

**Lake sturgeon (*Acipenser fulvescens*)  
experimental fishery and search  
for spawning grounds  
in the upstream portion  
of the Lachine Rapids  
in the spring of 2001**

Direction de l'aménagement de la faune de Montréal, de Laval et de la Montérégie

Société de la faune et des parcs du Québec

**TECHNICAL REPORT 16-11E**

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**Lake sturgeon (*Acipenser fulvescens*) experimental fishery  
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## SUMMARY

This research concerns the new aboriginal lake sturgeon fishing activities in the Lachine Rapids. This fishery, that takes place almost all year round, began at the end of the 1990s just as the Société de la faune et des parcs du Québec (FAPAQ) started to reduce the commercial landings of all fishermen in the St. Lawrence River. In light of the stakes associated with early fishing in a sector that may potentially contain a lake sturgeon spawning ground, the FAPAQ, in cooperation with the Mohawk Council of Kahnawake conducted a study in the spring of 2001 with the following goals: 1- evaluate the use of the sector of the Lachine Rapids located at the outlet of Lac Saint-Louis for spawning and migration by the species; 2- evaluate the relevance of determining the limits of a zone where all fishing activities would be prohibited during the lake sturgeon migration and reproduction period, namely from April 1st to June 15th. The fieldwork focussed on identifying sturgeon congregation and egg-laying sites. The relative abundance of catches and the characteristics (length, weight, sex ratio and stage of sexual maturity) of sturgeons are compared with those obtained at the Rivière des Prairies spawning ground in 1999 and those of Lac Saint-Louis commercial catches (samples of 1994 and 1998). The aim of these comparisons is to underscore the importance of the proportion of spawners present in the Lachine Rapids. Search for lake sturgeon fry was carried out using six pairs of egg trays placed at some fifteen sites deemed to be potential spawning grounds. No egg was collected during the fieldwork that was conducted from May 9th to June 14th. Ten fishing zones were covered using experimental and commercial nets in a territory beginning upstream opposite the northern tip of the seaway dike and ending downstream of Mercier Bridge by a series of small flats. The fishing yields were low: only 62 sturgeons were caught, including 7 females identified by biopsy, 21 running ripe males and 33 fish of indeterminate sex. Several reasons may be cited to explain these results, from technical and logistical problems to the lack of cooperation on the part of the aboriginal fisherman taking part in the research project. Given the small number of catches and the use of several types of nets, the comparisons with the other data sets are limited to the total length and the proportion of mature females. For these two parameters, the statistical analyses reveal that the sample obtained has the characteristics associated with the reproductive portion of the St. Lawrence River stock. While no spawning ground was identified in the territory under study, it appears that spawners move along the right shore and occasionally congregate. Indeed, two of the three best fishing sectors were located in a pool behind shelters from the current or alongside this shore (northern tip of the seaway dike, rocky point under Mercier Bridge). These pools are also used by aboriginal fishermen who seem to prefer the right shore for setting their nets. The high proportion of mature males and females in the catches clearly indicates that spawners are particularly vulnerable during the spring in the territory covered. Moreover, the morphology of the rapids at this location seems to force the sturgeons to follow the right shore when traveling.

The results obtained in the spring of 2001, albeit fragmentary, clearly confirm the need to put an end to all forms of lake sturgeon harvesting in this sector during the spring. Such restrictions have been imposed on the commercial fishermen of the St. Lawrence River for over 30 years. It is also a restriction that has become generalized for all North American jurisdictions in order to ensure the perpetuation of sturgeon populations for the various species present.

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## 1 INTRODUCTION

The various studies carried out by the current Société de la Faune et des Parcs du Québec (FAPAQ) have shown that the lake sturgeon (*Acipenser fulvescens*) stock of the St. Lawrence River has been subject to overexploitation for at least the last two decades. Several adjustments have been made to the regulations to protect this stock and to ensure the sustainability of the commercial fishery that depends on it. Recently, FAPAQ set the objective of lowering annual landings, which exceeded 200 tonnes prior to 1999, to 80 tonnes in 2002.

The lake sturgeon fishery has been prohibited during the spawning period since 1969. This prohibition, which initially lasted one month, namely from mid-May to mid-June, was gradually extended to encompass the period from mid-April to mid-June, then from the start of April to mid-June and, in the early 1990s, from the start of November to mid-June. The purpose of this measure is to offer protection during the reproduction period, but also during the migration period for migrating spawners. Experience accumulated over the last 100 years has shown that the rapid decline in several North American sturgeon populations has often been associated with the destruction of the spawning stock, in particular for the harvest of caviar, while spawners are congregated at locations characterized by generally limited surface areas.

In the St. Lawrence River and its tributaries, lake sturgeon spawning grounds are rare and the number of spawners present is likely in sharp decline. The biggest and best known spawning ground is that of Rivière des Prairies (RDP) which has been the subject of numerous scientific studies since the early 1980s (Thibodeau et al. 1999, 1998; Dubuc et al. 1997 ; Dubuc et al. 1996; La Haye 1996 ; La Haye and Gendron 1994 ; La Haye 1992, La Haye and Fortin 1990 ; Gendron 1986,1987,1988; Desjardins 1985 ; Provost and Fortin 1984; Provost et al. 1982). Fewer than ten spawning grounds are known and identified and, to date, none has been located with certainty in the green water of the St. Lawrence River. However, some indications suggest that the Lachine Rapids sector could be home to a spawning ground frequented by lake sturgeons. Spawners have been caught there during previous scientific surveys and several fishermen have reported the presence of caviar-bearing females there. More recently, FAPAQ biologists caught a few larvae using a drift net in 2000 at the outlet of these rapids, on the south shore (Pierre Bilodeau, FAPAQ biologist, unpublished data).

Since 1999, and perhaps even before then, aboriginal fishermen of the Kahnawake Reserve have progressively developed a lake sturgeon commercial fishery during the species' reproduction period. In the spring of 2001, given the stakes associated with early fishing in a sector that may potentially contain a lake sturgeon spawning ground, FAPAQ, in cooperation with the Mohawk Council of Kahnawake and one of the aboriginal fishermen involved in this activity, began a study on the use of the Lachine Rapids as a lake sturgeon reproduction area. The initial goals of this study were:

- to evaluate the use of the sector of Lachine Rapids located at the outlet of Lac Saint-Louis for spawning and migration by the species;
- to evaluate the relevance of determining the boundaries of a zone where all fishing activities would be prohibited during the lake sturgeon's migration and reproduction period, namely from April 1st to June 15th.

The specifications of this work initially comprised main objectives to be achieved in the area under study:

- Locate the lake sturgeon congregation sites;
- Estimate the relative abundance of lake sturgeons in the study area in terms of catches per unit effort (CPUE);
- Describe the sturgeons present in terms of length, weight, sex ratio and stage of sexual maturity;
- Check for the presence of sturgeon egg masses;
- Compare the results obtained with those observed in the Rivière des Prairies spawning ground.

A sixth point was added to the research project, namely compare the characteristics of the lake sturgeons caught during the study with those of Lac Saint-Louis commercial catches. This fishery was the subject of comprehensive monitoring in 1994 (LSL1994: length, weight, sex, age, sexual maturity) and of partial monitoring in 1998 (LSL 1998: total length).

## 2 STUDY AREA

The portion of the St. Lawrence River covered in the spring of 2001 extends on both sides of Mercier Bridge over a distance of approximately 1.5 km downstream to the first quarter of the Lachine Rapids and up to 8 km upstream in Lac Saint-Louis and the mouth of the rapids. In this direction, most of the stations are located along and at the entrance to the seaway near the right shore (Figure 1). Two fishing zones were chosen further off shore to the north of the mouth of Rivière Châteauguay. The “Îlot de Pierre” zone is the furthest in Lac Saint-Louis. It is located in a deep sector not far from the big rocky bar running alongside the seaway at this location. A second fishing station covered a sector located to the southeast of Île Saint-Nicolas. Starting from this island and up to Mercier Bridge, a series of rocky flats and pools succeed one another, and the variations in depth are substantial. The tip of the seaway dike offers enough resistance to the current to create still water zones used by aboriginal fishermen. A large shallow rocky flat is located off this tip (Figure 1). Its presence slows the flow of water, and the speed of the current is rather low here. The substrate is rocky with the rocks being of variable size. These conditions could represent a spawning habitat for lake sturgeon. This sector was also covered during the search for eggs deposition.

The flow is stronger beginning at the seaway entrance and increases as the River narrows. It is particularly violent under Mercier Bridge, the narrowest spot in this portion of the River. The flow remains strong in the central flow corridor and along the left shore. A narrow pool extends along the right shore just after a rocky bar located under the bridge that acts as an obstacle to the current. This pool, sampled over the entire course of the work, is a site that is exploited intensely by several aboriginal fishermen.

The River begins to broaden approximately 800 m downstream from the bridge and forms a large bay that extends just over 1000 m downstream. The River once again narrows after this bay up to the power transmission line which crosses at this location. Downstream from the bridge, the depth is highly variable but the only flats visible were situated a few hundred metres from the right shore opposite the middle of this large bay (Figure 1). A gillnet fishing sector known as the “downstream flats” and a series of egg trays covered this sector. The flow is fairly calm here and the rocky substrate is highly variable.

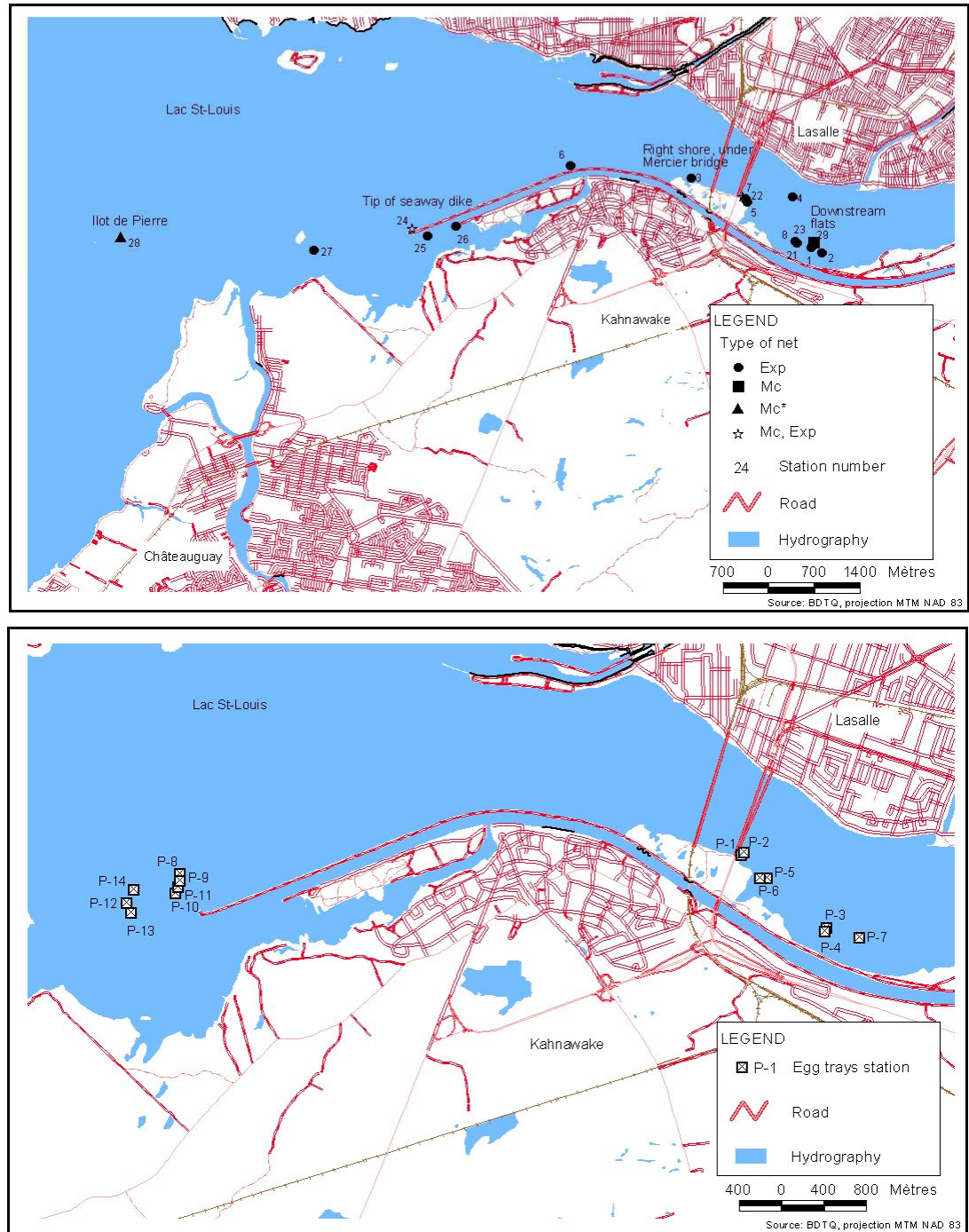


Figure 1. Location of the fishing stations according to the different types of nets used by sampling zones, Lachine Rapids, spring 2001.

