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

August 20, 2007

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

Dear Secretary Bose:

I am writing to provide comments on two documents: (1) FERC's Scoping Document 2, Massena Grasse River Hydroelectric Project, New York, Project No. 12607-001, May 2007 and (2) The Town of Massena Electric Department's Proposed Study Plan, Massena Grasse River Hydroelectric Project, Project No. 12607, New York, May 2007. 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 these documents.

NOAA submitted comments on the January 2007 Massena Grasse River Hydroelectric Project Scoping Document 1 in a letter dated April 6, 2007. As expressed in our April 6 letter and further articulated below, the siting and construction of the proposed Massena dam upstream of the Power Canal and downstream of the breached Massena weir will alter the river hydrogeomorphology and could significantly contribute to cumulative negative impacts to the Grasse River ecosystem. The dam will alter 8 miles of river upstream of the dam converting a free-flowing stretch to an impoundment. We reiterate that OR&R does not support the proposed project including using the dam to ameliorate downstream ice scour of PCB-contaminated sediment.

It is our preference to implement in-kind restoration in the vicinity of the injury, e.g., in the Grasse River. Potential restoration opportunities could include fish passage at the Madrid Dam, and enhancement of Grasse River habitat and species recovery efforts. Dam construction could impair our ability to undertake our trustee responsibility for the Grasse River to enhance remedy selection, reduce residual ecological and human lost use injury, and to identify and implement restoration opportunities on behalf of the public. The project could increase restoration costs and could reduce the benefits accrued from implementation of a project or projects on the Grasse River.

Background

On December 8, 2006, the Town of Massena Electric Department (MED) filed a Pre-Application Document (PAD) and Notice of Intent (NOI) to file a license application for a dam on the Grasse

River. The proposed Massena-Grasse River Hydroelectric Project would consist of: (1) a new 26-foot-high by 540-foot-long dam equipped with eight 10-foot-wide, 16-foot-deep underflow spillway gates with invert elevations of 162 feet (NAVD 1988); (2) two new 1,400-foot-long earth and concrete saddle dikes that extend along the southern shore of the proposed reservoir; (3) a 300-acre 8-mile long reservoir with a normal water surface elevation of 178 feet (NAVD 1988); (4) a proposed powerhouse integral to the dam containing a single 2.5-MW turbine generator to produce an estimated average 10,000 MWH of electricity annually; (5) a proposed 0.25-mile-long 23-kilovolt transmission line connecting the proposed powerhouse to an existing substation; (6) appurtenant facilities; and (7) operate in a strict run-of river mode where inflow equals outflow on an instantaneous basis.

General Comments

NOAA, one of several natural resource agencies designated under the National Contingency Plan, acts on behalf of the public to protect and restore natural resources. The Comprehensive Environmental Response, Compensation and Liabilities Act (CERCLA) and the Clean Water Act (CWA) requires the U.S. Environmental Protection Agency (EPA) coordinate with NOAA and other appropriate agencies and authorizes the trustees to restore injured resources on behalf of the public. OR&R's Assessment and Restoration Division continues to work with EPA's Superfund program to achieve remediation of contaminated sediment sites such as Aluminum Company of America (currently Alcoa West), General Motors Central Foundry Division (currently General Motors Powertrain) and Reynolds Metals Company (currently Alcoa East) in Massena, New York. Our goal is cleanup and restoration of natural resources in the St. Lawrence watershed impacted by contaminants released from these facilities. PCBs are the primary contaminant of concern in the Grasse River due to releases from Alcoa West. Elevated PCB levels have been recorded in sediments, water, and biota and a "no eat" fish consumption advisory is in effect for the Grasse River for all fish species due to PCBs (NYSDEC 2007).

NOAA has expressed a preference for sediment removal as the primary means to address contaminated sediments in the Grasse River. Since ice management is one of the stated purposes of the MED dam, we request that the PSP evaluate the efficacy of the ice control structure on minimizing ice-jam related scour of PCB contaminated sediments and on minimizing environmental and human exposure of unremediated or capped PCB sediment inventory. This assessment should include the impacts associated with catastrophic failure of the ice control structure, other components of the dam, and complete loss of the dam on unremediated sediments. Likewise, this assessment should articulate how the three purposes of the dam, hydropower generation, recreational opportunities, and ice-management will be prioritized and how and where these goals mesh or conflict with it each other.

