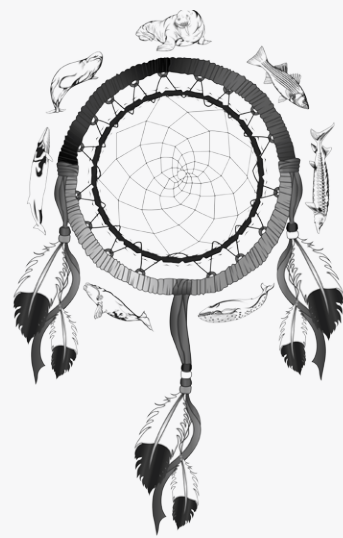




ATLAS OF MARINE ST. LAWRENCE MI'GMAQ AND MALISEET SITES AND THEIR USES

By the Gesgapegiag, Gespeg and
Viger Communities

MARCH 2017



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BACKGROUND

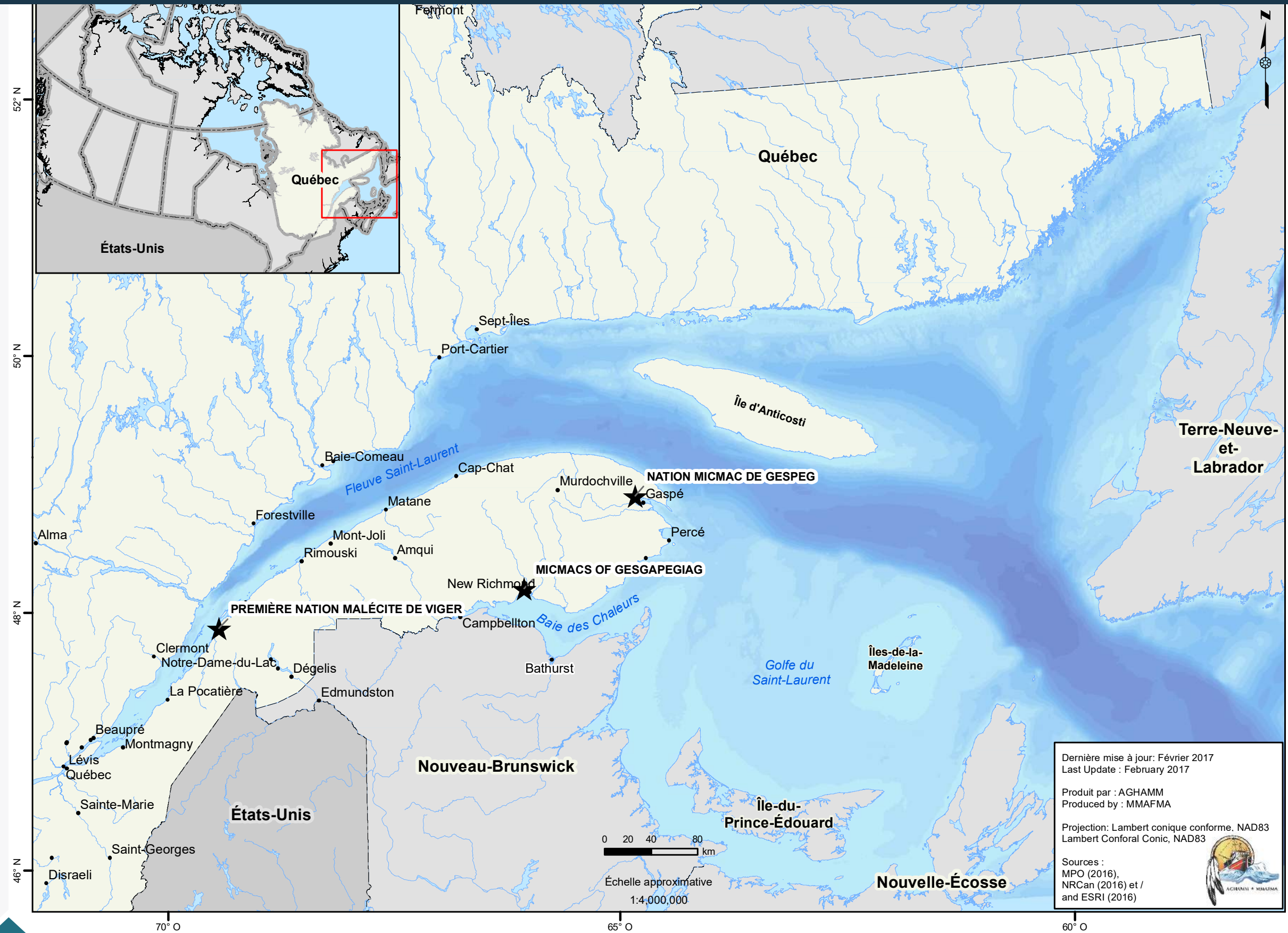
The St. Lawrence Gulf and Estuary form a complex environment, one that varies with the passing seasons and years. It is a semi-enclosed sea where surface waters react to different forces – tidal currents, winds, atmospheric pressure and the water flowing in from rivers. This complexity makes the marine St. Lawrence particularly vulnerable to environmental incidents such as oil spills. This is the context that led the Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA) to undertake a project to create an atlas of marine St. Lawrence Mi'gmaq and Maliseet sites and their uses by and for its three member communities, with financial support from the Department of Fisheries and Oceans Canada (DFO).

This project aims to increase the capacities of MMAFMA's three member communities – the Maliseet of Viger First Nation, the Nation Micmac de Gespeg and the Micmacs of Gesgapegiag. Another goal is to enable the communities to identify marine sites of importance to them. More specifically, the project sought to digitalize, map and share Mi'gmaq and Maliseet knowledge associated with traditional and contemporary activities involving the marine environment. Thus, through this project, MMAFMA was able to gather available information on uses and sites that are important to its three member communities and generate geo-referenced data bases.

This document and the data bases created within the framework of this atlas project will allow members of the communities to access information connected to uses of the marine environments. The information collated in this atlas can serve as a tool to help the communities plan a rapid and effective response in the event of an incident, such as an oil spill, or facilitate decision-making connected to consultation processes and development initiatives.

THE MI'GMAQ MALISEET ABORIGINAL FISHERIES MANAGEMENT ASSOCIATION

The Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA) is an organization created in 2012 within the framework of the Aboriginal Aquatic Resources and Oceans Management (AAROM) program of Fisheries and Oceans Canada (DFO). The AAROM program aims to assist Aboriginal groups to participate effectively in consultation and decision-making used for the management of aquatic resources and oceans. The mission of MMAFMA is to promote the sustainable management and conservation of aquatic and oceanic ecosystems within the territories and activity zones of the Micmacs¹ of Gesgapegiag, the Nation Micmac de Gespeg and the Maliseet of Viger First Nation (Map 1), while promoting their interests and participation in co-management processes.



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Sources :
MPO (2016),
NRCan (2016) et /
and ESRI (2016)



¹ Throughout the text, whenever we refer specifically to Mi'gmaq First Nations, we use the designations used officially by each: the Nation Micmac de Gespeg and the Micmacs of Gesgapegiag. However, when we refer to individuals, the culture, the people, the language or other specificities, we use the term Mi'gmaq, in accordance with common usage in Mi'gma'gi, the territory occupied by the Mi'gmaq of Gesgapegiag, Gespeg and Listuguj, as adopted by the Mi'gma'gi Mawiwomi Secretariat (MMS) Tribal Council.

THE MI'GMAQ AND MALISEET COMMUNITIES AND THE MARINE ST. LAWRENCE

Since time immemorial, the Mi'gmaq and Maliseet peoples have inhabited the shoreline and coastal regions of the Estuary and Gulf of St. Lawrence. These nations lived in close contact with nature and had their own resource management system. Their knowledge of animals and plants was handed down from one generation to the next by oral tradition.

Although the Micmacs of Gesgapegiag, the Nation Micmac de Gespeg, and the Maliseet of Viger share the waters along the Estuary and Gulf of St. Lawrence, these communities are each distinct due to their geographical locations, their socio-economic situations, their cultural singularity and their language.

The Mi'gmaq people have occupied the Mi'gma'gi territory, including the Maritimes and the Gaspé Peninsula, for thousands of years. Traditionally, the Mi'gmaq lived a semi-nomadic lifestyle, depending mainly on fishing and on hunting marine and terrestrial mammals during the summer as well as game during the winter. The Mi'gmaq adapted ingeniously to deep sea fishing activities (Clermont 1986) and notably developed the art of building bark canoes intended for this kind of fishing (Marshall 1986). Salmon fishing is also an integral part of the Mi'gmaq culture.

The many species of fish that have been documented as part of their catch notably include the Atlantic salmon (*Salmo salar*), Atlantic rainbow smelt (*Osmerus murdax*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), striped bass (*Morone saxatilis*), American eel (*Anguilla rostrata*), brook trout (*Salvelinus fontinalis*), Atlantic herring (*Clupea harengus*), mackerel (*Scomber scombus*), haddock (*Melanogrammus aiglefinus*), Atlantic tomcod (*Microgadus tomcod*), alewife (*Alosa pseudo-harengus*), Atlantic cod (*Gadus morhua*) and Atlantic halibut (*Hippoglossus hippoglossus*) (Passchier 1985, Clermont 1986). Marine mammals, including the harbour porpoise (*Phocoena phocoena*), beluga (*Delphinapterus leucas*), harp seal (*Phoca groenlandica*), grey seal (*Halychoerus grypus*), harbour seal (*Phoca vitulina*) and Atlantic walrus (*Odobenus rosmarus rosmarus*), were also hunted and crustaceans like the lobster (*Homarus americanus*) and snow crab as well as molluscs such as scallops and clams were harvested too according to texts written in the 17th century (Passchier 1985, Clermont 1986).

The Gesgapegiag Mi'gmaq, officially the Micmacs of Gesgapegiag, according to the spelling used by their

band council, have participated in the management of the sport fishery on Rivière Cascapédia for a number of years. The place name Cascapédia is derived from a Mi'gmaq word meaning «strong currents» or «large river». Today, the Mi'gmaq fish harvesters of Gesgapegiag are involved in the commercial fishing of several species, including northern shrimp (*Pandalus borealis*), lobster, snow crab (*Chionoecetes opilio*) and some groundfish species.

According to available sources, it was during the sixteenth century that the Mi'gmaq settled permanently on Gaspé Bay, forming the Nation Micmac de Gespeg, as designated by the band council. By around 1675, they had maintained ties with European fishermen for several decades at their village of Gespeg, meaning «land's end». Today, the Mi'gmaq fish harvesters of Gespeg are involved in the commercial fishing of several species, including northern shrimp, lobster, snow crab, some species of groundfish and sea cucumber (*Cucumaria frondosa*).

The Maliseet people, calling themselves Wolastogiyik, which means «people of the beautiful river», originate from the valleys of the St. John River and its tributaries, located at the border between the current provinces of Quebec and New Brunswick, and also from the state of Maine in the United States. The Maliseet were a nomadic people who largely depended on hunting and fishing (Erickson 1978), but also possibly cultivated corn (Chalifoux *et al.* 1998). The species fished often included whitefish (*Coregonus clupeaformis*), lake trout (*Salvelinus namaycush*) and brook trout (Chalifoux *et al.* 1998). In the wake of numerous conflicts in New England beginning in 1675, the Maliseet were encouraged to migrate increasingly farther north, to the St. John River valley and to the valley of the St. Lawrence (Erickson 1978). Despite settlement attempts by the Government of Canada - with the Viger Reserve being established in 1827 (it was deeded back in 1869 in response to pressure from European settlers interested by its fertile land), followed by the Whithworth Reserve in 1876 and finally, that of Cacouna in 1891 - the Maliseet resisted the sedentary way of life and today, none live permanently on any of these reserves. Nowadays, the Maliseet of Viger are involved in the commercial fishery of several species, including northern shrimp, snow crab, certain species of groundfish, green sea urchin (*Strongylocentrotus droebachiensis*) and sea cucumber. They also own a snow crab processing plant in Rimouski.

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- Marshall, I. (1986) *Le canot de haute mer des Micmacs*. Recherches amérindiennes au Québec (éd.), vol. 5 : Les Micmacs et la mer, Montréal, pp. 29-48.
- Passchier, F. (1985) *Le système économique micmac, perspective ethnohistorique au XVII^e siècle*. Paléo-Québec no. 17, Montréal, 137 p.



PRESENTATION OF THE ATLAS

This *Atlas of marine St. Lawrence Mi'gmaq and Maliseet sites and their uses by the Gesgapegiag, Gespeg and Viger communities* contains 32 maps, divided into two main sections: the first, a portrait of the communities' commercial fishing and other commercial activities and the second, a portrait of the ecological knowledge of the species and the marine and coastal sites held in common by the communities. Here are some of the particularities of this Atlas

- The method, explaining when necessary how the data were processed and the provenance of the data used for the cartography, has been documented for both sections of the Atlas.
- Each map presented in the Atlas is accompanied by an explanatory table providing pertinent information to facilitate interpretation of the mapped data. References and the sources of the data are also included in these tables and/or on the maps themselves.
- Summary maps showing how each layer of geographic data has been superimposed are presented at the end of each section of the Atlas.

LIMITATIONS OF THE PROJECT

The portrait of the sites and their uses by the Mi'gmaq and Maliseet of the marine St. Lawrence presented in this Atlas are far from comprehensive; only already-existing and available data was mapped when this Atlas was being prepared. Information about recreational or traditional uses of the marine or coastal environments is sometimes limited or missing, particularly for the sectors where the communities fish for recreational rainbow smelt (*Osmerus mordax*), or hunt waterfowl, to name just these two examples. In the short or medium term, the members of the three communities would have to be surveyed again about their various uses of the marine environments in order to expand and update this reference document.

WARNING

The data presented in this Atlas do not in any way replace consultations or dialogue with Aboriginal communities nor can they in any case replace them (as indicated on each of the included maps). In addition, the use of data presented in this Atlas alone cannot be construed as a meaningful consultation with MMAFMA's three member communities.

ACCESS TO THE ATLAS AND ITS DATA

- The *Atlas of marine St. Lawrence Mi'gmaq and Maliseet sites and their uses by the Gesgapegiag, Gespeg and Viger communities* is available on line at the MMAFMA website at www.aghafm.ca.
- Some data contained in the Atlas are also available on the St. Lawrence Global Observatory (SLGO) website at <https://ogsl.ca>, thanks to a partnership between MMAFMA and the observatory. The mission of SLGO is To promote the sharing and pooling of scientific information on the St. Lawrence ecosystem.



METHOD USED TO CREATE THE MAPS

- The following series of maps (2 to 24, except for Map 22) was generated using ArcGis 10.2 (ESRI) software; the available data for the commercial fisheries activities of the three Aboriginal communities for the period from 2010 to 2015 was obtained from the Department of Fisheries and Oceans Canada (DFO). The 2016 data could not be incorporated into the analysis because they were not yet available when this Atlas was produced. The maps included in this commercial fisheries portrait were validated by the managers in charge of fisheries for each of the three communities.

For certain species commercially fished in small areas, such as the waved whelk, sea cucumber, rock crab, Atlantic halibut and green sea urchin, the maps in this Atlas illustrate the locations of small harvesting sectors. They were drawn using the coordinates for the places where the related fishing events began and ended.

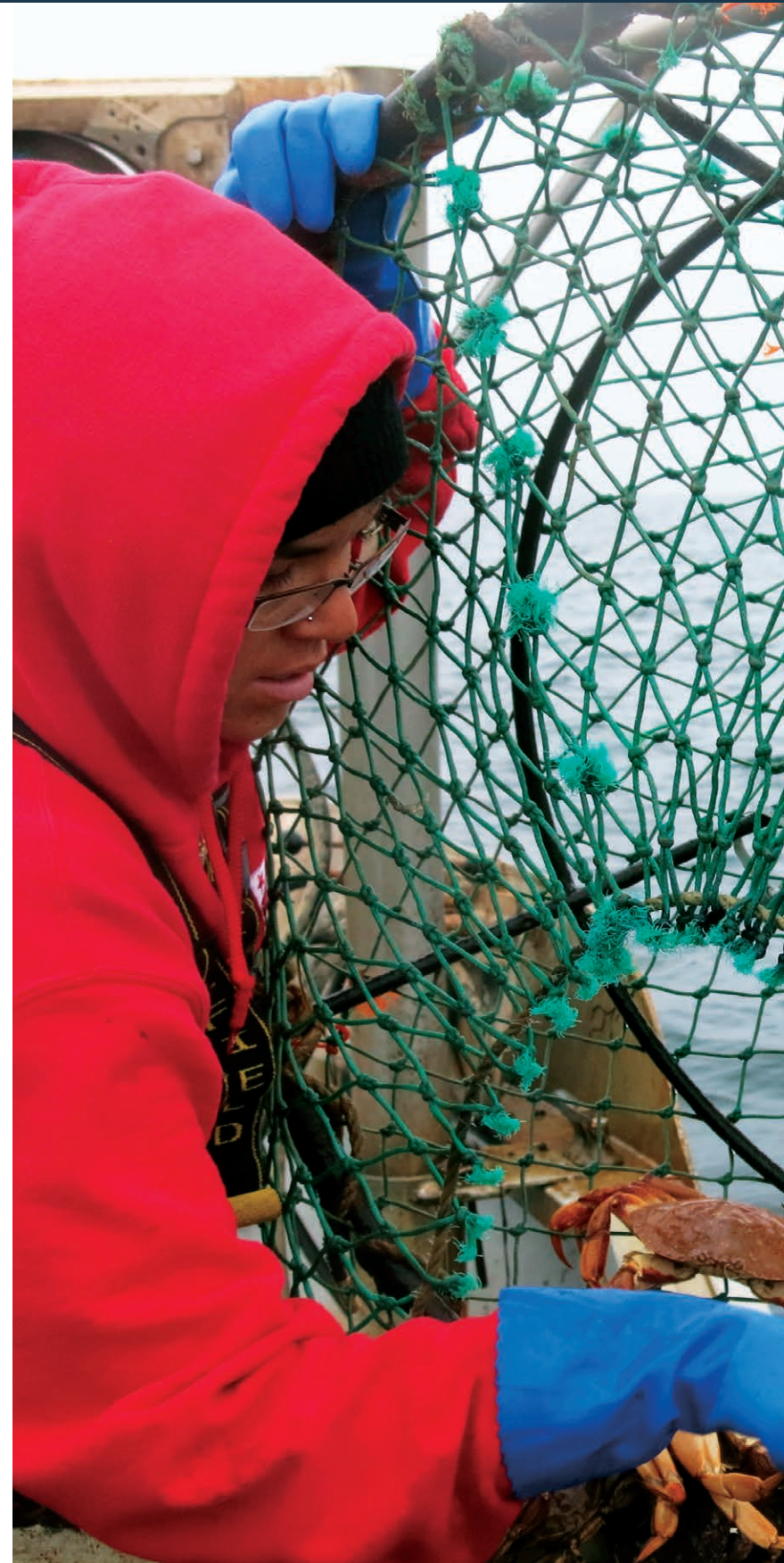
As for the northern shrimp, snow crab and Greenland halibut fisheries, which take place within larger stretches of the St. Lawrence River and its estuary and gulf as well as in Chaleur Bay, the maps in the Atlas illustrate the volume harvested in kilograms (kg) per single fishing quadrangle. This geographical unit used by DFO, which represents an area of approximately 18 km x 25 km, adequately encompasses the area between the coordinates for the places where the fishing events begin and end. It serves somewhat as a common denominator for the various species and can be used to compare the locations of the fishing grounds and the volumes harvested for the three communities.

Finally, the volumes of lobster harvested were not mapped since most of the coordinates were either missing or wrong and there were also errors in the volumes harvested (kg). Instead, the maps show the locations of this fishery, which were estimated taking into consideration lobster fishing areas and bathymetry (< 20 m).

It is important to point out that the total value of catches was estimated by taking into consideration the average annual price paid for each individual species; these figures were also obtained from DFO.

At the end of this section there are two summary maps, 23 and 24. The first map, an overlay, shows all the sectors harvested by the three communities, layered one over the other (small sectors and fishing quadrangles), taking into account the species fished. The result is a spatial compilation of the number of species fished by the three communities from 2010 to 2015. The second map presents the outcome of a calculation of point density, and illustrates how intensely the marine environment was used by the three communities from 2010 to 2015, all species taken together. To this end, the small harvested sectors and the fishing quadrangles (polygons) were converted into a grid with equidistant points (500 m apart), then a "heat map" function in the QGIS 2.14 program was used to illustrate in raster form the density of the points (little overlay vs. much overlay).

- As for Map 22, it shows the locations of the aquaculture sites leased by MMAFMA for the production of seaweed, (microalgae), as part of a project called SALAWEG. The polygons representing the aquaculture sites were drawn using geographical coordinates obtained from MAPAQ. This map was generated using ArcGis 10.2 (ESRI).



PORTRAIT OF COMMERCIAL ACTIVITIES - SNOW CRAB FISHERY

Snow crab, *Chionoecetes opilio*, is a subarctic crustacean that prefers muddy bottoms as its habitat (DFO, 2015). The largest specimens tend to be found at depths of between 50 and 300 m, where the water temperature oscillates between -1 and 11 °C (DFO, 2015). Snow crab, like lobster, moults periodically and its shell remains soft for a period of 8 to 10 months (DFO, 2016). During this time, it is called soft-shell crab or white crab.

THE COMMERCIAL FISHERY

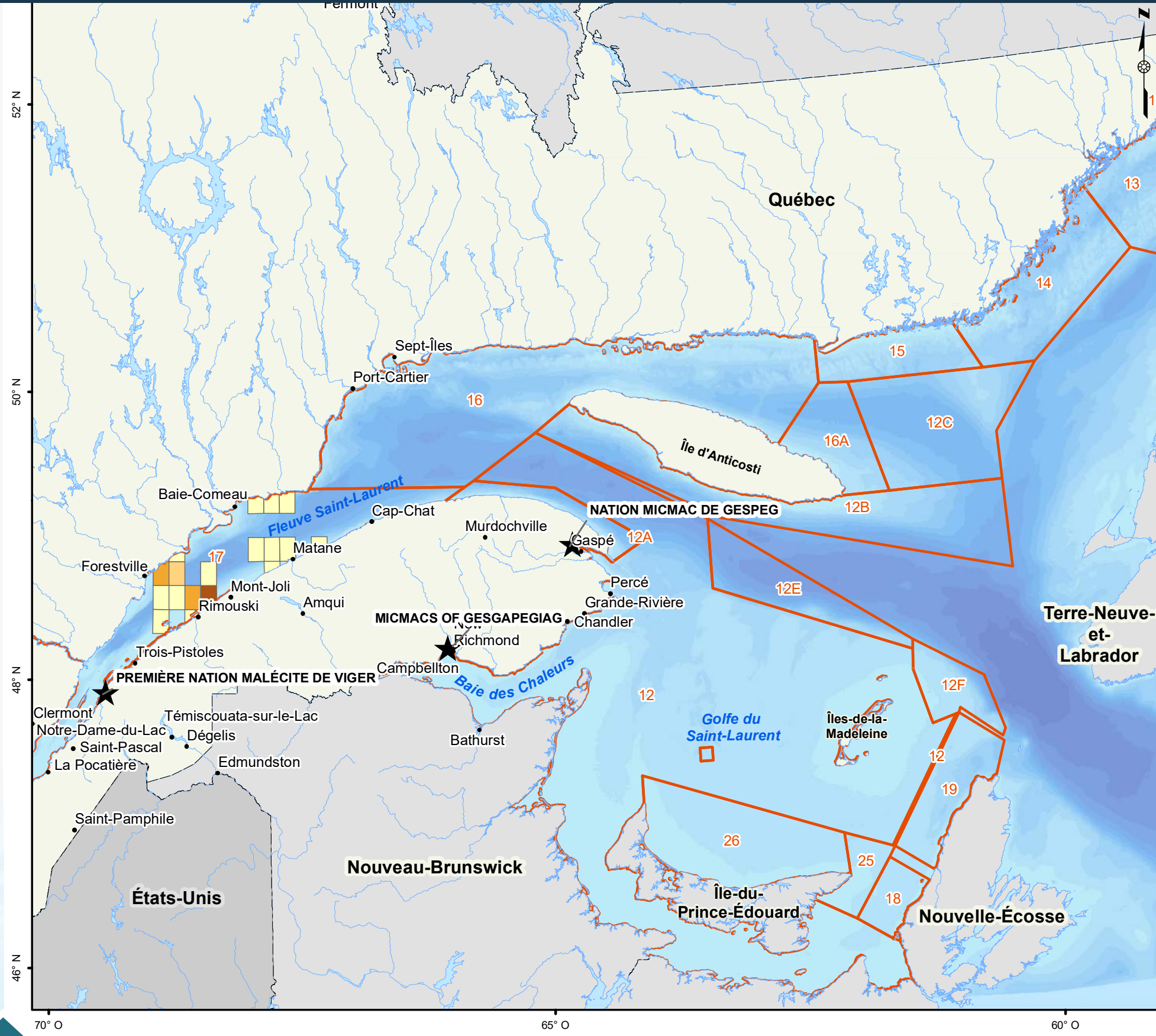
The commercial snow crab fishery on Canada's east coast began in the 1960s, as dredge bycatch during the groundfish fishery being conducted near Gaspé. It expanded rapidly beginning in the 1980s (DFO, 2015). Its management is based on quotas and fishing effort limits. In the past, most of the crab landed was caught in inshore fishing areas; today, it comes primarily from fishing areas farther off shore, according to DFO (2015). There are 17 snow crab fishing areas in Québec waters.

All three communities, Viger, Gespeg and Gesgapegiag, harvested this crustacean from 2010 to 2015, from March to June, using various types of traps.

The Maliseet of Viger First Nation focussed its fishery in Area 17, which encompasses the Lower St. Lawrence and the north shore of the Gaspé Peninsula. The volumes harvested by fishing quadrangle (Map 2) varied from **110 kg** to **224,000 kg** for the six years, generating a total value of about **\$3.4 million**. The greatest volumes were harvested near the shore, off Rimouski.

REFERENCES:
DFO (June 2015) *Snow crab*. Retrieved in February 2017 from www.bio.gc.ca/science/research-recherche/fisheries-pecheries/managed-gere/snow-neige-en.php.

DFO (2016) *Assessment of snow crab (Chionoecetes opilio) in the southern Gulf of St. Lawrence (Areas 12, 19, 12E and 12F) and advice for the 2016 fishery*. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2016/010 Retrieved in February 2017 from http://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs70-6-2016-010-eng.pdf.



Pêches commerciales / Commercial Fisheries

Crabe des Neiges / Snow Crab

Zone de pêche au crabe des neiges / Snow Crab Fishing Area

Quantité capturée (Kg) / Amount Harvested (Kg)

- 0 - 49 999
- 50 000 - 99 999
- 100 000 - 199 999
- 200 000 - 299 999
- 300 000 - 400 000

0 20 40 80 km
Échelle approximative / Approximate scale
1:4,000,000

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Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data : MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

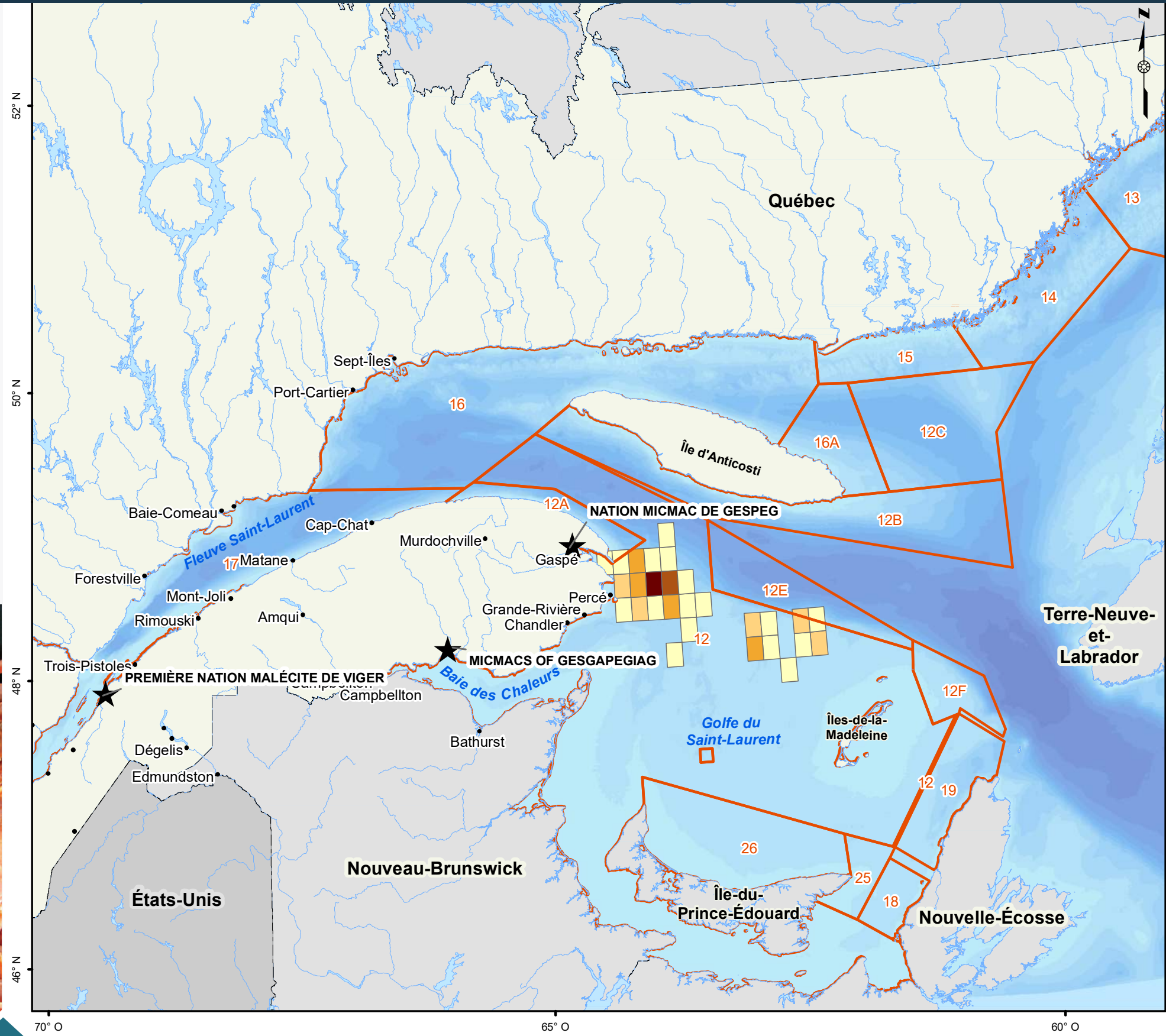


MAP
02
**TOTAL VOLUME OF SNOW CRAB HARVESTED (KG)
MALISEET OF VIGER FIRST NATION
2010-2015**

PORTRAIT OF COMMERCIAL ACTIVITIES - SNOW CRAB FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

As for the community of Gesgapegiag, it harvested snow crab in Area 12, located in the Gulf of St. Lawrence. The volumes harvested, presented by fishing quadrangle (Map # 3) varied from **535 kg** to **353,000 kg** for the six years, for a total value of **\$4.7 million**. The sectors where the largest volumes of this crustacean were harvested lie within the American Bank Area of Interest some twenty kilometres east of the Gaspé Peninsula.



