



Photo 42. Dumoine river (M.-A. Bouchard, MDDEP)

4.8 Réserve aquatique projetée de la Rivière-Dumoine

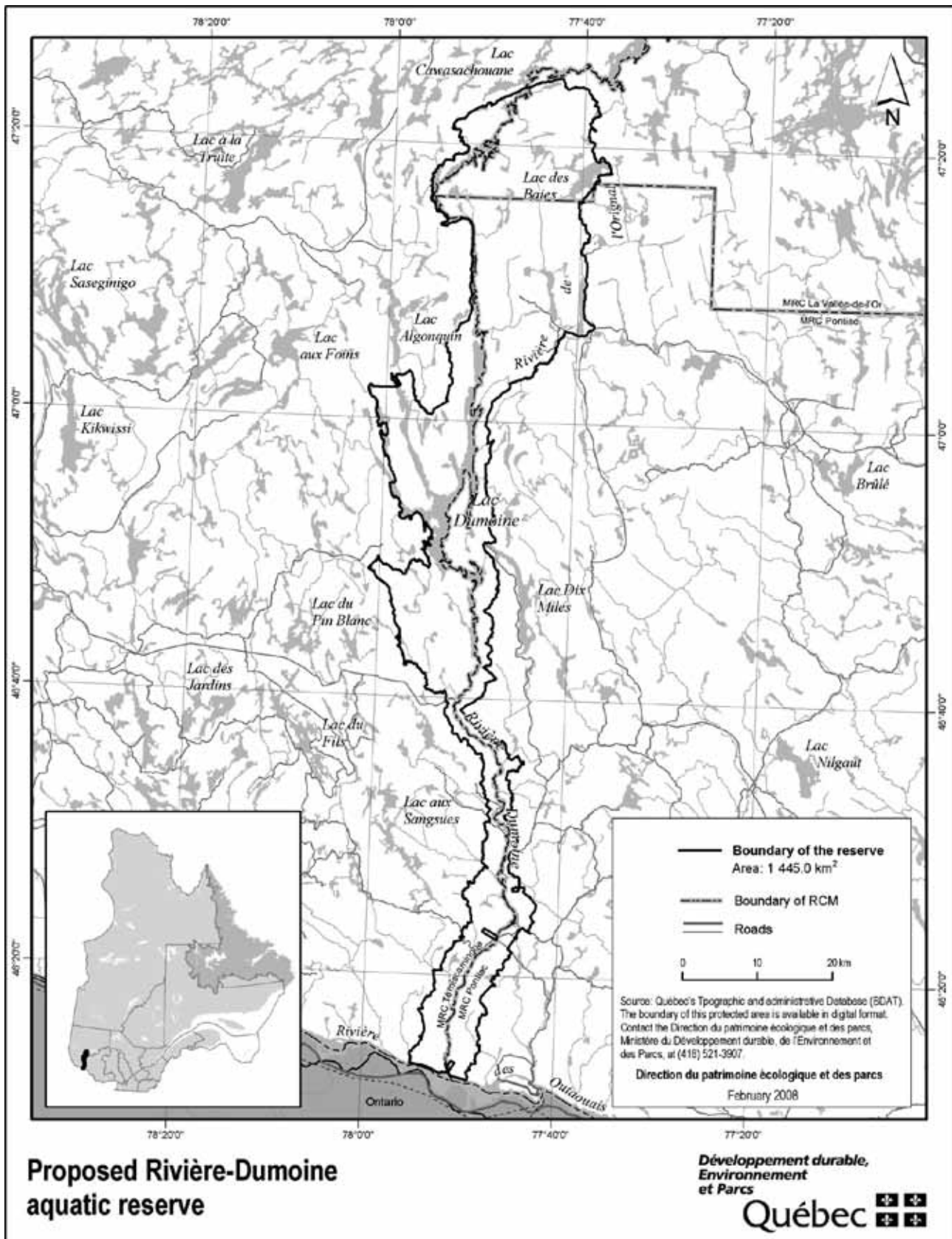
4.8.1 Location, boundaries and dimensions of the proposed reserve

The Réserve aquatique projetée de la Rivière-Dumoine adjoins the Abitibi-Témiscamingue and Outaouais administrative regions, between 46° 12' and 47° 25' north latitude and 77° 37' and 78° 02' west longitude. The reserve is 140 km long. Its southern portion is located roughly 10 km west of Rapides-des-Joachims. The cities of Témiscaming and Belleterre are 85 km and 60 km, respectively, west of the reserve. The Algonquin communities of

Kitcisakik, Lac-Rapide, Eagle Village, Wolf Lake and Winneway are between 60 km and 80 km from the reserve.

The proposed aquatic reserve has an area of 1 445 km². The portion located in the Abitibi-Témiscamingue region lies mainly in the Lacs-du-Témiscamingue unorganized territory in the MRC de Témiscamingue. However, the northern portion is located in the unorganized territory of Réservoir-Dozois in the MRC de La Vallée-de-l'Or. The portion of the reserve that lies in the Outaouais region is located almost entirely in the Lac-Nilgault unorganized territory in the MRC de Pontiac. A small portion of the reserve to the southeast is part of the municipality of Rapide-des-Joachims. The southern

Figure 140. Geographical location and boundaries of the Réserve aquatique projetée de la Rivière-Dumoine, as presented in the summary conservation plan



boundary of the reserve has been set to take into account the critical maximum elevation of hydropower generating structures on the Ottawa River, set at 153.92 m, immediately downstream of des Joachims electrical power-station.

4.8.2 Legal framework

The territory described below has the status of a proposed aquatic reserve, pursuant to the *Natural Heritage Conservation Act*. The same Act governs its regime of activities and its conservation plan.

4.8.3 Place name

The provisional place name is the Réserve aquatique projetée de la Rivière-Dumoine. The proposed place name for the granting of permanent protection status is the Réserve aquatique de la Rivière-Dumoine.

The Algonquin named the river *Cakawitopikak Sipi* and *Ekonakwasi Sipi*, which mean, respectively, "river of alders" (alders abound on both banks of the river) and "river of desire." A map by Nicolas Bellin dating from 1755 names the river Acounagousin. Lotter, in 1762, and Carver, in 1776, also named it thus and attributed its source to Lac Caouinagamic. Alexander Mackenzie's 1801 map indicates the course of the Rivière du Moine but does not go to the source. The name may come from the trading post built toward the end of the French Regime at the mouth of the river. Fort Dumoine was abandoned in 1761 but Canadians resumed operations there in 1785, although it did not appear to be occupied after 1800.²¹

4.8.4 Ecology

Physical environment

As noted in the "Climate" section, the region of the proposed aquatic reserve has a subpolar, subhumid climate with a long growing season. A moderate, subhumid climate with a long growing season prevails in the southeastern portion of the reserve.

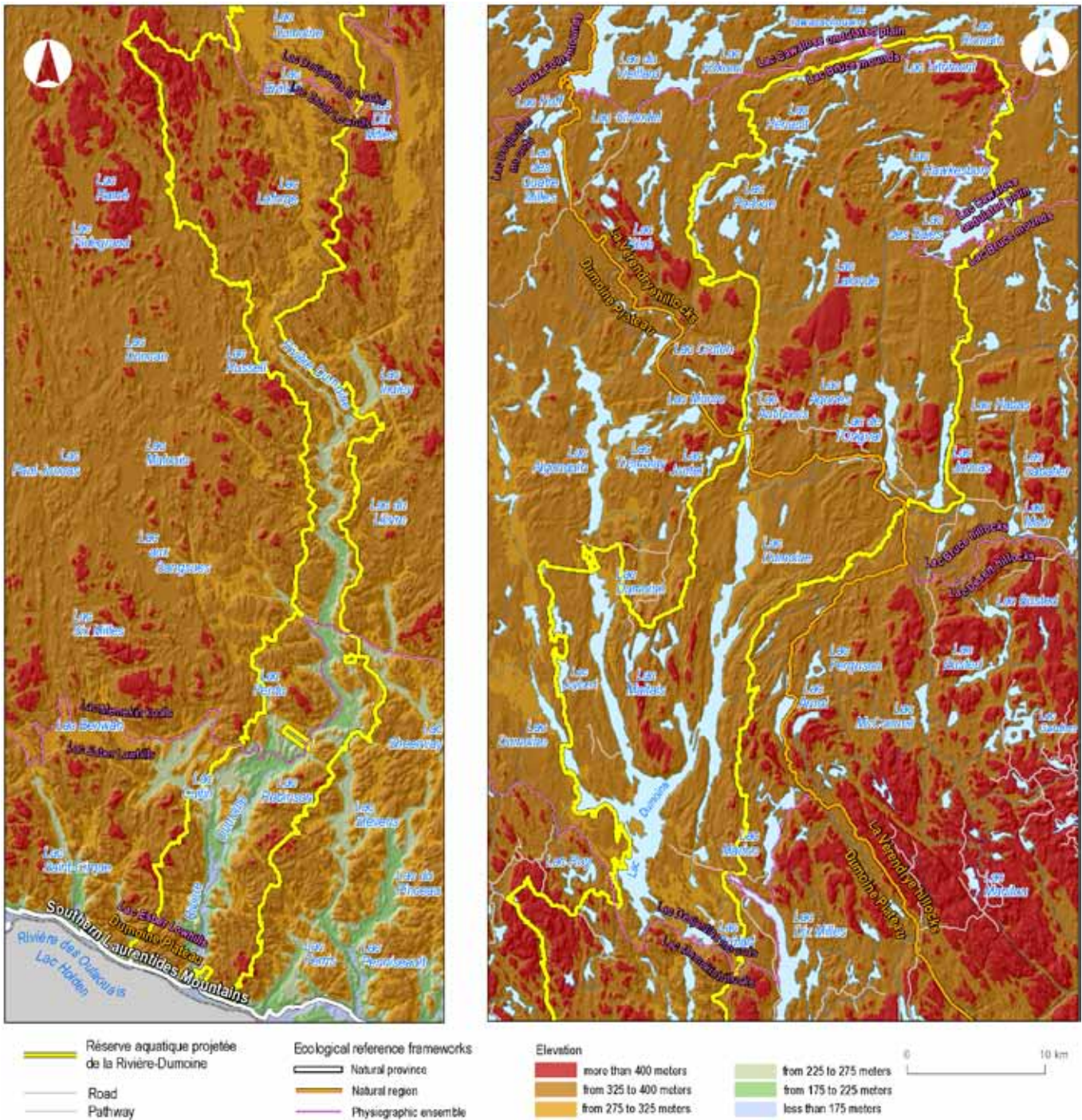
Three types of rock form its foundation: granite gneiss and tonalitic gneiss in the north, igneous rock in the south and, in places, paragneiss. The reserve is located in the Grenville Geologic Province.

The Réserve aquatique projetée de la Rivière-Dumoine lies in the Southern Laurentians natural province. Because of its large area and elongated shape, it borders on several ecological entities. It straddles two natural regions, i.e. the La Vérendrye Hillocks natural region (northern portion) and the Dumoine Plateau natural region (most of the territory). Its northern portion belongs chiefly to the Lac Bruce hummocks physiographic unit. The southern portion of the reserve adjoins three physiographic units, i.e. from north to south, the Lac Desjardins hummocks physiographic unit, the Lac Memekin hillocks physiographic unit, and the Lac Esber low hills physiographic unit (Figure 141).

