

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NASSAU

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In the Matter of the Application of

SIERRA CLUB-Long Island Group, The Concerned
Citizens of the Mill River Flood Plain
and Joseph P. Forgione,

Petitioners,

Index No.

for a Judgment Pursuant to Article 78 of the New
York Civil Practice Law and Rules,

AFFIDAVIT

-against-

Governor's Office of Storm Recovery; New York State
Office of Parks, Recreation and Historic Preservation;
New York State Division of Housing and Community
Renewal; New York State Department of Environmental
Conservation; and Matt Accardi, Assistant General Counsel
and Certifying Corporate Officer for the Governor's
Office of Storm Recovery,

Respondents.

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STATE OF NEW YORK)
) ss.:
COUNTY OF NASSAU)

James K. Dooley, Ph.D, being duly sworn, deposes and says:

1. I have been a Professor of Biology at Adelphi University since 1973. I received my undergraduate degree in 1964 from the University of Miami in Biology; in 1969, I received my Master's degree in Biology from the University of South Florida, and in 1974, I earned my Ph.D. from the University of North Carolina, Chapel Hill. My CV is attached as Exhibit 1 to this Affidavit.

2. I am a member of the Sierra Club-Long Island executive committee and the Conservation Chair for Sierra Club Long Island Group (2018-20). I submit this affidavit in support

of Petitioners' Verified Petition and Complaint and request for a temporary restraining order and preliminary injunction.

3. I am a consultant for the International Union for the Conservation of Nature ("IUCN") on matters dealing with endangered and threatened species. The IUCN is a civil society membership association that harnesses the experience and resources of more than 15,000 experts whose diversity and vast expertise makes IUCN the global authority on the status of the natural world and the measures needed to safeguard it. I am also a consultant for the United Nations Food and Agriculture Organization ("FAO"). The FAO is a specialized agency of the United Nations working in 130 countries around the world in an effort to achieve food security for all.

4. I have conducted numerous environmental studies at marine and freshwater sites, including a survey on Shelter Island for the Nature Conservancy, and I have published papers on fish and heavy metal uptake from the environment. I have also carried out several sustainability projects in several National Parks, including one in Everglades National Park.

5. I am very familiar with Hempstead Lake State Park. For more than 45 years, I have enjoyed taking my ecology and introductory biology university students to the Park for field studies. As a result, I am very familiar with the biota of the park. Both Adelphi University professors and professors from neighboring institutions have used Hempstead Lake State Park extensively as a natural classroom.

6. The most widely acknowledged approach to studying a biological community is an ecosystem approach. An ecosystem approach promotes the integrated management of land, water and living resources in a way that achieves mutually compatible conservation and sustainable use, and delivers equitable benefits for people and nature.

7. The Park is a complex ecosystem in which numerous biotic and abiotic variables interact. The abiotic elements include: seasonal chemical cycles, sediment levels, temperature profiles dissolved oxygen (sediment and water column), toxins, and energy flow (biomass, food chains). The biotic elements include: plankton, fish, amphibians, reptiles, birds, mammals, aquatic vegetation, and terrestrial vegetation.

8. In the absence of an ecosystem evaluation that examines all of these elements, there is no way to make a scientifically accurate assessment of the impacts of the proposed Project. All of these variables must be quantified independently in order to evaluate how the overall system will react to alteration of any specific element. *See* H.T. Odum & E.C. Odum, Energy Basis for Man and Nature, (McGraw & Hill 1976); Cairns, Dickson & Maki, eds., Estimating the Hazard of Chemical Substances to Aquatic Life, (Amer. Soc. for Testing & Materials, Phila., Pa. 1978).

9. The Hempstead Lake State Park Project Environmental Assessment (“EA”) of did not provide a quantified evaluation of either the abiotic or biotic elements in the Park’s ecosystem.

Water-related Impacts

10. Significant water-related impacts also were not adequately addressed in the EA. These include:

- a. How will changes in the water flow affect the overall aquatic system and the watershed downstream?
- b. What problems will arise from the destruction of existing wetlands and the creation of new wetlands as contemplated by the Project?
- c. What will the wetland exchanges (eliminating some and creating others) due to the plants and animals that rely for sustenance on that specific type of wetland habitat and how might these changes alter other habitat functions in the Park?

Impacts from Dredging

11. Toxins: With regard to the negative effects from dredging—even a minute amount of toxins can cause significant impacts—the EA failed to consider the potential for the release of heavy metals to air and water media and to aquatic and other wildlife.

12. Heavy metals have entered and continue to enter Hempstead Lake State Park through pollution and natural sources. From the time of its construction in 1925 until 1996 when lead was banned as an additive to gasoline, the Southern State Parkway was a substantial source of lead in the Park. The storm runoff from the Southern State has accumulated in the marshes and sediment in the Park's ponds. The removal of contaminated sediment in any amount will release the lead and other toxins to the aquatic, air, and terrestrial environments.