Pêches commerciales / Commercial Fisheries

Crabe des Neiges / Snow Crab

- Zone de pêche au crabe des neiges / Snow Crab Fishing Area
- Quantité capturée (Kg) / Amount Harvested (Kg)
 - 0 - 49 999
 - 50 000 - 99 999
 - 100 000 - 199 999
 - 200 000 - 299 999
 - 300 000 - 400 000

0 20 40 80 km
Échelle approximative / Approximate scale
1:4,000,000

Dernière mise à jour: Janvier 2017
Last update: January 2017
Produit par: AGHAMM
Produced by: MMAFMA
Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016) et /and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



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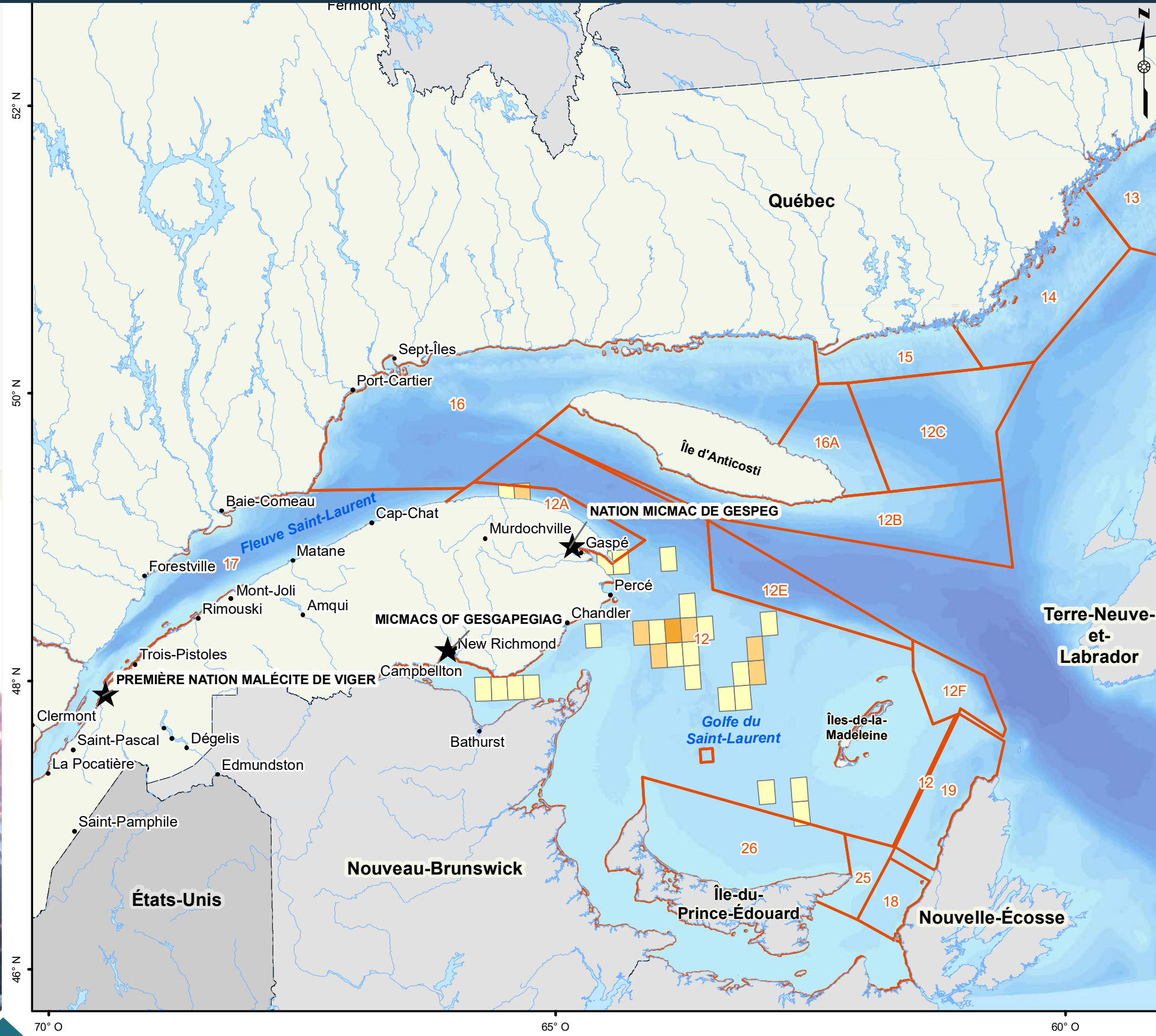
MAP
03

**TOTAL VOLUME OF SNOW CRAB HARVESTED (KG)
MICMACS OF GESGAPEGIAG
2010-2015**

PORTRAIT OF COMMERCIAL ACTIVITIES - SNOW CRAB FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

As for the Nation Micmac de Gespeg, it harvested snow crab in Areas 12 and 12A. The volumes harvested, presented by fishing quadrangle (Map 4) varied from **740 kg** to **162,000 kg** for the six years, for a total value of **\$9.4 million**.



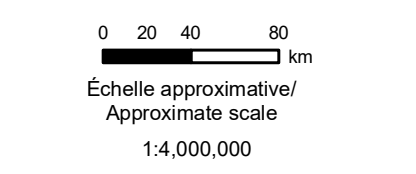
Pêches commerciales / Commercial Fisheries

Crabe des neiges / Snow Crab

Zone de pêche au crabe des neiges / Snow Crab Fishing Area

Quantité capturée (Kg) / Amount Harvested (Kg)

- 0 - 49 999
- 50 000 - 99 999
- 100 000 - 199 999
- 200 000 - 299 999
- 300 000 - 400 000



Dernière mise à jour: Janvier 2017 / Last update: January 2017

Produit par: AGHAMM / Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83 / Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



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**TOTAL VOLUME OF SNOW CRAB HARVESTED (KG)
NATION MICMAC DE GESPEG
2010-2015**

MAP
04

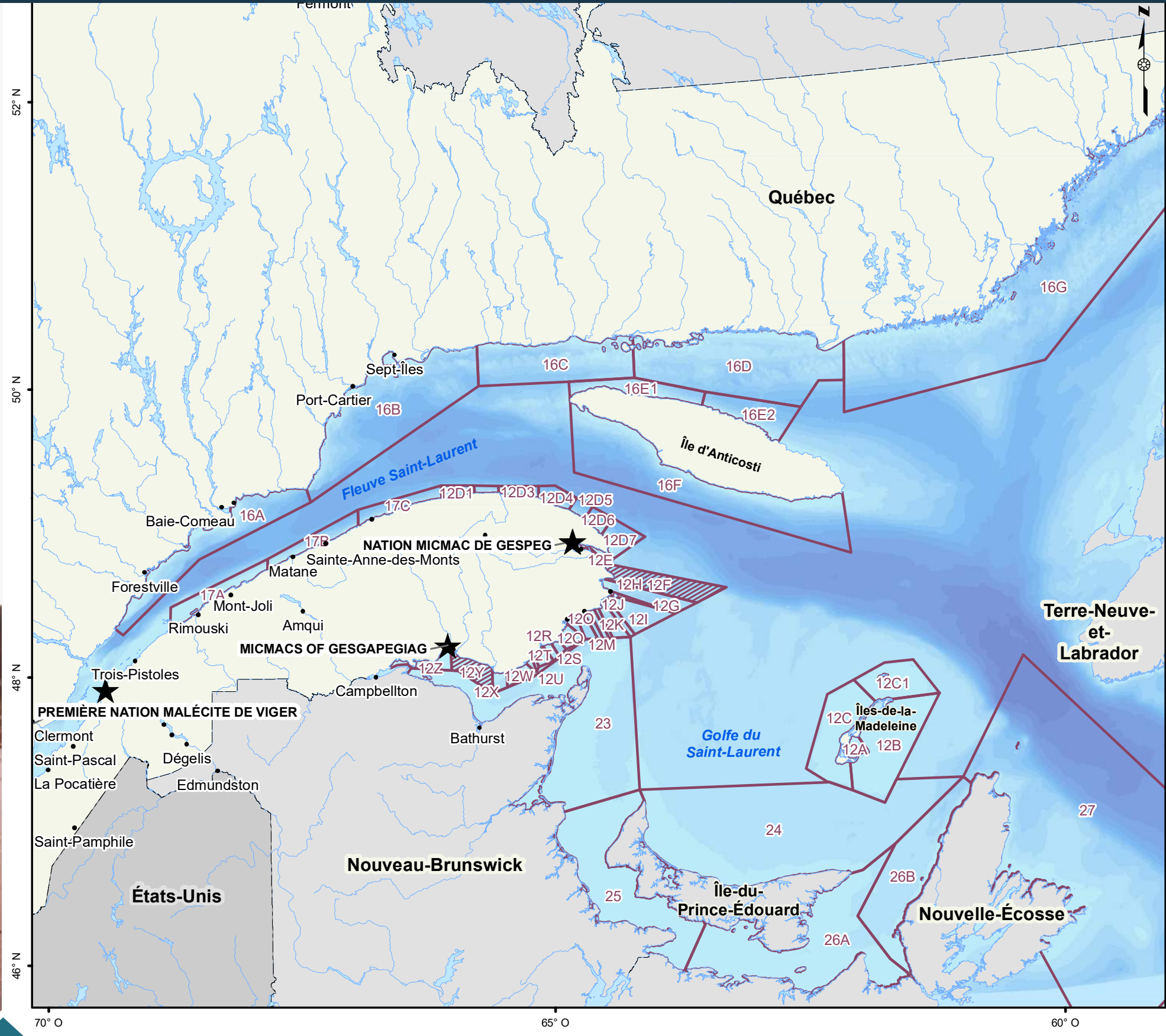
PORTRAIT OF COMMERCIAL ACTIVITIES - ROCK CRAB FISHERY

Rock crab, *Cancer irroratus*, is a decapod crustacean present along the Atlantic Coast. It is a key species in the marine ecosystem and an important prey, particularly for lobster. As the rock crab grows, it moults periodically, during which time it loses its carapace. This species tends to be concentrated in shallow water; in Gaspé Peninsula waters, it inhabits the intertidal zone to depths of about 40 m (DFO, 2013).

THE COMMERCIAL FISHERY

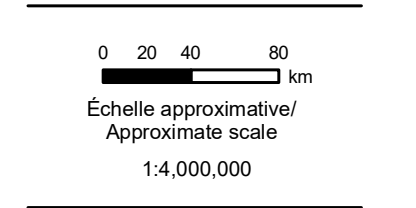
The commercial rock crab fishery in Québec is fairly recent since it only really became established in the 1990s; it first began south of the Gaspé Peninsula. This species is harvested by means of traps and only the males are taken. It begins after the lobster fishery on the Gaspé Peninsula and Magdalen Islands. The rock crab fishery in Québec is divided into some fifty fishing areas, two of which are harvested by two communities (Map 5). Moreover, rock crab is often used as bait for the lobster fishery and is also the most abundant lobster fishery bycatch (in weight), according to 2012 data (DFO 2013). Also according to DFO, rock crab bycatch that is sold is recorded. However, there are no precise data on the volume used as bait for the lobster fishery (DFO, 2013).

REFERENCE:
Gendron, L. and Savard, G. (2013) *Assessment of Rock crab (Cancer irroratus) stock status in the coastal waters of Québec in 2012*, DFO Can. Sci. Adv. Sec. Sci. Res. Doc. 2013/057, xi + 85 p. Retrieved in February 2017 from www.dfo-mpo.gc.ca/csas-sccc/Publications/ResDocs-DocRech/2013/2013_057-eng.html.



Pêches commerciales / Commercial Fisheries

- Crabe commun / Rock Crab**
- Zone de pêche au crabe commun
Rock Crab Fishing Area
 - Zone pêchée par les communautés
Area Fished by the communities



Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
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COMMERCIAL ROCK CRAB FISHING AREAS 2010-2015

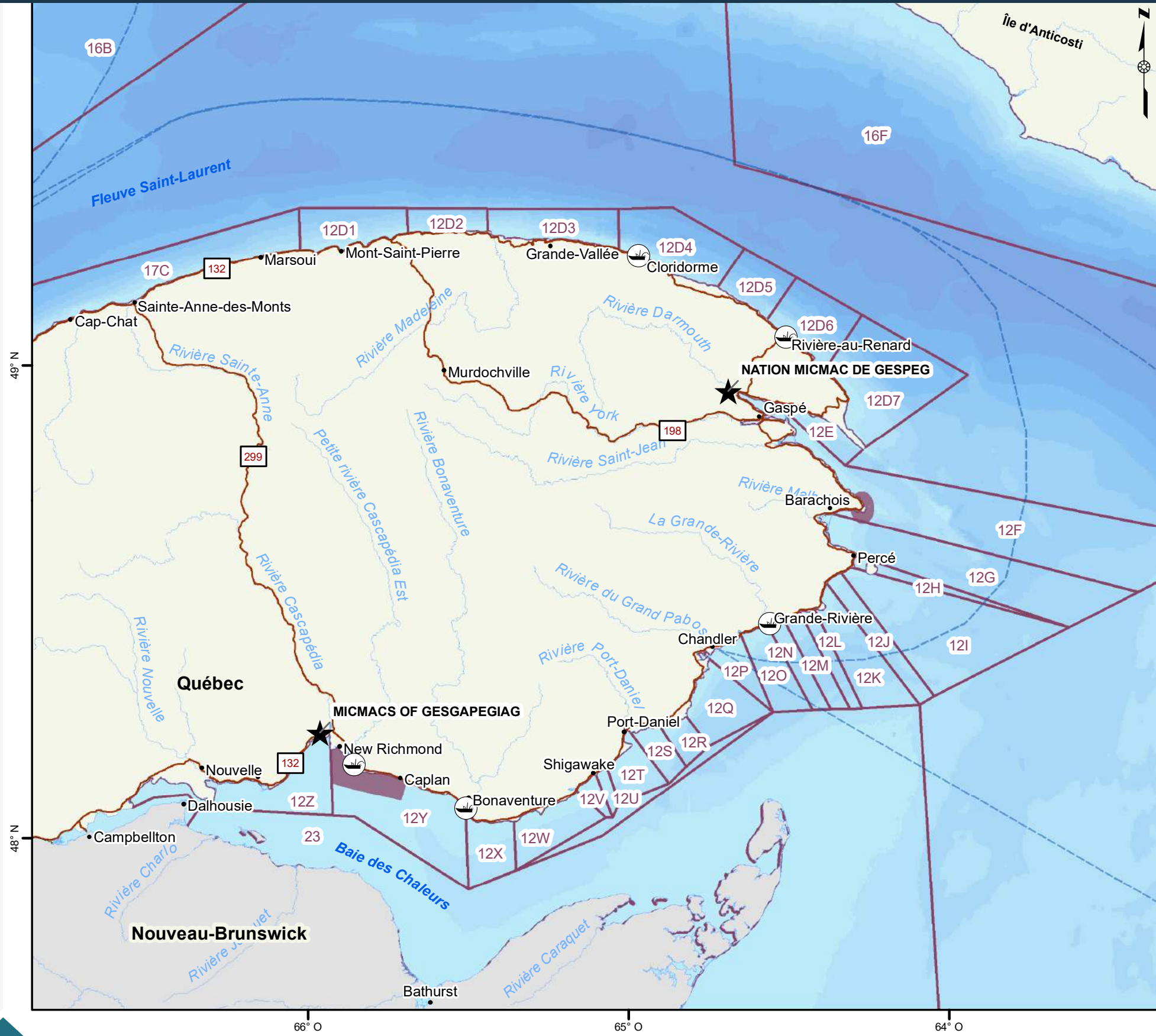
MAP
05

PORTRAIT OF COMMERCIAL ACTIVITIES - ROCK CRAB FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

The rock crab was harvested by the communities of Gesgapegiag and Gespeg from July to October, between 2011 and 2015. Map 6 shows the sectors harvested by these two communities. It was harvested in areas 12F and 12Y by the communities of Gespeg and Gesgapegiag respectively, in the Barachois sector for the first community and in Chaleur Bay for the second.

Using rock crab traps deployed at depths of about 1 meter, the community of Gesgapegiag was able to catch **285,000 kg** while the community of Gespeg caught **245,000 kg** over a five-year period. These harvests were worth about **\$187,000** and **\$178,000** respectively. It is important to point out that Gespeg lobster harvesters caught and kept a rock crab bycatch of **640 kg** in 2013 while Gesgapegiag lobster harvesters caught and kept **5,100 kg** of rock crab as bycatch from 2013 to 2015.



Pêches commerciales / Commercial Fisheries

- Crabe commun / Rock Crab**
- Zone de pêche au crabe commun / Rock Crab Fishing Area
 - Secteur pêché / Zone Fished
 - Traversier / Ferry
 - Port utilisé par les communautés / Harbour Used by the Communities

0 5 10 20 km
 Échelle approximative / Approximate scale
 1:1,218,593

Dernière mise à jour: Janvier 2017
 Last update: January 2017

Produit par: AGHAMM
 Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
 Lambert Conformal Conic, NAD83

Sources:
 - Fond de carte/ Base Map: MPO (2016), ESRI (2016) et / and NRCan (2016)
 - Données de pêche/ Fisheries Data: MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

ROCK CRAB FISHING SECTORS, MICMACS OF GESGAPEGIAG AND NATION MICMAC DE GESPEG 2010-2015

MAP
06

PORTRAIT OF COMMERCIAL ACTIVITIES - AMERICAN LOBSTER FISHERY

The American lobster, *Homarus americanus*, is one of the largest marine crustaceans and one of the longest lived; it can live as long as 50 years. Like all crustaceans, it has a rigid carapace and to grow, it moults periodically throughout its life, usually when water temperatures rise. It is estimated that an American lobster reaches the minimum catch size (82 mm) at 8 to 9 years of age (DFO, 2016). It generally inhabits depths of less than 50 m (DFO, 2017). It prefers rocky bottoms that provide shelter, but it can also be found on sandy or even muddy bottoms (DFO, 2016).

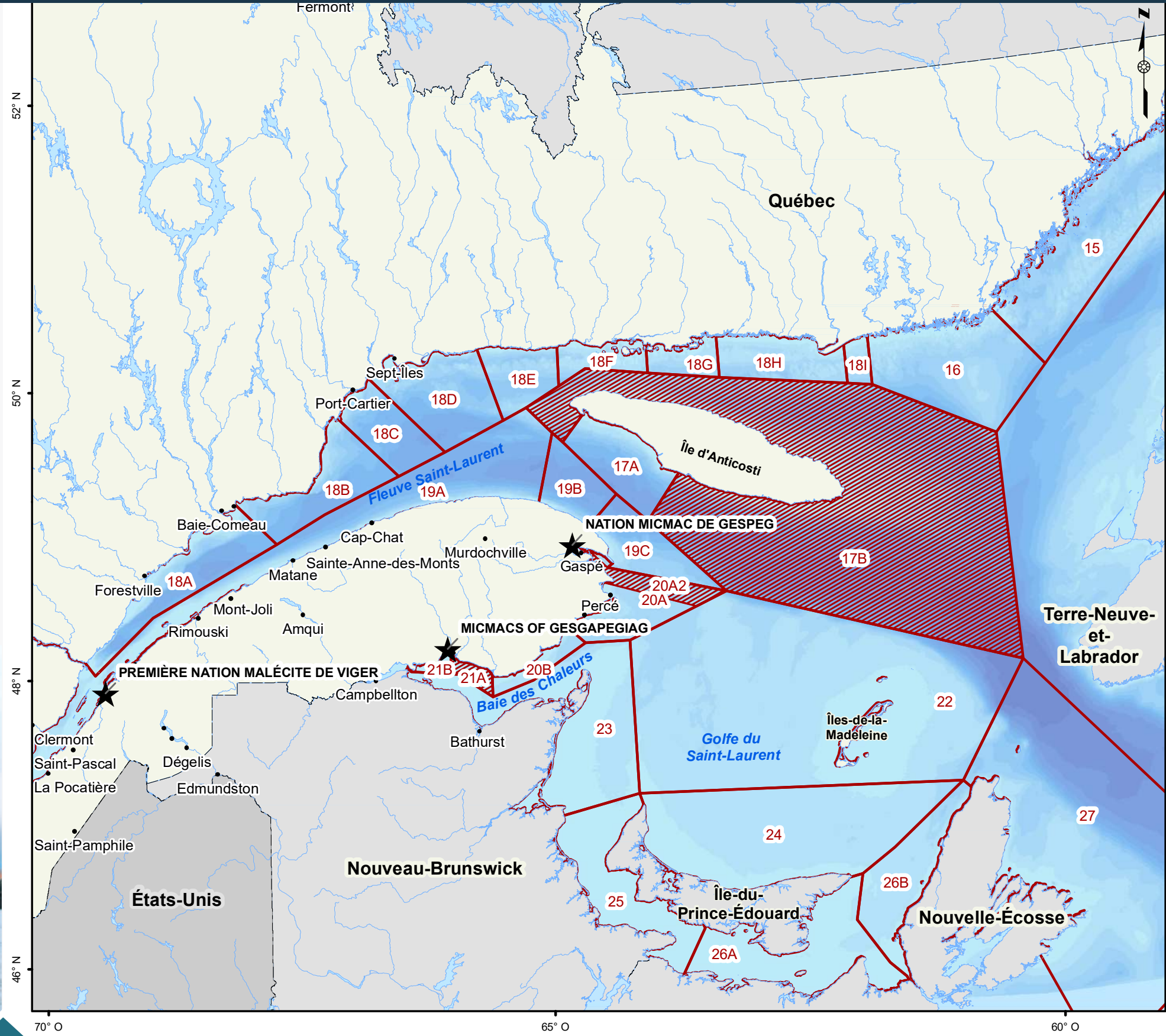
THE COMMERCIAL FISHERY

The American lobster fishery takes place along the coasts of Québec and harvesters are assigned one or more of eight large areas (LFAs 15 to 22), including three sub-areas harvested by two communities, as illustrated on Map 7. The American lobster fishery is managed by controlling the fishing effort (number of licences, number and size of traps, season and daily fishing times, organization of trap lines) and by using escape measures (i.e. minimum and maximum catch sizes, release of berried females, etc.). Lobster landings reached a historic peak in 2015 (DFO, 2016).

REFERENCE:
Gendron, L. and C. Duluc (2012) *Bycatch in the lobster fishery in the Gaspé (LFAs 19 and 20) and the Magdalen Islands (LFA 22), Québec, in 2011*. DFO Can. Sci. Advis. Sec. Sci. Res. Doc. 2012/100. vii + 36 p. Retrieved in February 2017 from www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2012/2012_100-eng.html.

DFO (2016) 2015 *Lobster stocks assessment in the Gaspé, Québec area (LFAs 19, 20 and 21)*. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2016/043. Retrieved in February 2017 from www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016_043-eng.pdf.

DFO (January 2017) *American Lobster*. Retrieved in February 2017 from www.dfo-mpo.gc.ca/species-especes/profiles-profil/american-lobster-homard-eng.html.



Pêches commerciales / Commercial Fisheries

- Homard / Lobster**
- Zone de pêche au homard
Lobster Fishing Area
 - Zone pêchée par les communautés
Area Fished by the Communities

0 20 40 80 km
Échelle approximative / Approximate scale
1:4,000,000

Dernière mise à jour: Janvier 2017
Last update: January 2017
Produit par: AGHAMM
Produced by: MMAFMA
Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data : MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

COMMERCIAL AMERICAN LOBSTER FISHING AREAS

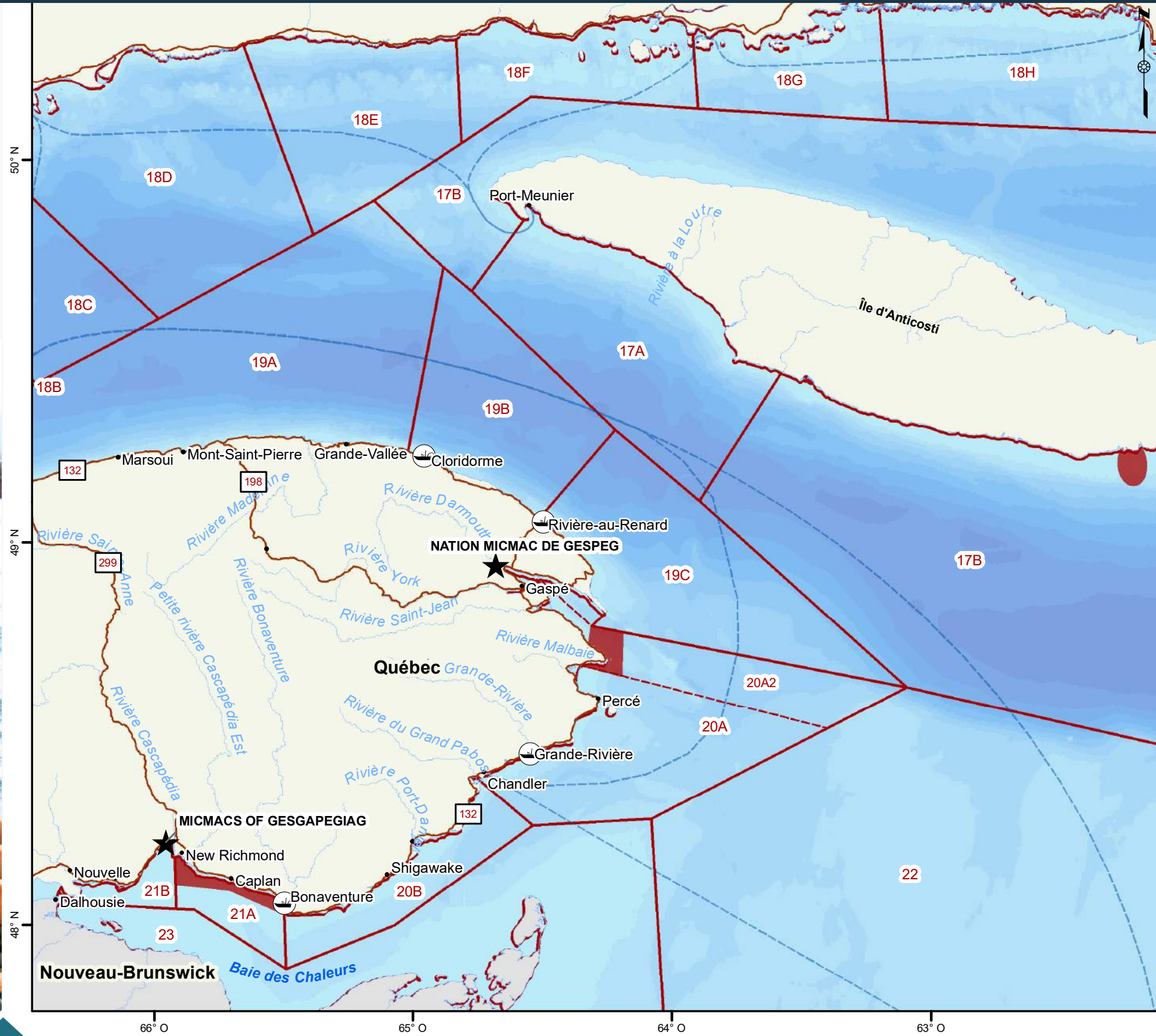
MAP
07

PORTRAIT OF COMMERCIAL ACTIVITIES - AMERICAN LOBSTER FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

The community of Gesgapegiag harvests lobster in Area 21A, while the Gespeg community focuses its effort on subarea 20A2 of Area 20A and near Anticosti Island in Area 17B, as shown on Map 8. From 2010 to 2015, from April to July, about **290,300 kg¹** of lobster was caught using traps in Area 21A, as well as **103,700 kg²** and **148,600 kg³** respectively in areas 20A2 and 17B (Map 8). These catches generated sales of **\$3 million** for Area 21A and **\$2.7 million** for areas 20A2 and 17B.

^{1, 2 and 3} These are estimated values, based on the volumes sold to processing plants and obtained from DFO (2017) since the information contained in the logbooks, a system established in 2013, is for the most part wrong and incomplete.



Pêches commerciales / Commercial Fisheries

- Homard / Lobster**
- Zone de pêche au homard
Lobster Fishing Area
- Secteur pêché
Zone Fished
- Traversier
Ferry
- Port utilisé par les communautés
Harbour Used by the Communities

0 5 10 20 km
Échelle approximative/
Approximate scale
1:1,505,219

Dernière mise à jour: Janvier 2017
Last update: January 2017
Produit par: AGHAMM
Produced by: MMAFMA
Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map :
MPO (2016), ESRI (2016) et /
and NRCan (2016)
- Données de pêche/ Fisheries Data :
MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

AMERICAN LOBSTER FISHING SECTORS, MICMACS OF GESGAPEGIAG AND NATION MICMAC DE GESPEG 2010-2015

MAP
08

PORTRAIT OF COMMERCIAL ACTIVITIES - NORTHERN SHRIMP FISHERY

The northern shrimp, *Pandalus borealis*, is a crustacean with a hard outer shell that it must periodically shed (or moult) in order to grow. It can reach about 15 cm in total length, although the average size is about half this. They are typically found between 150 and 600 metres below sea level mainly on soft and muddy bottoms. It is a very important prey for groundfish (DFO, 2015).

THE COMMERCIAL FISHERY

The northern shrimp is the most abundant shrimp species in Atlantic Canada and ranks 4th in terms of export value for all crustacean and mollusc species. The northern shrimp fishery is managed by means of annual quotas and is subject to conservation measures to protect the health of populations (DFO 2015). The northern shrimp fishery in Québec is divided into four areas.