At the same time, NOAA and its co-trustees the New York State Department of Environmental Protection (NYSDEC), the U.S. Fish and Wildlife Service (USFWS), and the St. Regis Mohawk Tribe (SRMT) (collectively the St. Lawrence Environmental Trustee Council) are working cooperatively with Alcoa and GM on a natural resource damage assessment. We are in the process of determining injury to ecological services (e.g., sediment, fish, birds, aquatic and terrestrial mammals, amphibians and reptiles), recreational fishing, and tribal culture from these sites and restoring natural resources and services lost. Project ideas and pre-proposals have been solicited from the public. Restoration projects under consideration for the Grasse River include improved fish passage at Madrid, fish habitat enhancements, and fish stocking. Construction of

the proposed dam in Massena could negate or significantly reduce potential benefits accrued from these candidate projects thus negating the projects with the most significant potential to restore injured natural resources on behalf of the public. We therefore recommend that the Proposed Study Plan (PSP) be supplemented with an investigation into the effects the MED dam will have on Grasse River restoration. This evaluation should consider effects due to dam construction, operation and potential failure.

General Comments Proposed Study Plan

The Proposed Study Plan would benefit from more project specific information. The proposed project study area should be defined and should represent the broadest extent of the area impacted for migratory species. More details should be provided about study designs including statistics used in determining sample size, all appropriate references, maps depicting study area and sampling areas appropriately scaled with landmark reference points, standard operating procedures (SOPs), and personnel (with their qualifications) conducting the work. Study project designs should consider past, current, and future usage by biota and recognize that species with reduced populations may not be as readily collected using non-species specific study designs. The study should also account for the challenges associated with evaluating species usage and habitat in a dynamic river environment that is inhabited by resident and migratory species and that is recovering from historic perturbation associated with the installation of a barrier (now breached) to fish passage in Massena. Studies should address each of the major categories of biota (macroinvertebrates, fish, birds, mammals, herps) utilizing the river, riparian areas, and uplands impacted by the project in addition to evaluating state and federal protected species. The PSP should also characterize each of the ecological communities found within the project area. All results should be provided in report form, as a database and in GIS format. Shape files should be provided for all report figures. Results from Alcoa's Grasse River PCB remedial investigation and feasibility studies (RI/FS) should be reviewed and relevant data (physical, chemical, biological, hydrological) should be used in evaluating project impacts.

Specific Comments Proposed Study Plan

Page 1, Section 1.1, Para 1, Last Sentence: "Restoration" of the reservoir to its footprint prior to breaching of the Massena weir should not be relevant since it is "restoring" the Grasse River to an unnatural condition. Baseline conditions for the currently identified project area are a free-flowing barrier free river extending from the confluence of the Grasse with the St. Lawrence upstream to the Madrid Dam, although the ecosystem in this stretch of river may not have fully recovered to its pre-dammed condition after the breach of the Massena weir. The ~ 3 to 4 ft head of the Massena weir was also significantly lower than the proposed 26 ft head for the MED project. The Massena weir appears to have allowed for fish passage under some flow conditions. The proposed MED dam would create a significantly greater impediment to fish movement even if passage is integrated into dam design as fish passage would not likely be suitable for all fish species. This project is also not compatible with the Grasse Rivers' designation as Significant Coastal Habitat for approximately 26 miles from its mouth to the Madrid Dam (NYSDOS 1994).

Page 1, Section 1.1, Para 2: The PSP should be more transparent in how the various structural components of the dam operate. This should include a description of how reservoir water levels will be regulated and any anticipated fluctuations due to failure or maintenance, while maintaining equal inflow and outflow. The PSP should also be more transparent in how the dam

will be operated to maintain equal inflow and outflow on an instantaneous basis while generating the targeted annual electrical production output of 10,000 MWH and how the flow upstream and downstream of the dam (e.g., velocity, discharge, spatial distribution of release water) will differ from a non-dammed river. For example, it should explain how summer and winter low flow conditions generate sufficient power during the period when the power grid receives the most demand. The PSP should also explain how the dam will control ice build up, where ice will collect and what its capacity is, the potential for in river ice-jam related scour and shoreline bank erosion upstream of and as a consequence of the dam, and how downstream ice discharge will be regulated. The PSP should describe a range of dam failure scenarios, contingencies for those failures, and mitigation for those events and for secondary adverse effects linked to dam operation.

Page 1, Section 1.1, Para 2: "*Discharges...controlled by an automated control system...would adjust Project releases based on impoundment water level changes. Impoundment water levels would be monitored for compliance*": This appears to contradict statements elsewhere in the PSP that the impoundment water levels would not fluctuate. The variability or uncertainty in water levels managed by the automated control system should be described.

Page 1, Figure 1-1, and Page 10, Figure 2-1: Figure 1-1 shows the anticipated footprint of part of the reservoir upstream of the dam while Figure 2-1 depicts the approximate upstream extent of the reservoir. A figure should be included that shows the footprint of the reservoir for its entire 8 mile length. In addition, base images of the project area and shape files identifying the reservoir boundaries and infrastructure (e.g., CSO, WWTP, state and federal hazardous waste sites, roads, fire hydrants) within this footprint should be provided.

