

To submit your observations during the season, or if you have any questions, you can contact:



Capelin Observers Network (CON)
Telephone: 1-877-227-6853
E-mail: ROC-CON@dfo-mpo.gc.ca

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.

Chaleur Bay ZIP Committee
 From Matapédia to Forillon



Southern Estuary ZIP Committee
 From Berthier-sur-Mer to Les Méchins



Estuary North Shore ZIP Committee
 From Tadoussac to Baie-Trinité



Gulf North Shore ZIP Committee
 From Baie-Trinité to Blanc-Sablon



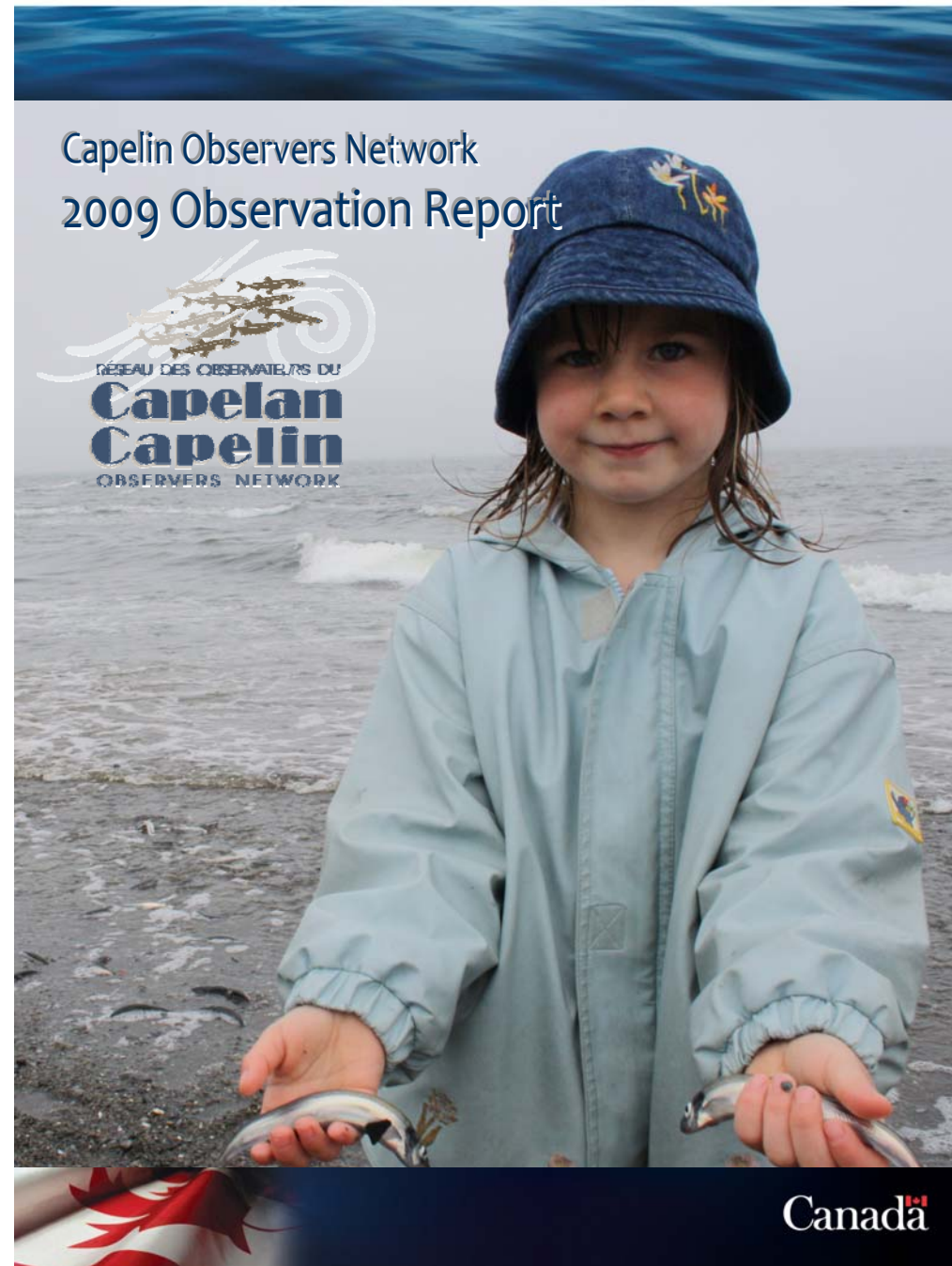
Réseau d'observation de mammifères marins (ROMM)



Conseil régional de l'environnement Gaspésie-Îles-de-la-Madeleine (CREGIM)



Le Réseau des observateurs sous-marins (ROSM)



Gulf / Magdalen Islands

Cover Photo: Claude Tremblay

Production Team:

Written by: Danièle Raby

Tables: Pierre Nellis

Maps: Gilles Fortin, FHAMIS

Published by:

Regional Oceans, Habitat and
Species at Risk Branch

Fisheries and Oceans Canada

Mont-Joli, Quebec, G5H 3Z4

www.dfo-mpo.gc.ca

©Her Majesty the Queen in Right of Canada, 2010

Cat. No. Fs121-7/2009E

ISBN 978-1-100-15459-6

The Magdalen Islands area encompasses all the islands in the archipelago.

Since the establishment of the Network, only one spawning observation has been reported in this area, in June 2008 at Cap de l'hôpital in Fatima, by lobster and flounder fishers. No observations were reported in 2009.



Photo: Claude Tremblay

Table 9: Dates of observations of capelin spawning or presence between 2003 and 2009 in Chaleur Bay

Location	2002 to 2007	2008	2009
Maria	May 2005	---	---
<i>Bonaventure</i>	---	---	May 10‡
New Carlisle	May 2005, 2006, 2007	---	May 23 and 24
Paspébiac	May 2003, 2004, 2005	---	May 15, 27‡, 30
Port-Daniel-Gascon (Port-Daniel)	May, June 2003	---	May 21‡, 25 June 4 and 5
Chandler (Newport)	May 2005, 2006, 2007; June 2006	May 16, 20 June 9	May 26 to 28 June 1 and 2
Chandler (Chandler)	June 2006, In 2007	June	---
Chandler (Pabos)	May 2006	June 18	---
Grande-Rivière	2006	---	May 25‡, 27‡ June 2‡, 7‡, 20‡ to 30‡; July 1‡ to 3‡

Names in parentheses represent sectors of municipalities.

Names in italics designate new observation sites.

‡ Date of observation of the presence of capelin, with no report of spawning.

Since 2003, in Chaleur Bay, capelin spawning has been observed mainly in May, and to a lesser extent in June. An increase in the number of observers would be desirable for this area in order to gain a better picture of spawning activities.