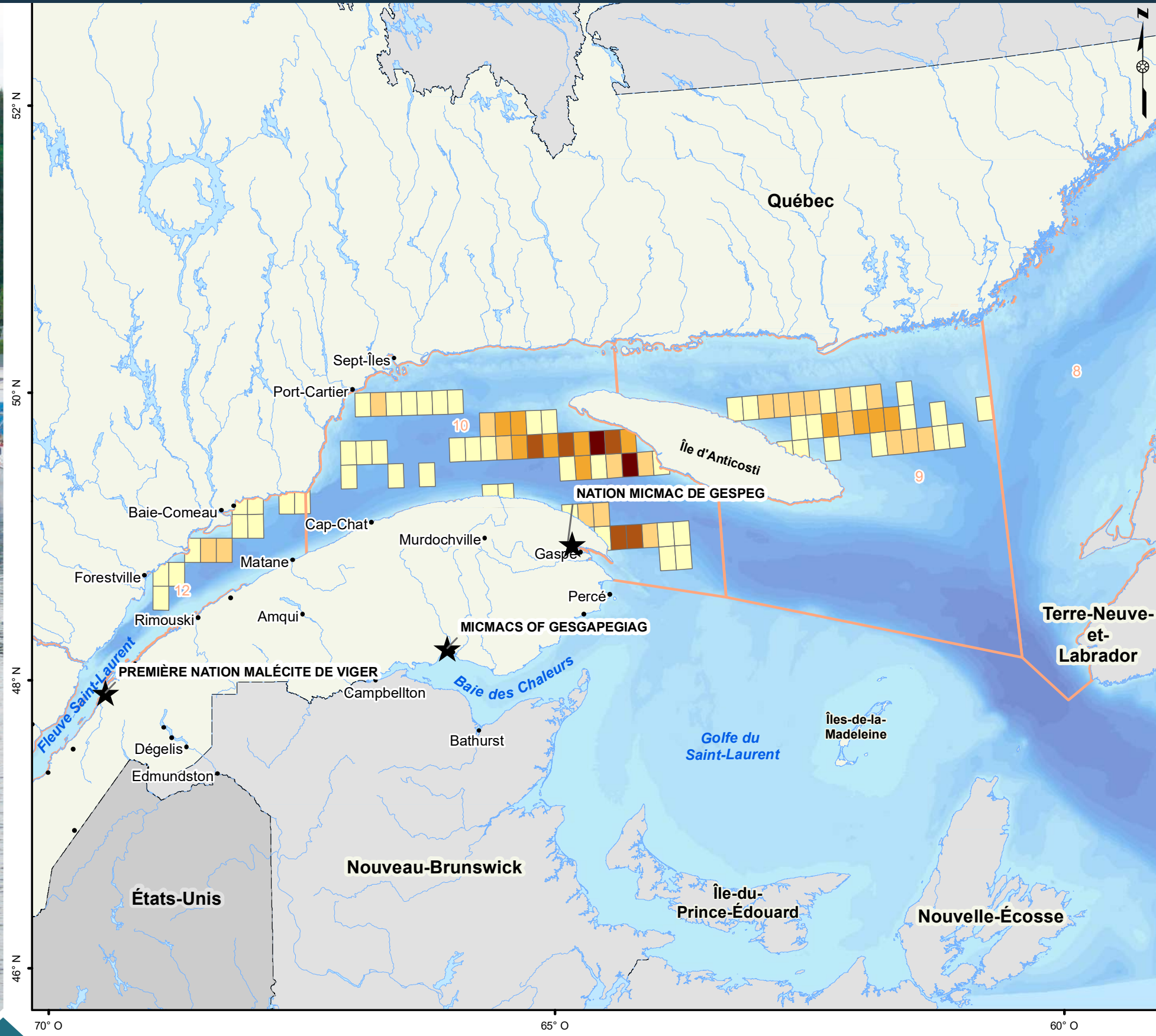
THE COMMERCIAL FISHERY BY COMMUNITY

From 2010 to 2015, the Micmacs of Gesgapegiag, the Nation Micmac de Gespeg and the Maliseet of Viger First Nation harvested this crustacean from April to October in fishing areas 9, 10 and 12, using otter trawls. As shown on maps 9, 10 and 11, the most productive sectors were in Area 10, west of Anticosti Island. The average volumes harvested annually were **940,000 kg**, 505,000 kg and **1,000,000 kg** respectively for Viger, Gespeg and Gesgapegiag. For Viger, **5.6 million kilograms** of shrimp were caught over a period of six years, with a total value of approximately **\$9.2 million**. For Gespeg, the volume caught during this same period reached about **3 million kilograms**, with a total value of about **\$5.2 million**. As for the community of Gesgapegiag, it caught a total of **6 million kilograms** of shrimp during this same period, representing a value of **\$10.3 million**.



REFERENCE:
DFO (March 2015) *Shrimp*. Retrieved in February 2017 from www.dfo-mpo.gc.ca/fm-gp/sustainable-durable/fisheries-peches/shrimp-crevette-eng.htm.

PORTRAIT OF COMMERCIAL ACTIVITIES - NORTHERN SHRIMP FISHERY

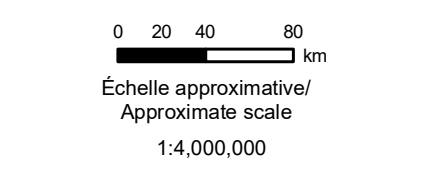
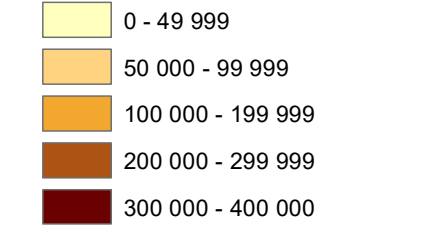


Pêches commerciales / Commercial Fisheries

Crevette nordique / Nordic Shrimp

Zone de pêche à la crevette nordique
Nordic Shrimp Fishing Area

Quantité capturée (Kg) Amount Harvested (Kg)



Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

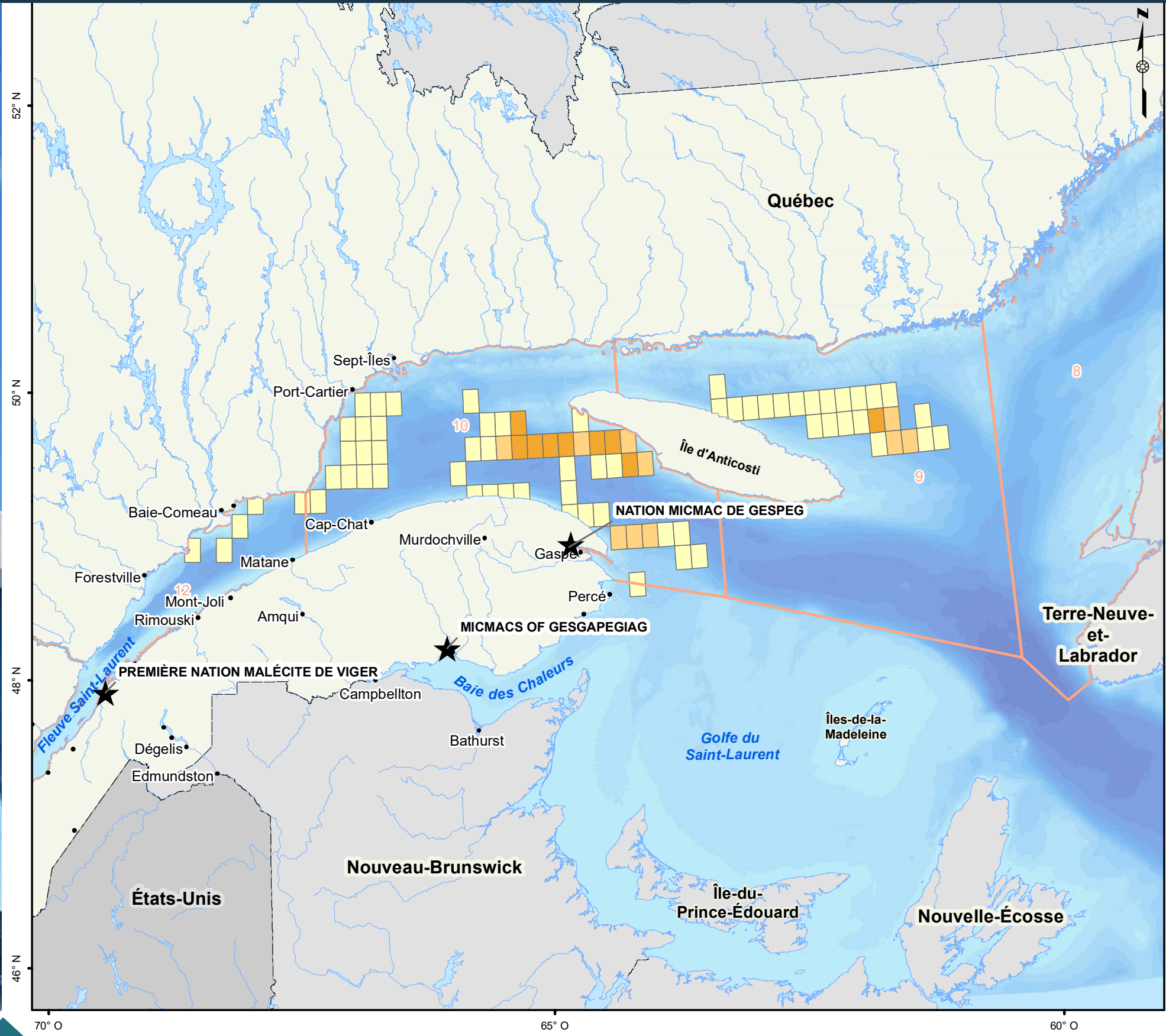
Sources:
- Fond de carte/ Base Map :
MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data :
MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP
09
**TOTAL VOLUME OF NORTHERN SHRIMP HARVESTED (KG)
MALISEET OF VIGER FIRST NATION
2010-2015**

PORTRAIT OF COMMERCIAL ACTIVITIES - NORTHERN SHRIMP FISHERY

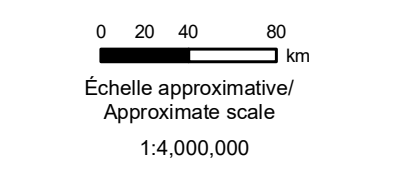
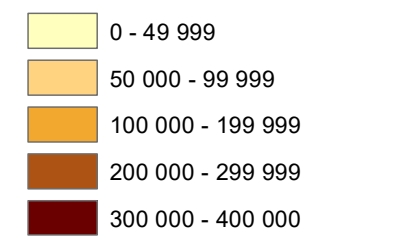


Pêches commerciales / Commercial Fisheries

Crevette nordique / Nordic Shrimp

Zone de pêche à la crevette nordique / Nordic Shrimp Fishing Area

Quantité capturée (Kg) / Amount Harvested (Kg)



Dernière mise à jour: Janvier 2017 / Last update: January 2017

Produit par: AGHAMM / Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83 / Lambert Conformal Conic, NAD83

Sources:
 - Fond de carte/ Base Map: MPO (2016) et / and NRCAN (2016)
 - Données de pêche/ Fisheries Data: MPO (2016)



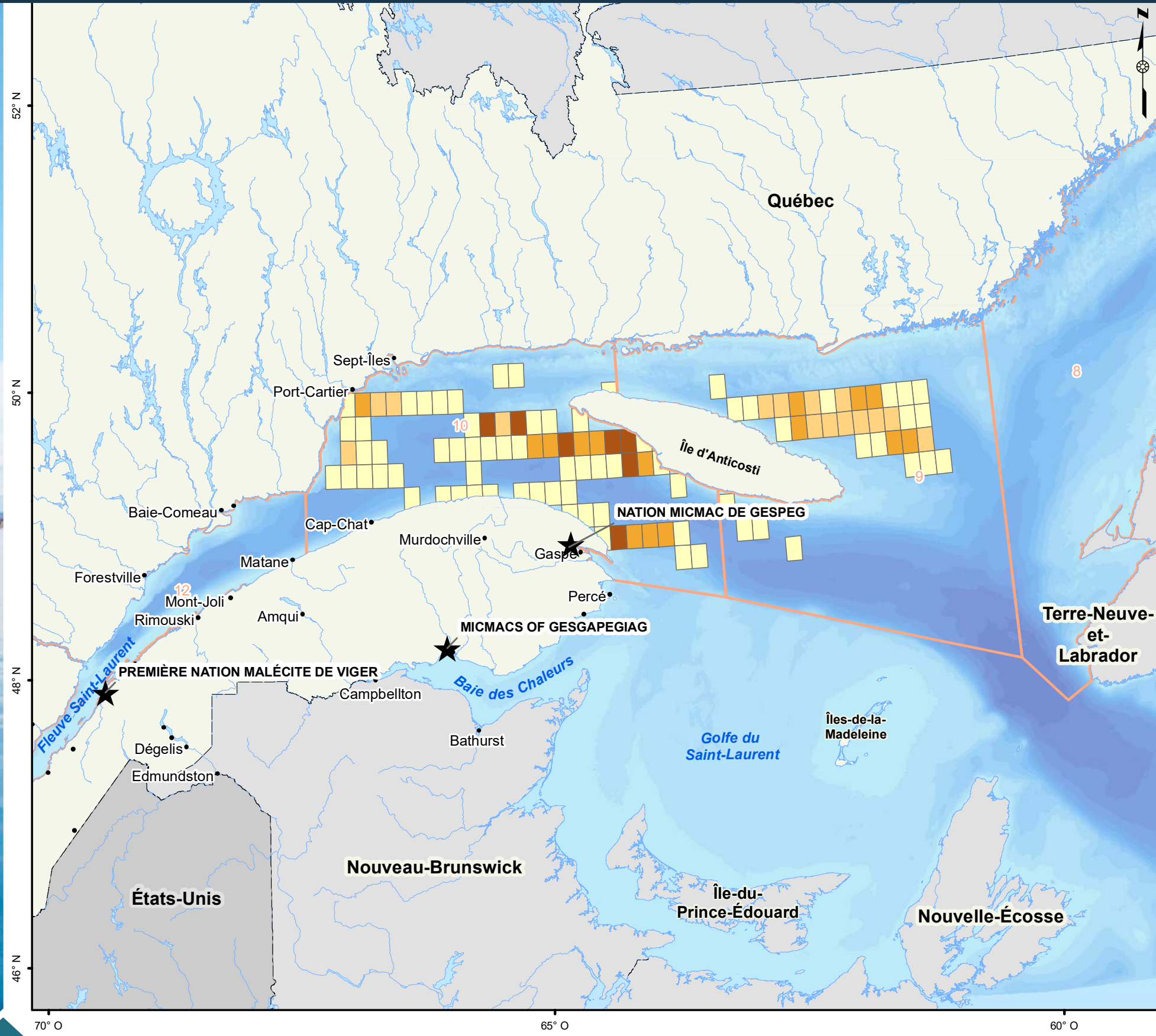
Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP

10

**TOTAL VOLUME OF NORTHERN SHRIMP HARVESTED (KG)
 NATION MICMAC DE GESPEG
 2010-2015**

PORTRAIT OF COMMERCIAL ACTIVITIES - NORTHERN SHRIMP FISHERY

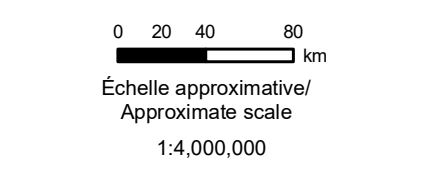
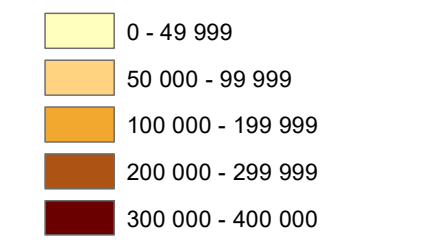


Pêches commerciales / Commercial Fisheries

Crevette nordique / Nordic Shrimp

Zone de pêche à la crevette nordique / Nordic Shrimp Fishing Area

Quantité capturée (Kg) / Amount Harvested (Kg)



Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data : MPO (2016)



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TOTAL VOLUME OF NORTHERN SHRIMP HARVESTED (KG) MICMACS OF GESGAPEGIAG 2010-2015

PORTRAIT OF COMMERCIAL ACTIVITIES - GREENLAND HALIBUT FISHERY

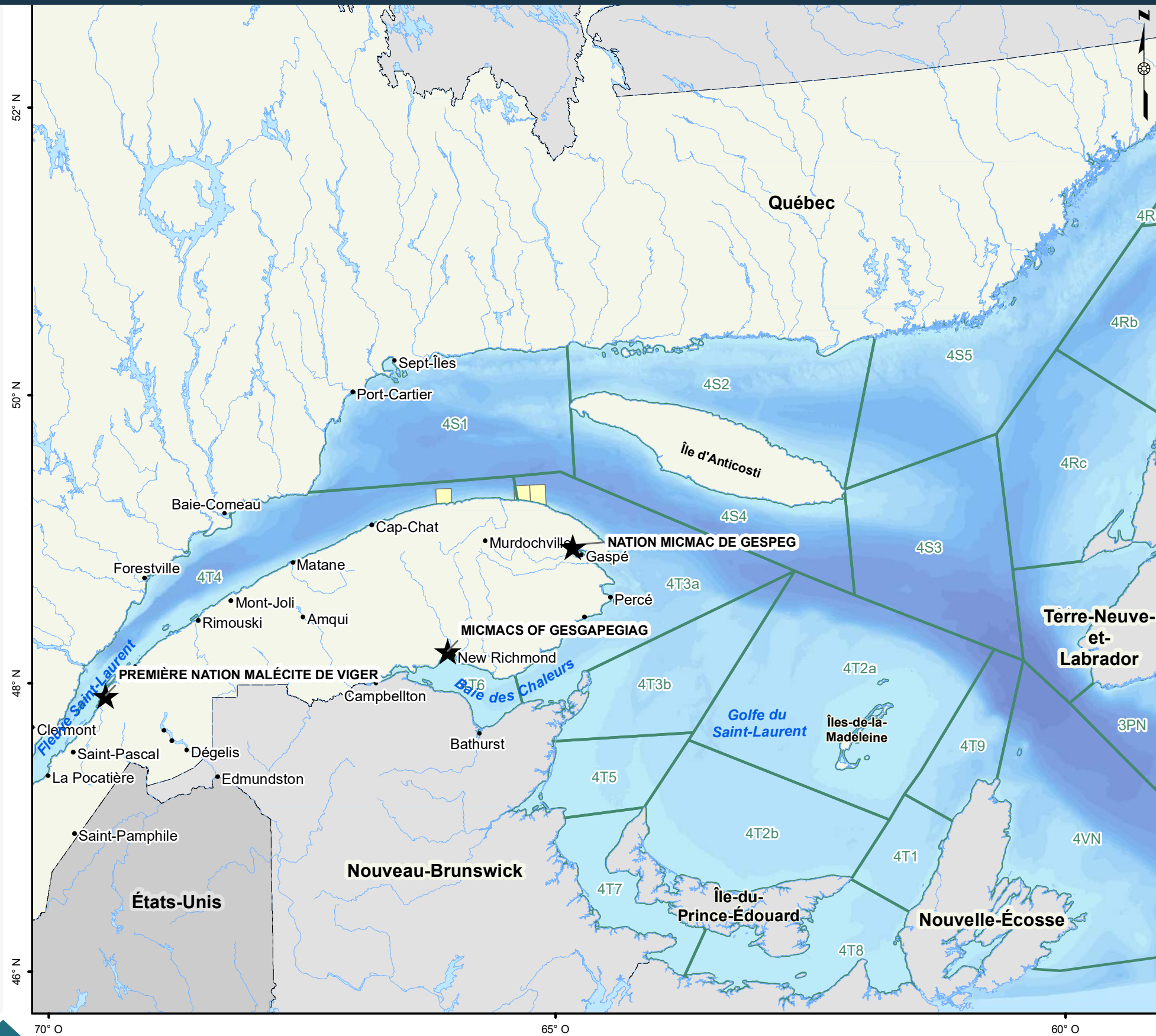
Greenland halibut, *Reinhardtius hippoglossoides*, is a deep-water flatfish known to many people by many names. Americans call it Greenland halibut, eastern Canadians call it Greenland turbot or Newfoundland turbot (SLGO). It is related to the Atlantic halibut although much smaller, reaching a maximum length of 120 cm and weighing up to 25 kg. This explains why some people also call it lesser or mock halibut. Its upper side is darker in colour earning it yet other names: black or blue halibut. This fish prefers the cold northern waters of the Pacific and Atlantic oceans and is more abundant wherever there are large northern shrimp stocks (SLGO). The optimal water temperature for this species varies between 1°C and 3°C (SLGO).

THE COMMERCIAL FISHERY

In the past, Canadian fish harvesters had to compete with many foreign fishing fleets seeking Greenland halibut in the northwestern Atlantic. However, since an exclusive fishing zone was established in 1977, foreign fleets may no longer fish in several sectors and Canadian catches of this species have increased considerably (SLGO). In fact, a directed Greenland halibut fishery truly came into being in the late 1970s, with gill nets and bottom trawls being used at the time. Today this fishery is conducted using fishing vessels equipped with gillnets, whose home ports are either in Québec or on the western shore of Newfoundland (DFO, 2015). Small individuals measuring less than 20 cm in length are frequently caught as bycatch by shrimp trawlers fishing at depths of between 200 and 400 m, near the seabed or in salmon drift nets deployed near the surface. The largest fish tend to be caught in deeper zones, by longliners and deep sea trawlers at depths greater than 1000 m (SLGO). In Québec, this fishery is divided into 22 areas, designated for the groundfish fishery.

THE COMMERCIAL FISHERY BY COMMUNITY

The three communities have all taken part in this fishery: Viger, from 2012 to 2015; Gespeg, from 2010 to 2015 and Gesgapegiag, only in 2015. In fact, contrary to the other communities, Gesgapegiag had a competitive groundfish fishing licence in 2015. Moreover, this explains the small volume of Greenland halibut caught, which varied from 700 to 4,200 kg per fishing quadrangle, generating a total value of \$28,800. The fishery is concentrated along the coast, on the northern side of the Gaspé Peninsula, in fishing areas 4T3a and 4T4, as shown on Map 12.

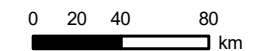
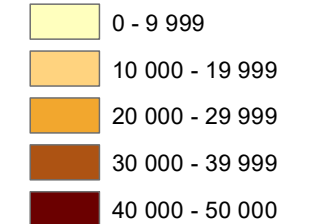


Pêches commerciales / Commercial Fisheries

Flétan du Groenland / Greenland Halibut

Zone de pêche au poisson de fond
Groundfish Fishing Area

Quantité capturée (Kg) Amount Harvested (Kg)



Échelle approximative/
Approximate scale
1:4,000,000

Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map :
MPO (2016) et / and NRCAN (2016)
- Données de pêche/ Fisheries Data :
MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

REFERENCE:
DFO (2015) *Assessment of Greenland Halibut in the Gulf of St. Lawrence (4RST) in 2014*. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2015/056. Retrieved in March 2017 from www.dfo-mpo.gc.ca/csas-sccs/Publications/ScRS/RS/2016/2016_003-eng.pdf.

SLGO (date unknown) Greenland halibut. Retrieved in March 2017 from slgo.ca/en/sentinel/context/groundfish/greenland-halibut.html.

MAP

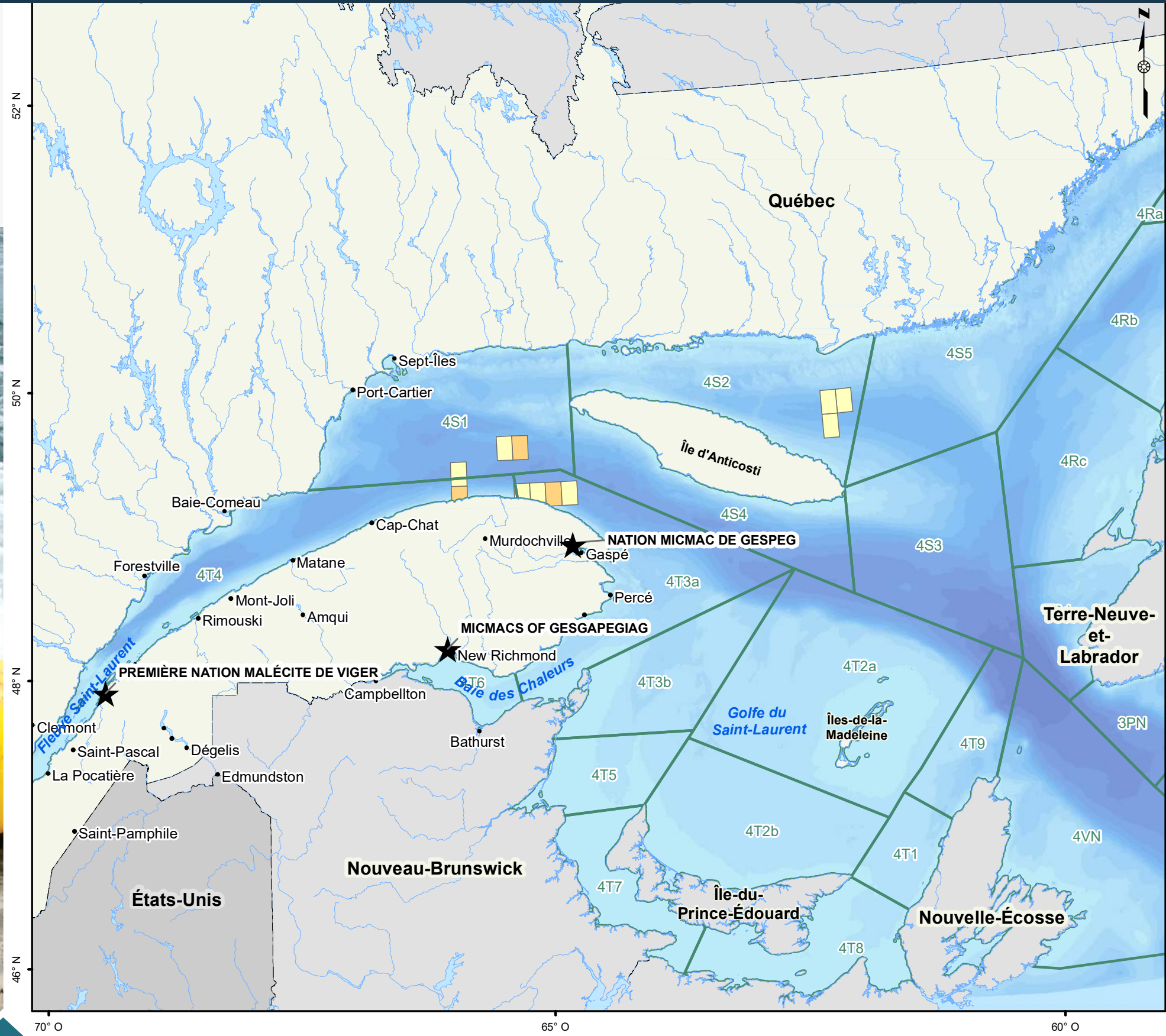
12

TOTAL VOLUME OF GREENLAND HALIBUT HARVESTED (KG) MICMACS OF GESGAPEGIAG 2015

PORTRAIT OF COMMERCIAL ACTIVITIES - GREENLAND HALIBUT FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

The Nation Micmac de Gespeg caught between **600 kg** and **17,000 kg** of Greenland halibut per fishing quadrangle, with a total value of **\$194,000**. Fishing is concentrated in areas 4S1 and 4T3a, located north of the Gaspé Peninsula, and in area 4S2, northeast of Anticosti Island (Map 13).

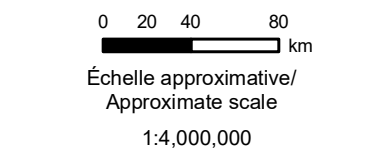
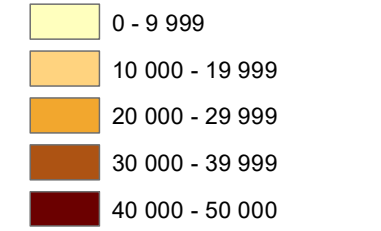


Pêches commerciales / Commercial Fisheries

Flétan du Groenland / Greenland Halibut

Zone de pêche au poisson de fond
Groundfish Fishing Area

Quantité capturée (Kg) Amount Harvested (Kg)



Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



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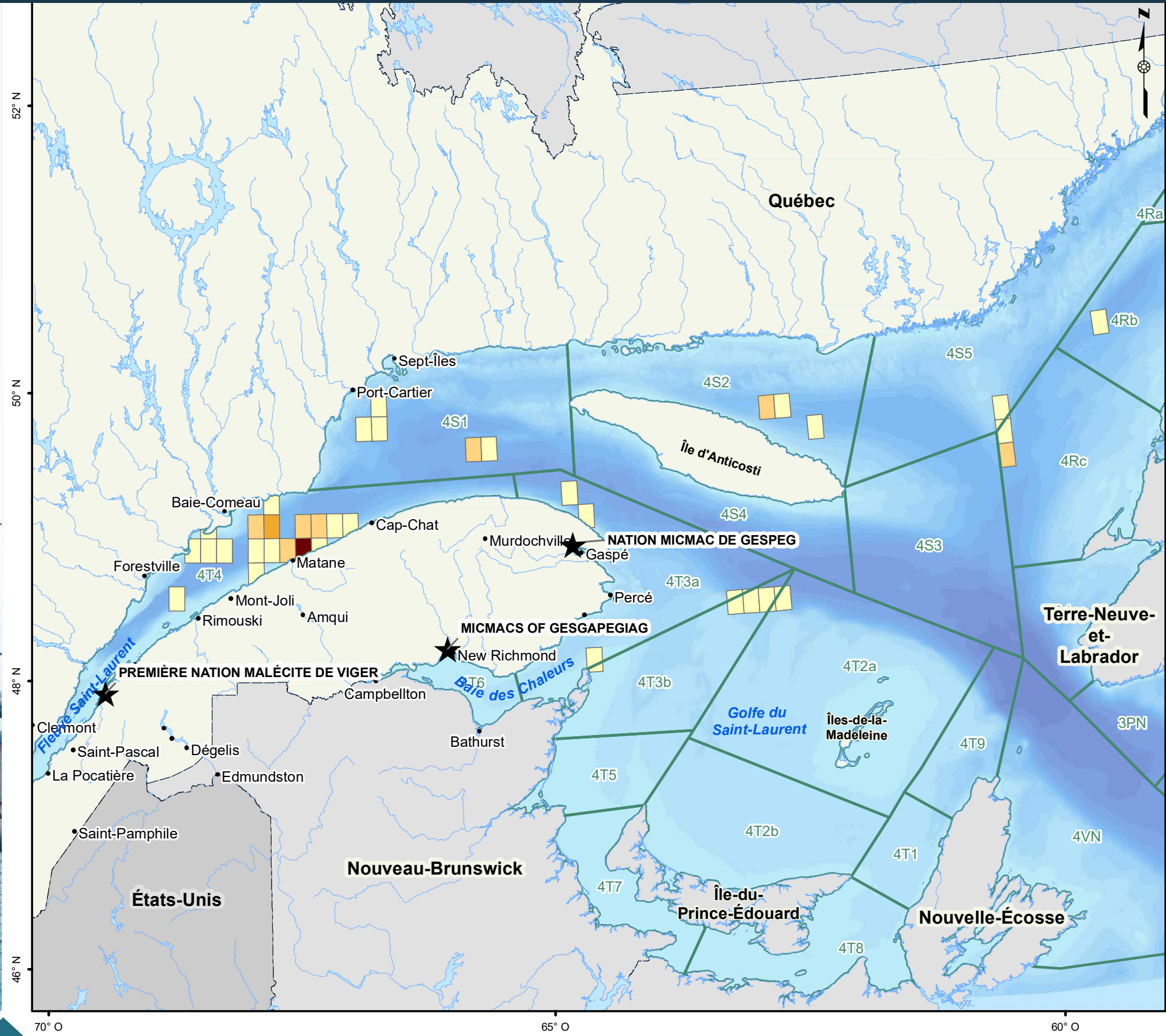
MAP
13

TOTAL VOLUME OF GREENLAND HALIBUT HARVESTED (KG) NATION MICMAC DE GESPEG 2010-2015

PORTRAIT OF COMMERCIAL ACTIVITIES - GREENLAND HALIBUT FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

As for the Maliseet of Viger First Nation, it caught between **700 kg** and **50,000 kg** per fishing quadrangle, with a total value of **\$652,000**. As shown on Map 14, fishing took place essentially in the St. Lawrence River off Ville de Matane, in area 4T4 and in a few small sectors in areas 4S1, 4T3a, 4T3b, 4S2, 4S5, 4Rc and 4Rb.