Page 2, Top: The proposal is to partially vegetate the two saddle dikes on their landward side. Consideration should be given to vegetating the dikes on all sides for aesthetic and ecological purposes using species native to the Grasse River ecosystem. The type and degree of regrading that might be undertaken should be explained further.

Page 3, Section 1.2.3; and Page 46, Sections 4.1, 4.2, 4.3, 4.4, and 4.5: Five study categories were proposed to MED for implementation but none were carried forward in the PSP. We request reconsideration of the studies intended to evaluate impoundment fluctuation, instream flow, shoreline erosion/sediment transport, impacts to existing WWTP and SPDES, and alternative Alcoa West remedies. Baseline data should be collected for each of these studies as project design may be modified prior to completion of the application process and dam malfunctions can lead to operating conditions different from anticipated "normal" conditions. It is imperative that baseline conditions be characterized since those data gaps cannot be filled once the dam is constructed. Impoundment fluctuation assessments is important in evaluating the ecological impacts to riparian zones and the dewatering and flooding of shorelines on some unspecified non-natural basis. Instream flow studies should characterize current upstream and downstream conditions and compare those to anticipated post-construction conditions relative to species that utilize that habitat. This should assist in determining whether appropriate upstream and downstream fish passage can be designed for lake sturgeon, American eel, and salmon as well as more resident species whose movements would otherwise be limited. Alternations to sediment transport and shoreline erosion are important from a habitat and a remedial perspective highlighting the importance of documenting current conditions. Reductions in sediment transport downstream of the dam have the potential to reduce inputs of carbon and nutrients

bound to sediment particles and can have negative effects on a likely natural attenuation component of any Alcoa West remedial decision. Increase in sediment retention upstream of the dam can decrease water quality and modify the plant, invertebrate and vertebrate community utilizing that habitat. Increases in sedimentation are documented adverse effects associated with dam construction and impoundment creation.

Page 3, Section 1.3 and Pages 4 and 5, Figure 1-2: The reports addressed in this section and in Figure 1-2 refer to the 2006 and 2007 studies. It appears that public comment was not solicited on studies prior to implementation. Reporting of those results should occur at the end of the 2007 field season. A separate project study schedule should be prepared directed at the PSP studies designed for implementation in 2008 and possibly 2009. Likewise a PSP data report summarizing and interpreting the 2008/2009 studies in light of all relevant information should be submitted to all interested parties. A comprehensive database, PDF maps and GIS shape files (e.g., depicting habitat usage by species and age class, supplemented by base maps and images) should be distributed to all interested parties

Page 3, Section 1.3.1: The PSP proposes to present the results of the 2006 and 2007 studies in a draft Study Report in the fall of 2007 and winter of 2008, respectively. The process by which the PSP incorporates the findings and data gaps identified in these reports should be described in the PSP as this information should be used to revise and or supplement the experimental design and the suite of studies currently proposed by MED. According to Figure 1-2, report preparation schedule varies by individual study ranging from Aug 2007 to February 2008. It is not clear how these results will be available in time for review and comment and subsequent modification of the PSP prior to 2008 study implementation. We recommend they be used to modify 2009 sampling.

Page 6, Section 2.1.1: The goals of the lake sturgeon movement and spawning study should be expanded to provide a more comprehensive understanding of the importance of the Grasse River to the state threatened lake sturgeon. Lake sturgeon abundance and age class structure data collection should be stratified by habitat type (e.g., foraging, spawning, refugia) and season as this distribution and usage data is critical in evaluating impacts from dam construction and for developing strategies for fish passage. Supplemental goals related to lake sturgeon movement, spawning and habitat conditions (quality and quantity) should include the following:

- Identify the extent of spawning habitat upstream of the breached Massena weir.
- Identify the extent of current or potential spawning habitat downstream into the St. Lawrence River in the vicinity of the Grasse River that may be impacted by dam construction.
- Evaluate the impact of dam and reservoir construction on lake sturgeon movement into and out of the upstream of the upper boundary of the reservoir.
- Evaluate the impact of dam and reservoir construction on lake sturgeon movement into and out of the St. Lawrence River. This appears to be an open question as data collection and analysis is on-going to determine whether the Grasse River supports a sub-population of lake sturgeon.
- Evaluate abundance and structure of lake sturgeon and potential lake sturgeon habitat upstream of the Madrid Dam. Potential removal of this impassable barrier through the natural resource damage assessment process could lead to availability of more upstream habitat for lake sturgeon.

- Evaluate intra- and inter-annual variation in timing and extent of habitat usage by lake sturgeon and on habitat quality. Multi-event collection efforts should be conducted to evaluate changes in habitat usage over the daily (day vs night) and yearly cycle (seasonal). Multi-year studies should be conducted during periods of open water and during ice cover to assess the importance of annual hydrology, water quality, and habitat quality on sampling success and habitat usage.
- Evaluate potential impacts on lake sturgeon prey base as a decline in food quality and or quantity could have a cascading effect on lake sturgeon.
- Evaluate potential changes in non-spawning habitat usage that might be triggered by Madrid Dam removal.