²¹ Commission de toponymie du Québec: http://www.toponymie.gouv.qc.ca/ct/ToposWeb/fiche.aspx?no_seq=19711



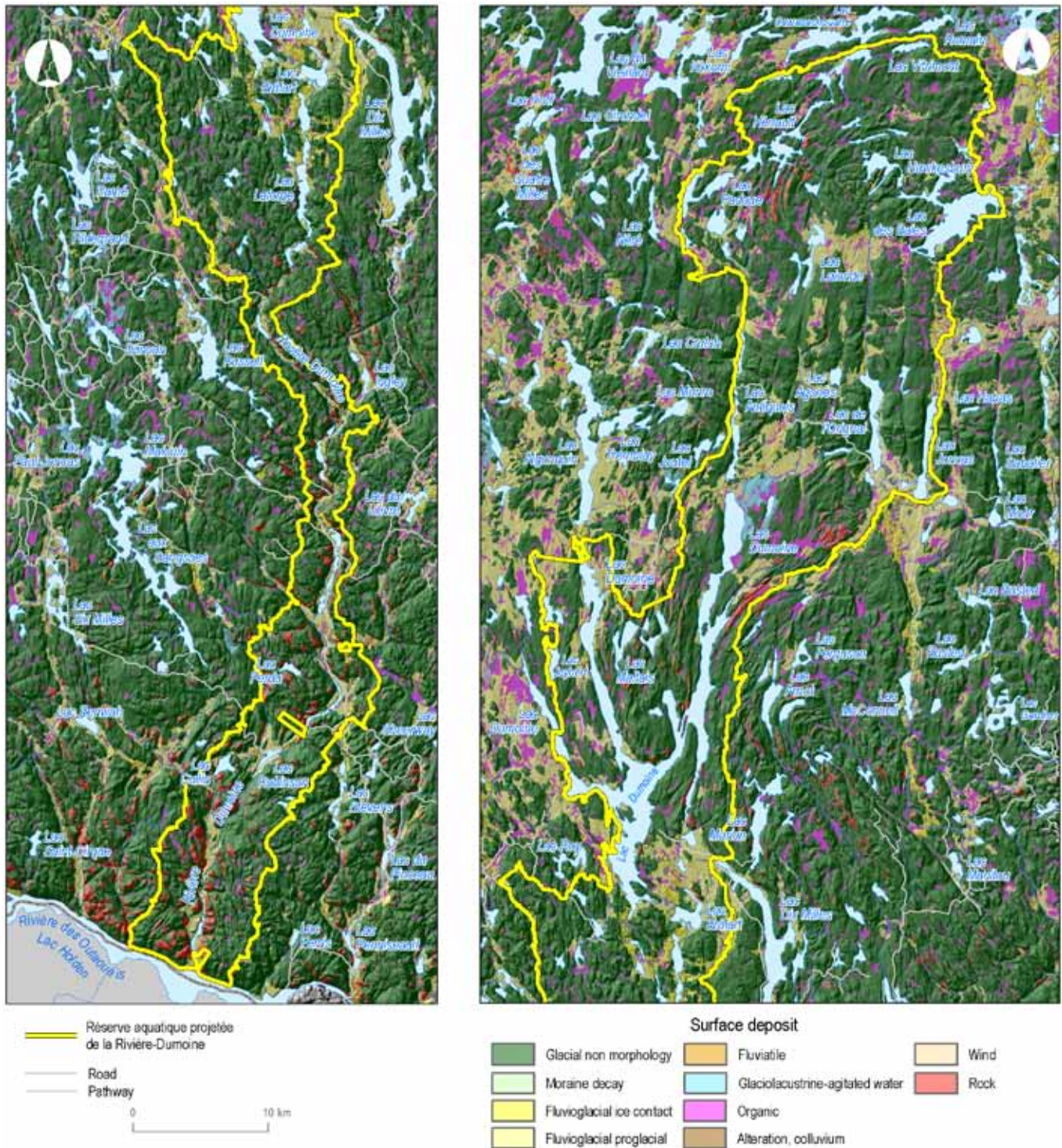
Figure 141. Topography of the Réserve aquatique projetée de la Rivière-Dumoine



The territory seeks to protect the Rivière Dumoine, its valley and immediate drainage basin. It is one of the last major intact, i.e. unharnessed, rivers in southern Québec. The source of the roughly 140-km long river on the boundary between Pontiac and the Témiscamingue region, is in Lac Machin north of Lac Antiquois. It flows southward into Lac Dumoine then into Lac Holden, a widening of the Ottawa River, a dozen kilometres west of Rapides-

des-Joachims. Generally speaking, the territory is a U-shaped valley that becomes increasingly steep-sided as it approaches the mouth of the Rivière Dumoine in the Ottawa River. The Rivière Dumoine follows a big fracture on a wide till plateau (Figure 142) where the hummocky topography comprises an array of irregular hillocks in the northern portion, hummocks in the central section, and low hills in the southern portion. There are extensive sandy deposits

Figure 142. Geomorphology of the Réserve aquatique projetée de la Rivière-Dumoine



of glaciofluvial origin in the valley bottom. The landscape varies in altitude from 160 m to 460 m, for an average of approximately 350 m.

The proposed aquatic reserve is obviously part of the Rivière Dumoine drainage basin, which is a sub-basin of the Ottawa River (Figure 143). It has an area of 1 445 km² and protects over half of the immediate drainage basin of the Rivière Dumoine (1 642 km²), i.e. 56%, as well as part of the lands drained by tributaries of the Rivière Dumoine, such as the Rivière de l'Original, the Rivière à l'Épinette and the Rivière Fildegrand. The reserve protects over one-third of the total drainage basin of the Rivière Dumoine, with an area of 4 309 km². There are over 1 000 lakes, of which over 300 are named, in the territory of the protected area. The biggest lakes are Lac Dumoine (67.5 km²), Lac des Baies (13.6 km²), Lac Hénault (8.9 km²), Lac Laforge (5.3 km²) and Lac de l'Original (5.2 km²). The aquatic environments overall have an area of 214 km², equivalent to nearly 15% of the proposed aquatic reserve.

Figure 144 and Figure 145 illustrate the profile of the sections of the Rivière Dumoine and their description from the standpoint of forest ecosystems and physical environments.

The reserve has few wetlands, usually located in valley bottoms. Pools and ponds, softwood swamps, shrub swamps, floodplain swamps and, above all, herbaceous meadows, are the most widespread. Wetlands have a total area of approximately 91 km² and cover just over 6% of the protected area.

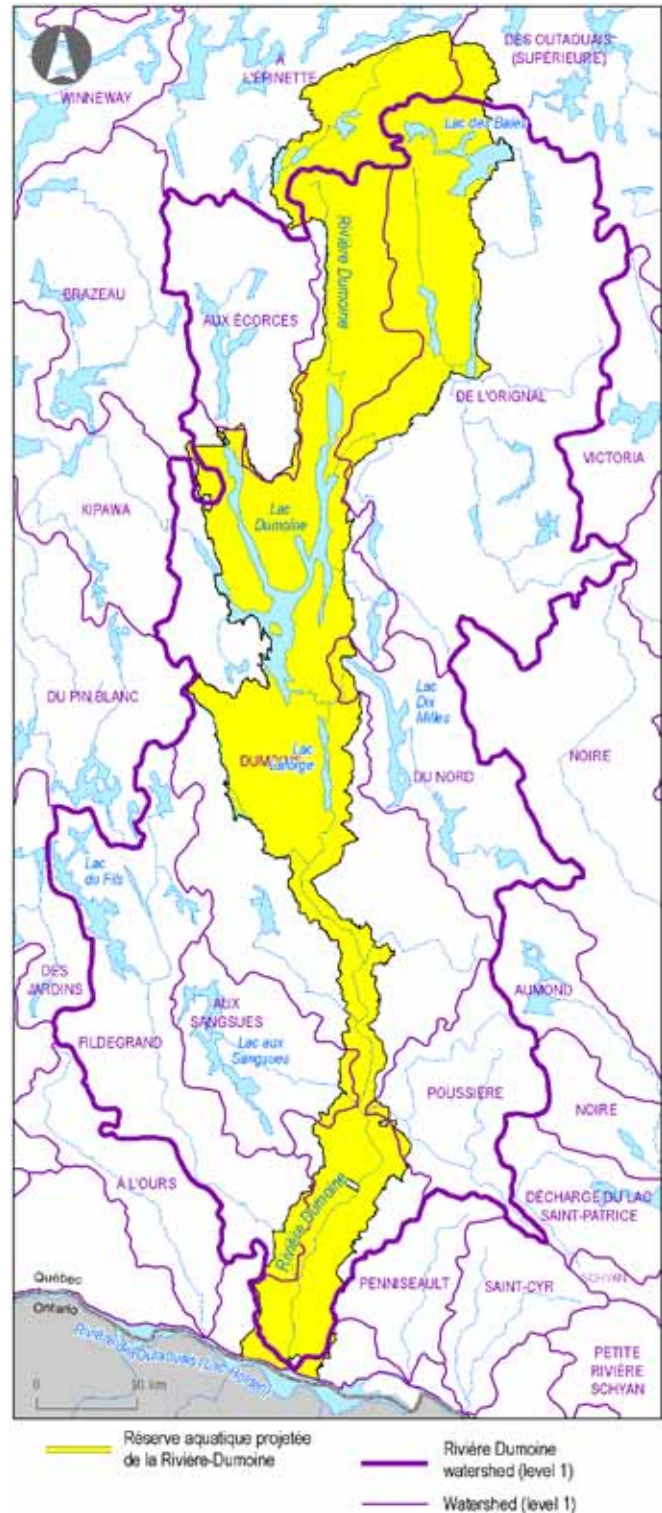
Biological environment

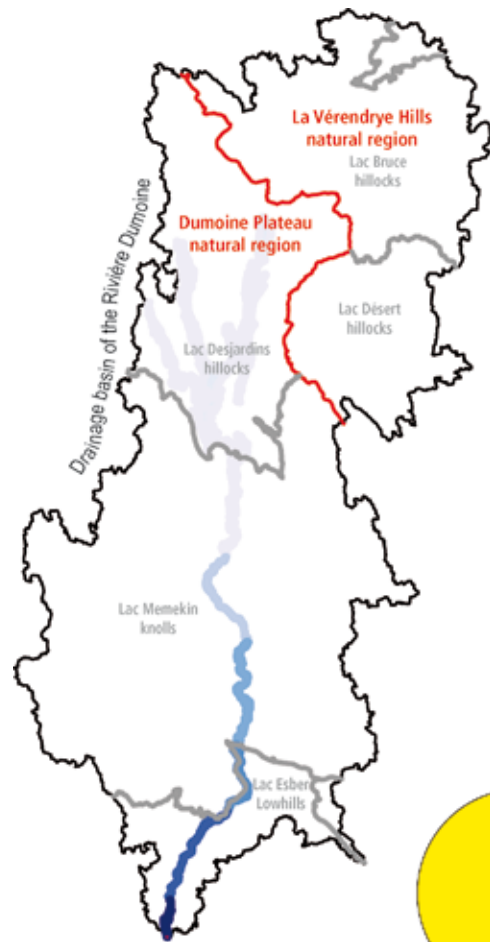
Vegetation

The southern half of the proposed aquatic reserve is part of the sugar maple-yellow birch climatic domain and the northern half is part of the balsam fir-yellow birch bioclimatic domain. The territory's considerable size and elongated shape lying north-south reveals a significant gradient of forest ecosystems.