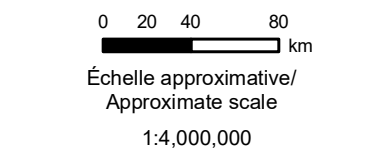
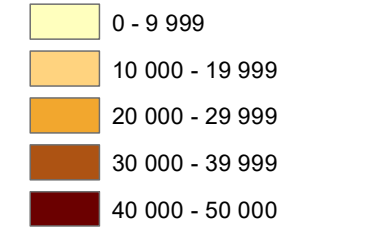


Pêches commerciales / Commercial Fisheries

Flétan du Groenland / Greenland Halibut

Zone de pêche au poisson de fond / Groundfish Fishing Area

Quantité capturée (Kg) / Amount Harvested (Kg)



Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP
14
**TOTAL VOLUME OF GREENLAND HALIBUT HARVESTED (KG)
MALISEET OF VIGER FIRST NATION
2012-2015**

PORTRAIT OF COMMERCIAL ACTIVITIES - ATLANTIC HALIBUT FISHERY

The Atlantic halibut, *Hippoglossus hippoglossus*, is the largest, most widely-ranging and commercially-valuable groundfish in the Atlantic Ocean. It can reach as much as 2.5 m in length and weigh more than 300 kg. The Atlantic halibut is a demersal species living on or near the seabed and prefers water temperatures between 3 and 5°C (DFO, 2016).

THE COMMERCIAL FISHERY

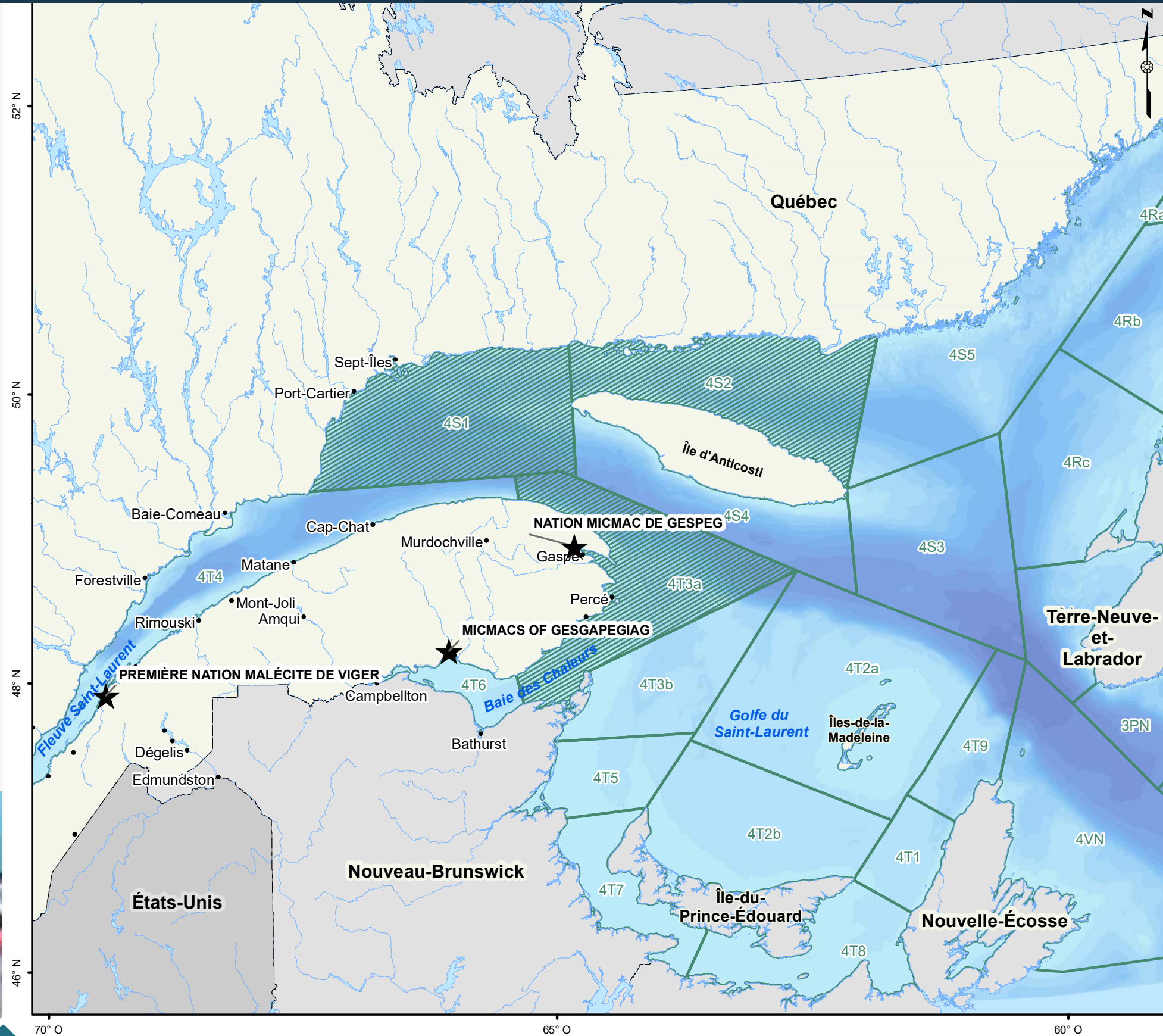
Although this halibut is the most prized flatfish from the northeastern Atlantic today, its flesh was not really much appreciated by Canadian fish harvesters before the late 19th century. Before that time, it was caught mainly by American fish harvesters, beginning in the 1800s (SLGO).

Atlantic halibut is caught using longlines; a longline consists of a heavy bottom line with a series of somewhat lighter secondary lines called gangions attached to the main line several metres apart. Each gangion holds a large, baited halibut hook (SLGO). The entire longline, made up of several sections, can be 1.5 km or longer in length. When it is deployed, the gear is anchored at each end. After several hours or even a few days, depending on the weather, the buoyed anchor is raised and the line hauled (SLGO). Québec waters are divided into 22 areas, the same ones designated for the groundfish fishery. Three of these areas are fished by two communities, as shown on Map 15.

It is important to point out that gillnets used to catch other species, such as Greenland halibut, and shrimp trawls caught notable volumes of Atlantic halibut as bycatch – **5,000 kg** from 2012 to 2015 in the case of the Maliseet of Viger First Nation and **2,900 kg** by the Nation Micmac de Gespeg from 2012 to 2015.

REFERENCE:
DFO (December 2016) *Atlantic halibut*. Retrieved in March 2017 from www.dfo-mpo.gc.ca/species-especes/profiles-profil/atl-halibut-fletan-atl-eng.html.

SLGO (date unknown) *Atlantic halibut*. Retrieved in March 2017 from slgo.ca/en/sentinel/context/groundfish/atlantic-halibut.html.



Pêches commerciales / Commercial Fisheries

Fletan Atlantique / Atlantic Halibut

- Zone de pêche au poisson de fond / Groundfish Fishing Area
- Zone pêchée / Area Fished

0 20 40 80 km
Échelle approximative / Approximate scale
1:4,000,000

Dernière mise à jour: Janvier 2017
Last update: January 2017
Produit par: AGHAMM
Produced by: MMAFMA
Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83
Sources:
- Fond de carte/ Base Map: MPO (2016) et /and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

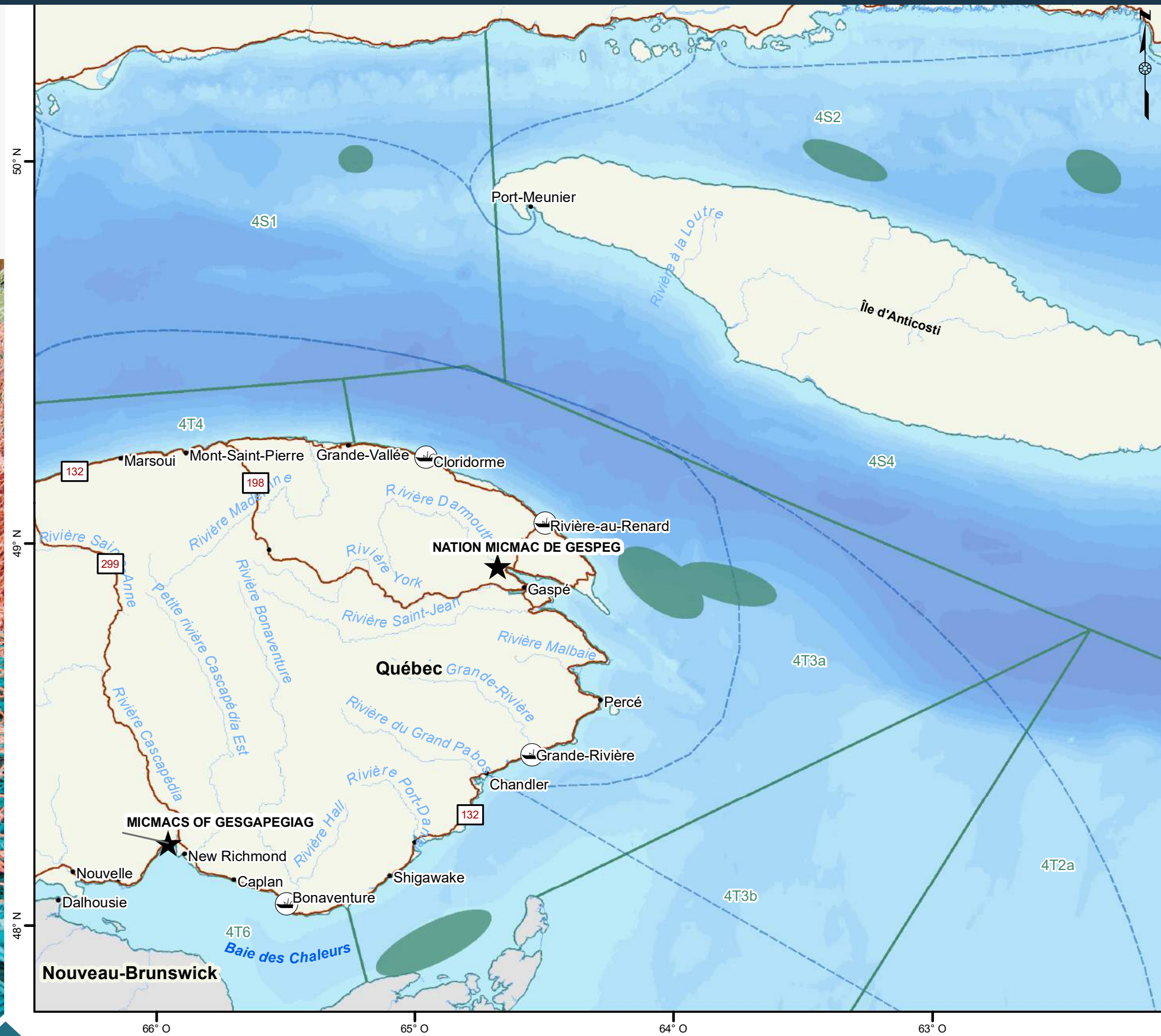
MAP
15

ATLANTIC HALIBUT COMMERCIAL FISHING AREAS

PORTRAIT OF COMMERCIAL ACTIVITIES - ATLANTIC HALIBUT FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

In 2015, the community of Gesgapegiag had a competitive groundfish fishing licence and focussed its fishing efforts on three small sectors near Anticosti Island in fishing areas 4S1 and 4S2, as shown on Map 16. A total of **6,300 kg** of Atlantic halibut was caught, representing a value of about **\$60,500**. As for the community of Gespeg, which has a groundfish licence, it participated in the halibut fishery from 2012 to 2015 in two sectors located east of Gaspé and in Chaleur Bay in fishing area 4T3a (Map 16). About **7,900 kg** were caught, with a total value of about **\$19,300**.



Pêches commerciales / Commercial Fisheries

Flétan Atlantique / Atlantic Halibut

- Zone de pêche au poisson de fond / Groundfish Fishing Area
- Secteur pêché / Zone Fished
- Traversier / Ferry
- Port utilisé par les communautés / Harbour Used by the Communities

0 5 10 20 km
Échelle approximative / Approximate scale
1:1,505,219

Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016), ESRI (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

ATLANTIC HALIBUT FISHING SECTORS MICMACS OF GESGAPEGIAG AND NATION MICMAC DE GESPEG 2012-2015

MAP
16

PORTRAIT OF COMMERCIAL ACTIVITIES - BY CATCH BY THE THREE COMMUNITIES

While commercial fishing activities are underway, species other than those targeted can be caught by accident. Thus, during the same period, from 2010 to 2015, species such as haddock, (*Melanogrammus aeglefinus*), monkfish (*Lophius americanus*), herring (*Clupea harengus harengus*), White hake (*Urophycis tenuis*), Atlantic cod (*Gadus morhua*), American plaice (*Hippoglossoides platessoides*), Witch flounder (*Glyptocephalus cynoglossus*), Winter flounder (*Pseudopleuronectes americanus*) and redfish (*Sebastes marinus*) were caught. This bycatch, also recorded, represents a total volume of about **15,800 kg** for all three Aboriginal communities over the course of the six years, with an approximate value of **\$16,000**, as presented in detail in Table 1. This bycatch was not mapped since it resulted from directed commercial fishing for other species, as mapped previously.

Table 1 - Volume of sea cucumber harvested (kg)

SPECIES	VIGER		GESPEG		GESGAPEGIAG	
	Volume Harvested (kg)	Totale Value (\$)	Volume Harvested (kg)	Totale Value (\$)	Volume Harvested (kg)	Totale Value (\$)
Haddock	3	2				
Monkfish	557	146			7	4
Herring	37	23	9	4	18	11
White hake	452	339	38	22	47	27
Atlantic cod	2142	2464	2668	4732	1728	3328
Americain plaice	5640	2835	780	671	366	280
Witch flounder					122	113
Winter flounder					295	496
Redfish	240	183	637	392	51	55
TOTAL	9072	5991	4132	5821	2634	4315

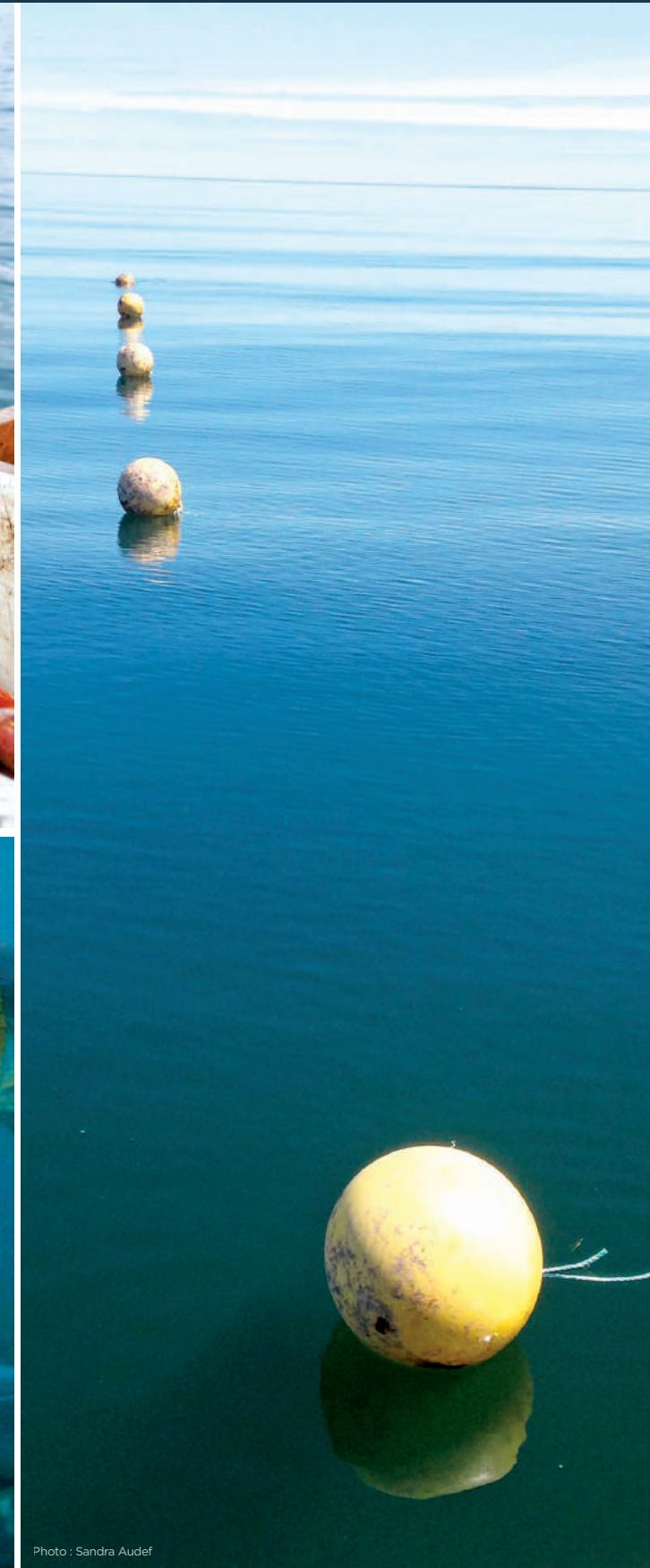
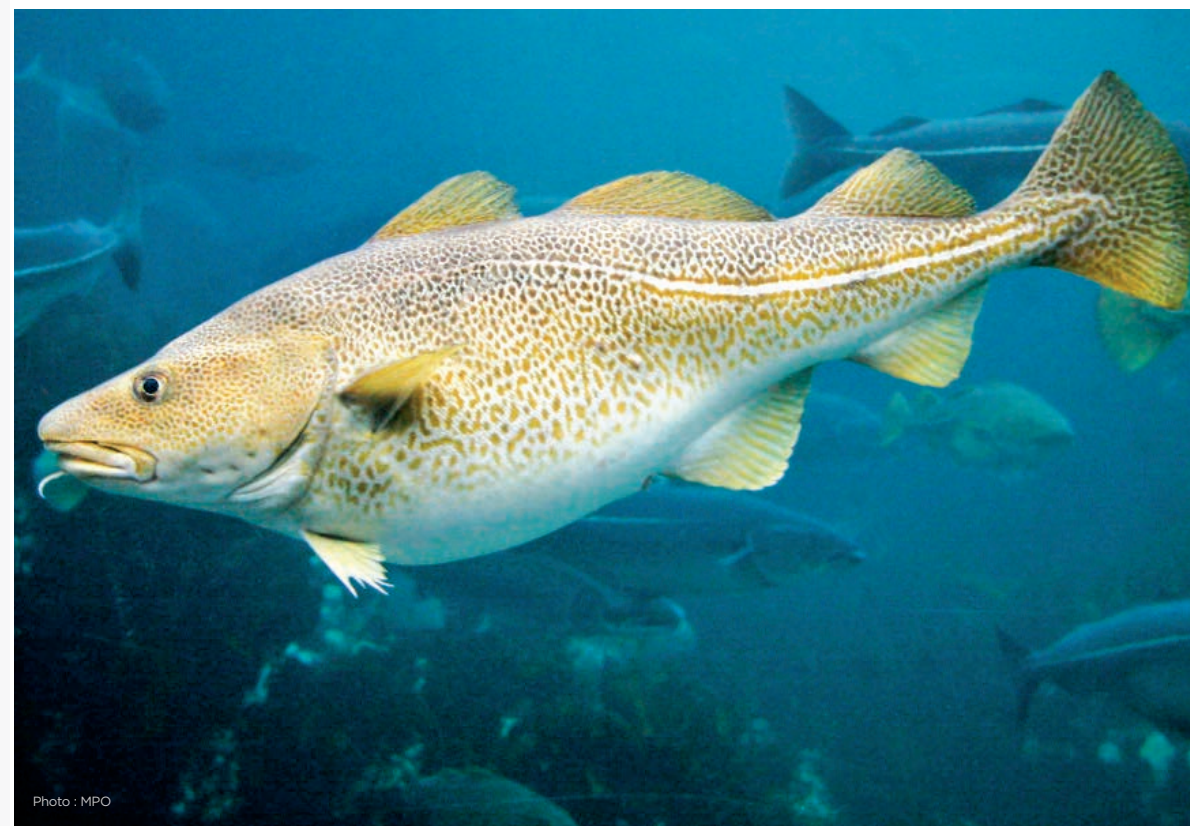


Photo : MPO

Photo : Sandra Audef

PORTRAIT OF COMMERCIAL ACTIVITIES - SEA CUCUMBER FISHERY

The sea cucumber, *Cucumaria frondosa*, is an echinoderm that inhabits the northern Atlantic Ocean as well as the Arctic Ocean. It appears to be present in most habitats in the Estuary and Gulf of St. Lawrence and its range extends as far south as Cape Cod (DFO, 2012). Changing its habitat as it ages, this species prefers shallow water early in life and very slowly moves to deeper water, eventually reaching depths of 60 m (DFO, 2012).

THE COMMERCIAL FISHERY

The sea cucumber fishery is a relatively recent activity in the Estuary and northern Gulf of St. Lawrence. It began on the north shore of the Gaspé Peninsula in 2008. The species is harvested by divers using a LGS (light green sweep) dredge, modified and mounted on runners. The cucumbers harvested are generally processed locally on the Gaspé Peninsula or in the State of Maine before being exported to Asian markets (DFO, 2011). The three Gaspé Peninsula sea cucumber fishing areas (A, B and C) are part of a conservation harvesting plan (CHP) for the 2013 to 2016 seasons. The Gaspé Peninsula sea cucumber fishery is an exploratory fishery in its second stage: Commercial and stock assessment in a competitive system (DFO, 2014).

Since 2013, MMAFMA has conducted an annual post-season survey of the sea cucumber fishery on behalf of the licence-holders. This survey is conducted as part of a monitoring program to determine the short-, medium- and long-term impacts of dredge fishing on this species and its habitat.



REFERENCE:
DFO (2012) *Assessment of the sea cucumber fishery in the Estuary and Northern Gulf of St. Lawrence from 2008 to 2010*, DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2011/063 Retrieved in February 2017 from waves-vagues.dfo-mpo.gc.ca/Library/346305.pdf.

DFO (October 2014) *Conservation harvesting plan*. Retrieved in February 2017 from www.gc.dfo-mpo.gc.ca/peches-fisheries/avis-notice/concombres-zoneabc-p-2014-eng.html.

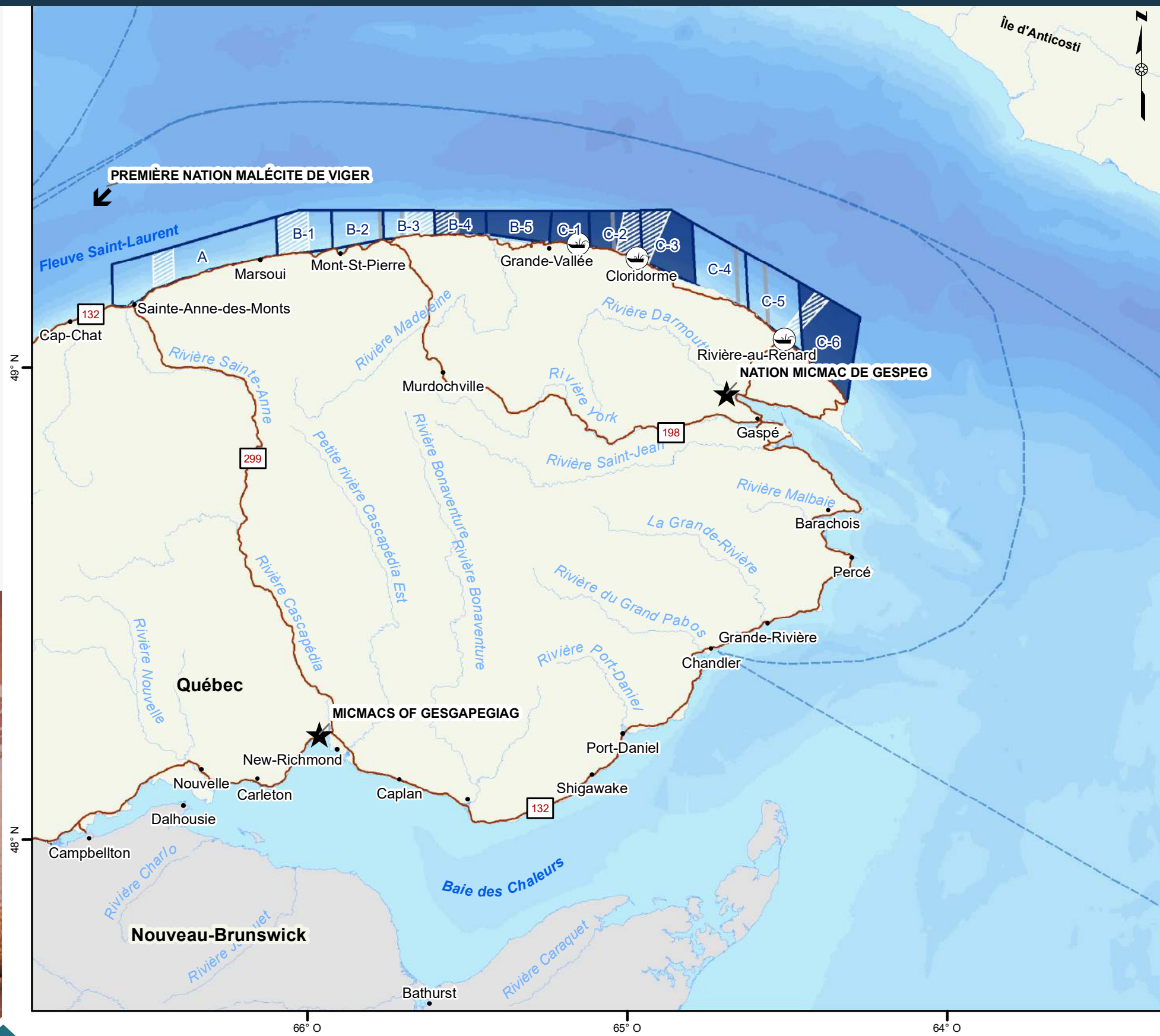
PORTRAIT OF COMMERCIAL ACTIVITIES - SEA CUCUMBER FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

The sea cucumber was harvested by the Maliseet of Viger First Nation for the first time in 2013, in June and then again in September and October of 2014. The Nation Micmac de Gespeg also participated in this fishery from 2013 to 2015, from May to October. It was also harvested by Gesgapegiag divers in 2015, but these latter data were not available when this Atlas was produced. As shown on Map 17, fishing areas B and C have each, respectively, been subdivided into five and six subareas. It was these subareas - B-4, B-5, C-1, C-2, C-3 and C-6 - that were harvested by the two Aboriginal communities. The areas are overlapped by five protected areas and six sites closed to the fishery. The summary table (Table 2) shows the volume of sea cucumber (kg) harvested by subarea over three years. It is important to point out that the total value (\$) of the harvest was not documented, because these are community-sensitive data.

Table 2 - Volume of sea cucumber harvested (kg)

SOMMAIRE CONCOMBRE DE MER (2013-2015)	VOLUME HARVESTED (KG)		
	Sub-zone	Viger	Gespeg
	B-4	39684	
	B-5	146641	
	C-1		309879
	C-2		339120
	C-3		23961
	C-6		27548
	TOTAL	186325	700509



Pêches commerciales / Commercial Fisheries

Concombre de mer / Sea Cucumber

- Zone de pêche au concombre de mer / Fishing Area
- Secteur pêché / Zone Fished
- Site fermé / Closed Site
- Site protégé / Protected Site
- Traversier / Ferry
- Port utilisé par les communautés / Harbour Used by the Communities

0 5 10 20 km
Échelle approximative / Approximate scale
1:1,218,593

Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016), ESRI (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

SEA CUCUMBER HARVESTING SECTORS MALISEET OF VIGER FIRST NATION AND NATION MICMAC DE GESPEG 2013-2015

MAP

17

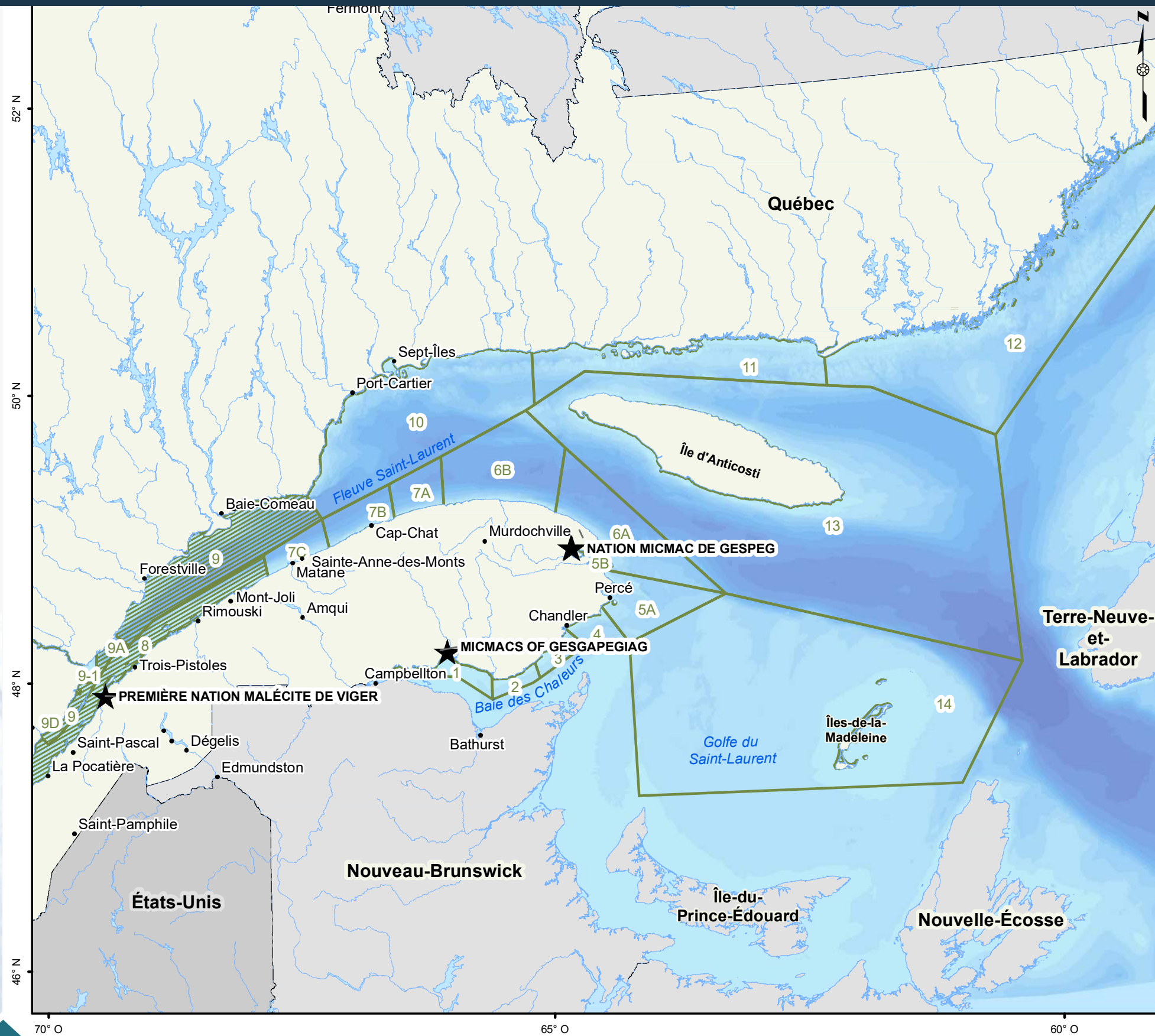
PORTRAIT OF COMMERCIAL ACTIVITIES - GREEN SEA URCHIN FISHERY

The green sea urchin, *Strongylocentrotus droebachiensis*, is a member of the echinoderm family, like the sea cucumber. The sea urchin is present in the Estuary and Gulf of St. Lawrence at all depths up to 200 m, although particularly abundant in the strata from 0 to 10 metres deep. The green sea urchin is omnivorous but prefers to feed on kelps (DFO, 2000).

