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This Maritime Information System (MIS) newsletter features a summary of marine activity on the St. Lawrence and Saguenay rivers for the first six months of 2019 and shares observations for a number of domestic vessels for the 2018-2019 winter season.

You will recall that the MIS has a web interface (www.statsmaritimes.com) on which you can find past newsletters and a great deal of marine sector-related statistical data. Those interested can subscribe online to one of the two MIS subscription plans available. Subscribers enjoy access to all databases and can conduct customized queries.

Happy reading!

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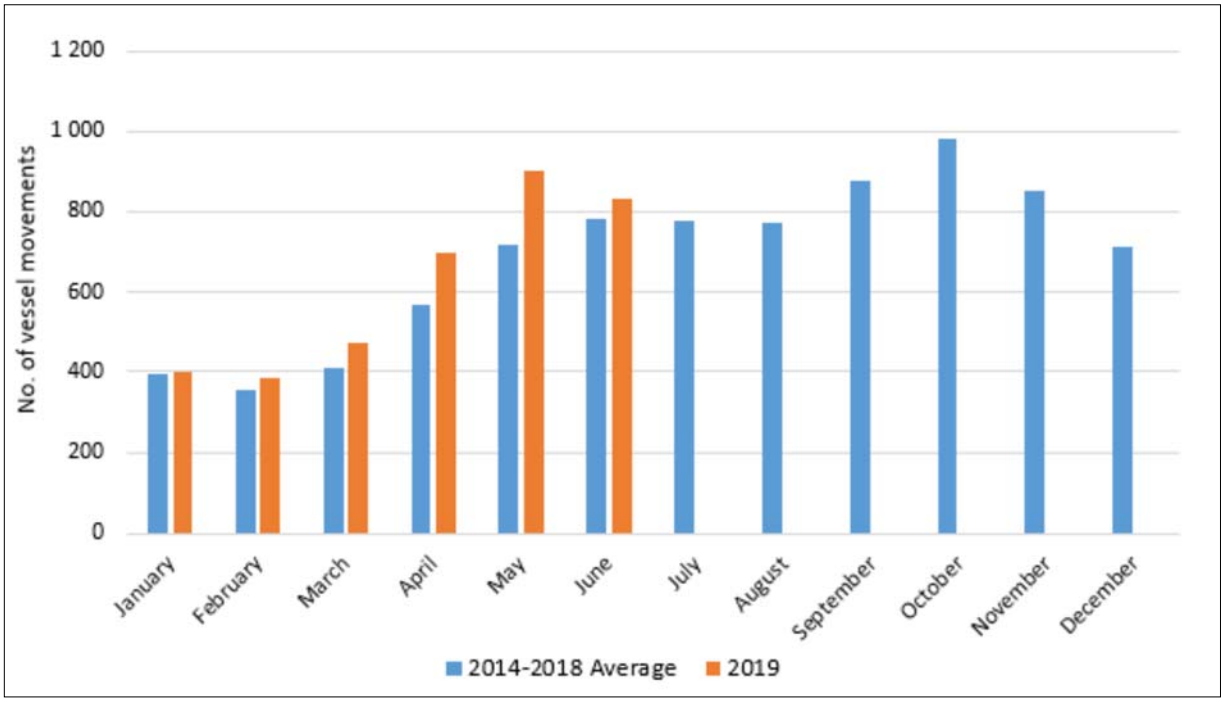
MONITORING MARINE ACTIVITY

The first six months of 2019 showed interesting results, both in the number of vessels that transited the St. Lawrence/Saguenay and in their transport capacity.

The period January to June posted 3 694 vessel movements, up 14% from the last five years' average of 3 223. The result is also positive compared to 2018 (3 538 movements in six months), with an increase of 4%.