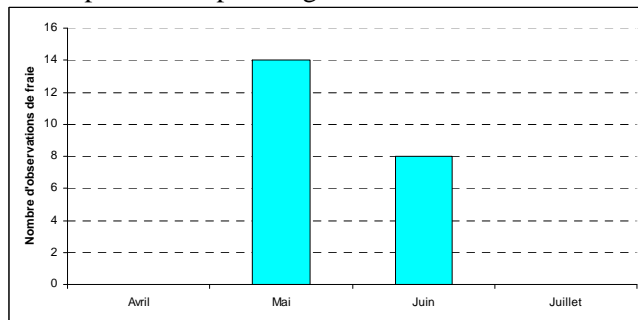
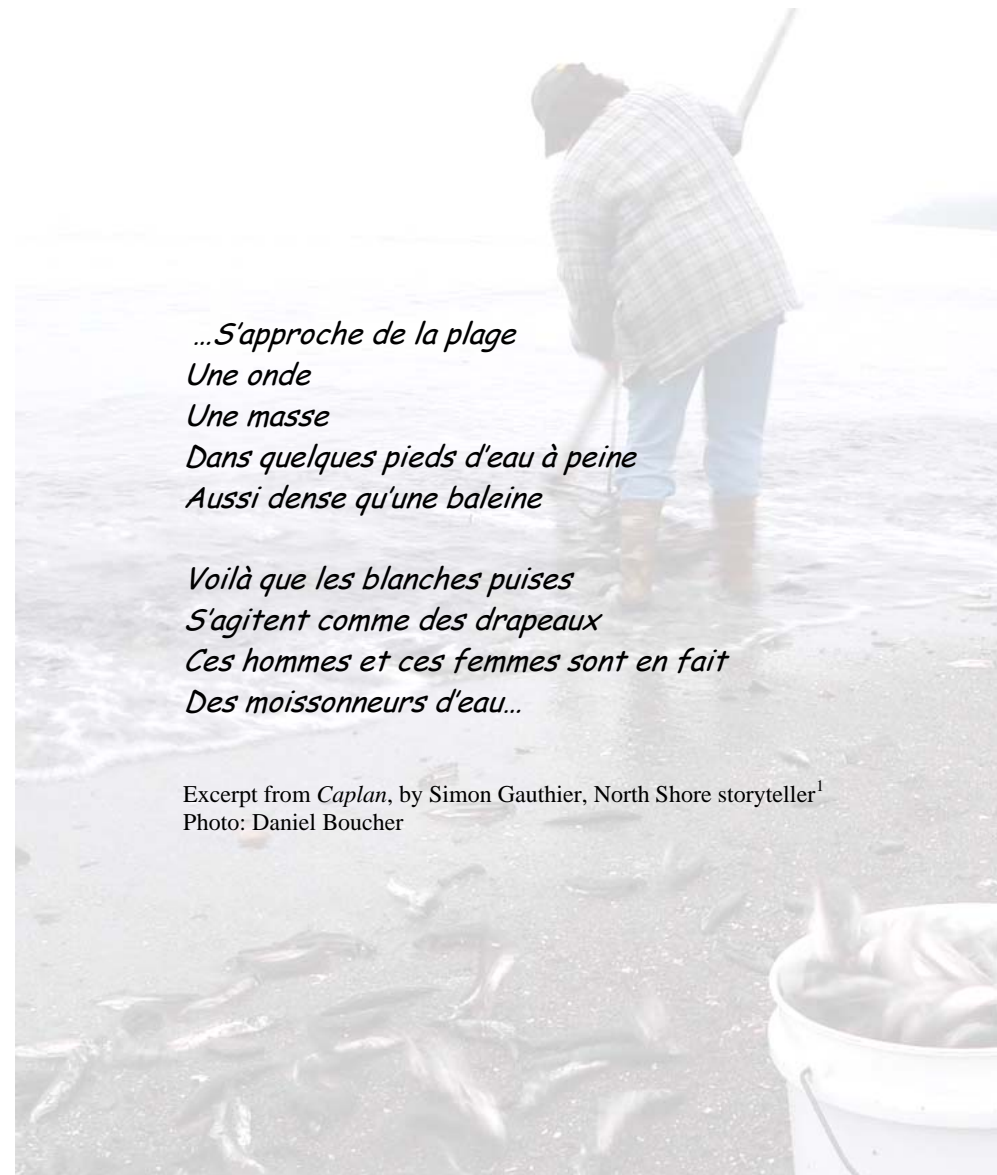


Figure 14: Period of observation of capelin spawning in Chaleur Bay between 2003 and 2009

Number of spawning observations between 2003 and 2009 = 22



*...S'approche de la plage
Une onde
Une masse
Dans quelques pieds d'eau à peine
Aussi dense qu'une baleine*

*Voilà que les blanches puises
S'agitent comme des drapeaux
Ces hommes et ces femmes sont en fait
Des moissonneurs d'eau...*

Excerpt from *Caplan*, by Simon Gauthier, North Shore storyteller¹
Photo: Daniel Boucher

¹ Excerpted from: Une histoire de pêche... La pêche au capelan sur la Côte-Nord, de 1831 à nos jours, racontée par les aînés de la Côte-Nord [collection of stories from North Shore elders]. Gulf North Shore ZIP Committee, 2008.

Capelin Observers Network (CON)

The Capelin Observers Network was established to promote a better understanding of capelin spawning grounds and spawning habits in the Quebec portion of the Estuary and Gulf of St. Lawrence.

Efforts to monitor capelin spawning began in 2002 on the North Shore. In 2003, Fisheries and Oceans Canada (DFO) and various partners, such as the ZIP (areas of prime concern) committees and coastal committees, developed a network of contacts to collect data on capelin spawning.

Since the establishment of the Network, the number of observers and observations has increased steadily, which has helped clarify the overall picture of the distribution of capelin coastal spawning areas. During the 2009 season, 123 observers reported 351 observations, which represents a 78% increase in the number of observers and a 77% increase in the number of observations over 2008.

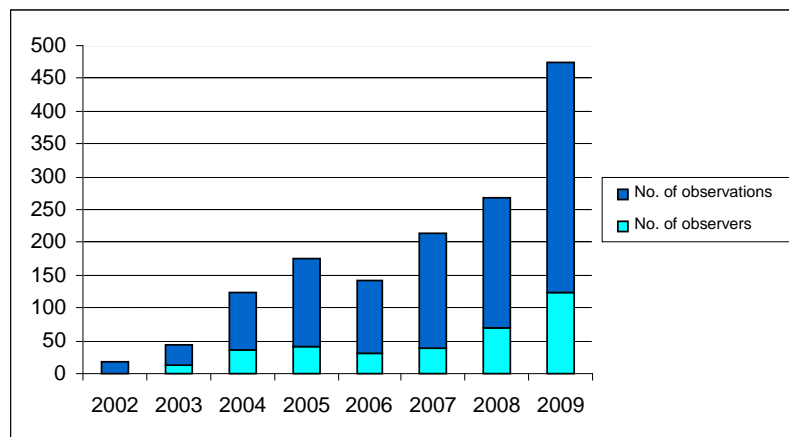


Figure 1: Changes in the number of observers and observations records over time

Since the establishment of the Network, capelin spawning in the Gulf / Gaspé Peninsula area has been observed beginning in late May, with the peak in June.