THE COMMERCIAL FISHERY

The green sea urchin is harvested for its gonads and the fishing season is based on its reproductive cycle. This fishery is essentially conducted by divers although trap fishing is permitted. In Québec, the species is harvested primarily in the spring and fall (DFO, 2000). It is a relatively recent fishery, notably in the Estuary and northern Gulf of St. Lawrence, where it began only in 1991 (DFO, 2000). According to DFO (2000 and 2016), landings are still relatively modest and irregular. In Québec, there are 14 green sea urchin fishing areas, two of which are harvested by one community, as shown on Map 18.

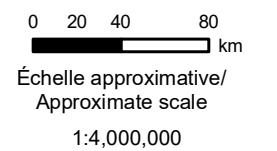
REFERENCE:
 DFO (2000) *Green sea urchin of the inshore waters of Québec*. DFO - Science, Stock status report C4-13 Retrieved in March 2017 from publications.gc.ca/collections/collection_2016/mpo-dfo/Fs76-1-C4-13-2000-eng.pdf.
 DFO (2016) *Assessment of the Green Sea Urchin Fishery in the Northern Estuary and Gulf of St. Lawrence in 2015*. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2016/054 Retrieved in March 2017 from www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016_054-eng.pdf.



Pêches commerciales / Commercial Fisheries

Oursin vert / Sea Urchin

- Zone de pêche à l'oursin
Sea Urchin Fishing Area
- Zone pêchée par la communauté
Area Fished by the Community



Dernière mise à jour: Janvier 2017
 Last update: January 2017
 Produit par: AGHAMM
 Produced by: MMAFMA
 Projection: Lambert conique conforme, NAD83
 Lambert Conformal Conic, NAD83

Sources:
 - Fond de carte/ Base Map : MPO (2016) et / and NRCAN (2016)
 - Données de pêche/ Fisheries Data : MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
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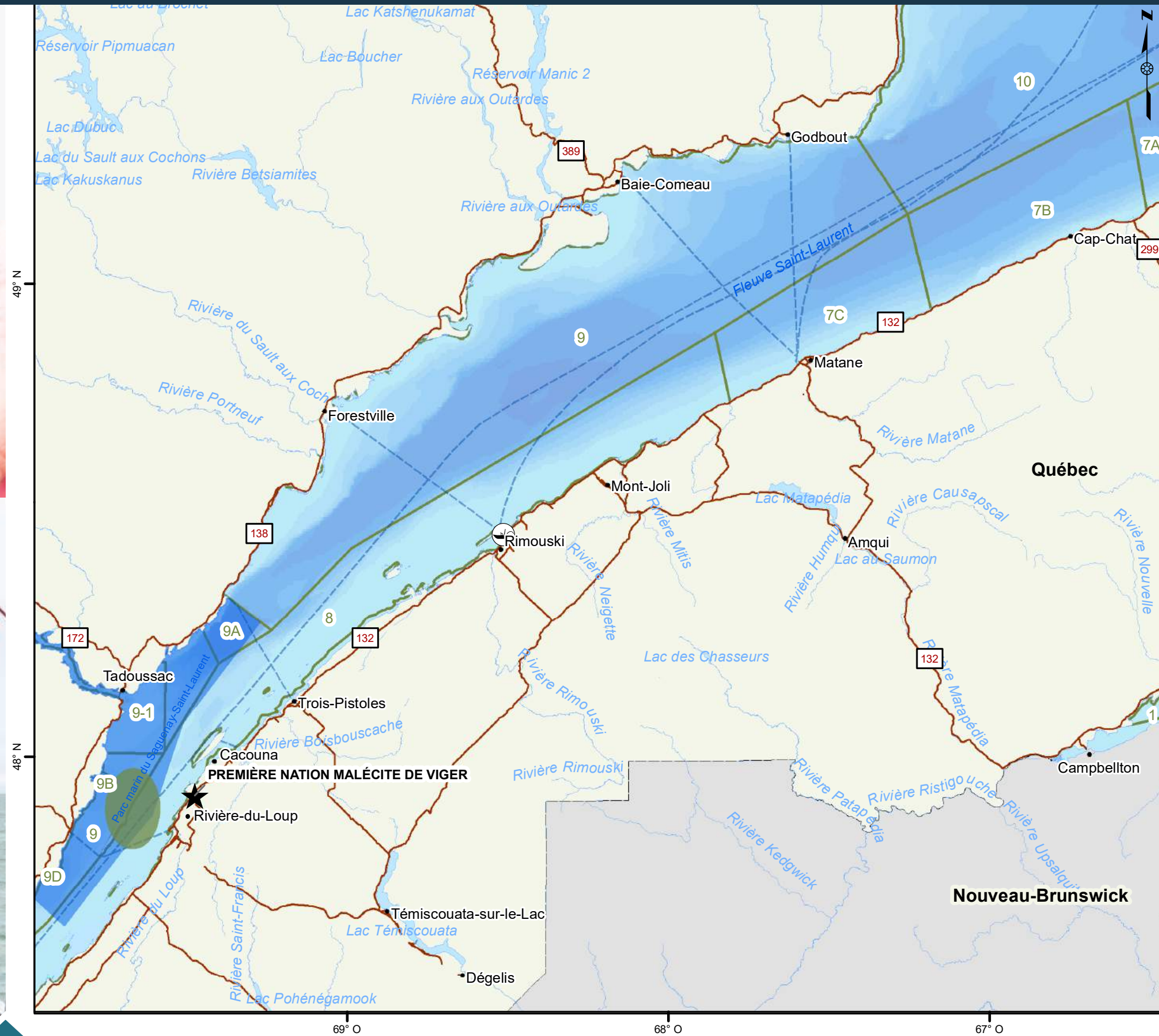
MAP
18

COMMERCIAL GREEN SEA URCHIN FISHERY AREAS

PORTRAIT OF COMMERCIAL ACTIVITIES - GREEN SEA URCHIN FISHERY

THE COMMERCIAL FISHERY BY COMMUNITY

From 2010 to 2015, from March to December, only the Maliseet of Viger First Nation took part in this fishery in a small sector located in areas 8 and 9, as shown on Map 19. Divers, using a hand tool, harvested on average **1,200 kg** of sea urchins per year, harvesting a total volume of about **913,000 kg** over the course of the six years. This volume represents a value of **\$2 million**.



Pêches commerciales / Commercial Fisheries

- Oursin vert / Sea Urchin**
- Zone de pêche à l'oursin
Sea Urchin Fishing Area
 - Secteur pêché
Zone Fished
 - Traversier
Ferry
 - Port utilisé par la communauté
Harbour Used by the Community

0 5 10 20 km
Échelle approximative/
Approximate scale
1:1,218,593

Dernière mise à jour: Janvier 2017
Last update: January 2017
Produit par: AGHAMM
Produced by: MMAFMA
Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map :
MPO (2016), ESRI (2016), NRCan (2016)
et / and MERN (2016)
- Données de pêche/ Fisheries Data :
MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP
19

GREEN SEA URCHIN FISHERY SECTOR MALISEET OF VIGER FIRST NATION 2010-2015

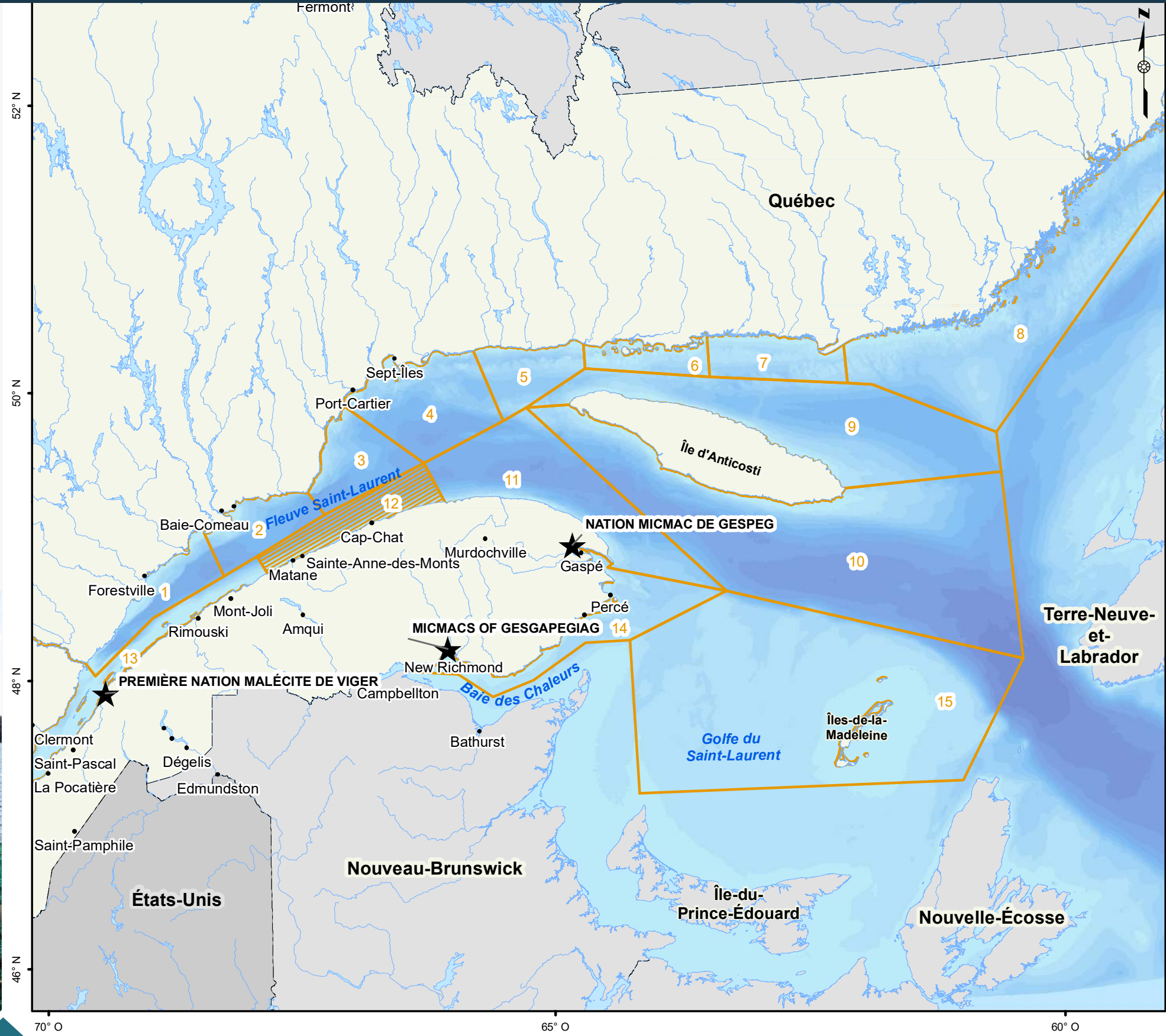
PORTRAIT OF COMMERCIAL ACTIVITIES - WAVED WHELK FISHERY

The waved whelk, *Buccinum undatum*, is a marine gastropod. This mollusc is native to the North Atlantic and is harvested on a small scale along Canada's east coast. According to DFO (2016), the whelk appears to be abundant throughout its range, which include the Gulf of St. Lawrence and extends from Newfoundland to New Jersey. It is present at various depths in the intertidal zone. This species generally moves about very little and is often partly buried in the seabed (DFO, 2016).

THE COMMERCIAL FISHERY

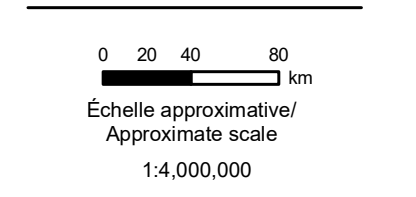
According to DFO (2015), the commercial whelk fishery began in the Estuary and Gulf of St. Lawrence in the 1940s. It expanded to the North Shore in the early 1990s, began on the Magdalen Islands in 2003 and has become more intensive along the Gaspé Peninsula and Lower St. Lawrence since 2005. The whelk fishery takes place near the shore and is conducted using conical traps (DFO, 2015). Québec waters are divided into 15 fishing areas, one of which is harvested by one community, as shown on Map 20. The fishery is regulated in all areas by licence numbers, trap numbers and a minimum legal size (70 mm). Quotas are set for landings in areas 1, 2, 11, 12, 13 and 15 (DFO, 2015).

REFERENCE:
 MPO (December 2016) *Waved whelk*. Retrieved in February 2017 from www.dfo-mpo.gc.ca/species-especes/profiles-profil/waved-whelk-buccin-eng.html.
 MPO (2015) *Assessment of Québec coastal waters whelk stocks in 2014*. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2015/032. Retrieved in March 2017 from http://publications.gc.ca/collections/collection_2015/mpo-dfo/Fs70-6-2015-032-eng.pdf.



Pêches commerciales / Commercial Fisheries

- Buccin / Whelk**
- Zone de pêche au buccin / Whelk Fishing Area
 - Zone pêchée par la communauté / Area Fished by the Community



Dernière mise à jour: Janvier 2017
 Last update: January 2017

Produit par: AGHAMM
 Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
 Lambert Conformal Conic, NAD83

Sources:
 - Fond de carte/ Base Map: MPO (2016) et / and NRCan (2016)
 - Données de pêche/ Fisheries Data: MPO (2016)



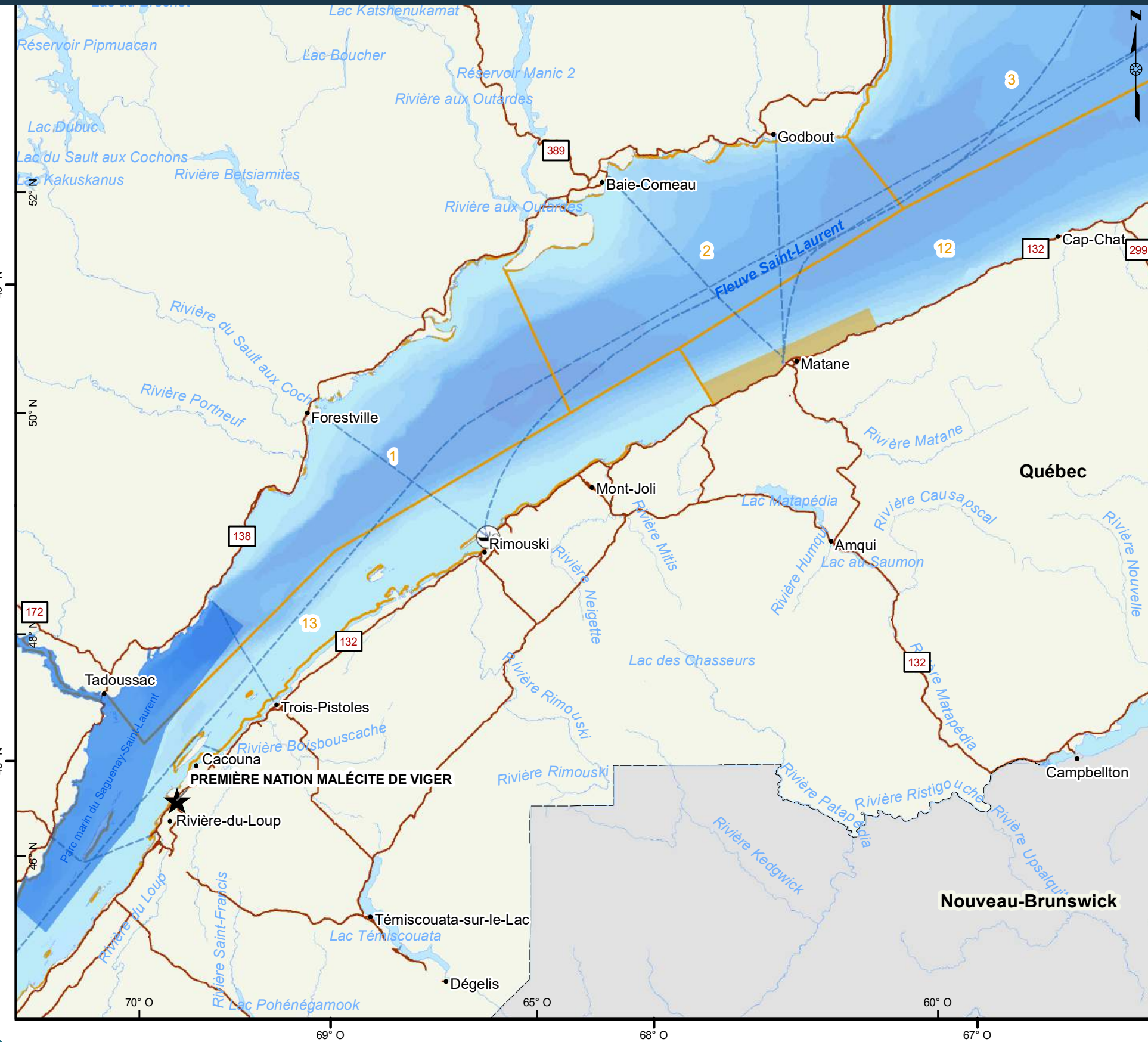
Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP
20
COMMERCIAL WAVED WHELK FISHERY AREAS 2010-2015

PORTRAIT OF COMMERCIAL ACTIVITIES - WAVED WHELK FISHERY

THE COMMERCIAL WAVED WHELK FISHERY BY THE MALISEET OF VIGER FIRST NATION

During the 2010-2015 period, only the Maliseet of Viger First Nation harvested whelk, from June to September of 2013. For this fishery, conical traps were set inside area 12, as shown on Map 21. Nearly **19,000 kg** of whelk were harvested, with a total value of about **\$28,000**. An experimental whelk fishery, in area 1 in Chaleur Bay, was also conducted by the Micmacs of Gesgapegiag in 2013 and 2014. Given the small volume harvested, the related data were not mapped.



Pêches commerciales / Commercial Fisheries

- Buccin / Whelk**
- Zone de pêche au buccin / Whelk Fishing Area
- Secteur pêché / Zone Fished
- Traversier / Ferry
- Port utilisé par la communauté / Harbour Used by the Community

0 5 10 20 km
Échelle approximative / Approximate scale
1:1,218,593

Dernière mise à jour: Janvier 2017
Last update: January 2017
Produit par: AGHAMM
Produced by MMAFMA
Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016), NRCan (2016) et / and MERN (2016)
- Données de pêche/ Fisheries Data : MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

WAVED WHELK FISHING SECTOR, MALISEET OF VIGER FIRST NATION 2013

MAP
21

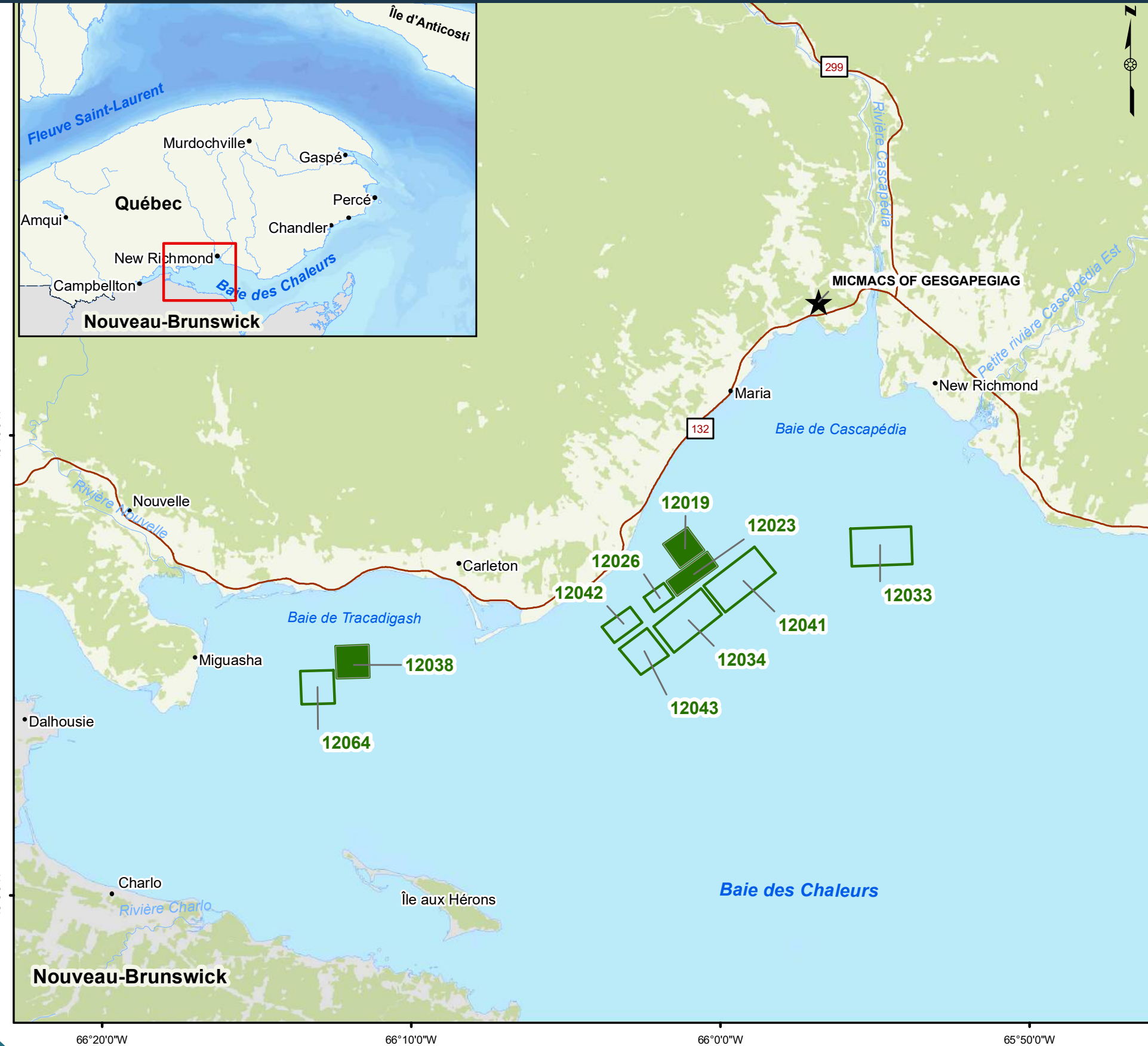
PORTRAIT OF COMMERCIAL ACTIVITIES - KELP FARMING

Salaweg, which means “salted” in Mi’gmaq, is a kelp processing project introduced by MMAFMA, in development since 2012. Via this project the association hopes to contribute to the diversification of its members’ activities by farming kelp and developing products while gaining partial financial self sufficiency in the years to come. All surpluses generated by the sale of products will therefore be invested to support the MMAFMA mission – to sustainably manage and preserve aquatic and oceanic ecosystems within the territories and activity zones of its member communities, while fostering their interest and participation in the co-management process.

At present, **Salaweg** has six products whose main ingredient is sugar kelp, *Saccharina latissima*. For now the kelp is being grown on longlines leased from mariculturists based in Carleton-sur-Mer. Harvesting takes place from mid-May to mid-June. Salaweg aims to produce from October to April so it can use the Lobster Hut infrastructure, located in Gesgapegiag, during the low season. This initiative will also serve to develop quality jobs on the reserve.

Since 2015, MMAFMA has leased longlines at the following mariculture sites to produce seaweed (Map 22):

- 1) No. 12019 (Ferme maricole du Grand Large – Éric Bujold) and No. 12023 (Site maricole Pêcheries Allard inc. – Réjean Allard) located in Baie de Cascapédia and;
- 2) No.12038 (Ferme de développement maricole Nord-Sud inc. – Sylvain Bujold) located in Baie de Tracadigash.



Activité commerciale / Commercial activity

Projet SALAWEG - Culture de macroalgues marines / SALAWEG project - Marine Kelp Culture

- Site maricole / Mariculture Site
- Site utilisé par l'AGHAMM / Site Used by MMAFMA

0 1 2 4 km
Échelle approximative / Approximate scale
1:209,752

Dernière mise à jour: Février 2017
Last update: February 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016), ESRI (2016) et / and NRCan (2016)
- Données sur la mariculture / Mariculture Data: MAPAQ (2017)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP

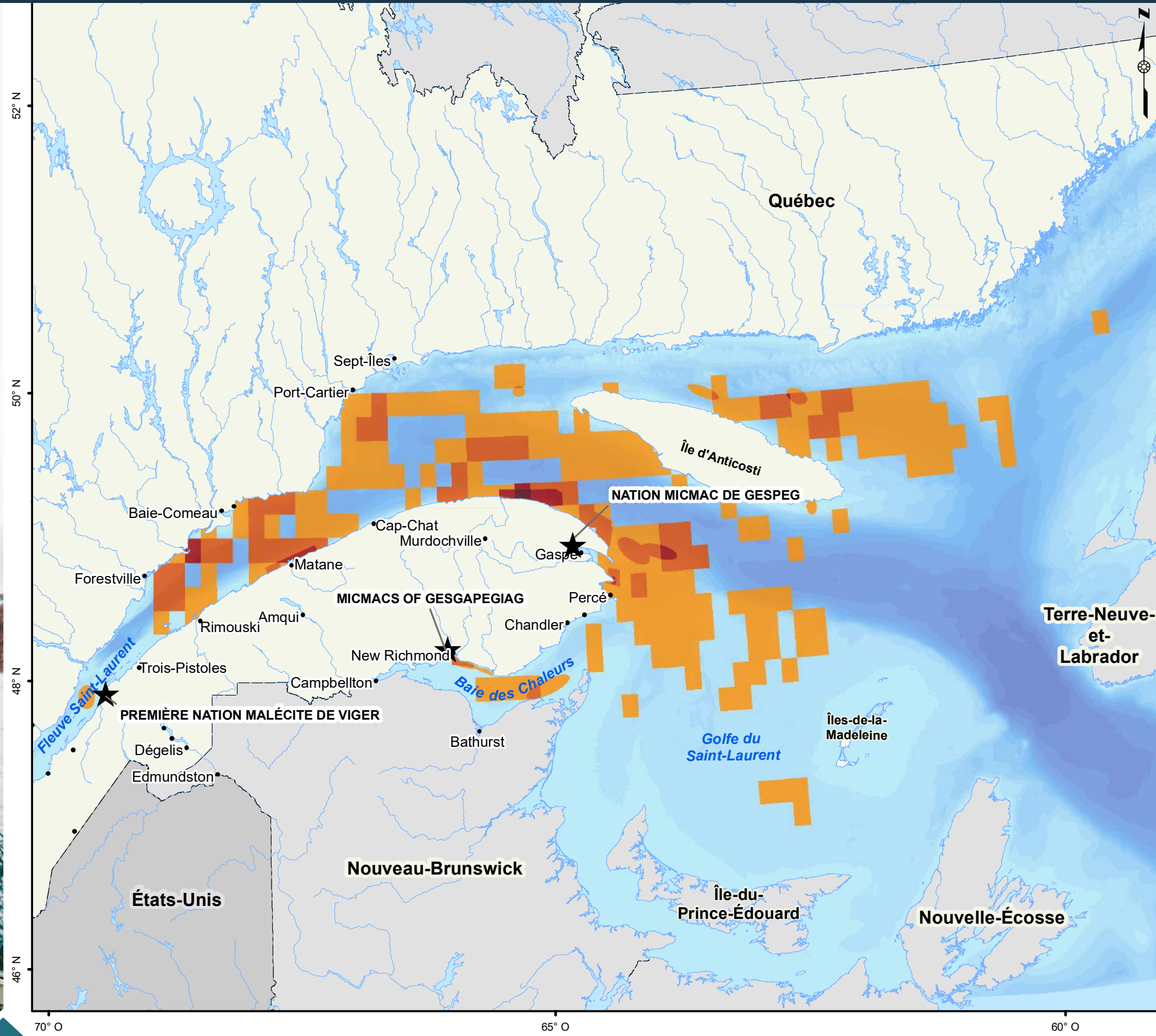
22

SEAWEED FARMING PLOTS FOR THE SALAWEG PROJECT 2015-2016

OVERVIEW OF COMMERCIAL FISHERIES

When the maps showing all the sectors (fishing quadrangles and small sectors) in which the nine species described earlier (excluding bycatch) were harvested commercially by the three communities from 2010 to 2015 are superimposed, a number of observations become evident (Map 23):

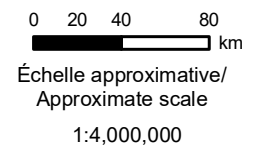
- 1) There is one sector, along the shore on the north side of the Gaspé Peninsula, where four species were harvested;
- 2) In six other small sectors, three species were harvested;
- 3) Two species were harvested in several sectors; and
- 4) A single species was harvested in most sectors in the St. Lawrence River, Gulf and Estuary, including Chaleur Bay.