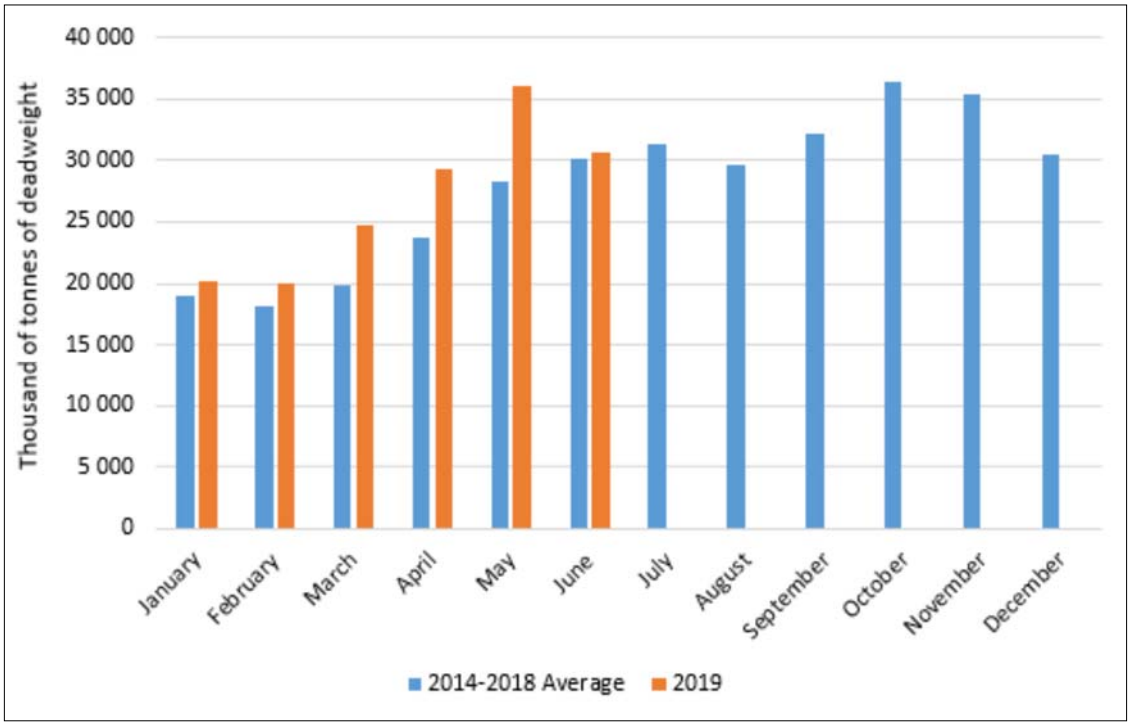
Figure 1– Monthly vessel traffic on the St. Lawrence and Saguenay



Sources : INNAV, IMAR

This upward trend can also be observed in total vessel transport capacity, which was 161 million tonnes of deadweight for the first half of 2019, up 16% from the 2014-2018 average (139 million tonnes). For the same period (January to June), 2018 posted a total of 148 million tonnes of deadweight. The year 2019 was marked by 9% growth compared to the same period (January to June) in 2018.

Figure 2– Vessels' total monthly transport capacity (in thousands of tonnes of deadweight)



Sources: INNAV, IMAR

Like last year (refer to Newsletter 11), ships carrying solid bulk generated the most movements (1 537 in 2019 compared to 1 515 in 2018: up 1%). Moreover, vessels of this type that navigated in the region had a bigger transport capacity (92 million tonnes of deadweight), up 12% from 2018 (close to 82 million tonnes of deadweight) and up 13% from the average for the last five years (2014-2018 average: 81 635 048 tonnes of deadweight).

A slight downturn (-1%) was noted in the number of liquid bulker movements for the first six months of 2019 (1 044) from 2018 (1 081 movements). Compared to the 2014-2018 average (886 movements), 2019 nevertheless posted a significant upturn (18%) in both the number of vessel movements and in total deadweight (40 989 954 tonnes in 2019 vs. an average of 34 812 048 tonnes in 2014-2018).

Container ships posted the best performance in terms of upward movement for the first six months. With a total of 513 movements in 2019, these ships generated a 12% increase in vessel traffic compared to 2018 (459 movements) and a 19% increase compared to the 2014-2018 average (430 movements). Cumulated deadweight from January to June 2019 for container ships was 21 437 561 tonnes, up 10% compared to the same period in 2018 (19 450 830 tonnes). This upturn is even more marked when we compare cumulated deadweight for the current year with the average for the first half-year period for 2014-2018 (16 893 532 tonnes), an increase of 27%.

OBSERVATIONS RELATED TO WINTER NAVIGATION: WINTER 2018-2019

Harsh winters and ice movement result in ice jams on the St. Lawrence that can sometimes compromise vessels' unhindered passage for varying lengths of time. This situation is often most critical in the River's narrow sections.