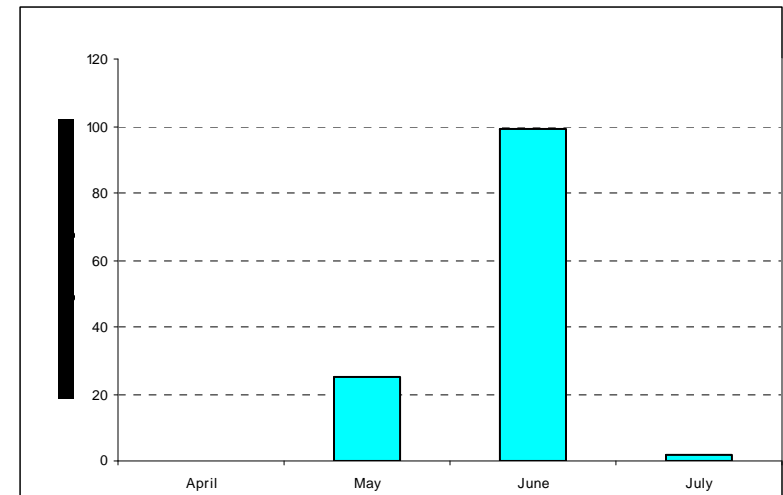


Figure 13: Period of observation of capelin spawning in the Gulf / Gaspé Peninsula area between 2004 and 2009

Number of spawning observations between 2004 and 2009 = 126

Gulf / Chaleur Bay

The Chaleur Bay area encompasses the southern Gaspé Peninsula, from the mouth of the Restigouche River to Grande-Rivière.

Observations - In 2009, 10 observers reported 36 observations for this area, including 13 spawning reports. The first reports of the presence of capelin were made in early May by lobster fishers. Some indicated: “Capelin are in the herring,” meaning that capelin were found in herring nets. As is the case every year, northern gannets, dolphins and minke whales all took advantage of the opportunity to feed on capelin. Spawning observations extended from May 15 to June 5.

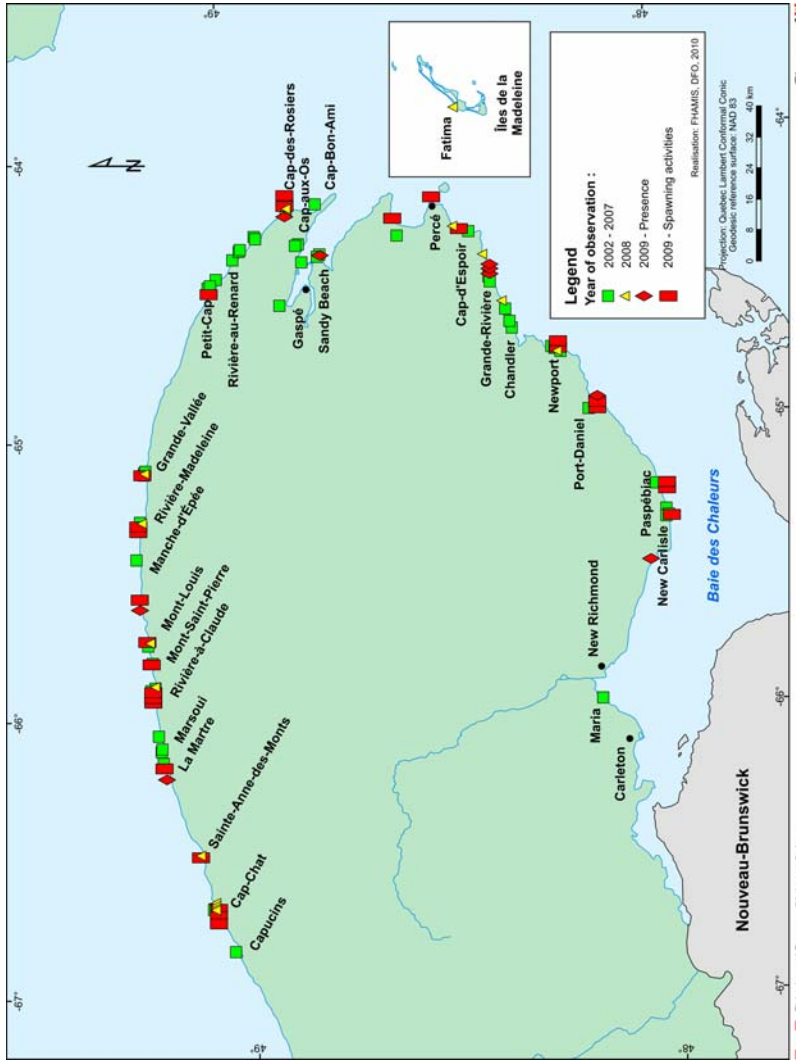


Figure 12: Location of observations of capelin spawning or presence in the Gulf /Gaspé and Chaleur Bay areas between 2003 and 2009

This growing body of knowledge on the location of capelin spawning grounds and habits will improve our understanding of this important link in the St. Lawrence ecosystem. This information will also help better protect spawning grounds, particularly during the breeding and incubation period, as well as facilitating the formulation of recommendations aimed at mitigating the impacts on habitat when work is carried out near spawning grounds. In addition, the data gathered by the Observer Network may help improve our understanding of the impacts of human activities and climate change, such as shoreline erosion or beach modifications, on the capelin's life cycle.



Photo: Louise Proulx

Capelin Spawning Habits

After eight years in existence, the Capelin Observers Network has collected 654 observations of spawning activities and 154 signs of the presence of capelin. The information collected, such as the date and time of the observation, tidal conditions and the type of spawning ground, although not completed for all records compiled, nevertheless enable us to identify certain trends which can help answer some of the following questions: Do capelin spawn more often at night? Do they take advantage of high tide? What type of substrate do they prefer?

Period of the day

As described in the literature, capelins appear to spawn more often in darkness, at least when spawning activity takes place along the shore. In fact, spawning was observed five times more often between 6:00 pm and 6:00 am than during the rest of the day.

Table 1: Percentage of capelin spawning observations by period of the day

Period of the day	Percentage and number of observations
6:00 am to 5:59 pm	16.2% (70)
6:00 pm to 5:59 am	83.7% (361)

Number of spawning observations from 2002 to 2009 with information on the time = 431

Tide

Based on the spawning observation records for which tidal information is available, we can state that 8% more observations were made during rising tide than during falling tide, which is a relatively modest trend.