Page 6, Section 2.1.2, "*The lake sturgeon is a ...long lived species whose members do not spawn until they are quite old, and individuals may spawn only once every seven years...*": The life history of lake sturgeon (delayed age to reach sexual maturity, infrequent spawning) combined with the lack of project location population characteristics may lead to false conclusions about Grasse River habitat usage. The failure to find spawning individuals may be more a consequence of study design than lack of occurrence. The evaluation should also consider impacts to future usage of the impacted habitat as cohorts reach sexual maturity.

Page 6, Section 2.1.2, and Page 7, Section 2.1.4: The existing data on lake sturgeon population size, structure, and usage of the Grasse River is described as incomplete. These data gaps create difficulties in adequately formulating studies that can accomplish characterization of the population or its usage of the river in a limited duration study. It is not clear how the 2006-2007 collection efforts which other agencies have described as inadequate in combination with the 2008 proposed collection efforts can provide sufficient information to support the Integrated License Application Process (ILP).

Page 6, Section 2.1.2 and Page 14, Section 2.2.2: These sections should contain a discussion, similar to Section 2.3.2 that the Grasse River between its confluence with the St. Lawrence River and the Madrid Dam is designated significant coastal fish and wildlife habitat (NYSDOH 1994).

Page 8 to Page13, Sections 2.1.6.1 and 2.1.6.2; Page 16, Section 2.2.6.1 to Page 17, Section 2.2.6.2, Page 20, Sections 2.3.6.2 and 2.3.6.3; Page 23, Sections 2.4.6.2 and 2.4.6.3; Page 26, Sections 2.5.6.2 and 2.5.6.3; Page 29, Sections 2.6.6.2 and 2.6.6.3; Page 32, Sections 2.7.6.2 and 2.7.6.3; and Page 34, Sections 2.8.6.2 and 2.8.6.3: The comment period deadline of Aug 20, 2007 for the PSP is well after the 2007 start date for the most of the study components. Public comment should be on proposed studies as in the document title "Proposed Study Plan" not on studies already implemented where it is too late to modify study design to address comments. The PSP should be revised to present study plans for the 2008/2009 study years. The statistical basis for the sampling approach should be provided based on results of preliminary mark and recapture studies.

Page 9, Para 3: Water depth, current velocity, bottom substrate, turbidity, conductivity, and vegetative community should also be recorded.

Page 12, Para 1: Consideration should be given to adding continuous monitoring stations near the mouth of the Grasse River and upstream in the vicinity of the Louisville Bridge.

Page 14, Section 2.2.1, Para 3: Mooneye appears to have been collected in the project area. As this is a state threatened species, species-specific studies should be conducted to evaluate its distribution, abundance and habitat usage. Species-specific should also be undertaken for the American eel, eastern sand darter and salmon as these species have been identified within or in the vicinity the project area. With respect to salmonids, consideration should be given to their historical distribution and the relatively recent expansion of habitat available to salmonids resulting from the breaching of the Massena weir. In evaluating potential impacts from dam construction, study designs should account for impacts to future salmonid usage even if salmonids are not captured during field activities. Cumulative impacts should also consider that habitat usage could extend upstream of Madrid if passage at Madrid is restored as part of a natural resource damage settlement between the trustees and responsible parties.

Page 14, Section 2.2.1, Para 2: Sampling frequency, location, and timing may have been inadequate to collect salmonids utilizing the Grasse River. Future sampling efforts should be expanded to better characterize salmonid abundance and usage of the Grasse River from the St. Lawrence River in the vicinity of the mouth of the Grasse River to the Madrid Dam.

Page 14, Section 2.2.1, Para 4; Page 16, Section 2.2.6.1, Para 1 and Page 17, Section 2.2.6.2: Fish community sampling should be conducted ona more frequent basis than the proposed spring, summer and fall sampling schedule. We recommend monthly sampling during open water conditions.

Page 14, Section 2.2.2, Second sentence: This sentence should be modified to read: Three State-listed threatened fish species, the Eastern sand darter, lake sturgeon, and mooneye are known or expected to exist in the Grasse River.

Page 15, Top: The areal scope for the fish community studies should extend upstream to the Madrid Dam and downstream to its confluence with the St. Lawrence River.

Page 15, Para 2, "*The fish community .. comprised 50 species…*": A list of species stratified by sampling location/habitat and season should be attached to the PSP as it would allow for a more comprehensive assessment of the proposed study design.

Page 15, Para 2, "*Most fish were small including young-of year and older juveniles…Few large fish were captured.*": The findings of the 2006 fish community survey document a preponderance of young-of-year and juveniles in the collections. This underscores the importance of this stretch of river as breeding and nursery habitat for a diverse assemblage of fish species. Consideration should be given to how dam construction will impact each of these species.

