U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Assessment and Restoration Division
290 Broadway, Rm 1831
New York, NY 10007

February 25, 2007

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Dear Secretary Bose:

On behalf of the Department of Commerce, the National Oceanic and Atmospheric Administration's Office of Response and Restoration (NOAA OR&R), in its natural resource trustee capacity, works to protect and restore coastal resources from threats related to releases of hazardous substances and oil spills. NOAA OR&R appreciates the opportunity to comment on Massena Electric Department's (MED) January 2008 Proposed Final Study Modifications to the Study Plans for the Massena's Grasse River Multi-Purpose Hydroelectric Project, (FERC Project No. P-12607).

NOAA previously submitted comments on several documents related to the proposed new dam in Massena, New York. These include comments on the January 2007 Massena Grasse River Hydroelectric Project Scoping Document 1, the May 2007 FERC Scoping Document 2, the Town of Massena's May 2007 Proposed Study Plan, and the Oct 2007 FERC Study Plan Determination.

MED's January 2008 Proposed Final Study Modifications to the Study Plans (Revised Study Plan) consists of ten studies covered by FERC's Study Plan Determination. According to Dewey & LeBoeuf's January 24, 2008 cover letter, these revisions reflect the agreements resolving disputes raised by New York State Department of Environmental Conservation and discussions at the January 8, 2008 stakeholders meeting. While NOAA participated in that meeting for part of the day by phone, we would not characterize our participation as providing agreement to any reductions in study scope. We had not yet received or reviewed the subject document at the time of this meeting and it would therefore have been premature for our agency to agree to study reductions. NOAA phoned in to the February 12, 2008 meeting and February 15, 2008 call and but our participation was for a limited duration.

In FERC's Study Plan Determination John Smith, they indicated that the meeting scheduled for January 2008, would help inform 2008 study needs based on 2007 findings. FERC, informed the stakeholders during conversations in February that comments were due in to FERC on February 25 for two studies, the Lake Sturgeon Movement and Spawning Study and the Fish Community Study. We have provided input on these two studies and on Fish Passage. We reserve the right to comment further on Fish Passage and the other studies not commented on in this letter that are contained within the January 2008 Revised Study Plan.

Lake Sturgeon Movement and Spawning Study

The Revised Study Plan proposes to eliminate the 2008 field sampling season designed to collect data for developing a population estimate. Supporting documentation is not provided in the Revised Study Plan to evaluate the appropriateness of reducing the lake sturgeon study scope at this time. As MED is seeking to reduce the scope of the FERC approve Study Plan they should have developed and provided preliminary population estimates and age structure by year class taking into account the open nature of the Grasse River system. The Revised Study Plan should have included a description of the uncertainties in the dataset and the amount of data and effort they deemed necessary to reduce the uncertainty and thereby refine population and age structure estimates.

In prior communication, NYSDEC recommended a multi-year study (at least 5 years) to ascertain the information necessary to develop reasonable lake sturgeon population estimates. Since the Massena Electric Dam hydrofacility proposal is for a new licensing agreement rather than a relicensing of an existing dam, we support additional data collection on the numbers and age distribution of lake sturgeon beyond the 2006 and 2007 field season to better formulate a population estimate within the Grasse River potentially affected by dam construction. The 2008 Revised Study Plan should include efforts to evaluate existing fish ray spines collected by MED and by other researchers in prior years. This would provide age year class information rather than classification limited to juvenile or adult. Moreover, population studies should assess habitat usage by age class and gender.

The Grasse River is one of the most important tributaries in the Lake St. Francis watershed providing habitat for lake sturgeon and other fish species reproduction. This type of tributary is not available on the Quebec side due to the lack of major or minor tributaries (Dumont 2008). Dams impact fish habitat and fish movement on both the Raquette and Salmon Rivers on the southern shore although the Ft. Covington Dam is slated for removal later this year. The lake sturgeon population in the Grasse River is unique to this section of the St. Lawrence River system. Because it appears to be a self-sustaining spawning population, it is critical to the recruitment of sturgeon in the Grasse River proper and potentially Lake St. Francis. This adds to the importance of understanding lake sturgeon population size, age distribution and growth rate and the immigration and emigration of fish into and out of the project area and between the Grasse River and the St. Lawrence River.