The 2018-2019 winter navigation season was particularly adversely affected by the presence of ice that prevented regular commercial vessel movement. Due to weather conditions and vessel availability, the Canadian Coast Guard (CCG) icebreaking fleet present on the St. Lawrence was, for a few days, unable to succeed in keeping the shipping route open.

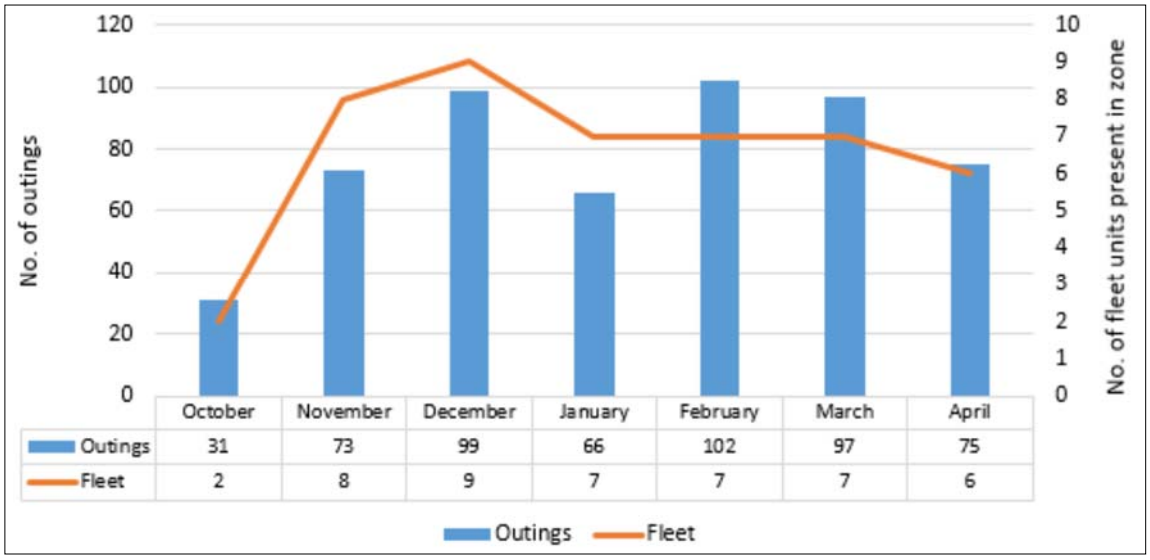
In the course of winter 2018-2019, the Canadian Coast Guard called 8 ships and 2 air-cushion vehicles into service. Three vessels assigned to the Atlantic zone participated, at one time or another, in the 2018-2019 icebreaking campaign.

Chart 1 - Composition of fleet present in the zone in winter 2018-2019

Vessels present	Year built	CCG type	Certification	CCG assingment	Gross tonnage
AMUNDSEN	1979	Medium icebreaker	Arctic Class 3	Central and Arctic	5911
CAPTAIN MOLLY KOOL	2001	Medium icebreaker	DNV-ICE 10	Atlantic	3382
DES GROSEILLIERS	1982	Medium icebreaker	Arctic Class 3	Central and Arctic	6098
GRIFFON	1970	High endurance multi-tasked vessel	Arctic Class 2	Central and Arctic	2212
LOUIS S ST-LAURENT	1969	Heavy icebreaker	Arctic Class 4	Atlantic	11345
MARTHA L. BLACK	1986	High endurance multi-tasked vessel	Arctic Class 2	Central and Arctic	3818
PIERRE RADISSON	1978	Medium icebreaker	Arctic Class 3	Central and Arctic	5775
SIR WILLIAM ALEXANDER	1987	High endurance multi-tasked vessel	Arctic Class 2	Atlantic	3727
NGCC MAMILOSSA	2009	Air-cushioned vehicle	No ice class	Central and Arctic	n.a.
NGCC SIPU MUIN	1998	Air-cushioned vehicle	No ice class	Central and Arctic	n.a.