### **3 MATERIAL AND METHODS**

#### **3.1 Search for congregation sites and capture of sturgeons**

The fishing operations were carried out on an irregular basis from May 9th to June 14th at some twenty stations spread out on both sides of Mercier Bridge as well as upstream, in Lac Saint-Louis and at the entrance to the seaway (Figure 1). Initially, two permanent stations were supposed to be chosen after the first week of fishing based on the information provided by the aboriginal fisherman. However, the small number of catches during this period led the team in the field to continue the search for sites offering the best yields and it was not until the start of June that these two stations could be sampled on a regular basis. The most important station is located almost under Mercier Bridge on the right shore ("Right shore, under Mercier Bridge" zone, Figure 1). The second covers a calm water sector located just downstream from the tip of the seaway dike ("Tip of seaway dike" zone, Figure 1).

The initial protocol provided for the exclusive use of experimental nets identical to those chosen for the Rivière des Prairies spawning ground study from 1996 to 1999. The fishing activities were supposed to last approximately 3 hours between 2:00 p.m. and 6:00 p.m. However, due to the low fishing yields at the start of the work, the impossibility of accessing the River on certain occasions because of very high winds and problems related to the diligence and punctuality of the aboriginal fisherman, we had to progressively make several changes and modifications to the initial protocol. At the suggestion of the aboriginal fisherman, the fishing schedule was moved to the evening.

The experimental nets were set by the aboriginal fisherman who was assisted most of the time by two members of the technical team who obtained the coordinates of each station using a GPS. These nets were used at all of the fishing stations except for the one at Îlot de Pierre at the centre of Lac Saint-Louis (Figure 1). They were put in the water in the early evening and raised the following afternoon, only to be put back in the water at night. The sampling effort was around 12 hours most of the time. It was greater on the days when the aboriginal fisherman arrived late at the meeting point. Indeed, based on the established agreement, the aboriginal fisherman provided the boat and the pass to raise the nets on Mohawk territory. As a result, the field team had to wait for him to arrive before carrying out the various tasks. Aside from these delays, the nets were not always installed according to the planned schedule when they were

under the responsibility of the aboriginal fisherman. As a result of these delays and omissions, it was not possible to ensure a constant and regular effort during the sampling period, as initially had been planned.

To compensate for the small number of catches made at the start of the work period, at the suggestion of the aboriginal fisherman, we added his own fishing activities to the sampling effort in order to increase the number of catches and the possibility of locating groups of mature fish. The most frequently used net measured 46 m (150') long by 1.8 m (6') high, with an extended mesh of 203 mm only or of 203 mm and 305 mm combined (called Mc in the results). This net was used in the flats zone downstream from the bridge, at the tip of the dike and at the station under Mercier Bridge near the right shore. The third net measuring 55 m (180') long by 5.2 m (17') high and having 203 mm (8'') stretched mesh was only used at the centre of the lake near Îlot de Pierre (called Mc\* in the results). These nets were put in the water by the fisherman and his assistants in the evening and raised during the night. The catches were placed in a holding system described below, while awaiting the arrival of the technical team in the morning. Fish sheets were given to the fisherman so that he could complete them on his own. This procedure functioned well except with respect to the mesh size used to catch sturgeons when the latter were caught using a net combining 203 and 305 mm meshes.

Another major problem that reduced the efficiency of the fishing operations during this campaign was the excessive accumulation of green filamentous algae and periphyton in the nets. A considerable effort was made by all participants in the field to clean the experimental nets in the afternoon. The aboriginal fisherman cleaned the experimental nets himself on a few occasions before putting them in the water. Most of the time, the nets were not perfectly clean when they were put in the water. The condition of aboriginal fisher's nets when they were put in the water is not known.

In addition to the gillnetting operations, observation efforts, either direct or by means of an aquascope, were made on the territory under study for the entire duration of the fieldwork to locate eventual groups of spawners. The knowledge that local users have of the sector was also solicited by way of interviews focusing on the presence of such groups (spawning activities, jumping, concentrations of large fish, etc.).

### 3.2 Handling of catch

Sturgeons were supposed to be placed in a container filled with fresh water in the boat then transferred to a holding system. The aboriginal fisherman was given this container at the start of the fieldwork, but failed to bring it along for almost the entire duration of the survey work. Consequently, sturgeons were placed on the bottom of the boat and covered with a tarp soaked with water.

Catches were recorded by station, raising of nets and experimental net mesh size. As mentioned above, the mesh sizes were not always recorded by the aboriginal fisherman when he visited his own nets. An elastic band identified according to the three mesh sizes used in the experimental net was put on the caudal peduncle of each fish to separate them at the time of measuring. After each net was raised, sturgeons were placed in a holding system made up of three circular holding basins having a continuous supply of River water. Sturgeons were unloaded using a fish barrow. One of the basins remained empty; it was used to hold fish after the measurements to allow them to recover, where applicable, before being released.

To begin measurement taking, the fish was placed on a barrow, which was then suspended from a scale mounted on a scaffold. The weight was noted, the fish was placed in a graduated trough with an inclined bottom, then measured (total and legal length, mm), and its maximum circumference was determined using a flexible tape measure (mm).

The sex and the stade of sexual maturity were determined according to the classification of Nikolski (1963) by extrusion of the gametes and observation of external criteria. When extrusion did not provide sufficient information and when the fish was a specimen of good size with characteristics associated with mature females (swollen abdomen, red, dilated urogenital pore), the sex was determined by means of a biopsy. This operation consisted of using a leather punch to make a small incision near the centre of the abdomen at the fifth ventral plate from the tail. A metal cannula was then inserted into this opening to collect a piece of gonad, which was kept in a solution of 5% formalin. Following sample collection, the opening was closed with one or two drops of surgical glue applied to the muscle and the skin of the abdomen. Before being placed in the holding basin or released in the River, all sturgeons were tagged according to the method described by White and Beamish (1972).

### **3.3 Search for egg deposition**

Square egg trays measuring 50 cm sidewise were used to collect lake sturgeon eggs in the territory under study. These trays were made of a metal frame that held an artificial substrate pan made of animal fur coated with latex. They were anchored in pairs using a chain and a grab.

These pairs of trays were visited on an irregular basis following the raising of the nets. At the time of each visit, the artificial substrate pan was removed from the frame, identified according to the sampling station (one per pair) and stored in the boat to be examined later on the shore. A new substrate pan was placed in each frame, which was then put back into the water. During this operation, the boat remained anchored to the grab holding the trays when the same station was to be sampled again. When this was not the case, the entire unit was raised and placed elsewhere after the two artificial substrate pans had been replaced. The substrate pans removed from the frames were then examined to detect the presence of lake sturgeon eggs or eggs of any other fish species. Six pairs of trays were put in the water simultaneously from May 25th to June 14th covering 14 different stations (Figure 1).

### **3.4 Analyses and statistics**

#### **3.4.1 Choice of parameters**

The initial objectives provided for evaluating the relative abundance of sturgeons caught in the study area during spring 2001. This relative abundance is expressed in terms of catch per unit effort (CPUE). This abundance indicator and the fish characteristics were supposed to serve as a basis for comparison with the results of the monitoring operations carried out on the Rivière des Prairies spawning ground and in the Lac Saint-Louis commercial fishery. Given the biases likely caused to the fishing yields by the excessive abundance of moss in the nets, the CPUE are not comparable with those evaluated on the basis of these samples. This variable may however be used to identify the best fishing stations of the study in progress as these biases likely affected all of the stations covered this spring.

The main characteristics of the sturgeons present on the territory under study in the spring of 2001 are the length, weight, sex ratio and stage of sexual maturity. We had to abandon the sex

ratio due to the small number of catches used. The weight, which was closely correlated with the length of the specimens, was not retained for the statistical analysis. Hence the only two parameters used for the characterization of the sample and the comparisons are total length (both sexes combined) and proportion of mature females.

### **3.4.2 Available samples**

#### **Kahnawake – Lachine Rapids 2001 (KAH 2001)**

The number of sturgeons caught by type of net and by size of stretched mesh in the spring of 2001 in the entire territory under study is summarized in Table 1. Most of the catches were made with 203 mm mesh, regardless of the type of net. Apart from the experimental net (EXP), the origin of the catches by mesh size is uncertain (203 mm and 305 mm combined column). Given the high selectivity of each mesh size, these catches were excluded from the sample for all comparisons.

With a view to ensuring conformity, the comparisons with the Rivière des Prairies spawning ground were done using catches made with experimental gillnet only. This choice reduced the initial sample by one half (62 to 31 individuals; Table 1). As for the comparisons with the catches of the Lac Saint-Louis commercial fishery, they were made using the catches obtained with the 203 mm mesh net, the only kind authorized in the commercial fishery (in practice, this mesh varies from 195 to 210 mm). These catches total 45 fish in our sample.

This sub-sample (203 mm mesh only) was also used for the calculations of the CPUE grouped by fishing zone based on the 20 stations sampled. The total effort corresponded to the number of hours of fishing in a given zone for all of the nets measuring 50 m long and 2 m high. A correction factor was applied to the catches made with the Mc\* net, the height and length of which were greater than those of the other two types of gear used. The CPUE are expressed in terms of number/hour for 50 m of net and they will be compared empirically with one another.

Table 1. Number of lake sturgeons caught by type of gear, upstream portion of the Lachine Rapids, spring of 2001. Mc : net of the aboriginal fisherman measuring 46 m (150') long X 1.8 m (6') high, 203 mm (8'') stretched mesh only or 203 mm (8'') and 305 mm (12'') combined; Mc\* : net of the aboriginal fisherman measuring 55 m (180') long X 5.2 m (17') high, 203 mm (8'') stretched mesh; EXP : experimental net used at the Rivière des Prairies spawning ground between 1996 and 1999, 2 m high X 60 m long, including 30 m, 20 m and 10 m of stretched mesh measuring 203 mm (8''), 254 mm (10'') and 305 mm (12'') respectively.

| Net          | Size of stretched mesh |        |        |                            | Total |
|--------------|------------------------|--------|--------|----------------------------|-------|
|              | 203 mm                 | 254 mm | 305 mm | 203 mm and 305 mm combined |       |
| <b>Mc</b>    | 16                     |        |        | 9                          | 25    |
| <b>Mc*</b>   | 6                      |        |        |                            | 6     |
| <b>EXP</b>   | 23                     | 7      | 1      |                            | 31    |
| <b>Total</b> | 45                     | 7      | 1      | 9                          | 62    |

### **Rivière des Prairies (RDP 1999)**

The Rivière des Prairies spawning ground has been the subject of numerous studies since the early 1980s, particularly since its extension in 1996 (Thibodeau et al. 1999, 1998; Dubuc et al. 1997; Dubuc et al. 1996). The monitoring done between 1996 and 1999 by a team from Université du Québec à Montréal on behalf of Hydro-Québec made it possible to catch several hundred fish each spring. In order to compare the results obtained in the spring of 2001 with the greatest possible accuracy, we used the data of the last year of monitoring, namely those of 1999.

This sample (RDP 1999) comprises 722 fish. All these fish were measured, and a representative sub-sample was chosen by size class from among the biggest specimens to determine their sex and sexual maturity. As a result, several approaches were used by Thibodeau et al. (1999) to determine or estimate the proportion of mature females in the full sample. The only procedure that resembled the method used within the context of the current study is the addition of the number of mature females actually identified by means of a biopsy

and the number of running ripe females. This number totalled 28 mature females at RDP in 1999 (25 biopsies and 3 running ripe females).