Page 16, Page 2.2.6.1, Para 2: Temperature, dissolved oxygen, pH and other water quality parameters should be measured. Cover should include logs, woody and other debris, rocks, emergent vegetation, submerged and floating aquatic vegetation, undercut banks, and riprap. Vegetative communities should be mapped and species identified (e.g., cover, biomass, stem count). Habitat conditions (e.g., velocity, substrate type, pH, nutrients, TOC, light attenuation) should be recorded. It is our recommendation that delineation and characterization of the in-river vegetative community be a separate study component.

Page 16, Page 2.2.6.1, Para 4: Deepwater habitat should be defined. This habitat may be important to fish species other than lake sturgeon as nursery habitat, refugia and for overwintering but conditions and quality of those habitats may change due to alterations in water quality and bottom substrate as a consequence of dam construction. The proposed plan should be more explicit about what species utilize deepwater habitat, the period of use (e.g., season, day vs. night), and type of use.

Page 18, Section 2.3.2, Para 1 and 2: The study of fringing, forested, and backwater wetlands may be more appropriate as a separate study category distinguishable from upland habitat. It is not appropriate to incorporate studies on aquatic species and habitats in the context of terrestrial resources.

Page 18, Section 2.3.2, First sentence: By their nature, terrestrial resources are not found in-river.

Page 18, Section 2.3.5: The Terrestrial Resources Study should be conducted for several field seasons in order to assess inter-annual variation in habitat usage and habitat condition. This is especially important in identifying threatened and endangered species and evaluating changes in wetland community types and distributions.

Page 19, Section 2.3.6.1, Wetland Delineation: Wetlands, as defined, are not terrestrial habitat. This study should be developed as a separate Wetlands Study. Aquatic plants (submerged and floating) are defined as a wetland type (Cowardin et al. 1979, Edinger et al. 2007, NYSDEC 2007) and could be incorporated into a wetland study or as a separate study. Wetland loss is regulated under the NYS Freshwater Wetland Act, Section 404(b)(1) of the Clean Water Act (CWA), and Executive Order 11990. Appropriate mitigation should be undertaken for wetlands lost due to project-related impacts.

Page 19, Section 2.3.6.1, Spring Breeding Bird Surveys: A separate study category should be created for birds rather than including them in the terrestrial component. The study should evaluate usage by migrating, resident, and overwintering species. As with birds, separate study categories should be created for mammals and herps.

Page 20, Terrestrial and Endangered Species Survey: The wood turtle has also been documented in St.Lawrence Co and the project area should be surveyed for this species and suitable habitat (NYSDEC 2007).

Page 21, Section 2.4.1: Goals of the water quality study should be expanded (see comment below on Page 21, Section 2.4.4, Para 2 to Page 22, Top).

Page 21, Section 2.4.2: Three state-listed species have been identified in the Grasse River.

Page 21, Section 2.4.4, Para 1: The created reservoir is expected to average 16 feet deep for about 0.8 miles and 6 feet deep for the rest of the impoundment. The average baseline depths of these stretches should be reported.

Page 21, Section 2.4.4, Para 2 to Page 22, Top: Creation of an impoundment can lead to increased sedimentation, increased TOC, increased nutrient levels and decreased light penetration. Water quality measurements should include DO, T, pH, conductivity, TSS, nutrients (NH4, PO4, K) and light attenuation.

Page 22, Section 2.4.6.1 to Page 23, Top: Additional continuous data loggers should be installed in upstream of the Massena Pool and downstream of the breached Massena weir. The PSP should explain what depth the data logger is collecting measurements from and how the data at the prescribed location is representative of cross-channel and depth profiles. Sampling should occur over several years to evaluate inter-annual variability. Surveying one deepwater location (how deep?) for DO and T appears insufficient for characterizing current water quality in offshore locations or in determining whether water quality in deepwater sections of the river is similar to water quality at shallower depths.

Page 24, Section 2.5: The study should be renamed "Macroinvertebrate Study" and should include characterization of the benthic, epibenthic and phytophilus communities. Sampling strategy should be optimized for collection for each of these communities.

Page 24, Section 2.5.2 and Page 27, Section 2.6.2: The sampling area should extend from the Madrid Dam to the confluence with the St. Lawrence River to provide a nexus to the fish studies. This is especially important for the mussel study as fish serve as the host for the larval stage of mussels known as glochidia (Williams and Neves 2007). Alterations to fish community structure through habitat degradation and habitat fragmentation can have cascading effects on the mussel community for mussel species linked to a single or limited fish host.

