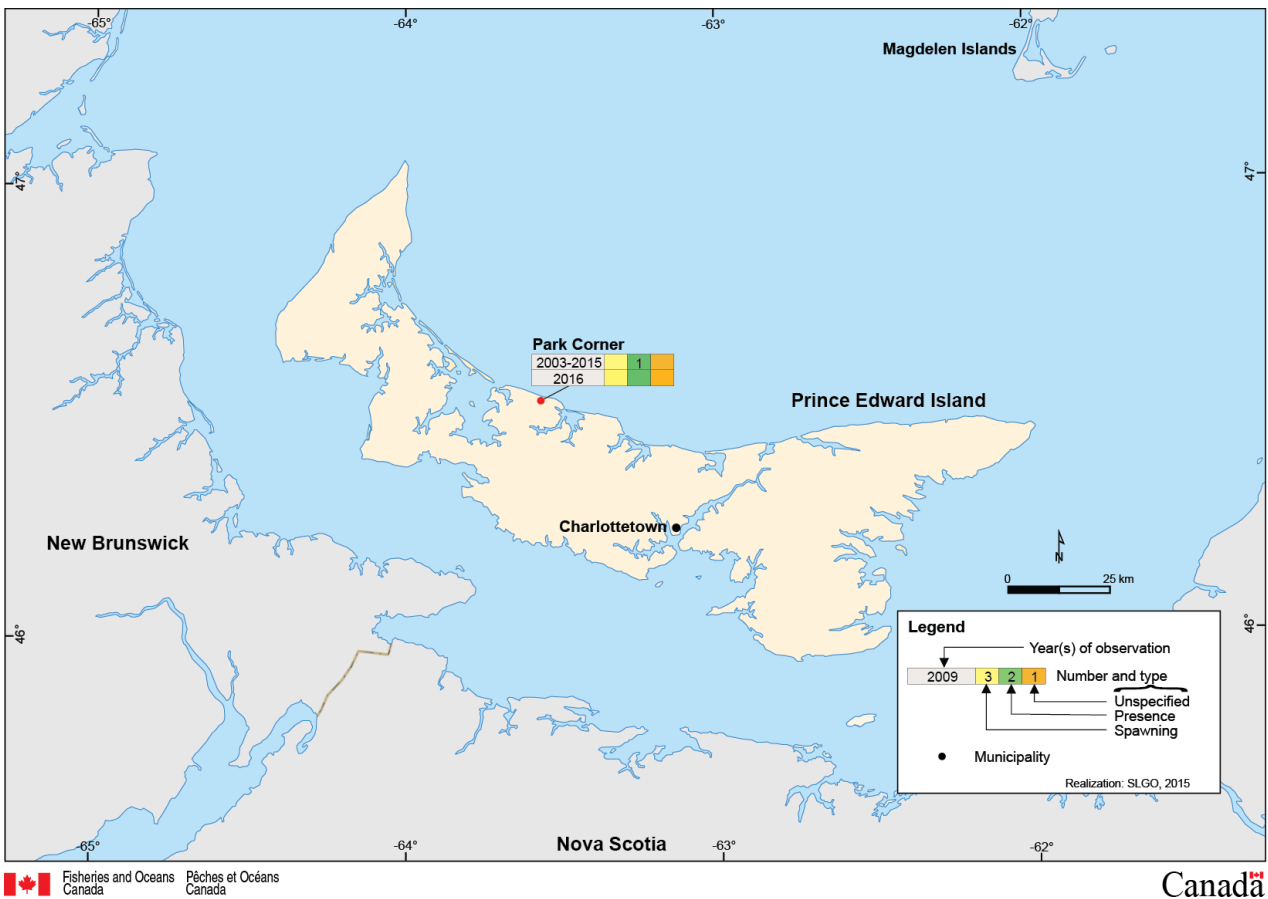


Figure 16: Location of observation of capelin spawning or presence between 2003 and 2016 in Prince Edward Island

### 3.10 SAGUENAY

The CON zone of Saguenay extends from Alma to upstream of Tadoussac.

#### Observations

Since the establishment of the network, the first observation of the presence of capelin in Saguenay was reported in July 2016 in Sainte-Rose-du-Nord (Table 10). The observations of spawning locations or presence of capelin in the zone were mapped for the years 2003 to 2016 (Figure 17).

Table 10: Dates of observation of capelin spawning or presence between 2012 and 2016 in Saguenay.

Localisation	2012	2013	2014	2015	2016
Sainte-Rose-du-Nord *	---	---	---	---	July : 19 <sup>‡</sup>

‡ Denotes date of observation of capelin presence without mention of spawning. \* 1st spawning report in this zone.

