EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

November 20, 2014

Hon. Joseph Martens
Commissioner
New York State Department of Environmental Conservation
625 Broadway, 14th Floor
Albany, NY 12233

Re: Petition to List the Eastern Hellbender as an Endangered Species in New York

Dear Commissioner Martens:

Enclosed please find a Petition submitted pursuant to New York Environmental Conservation Law § 11-0311 requesting that the Department add the hellbender salamander (*Cryptobranchus alleganiensis alleganiensis*) to the list of endangered or threatened species established pursuant to ECL § 11-0535(1) and 6 NYCRR Part 182.

We would be happy to meet with you or your staff to discuss the contents of the Petition.

Respectfully submitted,

Christopher Amato
Staff Attorney

C: Kathy Moser, Assistant Commissioner for Natural Resources
Patricia Riexinger, Director, Division of Fish, Wildlife and Marine Resources

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STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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In the Matter of the Petition of

AMY McMILLAN, Ph.D, ROBIN FOSTER, M.S.,
ALVIN R. BREISCH M.S., PETER ROSENBAUM, Ph.D.,
DONNA M. FERNANDES, Ph.D., DAVID CALLIGEROS,
JOHN R. DAVIS, LATIMER KELLS, JAMES PHILLIPS,
ANDREW SABIN, STEPHANIE STONE,
WENDY TOWNSEND, DAVID N. MILLER, JOHN BLEECH,
JULIE BOERNER, LYNN K. BENNETT, JASON GRINNELL,
DANIELLE MORRIS, SUBODH KUMAR,
CHRISTOPHER PENNUTO, MARY A. DURLAK,
DAVID PAWLAK, MARCIA BURNS, MARK W. SEVERSON,
SARAH CHUDYK, THOMAS D. WHITE,
CHERYL SLISZ, GARY W. PETTIBONE, JOHN LANG,
TINA M. WYNNE, SUSAN CHISLETT, JENNIFER JACKSON,
JEFFREY HAMMER, DOUGLAS RIDOLFI, LYNN YARMY,
MICHAEL A. HART, CHARLENE ROE,
PENNY FELSKI, MIO AKASHIMA, GARY STEELE,
ALICYN RINGLER, CATHERINE CARROLL,
ROB KRYWALSKI, DON MCGUIRE, KATRINA MCINTOSH,
DAVID BRIGHAM, MALIA SOMERVILLE,
DENISE MALONEY, JESSICA TURNER,
LYUBOV E. BURLAKOVA, BRIANNE L. TULUMELLO,
WENDY L. PATERSON, ALEXANDER Y. KARATAYEV,
REBECCA J. JOHNSON, CHRISTINA SHEEHAN,
KELSEY LOTZ, PATRICK PETKASH, CYLE ABBEY,
SARA SLATSKY, MARIA DESISTO-PETKASH,
STEPHANIE RADZIK, CENTER FOR BIOLOGICAL DIVERSITY,
SIERRA CLUB ATLANTIC CHAPTER, and EARTHJUSTICE,

Pursuant to New York Environmental Conservation Law § 11-0311
To Add the Hellbender Salamander (*Cryptobranchus alleganiensis alleganiensis*)
To the List of Endangered and Threatened Species Under
ECL § 11-0535(1) and 6 NYCRR Part 182.

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TO: HON. JOSEPH MARTENS, COMMISSIONER
New York State Department of Environmental Conservation
625 Broadway, 14th Floor
Albany, NY 12233

Introduction

1. Petitioners Amy McMillan, Ph.D., Robin Foster, M.S., Alvin R. Breisch, M.S., Peter Rosenbaum, Ph.D., Donna M. Fernandes, Ph.D., David Calligeros, John R. Davis, Latimer Kells, James Phillips, Andrew Sabin, Stephanie Stone, Wendy Townsend, David N. Miller, John Bleech, Julie Boerner, Lynn K. Bennett, Jason Grinnell, Danielle Morris, Subodh Kumar, Christopher Pennuto, Mary A. Durlak, David Pawlak, Marcia Burns, Mark W. Severson, Sarah Chudyk, Thomas D. White, Cheryl Slisz, Gary W. Pettibone, John Lang, Tina M. Wynne, Susan Chislett, Jennifer Jackson, Jeffrey Hammer, Douglas Ridolfi, Lynn Yarmy, Michael A. Hart, Charlene Roe, Penny Felski, Mio Akashima, Gary Steele, Alicyn Ringler, Catherine Carroll, Rob Krywalski, Don McGuire, Katrina McIntosh, David Brigham, Malia Somerville, Denise Maloney, Jessica Turner, Lyubov E. Burlakova, Brianne L. Tulumello, Wendy L. Paterson, Alexander Y. Karatayev, Rebecca J. Johnson, Christina Sheehan, Kelsey Lotz, Patrick Petkash, Cyle Abbey, Sara Slatsky, Maria DeSisto-Petkash, Stephanie Radzik, Center for Biological Diversity, Sierra Club Atlantic Chapter, and Earthjustice submit this petition pursuant to New York Environmental Conservation Law ("ECL") § 11-0311 requesting that the New York State Department of Environmental Conservation ("DEC" or "Department") afford greater protection to the hellbender salamander (*Cryptobranchus alleganiensis alleganiensis*) ("hellbender") under ECL Article 11. Specifically, Petitioners request that the hellbender be added to the list of endangered or threatened species pursuant to ECL § 11-0535(1) and 6 NYCRR Part 182.