In the northern portion of the reserve (Figure 146) up to Lac Dumoine, the main potential vegetation comprises yellow birch-fir stands and yellow-fir-sugar maple stands accompanied by balsam fir-black spruce and balsam-fir white birch stands. South of Lac Dumoine, yellow birch stands occasionally make way for balsam fir-red spruce stands and balsam fir-cedar stands. Since the territory has a valley with occasionally steep sides, certain environments host white pine stands and sandy environments in the valley bottom can host red pine stands. On the eastern slope of the river valley, near the mouth, peaks are suited to sugar maple-northern red oak stands.

Figure 143. Drainage basin of the Rivière Dumoine





Segmentation of the river system

The segmentation of the river system is based on the recognition of the hydromorphological forms and patterns in watercourses. The analysis is based on the profile plan and the longitudinal section of the river system. The resulting hydromorphological units or segments are described according to their specific morphological, geological, hydrologic and climatic properties and the properties of their drainage basin. This description can be used to interpret the type of aquatic ecosystem or the properties of the drainage basins, e.g. fragility, potential, and so on. The profile includes for each segment the size of the drainage basin, its yield, the overall slope, the width and the predominant river style. An estimate is also made within 100 m of the specific power* used to ascertain, in particular, the watercourse's ability to carry loose material and to interpret the river style.

The drainage basin

The head of the Rivière Dumoine drainage basin is located in the La Vérendrye Hillocks natural region, a low-lying area that displays very slightly undulating topography. The river then flows over most of its course in the Dumoine Plateau natural region, a slightly hilly plateau whose basement rock is predominantly metamorphic rock (migmatite and paragneiss). The river's drainage basin at its mouth is influenced by a fairly dry mild sub-polar climate. Indeed, only 435 mm of annual runoff** feeds into the Rivière Dumoine drainage basin in relation to the 570 mm, on average, for southern Québec. The spring flood flow normally peaks in late April and gradually diminishes in May. It is at its lowest point in September (see figure opposite).

The river

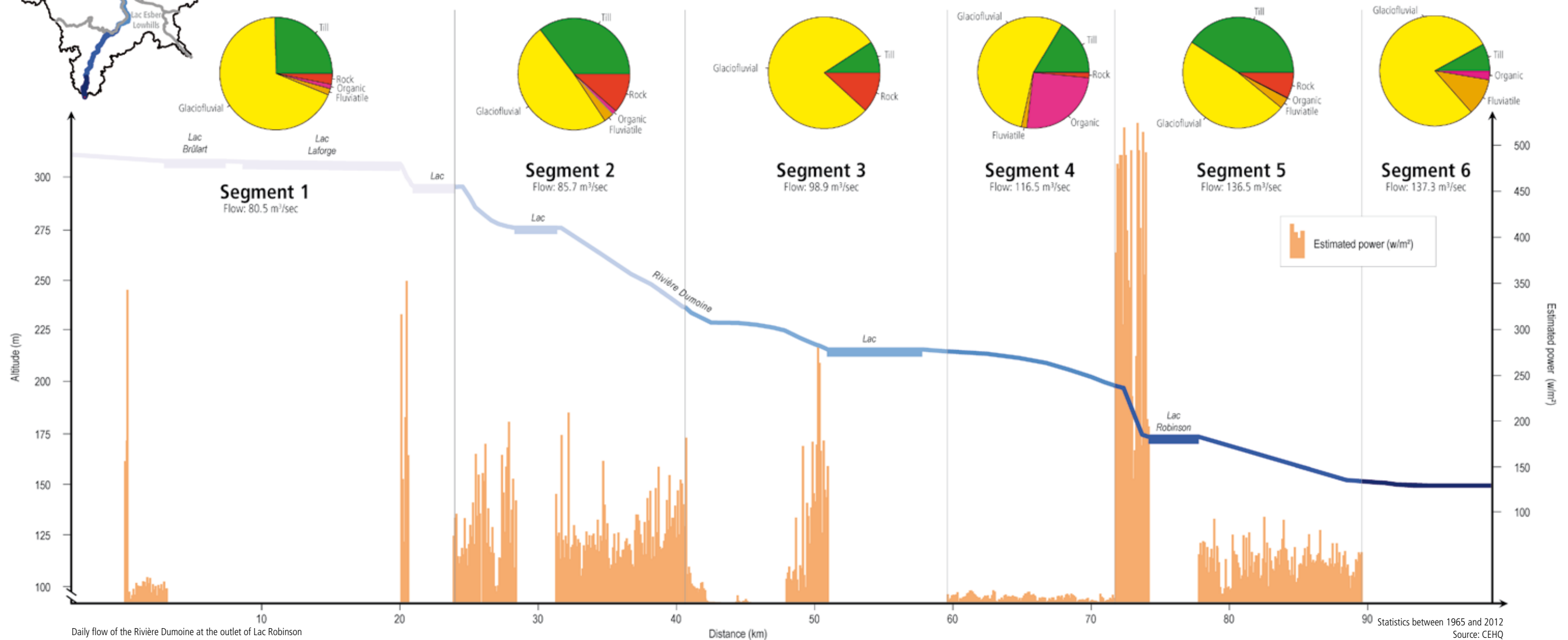
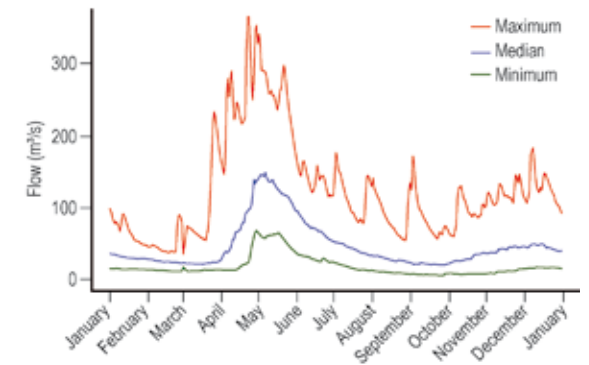
The last 96 km of the river are described here, i.e. from the outfall of Lac Dumoine to its mouth, where it joins the Ottawa River. The river descends 155 m in altitude over its course, equivalent to an overall slope of 0.16%. Its drainage basin doubles in size from 2 103 km² to 4 338 km². The river crosses two physiographic units that are noteworthy, above all, for their topography. Upstream, the Lac Memekin hillocks mainly display slight undulations covered with thick till (80%), dissected by depressions filled with deposits of glaciofluvial and organic origin (20%). Downstream, the Lac Esber low hills display more uneven topography, crossed by clearly defined valleys filled with deposits of glaciofluvial origin.

Six segments are apparent that stand out because of the hydromorphological patterns that the watercourse follows. Depending on the segment, between 28% and 37% of the drainage basin is included in the proposed protected area. Each segment is briefly described below.

* R.A. Bagnold, 1966. "An approach to the sediment transport problem from general physics," US Geological Survey, U. S. Govt. Print. 422-1

** Annual runoff = annual amount of monthly precipitation from which is subtracted potential evapotranspiration.

Figure 144.
Profile of sections of the Rivière Dumoine



Daily flow of the Rivière Dumoine at the outlet of Lac Robinson

Statistics between 1965 and 2012
Source: CEHQ

Figure 145. Description of sections of the Rivière Dumoine



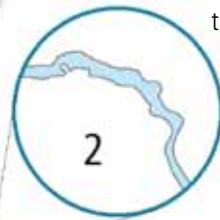
Segment 1 Winding meanders and lakes

This 23.8-km segment begins at the mouth of Lac Dumoine and flows over a very gradual overall slope (0.07%) in narrow passages through hummocks and hillocks. Three-quarters of the course comprises lakes and the remainder, lotic sections that feature winding meanders.



Segment 2 Pool-riffle formation

Segment 2 marks the river's course from the barely organized relief of the Lac Memekin hillocks to the better defined valley some 70 m lower in altitude. Here, the river is, generally speaking, at its narrowest, the slope is the most constant and the potential power of the river (its ability to transport loose material) is the highest.



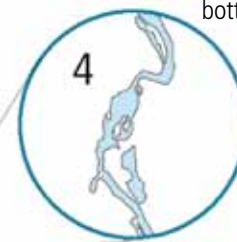
Segment 3 Succession of lakes and rapids

This segment is a series of lakes interspersed with short watercourses flowing through a valley filled with glaciofluvial deposits (sand and gravel). The proportion occupied by lakes clearly predominates, i.e. roughly 80% of the segment. The lakes display a very high annual runoff/lake surface ratio, i.e. 5300 m, on average, which suggests that they are mid-way between a lentic ecosystem (lake) and a lotic ecosystem (river).



Segment 4 Irregular meanders

At the entrance to segment 4, the slope of the valley diminishes. The flow environment is a narrow valley bottom filled with glaciofluvial deposits and organic environments. The river follows meanders bounded by numerous bays linked to the main channel by narrow openings. The estimated power of this segment seems low and relatively constant.



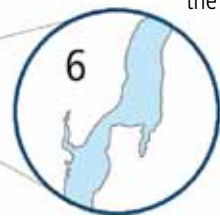
Segment 5 Pool-riffle formation

Segment 5 of the river marks a transition. Steeper and narrower, it is here that its estimated power is the highest. It flows in a narrow bottom surrounded by slopes covered with till and where source rock appears on the surface. It then enters a wider, better defined valley and flows through terraces of glaciofluvial origin.



Segment 6 Reservoir

The final segment is affected by a retaining reservoir upstream on the Ottawa River. The channel is wider and deeper and the flow velocity slower. The segment can display characteristics that are typical of reservoirs.