Page 24, Section 2.5.6.1: The PSP should identify the habitats that will be investigated. Sampling should characterize each of the habitat types supporting macroinvertebrates (e.g., shallow and deep water, unconsolidated river bottom, emergent wetland, aquatic vegetative beds, riffles vs. pools vs. runs). Sampling should taking advantage of multiple sampling approaches, such as nets, sediment grabs, manual picking, and artificial substrates. A physical characterization of the various habitats should be conducted in order that the sample location and size can be determined for each habitat type. Eight sampling stations are proposed but more may be necessary to characterize the invertebrate community affected or potentially affected by project implementation.

Page 25, Top: Additional information should be collected at each sampling station including substrate type, turbidity, conductivity, and habitat type.

Page 25, Data Analysis: For appropriate biological metrics we refer you to EPA (1999), Novak and Bode (1992) and Bode et al. (2002). Metrics to consider include taxa richness (i.e., total number taxa, no. EPT), composition measures (i.e., abundance, percent dominant taxon,presence of exotic/nuisance species), tolerance/intolerance measures (i.e., density, %EPT, % Hydropsychidea to Tricoptera, %Baetidae to Ephemeroptera, Hilsenhoff Biotic Index), feeding measures or trophic dynamics (i.e., % filterers, % grazers and scrapers, % omnivores and scavengers, % shredders), and habitat measures (i.e., number and % of clinger taxa). Diversity indices may inadequately reflect perturbated conditions if few individuals of several species are present or if species are generally pollution intolerant. Diversity indices can also be redundant with taxa richness and % dominance. We therefore prefer some of the other metrics identified

above to diversity indices such as the proposed Shannon-Weaver Diversity Index. NYSDEC also utilizes the Percent Model Affinity (PMA) as a measurement of similarity of the sampled community to a model non-impacted community based on percent abundance in 7 major taxonomic groups (Oligochaeta, Ephemeroptera, Plecoptera, Coleoptera, Trichoptera, Chironomidae, and Other). The procedure for calculating the PMA for a model New York state benthic community can be found on page 56 of Appendix IV of Bode et al. (2002).

Page 27, Section 2.6.6.3: Mussel records for the project area and related drainages should be summarized in this section. Erickson and Garvey (1997) developed a key to 17 freshwater mussel species from the upper Grasse River draingage. Erickson and Fetterman (1995) identified 15 species from the drainage in the 1970's. *Alismidonta marginata*, a species whose shells were collected within 25 km of the mouth of the Grasse River, prefers riffles with gravel, cobbles, and boulders (Fetterman and Erickson, 1996). *A. undulata* was found in riffles and riffle pools in sandy to sandy gravel sediment. These species could experience a reduction in habitat through loss of riffle habitat as a consequence of dam construction and reservoir creation. Relict populations of *Leptodea ochracea* may also exist within the drainage. The fish host for this species is unknown. *Liguma nasuta* a very rare species has been documented near the mouth of the Grasse. *L. recta*, a rare species, has been collected in medium to low gradient reaches (Erickson and Fetterman 1997). *Lampsilis cariosa*, the yellow lampmussel is globally endangered and unofficially threatened in the US and Canada (Sabine et al. 2004).

Page 27, Section 2.6.6.1, Bullets: The first bullet suggests that the "purpose of the Rapid Stratified Sampling is to quickly determine whether mussels are present within sampling locations" while the second bullet states that "Sampling locations will be based on the results of the Rapid Stratified Sampling". This approach appears circular.

Page 27, Section 2.6.6.1 to Page 28: The proposed study assesses suitable mussel habitat spaced at a 1 km minimum where smaller increments might be sampled where mussels are abundant. Prior mussel sampling in the Grasse River drainage does not appear to have surveyed the entire length of the project area. It is recommended that the entire project area between the Madrid Dam and the mouth of the Grasse River be surveyed following protocols developed by Strayer and Smith (2003). This will be a more thorough assessment of mussels including those designated as protected species, of potential state concern, or previously recorded as limited in abundance, recognizing that historic occurrence in the drainage or nearby drainages can indicate the potential occurrence within the project area.

Page 28, Sampling Surveys: It is imperative that the mussel study design and implementation should be conducted by taxonomically qualified personnel.

Page 30 to 32: We defer to the St. Regis Mohawk Tribe for their recommendations on the Phase 1 Cultural Study.

Page 33, Section 2.8: The Recreation Survey should have a year-round focus and should include the entire project area since it is not clear how recreational activities might be affected further upstream and downstream by project construction. For example, the dynamics of ice thickness and quality should be discussed. Also potential modifications to behavior due to aesthetic considerations should be addressed beyond the 0.8 mile area. The total incremental benefit from

this project should be assessed since it appears from statements elsewhere in the PSP that boat traffic,water depth and surface area will not increase significantly over current river conditions.