Sources: CCG, INNAV, IMAR

Figure 3 – Number of outings leaving from a Québec port and size of CCG fleet (winter 2018-2019)

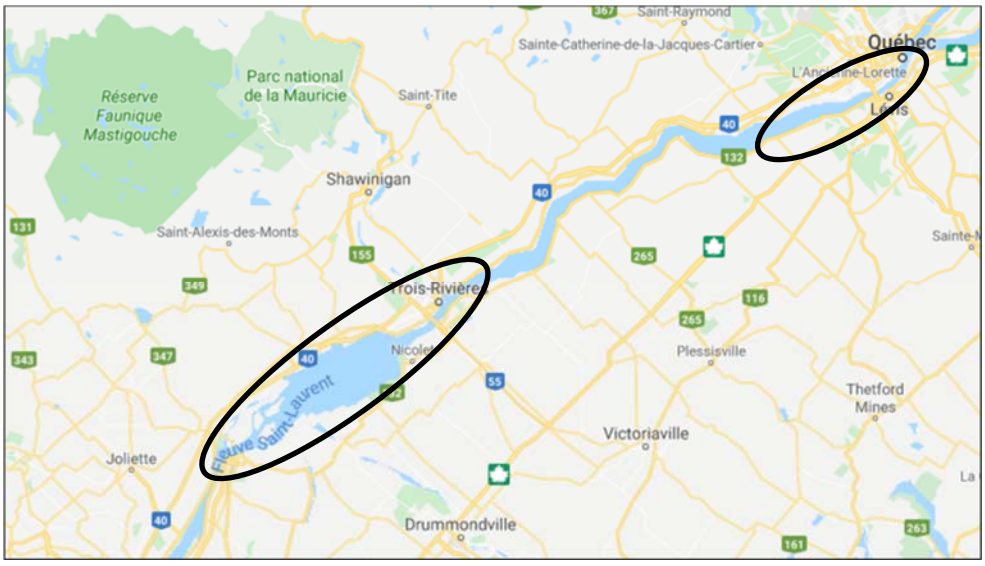


Sources: INNAV, IMAR

In winter 2018-2019, three events significantly disrupted vessel traffic. They occurred on January 22-26, January 30-31 and February 14-15. The latter was more a case of ice build-up rather than an ice jam.

Analysis of AIS data between January 28 and February 1, 2019 allows us to identify the critical sectors where the activity of the icebreakers present on the St. Lawrence was more intense. These sectors were Québec City and environs and Lake Saint-Pierre, from Trois-Rivières to the Port of Sorel.

Map 1- Main areas of icebreaker activity, January 28 – February 1, 2019



Sources: Google Maps, AIS, IMAR

For the first two months of 2019, INNAV data show that four Canadian Coast Guard vessels were assigned to outings in the zone between Québec City and Montréal. This report takes into account only those outings that began and ended within this zone. In January, 30 outings were reported, for a total duration of just over 104 hours. Data for February show that there were 51 outings, for slightly more than 191 hours of travel.

February 2019 was observed to be particularly demanding in terms of CCG response. Ice conditions caused disruptions in commercial vessel traffic. To illustrate the impacts on shipping, we have selected two scenarios. They are two "lines" served by vessels operating year-round. This service stability allows us to compare the situation by season and, where applicable, report on variability due to the ice cover.

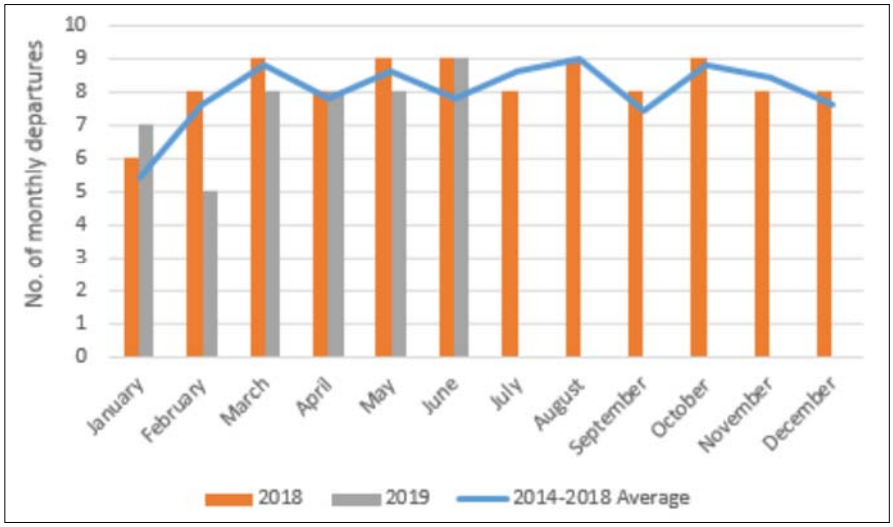
Two aspects were taken into account: the number of departures (allowing us to calculate the number of voyages) and average transit duration. An unusual drop in the number of voyages can be linked to a departure's cancellation and a significant variation in total voyage duration can reflect greater difficulty making headway. Although other considerations of a commercial nature, for example, can influence the data, a combination of both of the afore-mentioned factors allows us to deduce that the unfavourable navigation conditions may have affected more than one voyage over the study period.