13. Lead is toxic and deleterious to fish, and the severity of the impact on aquatic life depends upon the type of lead compound in the exposure. See Estimating The Hazard Of Chemical Substances To Aquatic Life, Cairns, Dickson & Make (eds.), (Amer. Soc. Testing & Materials, 1978). New York State water quality levels. Heavy metals (Cd, Cu, Hg, Mn, Pb, & Zn) in the HL environment. These problems were raised at public hearings on the Project (see p. 169; 13.2, p135; 9.12; p. 170; 13.3.1; Table 9; p. 97-98; p. 140; 9.36). Monitoring, measuring and remediation of environmental lead contamination. in an aquatic environment can be done rather easily by several methods including: bacterial film biosensors that utilize green fluorescent proteins (GFP) (Chakraborty, Babu, Alam, & Chaudhari, 2008). Also, certain submerged aquatic plants such as *Sagittaria sp.* and *Potamogeton sp.* can act as hyperaccumulators for accumulating high concentrations of environmental lead without being adversely impacted physiologically (Hu, Zeng, Pei, & Shi, 2010). Other plants (such as *Azolla sp.*) can be used as remediators to detoxify

HM contaminated aquatic environments. None of these possibilities were mentioned in the EA as either remediation or biomonitoring methods for Pb²⁺ or other HM in the HL project.

14. The mobility of heavy metals from the sediments to the water column depends upon the pH of the environment. Heavy metals can also be sequestered into the submerged vegetation and animal tissue (fish, mammals, birds, invertebrates). In the absence of any study of the pH of the pond waters it is impossible to know which metals will migrate, where they will migrate to, and how they will affect aquatic life. The anaerobic sediments with a lower pH (below 6.0) will free the heavy metals to fauna & flora of HL. In light of these facts, the EA should have analyzed whether disturbing pond sediments will result in the release of heavy metals that were sequestered in the sediments in their inorganic and organic states, including in both their particulate and dissolved forms.

15. Heavy metals (Cd, Cu, Hg, Mn, Pb, & Zn) are environmental contamination of typical and relatively uncontaminated sediments in various aquatic media of L.I. and its uptake by the killifish *F. heteroclitus* were studied by Chernoff & Dooley, 1979. J. Fish Biol. 14: 309-328. The levels of each of these heavy metals in various locations in the Park ecosystem were not widely measured. Both an extensive baseline heavy metals study and periodic monitoring are critical to ensure the safety and health of the park ecosystem and its visitors and neighbors.

16. Aerolization of lead and other heavy metals from drying out of such a large quantity of sediments poses a problem for not only the water bodies but the surrounding area as well. Wind dispersion of the drying sediments on shore that are blown in the wind as dust and possibly breathed in by visitors and neighbors of the park. In the case of lead, this was certainly a serious health issue.

17. Biomagnification is the process by which a compound (such as a pollutant or pesticide) increases its concentration in the tissues of organisms as it moves through the food chain, this is also a great concern within the Hempstead ecosystem. The EA should have evaluated what impacts might occur due to the biomagnification of heavy metals that are released into the environment. This would have required a study of the ecosystem's dynamics including plant and animal ingestion of heavy metals and the resulting concentrations that occur by means of food chains. The uptake of heavy metals uptake is often species and organ system specific. *See* Bennett & Dooley, "Copper uptake by two sympatric species of killifish *Fundulus heteroclitus* and *F. majalis*," J. Fish Biol. 21: 381-398 (1982). No such analysis was done for the Hempstead Lake State Park Project.

18. The severity of the leaching of heavy metals back into the lake/ponds and ground water from the dredged sediment on shore has not been determined or sufficiently analyzed proposed in a monitoring study (p.170; Appendix Z of EA).

Impacts due to the Loss of Trees and other Flora

19. I was alarmed to hear that GOSR and the other State Respondents were planning to remove a total of 1,799 trees from the 521-acre Park as measure intended to improve the ecology of the Park. At the time of this writing, over 1000 trees have already been removed from the Park, and GOSR is poised to allow a contractor to begin removing another 734 of trees. As I understand the situation, this latest phase of removal is slated to start after July 29, 2020.

20. As a consultant for the International Union for the Conservation of Nature, I am concerned that the project environmental study has not adequately addressed the habitat destruction of the proposed Project and the effects on the endangered and threatened species of the

Park. After all, a state park should be a model for such conservation and not set bad precedent for other similar projects.