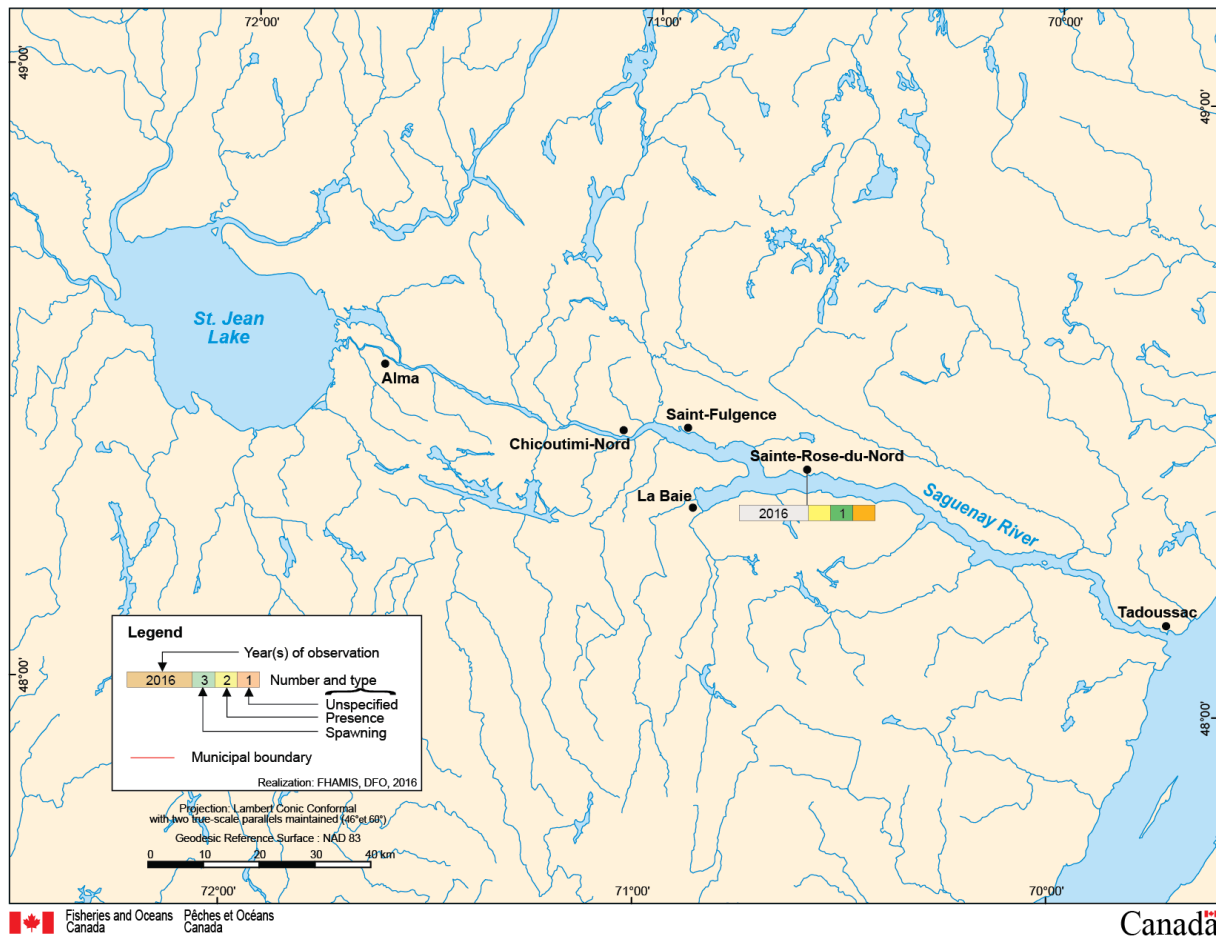


Figure 17: Location of observation of capelin spawning or presence between 2003 and 2016 in Saguenay

#### **4.0 Number of observers and record of observations of abundance**

Since 2012, there has been a steady decline in the number of observations. Indeed, the number of observations has decreased from 93 in 2012 to only 26 in 2016. Furthermore, the number of observers has fluctuated between 19 and 8 to finally reach 21 this year. The method used for data collection, i.e. crowdsourcing on a voluntary basis, does not make it possible to differentiate whether this decrease in the number of observations is due to a lower abundance of capelin or to fewer active observers.

When an observation is recorded, the observer is asked to estimate the abundance (high, medium or low) of capelin, but this information is not reported systematically. Indeed, in 2013, for more than half of the observations, abundance of capelin had not been assessed. Similarly, from 2014 to 2016, abundance of capelin was unknown for about one quarter of the records. Overall, since 2006, for more than half of the observations with abundance, observers estimated abundance to be high (Table 11). This trend was less pronounced in 2010 and 2015.