First scenario – Transit between 66° West and Montréal

Vessels A and B leave from Montréal to travel eastward or arrive in Montréal from the east. The duration taken into account represents the voyage between 66° West and Montréal.

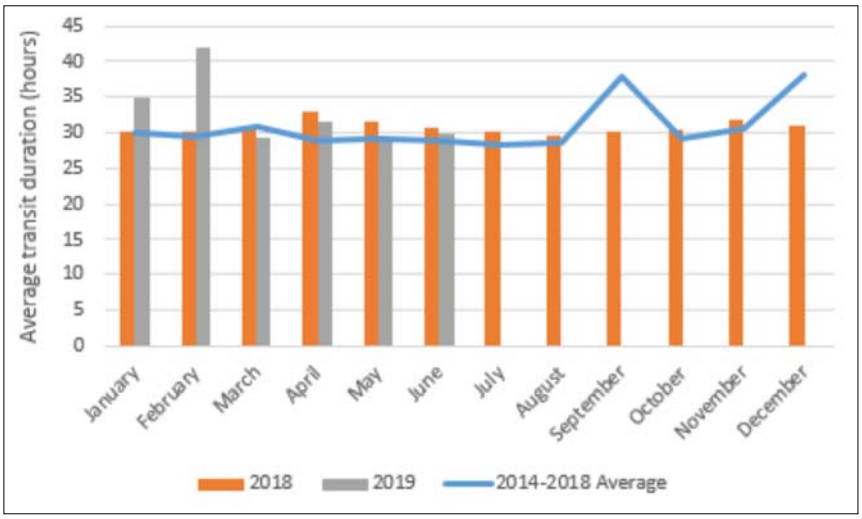
The historical data available for vessel A show little monthly variation in the number of voyages made over a year. In winter 2018-2019, the number of voyages was, however, significantly lower than the historical average for the month of February (Figure 4A). Moreover, voyage duration for this month was much longer (42 hours) than the 2014-2018 average of 29 hours (Figure 4B).

Figure 4A – Variation in number of departures, Vessel A



Sources: INNAV, IMAR

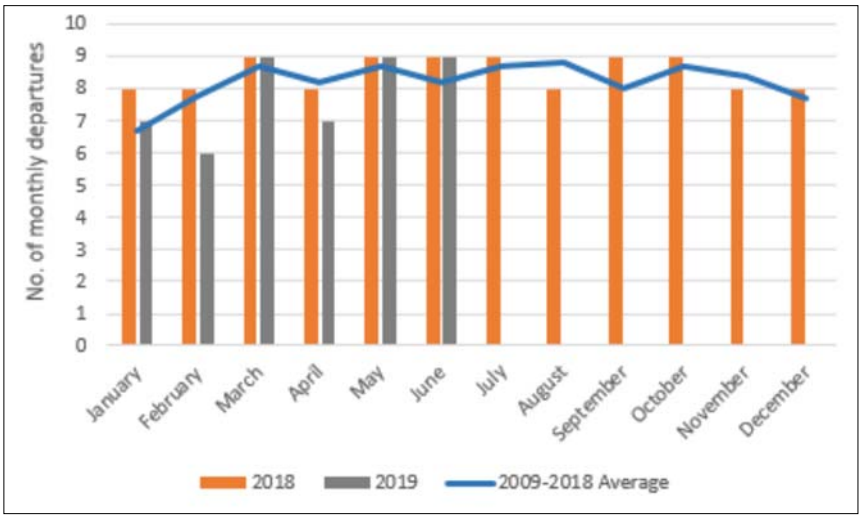
Figure 4B – Variation in transit duration, Vessel A