Page 33, Section 2.8.6.1: Nearby free-flowing rivers comparable in size, flow, and gradient to the Grasse River should be surveyed to document recreational use to predict the potential loss of recreational opportunities in the Grasse River resulting from project construction. This is important since the Massena weir would have modified recreational usage that may not have fully been restored post-breach. Also usage could be altered by potential removal of barriers upstream of the proposed project. Alcoa recently conducted a survey of winter recreational use of the lower Grasse River in conjunction with its Ice Breaking Demonstration Project. During the winter months (January to March/April), the river is used for snowmobiling, walking, observing nature, ice fishing, hunting, snow shoeing, cross country skiing, skating, sledding, tobaggoning, ATVing, and exercising dog teams. We recommend that MED request a copy of the Lower Grasse River Ice Breaking Demonstration Project, Draft Documentation Report, ALCOA Inc., Massena, NY, June 2007.

Page 36, Sections 2.10.1 and 2.10.6.1: Interruption of upstream and downstream passage is a significant adverse impact from this proposed project. The various species of interest likely necessitate that the design consider multiple types of passage to address their different species-specific requirements. Fish passage design should also be explored for salmonids and other anadromous fish (e.g., white perch collected from the Grasse River) and for fish whose impediment to passage could lead to a decline in freshwater mussels species distribution.

Page 38, Section 2.11: The Floodplain/Ice Management Studies should be bifurcated into individual study components. A floodplain study should address impacts to the floodplain habitat such as to inundation, changes in flow, modification to flooding frequency, alterations to ice cover, movement, and storage. The study area should extend from the St. Lawrence in the vicinity of the Grasse River to the Madrid Dam. For example, the area in the vicinity of the Massena Rod and Gun club was previously proposed for an ice control structure as part of the Alcoa West remedial process and NOAA expressed concerns to EPA about impacts from this structure to the river and its floodplain. The floodplain area downstream of the Rod and Gun Club has the potential to be perturbated due to changes in river fluvial geomorphology and this should be evaluated.

Page 38, Section 2.11.1: Since one of the stated purposes of this multi-purpose project is ice control to reduce ice-jam related scour of PCB-contaminated sediment resulting from releases from Alcoa West, one of the goals of the study should address this objective.

Page 38, Section 2.11.3: The PSP suggests that the horizontal area effected by a 100-year flood event could be reduced. This may have negative ecological consequences that should be evaluated.

Page 39, Section 2.11.6.1: Alcoa conducted investigations and modeling exercises on ice dynamics in the lower Grasse River. Those efforts should be expanded as part of the Ice Management Study to address areas outside the original scope of the studies and should supplement those studies since they did not model the effect of a 26 ft head dam on ice dynamics. This should include the consequences of ice build up on the breached Massena weir. The MED should obtain the various reports produced by Alcoa as part of the work they are

undertaking to develop remedial alternatives to present to EPA for PCB-contaminated sediments in the Grasse River. DynaRICE modeling has been used by Alcoa to evaluate ice-jam formation in the lower Grasse River. This model should also be used to evaluate upstream and downstream impacts on ice cover assuming construction of the MED with and without an ice control structure component. It should evaluate the proposed dams' ability to retain ice within the reservoir system under various flow, ice thickness, discharge, and operational scenarios. Potential impacts to unremediated or capped PCB- contaminated sediment in the lower 7 miles should also be evaluated under normal and dam failure scenarios. Tree-scar analysis survey was implemented to evaluate the height of ice accumulations and as evidence of potential jams. Sediment cores were collected to assess chronology of ice events. Hindcasting was performed to model ice jams and ice scour.

Page 42, Section 3.1.3: The focus of the Phase II ASTM Environmental Site Assessment is to evaluate the potential for the proposed project to affect the extent and exposure pathways of any existing contamination in the project area defined as the 0.8 mile segment between the breached Massena weir and the proposed dam. The study should encompass Alcoa's PCB contaminated sediments downstream of the 0.8 mile segment and can make use of EPA's and Alcoa's documents.

Page 44, Section 3.2: Alcoa has been working outside the CERCLA process with MED on incorporating an ice control structure in the MED dam to manage ice-related scour in the lower 7 miles of river. The studies related to the cost of power should assess the economics of the project with and without the ice control structure and demonstrate that the project is viable without the ice control structure and without Alcoa's participation as the CERCLA and FERC processes are decoupled.

Page 46, Section 4.0: The instantaneous run-of-river mode of operation would be managed through an automated control system that modulates releases of water through turbines, fishways or gates. If the automated control system failed, how would the flows be regulated and how would the system continue to maintain outflows equal to inflows? A failure in the system has the potential to lead to reservoir fluctuations. We therefore, recommend studies to evaluate impacts associated with reservoir water level fluctuations and unequal inflows and outflows as a consequence of system error or failure.