Sommaire / Summary

Pêches commerciales / Commercial Fisheries

Nombre d'espèce(s) pêchée(s) / Number of Harvested Species(s)



Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016) et / and NRCan (2016)
- Données de pêche/ Fisheries Data: MPO (2016)



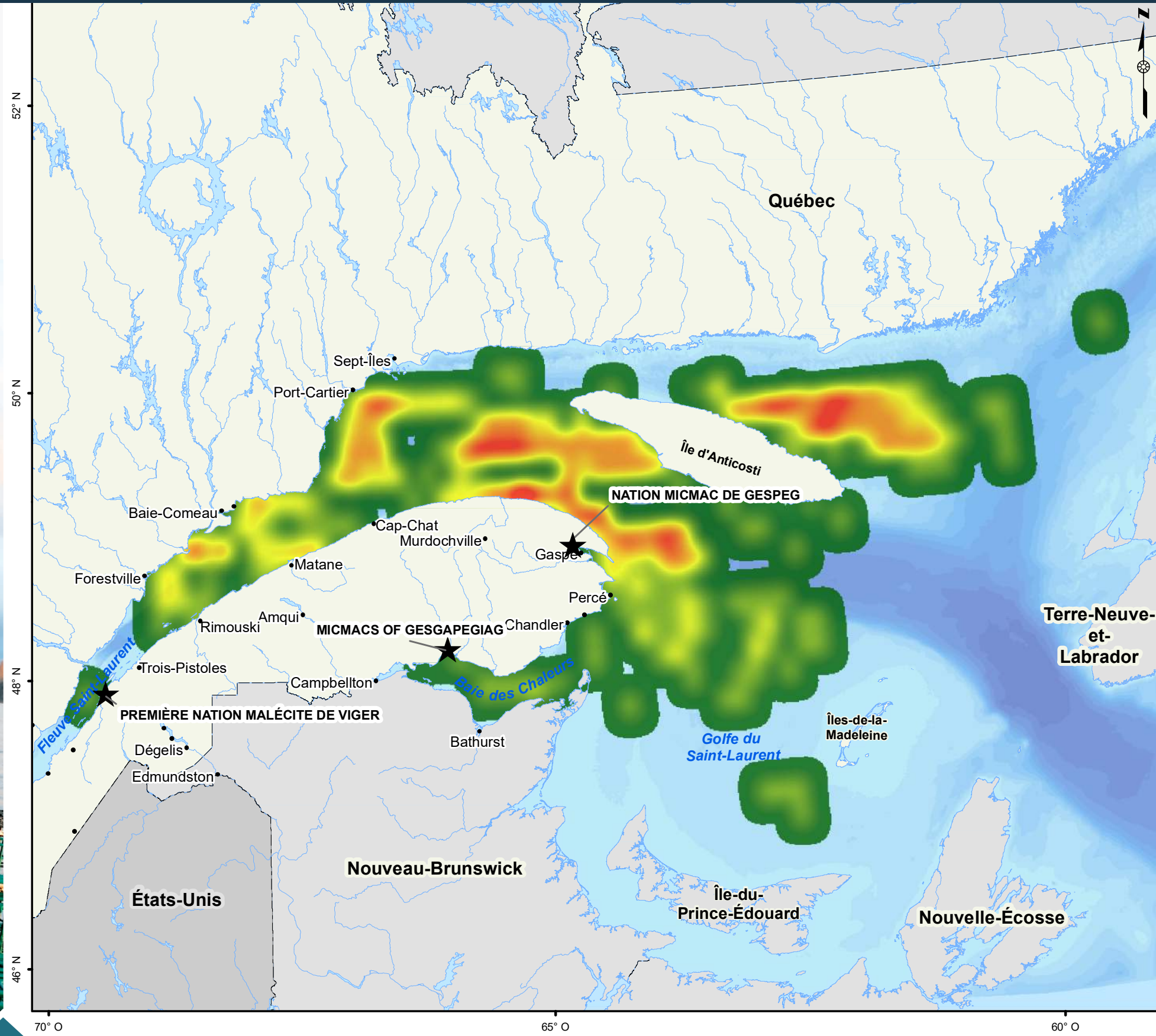
Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP
23

OVERLAY OF COMMERCIAL FISHERIES BY SPECIES FOR THE THREE COMMUNITIES 2010-2015

OVERVIEW OF COMMERCIAL ACTIVITIES

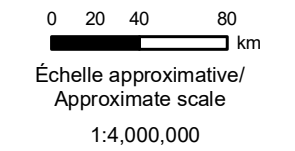
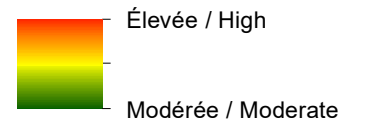
By superimposing the maps showing all the sectors harvested commercially by the three communities from 2010 to 2015, without taking the individual species into account this time, and the map showing seaweed production plots, it is possible to illustrate how intensively the marine environment is used (Map 24). In fact, the St. Lawrence River, a large portion of the Gulf, Chaleur Bay and the sector east of Anticosti Island were used by all three communities. The northern portion of the St. Lawrence River and the sectors located to the northeast of the Gaspé Peninsula and northwest of Anticosti Island were more intensively used.



Sommaire / Summary

Pêches et activités commerciales / Commercial Fisheries and Activities

Utilisation du milieu marin / Marine Environment Use



Dernière mise à jour: Janvier 2017
Last update: January 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte / Base Map: MPO (2016) et / and NRCan (2016)
- Données de pêche / Fisheries Data: MPO (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP
24

OVERLAY OF COMMERCIAL ACTIVITIES FOR THE THREE COMMUNITIES 2010-2015

ECOLOGICAL KNOWLEDGE PORTRAIT

The second section of the Atlas contains maps created primarily using data derived from the ecological knowledge documented by MMAFMA in various studies it has conducted with participants from its three member communities. Traditional Aboriginal knowledge documentation is an essential tool for the collaborative and sustainable management of natural resources, and helps add more clarity and depth to the understanding of ecosystems within a given territory. This knowledge is dynamic and evolves over time in keeping with socio-economic and environmental changes. Aboriginal ecological knowledge, sometimes called ecological knowledge or traditional knowledge, is here defined as being a set of knowledge a group holds about their cultural, physical and biological landscape. This knowledge is generally obtained through observation of a territory or species, and is transmitted from one generation to the next by oral tradition or shared by those who use a resource (Menzies and Butler, 2006). Ecological knowledge is at once science and philosophy, and is more explicitly defined by Berkes (1999) as being “a cumulative body of knowledge, practice and belief evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.”



METHOD

DATA COLLECTION AND MAPPING OF ECOLOGICAL KNOWLEDGE OF SPECIES AT RISK

The next series of maps (25a, 26a and 27 to 31), illustrate ecological knowledge data concerning the following finfish species at risk: Atlantic salmon; American eel; American plaice, Atlantic sturgeon and Deepwater redfish; Atlantic cod; and Striped bass, as well as sightings of four whale species at risk. These data come from a survey conducted in 2014 which involved consulting 29 members of three communities. The results of this survey are presented in a report entitled: ***Mi'gmaq and Maliseet Ecological Knowledge of Species at Risk in the St. Lawrence*** (Jerome *et al.*, 2016). For this study, the authors examined gaps in the knowledge of each of the 14 species at risk studied by the project and they then drew up a questionnaire featuring 16 questions per species. Participants were selected with the assistance of the managers and fisheries directors of the three communities; then, interviews, lasting 30 minutes on average, were conducted with each of 29 participants. Each interview was filmed and recorded, except in cases where the participant did not consent. Participants were shown maps of the watersheds in their communities and a comprehensive map of the entire Estuary and Gulf of St. Lawrence so they could add their observations about each species. Often, they indicated the place where they had caught a specific species in the past or recently. Sometimes, they identified places where a specific species had been observed now or in the past.

For the Micmacs of Gesgapegiag Nation, 15 senior(s) and fish harvester(s) took part in the study; for the Nation Micmac de Gespeg, ten senior(s) and fish harvester(s) were interviewed. As for the Maliseet of Viger First Nation, two of the Nation's fish harvesters and one senior participated in the study. Once the interviews had been completed, the recordings were transcribed and verified by the interviewer. In addition, using ArcGIS 10.2 geographic information software (ESRI), the geographical data collected during the interviews was geo-referenced to create maps for each of the species targeted by the project. A preliminary report and the maps were presented to each of the communities at validation workshops which the participants were invited to attend. All the resulting maps were reworked for this Atlas in the interest of uniformity. In some cases, (maps 29 and 30), the geographical data for some species, low in number and observed at disparate scales of time, were combined to reduce the number of maps.

It is important to point out that the results of this study, those shown on maps 25a, 26a and 27 to 31, provide only a glimpse of the knowledge held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

As for maps 26a and 28, which illustrate ecological knowledge concerning the American eel and the Striped bass, data from sampling done for a study conducted by MMAFMA dealing with the presence and/or absence of juvenile Striped bass along the southern shore of the Gaspé Peninsula, were added.



Photo: Terry Shaw

ECOLOGICAL KNOWLEDGE PORTRAIT

Using a beach seine, two field teams sampled sites along the coast from Escuminac to Forillon National Park between July 25 and September 30, 2016. Fish caught during the sampling operation were identified, counted and in some cases, measured. Since these data were geo-referenced, the sites where Striped bass and American eel were caught were included on the respective maps for each of these two species. Because MMAFMA had these recent data about these two species at risk, it was pertinent to add them to the ecological knowledge section.

Information about the rivers surveyed by the Maliseet of Viger First Nation (MVFN) rounds out Map 26a dealing with ecological knowledge of the American eel. The information mapped comes from a study conducted by MVFN in 2012-2013 that involved identifying obstacles hindering the return of the American eel upstream in the watersheds of the four identified rivers. Geographical data about the locations of the fishway installed in 2016 were also provided by MVFN.

DATA COLLECTION AND MAPPING OF THE COMMUNAL SUBSISTENCE FISHERY

Data on the communal subsistence fishery – also sometimes referred to as the fishery for food, social or ceremonial purposes – are presented on Map 25b. They do not come from the ecological knowledge survey. However, they do round out the information on the Atlantic salmon presented previously. As for the Maliseet of Viger First Nation, the data concerning salmon catches for the period from 2012 to 2016 presented in Table 3 and on the agreement between the Nation and the Government of Québec, were obtained primarily via personal communication with Jérôme Doucet, a biologist with the Ministère des Forêts, de la Faune et des Parcs (MFFP) in Rimouski. Also, information about this agreement and geographical data concerning the fishways were provided by Amélie Larouche, Viger Band Council head councillor.

As for the data concerning the Nation Micmac de Gespeg, Terry Shaw, a Band Council councillor, provided the end-of-season summaries for the fishing activities conducted by the community and individual members, which were used to calculate the total catches presented in Table 4. Terry Shaw also provided geographical data concerning the gillnets used in some fishing seasons. For the purpose of this Atlas, it was decided to map entire sections of the rivers fished (Map 25b) instead of specific points, since the locations of gillnetting sites varied from one season to the next and over the course of a single season as well.

DATA COLLECTION AND MAPPING OF ECOLOGICAL KNOWLEDGE CONCERNING USE OF THE AMERICAN BANK AREA OF INTEREST (ABAOI)

Map 31 in this Atlas was created using collected and documented information about how the American Bank sector is used. To round out the scientific studies conducted in preparation to the creation of the American Bank Marine Protected Area (located between Percé and Gaspé), which DFO has identified as an area of interest, MMAFMA documented Mi'gmaq Aboriginal knowledge of the traditional and contemporary use of this fishing grounds and its vicinity in 2015. This information is presented in a report entitled **Documentation of Mi'gmaq Ecological Knowledge of the Proposed American Bank Marine Protected Area** (Arsenault et al., 2016), which aims to help guide the preparation of management measures for this future marine protected area. To collect all this knowledge, a questionnaire was prepared by the MMAFMA to explore the following four major themes: A) trips to and use of the American Bank; B) knowledge of the American Bank; C) the cultural, spiritual, economic and personal importance of the study area to the participants; and D) the participants' recommendations with respect to the management and conservation of the area that is to be protected. Potential participants were selected with the assistance of Gespeg and Gesgapegiag fisheries managers, the MMAFMA team's knowledge and input from the three band councils.

A series of ten semi-directed interviews was conducted with eight participants from Gespeg and two participants from Gesgapegiag. Each interview lasted from 20 to 60 minutes. They were all filmed and recorded, except in cases where the participant did not consent. At the beginning of the interview, participants were shown two maps provided by DFO indicating the boundaries of the marine protected area as well as of the two proposed management areas. The participants were then invited to mark the maps to show the sectors that they visited. Once the interviews had been completed, a paper version was then sent to the ten study participants for verification. The data were archived in accordance with the MMAFMA protocol used to document traditional knowledge. The geographical data collected during these interviews were also pooled and geo-referenced to create a map using ArcGIS 10.2 geographical information software (ESRI). This map was reworked for the purpose of this Atlas. It is important to point out that the boundaries of the American Bank area of interest were defined and provided by DFO. The results of this study, shown on Map 31, provide only a glimpse of the knowledge held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

SUMMARY MAP

The map summarizing ecological knowledge was obtained by presenting on a single map the entire territory concerned by said ecological knowledge, communal subsistence fisheries, the sectors of interest identified for the ABAOI and the rivers surveyed for the American eel (Map 32).

LAND CLAIMS MAP

Map 33 was prepared using geographical data provided by the Mi'gma'wei Mawiomí Secretariat (MMS) and the Maliseet of Viger First Nation.

REFERENCES:

- Arsenault, L.M., Jerome, A. and Lambert Koizumi, C. (2016) *Documentation of Mi'gmaq Ecological Knowledge of the Proposed American Bank Marine Protected Area*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 45 p.
- Berkes, F. (1999) *Sacred Ecology: Traditional Ecological Knowledge and Resource Management* (1st Ed.). Philadelphia: Taylor & Francis, 392 p.
- Jerome, P.A., Arsenault, L.M. and Lambert Koizumi, C. (2016) *Mi'gmaq and Maliseet Ecological Knowledge of Species at Risk in the St. Lawrence*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 113 p.
- Menzies, C.R. and Butler, C. (2006) *Understanding Ecological Knowledge*. In C. R. Menzies (Ed.), *Traditional Ecological Knowledge and Natural Resource Management*. Lincoln: University of Nebraska Press, 273 p.



ECOLOGICAL KNOWLEDGE PORTRAIT - ATLANTIC SALMON

The **Atlantic salmon**, *Salmo salar* - **plamu** in Mi'gmaq and **polam** in Maliseet - is a member of the Salmonidae family. It needs clear, cool, well oxygenated water to reproduce in its native watercourses. As older juveniles and adults, Atlantic salmon must migrate for long distances in the North Atlantic to feed. The Gaspé - Southern Gulf of St. Lawrence population of the Atlantic salmon has been designated as "of special concern" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

The Atlantic salmon is considered inherent to the identity, culture and economy of the Mi'gmaq communities of Gesgapegiag and Gespeg. As shown by the survey on the ecological knowledge of species at risk conducted by MMAFMA (Jerome *et al.*, 2016), salmon is of tremendous importance, both in cultural and economic terms. Its fishery is seen as a tradition rooted in the culture of these communities. In addition to food, this species has served a variety of purposes over time: it is used for trade, for spiritual or ceremonial practices, sometimes as bait (salmon skin) for rainbow smelt fishing and for crafts (salmon skin used to make wallets, etc.).

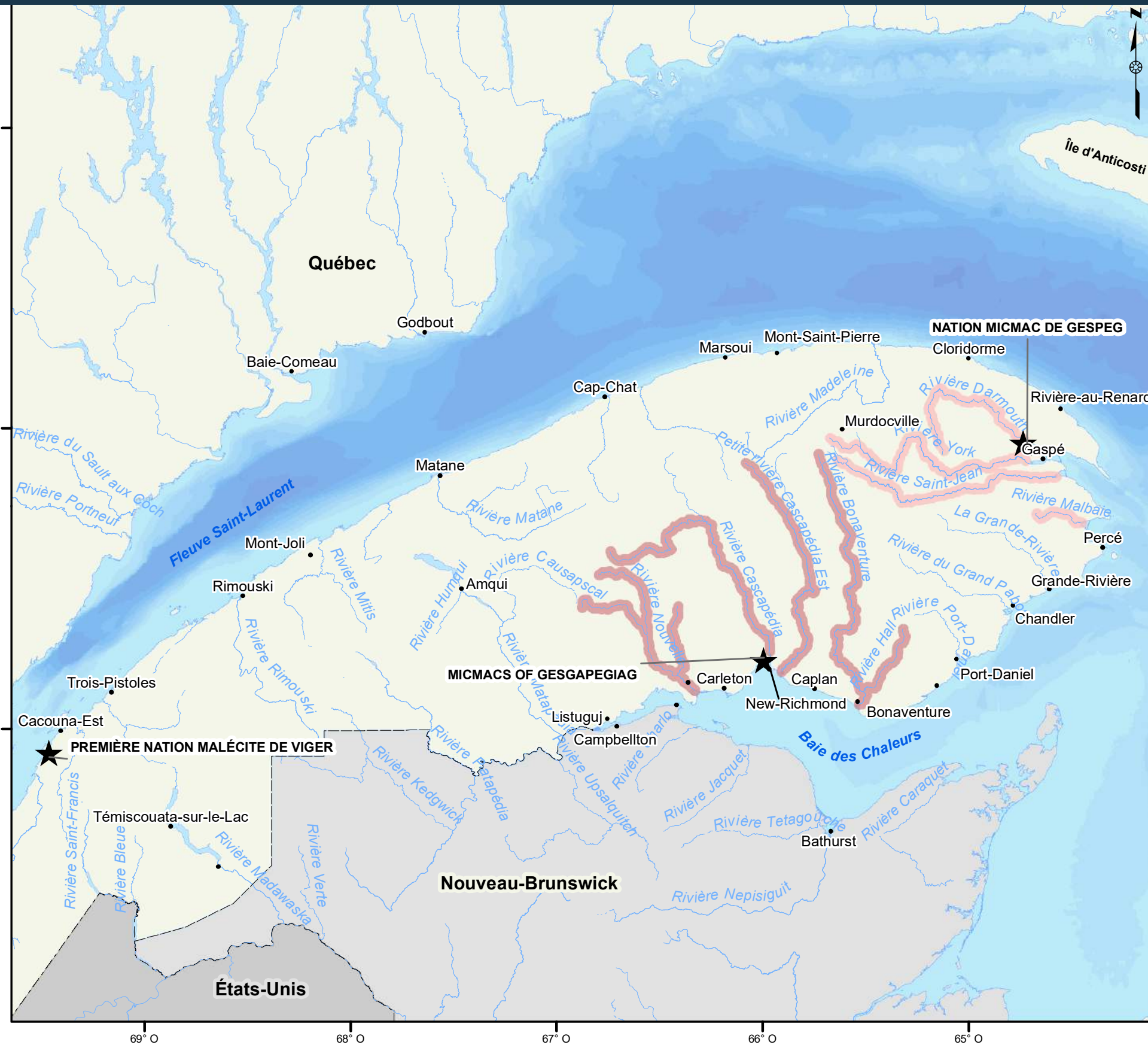
THE ATLANTIC SALMON FISHERY

According to survey participants, the gear used to catch salmon has evolved over the years, from harpoons (and lanterns for night fishing), to gillnets and cages for communal fishing and fly casting rods for recreational fishing. The fishing season appears to vary from late May to early November, depending on the weather and environmental conditions.

Map 25a shows the major rivers and estuaries where salmon is fished by members of the **Gesgapegiag** and **Gespeg** communities. Gesgapegiag respondents declared they had fished for salmon in various sectors of the Rivière Cascapédia estuary, particularly when communal fishing took place there (until 2008), as well as in various upstream sectors of this river. Other neighbouring rivers, the Petite rivière Cascapédia, Bonaventure and Nouvelle, have also been fished by members of the community over the years. Communal and recreational salmon fishing is practiced by members of the **Gespeg** community in the three rivers in the Ville de Gaspé area: the Saint-Jean, Dartmouth and York. Participants also fished for salmon in Rivière Malbaie, a relatively smaller river located south of Barachois, as well as in Pointe Navarre, in the Rivière Dartmouth estuary, as shown on Map 25a. The members of the **Viger** community, questioned for the species at risk study, had not happened to fish for wild Atlantic salmon but the species is nevertheless important to their community and culture.

NOTE : These data provide only a glimpse of the knowledge of this species held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

REFERENCE:
Jerome, P.A., Arseneault, L.M. and Lambert Koizumi, C. (2016) *Mi'gmaq and Maliseet Ecological Knowledge of Species at risk in the St. Lawrence*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 113 pp.



Savoir écologique / Ecological Knowledge

Saumon Atlantique / Atlantic Salmon

- Micmacs of Gesgapegiag¹
- Nation Micmac de Gespeg¹

¹ Provenant d'une enquête auprès de 29 participants des communautés membres de l'AGHAMM / From a survey of 29 participants from the member communities of MMAFMA (2016)

0 5 10 20
km

Échelle approximative/
Approximate scale

1:1,937,620

Dernière mise à jour : Février 2017
Last update : February 2017

Produit par : AGHAMM
Produced by : MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map :
MPO (2016), ESRI (2016) et /
and NRCan (2016)
- Données sur le saumon /
Salmon data: AGHAMM (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

LOCATIONS OF RIVERS AND ESTUARIES WHERE GESGAPEGIAG AND GESPEG MEMBERS HAVE FISHED FOR SALMON OVER THE YEARS

MAP

25A

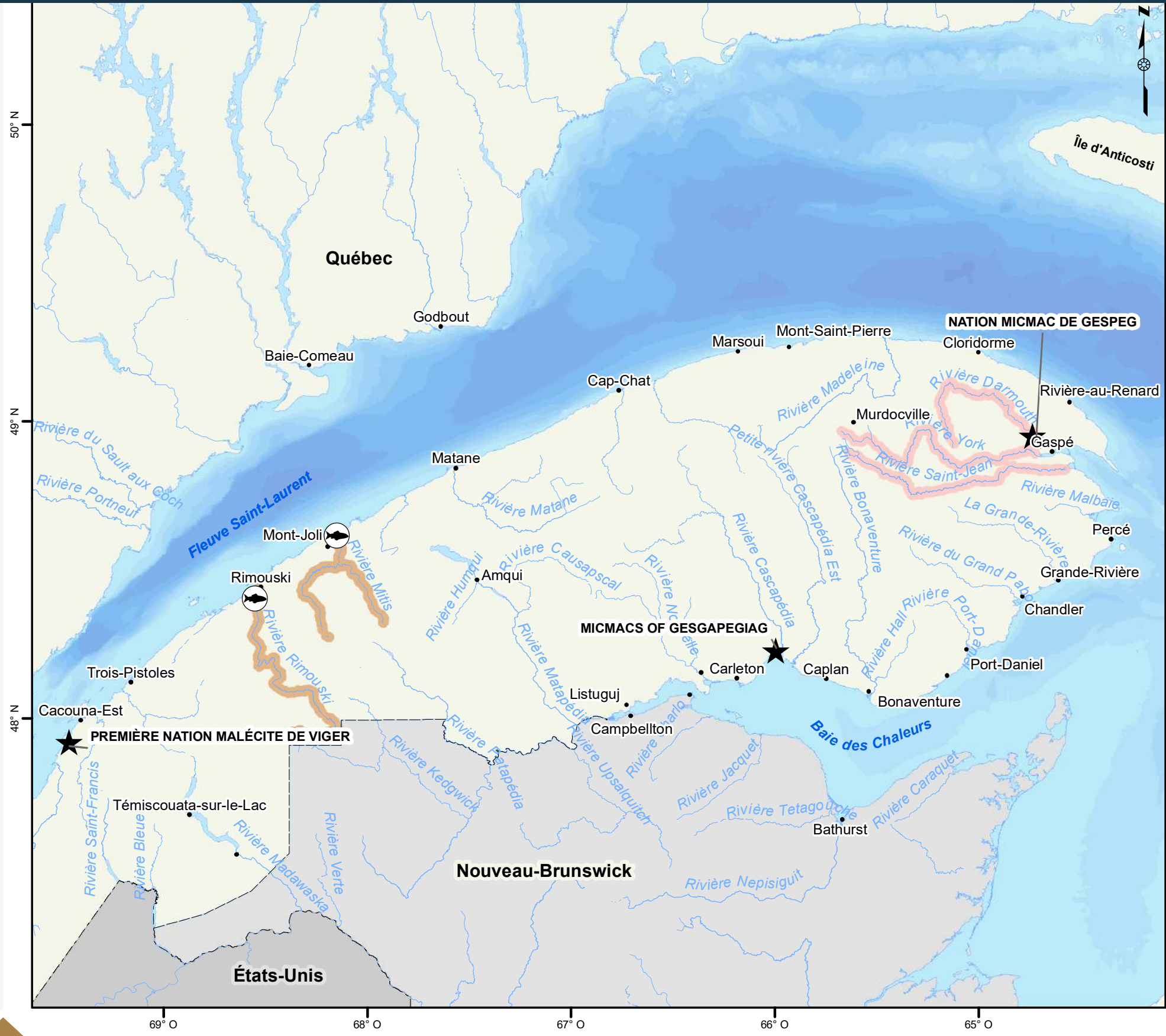
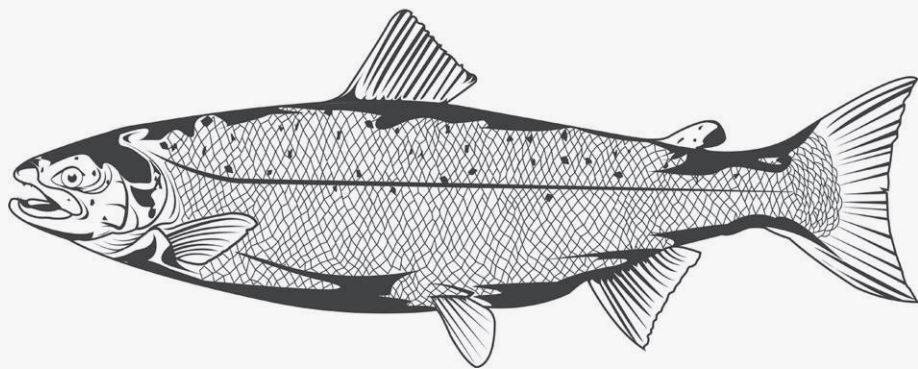
ECOLOGICAL KNOWLEDGE PORTRAIT - COMMUNAL SUBSISTENCE FISHERY

COMMUNAL SUBSISTENCE FISHERY

The members of the **Maliseet of Viger First Nation**, questioned for the species at risk study conducted by MMAFMA and mentioned earlier (Jerome et al., 2016), had not happened to fish for wild Atlantic salmon but the species nevertheless occupies an important place in the history and culture of this nation. Since 2012, MVFN has obtained Atlantic salmon for food, social and ceremonial purposes from the Mitis and Rimouski rivers to share with its members. As explained by Jérôme Doucet, a biologist responsible for the species with the Ministère des Forêts, de la Faune et des Parcs (MFFP), the salmon are caught in two traps, the locations of which are shown on Map 25b (fishways). In the case of Rivière Mitis, the salmon are caught near the escape canal from the Mitis II power plant, about 1 km from the mouth of the river. On Rivière Rimouski, the power plant is located at the pulp chute, about 600 m upstream from the Highway 20 bridge. The nation has a communal fishing licence and the salmon are caught by the organizations responsible for managing the rivers. According to the agreements entered into by the Government of Québec and MVFN, up to 15 and 35 grilse (small, one-sea-winter-salmon) can be taken per year from the Rimouski and Mitis rivers respectively. This practice has been in place since 2012. Table 3 shows the numbers taken from the two rivers from 2012 to 2016. Exceptionally, in 2016, some large salmon were caught in the fish barriers and were given to MVFN.

Table 3 - Number of grilse taken for the Maliseet of Viger First Nation, from 2012 to 2016.

YEAR	MITIS	RIMOUSKI
2012	18	2
2013	13	12
2014	0	12
2015	10	14
2016	7	10



Pêche communautaire / Communal Fishing

Saumon Atlantique / Atlantic Salmon

- Première Nation Malécite de Viger
- Nation Micmac de Gespeg
- Passe migratoire / Migratory Pass

0 5 10 20 km
Échelle approximative / Approximate scale
1:1,937,620

Dernière mise à jour : Février 2017
Last update : February 2017

Produit par : AGHAMM
Produced by : MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016), ESRI (2016) et / and NRCan (2016)
- Données sur le saumon / Salmon data: MFFP (2017) et / and Nation Micmac de Gespeg (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

LOCATIONS WHERE COMMUNAL FISHING IS PRACTICED

MAP
25B

The **Nation Micmac de Gespeg** also has an agreement with the Government of Québec for a communal salmon fishery on the St-Jean, Dartmouth and York rivers (**Map 25b**) for food, social and ceremonial purposes. This fishery is practiced in June, using gillnets set at the mouths of the three rivers, and in pools upstream thereafter, using a variety of gear (seine, dip net, spear or line) (Terry Shaw, personal communication). Catches and quotas vary from year to year depending on a number of factors. According to the annual end-of-season reports prepared by the band council, a total of 258 salmon were caught for this purpose from 2010 to 2015. Most of the salmon taken in the communal fishery are sliced, sealed in packages and distributed to elders in the Gespeg community every year. The Band Council also issues individual salmon fishing certificates to community members who ask for them. The salmon they catch are registered so they can be counted. Table 4 shows the number of salmon caught in each of these fishing activities from 2010 to 2015.

Table 4 - Number of salmon caught by the Nation Micmac de Gespeg, from 2010 to 2015

YEAR	COMMUNAL FISHING	INDIVIDUAL SPORT FISHING
2010	17	25
2011	4	16
2012	39	18
2013	71	20
2014	56	5
2015	61	26
Total	258	110

As for the Micmacs of Gesgapegiag Nation, the community has an agreement with the Government of Québec, entered into in fall 2008 and renewed in 2013. Under this agreement, the gillnets used for communal fishing, previously set primarily in the Rivière Cascapédia estuary but also in Petite rivière Cascapédia and its estuary, are no longer set. In exchange, the community receives annual support to help finance an economic recovery plan for Gesgapegiag (Jerome *et al.*,2016).

REFERENCE:
 Jerome, P.A., Arsenault, L.M. and Lambert Koizumi, C. (2016) *Mi'gmaq and Maliseet Ecological Knowledge of Species at Risk in the St. Lawrence*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 113 p.



ECOLOGICAL KNOWLEDGE PORTRAIT - AMERICAN EEL

The **American eel**, *Anguilla rostrata*, - **gat'aw** in Mi'gmaq and **kat** in Maliseet - belongs to the Anguillidae family and is present everywhere along North America's eastern seaboard. It inhabits different saltwater and freshwater habitats at different stages of its life. The eel by far prefers protected shallow water in the marine environment (DFO, 2017). It has been designated as "threatened" by COSEWIC.

THE EEL FISHERY

The eel fishery is a traditional activity for the Mi'gmaq and Maliseet. It appears, however, that traditional fishing methods and uses have gradually been abandoned, despite its cultural importance. Traditionally, this fish was caught at dusk and at night, by torchlight. A range of catch methods have been used over time, including the nigog (harpoon), fish jig and eel traps. Nowadays, they are most often caught accidentally and shared with community seniors, who prize them. The fishing period can go from May to when the water ices up. In addition to eating the fish, eel oil, skin and roe (eggs) can be used for their medicinal qualities (Jerome *et al.*, 2016).

According to members of the **Gesgapegiag** community, the most popular area for eel fishing is the Rivière Cascapédia estuary, at the mouth of the river, just upstream from the Highway 132 bridge. Some also say that Rivière Verte in Maria used to be an area where eel was abundant. The Nouvelle, Bonaventure, and Petite rivière Cascapédia (especially its mouth) rivers and the section along the shore between New Richmond and Bonaventure (Map 26a) are other areas where people have fished for eel in the past (Jerome *et al.*, 2016).

According to some members of the **Gespeg** community, the area along the Sandy Beach wharf is likely to hold eel. Some members of the community have also fished for this species in the tributaries of the Dartmouth and York rivers. Gaspé Bay (Map 26a) appears to be a place where eel are often taken as bycatch (Jerome *et al.*, 2016).