### **Lac Saint-Louis (LSL 1994 – 1998)**

The Lac Saint-Louis commercial fishery has been characterized on two occasions since 1990. The most comprehensive characterization dates back to 1994 when a series of measurements were taken on a sub-sample of 460 sturgeons caught between mid-June and the end of July. These fish were weighed and measured. The sex and the stage of sexual maturity were determined by microscope examination of a gonad sample (Nikolski 1963). In 1998, only the total length was measured on a sub-sample of 416 sturgeons. The number of mature females in the 1994 sample, 4 in all, was calculated using the addition of the number of gonads of sexual maturity stage 4, 5 and 6 of Nikolski (1963), as in the case of the other two samples.

#### **3.4.3 Statistical tests**

The comparison of the length distributions of the various samples was made using median difference testing (Brown-Mood test,  $\chi^2$  approximation). This test is less influenced by the presence of extreme values, typical for this parameter, than mean difference testing. The descriptive statistics, a test of normality and a variance difference test as well as non-parametric and parametric mean difference tests were applied to the length data for information purposes or descriptive purposes. The comparisons of the proportions of mature females in the samples were made by  $\chi^2$  tests (Pearson). All of the statistical analyses were performed using Jumpin software, version 3.2.1.

## **4 RESULTS**

### **4.1 Description and spatiotemporal distribution of catches**

All of the results by fishing station and fishing zone are found in Appendix 1. In all, 62 sturgeons including 7 mature females, 21 males and 33 fish of indeterminate sex were caught using the various types of fishing gear (Table 2). Half of these catches come from the experimental net that is most often used throughout the territory. The other half was caught in the nets of the aboriginal fisherman, the spatiotemporal use of which was however more limited than that of the experimental gillnet. Moreover, this trend is reflected in the results of the daily CPUE, the average of which is two to three times greater for the two types of commercial nets (Table 3). A clear trend appears from these results; in addition to having obtained the best CPUE, the nets of the aboriginal fisherman (Mc and Mc\*), or the sites where they were set, produced more stable yields than did the experimental net during the sampling period.

In order to identify the best fishing sectors, the results of the catches made with 203 mm mesh, regardless of the gear used, were grouped in some ten sampling areas (Figure 1). For comparison purposes, the daily CPUE were calculated by area based on the total duration of the fishing operations for all the nets set in that area. The CPUE of the four areas where sturgeons were caught are summarized in Table 4.

The best CPUE are from the fishing zone located almost under Mercier Bridge on the right shore, near the site of the holding basins as well as the zone located at the tip of the seaway dike. The zone located under the bridge is the only one where sturgeons were caught each day of fishing. The CPUE of the other two zones are much lower. At the two best zones, the daily CPUE are highly variable ranging from 0.014 to 0.082 fish/hour under the bridge and from zero to 0.082 at the dike (Table 4).

### **4.2 Comparison with the Lac Saint-Louis commercial fishery (1994-1998)**

#### **4.2.1 Total length**

The difference between the distributions of the total lengths of the sturgeons of the Lachine Rapids and those of Lac Saint-Louis caught in 1994 is readily visible in Figure 2.

Table 2. Number of lake sturgeons caught by sex and type of gear, upstream portion of the Lachine Rapids, spring of 2001 (see Table 1 for the definitions).

| Sex           | Net/ size of stretched mesh |                                |               |        |               |        | Total |
|---------------|-----------------------------|--------------------------------|---------------|--------|---------------|--------|-------|
|               | 203 mm                      | Mc<br>203 and 305 mm X<br>46 m | Mc*<br>203 mm | 203 mm | EXP<br>254 mm | 305 mm |       |
| Female        | 5                           | 1                              | 1             |        | 1             |        | 8     |
| Indeterminate | 3                           | 4                              | 5             | 19     | 2             |        | 33    |
| Male          | 8                           | 4                              |               | 4      | 3             | 1      | 21    |
| <b>Total</b>  | 16                          | 9                              | 6             | 23     | 7             | 1      | 62    |

Table 3. Time sequence of the catches and the CPUE of lake sturgeons according to the different gillnets used in the upstream portion of the Lachine Rapids, spring of 2001.

| Date         | Mc net |                  |                        | Mc* net |                  |                        | EXP net |                  |                        |
|--------------|--------|------------------|------------------------|---------|------------------|------------------------|---------|------------------|------------------------|
|              | No     | Effort<br>(hour) | CPUE<br>(no/ hour 50m) | No      | Effort<br>(hour) | CPUE<br>(no /hour 50m) | No      | Effort<br>(hour) | CPUE<br>(no /hour 50m) |
| 9-May        |        |                  |                        |         |                  |                        | 0       | 12.4             | 0                      |
| 11-May       |        |                  |                        |         |                  |                        | 0       | 11.8             | 0                      |
| 18-May       |        |                  |                        |         |                  |                        |         |                  |                        |
| 23-May       |        |                  |                        |         |                  |                        | 2       | 37.6             | 0.053                  |
| 25-May       |        |                  |                        |         |                  |                        | 3       | 64.3             | 0.047                  |
| 30-May       |        |                  |                        |         |                  |                        | 1       | 39.9             | 0.025                  |
| 1-June       | 3      | 193.3            | 0.016                  |         |                  |                        | 1       | 36.9             | 0.027                  |
| 3-June       | 1      | 22.0             | 0.045                  |         |                  |                        |         |                  |                        |
| 5-June       | 4      | 50.0             | 0.080                  |         |                  |                        | 2       | 53.4             | 0.037                  |
| 6-June       |        |                  |                        |         |                  |                        | 0       | 25.2             | 0                      |
| 7-June       | 1      | 31.4             | 0.032                  | 1       | 21.2             | 0.010                  |         |                  |                        |
| 11-June      |        |                  |                        |         |                  |                        | 1       | 70.0             | 0.014                  |
| 12-June      |        |                  |                        | 2       | 47.5             | 0.009                  | 7       | 85.5             | 0.082                  |
| 13-June      | 6      | 77.0             | 0.078                  | 3       | 72.7             | 0.009                  | 3       | 96.4             | 0.031                  |
| 14-June      | 1      | 24.2             | 0.041                  | 0       | 24.3             | 0                      | 3       | 96.6             | 0.031                  |
| <b>Total</b> | 16     | 397.9            | 0.292                  | 6       | 165.7            | 0.028                  | 23      | 630.0            | 0.348                  |
| <b>Mean</b>  | 2.67   | 66.3             | 0.049                  | 1.50    | 41.4             | 0.007                  | 1.92    | 52.5             | 0.029                  |

\* Results corrected according to the dimensions of the Mc\* net

Table 4. Time sequence of the numbers and the CPUE of lake sturgeons caught in the best fishing zones sampled in the upstream portion of the Lachine Rapids, spring of 2001.

| Date           | Downstream flats |                  |                            | Îlot de Pierre |                  |                           | Tip of seaway dike |                  |                            | Right shore, under<br>Mercier bridge |                  |                           |
|----------------|------------------|------------------|----------------------------|----------------|------------------|---------------------------|--------------------|------------------|----------------------------|--------------------------------------|------------------|---------------------------|
|                | No               | Effort<br>(hour) | CPUE<br>(no /hour 50<br>m) | No             | Effort<br>(hour) | CPUE<br>(no /hour<br>50m) | No                 | Effort<br>(hour) | CPUE<br>(no/ /hour<br>50m) | No                                   | Effort<br>(hour) | CPUE<br>(no /hour<br>50m) |
| <b>9-May</b>   | 0                | 8.2              | 0                          |                |                  |                           |                    |                  |                            |                                      |                  |                           |
| <b>11-May</b>  | 0                | 7.4              | 0                          |                |                  |                           |                    |                  |                            | 0                                    | 4.0              | 0                         |
| <b>23-May</b>  | 0                | 12.5             | 0                          |                |                  |                           |                    |                  |                            | 2                                    | 25.1             | 0.080                     |
| <b>25-May</b>  | 0                | 12.2             | 0                          |                |                  |                           |                    |                  |                            | 3                                    | 52.1             | 0.058                     |
| <b>30-May</b>  | 0                | 12.8             | 0                          |                |                  |                           |                    |                  |                            | 1                                    | 27.2             | 0.037                     |
| <b>1-June</b>  |                  |                  |                            |                |                  |                           | 4                  | 206.0            | 0.019                      |                                      |                  |                           |
| <b>3-June</b>  |                  |                  |                            |                |                  |                           | 1                  | 22.0             | 0.045                      |                                      |                  |                           |
| <b>5-June</b>  |                  |                  |                            |                |                  |                           | 2                  | 26.7             | 0.075                      | 4                                    | 50.0             | 0.080                     |
| <b>6-June</b>  |                  |                  |                            |                |                  |                           | 0                  | 25.2             | 0                          |                                      |                  |                           |
| <b>7-June</b>  |                  |                  |                            | 1              | 21.2             | 0.010                     | 0                  | 10.1             | 0                          | 1                                    | 21.3             | 0.047                     |
| <b>11-June</b> |                  |                  |                            |                |                  |                           |                    |                  |                            | 1                                    | 70.0             | 0.014                     |
| <b>12-June</b> |                  |                  |                            | 2              | 47.5             | 0.009                     | 1                  | 12.3             | 0.082                      | 6                                    | 73.2             | 0.082                     |
| <b>13-June</b> | 6                | 77.0             | 0.078                      | 3              | 72.7             | 0.009                     | 0                  | 24.1             | 0                          | 3                                    | 72.3             | 0.041                     |
| <b>14-June</b> | 1                | 24.2             | 0.041                      | 0              | 24.3             | 0                         | 1                  | 24.2             | 0.041                      | 2                                    | 72.4             | 0.028                     |
| <b>Total</b>   | 7                | 150.2            | 0.119                      | 6              | 165.7            | 0.028                     | 9                  | 350.4            | 0.263                      | 23                                   | 467.6            | 0.466                     |
| <b>Mean</b>    | 1.0              | 21.5             | <b>0.017</b>               | 1.50           | 41.4             | <b>0.008</b>              | 1.29               | 43.8             | <b>0.033</b>               | 2.56                                 | 46.8             | <b>0.049</b>              |

The fish caught in the rapids are markedly longer than those of the commercial fishery. Indeed, the mode of the frequency distribution of these big fish is, depending on the years, from 50 to 100 mm greater in the 2001 sample. These observations are supported by the results of all the tests, even the most sensitive such as Student's test (Table 5). The absence which is the one of conformity in the normal distribution for LSL 1994 data has little influence on the interpretation of these results given the size of the sample and the diversity of the comparison methods employed.

#### **4.2.2 Proportion of mature females**

The difference between the two sites is very clear in Figure 3; the proportion of mature females from the Lachine Rapids in the spring of 2001 (6 out of 45 or 13.3%) and caught using the 203 mm mesh net is markedly greater than that observed in the Lac Saint-Louis sample during the 1994 fishing season (4 out of 460 namely 0.9%). This difference is highly significant ( $p < 0.0001$ ,  $\chi^2$  test).

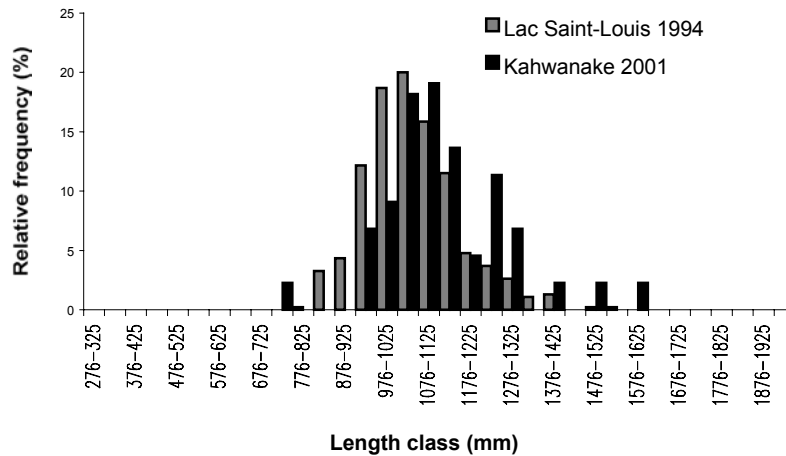
### **4.3 Comparison with the experimental data of Rivière des Prairies (1999)**

#### **4.3.1 Total length**

Figure 4 shows the size distribution of the sturgeons caught on the two sites. These size spectra have a few differences but the modes of the two curves can be superimposed fairly well. The length distribution of the 2001 sample is less symmetric than the Rivière des Prairies sample. Indeed, for this site, the number of fishes smaller than 825 mm is very low; it increases rapidly in the following classes and declines gradually thereafter. The Shapiro-Wilks test also reveals that the distribution of these data does not follow a normal distribution, which is contrary to the Rivière des Prairies sample.