Sources:

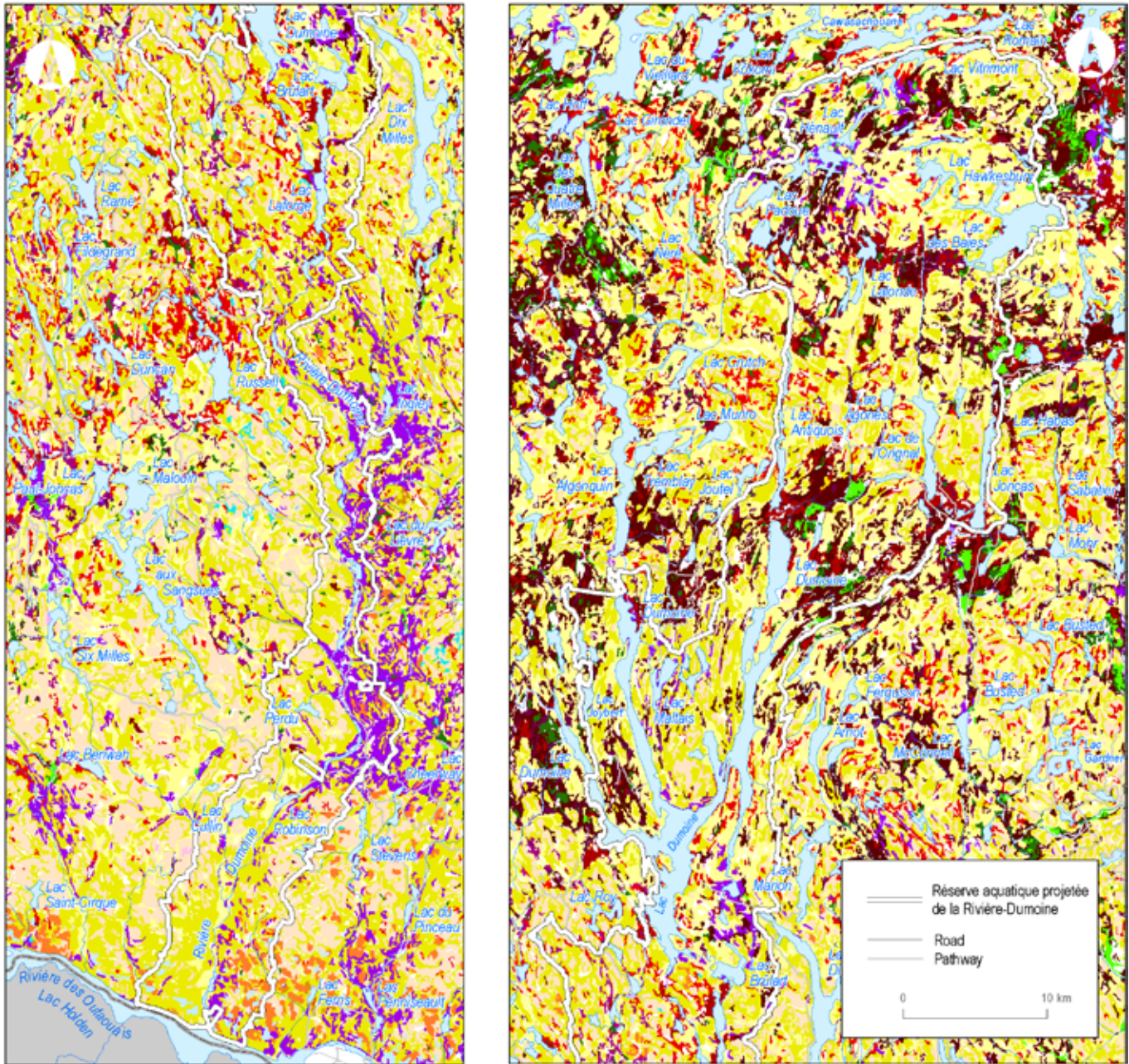
Gouvernement du Québec, Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP), Direction du patrimoine écologique et des parcs (DPEP) (2011). Cadre de référence hydrologique du Québec (CRHQ) [digital vector data]. MDDEP-DPEP, 1:20 000, Québec, Québec.

Base de données topographiques du Québec (BDTQ) à l'échelle de 1/20 000, Normes de production, Québec, Direction de la cartographie topographique, ministère des Ressources naturelles et de la Faune (MRNF)

Climatic data: Ministère du Développement durable, de l'Environnement et des Parcs, 2012.

CLIMATOLOGIE, Direction du suivi de l'état de l'environnement, Québec.

Figure 146. Potential vegetation – Réserve aquatique projetée de la Rivière-Dumoine



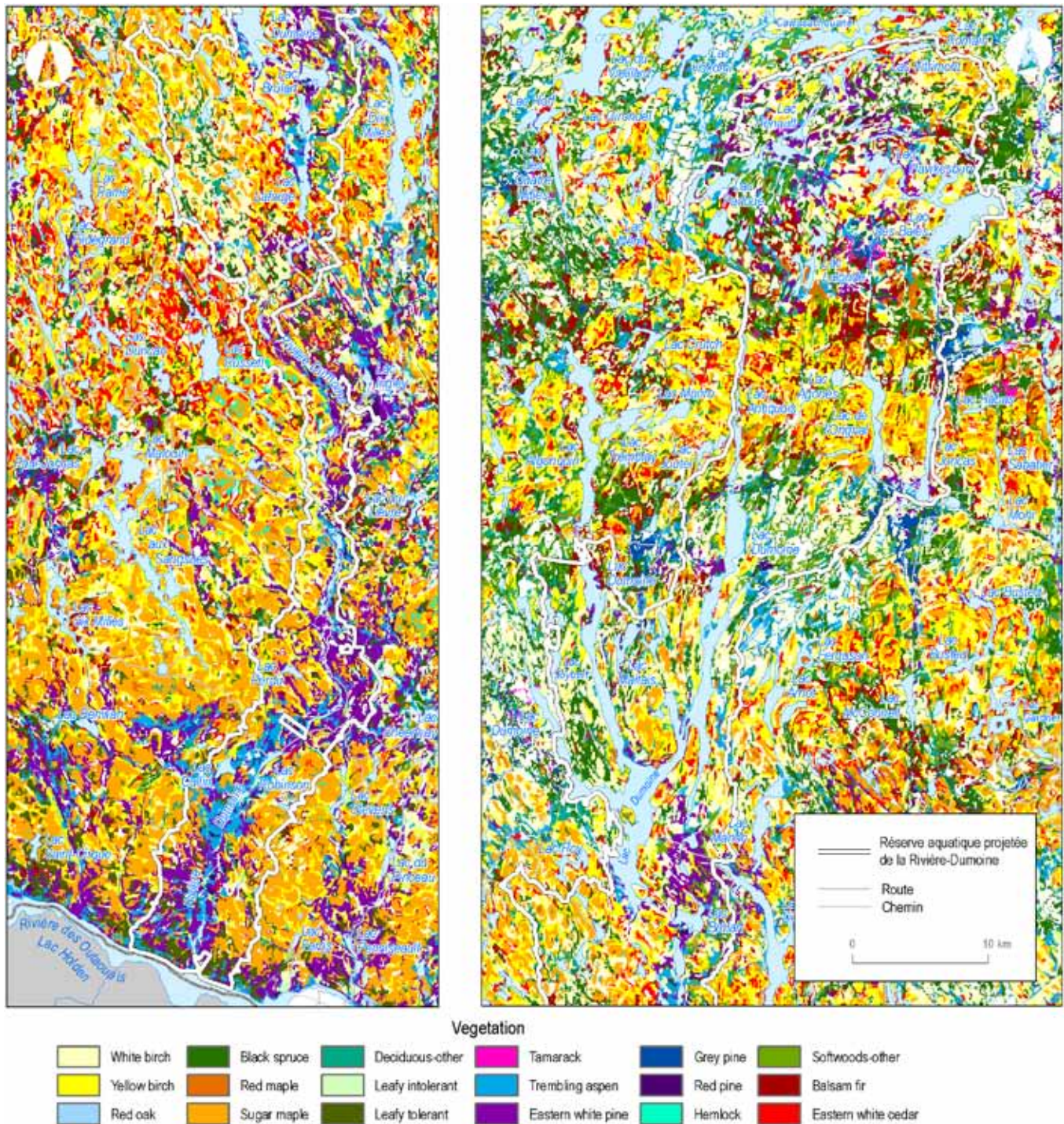
Potential vegetation type

Yellow birch-balsam fir	Moorland	Balsam fir-white birch	Balsam fir-red spruce
Yellow birch-balsam fir-sugar maple	Black spruce-moss or ericaceae	Balsam fir-yellow birch	Sugar maple-yellow birch
Red oak stand	Black spruce-sphagnum moss	Balsam fir-white cedar	Sugar maple-red oak
Cedar swamps-balsam fir	Eastern white pine or red pine	Balsam fir-black spruce	Sugar maple-ironwood
Cedar swamps-balsam fir	Hemlocks	Balsam fir-black spruce and sphagnum moss	

As for actual vegetation, yellow birch stands are less predominant in the northern portion of the reserve (Figure 147). They make way for black spruce stands, white birch stands, fir forests and even certain maple forests. However, yellow birch stands occupy the entire area near Lac de l'Original and Lac Joncas. In the vicinity of Lac Dumoine,

pine forests occupy lands suited to them. However, black spruce stands and white birch stands occupy environments associated with yellow birch stands and maple forests. Yellow birch stands and maple forests predominate in the southern third of the reserve. These forest stands share the territory with black spruce stands,

Figure 147. Vegetation – Réserve aquatique projetée de la Rivière-Dumoine



white birch stands and poplar stands. White pine stands populate the steep slopes of the valley. The southernmost portion of the reserve, i.e. the part that lies in the Lac Esber low hills physiographic unit, has few yellow birch stands but numerous maple forests and pine forests, as well as poplar stands.

Forest cover occupies nearly 80% of the territory of the reserve, where 25% of forest stands are young (less than 40 years old) and middle-aged forest stands (40 to 80 years old) account for just over 10% of the forest cover. Mature forest (80 years old or more) occupy nearly two-thirds of the territory under forest cover (Figure 148). Ecoforestry mapping data indicate that old-growth forests account for just over half of the forest cover in the reserve (see Figure 12).

The proportion of mature forests is higher in the southern half of the reserve, on the western slope of the river, but also in the vicinity of Lac à l'Original and Lac Joncas. Generally speaking, the hillier, less accessible areas, occupied by tolerant hardwoods, are well preserved.