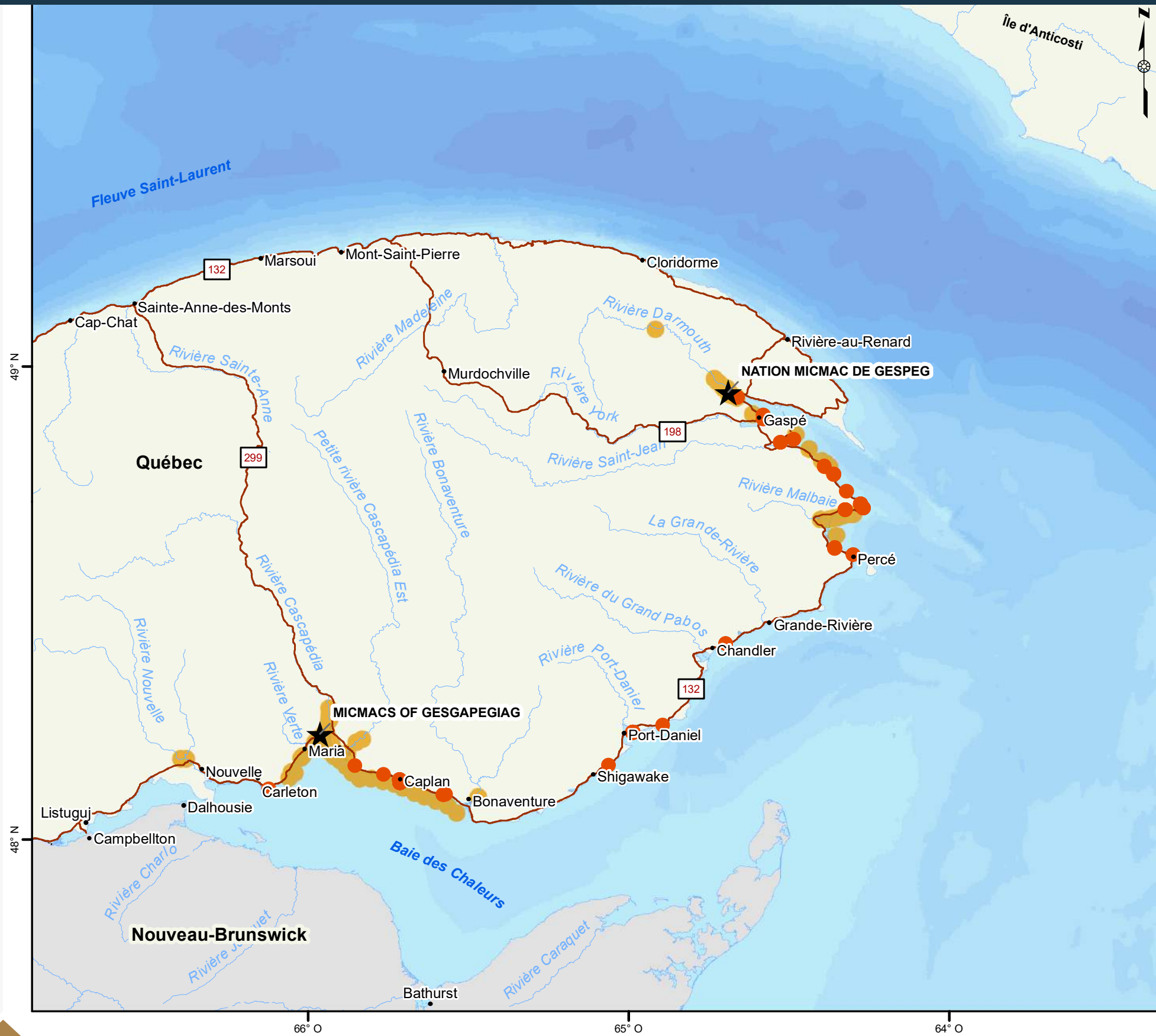
In addition to illustrating ecological knowledge data pertaining to the American eel, Map 26a also shows the locations of sampling sites where this species was surveyed in the summer of 2016. This sampling was done for a study on the presence of juvenile striped bass along the southern shore of the Gaspé Peninsula conducted by MMAFMA (Arsenault *et al.*, in progress).

NOTE : These data provide only a glimpse of the knowledge of this species held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

REFERENCE:

Jerome, P.A., Arsenault, L.M. and Lambert Koizumi, C. (2016) *Mi'gmaq and Maliseet Ecological Knowledge of Species at Risk in the St. Lawrence*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 113 p.

MPO (August 2017) *Species profile - American eel*. Retrieved in February 2017 from www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=891.



Savoir écologique / Ecological Knowledge

Anguille d'Amérique / American Eel

● Secteur de capture / Harvesting Zone¹

● Site d'échantillonnage avec présence d'anguille d'Amérique² / Sampling Station with the Presence of American Eel²

¹ Provenant d'une enquête auprès de 29 participants des communautés membres de l'AGHAMM / From a survey of 29 participants from the member communities of MMAFMA (2016)

² Provenant des résultats d'échantillonnage d'une étude sur la présence du bar rayé / From sampling results of a study on the presence of the striped bass (AGHAMM 2017)

0 5 10 20 km

Échelle approximative / Approximate scale

1:1,218,593

Dernière mise à jour: Février 2017
Last update: February 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:

- Fond de carte/ Base Map :
MPO (2016), ESRI (2016) et /
and NRCan (2016)
- Données sur l'anguille d'Amérique /
American Eel data:
AGHAMM (2016 et /
and 2017)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

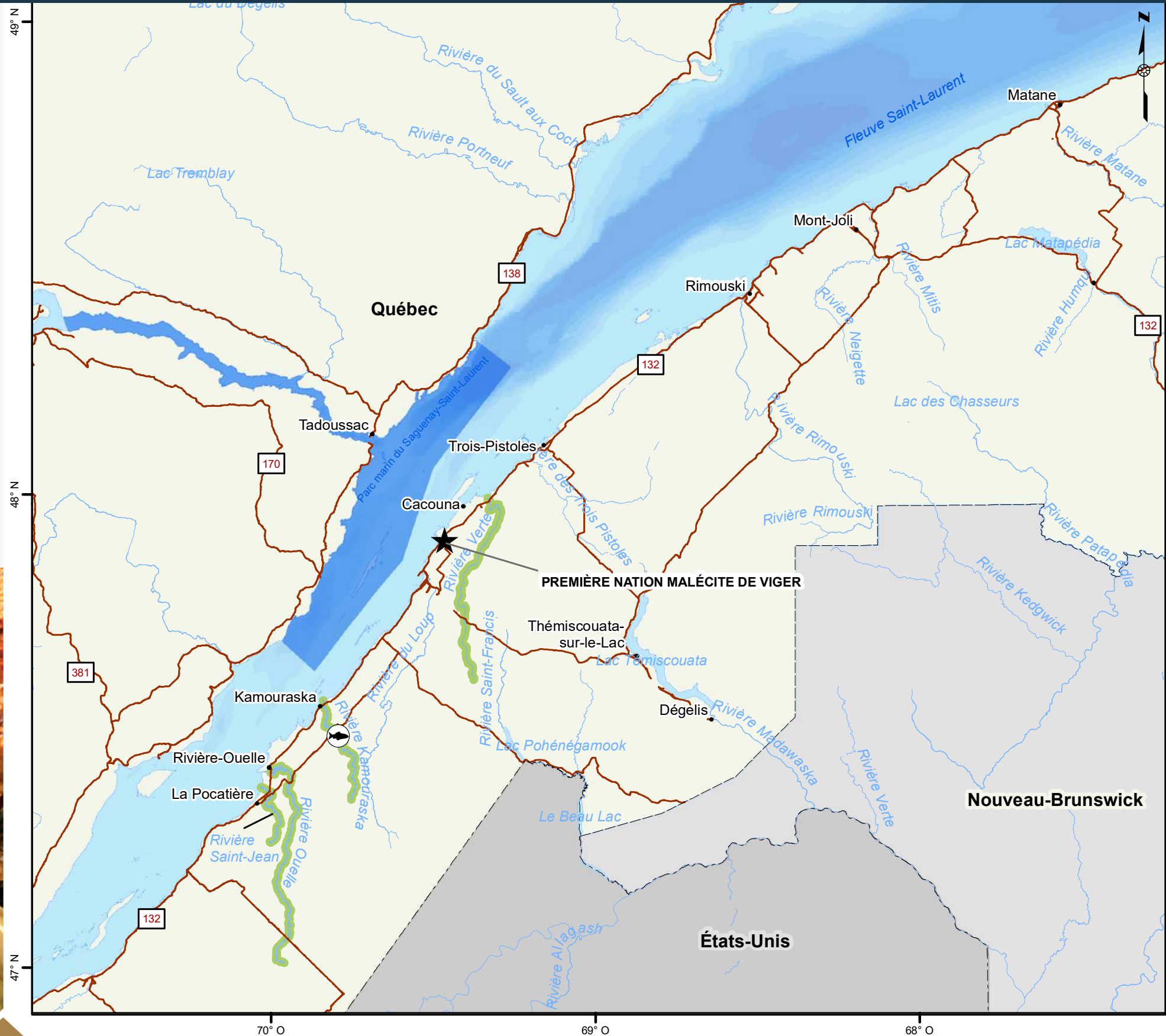
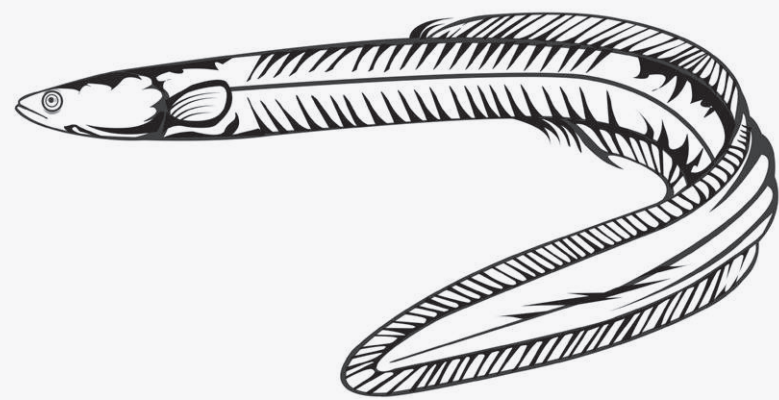
LOCATIONS OF AMERICAN EEL FISHING AREAS

MAP
26A

ECOLOGICAL KNOWLEDGE PORTRAIT - AMERICAN EEL

Although the Maliseet ancestors fished for eel and it was a godsend for them (Michaud, 2003), the members of the **Maliseet of Viger First Nation** (MVFN) questioned during the survey conducted by MMAFMA (Jerome *et al.*, 2016), had not happened to fish for this species. This being said, MVFN did conduct a survey of the watersheds of the St-Jean, Ouelle, Kamouraska and Verte rivers (Map 26b) in 2012 and 2013 to catalogue the obstacles hindering eel migration. In 2016, a fishway was built on Rivière Kamouraska, as shown on Map 26b, along the Barrage des Sept-Chutes, to allow eels to swim upstream and complete their reproductive cycle.

REFERENCE:
Michaud, G. (2003) *Les gardiens des portages : l'histoire des Malécites du Québec*. Collection les premiers peuples, 303 p.



Rivières inventoriées / Rivers surveyed

Anguille d'Amérique / American Eel

- Rivières inventoriées / Rivers Surveyed
- Passe migratoire installée en 2016 / Migratory Pass Installed in 2016

0 5 10 20 km
Échelle approximative / Approximate scale
1:1,218,593

Dernière mise à jour: Février 2017
Last update: February 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016), ESRI (2016), MERN (2016) et / and NRCan (2016)
- Données sur l'anguille d'Amérique / American Eel data: PNMV (2013 et / and 2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

LOCATIONS OF RIVERS SURVEYED BY THE MALISEET OF VIGER FIRST NATION 2012-2013

MAP
26B

ECOLOGICAL KNOWLEDGE PORTRAIT - ATLANTIC COD

The **Atlantic cod**, *Gadus morhua*, – **pe'ju** in Mi'gmaq and **nukomeg** in Maliseet – is a groundfish occurring on both sides of the North Atlantic. The economic and cultural landscape of the Gaspé Peninsula was fashioned by the cod fishery. This finfish, which was once a staple in the diet of Gaspésians regardless of their ethnic origins, has been designated as “endangered” by COSEWIC (Laurentian South population).

THE COD FISHERY

Given the Atlantic cod's precarious status and the current quotas and restrictions set for this fishery, cod is generally taken as bycatch by commercial and sport fisheries (Jerome *et al.*, 2016). According to some members of the communities who have fished for this species, it is caught primarily between the months of April and October and is apparently more abundant during the summer months. Various types of gear are used to catch cod: squid jigs and cod jiggers (sport fishery) and fly casting rods, trawls and gillnets (when fishing for salmon). It can also be caught accidentally in lobster traps (Jerome *et al.*, 2016).

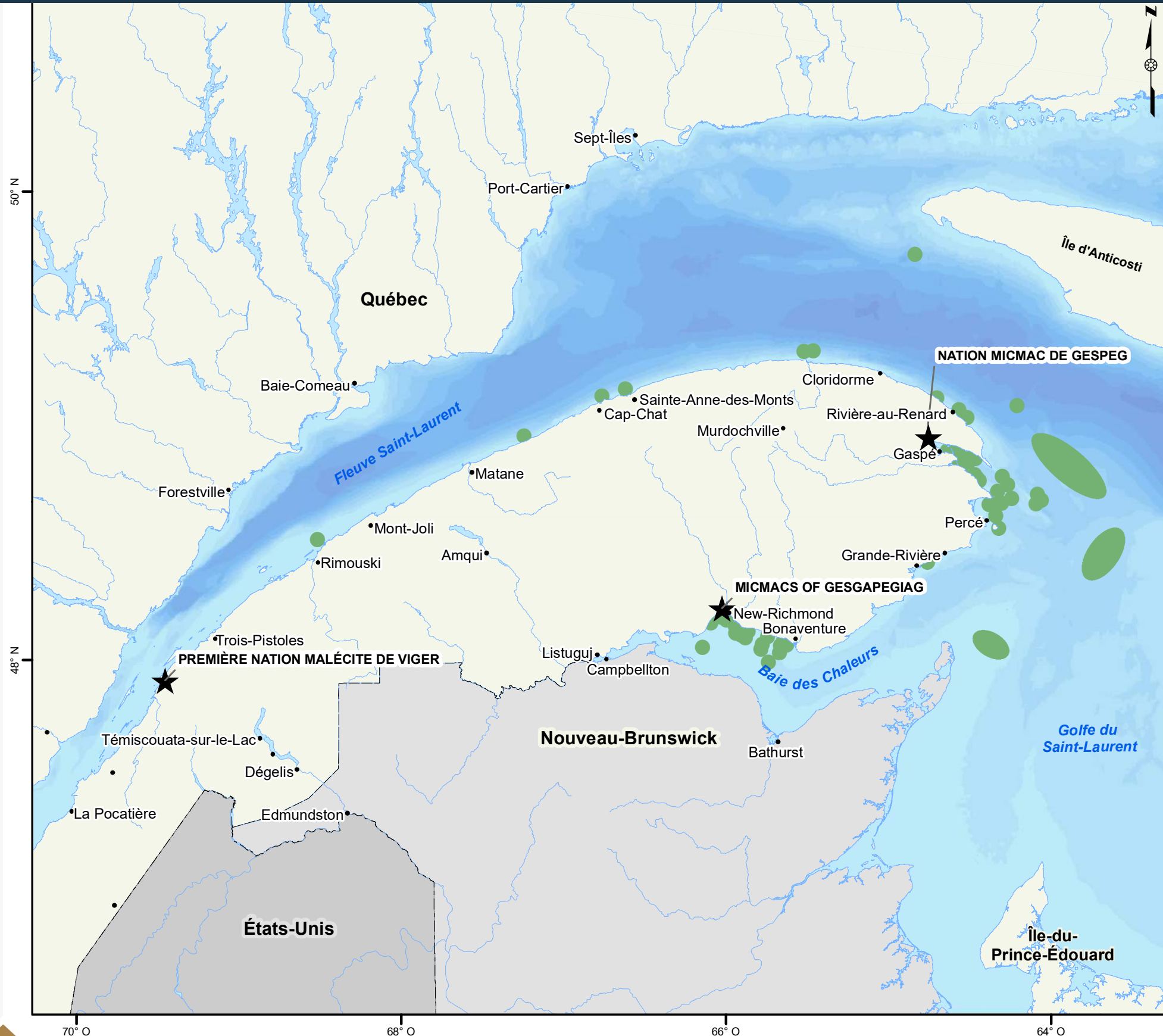
Members of the **Gesgapegiag** community say they have caught cod in the estuary of the Cascapedia River in recent years; and prior to 2009, during the communal salmon fishery (Map). In addition, commercial fish harvesters and recreational anglers have mentioned taking cod in Chaleur Bay, all along the shore between Bonaventure and New Richmond, as well as in the vicinity of Miguasha, as shown on Map 27. Moreover, it seems that cod are frequently caught in two snow crab fishing areas (12 and 12A), to the east of the tip of the Gaspé Peninsula and south of New Brunswick (Jerome *et al.*, 2016). In this regard, the reader is invited to refer to maps 2, 3 and 4 in the preceding section.

In Gaspé and its vicinity, the Atlantic cod has been caught for numerous years. According to some members of the **Gespeg** community, Gaspé Bay and particularly its northern extremity near Cap-aux-Os and Grande Grave, as well as the southern portion along the Sandy Beach wharf, are sectors where cod are frequently caught (Map 27). Rivière-au-Renard, the estuaries of the Malbaie and Percé rivers and the American Bank sector (Map 27) are also fishing spots mentioned by the community (Jerome *et al.*, 2016).

According to a fish harvester from the **Viger** community, cod is sometimes taken in a trawl during the commercial fishery conducted by the community in sectors in the vicinity of Saint-Anne-des-Monts, Sept-Îles, Anticosti Island and the north shore of the St. Lawrence (Map 27). Cod is also caught by sport anglers from the Rivière-au-Renard wharf (Jerome *et al.*, 2016).

NOTE : These data provide only a glimpse of the knowledge of this species held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

REFERENCE:
Jerome, P.A., Arsenault, L.M. and Lambert Koizumi, C. (2016) *Mi'gmaq and Maliseet Ecological Knowledge of Species at Risk in the St. Lawrence*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 113 p.

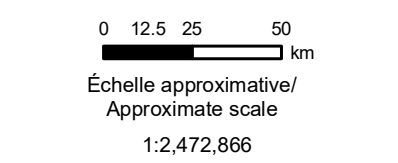


Savoir écologique / Ecological Knowledge

Morue franche / Atlantic Cod

Secteur pêché pour la morue franche / Zone Fished for Atlantic Cod

¹ Provenant d'une enquête auprès de 29 participants des communautés membres de l'AGHAMM / From a survey of 29 participants from the member communities of MMAFMA (2016)



Dernière mise à jour : Février 2017
Last update : February 2017

Produit par : AGHAMM
Produced by : MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016) and NRCan (2016)
- Données sur la morue / Cod data: AGHAMM (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

MAP
27

LOCATIONS OF SITES WHERE ATLANTIC COD WERE CAUGHT BY MEMBERS OF THE GESGAPEGIAG, GESPEG AND VIGER COMMUNITIES

ECOLOGICAL KNOWLEDGE PORTRAIT - STRIPED BASS

The **striped bass**, *Morone saxatilis*, – *ji'gaw* in Mi'gmaq and *nokahkehke* in Maliseet – is an anadromous fish, which means that spawning, incubation and early larval development occur in freshwater and the juveniles migrate downstream to brackish water and eventually salt water to feed and grow for several years before reaching maturity (COSEWIC, 2004). Its natural range extends along the Atlantic coast of North America, from the St. Lawrence Estuary to northeast Florida (COSEWIC, 2004). The Striped bass (Southern Gulf of St. Lawrence population) was designated as “of special concern” in November 2012 by COSEWIC. Most members of the community interviewed state that this fish is taken primarily as an increasingly frequent bycatch.

THE STRIPED BASS FISHERY

The Striped bass is generally caught from May to October, but more particularly beginning in August. Some eat the fish and/or share it; others say they use it as bait for the smelt fishery. The Striped bass is often taken as bycatch when fishing with gillnets (salmon), light casting rods (trout or mackerel) or fly casting rods (sport fishery) (Jerome *et al.*, 2016).

According to **Gesgapegiag** participants, the Striped bass is primarily taken in the estuary of the Cascapedia River as bycatch while gillnetting for salmon (prior to 2009) and by recreational anglers fishing from wharf or shore in Carleton and New Richmond (Jerome *et al.*, 2016), as shown on Map 28.

According to **Gespeg** members, in addition to bycatch taken by gillnets set for the communal salmon fishery on Rivière Dartmouth, the species is primarily caught in the vicinity of the Sandy Beach wharf. The Striped bass is also frequently caught in the vicinity of the Malbaie wharf, as well as in the area near the railroad bridge between Haldimand and Douglstown beaches (Jerome *et al.*, 2016), as shown on Map 28.

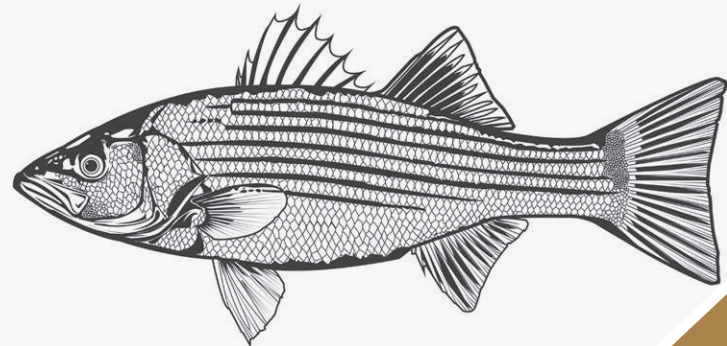
In addition to illustrating ecological knowledge data pertaining to the Striped bass, Map 28 also shows the locations of sampling sites where this fish was caught (mainly adults) in the summer of 2016. This sampling was done for a study on the presence of juvenile Striped bass along the southern shore of the Gaspé Peninsula conducted by MMAFMA (Arsenault *et al.*, in progress).

NOTE : These data provide only a glimpse of the knowledge of this species held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

REFERENCE:

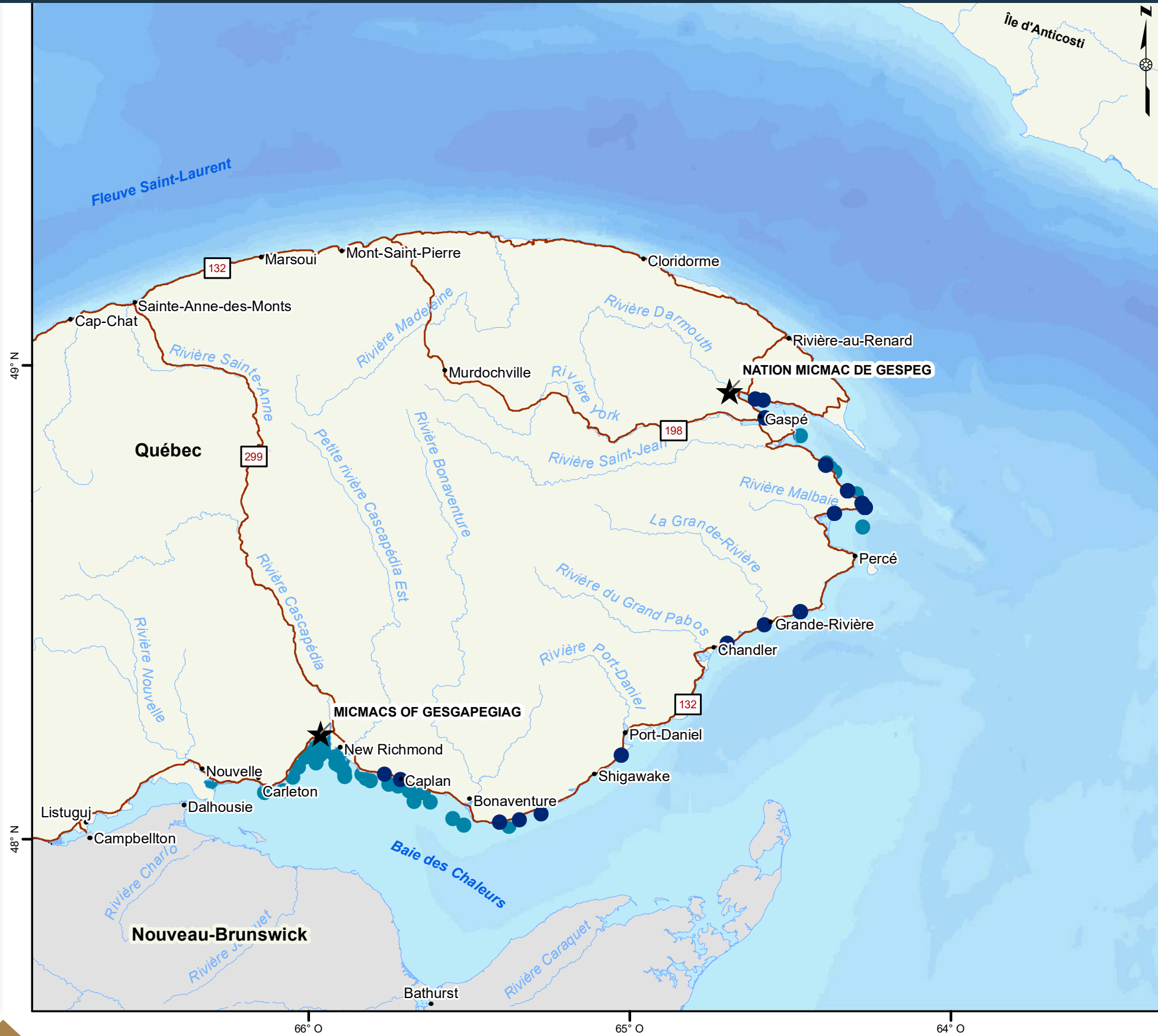
COSEWIC. 2004. *COSEWIC assessment and status report on the Striped Bass Morone saxatilis in Canada*. Committee on the Status of Endangered Wildlife in Canada, Ottawa. vii + 43 pp. Retrieved in March 2017 from www.registrelep.gc.ca/virtual_sara/files/cosewic/sr_Striped_bass_e.pdf.

Jerome, P.A., Arsenault, L.M. and C. Lambert Koizumi, C. (2016) *Mi'gmaq and Maliseet Ecological Knowledge of Species at Risk in the St. Lawrence*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 113 p.



MAP

28



Savoir écologique / Ecological Knowledge

Bar rayé / Striped Bass

- Secteur de capture / Harvesting Zone¹
- Site d'échantillonnage avec présence de bars rayés² / Sampling Station with the Presence of Striped Bass²

¹ Provenant d'une enquête auprès de 29 participants des communautés membres de l'AGHAMM / From a survey of 29 participants from the member communities of MMAFMA (2016)

² Provenant des résultats d'échantillonnage d'une étude sur la présence du bar rayé / From sampling results of a study on the presence of the striped bass (AGHAMM 2017)

0 5 10 20 km

Échelle approximative / Approximate scale

1:1,218,593

Dernière mise à jour: Février 2017
Last update: February 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:

- Fond de carte/ Base Map : MPO (2016), ESRI (2016) et / and NRCan (2016)
- Données sur le bar rayé / Striped bass data: AGHAMM (2016 et / and 2017)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

LOCATIONS OF SITES WHERE STRIPED BASS WERE CAUGHT BY MEMBERS OF THE GESGAPEGIAG, GESPEG AND VIGER COMMUNITIES

ECOLOGICAL KNOWLEDGE PORTRAIT - AMERICAN PLAICE - ACADIAN /DEEPWATER REDFISH- ATLANTIC STURGEON

The Maritime population of the **American plaice***, *Hippoglossoides platessoides*, also known as flounder or flatfish - **anagwe'j** in Mi'gmaq and **aneqehs** in Maliseet - is currently designated as "threatened" by COSEWIC (Jerome *et al.*, 2016). According to survey respondents from the Gesgapegiag community, American plaice was primarily taken in Rivière Cascapedia as bycatch when communal fishing was done there (before 2009). Other places were also mentioned by the participants, including the vicinity of the New Richmond wharf and along the shore between Bonaventure and New Richmond (Map 29) (Jerome *et al.*, 2016). Survey participants from the Gespeg community primarily caught American plaice in Gaspé Bay but also in the estuaries of the Malbaie and Saint-Jean rivers (Map 29). American plaice was also taken as bycatch in the commercial fisheries conducted by the three Aboriginal communities, as mentioned by the fish harvesters, particularly in northern shrimp and snow crab fishing areas (Jerome *et al.*, 2016).

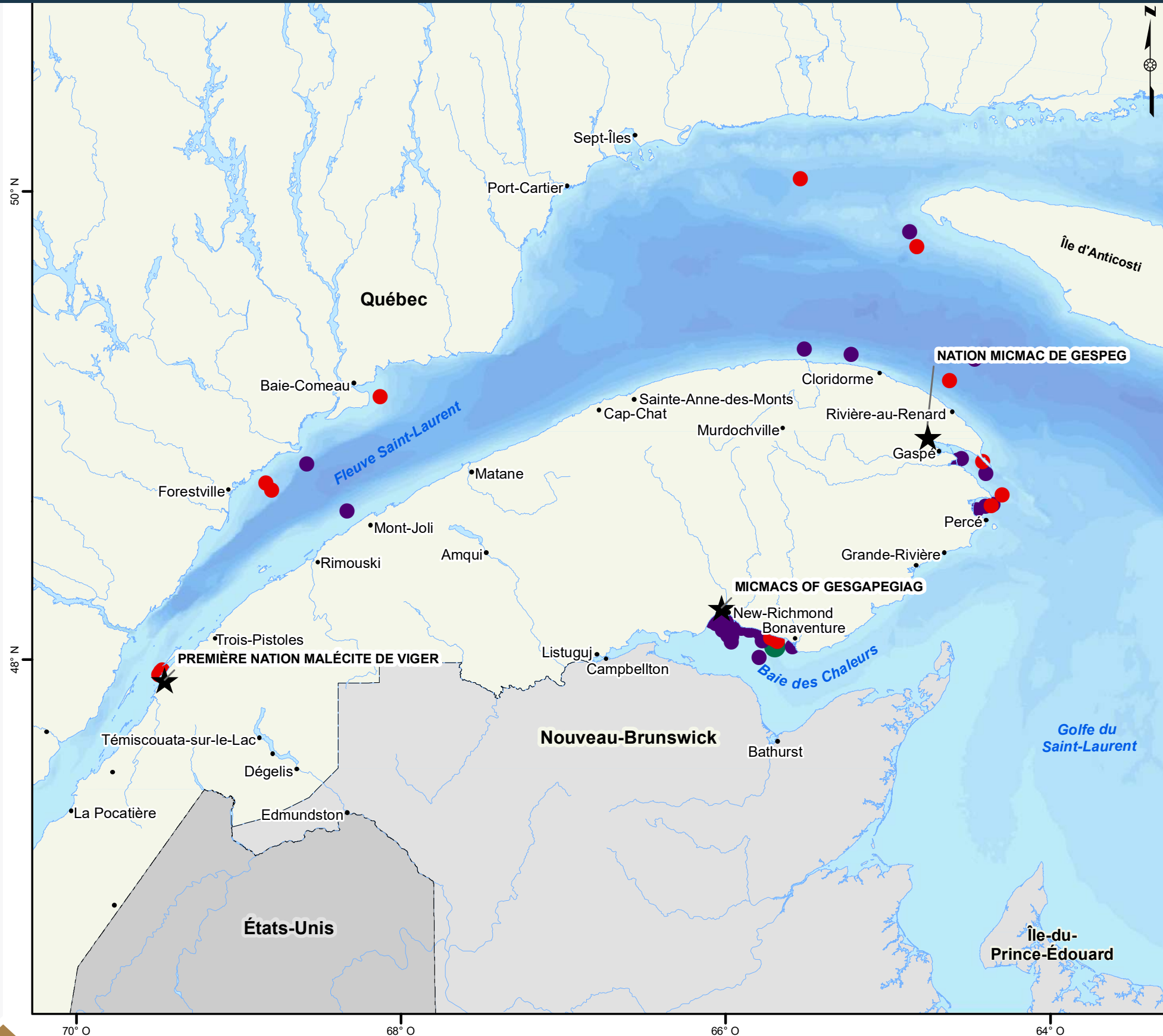
**The results shown on Map 29 quite likely include data and information on all flatfish species, given the significant drop in the American plaice population and the difficulty in telling apart the most common flatfish species*

The Gulf of St. Lawrence and Laurentian Channel population of the **Acadian redfish** and **deepwater redfish**, *Sebastes fasciatus* - *Sebastes mentalla*, has been designated as "endangered". These two, highly similar, species are hard to tell apart. Consequently, when analysing all the data collected for this study, both species were considered as a single one (Jerome *et al.*, 2016). The information collected shows that the redfish, although not targeted by a specific fishery, is taken increasingly often as bycatch in commercial fishing areas (Jerome *et al.*, 2016). This fish is generally used as bait only. The fishing areas where the species is caught are shown on Map 29. The species is taken in the vicinity of Bonaventure (lobster harvest) as well as along the coast between Gaspé and Percé. In addition, it is caught in northern shrimp fishing areas - in the estuary, along the North Shore and in the Gulf of St. Lawrence as well as near Anticosti Island (Map 29) (Jerome *et al.*, 2016).