Despite these differences, the statistical decisions of the three tests used, which are more or less sensitive to the conditions of application (normal distribution and equality of variances), are unilateral, the two samples compared are not different (Table 6).

**Commercial and experimental gill net fishing  
203 mm LSL 1994 - KAH 2001**



**Commercial and experimental gill nets  
203 mm mesh LSL 1998 - KAH 2001**

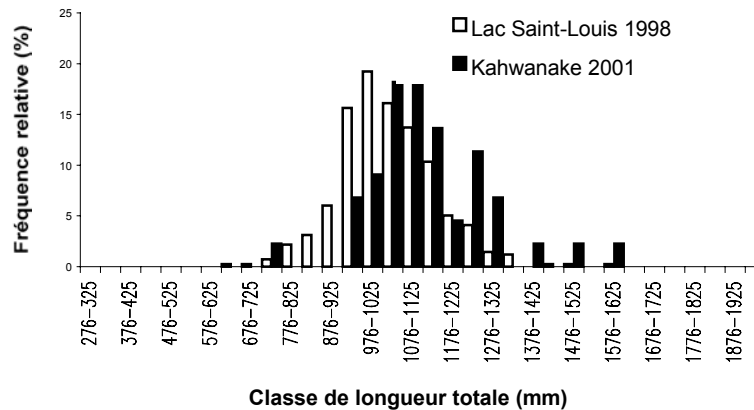


Figure 2. Size structure of lake sturgeon samples from the Lac Saint-Louis commercial fishery using stretched mesh nets varying between 195 mm and 210 mm in 1994 (LSL 1994), using 203 mm stretched mesh nets in 1998 (LSL 1998) and those caught in the upstream portion of the Lachine Rapids in the spring of 2001 (KAH 2001) using 203 mm stretched mesh nets (commercial and experimental nets) but excluding the catches made using 203 mm and 305 mm combined stretched mesh nets.

Table 5. Description of the data and statistical comparisons of the means and medians of the total lengths of lake sturgeons from the Lac Saint-Louis commercial fishery in 1994 (LSL 1994, stretched mesh between 195-210 mm) and in 1998 (LSL 1998, 203 mm stretched mesh) and those caught in the upstream portion of the Lachine Rapids in the spring of 2001 (KAH 2001, 203 mm stretched mesh, commercial and experimental nets) excluding catches made using nets having 203 mm and 305 mm combined stretched mesh nets.

| <b>Statistics</b>                                                                      | <b>LSL 1994<br/>(195 – 210 mm net)</b>                                       | <b>LSL 1998<br/>(203 mm net)</b> | <b>KAH 2001<br/>( 203 mm net)</b> |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------|-----------------------------------|
| <b>Mean (mm)</b>                                                                       | 1066                                                                         | 1045                             | 1133                              |
| <b>Standard deviation (mm)</b>                                                         | 112                                                                          | 122                              | 149                               |
| <b>Median (mm)</b>                                                                     | 1052                                                                         | 1035                             | 1114                              |
| <b>Min – Max (mm)</b>                                                                  | 825 - 1530                                                                   | 632 - 1585                       | 740 – 1605                        |
| <b>n</b>                                                                               | 460                                                                          | 416                              | 44                                |
| <b>Normality of data<br/>(Shapiro-Wilks)</b>                                           | no<br>( p= 0.001)                                                            | yes<br>(p = 0.41)                | yes<br>(p = 0.065)                |
| <b>Equality of variances (Bartlett)</b>                                                | LSL 1994 – KAH 2001 yes (p = 0.008)<br>LSL 1998 – KAH 2001 no (p = 0.07)     |                                  |                                   |
| <b>Non-parametric:<br/>Wilcoxon-Kruskal-Wallis test</b>                                | LSL 1994 – KAH 2001 yes (p = 0.0009)<br>LSL 1998 – KAH 2001 yes (p = 0.0001) |                                  |                                   |
| <b>Median difference testing:<br/>Brown-Mood test<br/>(approximation of Chi2 test)</b> | LSL 1994 – KAH 2001 yes (p = 0.01)<br>LSL 1998 – KAH 2001 yes (p = 0.0005)   |                                  |                                   |
| <b>Parametric: Student's test</b>                                                      | LSL 1994 – KAH 2001 yes (p = 0.0003)<br>LSL 1998 – KAH 2001 yes (p = 0.0001) |                                  |                                   |

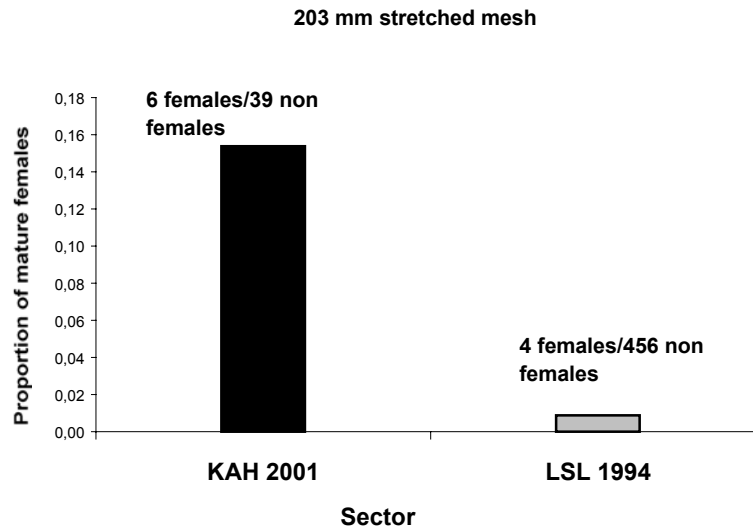


Figure 3. Proportion of females in a lake sturgeon sample from the Lac Saint-Louis commercial fishery in 1994 (stretched mesh between 195-210 mm) and those caught in the upstream portion of the Lachine Rapids in the spring of 2001 (203 mm stretched mesh, commercial and experimental net) excluding catches made using 203 mm and 305 mm combined stretched mesh nets.

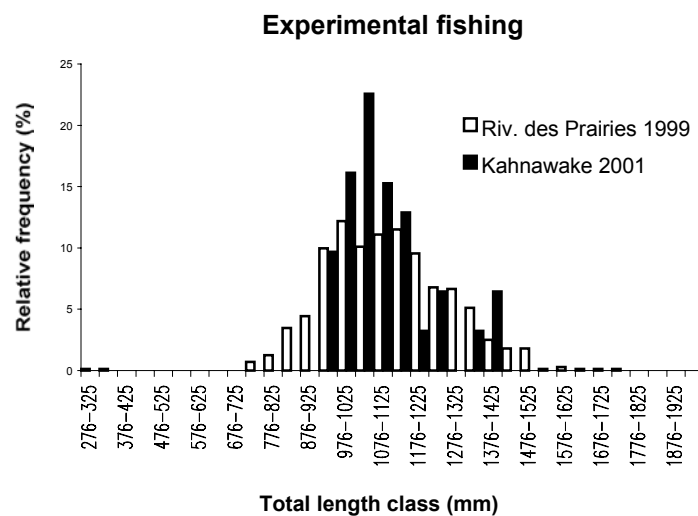


Figure 4. Size structure of lake sturgeons caught using experimental nets at the Rivière des Prairies spawning ground in the spring of 1999 and in the upstream portion of the Lachine Rapids in the spring of 2001.

Table 6. Description of the data and statistical comparison of the means and medians between the total lengths of the lake sturgeons caught using an experimental net at the Rivière des Prairies spawning ground in the spring of 1999 (RDP 1999) and those caught in the upstream portion of the Lachine Rapids in the spring of 2001 (KAH 2001).

| <b>Statistics</b>                                                                      | <b>RDP 1999<br/>(experimental net)</b> | <b>KAH 2001<br/>(experimental net)</b> |
|----------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------|
| <b>Mean (mm)</b>                                                                       | 1120                                   | 1103                                   |
| <b>Standard deviation (mm)</b>                                                         | 172                                    | 115                                    |
| <b>Median (mm)</b>                                                                     | 1113                                   | 1084                                   |
| <b>Min – Max (mm)</b>                                                                  | 184 – 1740                             | 960 – 1388                             |
| <b>n</b>                                                                               | 722                                    | 31                                     |
| <b>Normality of data (Shapiro-Wilks)</b>                                               | yes<br>(p = 0.3)                       | no<br>(p = 0.005)                      |
| <b>Equality of variances (Bartlett)</b>                                                | Yes (p = 0.008)                        |                                        |
| <b>Non-parametric:<br/>Wilcoxon-Kruskal-Wallis test</b>                                | No (p = 0.5567)                        |                                        |
| <b>Median difference testing:<br/>Brown-Mood test<br/>(approximation of Chi2 test)</b> | No (p = 0.598)                         |                                        |
| <b>Parametric: Student's test</b>                                                      | No (p = 0.5951)                        |                                        |

#### **4.3.2 Proportion of mature females**

The percentage of mature females established in 1999 for the Rivière des Prairies spawning ground is 12% based on the catches of the experimental fishery (Thibodeau et al. 1999). If one applies to the data collected by these authors the procedure used within the context of this study, namely adding the number of mature females identified by means of a biopsy and the number of running ripe females, this number increases to 28 mature females at RDP in 1999 (25 biopsies and 3 running ripe out of 722 specimens examined, namely 3.9%). In the spring of 2001, only one sexually mature female was duly identified among the 31 specimens caught using the experimental net, which corresponds to 3.2% of the catches. This small number does not permit a reliable statistical comparison with the RDP catches using the experimental net. It should be pointed out however that the percentage of sexually mature females in the catches in the spring of 2001, regardless of the net used (7 out of 75 or 9.3%), is much closer to a ratio observed in a spawning ground area than in a growth area.

#### **4.4 Search for egg deposition**

The search for lake sturgeon eggs using trays was unsuccessful in the spring of 2001 in the territory under study. Before choosing the sampling areas, a good portion of the territory was gridded with a boat equipped with digital sonar. The chosen zones offered acceptable spawning conditions for the species but they covered large surface areas. Two of these zones are located upstream and downstream from the downstream flats. The substrate is rocky and the rocks are highly variable in size ranging from gravel to big rocks over two metres in diameter. The depth here varied between 30 cm and 3 m, and the current flow was also variable, from weak to strong.

The second zone is located off the tip of the seaway dike. These flats are immense and extend to the centre of the River. The substrate here is coarser and the current flow weaker than that of the downstream flats sector. No sign of spawning activity was observed for the entire duration of the work. A few sturgeon leaps were observed downstream from the station located on the right shore under Mercier Bridge. The water was very deep (between 6 and 12 m) and the current flow violent at this location.

## 5 DISCUSSION

The research project carried out in the upstream portion of the Lachine Rapids made it possible to underscore the sector's importance for lake sturgeon reproduction. Indeed, the specimens caught there are very similar to the reproductive part of the St. Lawrence stock. Their size is bigger and the proportion of mature females almost ten times greater than the fish caught in the Lac Saint-Louis fishery during the last two sampling campaigns in 1994 and 1998. The comparisons with the biggest known spawning ground, that of Rivière des Prairies, revealed no significant difference as to the size distribution of the specimens caught. Greater numbers would have likely confirmed the fact that the proportion of mature females present there is of the same order. The only major difference lies in the fact that fewer small specimens were caught in the area under study in the spring of 2001 than on the Rivière des Prairies spawning ground in 1999. This difference may be linked to the small size of the 2001 sample. It may also be related to a different behaviour on the part of sturgeons that are not sexually mature in the two sectors. Indeed, and for reasons that are still unknown, the Rivière des Prairies spawning ground attracts not only a high concentration of spawning breeders but also sub-adults that have not yet reached the age of reproduction (Thibodeau et al. 1999).

Despite a relatively intensive effort, few specimens were caught during the operation. The size of our sample (75 specimens) is not comparable with the catches made during the years when a follow-up was done on the efficiency of the extension of the Rivière des Prairies spawning ground, which generally exceed 700 specimens per year. However, for various reasons, including problems related to the diligence and punctuality of the aboriginal fisherman, our fishing effort was well below that generally made at RDP. Moreover, and likely due to the high degree of transparency of the water in this sector of the St. Lawrence River and the early warming of the water in the spring of 2001, the accumulation of large masses of filamentous algae in our nets compromised their efficiency. In comparison, the water of Rivière des Prairies, rich in tannins, is brown and cloudy, thus reducing the algae growth potential.