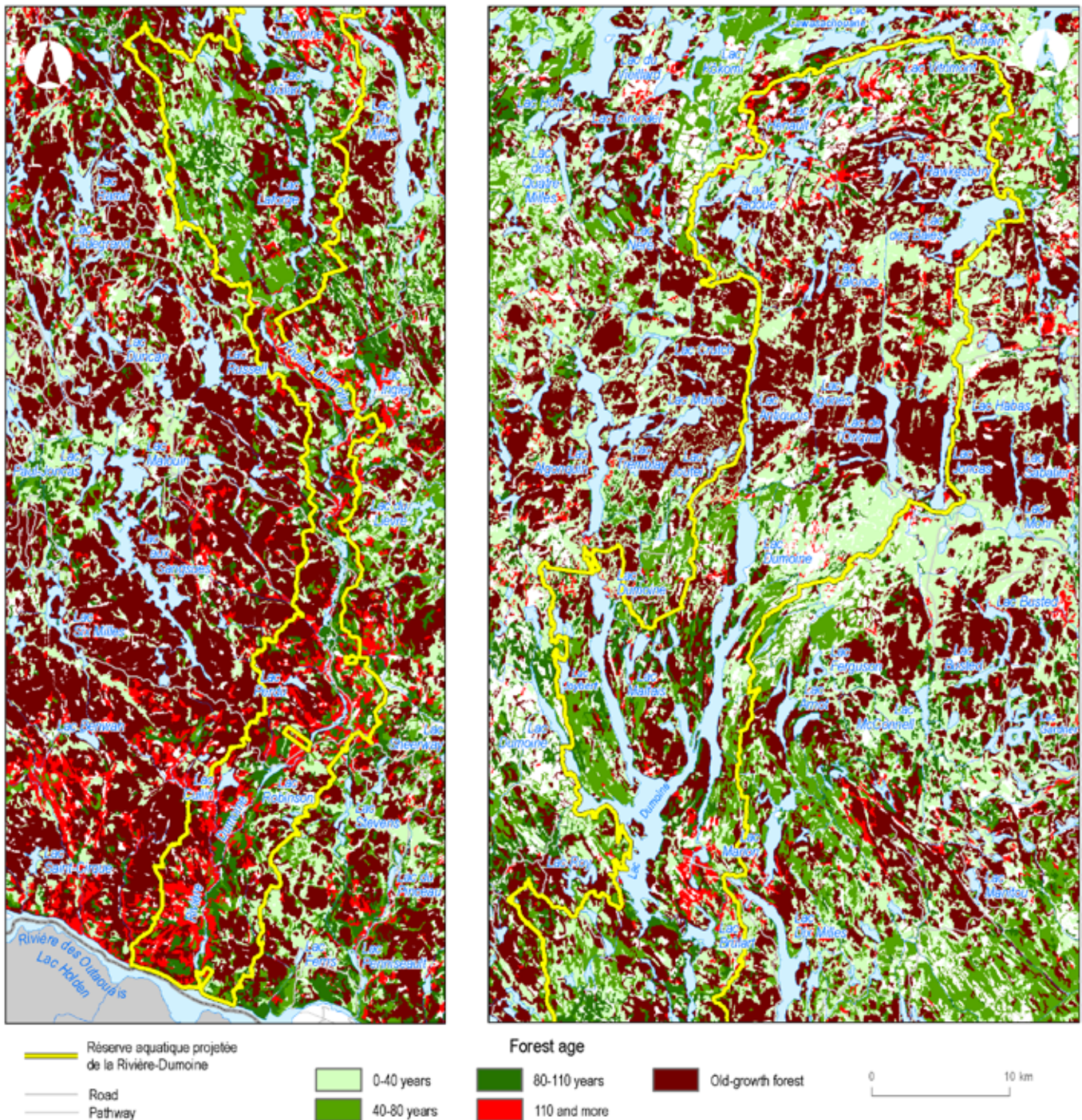
It is possible to find in the proposed aquatic reserve forest stands with outstanding characteristics similar to those of the Rivière-

Poussière old-growth forest,²² located near the proposed aquatic reserve.

The territory of the reserve has sustained natural disturbances, mainly mild epidemics and partial windthrow in the 1990s, especially at the northern end of the reserve and near Lac Dumoine. The natural disturbances affected approximately 160 km² of the reserve's forest land.

²² See <http://www.mrnf.gouv.qc.ca/publications/forets/connaissances/RivierePoussiere.pdf>

Figure 148. Age of forest stands – Réserve aquatique projetée de la Rivière-Dumoine



The proposed aquatic reserve is located in ecological subregions in which the most frequent forest fires cover between 0.03 km² (3 hectares) and 1 km² (see Figure 44). Accordingly, the 1 445-km² proposed aquatic reserve can largely contain all of the successional stages of forest ecosystems. However, because of its occasionally narrow north-south longitudinal profile, it is not necessarily completely effective in protecting certain ecosystems, although it should be noted that the first objective of the protected area is, above all, to protect the Rivière Dumoine, its main tributaries and the lands that it drains.

Wildlife

From the standpoint of rare, vulnerable or threatened species, the reserve includes a habitat of a vertebrate species designated as vulnerable, *Haliaeetus leucocephalus* (the bald eagle).

No specific inventories have been conducted in the territory as regards aquatic and terrestrial species, but the ecosystems, depending on the human footprint and age of existing forests, are likely to host several species that are typical of the Abitibi-Témiscamingue region, as indicated in the section devoted to regional fauna. The reserve lies partly in the territory of a ZEC, outfitting operations and the Réserve faunique de La Vérendrye and the known species frequenting the structured wildlife territories are likely to frequent the proposed aquatic reserve.

The main fish species in the lakes and watercourses in the reserve are small-mouthed bass, largemouth bass, lake whitefish, Northern pike, yellow walleye, sauger, brook trout, lake trout, muskellunge, Northern redbelly dace, pearl dace, white sucker, yellow perch, fallfish, rainbow trout and splake. There are several yellow walleye and sucker spawning grounds. The reserve encompasses five lake trout lakes and brook trout streams.

Moose, white-tailed deer, black bear, wolf, beaver, red fox, river otter, American marten, muskrat, racoon, mink, coyote and Canada lynx are the most common mammals found in the reserve. Reptiles include the painted turtle, the common snapping turtle and the garter snake. The known amphibians are the American bullfrog, the green frog and the wood frog. The bird species inventoried are the ruffed grouse (partridge), the spruce grouse, the great blue heron, the black duck, the red-breasted grosbeak, the sharp-shinned hawk, the osprey, the bald eagle, the kildeer, the downy woodpecker, the indigo bunting, the purple finch, the evening grosbeak, and the scarlet tanager. Buteos and falcons can also be found there.

Social environment

Prior to the colonization of the Témiscamingue region, the territory, which is linked to the Ottawa River, a major travel route for the Aboriginal peoples, may have been extensively occupied as a seasonal camp and frequented by numerous Aboriginals. The mouth of the Rivière Dumoine in the Ottawa River offered an ideal site for temporary or semi-permanent campsites. What is more, while the Ottawa River was used for travel, the Aboriginal peoples were frequently able to travel upstream on its tributaries in search of food. The Rivière Dumoine thus afforded a route to the lands north of the Ottawa River to access new territories.

The territory has significant archaeological research potential. Some 90 sites have been pinpointed. In 2002, Archéo-08 engaged in excavations on one of the sites. The objects found (8 293) indicate that there may have been four separate periods of occupation: the Archaic era (older than 1000 BC-), the Early Woodland era (1000 to 400 BC-), the 20th century and the contemporary period.²³

“In 1850, two logging companies (the precursors of Consolidated Bathurst and E.B. Eddy) discovered the vast eastern white pine forests in the southeastern portion of the Témiscamingue region. Once the eastern white pine was transformed into square lumber, alligator steamboats towed the timber to the outlet. The Rivière Dumoine was highly prized for log driving. Slides were built to avoid log jams at waterfalls on the river. Log drivers had the perilous task of steering the logs to the slides. Vestiges of the slides are still visible on the edge of the river. At the time, logging companies established several camps in the territory. To supply what were veritable small forest cities, trails were cleared from the camps to the nearest navigable waterway. Horses pulling metal-wheeled wagons used the trails. Because the repeated passage of the metal wheels compacted the soil, vegetation scarcely recolonized the wagon trails.”²⁴

²³ For more information, please see <http://www.zecdumoine.ca/projets/f-projets.htm>

²⁴ H. Saint-Arnaud, *Rivière Dumoine* 04-19-00-00, Fédération québécoise du canot-camping, 1986, 27 pages.

The territory includes 65 vacation lot leases and 22 shelter leases (Figure 149). Almost all of the shelter leases are located south of Lac Dumoine and west of Lac Laforge. The Ten Mile Lodge outfitting operation possesses near Lac Dumoine three leases for establishments related to its operations. The Auberge du lac Joncas possesses a commercial right on the shores of Lac Joncas. Three sites of the Société de protection des forêts contre le feu are also located in the reserve. In the southern portion of the reserve, several hiking trails crisscross the territory. The ZEC Dumoine built some of the trails, one of which runs along the Rivière Dumoine and affords an opportunity to admire the Grande Chute. A snowmobile trail runs in several places through the proposed aquatic reserve.

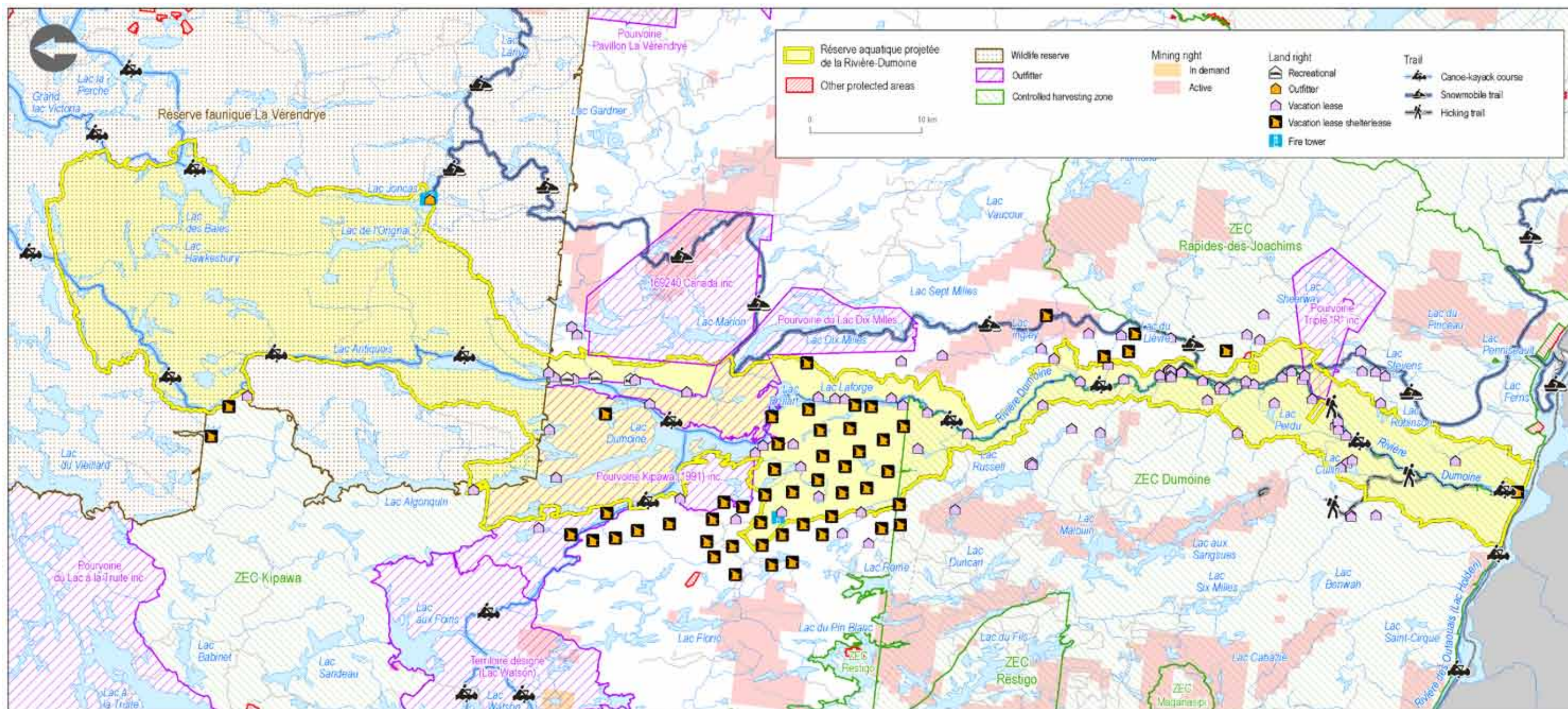
The Rivière Dumoine is a renowned canoe-kayak course of average difficulty (rated 5 stars by the Fédération québécoise du canot et du kayak). The river has roughly a dozen whitewater rapids, at least five ledges, over 60 classified rapids and 11 portages that circumvent the most dangerous rapids. Most of the rapids are found in the last 70 km of the course. Campsites have been built along the course. Canoe users are the most numerous in July and August. The very spectacular Grande Chute is nearly 40 m high. Vestiges of the big slide that was used until 1895 still remain. The walls of the very impressive Falaises des Aigles, near the end of the course, are nearly 170 m high.