Table 8: Dates of observations of capelin spawning or presence between 2004 and 2009 in the Gulf / Gaspé Peninsula area

Location	2004 to 2006	2008	2009
Cap-Chat (Capucins)	June 2004	---	---
Cap-Chat (Cap-Chat)	May June 2007 June 2004, 2006	May 27 June 8	May 25 to 28 June 10 and 11, 23
Le Martre	June 2004, 2006, 2007	---	May [‡] June 5, 9, 10 and 12
Sainte-Anne-des-Monts	---	May 26	June 10
Marsoui	June 2004	---	---
Rivière-à-Claude	June 2004, 2005, 2006, 2007 July 2004	May 28 to 31 June 1 and 2, 4, 7 to 9, 13	June 11 to 17, 20 to 23
Mont-Saint-Pierre	July 2004	early June	June 16
Saint-Maxime-du-Mont-Louis (Mont-Louis)	June 2005	early June	June
<i>Saint-Maxime-du-Mont-Louis (L'Anse-Pleureuse)</i>	---	---	May 28 [‡] June 18, 23
Sainte-Madeleine-de-la-Rivière-Madeleine (Manche-d'Épée)	June 2004, 2005	---	---
Sainte-Madeleine-de-la-Rivière-Madeleine (Rivière-Madeleine)	June 2004	June	June 10 to 12, 15 to 16
Grande-Vallée	June 2004, 2006, 2007; July 2006 August 2005	June 14, 26 and 27	June 14
Gaspé (Saint-Maurice-de-l'Échourie)	2005, 2006, 2007	---	---
Gaspé (Rivière-au-Renard)	May June 2007 mid-June 2006	---	---
Gaspé (Cap-des-Rosiers)	June 2005, 2006, 2007	June 4, 14, 16	June 3, 7 to 9, 11, 13 to 14, 23 [‡]
Gaspé (Cap-aux-Os)	May June 2007 June 2004	---	---
Gaspé (Cap-Bon-Ami)	May June 2007	---	---
Gaspé (Gaspé)	May, June 2007 June 2004, 2005, 2006; July 2004	---	May 28 [‡]
Gaspé (Petit-Cap)	July, August 2005	---	June 9 to 11
Percé (Percé)	June 2005, 2007	---	May 29, June
Percé (Anse-à-Beaufils)	---	June 18	May 31
Percé (Barachois)	---	---	May 30; June 1
Sainte-Thérèse-de-Gaspé	---	May 16	---

Names in parentheses represent sectors of municipalities.

Names in italics designate new observation sites.

‡ Date of observation of the presence of capelin, with no report of spawning.

Since 2002, capelin spawning on the Lower North Shore has been observed primarily in June and early July. An increase in the number of observers would be desirable for this area in order to gain a better picture of spawning activities.

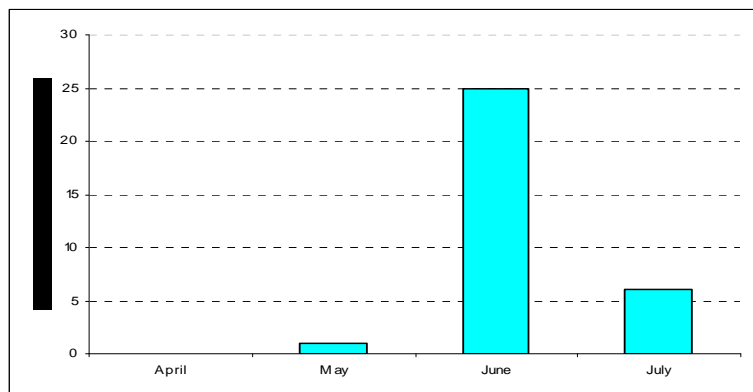


Figure 11: Period of observation of capelin spawning on the Lower North Shore between 2002 and 2009

Number of spawning observations between 2002 and 2009 = 32

Gulf / Gaspé Peninsula

The Gulf / Gaspé Peninsula area covers the north shore and the tip of the Gaspé Peninsula, from Cap-Chat (Capucins sector) to Grande-Rivière.

Observations - In 2009, 27 observers reported 70 observations for this area, including 66 spawning reports. The spawning observations were reported between May 25 and late June (exact date not specified). On June 23, divers filmed a school of capelin spawning on a small sand bar at a depth of 9 m opposite Anse-Pleureuse.⁶ On June 23, at Cap-Chat, a long line of dead capelin was observed near the lighthouse.

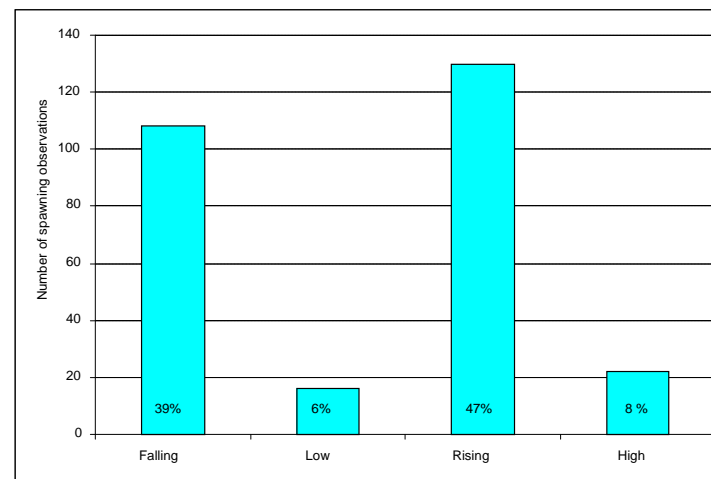


Figure 2: Number of capelin spawning observations by tidal cycle
Number of spawning observations between 2002 and 2009 with tidal information = 276

Type of spawning ground

The vast majority of spawning observations were made on sandy beaches. However, the data collected do not specify the size of the substrate on gravel spawning grounds, which accounted for almost one observation in ten.

Table 2: Percentage of capelin spawning observations by type of substrate

Substrate	Percentage and number of observations
Sand	89.8 % (396)
Gravel	9.8 % (43)
Pebbles	0.2 % (1)
Bedrock	0.2 % (1)

Number of spawning observations between 2002 and 2009 with information on substrate = 441

⁶ The video, produced by Les Productions un Monde à Part Inc., can be viewed on the website of the Réseau des observateurs sous-marins: http://www.rosm.ca/recherche_espece/fiche_espece.php?recordID=168

Were there more capelin in 2009?

It is difficult to answer this question since there is no annual monitoring of capelin abundance! However, the following indicators suggest that this may be the case.

According to the Network's database, the majority of observers estimated that the quantity of capelin was high between 2007 and 2009, while they considered it low in 2006.

Table 3: Compilation of estimates of the abundance of spawning capelin

Year	High	Moderate	Low
2006	25	0	75
2007	66	17	17
2008	62	23	15
2009	49	29	22

Capelin abundance in 2009 was also observed by a number of ornithologists, in the Gaspé Peninsula and the Lower St. Lawrence: “*Capelin appear to be extremely abundant this year. At least in the estuary, where various sources report that the seagulls are not attacking the egg clutches of eider ducks since food is so abundant... And, finally, the proportion of capelin was higher than usual in northern gannet regurgitations analyzed on Bonaventure Island...*”²

Not everyone was happy to see the capelin arrive in such large numbers, especially lobster fishers: “*With the decline in cod stocks, capelins have no predators. They arrived along our shores on May 16 and are still here. This is unprecedented. Every time the capelin come inshore, we immediately see a negative impact on our catches,*” said Mr. Cloutier, pointing out that lobster eat capelin and therefore show little interest in the fishermen's traps.³