The two best fishing zones were located downstream from a rocky point under Mercier Bridge and downstream from the northern tip of the seaway dike. The sturgeons appear to prefer the right shore for traveling in the sector. A large bay of calm water is located to the south of the flats zone, on the right shore, downstream from Mercier Bridge. Further downstream, the flow once again becomes strong and turbulent. Few shelters from the current, points or bays are

present along the left shore which could explain the preference that sturgeons have for going through the rapids along the right shore. Moreover, this preference was confirmed by the aboriginal fisherman who said that he rarely sets his nets on the left shore. In summary, it would seem that most of the passage or stay of the spawners takes place in a series of pools along the right shore located behind a series of shelters from the current. Under such conditions, a fishing effort even limited to these pools and bays may prove very efficient prior to and after the appearance of the moss. Other sectors of the River's network offer such fishing opportunities, including the Rivière des Prairies spawning ground, but the commercial fishery is prohibited there at all times.

No egg and no larva were collected using the trays. The location of the spawning areas in this vast area of water will undoubtedly require a much greater and more sustained sampling effort, lasting at least two years.

## **6 CONCLUSION**

The results obtained have not made it possible to confirm beyond all doubt the presence of a spawning ground in the portion of the Lachine Rapids covered in the spring of 2001. The search for egg deposition was too limited in time and space given the territory that needed to be covered. This search will have to be complemented by additional means and much greater efforts during the next monitoring operation.

Despite the relatively low yields attributable to several factors mentioned and described in the discussion section, the results of the fishing operations revealed that the upstream sector of the Lachine Rapids is indeed frequented by spawners during the migration and spawning by lake sturgeons. The comparisons made with the data of the Lac Saint-Louis commercial fishery (LSL 1994 and 1998) and those of the Rivière des Prairies (RDP 1999) spawning ground have shown that the sturgeons caught this spring have a greater resemblance to the reproductive stock of the St. Lawrence River than to commercial catches.

The results obtained in the spring of 2001, albeit fragmentary, clearly confirm the need to put an end to all forms of lake sturgeon harvesting in this sector during the spring period. Such restrictions have been imposed on the commercial fishermen of the St. Lawrence River for more than 30 years. This is also a restriction that has become generalized for all North American jurisdictions to ensure the perpetuation of the sturgeon populations of the various species present.

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## APPENDIX 1. Details of data on gill nets catch, upstream portion of Lachine Rapids, spring of 2001.

Date : année-mois-jour; STATION : numéro de station, SECTEUR : zones figure 1, R : rive, d : droite, g : gauche; TEMP. : température de l'eau (°C); DÉBUT et FIN : début et fin des pêches; DUR./H : durée en heures; LATD : latitude-degré; LATM : latitude-minute; LOND : longitude –degré; LONM : longitude-minute; PROF : profondeur (m); COUR. : courant, moy : moyen, moy f. : moyen faible, fai : faible, rap : rapide; ENGIN : rdp : Mc : filet du pêcheur autochtone de 46 m (150') de longueur X 1,8 m (6') de hauteur, maille étirée de 203 mm (8") seulement ou de 203 mm (8") et 305 mm (12") combinées; Mc\* : filet du pêcheur autochtone de 55 m (180') de longueur X 5,2 m (17') de hauteur maille étirée de 203 mm (8"); rdp : filet expérimental utilisé à la frayère de la rivière des Prairies entre 1996 et 1999, 2 m de hauteur X 60 m de longueur dont 30 m, 20 m et 10 m de maille étirée respective de 203 mm (8"), 254 mm (10") et 305 mm (12"), filet expérimental FAPAQ; Maille : dimension de la maille étirée en pouce et longueur en pied (voir ENGIN ci-dessus); Lt : longueur totale en millimètre; PT : poids (g); Circ. : circonférence maximale de l'abdomen en millimètre; BIOP : biopsie effectuée (x); Sexe : M = mâle, F = femelle, I = indéterminé; STADE : stade de maturité sexuelle de Nikolski (1963); ETIQU : numéro d'étiquette FAPAQ; REM : remarque, fertil : fertilisation effectuée sur ce spécimen, oeufs : oeufs prélevés par biopsie.

| DATE    | STATION | SECTEUR                 | TEMP | DÉBUT         | FIN           | DUR./H | LATD | LATM   | LOND | LONM   | PROF | COUR. | ENGIN | MAILLE | ESP  | LT   | PT    | LL  | CIRC | BIOP | SEXE | STADE | ETIQU. | REM |
|---------|---------|-------------------------|------|---------------|---------------|--------|------|--------|------|--------|------|-------|-------|--------|------|------|-------|-----|------|------|------|-------|--------|-----|
| 9-5-01  | 1       | Battures aval           | 11,5 | 9-5-01 13:46  | 9-5-01 16:00  | 2,23   | 45   | 24,422 | 73   | 38,537 | 3    | moy   | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 1       | Battures aval           | 11,5 | 9-5-01 13:46  | 9-5-01 16:00  | 2,23   | 45   | 24,422 | 73   | 38,537 | 3    | moy   | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 1       | Battures aval           | 11,5 | 9-5-01 13:46  | 9-5-01 16:00  | 2,23   | 45   | 24,422 | 73   | 38,537 | 3    | moy   | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 1       | Battures aval           | 11,5 | 9-5-01 16:00  | 9-5-01 17:50  | 1,83   | 45   | 24,422 | 73   | 38,537 | 3    | moy   | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 1       | Battures aval           | 11,5 | 9-5-01 16:00  | 9-5-01 17:50  | 1,83   | 45   | 24,422 | 73   | 38,537 | 3    | moy   | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 1       | Battures aval           | 11,5 | 9-5-01 16:00  | 9-5-01 17:50  | 1,83   | 45   | 24,422 | 73   | 38,537 | 3    | moy   | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 2       | Battures aval           | 11,5 | 9-5-01 13:56  | 9-5-01 16:15  | 2,32   | 45   | 24,369 | 73   | 38,398 | 3    | moy f | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 2       | Battures aval           | 11,5 | 9-5-01 13:56  | 9-5-01 16:15  | 2,32   | 45   | 24,369 | 73   | 38,398 | 3    | moy f | rdp   | 10     | acfu | 1240 | 11750 | 870 | 460  |      | M    | 3     | 6040   |     |
| 9-5-01  | 2       | Battures aval           | 11,5 | 9-5-01 13:56  | 9-5-01 16:15  | 2,32   | 45   | 24,369 | 73   | 38,398 | 3    | moy f | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 2       | Battures aval           | 11,5 | 9-5-01 16:15  | 9-5-01 18:05  | 1,83   | 45   | 24,369 | 73   | 38,398 | 3    | moy f | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 2       | Battures aval           | 11,5 | 9-5-01 16:15  | 9-5-01 18:05  | 1,83   | 45   | 24,369 | 73   | 38,398 | 3    | moy f | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 2       | Battures aval           | 11,5 | 9-5-01 16:15  | 9-5-01 18:05  | 1,83   | 45   | 24,369 | 73   | 38,398 | 3    | moy f | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 3       | R. d. pont de fer       | 11,5 | 9-5-01 14:20  | 9-5-01 16:30  | 2,17   | 45   | 24,987 | 73   | 39,925 | 4    | fai   | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 3       | R. d. pont de fer       | 11,5 | 9-5-01 14:20  | 9-5-01 16:30  | 2,17   | 45   | 24,987 | 73   | 39,925 | 4    | fai   | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 3       | R. d. pont de fer       | 11,5 | 9-5-01 14:20  | 9-5-01 16:30  | 2,17   | 45   | 24,987 | 73   | 39,925 | 4    | fai   | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 3       | R. d. pont de fer       | 11,5 | 9-5-01 16:30  | 9-5-01 18:30  | 2,00   | 45   | 24,987 | 73   | 39,925 | 4    | fai   | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 3       | R. d. pont de fer       | 11,5 | 9-5-01 16:30  | 9-5-01 18:30  | 2,00   | 45   | 24,987 | 73   | 39,925 | 4    | fai   | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 9-5-01  | 3       | R. d. pont de fer       | 11,5 | 9-5-01 16:30  | 9-5-01 18:30  | 2,00   | 45   | 24,987 | 73   | 39,925 | 4    | fai   | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 4       | R. g. aval pont Mercier | 14,0 | 11-5-01 15:17 | 11-5-01 16:45 | 1,47   | 45   | 24,839 | 73   | 38,749 | 6    | rap   | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 4       | R. g. aval pont Mercier | 14,0 | 11-5-01 15:17 | 11-5-01 16:45 | 1,47   | 45   | 24,839 | 73   | 38,749 | 6    | rap   | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 4       | R. g. aval pont Mercier | 14,0 | 11-5-01 15:17 | 11-5-01 16:45 | 1,47   | 45   | 24,839 | 73   | 38,749 | 6    | rap   | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 4       | R. g. aval pont Mercier | 14,0 | 11-5-01 17:00 | 11-5-01 19:42 | 2,70   | 45   | 24,839 | 73   | 38,749 | 6    | rap   | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 4       | R. g. aval pont Mercier | 14,0 | 11-5-01 17:00 | 11-5-01 19:42 | 2,70   | 45   | 24,839 | 73   | 38,749 | 6    | rap   | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 4       | R. g. aval pont Mercier | 14,0 | 11-5-01 17:00 | 11-5-01 19:42 | 2,70   | 45   | 24,839 | 73   | 38,749 | 6    | rap   | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 5       | R. d. sous pont Mercier | 14,0 | 11-5-01 15:30 | 11-5-01 17:15 | 1,75   | 45   | 24,791 | 73   | 39,275 | 4    |       | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 5       | R. d. sous pont Mercier | 14,0 | 11-5-01 15:30 | 11-5-01 17:15 | 1,75   | 45   | 24,791 | 73   | 39,275 | 4    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 5       | R. d. sous pont Mercier | 14,0 | 11-5-01 15:30 | 11-5-01 17:15 | 1,75   | 45   | 24,791 | 73   | 39,275 | 4    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 5       | R. d. sous pont Mercier | 14,0 | 11-5-01 17:30 | 11-5-01 20:00 | 2,50   | 45   | 24,791 | 73   | 39,275 | 4    |       | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 5       | R. d. sous pont Mercier | 14,0 | 11-5-01 17:30 | 11-5-01 20:00 | 2,50   | 45   | 24,791 | 73   | 39,275 | 4    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 5       | R. d. sous pont Mercier | 14,0 | 11-5-01 17:30 | 11-5-01 20:00 | 2,50   | 45   | 24,791 | 73   | 39,275 | 4    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 6       | Mi-jetée voie maritime  | 14,0 | 11-5-01 15:50 | 11-5-01 17:25 | 1,58   | 45   | 24,164 | 73   | 41,344 | 4    |       | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 6       | Mi-jetée voie maritime  | 14,0 | 11-5-01 15:50 | 11-5-01 17:25 | 1,58   | 45   | 24,164 | 73   | 41,344 | 4    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 6       | Mi-jetée voie maritime  | 14,0 | 11-5-01 15:50 | 11-5-01 17:25 | 1,58   | 45   | 24,164 | 73   | 41,344 | 4    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 6       | Mi-jetée voie maritime  | 14,0 | 11-5-01 17:40 | 11-5-01 19:26 | 1,77   | 45   | 24,164 | 73   | 41,344 | 4    |       | rdp   | 8      | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 6       | Mi-jetée voie maritime  | 14,0 | 11-5-01 17:40 | 11-5-01 19:26 | 1,77   | 45   | 24,164 | 73   | 41,344 | 4    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |       |        |     |
| 11-5-01 | 6       | Mi-jetée voie maritime  | 14,0 | 11-5-01 17:40 | 11-5-01 19:26 | 1,77   | 45   | 24,164 | 73   | 41,344 | 4    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |       |        |     |