The proposed aquatic reserve adjoins three fur-bearing animal management units, i.e. FMU 01, 07 and 13, and hunting areas 12 and 13. The northern third of the reserve lies in the Grand-Lac-Victoria beaver reserve in which the Algonquin possess specific rights in respect of fur-bearing animals. Twelve systems of traplines occupy the rest of the territory and a trapping camp has been established in the reserve. The proposed aquatic reserve overlaps numerous structured wildlife territories. The northern portion lies in the Réserve faunique de La Vérendrye and borders on a small portion of the ZEC Kipawa. At Lac Dumoine, the reserve adjoins the Kipawa and Ten Mile Lodge outfitting operations with exclusive rights. The Kipawa outfitting operation has built four cabins and two

campsites. Farther south, the portion located west of the Rivière Dumoine is part of the ZEC Dumoine, while the portion located east of the river is part of the ZEC Rapide-des-Joachims. Lastly, the Triple R outfitting operation with exclusive rights partly adjoins the reserve, roughly in the vicinity of the Grande Chute.

A barely developed network of unpaved trails crisscrosses the proposed aquatic reserve. A forestry road running from Rapides-des-Joachims to the facilities of the ZEC Dumoine, near the Grande Chute, facilitates access by land to the reserve. All of the roads in the territory apparently total 470 linear km according to ecoforestry mapping.

Figure 149. Occupancy and use of the Réserve aquatique projetée de la Rivière-Dumoine



4.8.5 Contributions of the protected area

Representativeness

From the standpoint of the representativeness of the physical elements, the reserve is contributing to the protection of the physiographic types of four physiographic units, i.e. the Lac Bruce hummocks (C0203), the Lac Desjardins hillocks (C0105), the Lac Memekin hillocks (C0104) and the Lac Esber low hills (C0103). In physiographic unit C0203 in the La Vérendrye Hillocks natural region, the Réserve aquatique projetée de la Rivière-Dumoine is contributing almost alone to protecting all types of physical environments, i.e. silt hummocks and hillocks and small valleys containing glaciofluvial or organic deposits, and is achieving objectives concerning representativeness. In the Dumoine Plateau natural region, it alone is contributing to the attainment of objectives respecting representativeness of three of the four physiographic types present, i.e. silt hummocks and hillocks and fairly flat terrain without distinctive morphology containing glaciofluvial deposits. In physiographic unit C0105 overall, flat terrain without distinctive morphology containing glaciolacustrine deposits is in no way protected. However, such terrain is very rare and is located west of the proposed aquatic reserve. In physiographic unit C0104, the reserve is contributing, once again almost alone, to the protection of nearly 8% of various types of physical environments that are represented in the network of protected areas, except in the case of silt hummocks, of which 5.2% are protected. Lastly, in physiographic unit C0103, the Réserve aquatique projetée de la Rivière-Dumoine is sharing the protection of physical components of ecosystems with the Réserve de biodiversité projetée des Basses-Collines-du-Ruisseau-Serpent and the Réserve de biodiversité projetée de la Vallée-de-la-Rivière-Maganasipi. In this physiographic unit, three of the four physiographic types are sufficiently represented. The low hills of till are underrepresented.

From the standpoint of potential vegetation, the reserve is contributing to the protection of the main types of potential vegetation in the La Vérendrye Hillocks natural region, but principally yellow birch-fir stands, or yellow birch-fir-sugar maple stands, and balsam fir-yellow birch, balsam fir-white birch and balsam fir-black spruce stands. It is also contributing greatly to the protection of white pine and red pine stands in this natural region. As for the Dumoine Plateau natural region, the proposed aquatic reserve is contributing widely to the protection of yellow birch stands and white pine stands but also to sugar maple-northern red oak stands.

In the Dumoine Plateau natural region, 8.4% of old-growth forests are protected. The proposed aquatic reserve is contributing largely to their protection. In the La Vérendrye Hillocks natural region, 5.7% of old-growth forests are protected. The presence of the proposed aquatic reserve is mainly responsible for the representativeness of the old-growth forests in this natural region. While the rate of

representativeness of old-growth forests is below 8%, the level of protection remains high since the proportion of protected areas in this natural region is only 3.7%.

As for wetlands, 6% and 3.5% of them are protected in the Dumoine Plateau natural region and the La Vérendrye Hillocks natural region, respectively. The proposed aquatic reserve is contributing in the same manner as other protected areas in the natural regions to their protection.

The information in this section is drawn from "Portrait du réseau d'aires protégées au Québec – Analyse de carence écorégionale – Région administrative de l'Abitibi-Témiscamingue."

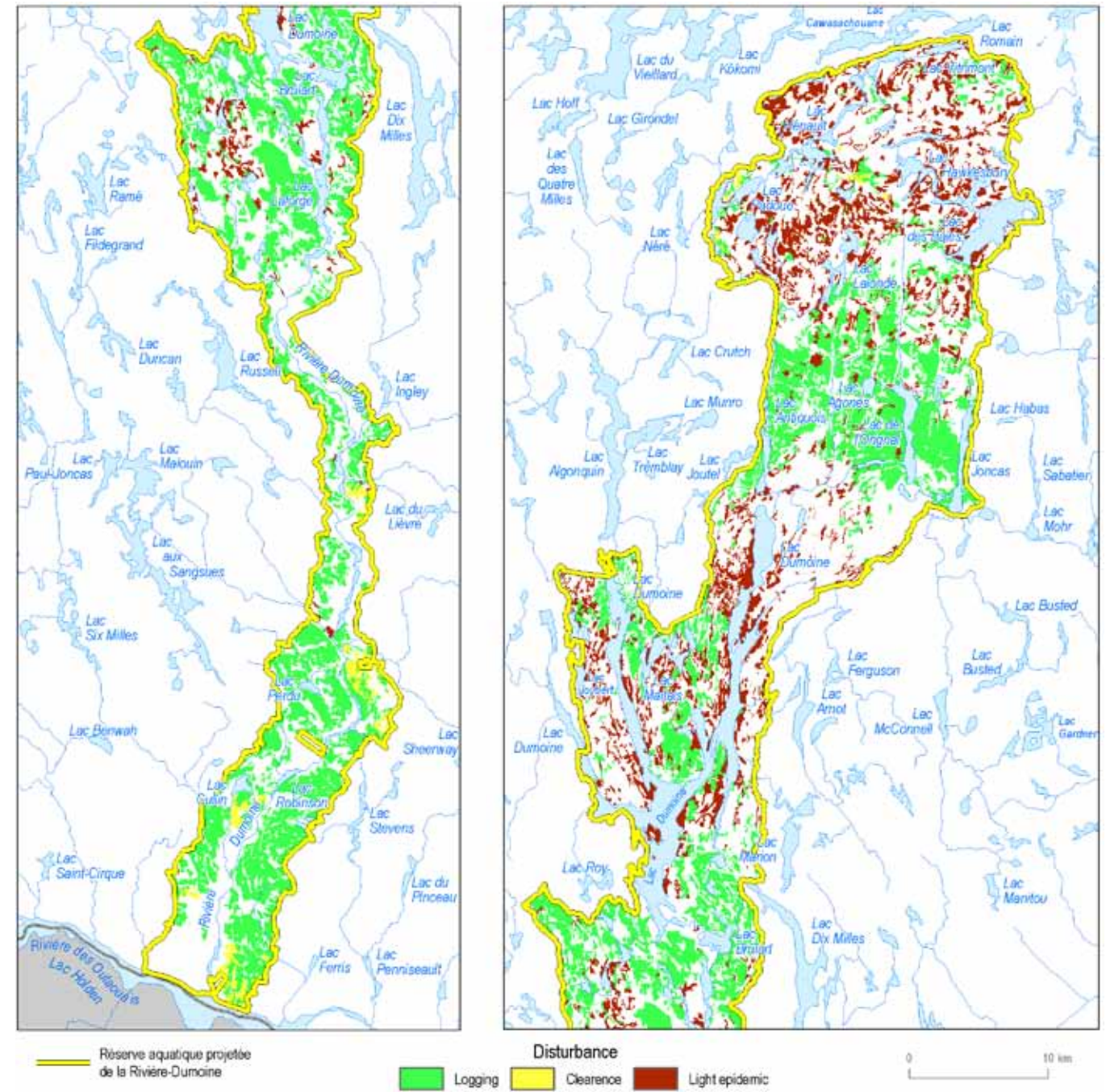
Efficacy

Over the past 40 years, logging has occurred in several areas in the proposed aquatic reserve (Figure 150). Roughly 380 km² has been harvested in the part, equivalent to nearly 26% of the reserve and 33% of the forest cover, mainly partial cutting and selection cutting carried out occasionally in the late 1970s and 1980s but above all in the 1990s and 2000s.

Logging roads still crisscross the territory. With less than 470 linear km of roads, the protected area has a ratio of 0.33 km of road per km², a low density (0.06 to 0.43 km/km²) according to Quigley *et al.* (2001). Despite human occupation (holiday resorts, hunting camps, outfitting operations and ZECs) and hunting, fishing, canoeing, camping, and so on, the territory generally displays a fairly high naturality, in particular because of its big geographic size and difficult access to most areas.

From the standpoint of its configuration, in addition to having a largely sufficient area (1 445 km²) to encompass all of the successional stages of forest ecosystems, the protected area has the advantage of protecting numerous types of environments along a north-south gradient and thereby fostering the migration of species along the gradient. What is more, this may be advantageous in the context of climate change in that species will likely migrate to follow their shifting habitats in light of the changing climate. By protecting approximately 56% of the immediate drainage basin of the Rivière Dumoine, the proposed reserve affords imperfect but fairly adequate protection of the river and its drainage units. However, it should be noted that in places the shoreline area of the river protected on both sides is fairly narrow, which reduces the efficacy of the safeguards.

Figure 150. Disturbances – Réserve aquatique projetée de la Rivière-Dumoine



The reserve has a fairly high perimeter-area ratio of 0.4, roughly four times higher than the ratio of a perfect circle for such an area, i.e. 0.1. However, in this instance, the protection of the river's drainage basin is being emphasized and not, strictly speaking, the edge effects pertaining to the habitats of species. When a 3-km strip is subtracted within the boundaries of the protected area, a 471- km² conservation core remains that is protected from edge effects. However, the core is divided into four polygons, two of them small but the other two of large geographic size.

What is more, the configuration of the protected area could be improved in order to broaden the protection of the immediate drainage basin of the Rivière Dumoine (see the section entitled "Potential expansions").