The Revised Study Plan acknowledges that MED does not fully understand the lake sturgeon use of the Grasse River. They indicate that based on the 2006 studies, the Grasse River lake sturgeon population is either large or consists of transient members of a larger St. Lawrence River population. Moreover, data is insufficient to determine if the population is resident, transient or mixed. All of this suggests additional data collection in order to support population estimates. The nature of the system is open and adds complexity to estimating populations that is not inherent in population estimates for closed systems. These estimates have to account for whether the population is resident, transient or mixed to adequately reflect the Grasse River condition. Such estimates should account for the immigration rate between different reaches of the Grasse River and the Grasse River and Lake St. Francis. Since this is not currently known, it is not clear what population estimates from 2006 and 2007 would represent. Genetic analysis

was conducted in 2007 on spawning Grasse River lake sturgeon (Welsh and May 2007). Further data collection should be considered in 2008 to provide for a more representative genetic picture of this population as suggested by Welsh and May 2007. It might also be worthwhile to obtain their raw data to evaluate for any similarities between individual Grasse River samples and the Lake St. Francis population. Welsh and May limited their analysis to pooled data. The 2006 genetic study provides the basic framework and lends support for further analysis of fish from Lake St. Francis. The study objectives would focus on determining (a) if Grasse River reproduction is supporting lake sturgeon levels in Lake St. Francis and (b) the relative percentage contribution of Grasse River outmigrants to the Lake St. Francis population.

A continuous monitoring station near the mouth of the Grasse River should be installed to track sturgeon movement between the Grasse River and the St. Lawrence River as one means of determining bi-directional movement of lake sturgeon between the Grasse River and the St. Lawrence. We are concerned that the fixed station at RM 1.8 cannot affirmatively document movement between the Grasse and St. Lawrence Rivers due to its distance from the mouth. Since there is insufficient data presently to determine if the Grasse River sturgeon population consists of residents, non-residents or a mix of both, and how that population contributes to Lake St. Francis populations tracking fish movement at the mouth of the Grasse River would provide a better picture of the number and frequency of sturgeon moving in and out of the Grasse River and age class structure of those fish. A component of this effort should include some tagging of Lake St. Francis fish to assess potential movement into the Grasse River. While we appreciate that manual tracking will extend to the mouth of the Grasse River, tracking fish movements into and out of the Grasse requires a continuous monitoring station and fish tagged beyond the geographic boundaries of the Grasse River. Likewise, a monitoring station at RM 7.8 may not provide insights into habitat usage upstream of RM 7.8 or better inform us about the importance of further upstream habitat to downstream fish and downstream habitat in the Grasse River or the St. Lawrence to fish further upstream that may move between these areas on some random or non-random basis.

The fixed monitoring station at the mouth of the Grasse River is especially critical since the current study design may not detect sporadic ingress of sturgeon into the Grasse River for spawning due to a reproductive strategy that is characterized by delayed maturation and protracted spawning periodicity coupled with depleted populations (Peterson et al. 2007). In the Sturgeon River (Auer 1999), studies of this Michigan population were carried out between 1987 and 1995. State threatened lake sturgeon returned to spawn at most 1 to 2 times over this 8 year period. Hence, lake sturgeon life history and threatened status also contributes to the lower probability of detecting spawning females (Dumont 2008).

Secor et al. 2002 emphasized the importance of understanding egg, larval and juvenile abundance relative to the number of spawning sturgeon and to environmental parameters and in particular habitat utilized by sturgeon during their first year. They also emphasized the importance of flow and temperature on spawning success and the adverse impacts of sedimentation on embryo and larval survival and importance of bottom substrate for young of the year. The 2008 lake sturgeon study should provide the information necessary to evaluate these potential impacts.