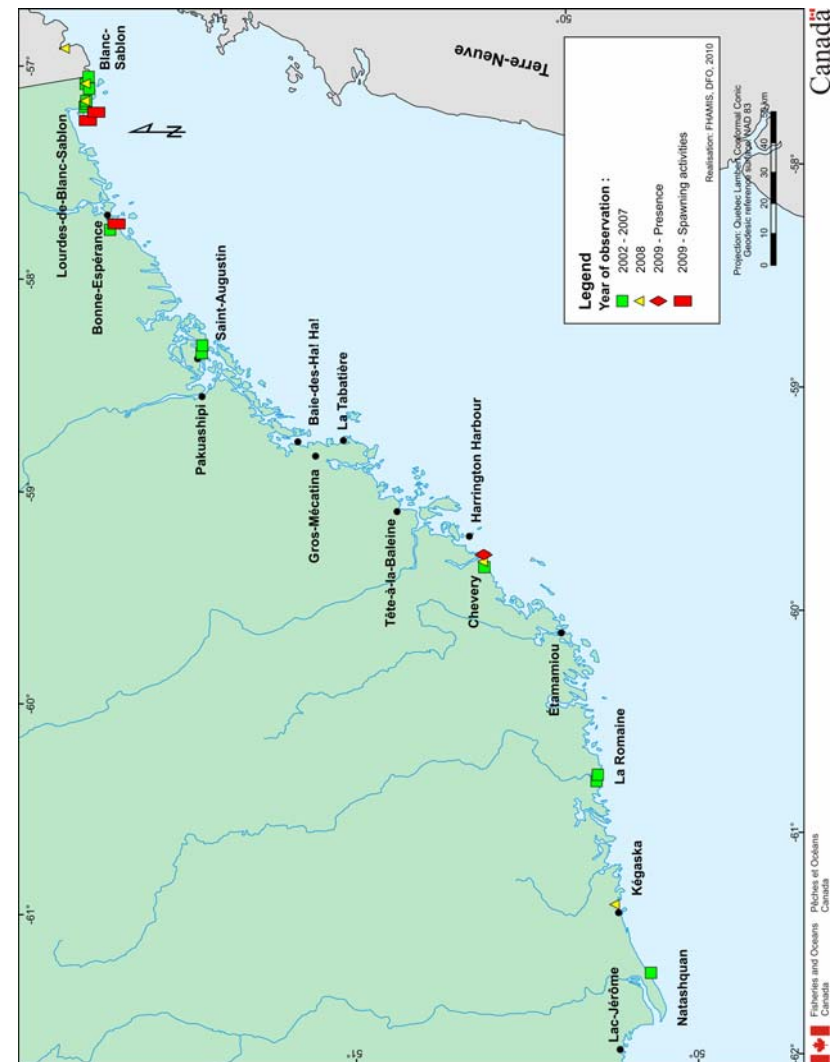


Figure 10: Location of observations of capelin spawning or presence on the Lower North Shore between 2002 and 2009

² Personal communication: Jean-François Rail, Canadian Wildlife Service, July 2009.

³ Gilles Gagné, Homardiers de la Gaspésie: pire saison depuis 1990. *Le Soleil*, July 4, 2009.

Gulf / Lower North Shore

The Lower North Shore area stretches from Natashquan (Pointe du Vieux Poste sector) eastward to the Labrador border.

Observations - In 2009, 5 observers reported 9 observations for this area, including 7 spawning reports. The presence of capelin was observed on June 20 and 22 by fishers who caught capelin in their traps. The spawning observations were made between June 23 and July 9.

Table 7: Dates of observations of capelin spawning or presence between 2002 and 2009 on the Lower North Shore

Location	2002 to 2007	2008	2009
Côte-Nord-du-Golfe-du-Saint-Laurent (Kégaska)	---	May 27	---
Côte-Nord-du-Golfe-du-Saint-Laurent (Chevery)	June 2004, 2005 July 2006	June 20	June 20 [‡]
Bonne-Espérance (Vieux-Fort)	June 2002	---	June 29
Blanc-Sablon (Lourdes-de-Blanc-Sablon)	June 2002, 2006, 2007 June, July 2004	June 29	June 23 July 6, 8, 9
Blanc-Sablon (Blanc-Sablon)	June 2006, 2007		June 22 [‡] , 24 June 7, 9
Forteau, Labrador	---	July 1	---

Names in parentheses represent sectors of municipalities.

Names in italics designate new observation sites.

‡ Date of observation of the presence of capelin, with no report of spawning.

This year, we received many reports of large numbers of dead capelin on the beach or adrift, which was even cause for concern for some observers. Since there was no significant proliferation of toxic phytoplankton⁴ in 2009, this significant mortality could be related to a high abundance of capelin, the majority of which apparently died naturally after spawning.

Capelin egg and larvae survival after the spawning season appears to have been good in the Upper Estuary area. During the annual monitoring of rainbow smelt,⁵ biologists from the Quebec Department of Natural Resources and Wildlife (MRNF) collect, identify and count all the fish larvae in their samples. In 2009, they found more than 6,000 capelin larvae per 1,000 m³ of water near Rivière-du-Loup and nearly 4,000 larvae per 1,000 m³ of water at Anse-Saint-Anne. These figures represent by far the highest quantity of capelin larvae recorded since this monitoring began in 2002.



Photo: Louise Proulx

⁴ Phytoplankton: microscopic algae.

⁵ Personal communication from Guy Verreault (MRNF) to Pierre Nellis (DFO), January 2010.

Observations for the 2009 season by area

In 2009, 351 observations were reported by observers, including 243 spawning observations, 108 signs of the presence of capelin and 2 of the absence of capelin. These observations were made in 61 different sectors and on 84 beaches or beach sections. Ten new sites were inventoried this year. The following is a compilation of these observations in table form, accompanied by maps. This year, for the first time, the results tables distinguish spawning observations from observations of signs of presence of capelin (e.g. presence of diving birds or dead capelin on the beach) using a (‡) symbol next to the date.

For practical reasons, the estuary and Gulf of St. Lawrence were divided into seven observation areas, the boundaries of which are described below.