| DATE    | STATION | SECTEUR                 | TEMP | DÉBUT         | FIN           | DUR/H | LATD | LATM   | LOND | LONM   | PROF | COUR. | ENGIN | MAILLE     | ESP  | LT   | PT    | LL   | CIRC | BIOP | SEXE | STADE  | ETIQU. | REM    |  |
|---------|---------|-------------------------|------|---------------|---------------|-------|------|--------|------|--------|------|-------|-------|------------|------|------|-------|------|------|------|------|--------|--------|--------|--|
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1135 | 7750  | 710  | 415  | X    | M    | 3      | 6039   |        |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1210 | 10250 | 780  | 430  |      | M    | 5      | 6038   |        |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1112 | 7750  | 700  | 415  | X    | IND  |        | 6037   |        |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1275 | 15250 | 820  | 565  | X    | IND  |        | 6036   |        |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1202 | 10750 | 755  | 465  | X    | F    | 1,5 mm | 6035   | oeufs  |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1470 | 20000 | 1110 | 575  | X    | IND  |        | 6034   |        |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1115 | 7000  | 730  | 380  |      | IND  |        | 6033   |        |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1240 | 13000 | 830  | 510  |      | M    | 5      | 6032   |        |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 17-5-01 20:30 | 18-5-01 9:30  | 13,00 | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | acfu | 1065 | 6250  | 675  | 375  |      | M    | 5      | 6031   |        |  |
| 18-5-01 | 7       | R. d. sous pont Mercier | 14,0 | 18-5-01 9:30  | 18-5-01 11:30 | 2,00  | 45   | 24,828 | 73   | 39,332 | 8,5  |       | Mc    | 8-12 x 150 | NIL  |      |       |      |      |      |      |        |        |        |  |
| 30-5-01 | 7       | R. d. sous pont Mercier | 13,0 | 29-5-01 20:25 | 30-5-01 10:10 | 13,75 | 45   | 24,829 | 73   | 39,335 | 5,5  |       | rdp   | 8          | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 30-5-01 | 7       | R. d. sous pont Mercier | 13,0 | 29-5-01 20:25 | 30-5-01 10:10 | 13,75 | 45   | 24,829 | 73   | 39,335 | 5,5  |       | rdp   | 10         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 30-5-01 | 7       | R. d. sous pont Mercier | 13,0 | 29-5-01 20:25 | 30-5-01 10:10 | 13,75 | 45   | 24,829 | 73   | 39,335 | 5,5  |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 5-6-01  | 7       | R. d. sous pont Mercier | 19,0 | 4-6-01 23:00  | 5-6-01 11:30  | 12,50 | 45   | 24,829 | 73   | 39,335 | 8    |       | Mc    | 8          | acfu | 1265 | 11250 | 850  | 450  |      | M    | 5      | 6012   | fertil |  |
| 5-6-01  | 7       | R. d. sous pont Mercier | 19,0 | 4-6-01 23:00  | 5-6-01 11:30  | 12,50 | 45   | 24,829 | 73   | 39,335 | 8    |       | Mc    | 8          | acfu | 1605 | 20500 | 1125 | 495  | X    | M    | 6      | 6011   |        |  |
| 5-6-01  | 7       | R. d. sous pont Mercier | 19,0 | 4-6-01 23:00  | 5-6-01 11:30  | 12,50 | 45   | 24,829 | 73   | 39,335 | 8    |       | Mc    | 8          | acfu | 1395 | 17500 | 925  | 595  | X    | F    | 5 col. | 6010   | fertil |  |
| 5-6-01  | 7       | R. d. sous pont Mercier | 19,0 | 4-6-01 23:00  | 5-6-01 11:30  | 12,50 | 45   | 24,829 | 73   | 39,335 | 8    |       | Mc    | 8          | acfu | 1280 | 12750 | 855  | 490  | X    | F    | col.   | 6009   |        |  |
| 7-6-01  | 7       | R. d. sous pont Mercier | 16,0 | 7-6-01 0:05   | 7-6-01 10:45  | 10,67 | 45   | 24,829 | 73   | 39,335 | 8    |       | Mc    | 8          | acfu | 1095 | 6500  | 715  | 380  |      | IND  |        | 6008   |        |  |
| 7-6-01  | 7       | R. d. sous pont Mercier | 16,0 | 7-6-01 0:05   | 7-6-01 10:45  | 10,67 | 45   | 24,829 | 73   | 39,335 | 8    |       | Mc    | 8          | ALSA |      |       |      |      |      |      |        |        |        |  |
| 23-5-01 | 7,1     | R. d. sous pont Mercier | 14,0 | 22-5-01 20:50 | 23-5-01 9:20  | 12,50 | 45   | 24,832 | 73   | 39,339 | 5    |       | rdp   | 8          | acfu | 985  | 5500  | 635  | 355  |      | IND  |        | 6025   | mousse |  |
| 23-5-01 | 7,1     | R. d. sous pont Mercier | 14,0 | 22-5-01 20:50 | 23-5-01 9:20  | 12,50 | 45   | 24,832 | 73   | 39,339 | 5    |       | rdp   | 10         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 23-5-01 | 7,1     | R. d. sous pont Mercier | 14,0 | 22-5-01 20:50 | 23-5-01 9:20  | 12,50 | 45   | 24,832 | 73   | 39,339 | 5    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 25-5-01 | 7,1     | R. d. sous pont Mercier | 14,5 | 24-5-01 20:37 | 25-5-01 9:35  | 12,97 | 45   | 24,828 | 73   | 39,335 | 5    |       | rdp   | 8          | acfu | 960  | 5500  | 620  | 370  |      | IND  |        | 6023   | mousse |  |
| 25-5-01 | 7,1     | R. d. sous pont Mercier | 14,5 | 24-5-01 20:37 | 25-5-01 9:35  | 12,97 | 45   | 24,828 | 73   | 39,335 | 5    |       | rdp   | 8          | acfu | 1135 | 7500  | 720  | 410  |      | IND  |        | 6022   | mousse |  |
| 25-5-01 | 7,1     | R. d. sous pont Mercier | 14,5 | 24-5-01 20:37 | 25-5-01 9:35  | 12,97 | 45   | 24,828 | 73   | 39,335 | 5    |       | rdp   | 8          | acfu | 1005 | 5500  | 660  | 375  |      | IND  |        | 6021   | mousse |  |
| 25-5-01 | 7,1     | R. d. sous pont Mercier | 14,5 | 24-5-01 20:37 | 25-5-01 9:35  | 12,97 | 45   | 24,828 | 73   | 39,335 | 5    |       | rdp   | 10         | acfu | 1000 | 6000  | 640  | 390  |      | IND  |        | 6024   | mousse |  |
| 25-5-01 | 7,1     | R. d. sous pont Mercier | 14,5 | 24-5-01 20:37 | 25-5-01 9:35  | 12,97 | 45   | 24,828 | 73   | 39,335 | 5    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 11-6-01 | 7,1     | R. d. sous pont Mercier |      | 10-6-01 12:00 | 11-6-01 23:00 | 35,00 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 8          | NIL  |      |       |      |      |      |      |        |        |        |  |
| 11-6-01 | 7,1     | R. d. sous pont Mercier |      | 10-6-01 12:00 | 11-6-01 23:00 | 35,00 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 10         | NIL  |      |       |      |      |      |      |        |        |        |  |
| 11-6-01 | 7,1     | R. d. sous pont Mercier |      | 10-6-01 12:00 | 11-6-01 23:00 | 35,00 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        |        |  |
| 12-6-01 | 7,1     | R. d. sous pont Mercier | 17,0 | 11-6-01 23:00 | 12-6-01 11:00 | 12,00 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 8          | acfu | 1116 | 6000  | 720  | 346  |      | IND  |        | 3289   |        |  |
| 12-6-01 | 7,1     | R. d. sous pont Mercier | 17,0 | 11-6-01 23:00 | 12-6-01 11:00 | 12,00 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 10         | acfu | 1388 | 13250 | 940  | 441  |      | IND  | 6      | 3288   |        |  |
| 12-6-01 | 7,1     | R. d. sous pont Mercier | 17,0 | 11-6-01 23:00 | 12-6-01 11:00 | 12,00 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        |        |  |
| 13-6-01 | 7,1     | R. d. sous pont Mercier | 18,0 | 12-6-01 11:00 | 13-6-01 11:10 | 24,17 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 8          | acfu | 1100 | 7250  | 685  | 395  |      | M    |        | 3275   | mousse |  |
| 13-6-01 | 7,1     | R. d. sous pont Mercier | 18,0 | 12-6-01 11:00 | 13-6-01 11:10 | 24,17 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 8          | acfu | 1050 | 7000  | 655  | 400  |      | IND  |        | 3274   | mousse |  |
| 13-6-01 | 7,1     | R. d. sous pont Mercier | 18,0 | 12-6-01 11:00 | 13-6-01 11:10 | 24,17 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 10         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 13-6-01 | 7,1     | R. d. sous pont Mercier | 18,0 | 12-6-01 11:00 | 13-6-01 11:10 | 24,17 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 14-6-01 | 7,1     | R. d. sous pont Mercier | 19,0 | 13-6-01 11:10 | 14-6-01 11:18 | 24,13 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 8          | acfu | 1010 | 5200  | 640  | 325  |      | IND  |        | 3265   | mousse |  |
| 14-6-01 | 7,1     | R. d. sous pont Mercier | 19,0 | 13-6-01 11:10 | 14-6-01 11:18 | 24,13 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 8          | acfu | 1010 | 6700  | 680  | 395  |      | M    | 6      | 3264   | mousse |  |
| 14-6-01 | 7,1     | R. d. sous pont Mercier | 19,0 | 13-6-01 11:10 | 14-6-01 11:18 | 24,13 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 10         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 14-6-01 | 7,1     | R. d. sous pont Mercier | 19,0 | 13-6-01 11:10 | 14-6-01 11:18 | 24,13 | 45   | 24,828 | 73   | 39,335 | 8    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 23-5-01 | 7,2     | R. d. sous pont Mercier | 14,0 | 22-5-01 20:50 | 23-5-01 9:25  | 12,58 | 45   | 24,816 | 73   | 39,291 | 5    |       | rdp   | 8          | acfu | 1140 | 9750  | 745  | 425  |      | IND  |        | 6026   | mousse |  |
| 23-5-01 | 7,2     | R. d. sous pont Mercier | 14,0 | 22-5-01 20:50 | 23-5-01 9:25  | 12,58 | 45   | 24,816 | 73   | 39,291 | 5    |       | rdp   | 10         | acfu | 1055 | 8750  | 700  | 430  |      | M    | 5      | 6027   | mousse |  |
| 23-5-01 | 7,2     | R. d. sous pont Mercier | 14,0 | 22-5-01 20:50 | 23-5-01 9:25  | 12,58 | 45   | 24,816 | 73   | 39,291 | 5    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 25-5-01 | 7,2     | R. d. sous pont Mercier | 14,5 | 24-5-01 20:40 | 25-5-01 9:50  | 13,17 | 45   | 24,818 | 73   | 39,314 | 5    |       | rdp   | 8          | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 25-5-01 | 7,2     | R. d. sous pont Mercier | 14,5 | 24-5-01 20:40 | 25-5-01 9:50  | 13,17 | 45   | 24,818 | 73   | 39,314 | 5    |       | rdp   | 10         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 25-5-01 | 7,2     | R. d. sous pont Mercier | 14,5 | 24-5-01 20:40 | 25-5-01 9:50  | 13,17 | 45   | 24,818 | 73   | 39,314 | 5    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        | mousse |  |
| 11-6-01 | 7,2     | R. d. sous pont Mercier |      | 10-6-01 12:00 | 11-6-01 23:00 | 35,00 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 8          | acfu | 965  |       | 595  | 325  |      | IND  |        | 3280   |        |  |
| 11-6-01 | 7,2     | R. d. sous pont Mercier |      | 10-6-01 12:00 | 11-6-01 23:00 | 35,00 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 10         | NIL  |      |       |      |      |      |      |        |        |        |  |
| 11-6-01 | 7,2     | R. d. sous pont Mercier |      | 10-6-01 12:00 | 11-6-01 23:00 | 35,00 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 12         | NIL  |      |       |      |      |      |      |        |        |        |  |
| 12-6-01 | 7,2     | R. d. sous pont Mercier | 17,0 | 11-6-01 23:00 | 12-6-01 11:15 | 12,2  |      |        |      |        |      |       |       |            |      |      |       |      |      |      |      |        |        |        |  |