Table 11: Average yearly capelin abundance (spawning or presence) in percentage of observations.

<b>Year</b>	<b>Abundance (% of observations)</b>		
	<b>High</b>	<b>Mean</b>	<b>Low</b>
2006	63	12	25
2007	66	17	17
2008	58	21	21
2009	46	29	25
2010	44	30	26
2011	52	30	18
2012	50	25	25
2013	72	14	14
2014	50	39	11
2015	40	30	30
2016	53	31	16

Several factors can influence the amount of capelin spawning on beaches. For example, a previous warmer winter, variations of ice cover or changes in freshwater runoffs may all be taken into account to explain variations in spawning.



## **5.0 Conclusion**

Since 2011, the number of capelin sightings has considerably declined, going from 184 entries to 93 in 2012, to 66 in 2013, to 24 in 2014 with a slightly increase in 2015 and 2016. The question is now whether there is a genuine cause for concern regarding the species or rather if attracting potential observers along the coast is a growing necessity? In that regard, it may also be important to remind coastal populations that observation data can only be considered if it holds the minimum mandatory information, including: date, location (network zone and municipality), the type of observation as well as capelin density. Other data, such as: time, types of substrate, shoreline length, tide, temperature, waves, etc., although of great interest for maximizing information regarding capelin spawning habits, it is important to understand that these data should not be limited solely to the disclosure of capelin presence on our shores. In order to encourage the promotion of the ROC WEB site to give information about capelin observations, it may be appropriate to put forth the most favorable periods and zones historically relevant to coastal populations through increased promotion by the project partners. Social media could also be used to seek information shared by an otherwise inaccessible observer group.

Once again, we wish to convey our gratitude to the all observers, whose observations and data gatherings helped muster the information relative to capelin spawning for 2016, including the addition of one new CON zone in Saguenay.

## Appendix 1. User Guide for WEB entries

### User Guide

### Capelin Observers Network (CON)'s Data Capture Tool

---

#### SING-IN

On the login page (figure 1), click **Register as new user** to create your user account.

Fill in the required fields (those marked with an asterisk (\*) are required), then click on **Create your account**. An email is automatically sent, which invites you to click **Activate my account** to complete your registering process. No need to enter your information's again, you will be redirected to the home page (figure 2).

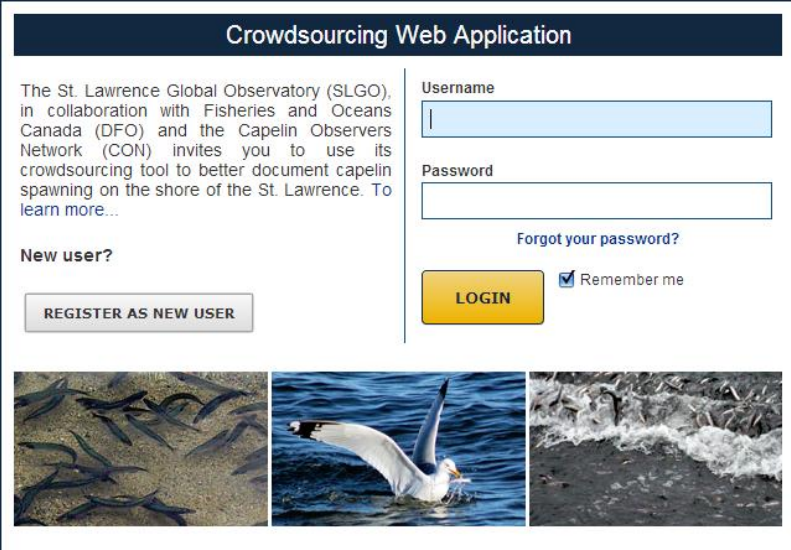


Figure 1

#### LOGIN

To login to your account once you are registered, enter your username and password to access the data capture tool (figure 1).

Once you are done with the capture tool, logging out is recommended. To do so, click **Logout** at the top-right corner of the home page (figure 2).

#### DATA CAPTURE

##### For all users

After logging in, CON's home page (figure 2) displays. You can look for observations searching by user (All users or just your own observations), by observation type and by year. The total number of observations from all users is displayed by default above the map on the right.

To enter a new capelin observation, click **Add a new observation**, top-left of the page (figure 2). Capture page then displays (figure 3).