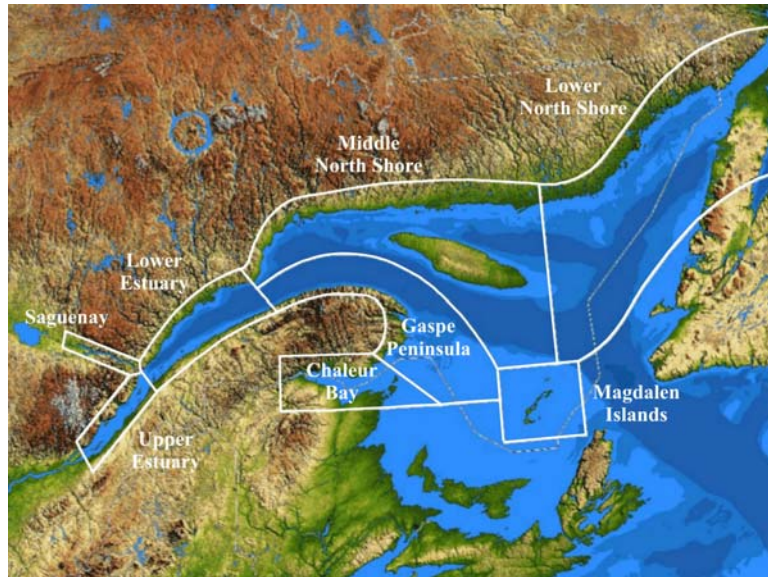


Figure 3: Capelin Observers Network observation areas

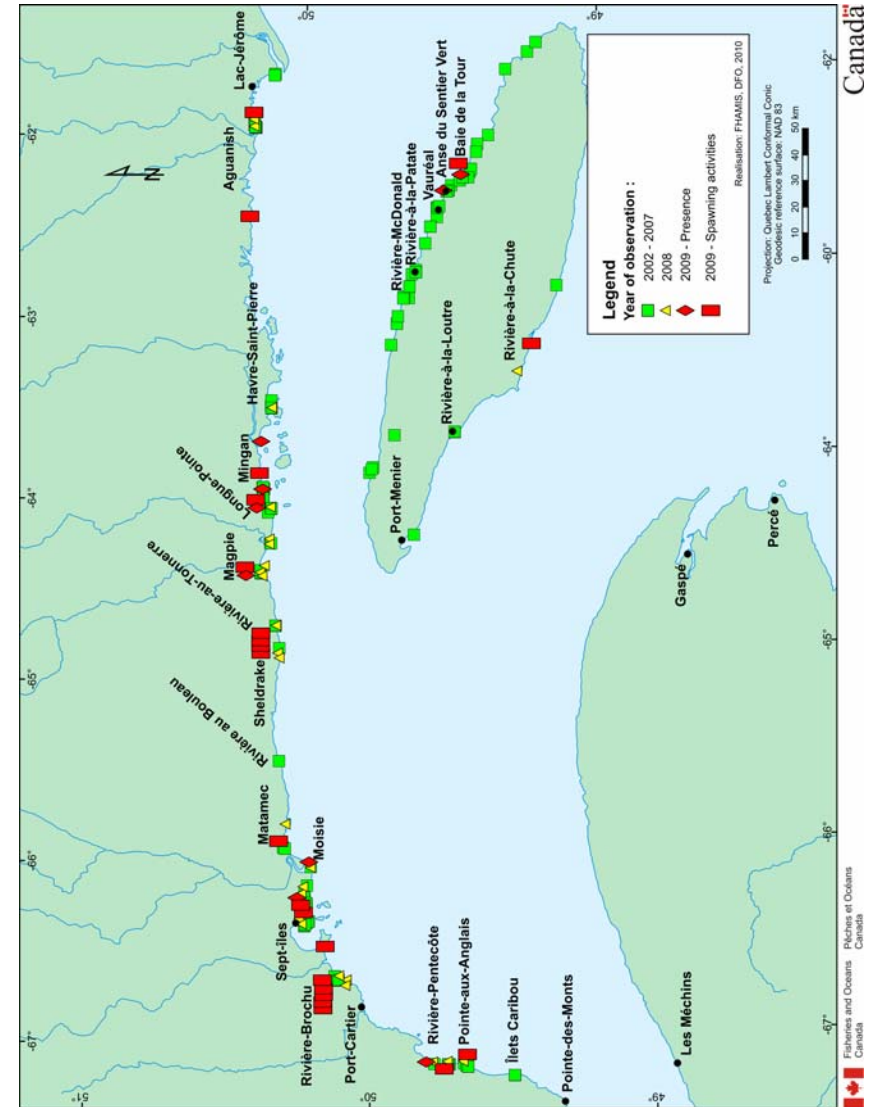


Figure 9: Location of observations of spawning and the presence of capelin on the Middle North Shore between

Location	2002 to 2007	2008	2009
Pointe-de-Mingan)	2005 July 2006		
Longue-Pointe-de-Mingan (Mingan)	mid-May to mid-June 2006, 2007 June 2002	---	June 4 [‡] to 6 [‡]
Havre-St-Pierre	May 2007 June 2002, 2004 May, June 2005	mid-May to late May	June 13
Aguanish	May 2003 June 2002 May, June 2004, 2005, 2006, 2007	May 24 and 25 June 11 to 25 July 17	June 9, 12, 17
Natashquan	June 2007 June and July 2006	---	---
Anticosti Island	June, July 2004, July 2005 June 2006 2007	June 14	June 26, 29 [‡] July 1 [‡] , 14 and 15

Names in parentheses represent sectors of municipalities.

Names in italics designate new observation sites.

[‡] *Date of observation of the presence of capelin, with no report of spawning*

Since 2002, capelin spawning on the Middle North Shore has been observed primarily in May and June, and in some years until mid-July.

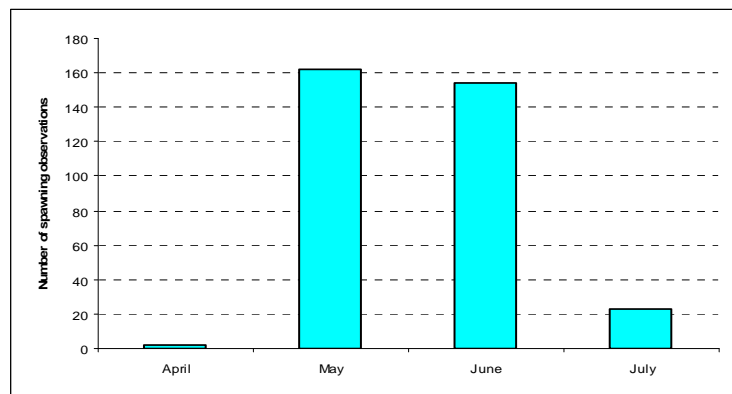


Figure 8: Period of observation of capelin spawning on the Middle North Shore between 2002 and 2009

Number of spawning observations between 2002 and 2009 = 341

Upper Estuary

This area covers both shores of the estuary of the St. Lawrence River, from Saint-Joachim to Baie-Sainte-Catherine on the north shore and from Montmagny to Cacouna on the south shore.

Observations - In 2009, five observers reported 47 observations for this area, including 25 spawning observations. From mid-April to mid-May, fishers from Saint-Irénée were the first to observe the presence of capelin. Thereafter, spawning observations extended from May 17 to June 18.

Table 4: Dates of observations of capelin spawning or presence between 2003 and 2009 in the Upper Estuary

Location	2003 to 2007	2008	2009
Saint-Irénée	April, May 2003 May, June 2004, 2006 May, June, July 2005	May 13 to June 18	April 13 [‡] and 14 [‡] , 20 [‡] to 24 [‡] , May 2 [‡] , 10 [‡] to 14 [‡] , 17 to 20, 27 to 30 June 11 to 18, 27 [‡]
La Malbaie (Port-au-Saumon/ Anse aux Indiens)	June 2005	---	June 2009
Île-aux-Coudres	June 4 to 6	April to early June	---
Kamouraska	June 2003	---	---
Rivière-du-Loup	---	---	June 17 [‡] to 19 [‡]

Names in parentheses represent sectors of municipalities.

Names in italics designate new observation sites.