21. The EA should have examined the potential impacts of the removal of a significant portion of the forested area. It should have assessed what type of damage to the ecosystem will ensue when thousands of trees are removed from the Park. (not quantitatively studied- loss of atmospheric carbon fixation, bird & mammal habitat destruction? Loss of shade provided by trees will affect the lake's temperature. The destruction of 2.5 acres of trees and disruption of their inhabitants- birds (27 species, all federally threatened including the bald eagle), insects, small mammals (northern long-eared bat) from the park as well as heavy construction traffic (15 thousand truck trips/year (based upon the EA estimated figures) for three years, increase in fecal coliform bacteria into the waterway, net loss of the parks wetlands, impact on the turbidity of the waters and pursuant effect on the fish and other fauna, oxygen depletion, death of resident fish and turtles plus accelerated eutrophication by the release of phosphates and nitrogen.

22. The exact faunal/floral composition of the HLSP is not clear (Sec. 9.4.2). The interactions of the organisms in an ecosystem is important. For example: (pp. 9-10) the nine or 10 species of stocked fishes plus the two non-stocked (goldfish and American eel) interact with each other and with the other organisms in the Hempstead Lake system to form relatively complex food webs. State stocking protocols of fish should reflect a typical stable native composition population in order to maintain a productive aquatic system. Has the system been recently and properly censused to see if relative number and composition of fish populations (and other aquatic vertebrates) been maintained for a stable aquatic community, or has the aquatic system been unmanaged? If the later, how then can the stability and productivity of the HL system be predicted when proposed major alterations are implemented? Any loss of the limited freshwater wetland

habitat can have a significant impact on the energy flow and diversity of the park ecosystem. I believe that the projected wetland loss has been severely underplayed in the EA.

23. A time study is needed and a comprehensive ecosystem analysis. The late Dr. H.T. Odum was a founding icon in the field of systems ecology (first establishing the connection between engineering and ecology), and author of 15 books and 300 papers, [Ref. Cevolatti, D., and Maud, S., 2004, "Realising the Enlightenment: H. T. Odum's Energy Systems Language *qua* G. W. v. Leibniz's *Characteristica Universalis*," *Ecological Modelling* 178: 279-92] wrote a classic energetic analysis of a freshwater system in Florida (Silver Springs). He believed that ecological systems had a temporal component, in that the energetic flow of an ecosystem changed with time. By implication any diversion/interruption of this energy flow would alter the natural evolution of the ecosystem. Odum's Silver Springs iconic energetic model has some pertinent comparisons to the HLP system.

24. The EA report to state that no future environmental impact on the Park will result from the proposed major alterations of the aquatic system is without foundation when the dynamics and composition of the present park ecosystem system is unknown. The wetland alteration and loss will also have a major impact on the ecosystem. The continual loss of highly productive, and ecologically important wetland communities must be avoided.

25. Ironically, the Park Project is moving forward in spite of the national prospect of making parks more accessible and kid-friendly. According to Jackie Ostfeld, Director, Sierra Club's Outdoors for All Campaign; Chair, Outdoors Alliance for Kids House Bill -- *She recently said* -- (as of 2/26/19) "Today's historic vote (the U.S. House of Representatives passed the Every Kid Outdoors Act (363-62) as part of the Natural Resources Management Act (S. 47), a bipartisan public lands package. The legislation passed in the U.S. Senate (92-8) two weeks ago and is now


headed to the President's desk for signature this is a win for our kids and our planet. It fills me with great hope to see our elected leaders come together in this time of deep division and pass a bipartisan bill that gets our kids outdoors, creates career pathways for youth and veterans in conservation, and protects and establishes close to home nature access for millions.....”.

26. A very thorough public discussion and roundtable from a panel of expert witnesses should have taken place before such a major park renovation was undertaken. This is after all public land! Instead, a fast-tracked EA approach was taken and many shortcomings resulted.

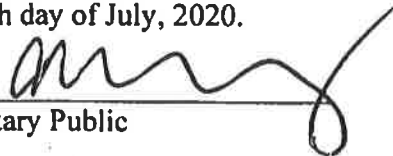
27. Another alternative to be considered is: repair to the dams and supporting groundwork should be done without the removal of such a large number of trees. The Army Corps of Engineers themselves recommended against removing the trees surrounding the dams because of destabilization factors.

28. Important factor that the EA discounts: the loss of park access to families & kids during construction and the environmental losses before embarking on such a catastrophic project.

29. After reconsideration, I am confident that you will ultimately make the correct decision in favor of the public and postpone/stop further park disruption and damage until a more complete environmental review is completed.


James Dooley

Sworn to before me this
30th day of July, 2020.


Notary Public

DENIS P. O'LEARY
Notary Public, State of New York
No. 4846221
Qualified in Kings County
Commission Expires January 31, 2024