Dumont (2008) recommends placement of 500 um drift nets approximately 1 km downstream of egg traps as a supplemental approach to identifying sturgeon spawning when waters reach 10°C to 15°C. The drift nets have the potential to traps eggs and fry that might go undetected through other sampling approaches. D'Amours et al. 2001 used this approach successfully in the Des Prairies River, a major St Lawrence River system spawning area near Montreal, to assess the temporal and spatial larval drift of lake sturgeon larval downstream. They found that the larval drift also comprised five other taxa. Incorporation of this approach into the 2008 activities has potential merits for both the lake sturgeon and fish community studies

Fish Community Study

The Revised Study Plan reports that more species and greater species diversity was observed in 2007 than in 2006 in part due to greater sampling effort and employment of different sampling techniques but also to inter-annual variability. NOAA recommends the continuation of the fish community study in 2008 for several reasons. In part this request is to replicate the studies in 2007 to assess inter-annual variability using the same methods and study design. We also recommend the 2008 studies because the 2006 and 2007 efforts started in May and missed the opportunity to collect fish using project impacted habitat between ice out and the May collections. We previously recommended monthly sampling to assess seasonal usage and continue to support such studies.

In addition, NYSDEC has questioned the validity of some of the fish species identifications (e.g., white catfish, shield darter). If correct, they noted that these records would be the first observations for those species in this waterbody. We concur with the State that additional sampling should be conducted to confirm the presence of these species. Voucher species and/or photo-documentation should be incorporated into the Revised Study Plan. Finally, eastern sand darters were collected from the project area. We therefore recommend species-specific studies to address dam-related impacts to this state threatened species.

Further species-specific and or habitat usage studies may be warranted if the presence of these previously unrecorded species are confirmed or if other state or federally listed species are identified from the project area. As mentioned above, drift nets should also be considered to assess larval drift. D'Amours et al. 2001 identified mooneye, walleye, sauger, quillback, silver and shorthead redhorse, and longnose and white suckers during larval drift net studies designed to assess larval lake sturgeon. This approach could help elucidate the species reproducing in the Grasse River and supplement the egg trap data. Such information is critical to evaluating the impact of the dam on the Grasse River and on the future health of the fishery in Lake St. Francis.

Fish Passage

Habitat fragmentation has serious consequences for lake sturgeon reproduction and survival. This species depend on different habitats during its various life stages. Auer (1996) supports the concept of a minimum viable population size and range for lake sturgeon population protection and ultimate enhancement. She recommends a minimum range of 250 to 300 km of barrier-free river and lake habitats to support lake sturgeon and unrestricted distances of 750 to 1000 km for migration. These long migration distances may contribute to maturation of eggs and sperm prior to sturgeon reaching their spawning grounds. Such distances may also help maintain separate

different sturgeon stocks. Similarly, the healthy lake sturgeon population around Montreal is attributed to the availability of 350 km of non-fragmented habitat. (Dumont et al. 2006, Dumont 2008). This is in sharp contrast to the fragmented habitat in Lake St. Francis. Dam construction on the Grasse River will only further fragment lake sturgeon habitat.

Optimum lake sturgeon habitat characteristics are reflected in two unrestricted Midwest river systems. Here the fish have access to river and lake habitats, the latter serving as feeding and wintering habitat (Auer 1996). The three critical factors identified by the author for long-term survival of minimum viable populations in the Great Lakes Basin include better access to historic spawning grounds, safe access to feeding and wintering areas, and identification and protection of juvenile habitat. Studies on the Sturgeon River also demonstrated river fidelity, longer spawning intervals, and different habitat usage by males and females for feeding and resting than restricted populations (Auer (1999). Dam construction on the Grasse River has the potential to sever or serious limit movement of sturgeon upstream of the proposed project from reaching Lake St. Francis habitat, destroy or degrade juvenile habitat and reduce access to historic spawning areas.