Sources: INNAV, IMAR

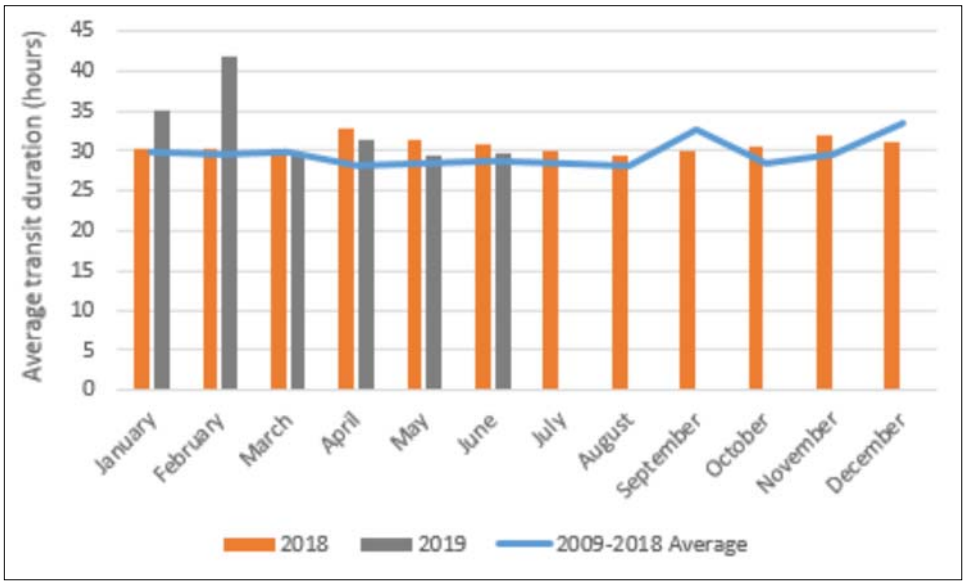
Vessel B also regularly travels to or from Montréal, via the same zone between Montréal and 66° West. In February 2019, a decline in the number of departures was noted (from 8 in 2018 to 6 in 2019), since the vessel carried out one less roundtrip. Moreover, the duration of the transits carried out in February 2019 was notably much longer, indicating more difficulty making headway. On average, in February 2019, vessel B took 42 hours to complete its voyages, namely 12 hours more than in 2018. For January, the voyages carried out in 2019 took 5 hours more than in 2018 (35 hours vs. 30 hours) (Figure 5B).

Figure 5A – Variation in number of departures, Vessel B



Sources: INNAV, IMAR

Figure 5B – Variation in transit duration, Vessel B



Sources: INNAV, IMAR

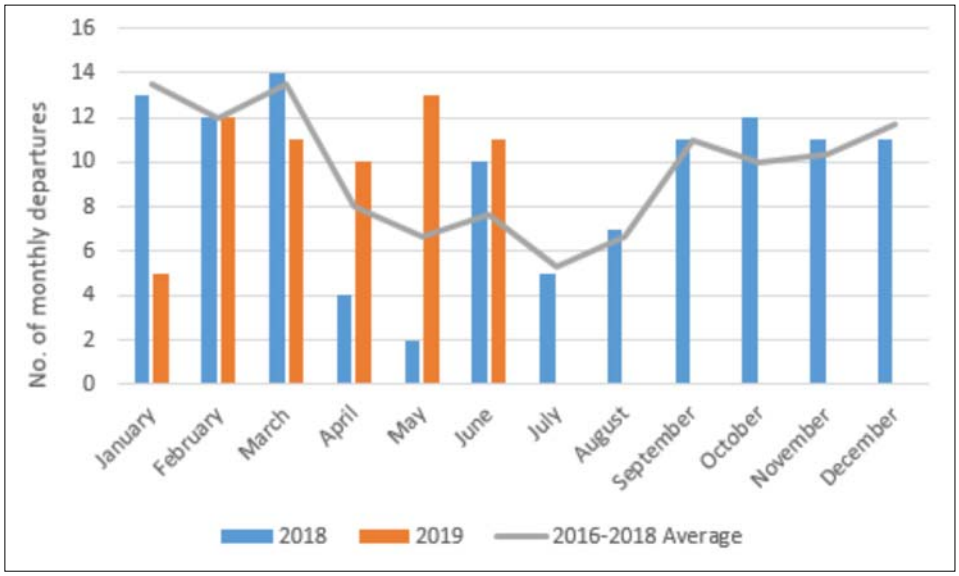
Second scenario – Transit between Québec City and Montréal

In this second scenario, vessel C regularly ensures transport between Montréal and Québec City, also year-round. Transit duration corresponds to the average navigation time between these two ports.