[‡] *Date of observation of the presence of capelin, with no report of spawning.*

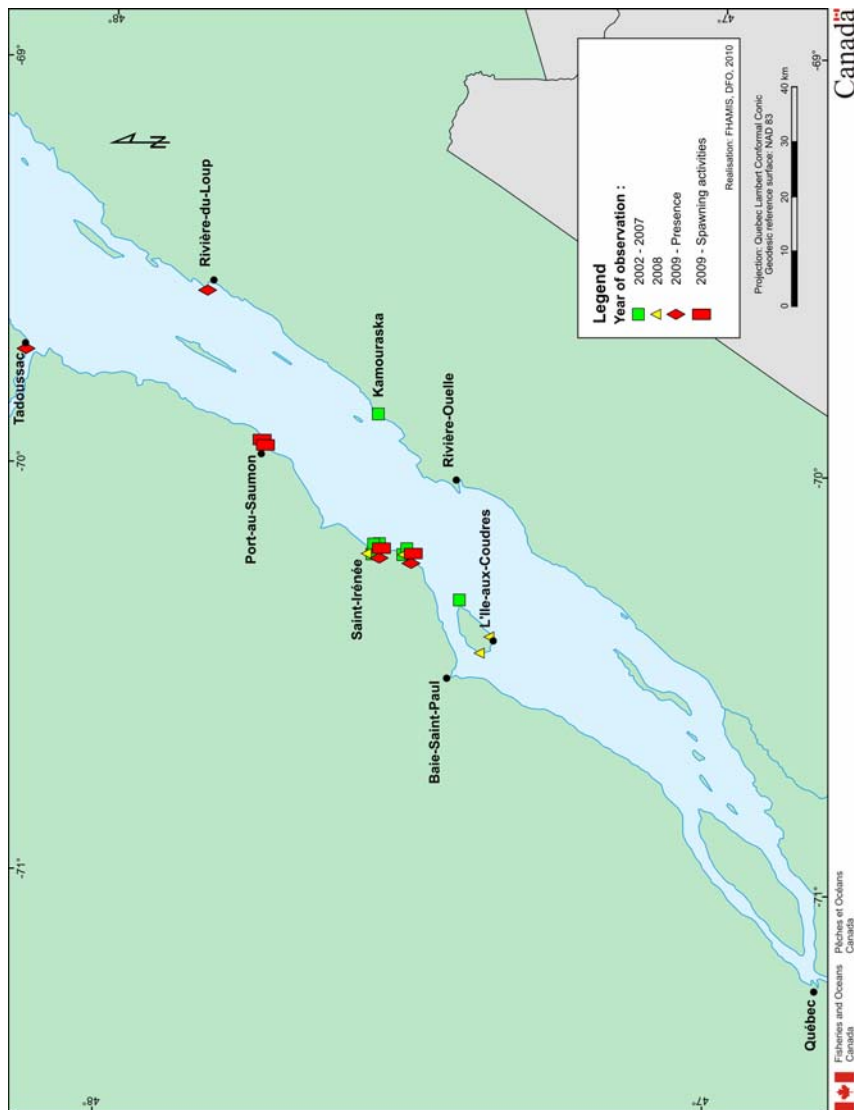


Figure 4: Locations of observations of capelin spawning or presence in the Upper Estuary between 2003 and 2009

Table 6: Dates of observations of capelin spawning or presence between 2002 and 2009 on the Middle North Shore

Location	2002 to 2007	2008	2009
Baie-Trinité (Îlets-Caribou)	May 2005, 2006 June 2006	---	---
Port-Cartier (Pointe-aux-Anglais)	May 2002, 2004, 2005, 2006, 2007 June 2006, 2007	May 12	May 13 June 3 and 6
Port-Cartier (Rivière-Pentecôte)	May 2004, 2005	May 16 and 17, 28 and 29 June 6, 29	July 8 [‡]
Sept-Îles (Gallix)	May, June 2003, 2005, 2006, 2007 June, July 2004	May 10 to 27 June 5, 13	May 15 [‡] , 17, 19 to 22, 24 to 29, 31 June 2, 3, 5 to 7, 9 and 10, 12 and 13, 16 [‡] , 18 and 19, 21 to 22, 23 [‡]
Sept-Îles (Sept-Îles)	April, May, June 2002, 2007 May, June 2004, 2005 May 2006	May 21 to 30 June 1, 4, 7	May 26 June 1, 5 and 6, 8 July 5 [‡] September 10 [‡]
Sept-Îles (Moisie)	May 2007	May 17	July 6 [‡]
Sept-Îles (Matamec)	---	July 1	June 8
Uashat mak Mani-Utenam (Uashat)	May 2006,	May 27 June 1, 4	May 21 to 23, 27 June 4, 10 and 11
Rivière-au-Tonnerre (Sheldrake)	May 2005	July 10, 16	---
Rivière-au-Tonnerre (Rivière-au-Tonnerre)	May 2005, 2006 June 2004, 2007	May 18 to 27 July 6	May 29 June 1, 4 to 6, 11 to 15, 18
Saint-Jean River (Magpie)	May 2006, 2007 June 2004, 2005, 2006, 2007 July 2006	May 23 to 30 June 3 and 4, 11 and 12	May 24 to 29, 30, 31 June 12 and 13
Rivière-Saint-Jean (Rivière-Saint-Jean)	---	July 16	---
Longue-Pointe-de-Mingan (Longue-	May 2005, 2006, 2007 June 2002, 2004,	May 21 June 5 July 19	May 12 June 8 [‡]

Since the establishment of the Network, capelin spawning in the Lower Estuary has been observed primarily in May and June, with the peak in June.

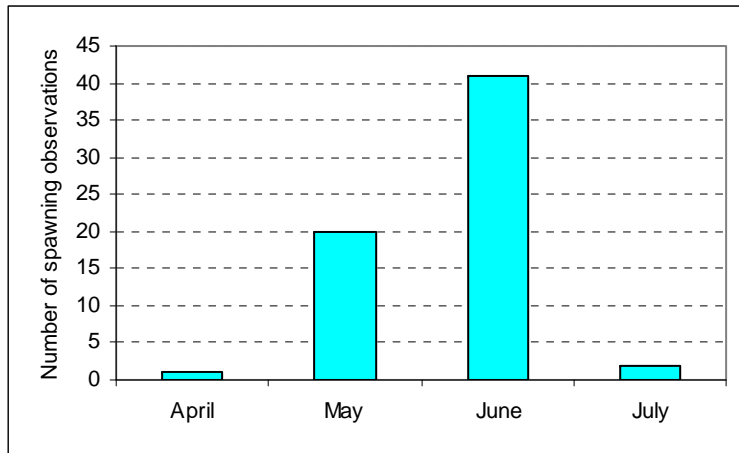


Figure 7: Period of observation of capelin spawning in the Lower Estuary between 2003 and 2009

Number of spawning observations between 2003 and 2009 = 64

Since the establishment of the Network, capelin spawning in the Upper Estuary has been observed primarily in May and June, with the peak in May.