| DATE    | STATION      | SECTEUR                 | TEMP | DÉBUT         | FIN           | DUR/H | LATD | LATM   | LOND | LONM   | PROF | COUR. | ENGIN | MAILLE | ESP  | LT   | PT    | LL  | CIRC | BIOP | SEXE | STADE   | ETIQU. | REM    |
|---------|--------------|-------------------------|------|---------------|---------------|-------|------|--------|------|--------|------|-------|-------|--------|------|------|-------|-----|------|------|------|---------|--------|--------|
| 12-6-01 | 7,2          | R. d. sous pont Mercier | 17,0 | 11-6-01 23:00 | 12-6-01 11:15 | 12,25 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 10     | acfu | 1197 | 10500 | 780 | 435  | X    | M    |         | 3282   |        |
| 12-6-01 | 7,2          | R. d. sous pont Mercier | 17,0 | 11-6-01 23:00 | 12-6-01 11:15 | 12,25 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        |        |
| 13-6-01 | 7,2          | R. d. sous pont Mercier | 18,0 | 12-6-01 11:15 | 13-6-01 11:15 | 24,00 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 8      | acfu | 1035 | 7500  | 715 | 410  |      | IND  | FLASQUE | 3276   | mousse |
| 13-6-01 | 7,2          | R. d. sous pont Mercier | 18,0 | 12-6-01 11:15 | 13-6-01 11:15 | 24,00 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 13-6-01 | 7,2          | R. d. sous pont Mercier | 18,0 | 12-6-01 11:15 | 13-6-01 11:15 | 24,00 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 14-6-01 | 7,2          | R. d. sous pont Mercier | 19,0 | 13-6-01 11:15 | 14-6-01 11:24 | 24,15 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 8      | NIL  |      |       |     |      |      |      |         |        | mousse |
| 14-6-01 | 7,2          | R. d. sous pont Mercier | 19,0 | 13-6-01 11:15 | 14-6-01 11:24 | 24,15 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 14-6-01 | 7,2          | R. d. sous pont Mercier | 19,0 | 13-6-01 11:15 | 14-6-01 11:24 | 24,15 | 45   | 24,818 | 73   | 39,314 | 8    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 23-5-01 | 8            | Battures aval           | 14,0 | 22-5-01 20:30 | 23-5-01 9:00  | 12,50 | 45   | 24,470 | 73   | 38,709 | 4,5  |       | rdp   | 8      | NIL  |      |       |     |      |      |      |         |        | mousse |
| 23-5-01 | 8            | Battures aval           | 14,0 | 22-5-01 20:30 | 23-5-01 9:00  | 12,50 | 45   | 24,470 | 73   | 38,709 | 4,5  |       | rdp   | 10     | acfu | 1335 | 17250 | 880 | 580  | X    | F    | 2 COLL  | 6030   | mousse |
| 23-5-01 | 8            | Battures aval           | 14,0 | 22-5-01 20:30 | 23-5-01 9:00  | 12,50 | 45   | 24,470 | 73   | 38,709 | 4,5  |       | rdp   | 10     | acfu | 1385 | 15750 | 890 | 535  |      | M    | 6       | 6029   | mousse |
| 23-5-01 | 8            | Battures aval           | 14,0 | 22-5-01 20:30 | 23-5-01 9:00  | 12,50 | 45   | 24,470 | 73   | 38,709 | 4,5  |       | rdp   | 12     | acfu | 1145 | 9250  | 740 | 405  |      | M    | 6       | 6028   | mousse |
| 25-5-01 | 21           | Battures aval           | 14,5 | 24-5-01 21:00 | 25-5-01 9:15  | 12,25 | 45   | 24,460 | 73   | 38,723 | 3,5  |       | rdp   | 8      | NIL  |      |       |     |      |      |      |         |        |        |
| 25-5-01 | 21           | Battures aval           | 14,5 | 24-5-01 21:00 | 25-5-01 9:15  | 12,25 | 45   | 24,460 | 73   | 38,723 | 3,5  |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        |        |
| 25-5-01 | 21           | Battures aval           | 14,5 | 24-5-01 21:00 | 25-5-01 9:15  | 12,25 | 45   | 24,460 | 73   | 38,723 | 3,5  |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        |        |
| 30-5-01 | 23           | Battures aval           | 13,0 | 29-5-01 20:45 | 30-5-01 9:30  | 12,75 | 45   | 24,455 | 73   | 38,694 | 3,5  |       | rdp   | 8      | NIL  |      |       |     |      |      |      |         |        | mousse |
| 30-5-01 | 23           | Battures aval           | 13,0 | 29-5-01 20:45 | 30-5-01 9:30  | 12,75 | 45   | 24,455 | 73   | 38,694 | 3,5  |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 30-5-01 | 23           | Battures aval           | 13,0 | 29-5-01 20:45 | 30-5-01 9:30  | 12,75 | 45   | 24,455 | 73   | 38,694 | 3,5  |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 1-6-01  | 24           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:30 | 1-6-01 9:10   | 12,67 | 45   | 24,569 | 73   | 43,194 | 6    |       | rdp   | 8      | acfu | 1045 | 6000  | 690 | 370  |      | IND  |         | 6016   |        |
| 1-6-01  | 24           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:30 | 1-6-01 9:10   | 12,67 | 45   | 24,569 | 73   | 43,194 | 6    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        |        |
| 1-6-01  | 24           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:30 | 1-6-01 9:10   | 12,67 | 45   | 24,569 | 73   | 43,194 | 6    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        |        |
| 1-6-01  | 25           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:40 | 1-6-01 8:55   | 12,25 | 45   | 24,494 | 73   | 43,024 | 9    |       | rdp   | 8      | CYCA |      |       |     |      |      |      |         |        | mousse |
| 1-6-01  | 25           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:40 | 1-6-01 8:55   | 12,25 | 45   | 24,494 | 73   | 43,024 | 9    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 1-6-01  | 25           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:40 | 1-6-01 8:55   | 12,25 | 45   | 24,494 | 73   | 43,024 | 9    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 5-6-01  | 25           | Pt. jetée voie maritime | 19,0 | 4-6-01 22:00  | 5-6-01 13:00  | 15,00 | 45   | 24,494 | 73   | 43,024 | 9    |       | rdp   | 8      | NIL  |      |       |     |      |      |      |         |        | mousse |
| 5-6-01  | 25           | Pt. jetée voie maritime | 19,0 | 4-6-01 22:00  | 5-6-01 13:00  | 15,00 | 45   | 24,494 | 73   | 43,024 | 9    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 5-6-01  | 25           | Pt. jetée voie maritime | 19,0 | 4-6-01 22:00  | 5-6-01 13:00  | 15,00 | 45   | 24,494 | 73   | 43,024 | 9    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 1-6-01  | 26           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:45 | 1-6-01 8:45   | 12,00 | 45   | 24,578 | 73   | 42,676 | 6,5  |       | rdp   | 8      | NIL  |      |       |     |      |      |      |         |        |        |
| 1-6-01  | 26           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:45 | 1-6-01 8:45   | 12,00 | 45   | 24,578 | 73   | 42,676 | 6,5  |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        |        |
| 1-6-01  | 26           | Pt. jetée voie maritime | 13,0 | 31-5-01 20:45 | 1-6-01 8:45   | 12,00 | 45   | 24,578 | 73   | 42,676 | 6,5  |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        |        |
| 5-6-01  | 27           | Ile Saint-Nicholas      | 19,0 | 4-6-01 22:00  | 5-6-01 9:45   | 11,75 | 45   | 44,345 | 73   | 24,376 | 6,5  |       | rdp   | 8      | NIL  |      |       |     |      |      |      |         |        | mousse |
| 5-6-01  | 27           | Ile Saint-Nicholas      | 19,0 | 4-6-01 22:00  | 5-6-01 9:45   | 11,75 | 45   | 44,345 | 73   | 24,376 | 6,5  |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 5-6-01  | 27           | Ile Saint-Nicholas      | 19,0 | 4-6-01 22:00  | 5-6-01 9:45   | 11,75 | 45   | 44,345 | 73   | 24,376 | 6,5  |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 7-6-01  | 28           | Ilot de Pierre          | 16,0 | 6-6-01 12:30  | 7-6-01 9:40   | 21,17 | 45   | 24,477 | 73   | 46,595 | 13   |       | Mc*   | 8      | acfu | 1170 | 8750  | 770 | 405  |      | IND  |         | 6007   |        |
| 30-5-01 | 22?          | R. d. sous pont Mercier | 13,0 | 29-5-01 20:30 | 30-5-01 9:55  | 13,42 | 45   | 24,812 | 73   | 39,303 | 5,3  |       | rdp   | 8      | acfu | 1115 | 8500  | 710 | 430  |      | IND  |         | 6020   | mousse |
| 30-5-01 | 22?          | R. d. sous pont Mercier | 13,0 | 29-5-01 20:30 | 30-5-01 9:55  | 13,42 | 45   | 24,812 | 73   | 39,303 | 5,3  |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 30-5-01 | 22?          | R. d. sous pont Mercier | 13,0 | 29-5-01 20:30 | 30-5-01 9:55  | 13,42 | 45   | 24,812 | 73   | 39,303 | 5,3  |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 6-6-01  | 24Eric       | Pt. jetée voie maritime | 19,5 | 5-6-01 10:50  | 6-6-01 12:00  | 25,17 | 45   | 24,583 | 73   | 43,217 | 8    |       | rdp   | 8      | NIL  |      |       |     |      |      |      |         |        | mousse |
| 6-6-01  | 24Eric       | Pt. jetée voie maritime | 19,5 | 5-6-01 10:50  | 6-6-01 12:00  | 25,17 | 45   | 24,583 | 73   | 43,217 | 8    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 6-6-01  | 24Eric       | Pt. jetée voie maritime | 19,5 | 5-6-01 10:50  | 6-6-01 12:00  | 25,17 | 45   | 24,583 | 73   | 43,217 | 8    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        | mousse |
| 7-6-01  | 24Eric       | Pt. jetée voie maritime | 16,0 | 6-6-01 23:55  | 7-6-01 10:00  | 10,08 | 45   | 24,583 | 73   | 43,217 | 8    |       | Mc    | 8      | CYCA |      |       |     |      |      |      |         |        |        |
| 3-6-01  | 24Eric       | Pt. jetée voie maritime |      | 3-6-01 23:00  | 4-6-01 21:00  | 22,00 | 45   | 24,583 | 73   | 43,217 | 8    |       | Mc    | 8      | acfu | 1500 | 9500  | 745 | 450  | X    | F    | 5 COLL  | 6013   | fertil |
| 5-6-01  | 24Eric       | Pt. jetée voie maritime | 19,0 | 4-6-01 21:30  | 5-6-01 10:50  | 13,33 | 45   | 24,583 | 73   | 43,217 | 8    |       | rdp   | 8      | acfu | 1035 | 7250  | 630 | 440  | X    | IND  |         | 6015   |        |
| 5-6-01  | 24Eric       | Pt. jetée voie maritime | 19,0 | 4-6-01 21:30  | 5-6-01 10:50  | 13,33 | 45   | 24,583 | 73   | 43,217 | 8    |       | rdp   | 8      | acfu | 970  | 4250  | 585 | 335  |      | IND  |         | 6014   |        |
| 5-6-01  | 24Eric       | Pt. jetée voie maritime | 19,0 | 4-6-01 21:30  | 5-6-01 10:50  | 13,33 | 45   | 24,583 | 73   | 43,217 | 8    |       | rdp   | 10     | NIL  |      |       |     |      |      |      |         |        |        |
| 5-6-01  | 24Eric       | Pt. jetée voie maritime | 19,0 | 4-6-01 21:30  | 5-6-01 10:50  | 13,33 | 45   | 24,583 | 73   | 43,217 | 8    |       | rdp   | 12     | NIL  |      |       |     |      |      |      |         |        |        |
| 1-6-01  | 24,1 Éric    | Pt. jetée voie maritime | 13,0 | 30-5-01 9:00  | 1-6-01 9:20   | 48,33 | 45   | 24,583 | 73   | 43,217 | 8    |       | Mc    | 8      | acfu | 1280 | 14000 | 830 | 530  | X    | F    | 5 COLL  | 6019   | mousse |
| 1-6-01  | 24,1 Éric    | Pt. jetée voie maritime | 13,0 | 30-5-01 9:00  | 1-6-01 9:20   | 48,33 | 45   | 24,583 | 73   | 43,217 | 8    |       | Mc    | 8      | acfu | 1210 | 13750 | 840 | 545  | X    | F    | 5 COLL  | 6018   | mousse |
| 1-6-01  | 24,1 Éric    | Pt. jetée voie maritime | 13,0 | 30-5-01 9:00  | 1-6-01 9:20   | 48,33 | 45   | 24,583 | 73   | 43,217 | 8    |       | Mc    | 8      | acfu | 1020 | 9250  | 760 | 440  |      | M    | 6       | 6017   | mousse |
| 1-6-01  | 24,2Éric     | Pt. jetée voie maritime | 13,0 | 30-5-01 9:00  | 1-6-01 9:20   | 48,33 | 45   | 24,583 | 73   | 43,217 | 8    |       | Mc    | 8      | NIL  |      |       |     |      |      |      |         |        |        |
| 12-6-01 | i.de Pierres | Ilot de Pierre          | 17,0 | 11-6-01 10:00 | 12-6-01 9:45  | 23,75 | 45   | 24,492 | 73   | 46,569 | 11,5 |       | Mc*   | 8      | acfu | 1148 | 9750  | 755 | 440  | X    | IND  |         | 3290   |        |
| 12-6-01 | i.de Pierres | Ilot de Pierre          | 17,0 | 11-6-01 10:00 | 12-6-01 9:45  | 23,75 | 45   | 24,492 | 73   | 46,569 | 11,5 |       | Mc*   | 8      | acfu | 1252 | 13500 | 850 | 527  | X    | F    | 6       | 3281   |        |
| 13-6-01 | i.de Pierres | Ilot de Pierre          | 18,0 | 12-6-01 9:45  | 13-6-01 10:00 | 24,25 | 45   | 24,492 | 73   | 46,569 | 11,5 |       | Mc*   | 8      | acfu | 740  | 4000  | 610 | 325  |      | IND  |         | 3279   |        |
| 13-6-01 | i.de Pierres | Ilot de Pierre          | 18,0 | 12-6-01 9:45  | 13-6-01 10:00 | 24,25 | 45   | 24,492 | 73   | 46,569 | 11,5 |       | Mc*   | 8      | acfu | 1162 | 8250  | 805 | 405  |      | IND  |         | 3278   |        |
| 13-6-01 | i.de Pierres | Ilot de Pierre          | 18,0 | 12-6-01 9:45  | 13-6-01 10:00 | 24,25 | 45   | 24,492 | 73   | 46,569 | 11,5 |       | Mc*   | 8      | acfu | 1240 | 12000 | 820 | 505  | X    | IND  |         | 3277   |        |