The **Atlantic sturgeon**, *Acipenser oxyrinchus oxyrinchus*, - **pasokos** in Maliseet - is rarely caught or even observed by members of the three communities. The St. Lawrence population of the Atlantic sturgeon has been designated as "threatened" by COSEWIC (Jerome *et al.*, 2016). Most of the Atlantic sturgeon were taken in places where gillnets were set for salmon (before 2009), more specifically, in the estuary of the Cascapedia River and the wide channel sector known as Lynd Point, as shown on Map 29. The Atlantic sturgeon has also been caught off the coast at Saint-Siméon (Jerome *et al.*, 2016).

NOTE: These data provide only a glimpse of the knowledge of this species held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

REFERENCE:
Jerome, P.A., Arsenault, L.M. and Lambert Koizumi, C. (2016) *Mi'gmaq and Maliseet Ecological Knowledge of Species at Risk in the St. Lawrence*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 113 p.



Savoir écologique / Ecological Knowledge

Sébaste / Redfish
Plie canadienne / American Plaice
Esturgeon noir / Atlantic Sturgeon

Secteur de capture /
Haversting Zone¹

- Sébaste / Redfish
- Plie canadienne / American Plaice
- Esturgeon noir / Atlantic Sturgeon

¹ Provenant d'une enquête auprès de 29 participants des communautés membres de l'AGHAMM / From a survey of 29 participants from the member communities of MMAFMA (2016)

0 12.5 25 50
km
Échelle approximative/
Approximate scale
1:2,472,866

Dernière mise à jour: Février 2017
Last update: February 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map :
MPO (2016) et / and NRCAN (2016)
- Données sur les poissons /
Fish data: AGHAMM (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.



MAP
29

LOCATIONS OF SITES WHERE AMERICAN PLAICE, REDFISH AND ATLANTIC STURGEON WERE CAUGHT

ECOLOGICAL KNOWLEDGE PORTRAIT - WHALE SIGHTINGS

The Mi'gmaq and Maliseet use the generic term, **putep**, for the different whale species (Jerome *et al.*, 2016). During the species-at-risk survey of members of the Gesgapegiag, Gespeg and Viger communities conducted by MMAFMA (Jerome *et al.*, 2016), some participants, often fish harvesters, indicated the places where they had seen whales over the years. These sectors are shown on Map 30. In the Gaspé, sightings occurred primarily along the shore from Percé to the north shore of the Peninsula, along the Côte-de-Gaspé regional county municipality and along the North Shore between Tadoussac and Baie-Comeau.

The **beluga whale**, *Delphinapterus leucas*, is the most easily recognizable of all whale species, notably because of its white colour. The Maliseet call it **epeskomaluwehs**, a term also used for the killer whale and the sea lion. The species has been designated as "endangered" by COSEWIC (Jerome *et al.*, 2016).

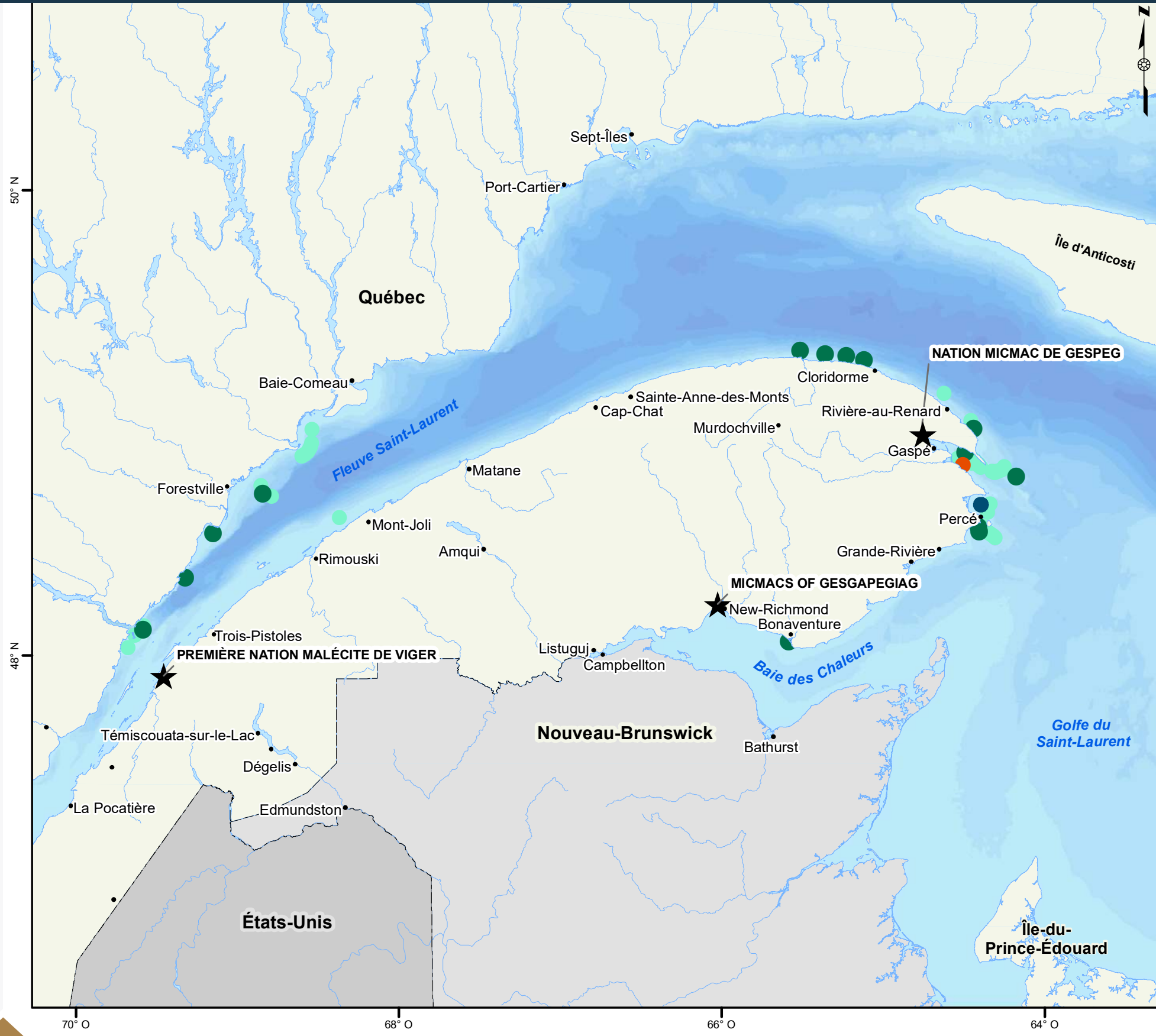
Of all the whale species in the survey (Jerome *et al.*, 2016), the **fin whale**, *Balaenoptera physalus*, was the one sighted most often by participants. The Atlantic population of the fin whale has been designated as "of special concern" by COSEWIC and under *Canada's Species at Risk Act* (Jerome *et al.*, 2016).

The **blue whale**, *Balaenoptera musculus*, is the most imposing marine mammal and the planet's largest animal. The current status of this whale's Atlantic population is precarious and similar to that of the North Atlantic right whale: it has been designated as "endangered" by COSEWIC and under *Canada's Species at Risk Act* (Jerome *et al.*, 2016).

The **North Atlantic right whale**, *Eubalaena glacialis*, can be told apart from the other whale species by its v-shaped blow and lack of a dorsal fin, although these characteristics are hard to spot. This explains why participants said right whales were hard to identify. The Atlantic population has been designated as "endangered" by COSEWIC and under *Canada's Species at Risk Act* (Jerome *et al.*, 2016).

NOTE : These data provide only a glimpse of the knowledge of this species held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

REFERENCE:
Jerome, P.A., Arsenault, L.M. and Lambert Koizumi, C. (2016) *Mi'gmaq and Maliseet Ecological Knowledge of Species at Risk in the St. Lawrence*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 113 p.



Savoir écologique / Ecological Knowledge

Baleines / Whales

Site d'observation de baleines / Whale Sighting Site¹

- Béluga / Beluga
- Rorqual commun / Fin Whale
- Rorqual bleu / Blue Whale
- Baleine noire / North Atlantic Right Whale

¹ Provenant d'une enquête auprès de 29 participants des communautés membres de l'AGHAMM / From a survey of 29 participants from the member communities of MMAFMA (2016)

0 12.5 25 50 km

Échelle approximative / Approximate scale

1:2,472,866

Dernière mise à jour : Février 2017
Last update : February 2017

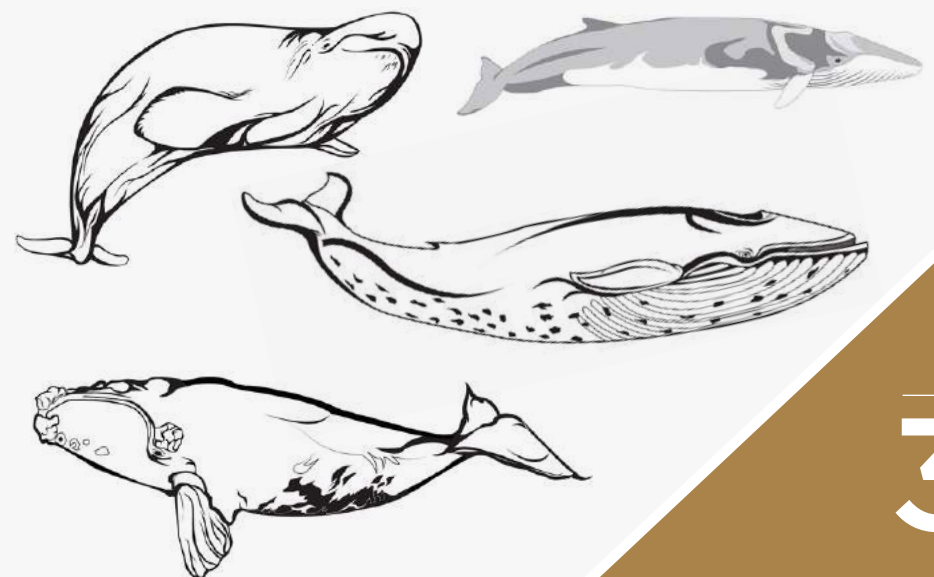
Produit par : AGHAMM
Produced by : MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016) et / and NRCAN (2016)
- Données sur les baleines / Whale sighting data : AGHAMM (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.



MAP
30

LOCATIONS OF WHALE SIGHTINGS OVER THE YEARS

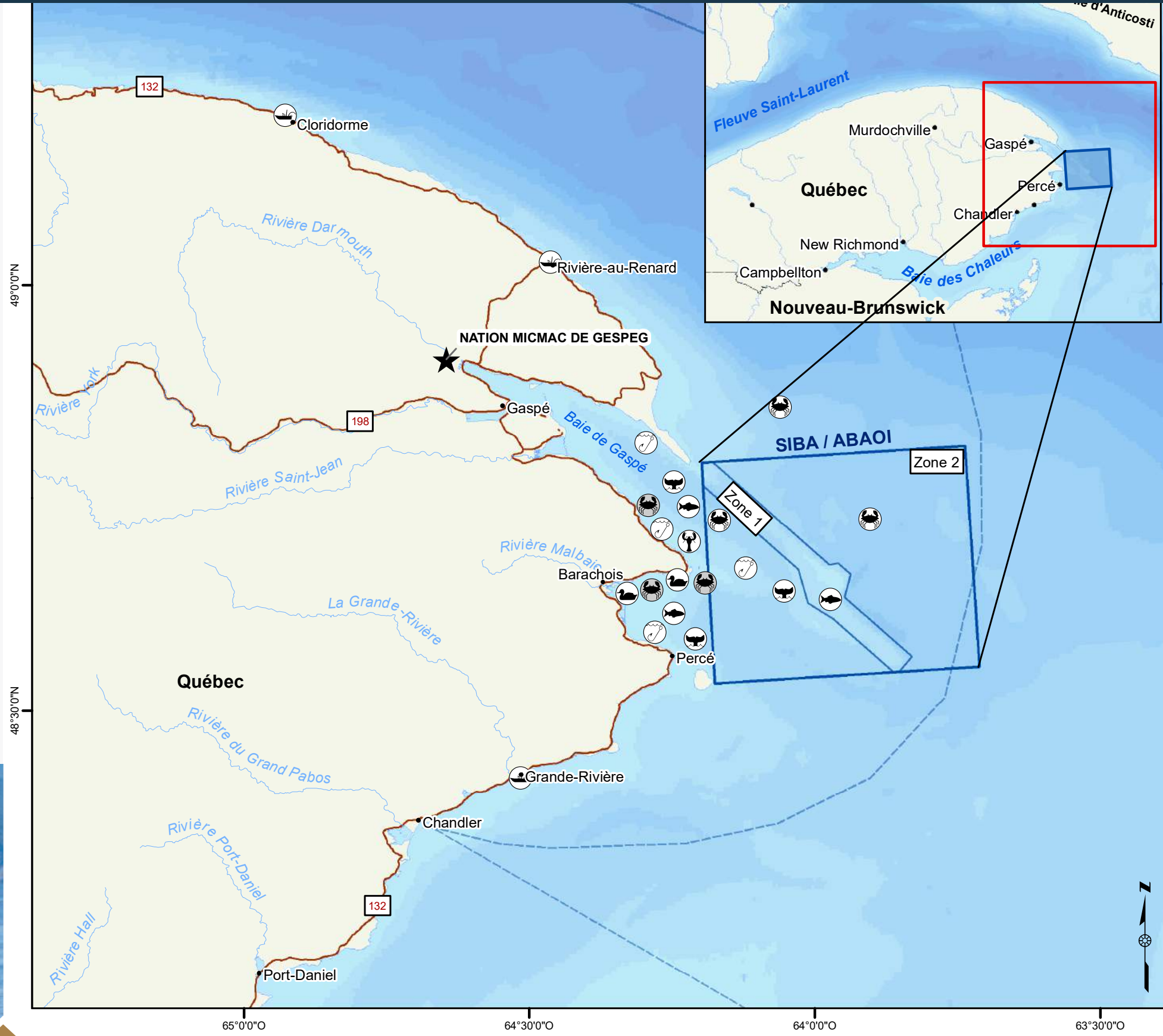
ECOLOGICAL KNOWLEDGE PORTRAIT - AMERICAN BANK

Mi'gmaq knowledge of traditional and contemporary uses of the **American Bank** and its vicinity collected from members of the Gespeg and Gesgapegiag communities are shown on Map 31. This knowledge was documented by MMAFMA in 2016, as part of the effort on the part of Fisheries and Oceans Canada (DFO) to create a marine protected area. The American Bank Area of Interest (ABAOI) is of great economic, ecological and cultural significance for the communities (Arsenault *et al.*, 2016). Sectors used or visited by the participants are both inside and peripheral to the proposed marine protected area (Map 31).

The ABAOI lies within snow crab fishing area 12, so harvesters are likely to be in the area or its vicinity during the season for this fishery. As for the lobster and rock crab fisheries and waterfowl hunt, these activities take place essentially in sectors peripheral to the proposed marine protected area, along the shore near Belle-Anse, Barachois, Pointe-Saint-Pierre and Saint-Georges de Malbaie (Map 31). Recreational fishing, notably for mackerel, herring and cod, is also practised in the vicinity of the study area, especially near wharves. Various marine mammals are also known to be present in the ABAOI, and can be observed there. In fact, some study participants enjoy whale-watching cruises, between Forillon National Park and Bonaventure Island in particular. As for the Atlantic cod, this species was once harvested commercially on the American Bank and is of tremendous cultural and historical significance for a number of people (Arsenault *et al.*, 2016).

NOTE : These data provide only a glimpse of the knowledge of this species held by members of the Gesgapegiag, Gespeg and Viger first nations and cannot be considered a comprehensive documentation of these nations' knowledge.

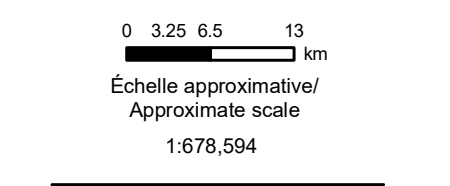
REFERENCE:
Arsenault, L.M., Jerome P.A. and C. Lambert Koizumi (2016) *Documentation of Mi'gmaq Ecological Knowledge of the Proposed American Bank Marine Protected Area*. Mi'gmaq Maliseet Aboriginal Fisheries Management Association (MMAFMA), 45 p.



Savoir écologique / Ecological Knowledge

Site d'intérêt du banc des Américains (SIBA) / American Bank of Interest (ABAOI)

- Pêche récréative / Recreational Fishing
- Pêche historique à la morue franche / Historical Cod Fishing
- Observation de baleine / Whale Watching
- Chasse à la sauvagine / Waterfowl Hunting
- Pêche commerciale au homard / Commercial Lobster Fishing
- Pêche commerciale au crabe des neiges / Commercial Snow Crab Fishing
- Pêche commerciale au crabe commun / Commercial Rock Crab Fishing
- Port utilisé par les communautés / Harbour Used by the Communities
- Traversier Ferry



Dernière mise à jour: Février 2017 / Last update: February 2017

Produit par: AGHAMM / Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83 / Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map : MPO (2016), ESRI (2016) et / and NRCan (2016)
- Limites du SIBA / ABAOI
Boundaries : MPO (2015)
- Données sur les usages / Data on uses: AGHAMM (2016)

Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés. / Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

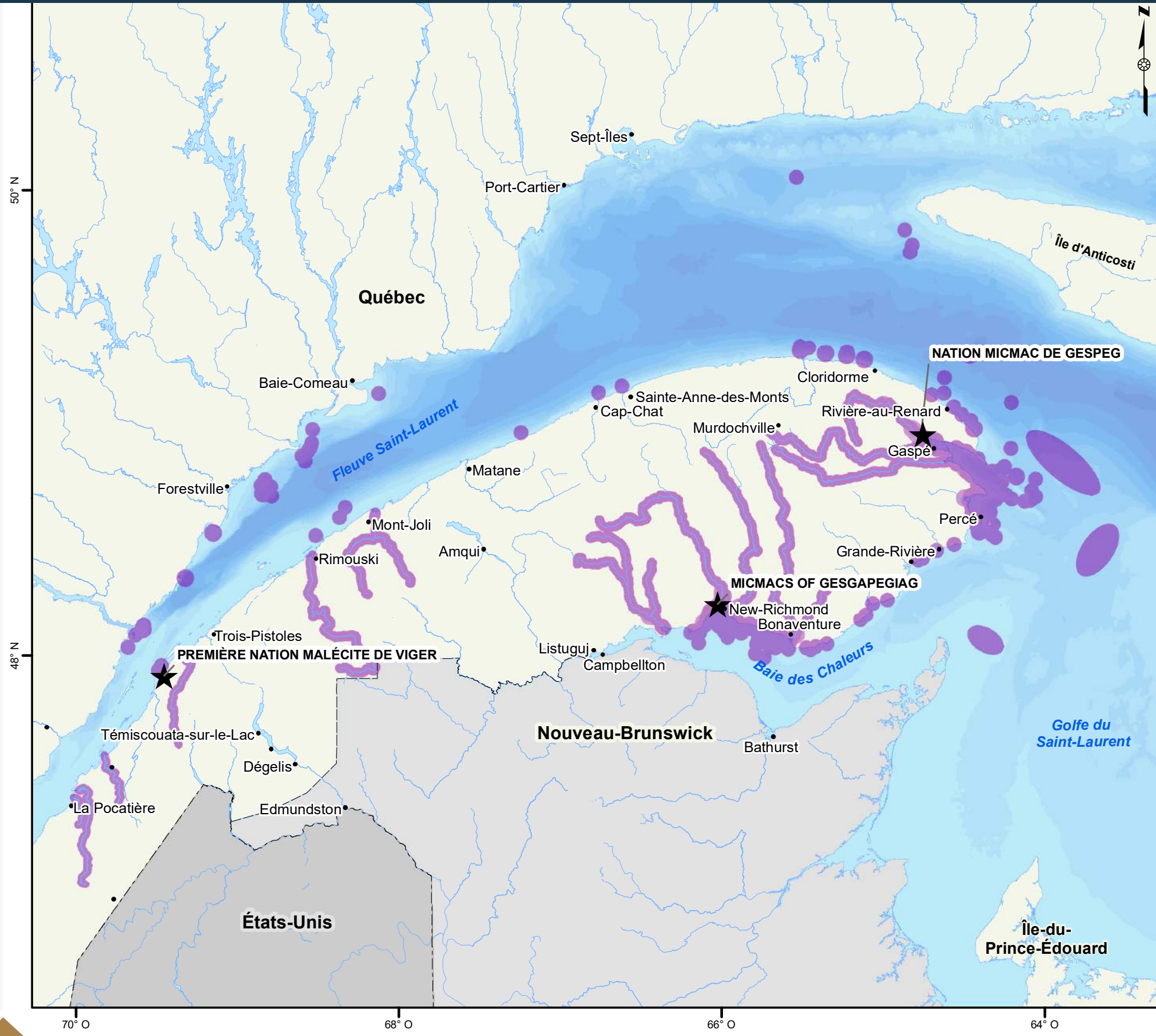


MAP
31

LOCATIONS OF THE VARIOUS ACTIVITIES IN THE AMERICAN BANK AREA OVER THE YEARS


ECOLOGICAL KNOWLEDGE PORTRAIT - OVERVIEW

Map 32 brings together all the data available on the ecological knowledge and communal fisheries of the three MMAFMA-member communities, as described earlier. This overview casts light to some degree on the extent to which the territory is and has been used by the communities; as can be seen on the map, several rivers on the Gaspé Peninsula and in the Lower St. Lawrence as well as some sectors in the St. Lawrence River, Estuary and Gulf and in Chaleur Bay are involved.



Sommaire / Summary

Savoir écologique et pêche communautaire / Ecological Knowledge and Communal Fishing

 Sommaire / Summary

0 12.5 25 50 km
 Échelle approximative / Approximate scale
 1:2,472,866

Dernière mise à jour: Février 2017
 Last update: February 2017

Produit par: AGHAMM
 Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
 Lambert Conformal Conic, NAD83

Sources:
 - Fond de carte/ Base Map: MPO (2016), ESRI (2016) et / and NRCan (2016)
 - Données: AGHAMM (2016 et / and 2017) MFFP (2017) Nation Micmac de Gespeg (2016)



Avertissement: les données présentées ne doivent pas servir de substitut à la consultation et au dialogue avec les communautés.
Disclaimer: the data shown are not to be used as a surrogate for consultation and dialogue with the communities.

OVERVIEW OF ECOLOGICAL KNOWLEDGE DATA

MAP
32

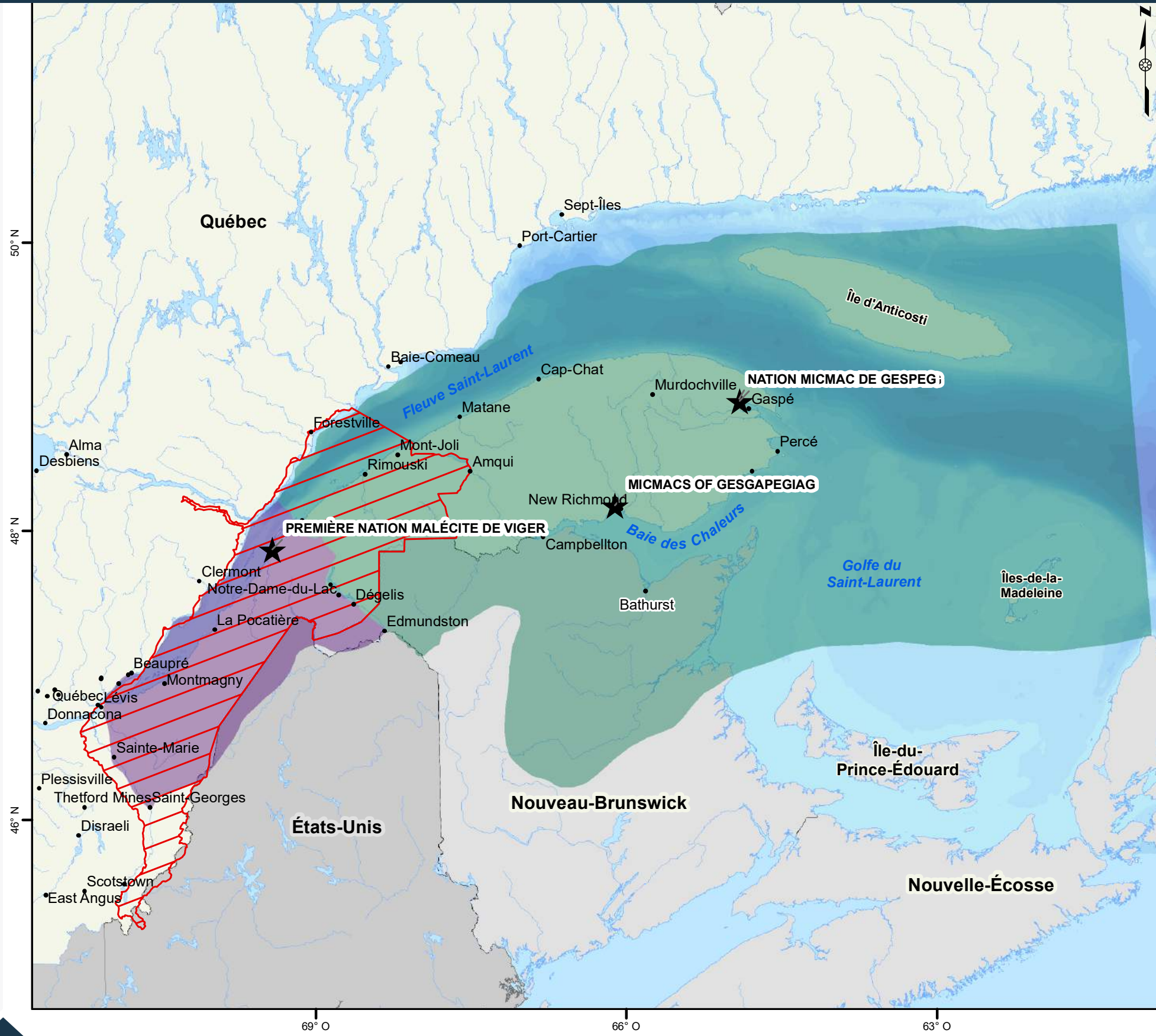
LAND CLAIMS PORTRAIT

The land claimed by the Maliseet of Viger First Nation and the Mi'gmawei Mawiomi Secretariat (MMS) are shown on Map 33, for information purposes and as a complement to the mapped data presented in the preceding pages of this Atlas.

The Mi'gmawei Mawiomi Secretariat (MMS) is the tribal council that represents the Nation Micmac de Gespeg and the Micmacs of Gesgapegiag as well as the Mi'gmaq Government of Listuguj. In 2005, MMS published a land claims map, shown here as Map 33. These territories were defined based on research conducted in 2011 on the historic and contemporary occupation of the land by the communities of Gespe'gewa'gi, the 7th district of the Mi'gmaq Nation, currently occupied by eight communities; it includes north and northeastern New Brunswick as well as the southern and eastern portions of the Gaspé Peninsula. The entire first part encompasses all of the Gaspé Peninsula as far as Rimouski, northwestern New Brunswick, Anticosti Island and the Magdalen Islands. As for the second part, it occupies an area of nearly 21,000 km² and represents a second territory that is not being claimed for now (MMS, 2017).

As for the Maliseet of Viger First Nation, it claims an area occupying about 34,450 km², encompassing portions of the following administrative regions: Estrie, Centre-du-Québec, Chaudière-Appalaches and Bas-Saint-Laurent, as shown on Map 33.

REFERENCE:
MMS (2017). About the claim map. Retrieved in March 2017 from www.migmawei.ca/about-the-claim-map/.



Territoires revendiqués/ Land Claims

- Première Nation Malécite de Viger (PNMV)
- Mi'gmawei Mawiomi Secretariat (MMS) - Primaire / Primary
- Mi'gmawei Mawiomi Secretariat (MMS) - Secondaire / Secondary

0 20 40 80 km
Échelle approximative/
Approximate scale
1:4,000,000

Dernière mise à jour: Février 2017
Last update: February 2017

Produit par: AGHAMM
Produced by: MMAFMA

Projection: Lambert conique conforme, NAD83
Lambert Conformal Conic, NAD83

Sources:
- Fond de carte/ Base Map: MPO (2016) et / and NRCan (2016)
- Territoires revendiqués / Land claims: MMS (2005) et / and PNMV (2017)



Avertissement du MMS: la carte des territoires revendiqués est présentée « sans préjudice des droits des Mi'gmaqs à faire valoir une demande ultérieure ou autre à tout moment. La carte ne décrit pas les divers autres domaines sur lesquels les Mi'gmaqs ont des droits ancestraux ou issus de traités. »
MMS' disclaimer: the claim map was presented "without prejudice to the rights of the Mi'gmaq to assert further or other claim any time. The map does not describe the various other areas over which the Mi'gmaq have Aboriginal or Treaty Rights."

LOCATION OF LAND CLAIMED BY THE MALISEET OF VIGER FIRST NATION AND THE MI'GMawei MAWIOMI SECRETARIAT

MAP
33