4.8.6 Conservation issues

The territory has wildlife development potential because of the presence ZECs, outfitting operations and the wildlife reserve. Moreover, the Rivière Dumoine, which is renowned as a canoe-camping course, offers considerable development potential from the standpoint of outdoor activities. The territory must be developed in such a way as to ensure equitable access by all users and minimize impact on natural environments while ensuring collaboration in development decisions.

Moreover, numerous Algonquin communities are concerned by the territory. Account must be taken of their concerns, orientations and projects in respect of the protected area. Moreover, its high archaeological research potential confers on the territory specific historical importance. Accordingly, the number of stakeholders, groups, communities and governments concerned by the territory poses a daunting challenge as regards management.

The protection of the Rivière Dumoine and its drainage basin and the maintenance of the natural and landscape characteristics of the territory are the key conservation issues in the protected area.

The territory is unique and the regime of activities adopted must facilitate the attainment of long-term protection objectives and could be adapted to the special conditions in the environment and its specific protection, management and development objectives.

4.8.7 Potential expansions

The protected area's efficacy with respect to its main conservation objective could be enhanced. It is in this context that the potential expansions were studied (Figure 151). The expansions acknowledge that the protected area is already very big and that its configuration, without being perfect with respect to the boundaries of the drainage basin, is deemed to be acceptable, in particular in the context where numerous usage rights pertaining to the territory and its resources existed prior to the granting of protection status.

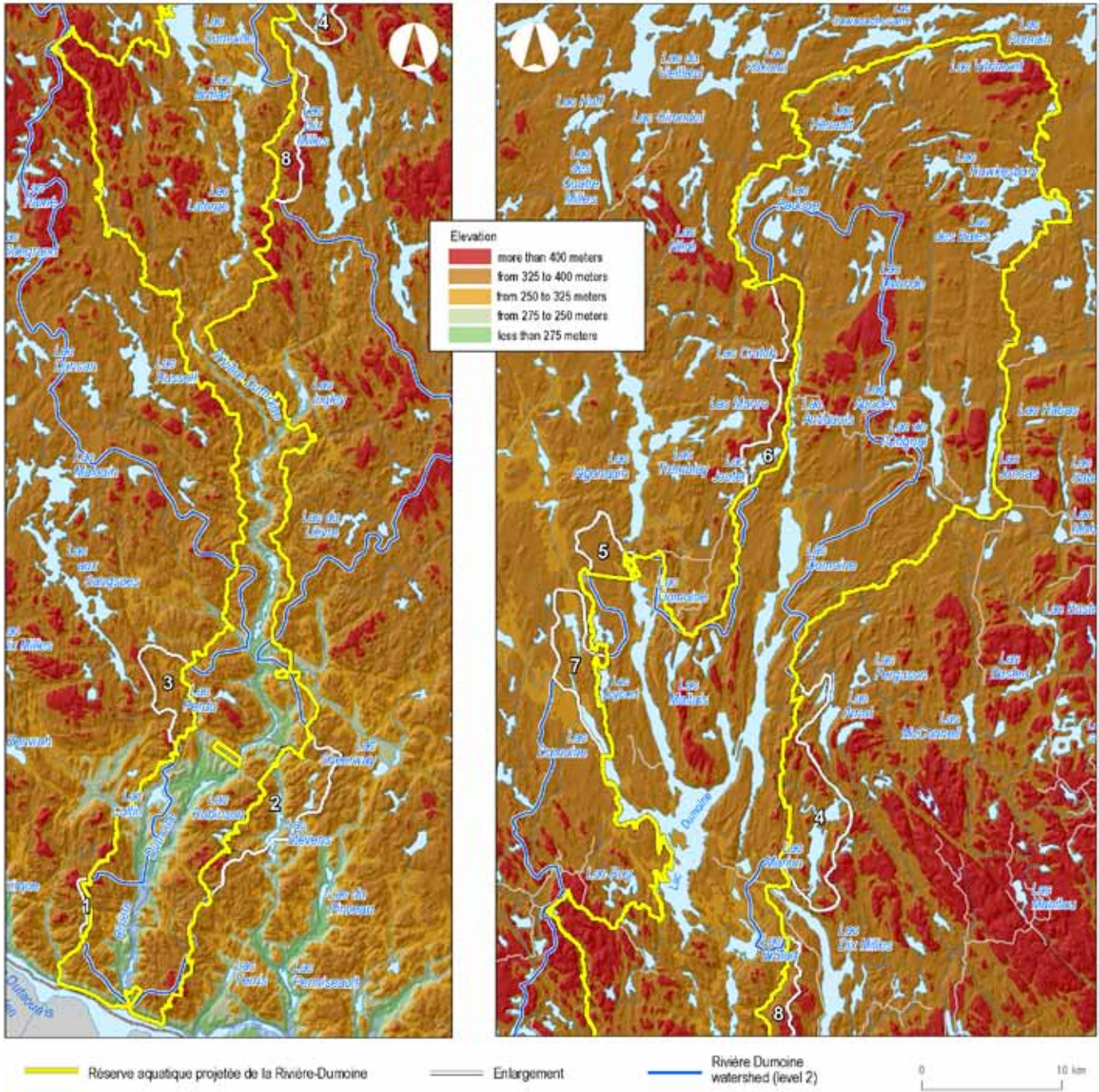
Various potential expansion zones were analyzed. All of them seek to add portions of lands located in the drainage units of the Rivière Dumoine. The MDDEP presented the expansions to the members of the Table GIRT de la MRC de Témiscamingue, the Table GIRT de la MRC de La Vallée-de-l'Or and the Table GIRT élargie de la rivière Coulonge (Outaouais) during the workshops that preceded the public consultations. The reactions to the potential expansions are presented in detail in the companion document entitled "Summary of the preparatory workshops for the public consultation and meetings: Granting of permanent biodiversity reserve or aquatic reserve status to eight territories in the Abitibi-Témiscamingue region" submitted to the BAPE Commission within the framework of this consultation. During the workshops, the MDDEP informed the participants that the expansions presented were a preliminary scenario as regards the cartographic accuracy of the expansions and that the objective is, above all, to ascertain the interest or lack thereof in revising the protected area to draw it closer to the boundaries of the drainage basin. While the protected area aroused keen interest, especially in the Témiscamingue region and the Outaouais region, little discussion focused on the revision of the boundaries. No consensus was reached for or against the expansions presented.

The expansions were also assessed for the level of constraint to protection. The results indicate a concern to confine the expansions to the most important portions from an ecological standpoint to avoid further increasing the impact, bearing in mind that the proposed reserve already has a big geographic size.

The northern portion of the existing protected area exceeds the immediate drainage basin of the Rivière Dumoine and even exceeds the total drainage basis of the Rivière Dumoine at the northern end. It is, therefore, possible to contemplate an exchange of territory between the surplus portions outside the drainage basin and the desired portions that are part of the drainage basin. This would enhance the protected area's configuration and achieve its main conservation objective while minimizing additional impact on existing rights.



Figure 151. Potential expansions of the Réserve aquatique projetée de la Rivière-DuMoine



The expansions (Figure 151) that the MDDEP presented during the workshops cover a total area of 164 km². However, the mapping was hardly accurate because of the scale of the territory to be analyzed. Accordingly, in light of the outcome of the public consultation, broader reflection must be carried out to properly

assess opportunities to exchange areas, the maximization of the protection of the drainage basin and elements of representativeness and the presence of territorial constraints.

An analysis was conducted of the minimum drainage basins for the territory to determine the best modifications to make to the boundaries of the protected area in order maximize the protection of the Rivière Dumoine (Figure 152). As mentioned earlier, the entire drainage basin of the Rivière Dumoine covers 4 309 km², and thus cannot be fully protected. However, the immediate drainage basin (1 642 km²) can serve as a guide for the enhancement of the boundaries of the protected area since the geographic area of the drainage basin is comparable to that of the reserve.

Figure 152. Complete and immediate drainage basins of the Rivière Dumoine

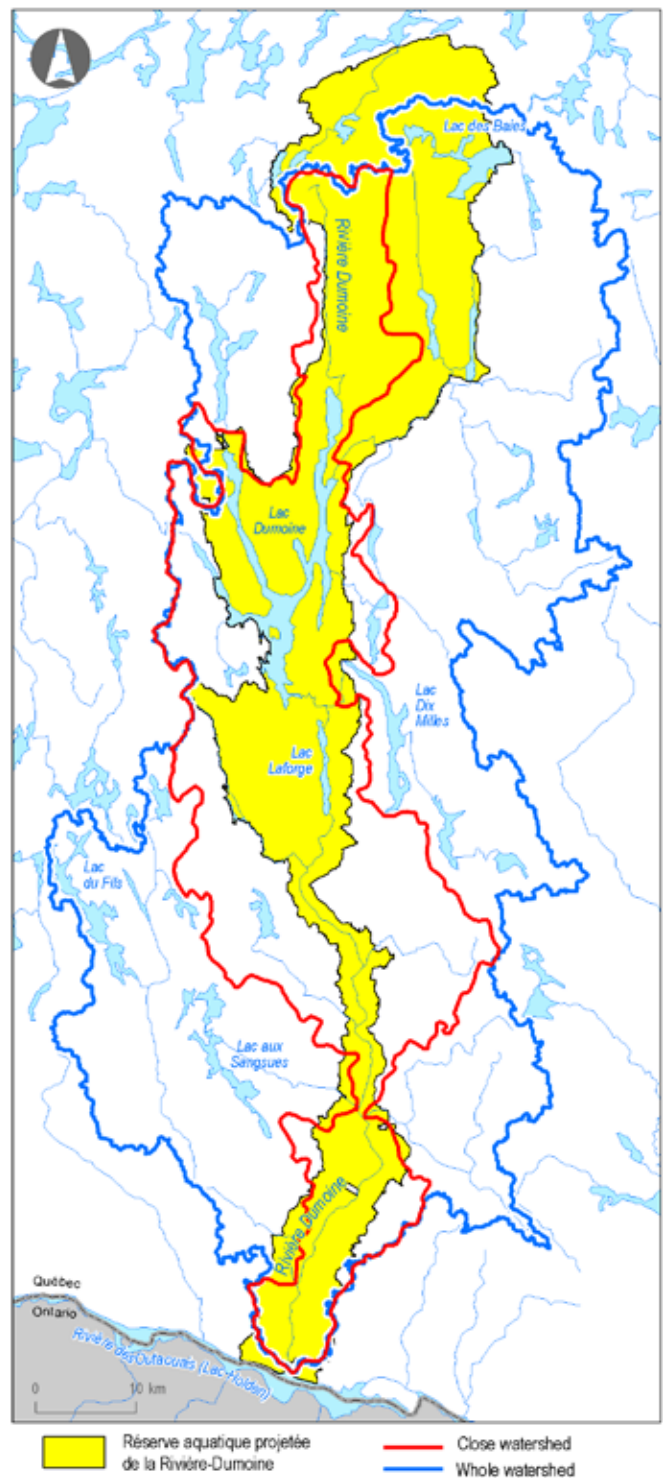


Figure 153. Territorial exchange scenario for the Réserve aquatique de la Rivière-Dumoine