| DATE    | STATION      | SECTEUR        | TEMP | DÉBUT         | FIN           | DUR/H  | LATD | LATM   | LOND | LONM   | PROF | COUR. | ENGIN    | MAILLE | ESP  | LT   | PT    | LL  | CIRC | BIOP | SEXE | STADE | ETIQU. | REM    |
|---------|--------------|----------------|------|---------------|---------------|--------|------|--------|------|--------|------|-------|----------|--------|------|------|-------|-----|------|------|------|-------|--------|--------|
| 14-6-01 | i.de Pierres | Ilot de Pierre | 19,0 | 13-6-01 10:00 | 14-6-01 10:15 | 24,25  | 45   | 24,492 | 73   | 46,569 | 11,5 |       | Mc*      | 8      | NIL  |      |       |     |      |      |      |       |        | mousse |
| 13-6-01 | last call    | Battures aval  | 18,0 | 12-6-01 22:00 | 13-6-01 10:50 | 12,83  | 45   | 24,448 | 73   | 38,520 | 7    |       | Mc       | 8      | acfu | 1320 | 12250 | 885 | 480  | X    | M    | IND   | 3273   |        |
| 13-6-01 | last call    | Battures aval  | 18,0 | 12-6-01 22:00 | 13-6-01 10:50 | 12,83  | 45   | 24,448 | 73   | 38,520 | 7    |       | Mc       | 8      | acfu | 1200 | 10750 | 815 | 455  | X    | M    | 6     | 3272   |        |
| 13-6-01 | last call    | Battures aval  | 18,0 | 12-6-01 22:00 | 13-6-01 10:50 | 12,83  | 45   | 24,448 | 73   | 38,520 | 7    |       | Mc       | 8      | acfu | 1065 | 8000  | 670 | 440  | X    | M    | 4     | 3271   |        |
| 13-6-01 | last call    | Battures aval  | 18,0 | 12-6-01 22:00 | 13-6-01 10:50 | 12,83  | 45   | 24,448 | 73   | 38,520 | 7    |       | Mc       | 8      | acfu | 1230 | 10500 | 845 | 420  | X    | M    | 6     | 3270   |        |
| 13-6-01 | last call    | Battures aval  | 18,0 | 12-6-01 22:00 | 13-6-01 10:50 | 12,83  | 45   | 24,448 | 73   | 38,520 | 7    |       | Mc       | 8      | acfu | 1045 | 6750  | 685 | 405  | X    | IND  |       | 3269   |        |
| 13-6-01 | last call    | Battures aval  | 18,0 | 12-6-01 22:00 | 13-6-01 10:50 | 12,83  | 45   | 24,448 | 73   | 38,520 | 7    |       | Mc       | 8      | acfu | 1085 | 7750  | 725 | 415  | X    | IND  |       | 3268   |        |
| 14-6-01 | last call    | Battures aval  | 19,0 | 13-6-01 10:50 | 14-6-01 11:00 | 24,17  | 45   | 24,448 | 73   | 38,520 | 7    |       | Mc       | 8      | acfu | 1110 | 8100  | 735 | 410  |      | M    | 6     | 3267   | mousse |
| 25-5-01 | P-1          | NIL            | 14,0 | 23-5-01 12:00 | 25-5-01 12:00 | 48,00  | 45   | 24,833 | 73   | 39,350 | 0,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 25-5-01 | P-2          | NIL            | 14,0 | 23-5-01 12:05 | 25-5-01 12:30 | 48,42  | 45   | 24,850 | 73   | 39,333 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 25-5-01 | P-3          | NIL            | 14,0 | 23-5-01 12:30 | 25-5-01 13:00 | 48,50  | 45   | 24,467 | 73   | 38,732 | 1,5  |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 25-5-01 | P-4          | NIL            | 14,0 | 23-5-01 12:35 | 25-5-01 13:05 | 48,50  | 45   | 24,449 | 73   | 38,745 | 1    |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 25-5-01 | P-5          | NIL            | 14,0 | 23-5-01 13:00 | 25-5-01 13:12 | 48,20  | 45   | 24,714 | 73   | 39,169 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 25-5-01 | P-6          | NIL            | 14,0 | 23-5-01 13:10 | 25-5-01 13:15 | 48,08  | 45   | 24,718 | 73   | 39,209 | 1,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 30-5-01 | P-1          | NIL            | 13,0 | 25-5-01 12:45 | 30-5-01 9:00  | 116,25 | 45   | 24,833 | 73   | 39,350 | 0,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 30-5-01 | P-4          | NIL            | 13,0 | 25-5-01 13:05 | 30-5-01 10:50 | 117,75 | 45   | 24,449 | 73   | 38,745 | 1    |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 30-5-01 | P-5          | NIL            | 13,0 | 25-5-01 13:15 | 30-5-01 11:15 | 118,00 | 45   | 24,714 | 73   | 39,169 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 30-5-01 | P-6          | NIL            | 13,0 | 25-5-01 13:15 | 30-5-01 11:20 | 118,08 | 45   | 24,718 | 73   | 39,209 | 1,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 1-6-01  | P-1          | NIL            | 13,0 | 30-5-01 14:30 | 1-6-01 11:30  | 45,00  | 45   | 24,833 | 73   | 39,350 | 0,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 1-6-01  | P-3          | NIL            | 13,0 | 25-5-01 12:30 | 1-6-01 10:57  | 166,45 | 45   | 24,467 | 73   | 38,732 | 1,5  |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 1-6-01  | P-4          | NIL            | 13,0 | 30-5-01 10:50 | 1-6-01 10:50  | 48,00  | 45   | 24,449 | 73   | 38,745 | 1    |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 1-6-01  | P-5          | NIL            | 13,0 | 30-5-01 11:15 | 1-6-01 11:10  | 47,92  | 45   | 24,714 | 73   | 39,169 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 1-6-01  | P-6          | NIL            | 13,0 | 30-5-01 11:20 | 1-6-01 11:15  | 47,92  | 45   | 24,718 | 73   | 39,209 | 1,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 1-6-01  | P-7          | NIL            | 13,0 | 25-5-01 12:50 | 1-6-01 10:45  | 165,92 | 45   | 24,420 | 73   | 38,620 | 1,5  |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 6-6-01  | P-1          | NIL            | 19,5 | 1-6-01 11:30  | 6-6-01 11:30  | 120,00 | 45   | 24,833 | 73   | 39,350 | 0,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 6-6-01  | P-3          | NIL            | 19,5 | 1-6-01 10:57  | 6-6-01 13:05  | 122,13 | 45   | 24,467 | 73   | 38,732 | 1,5  |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 6-6-01  | P-4          | NIL            | 19,5 | 1-6-01 11:00  | 6-6-01 14:50  | 123,83 | 45   | 24,449 | 73   | 38,745 | 1    |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 6-6-01  | P-5          | NIL            | 19,5 | 1-6-01 11:10  | 6-6-01 15:15  | 124,08 | 45   | 24,714 | 73   | 39,169 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 6-6-01  | P-6          | NIL            | 19,5 | 1-6-01 11:15  | 6-6-01 15:20  | 124,08 | 45   | 24,718 | 73   | 39,209 | 1,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 6-6-01  | P-7          | NIL            | 19,5 | 1-6-01 10:45  | 6-6-01 14:30  | 123,75 | 45   | 24,420 | 73   | 38,620 | 1,5  |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 7-6-01  | P-12         | NIL            | 16,0 | 6-6-01 17:00  | 7-6-01 13:30  | 20,50  | 45   | 24,586 | 73   | 43,769 | 2,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 12-6-01 | P-10         | NIL            | 17,0 | 6-6-01 16:30  | 12-6-01 12:15 | 139,75 | 45   | 24,628 | 73   | 43,400 | 0,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 12-6-01 | P-11         | NIL            | 17,0 | 6-6-01 16:35  | 12-6-01 12:00 | 139,42 | 45   | 24,670 | 73   | 43,392 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 12-6-01 | P-13         | NIL            | 17,0 | 6-6-01 17:10  | 12-6-01 13:00 | 139,83 | 45   | 24,526 | 73   | 43,732 | 1,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 12-6-01 | P-14         | NIL            | 17,0 | 7-6-01 13:40  | 12-6-01 12:30 | 118,83 | 45   | 24,648 | 73   | 43,721 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 12-6-01 | P-8          | NIL            | 17,0 | 6-6-01 16:00  | 12-6-01 11:45 | 139,75 | 45   | 24,737 | 73   | 43,384 | 1,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 12-6-01 | P-9          | NIL            | 17,0 | 6-6-01 16:07  | 12-6-01 11:30 | 139,38 | 45   | 24,706 | 73   | 43,381 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 14-6-01 | P-10         | NIL            | 19,0 | 12-6-01 12:15 | 14-6-01 9:32  | 45,28  | 45   | 24,628 | 73   | 43,400 | 0,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 14-6-01 | P-11         | NIL            | 19,0 | 12-6-01 12:00 | 14-6-01 9:27  | 45,45  | 45   | 24,670 | 73   | 43,392 | 1,5  |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 14-6-01 | P-13         | NIL            | 19,0 | 12-6-01 13:00 | 14-6-01 10:00 | 45,00  | 45   | 24,526 | 73   | 43,732 | 1,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 14-6-01 | P-14         | NIL            | 19,0 | 12-6-01 12:30 | 14-6-01 10:10 | 45,67  | 45   | 24,648 | 73   | 43,721 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 14-6-01 | P-8          | NIL            | 19,0 | 12-6-01 11:45 | 14-6-01 9:20  | 45,58  | 45   | 24,737 | 73   | 43,384 | 1,25 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |
| 14-6-01 | P-9          | NIL            | 19,0 | 12-6-01 11:30 | 14-6-01 9:23  | 45,88  | 45   | 24,706 | 73   | 43,381 | 1,75 |       | plateaux |        | NIL  |      |       |     |      |      |      |       |        |        |