Page 47, Section 4.4.1, Para 2, "*The increase in the surface area of the proposed impoundment at 300 acres as compared to the surface area of the existing river at 290 acres is insignificant*"; . and Page 47, Section 4.4.1, Para 3, "*Similarly, where the proposed Project impoundment water depths and surface areas are not significantly different from the current condition, no significant change would be expected in the boat traffic and the associated wave energy for the proposed impoundment.*": If significant changes in surface area, water depths, and boat traffic are not expected, then it is not clear how the project goal of enhancing recreationally opportunities will be achieved. This should be addressed in the recreational study.

Page 47, Section 4.4.1, Para 3, "*In the reach above the breached weir, both the fetch lengths...and the water depths for the proposed impoundment are not significantly different from the existing river*": The difference in fetch lengths and water levels between current conditions and with the proposed impoundment should be provided.

Page 47, Section 4.4.1, Para 4, "*in the reach between the breached weir and the proposed dam, a small area of new impoundment would have increased water depth*": The increase in water depth should be stated.

Page 47, Section 4.4.1, Para 4: MED should document through modeling or other engineering/hydrogeomorphology exercises that the construction of the impoundment and in particular the 0.8 mile reach between the proposed dam and the breached weir will not lead to increased erosion of the shoreline and that the earthen/concrete saddle dikes, man-made structures, and natural shoreline would "confine the erosional forces".

Page 47, Section 4.4.2, Para 1 to Page 48, Top: Since the vertical lift gates may or may not be lifted at any given time, it is not clear how sediment transport will be unobstructed by the dam throughout the year. Further, dam construction would alter the episodic accretion and scouring of river sediment. The impact of dam on the amount of sediment transport and the timing of sediment transport past the dam should be evaluated. A sediment mass balance should be developed for current river conditions and for projected dammed river conditions to assess changes in erosion and deposition upstream and downstream of the dam. Impoundment creation tends to support accumulation of sediments. This would modify the river's hydrogeomorphology and subsequently the bottom substrate, nutrient levels, and the fauna and flora associated with this changed environments.

Page 48, Top, "*...the flows throughout the Project impoundment will be essentially the same as the existing flows*": First it is not clear how the dam will maintain existing flows while creating an 8 mile impoundment. Second this statement appears to conflict with ones made elsewhere in the PSP.

Page 48, Section 4.4.3: MED should document why there would be only an "imperceptibly small decrease in water velocity and even more minor impact on existing sedimentation in the sensitive habitat areas." A hydrodynamic or hydrogeomorphic model should be considered to project sediment erosion and depositional patterns assuming different river velocities and dam operations.

Page 48, Section 4.4.3.1, "*When flows are higher than 1,900 cfs, as they are naturally one day in ten throughout the year, when the concentration of suspended sediments would be expected to be higher...*": Long term average flows for the Grasse are around 1100 cfs. Summertime flows (June to Augsut) are in the 100 to 200 cfs range and flows are generally less than 2000 cfs June to October (Alcoa 2001). When flows are greater than 2000 cfs TSS is likely dominated by non-cohesive sediments but most of year when flows are less than 2000 cfs TSS likely dominated by cohesive sediments. The PSP should evaluate the changes to the amount and type of sediment transported downstream of the dam and deposited in the impoundment. It should also distinguish between changes in bed load and suspended sediment.

Page 49, Section 4.5: The MED dam is proposed to serve multi-purposes: hydropower generation, recreation and sediment remediation. If Grasse River (Alcoa West) sediment remediation is one of the stated project goals potentially effectuated through incorporation of the ice control structure, then an evaluation of the effectiveness of said structure on PCB-sediment contaminant exposure, ecological risk, and human health should be part of the PSP. Otherwise,

this goal should be dropped. Likewise, dams can influence sediment transport and stream geomorphology, including the reach downstream of the dam (Graf 2006, Williams and Wolman 1984). Detailed analyses should be carried out to evaluate how changes in sediment transport and stream geomorphology will have on unremediated or capped PCB-contaminated sediments. We further request that MED evaluate the impacts of its project on the Trustees ability to restore the Grasse River once the CERCLA remediation has been implemented.

Specific Comments on the Scoping Document 2

Pages 11 to 12, Contaminant Remediation and Restoration: The scoping document suggests that the project's effects on potential restoration measures will be addressed in the PSP in the same section as remediation measures but it appears to be missing.

In summary, NOAA's Office of Response and Restoration appreciates the opportunity to comment on the Scoping Document 2 and Proposed Study Plan for the Massena Grasse River Hydroelectric Project. Construction of the proposed dam could significantly contribute to cumulative negative impacts to the Grasse River ecosystem and reduce our ability to undertake our trustee responsibility to enhance remedy selection, reduce residual ecological injury, and to identify and implement restoration opportunities on behalf of the public for the Grasse River. This project also has the potential to the cost of restoration.

If you wish to discuss these comments, I can be reached at 212-637-3259 or lisa.rosman@noaa.gov.

Sincerely,

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