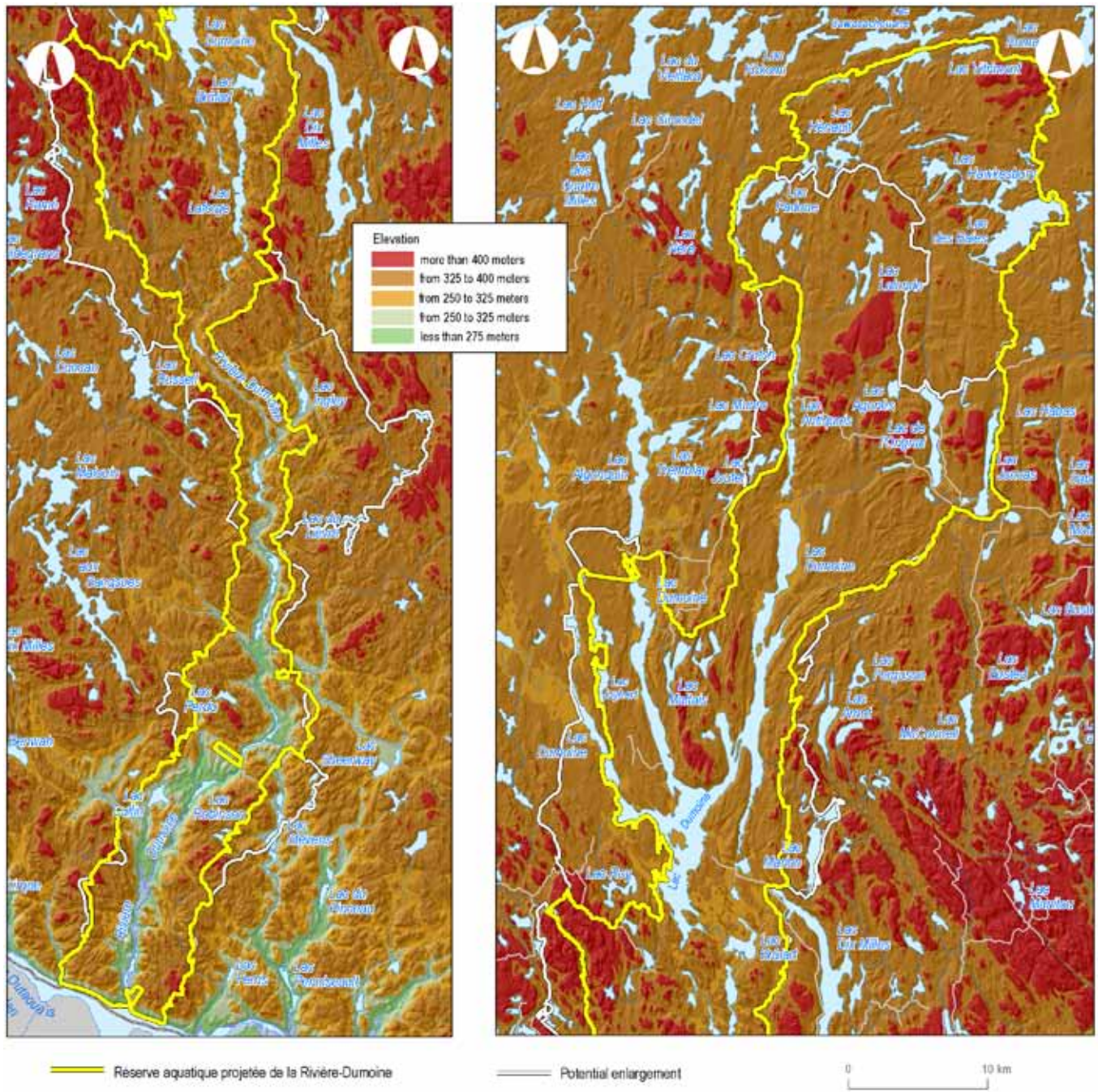
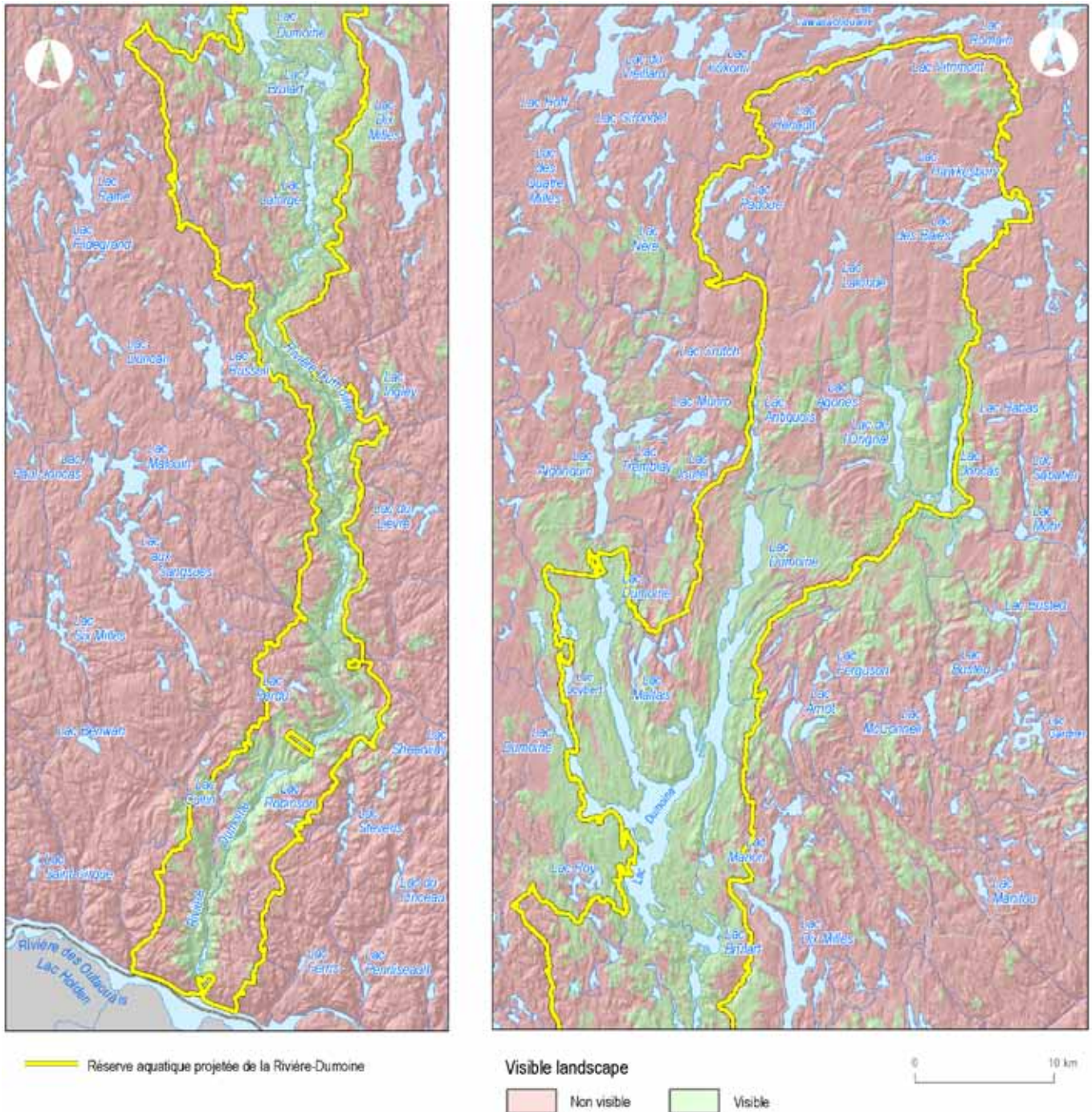


Figure 153 shows a hypothetical scenario in which the portions outside the drainage basin would be withdrawn but lands drained by the Rivière Dumoine would be added. However, in this scenario, the areas covered by mining rights have been withdrawn. The protected area would cover approximately 1 580 km², compared with 1 445 km² for the current proposed aquatic reserve, although the scenario does not clearly delineate the boundaries but gives a rough indication of the areas concerned.

Because of tourism in the territory and its potential for recreational development, a territorial analysis was conducted to determine the landscapes visible from the Rivière Dumoine and the main lakes in the reserve. The result reveals that almost all of the territory visible from the river is already located inside the protected area (Figure 154). No assessment of the expansions based on this facet was conducted.

Figure 154. Landscapes visible from the Rivière Dumoine and the main lakes



During the workshops in the Outaouais region, the Société pour la nature et les parcs (SNAP) presented to the participants and submitted to the MDDEP a proposed expansion to the Réserve aquatique projetée de la Rivière-Dumoine. The proposal called for a total expansion of roughly 1 715 km² that would be added to the current proposed reserve to create a protected area with totalling approximately 3 160 km². However, it should be noted that the SNAP presented the expansions to the participants and indicated

that, generally speaking, it was proposing that the expansions be classified under Category VI of the IUCN, i.e. a protected area in which some form of forest harvesting is possible, as in the case in Algonquin Provincial Park in Ontario. Because of the extent of the expansions, the territory was not analysed. Furthermore, the MDDEP does not have a Category VI conservation tool.

4.8.8 Management of the permanent reserve

Once the aquatic reserve obtains permanent status, it will be managed in such a way as to ensure the attainment of conservation objectives. Accordingly, the MDDEP's decisions pertaining to management will prioritize conservation. As for regulations, when the aquatic reserve obtains permanent status, it will have a conservation plan in which a regime of activities will regulate all activities or initiatives in the protected area. The regime of activities, based on the regime of activities in the conservation plan of the proposed aquatic reserve, will make provision for specific features in order to ensure better protection of the territory, ecosystems and biodiversity. The territory is unusual in that it adjoins several structured wildlife territories, is fairly occupied, frequented for numerous wildlife, recreational and outdoor activities, has high archaeological research potential, concerns numerous Algonquin communities, and the development of its territory comes under the remit of three RCMs and two administrative regions. Under the circumstances, its management poses a daunting challenge since it must ensure participation by all of the groups concerned by the territory.

The conservation plan will stipulate that certain activities are allowed in the protected area, that others are strictly prohibited, and that a number of activities or initiatives whose compatibility with the protected area and its conservation objectives varies will be subject to authorization by the MDDEP. For more information, see the section entitled "The regime of activities explained" or the document entitled "Régime d'activités dans les réserves de biodiversité et les réserves aquatiques." When the MDDEP or any manager of the territory evaluates requests for authorization, it will take into consideration the objectives concerning the preservation of the Rivière Dumoine drainage basin. Special attention must be paid to the ecosystem assessment of any development to ensure that impact is maintained at an acceptable level. The preservation of natural landscapes and archaeological sites will also be a key management orientation.

As for the operational management that the MDDEP or any other partner carries out in the territory of the permanent reserve, it will lead to the installation of appropriate signage and surveillance of the protected area. A management committee comprising the key stakeholders and the Algonquin communities concerned could be established to participate in the drafting of an action plan that defines the management priorities pertaining to the protected area, then collaborate on the action plan's implementation.