Then you have to simply fill in the fields. Note that for **«1. Required Fields»** tab, latitude and longitude values must be entered with a **«.»**, not with a **«,»**. You can also localize your position by double-clicking on the map; then you will have to zoom in until you can add your marker. While on the field, you can also use the **Use my current GPS position** link, which localizes automatically your position. Don't forget to check the position entered and to rectify it on the map if needed. Data capture for tabs 2 to 4 is not mandatory. However, it is important to check the **Publish on SLGO** box in the tab **«4. Other»** if you wish your observations to be viewed by all users. Finally, make sure you click the **Create** button on the bottom-left corner of the page to save your data.

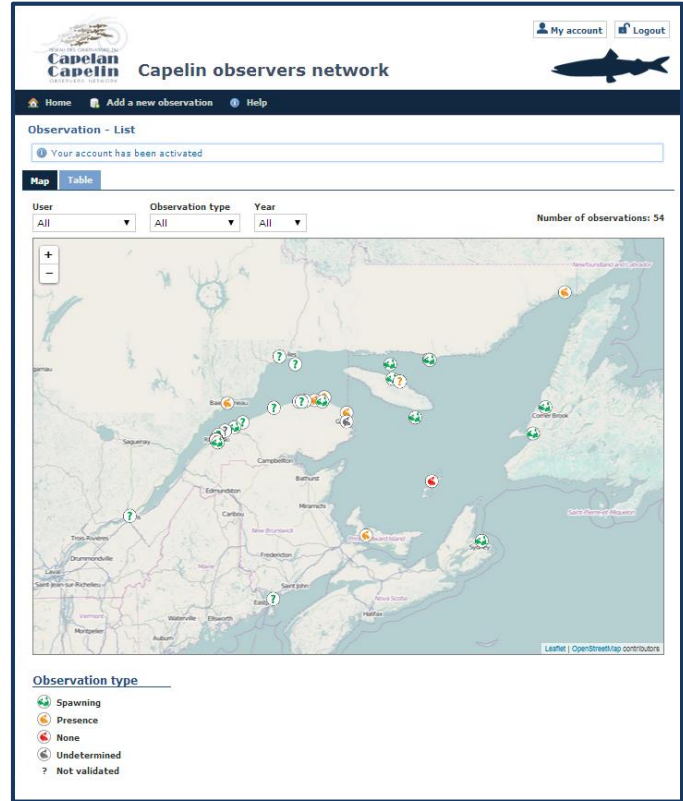


Figure 2

Once the observation is created, the capture tool allows adding pictures from a browser. Click **Select a file** (figure 4) and add your comments, then click **Create** to save your picture. If you don't have any picture for this observation, simply click **Back to observation**.

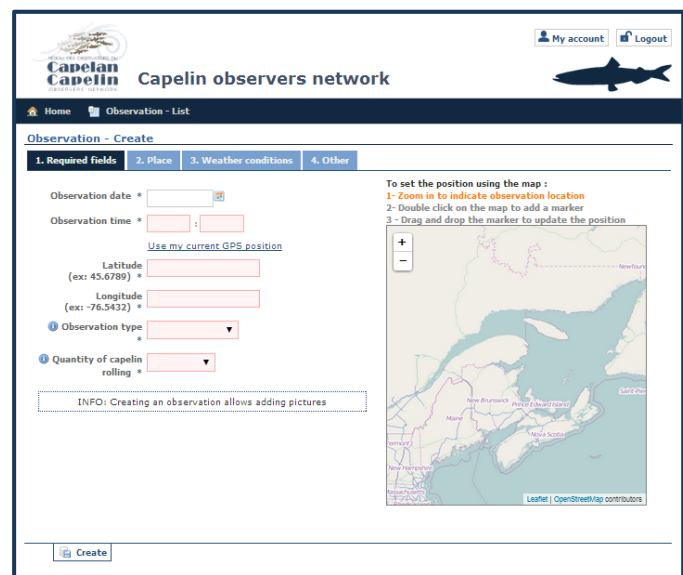


Figure 3

Once your picture is entered, you can edit or delete it, using the buttons on the bottom-left corner of the page (figure 5). You can also add another picture by clicking [Add a new picture](#). The [Picture – List](#) button allows viewing all of the pictures related to the observation. The [Back to observation](#) button brings you to the observation’s summary page (figure 6).



Figure 4

Once your picture is entered, you can edit or delete it, using the buttons on the bottom-left corner of the page (figure 5). You can also add another picture by clicking [Add a new picture](#). The [Picture – List](#) button allows viewing all of the pictures related to the observation. The [Back to observation](#) button brings you to the observation’s summary page (figure 6).