Dumont et al. 2006 expressed the opinion that the depletion of the Lake St. Francis lake sturgeon population was at least partially attributed to dam construction. On the Richelieu River, they observed only a few large lake sturgeon (e.g., spawners) using the fishway constructed on the Saint-Ours dam. This dam is 2.3 m high and fish passage was specifically designed to meet the needs of migrating lake sturgeon and other migrating species (river and copper redhorse, American shad and American eel). In contrast to the sturgeon, thousands of other fish comprising more than 35 species successful used the fish passage. Dam construction proposals at the Lachine Rapids in the 1980's and more recently in 2006 at Courant Sainte-Marie in Montreal were denied because of environmental concerns associated with lake sturgeon and other migratory fish species. Because lake sturgeon are sensitive to habitat fragmentation and habitat degradation, the authors recommend several management steps including protection and potential enhancement of spawning grounds, avoiding supplemental habitat fragmentation, and further investigations on lake sturgeon biology and habitat. Their recommendations further support additional studies and reconsideration of the location of the proposed Massena dam. Dumont (2008) does not believe that significant upstream movement of lake sturgeon on the Grasse River can be facilitated by fish passage incorporated into dam design. A key to improving lake sturgeon populations is through protection and creation of spawning habitat. Grasse River dam construction would destroy potential spawning beds through impoundment formation behind the dam and would cutting off migration to further upstream beds. While fish passage would be a component of any design, to be successful fish passage needs to allow for migration of multiple species and more than a small percentage of the lake sturgeon seeking upstream access. Dumont's reservations on potential fish passage success are based on the lack of success for upstream sturgeon passage on the Richelieu River where dam height was 3 times lower than the proposed dam in Massena and on the degree of success attained for moving sturgeon past dams in the US and abroad. Dumont (2008) suggested elevators installed in Russia yielded upstream migration success of around 10% for sturgeon and this was considered one of the more successful projects to date. Parsley et al. 2007 documented 6 white sturgeon successfully ascended the fish ladder at the Dalles Dam on the Columbia River between March 2004 and November 2005. Boyd et al. 2004 observed variable lake sturgeon upstream success rates testing an experiment spiral fishway in Wisconsin. Webber et al. 2007 tested experimental fishways

that incorporated baffles and ramps in an effort to improve white sturgeon upstream passage. The rate of successful passage varied by baffle configuration (e.g., vertical-vertical, hortizontal-vertical, both) and velocity (e.g., slow, medium, high). Any fish passage designed and constructed for Grasse River MED hydroproject should demonstrate a high level of success at a pre-existing dam on a river with similar hydrologic and physical conditions.

Specific Comments

Page 3, Table 1.1: In response to a question on Feb 12, MED suggested that during the winter months when ice cover was present on the river that the elevations of the ice would not exceed the project water elevations. According to Table 1.1 these range from 178 feet to 187.5 feet depending on river flow and location. This approach seems to suggest that water levels might be drawn down during the winter to maintain the ice at a set elevation. The study plan should contain a description of how water levels will be regulated under winter conditions and how run-of–river flow (inflow equal to outflow on an instantaneous basis) will be maintained.

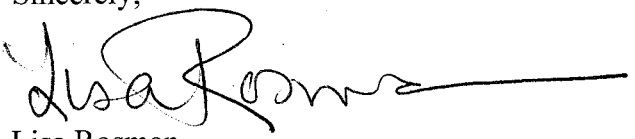
Page 3, Table 1.2: The table should show the relative changes in water levels associated with and without dam construction. The "without dam" scenario should assume the breached weir condition.

Page 11, Section 2.1.5, Bullets: The proposed project may also impact habitat used by lake sturgeon downstream of the dam. Construction may alter the distribution of flow downstream across the cross section of the river thereby modifying habitats. The ice control structural component of the dam design also has the potential to alter downstream habitats by modifying ice jam formation, ice scour and erosional events.

The Revised Study Plan should include a bibliography of all cited reference materials.

If you have any questions, I can be reached at 212-637-3259 or lisa.rosman@noaa.gov.

Sincerely,



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