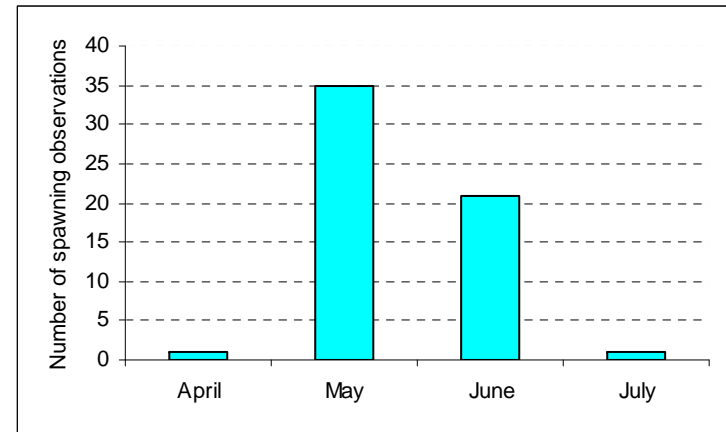


Figure 5: Period of observation of capelin spawning in the Upper Estuary between 2003 and 2009

Number of spawning observations between 2003 and 2009 = 58

Gulf / Middle North Shore

The Middle North Shore area stretches from Baie-Trinité (Pointe-des-Monts) eastward to Natashquan (Pointe-Parent), and includes Anticosti Island.

Observations - In 2009, 35 observers reported 108 observations for this area, including 87 spawning reports. The spawning observations were reported between May 12 and July 15. The observations of the presence of capelin were made between May 15 and July 8. This year, there were eight reported sightings of minke whales between May 22 and June 21. An unusual occurrence for this period of the year, a capelin was caught in September in eelgrass, during sampling carried out by the *Réseau Zostère*.

Lower Estuary

This area encompasses both shores of the estuary of the St. Lawrence River, from Tadoussac to Baie-Trinité (Pointe-des-Monts sector) on the north shore and from Isle-Verte to Les Méchins on the south shore.

Observations - In 2009, 44 observers reported 81 observations for this area, including 45 spawning observations. The spawning observations extend from April 30 to July 7. On June 3 in Sainte-Luce, approximately 1,000 kg of capelin were caught in a fisher’s weir. The 36 observations of the presence of capelin were made between May 25 and July 8, and consisted primarily of reports of dead capelin on the beach, often in large quantities, particularly during the second half of June.

This year, in this area, observations of capelin spawning or presence were made at seven new sites.

Table 5: Dates of observations of capelin spawning or presence between 2003 and 2009 in the Lower Estuary

Location	2003 to 2007	2008	2009
NORTH SHORE			
Tadoussac	---	---	June 4, 5 and 10
Les Escoumins	April 2003	---	---
<i>Portneuf-sur-Mer</i>	May 2003, 2007 May, June 2004, 2005, 2006	week of May 5, May 22	May 27 to 31 June 5
<i>Forestville</i>	---	---	June 9
Colombier	May 2005, 2007 June 2005,	May 25	May 17
<i>Baie-Comeau</i>	---	---	June 7 [‡] July 6 [‡]
<i>Godbout</i>	---	---	June 6 July 7
SOUTH SHORE			
Saint-Simon (Saint-Simon-sur-Mer)	June 2003	---	May 23 and 26
Saint-Fabien (Saint-Fabien-sur-Mer)	May, 2006 June 2003, 2004, 2005	June 6 to 23	May 24 June 11, 12 [‡] , 14 [‡] , 16 [‡] and 28; July 1
<i>Rimouski (Cap-à-l'Orignal)</i>	---	---	June 19 [‡]
Rimouski (Rivière Hatée)	June 2007	---	June 23 [‡]
Rimouski (Rimouski)	---	June 9	July 5 [‡]
Rimouski (Pointe-au-Père)	---	May 19, 20, June 2, 9, 21	June 28 [‡] , July 6 [‡] and 7 [‡]
Sainte-Luce	June 2003	June 8 and 9	April 30 May 25 [‡] , 26 and 27, 30 June 1 [‡] , 3, 9 to 11, 16, 22 [‡] and 23 [‡] ; July 4 [‡] , 6 [‡]
Sainte-Flavie	---	June 18	May 25, June 2 [‡] , 11, 22, 23; July 5 [‡] and 7 [‡]
Métis-sur-Mer	---	June 18	June 23 [‡] , July 7 [‡] , 8 [‡]
Matane	---	July 2	May 27, June, July 5 [‡]
<i>Matane (Petit-Matane)</i>	---	---	June 24 [‡]
Grosses-Roches	---	---	May, June 24 to 26
Les Méchins	June 2004, 2006	---	June

Names in parentheses represent sectors of municipalities.

Names in italics designate new observation sites.

[‡] *Date of observation of the presence of capelin, with no report of spawning.*

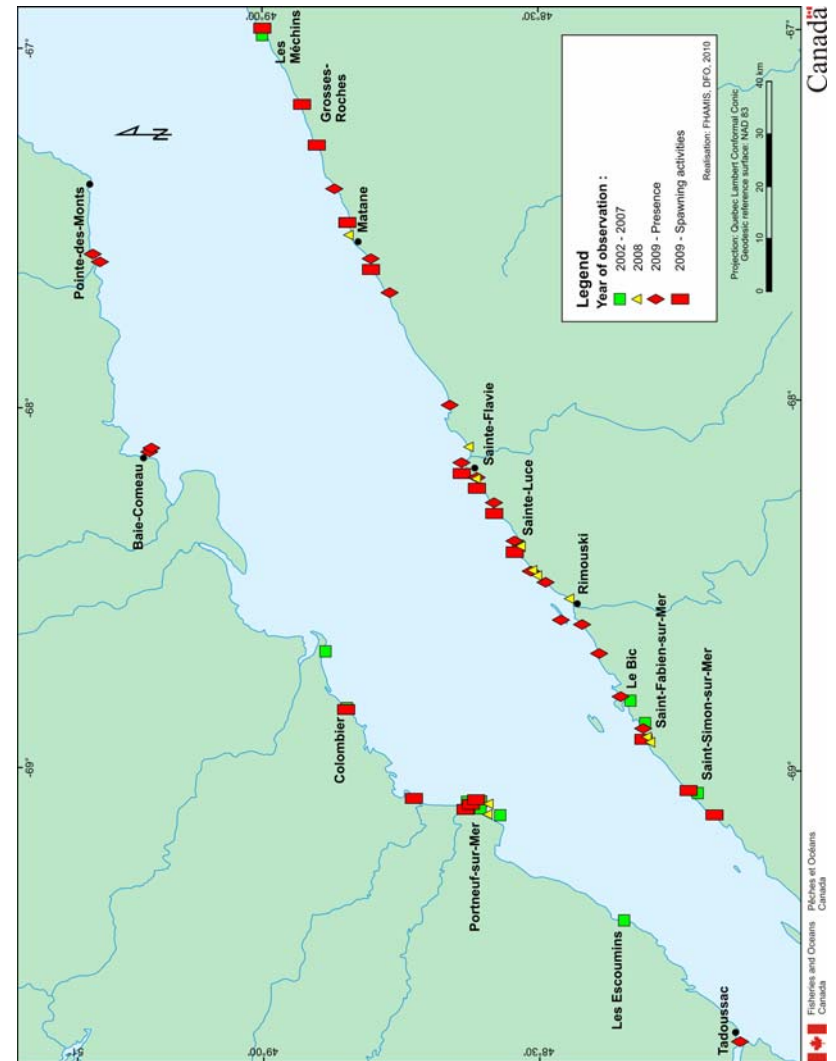


Figure 6: Location of observations of capelin spawning or presence in the Lower Estuary