Figure 5

On this page, you can see the list of your observations (by clicking [Observation – List](#)) or you can add new observations, by clicking [Add a new observation](#). To add a picture at this stage, click the [Pictures](#) blue link, then select [Add a new picture](#) on the page displays. At all times, you can view your observations by clicking [Home](#).

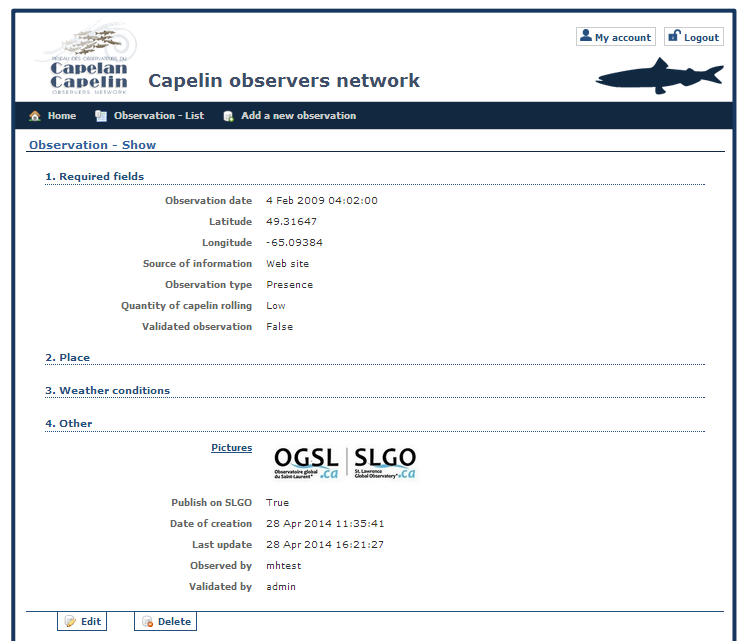


Figure 6

You may have noticed that the home page displays your observations with question marks of the same colour as the observation type (figure 7). The question marks mean that the observations remain non-validated by the capture tool's administrators, namely the CON's professionals. You will receive an email to confirm validation or to explain the reasons why the observation has not been validated, if there is any doubt from the administrator.

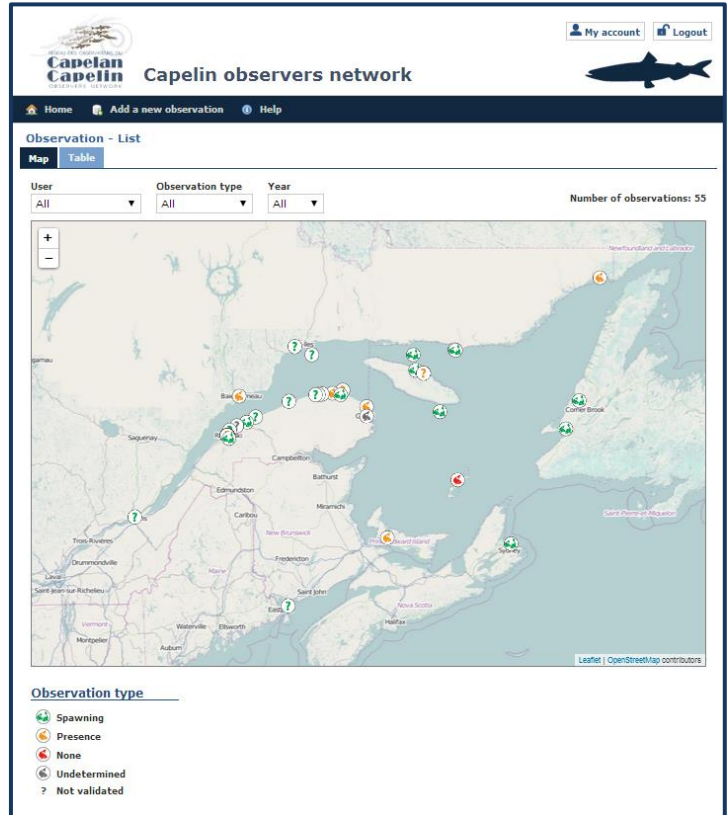


Figure 7

## ***Appendix 2. Network and partner contact information***

To submit your observations during the season go to the following address:



**Web Site:** <https://slgo.ca/en/biodiversity/fish/dfo-capelin/observation.html>

**Email:** [info@ogsl.ca](mailto:info@ogsl.ca)

**Telephone:** 1-877-227-6853

**Address:** St. Lawrence Global Observatory (SLGO)  
Capelin Observers Network (CON)  
310, allée des Ursulines  
Rimouski (QC) Canada  
G5L 3A1