This vessel's voyage history is shorter since this service is relatively new. Further, the nature of the transport means that the number of transits is variable and, very often, results in stops of varying lengths of time between the ports served, among other things to allow the service to be aligned with the consignor's needs. This operational approach explains the variability in average monthly durations since these stops are counted in total transit duration. While this makes analyzing the impacts of ice conditions on navigation in winter 2018-2019 more difficult, certain data point to signs of a disturbance in the service offered.

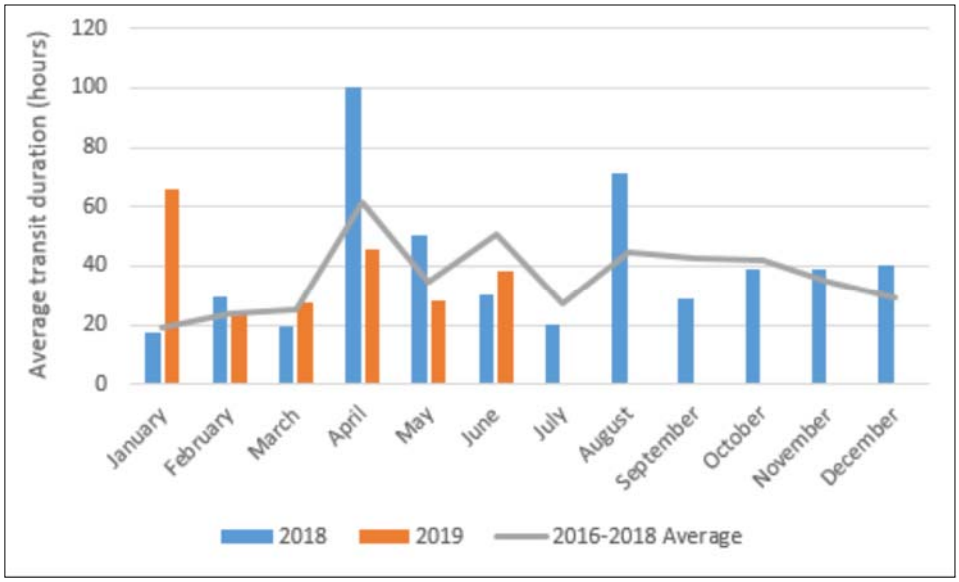
In January 2019, vessel C posted only 5 departures compared to 13 the previous year. This variation may be due to navigation conditions or simply to commercial or operational decisions. The voyages made, however, show a significantly higher average duration than that observed between 2016 and 2018 for the months of January 2016, 2017 and 2018 (66 hours vs. 19 hours, on average).

Figure 6A – Variation in number of departures, Vessel C



Sources: INNAV, IMAR

Figure 6A – Variation in transit duration, Vessel C



Sources: INNAV, IMAR

While the scope of this analysis is limited, since it highlights few situations, it nevertheless allows us to illustrate two tangible effects a harsh winter has on a regular service: a decrease in the number of voyages and an increase in the transits' total duration. Carried over to a larger scale, this analysis would probably show the same trends for the various fleets operating on the St. Lawrence. A comparison of data for January 2018 and January 2019 shows that, in January 2018, 202 vessels posted 424 departures from a port included in the St. Lawrence River zone, while 204 vessels posted 400 departures in January 2019. This 6% drop in monthly departures does not correspond to the upward trend observed for the first half of 2019 (up 4% from the first six months of 2018).

The effects of the harsh 2018-2019 winter are, therefore, palpable and, in one way or another, affected maritime traffic on the whole on the St. Lawrence and Saguenay rivers. This situation does not merely impact transport itself but also the entire logistics chain. A hiatus in vessels' free movement disrupts dock assignment schedules in ports of destination, since certain regular services have specific windows for each of their vessels destined for a terminal. Traffic disruptions also affect the ports identified as mandatory stops until regular traffic is reinstituted. And, there is the logistics headache created by late deliveries, both for cargo to be unloaded and cargo to be loaded in ports affected by navigation constraints. All impacts translate into considerable costs for a number of economic players.

It is in this context that the CCG icebreaking fleet is particularly important on the St. Lawrence and Saguenay rivers. Not only must it be available quickly, it must also be big and powerful enough to be able to successfully carry out icebreaking operations to ensure vessels' free, unimpeded passage all winter long.