2. It is respectfully submitted that the hellbender salamander meets the criteria for listing as "endangered" because it is a native species that is in imminent danger of extirpation or extinction in New York. *See* ECL § 11-0535(1); 6 NYCRR § 182.2(e). Alternatively, the hellbender meets the criteria for listing as "threatened" because it is likely to become endangered

in the foreseeable future throughout all or a significant portion of its range. *See* ECL § 11-0535(1); 6 NYCRR § 182.2(y). Specifically, as described in detail below, the hellbender meets the following listing criteria:

1. The current number of viable and self-sustaining populations of the species statewide is insufficient to ensure continued survival of the species in the state;

2. The total number of reproducing individuals is currently insufficient to ensure the continued survival of the species in the state;

3. The species has declined non-cyclically throughout a significant portion of its range in New York;

4. The present or threatened destruction, modification or curtailment of the species' habitat or range within the state threatens the continued survival of the species in New York;

5. The overuse of the species for commercial, sporting, scientific, educational, or other purpose threatens its continued survival of the species in New York;

6. Disease, pollution, contaminants, predation, or interspecific competition threatens the continued survival of the species in New York;

7. Existing regulatory mechanisms are insufficient to protect the species or its habitat;

8. The species is restricted geographically in New York; and

9. The species' biology makes it highly susceptible to changes in its environment.

See 6 NYCRR § 182.3(b).

3. Based on the facts set forth herein, Petitioners respectfully request that the hellbender salamander be added to either the list of endangered species set forth at 6 NYCRR § 182.5(a)(4) or, alternatively, the list of threatened species at 6 NYCRR § 182.5(b)(4).

Petitioners

4. Petitioner Amy M. McMillan, Ph.D., resides at 973 Stony Point Road, Grand Island, New York, and is an Associate Professor in the Department of Biology at the State

University of New York at Buffalo. Dr. McMillan has conducted research on hellbender conservation in New York State, has published several peer-reviewed papers on this subject, and is a member of the New York State Hellbender Recovery Team. She has been involved with an international team that has published several papers on cryptobranchid biology and conservation. Dr. McMillan organized the 5th Hellbender Symposium in 2011, which brought together cryptobranchid researchers from around the world, and is involved in identifying hellbender populations in the eastern United States.

5. Petitioner Robin Foster, M.A., resides at 252 Victoria Boulevard, Kenmore, New York, and is a Ph.D. candidate in the Evolution, Ecology and Behavior program at the State University of New York at Buffalo. Ms. Foster has conducted research on hellbender conservation in New York State, has published several peer-reviewed papers on this subject, and is a member of the New York State Hellbender Recovery Team. She is continuing research with a team from the eastern United States identifying hellbender sites and is employing a multidisciplinary approach to understand causes of hellbender decline.

6. Petitioner Alvin R. Breisch, M.S., resides at 29 Fiddlehead Lane, Altamont, New York, and is an independent amphibian and reptile consultant. Mr. Breisch served for 29 years as Amphibian and Reptile Specialist with DEC and was Senior Wildlife Biologist in DEC's Endangered Species Unit. Mr. Breisch is co-author of *The Amphibians and Reptiles of New York State* (Oxford Univ. Press, 2007).

7. Petitioner Peter Rosenbaum, Ph.D., resides at 250 County Route 24, Oswego, New York, and is Professor of Biological Sciences at the State University of New York at Oswego. Dr. Rosenbaum has conducted research and taught college level courses on New York

State reptiles and amphibians for over 30 years, and has a long-standing interest in the biology and conservation of hellbenders.

8. Petitioner Donna M. Fernandes, Ph.D., resides at 300 Parkside Avenue, Buffalo, New York, and is President and Chief Executive Officer of the Buffalo Zoo.

9. Petitioner David Calligeros resides at 21 Belvidere Street, Brooklyn, New York, and is a member of petitioner Center for Biological Diversity.

10. Petitioner John R. Davis resides at 735 Lakeshore Road, Essex, New York, and is a member of petitioner Center for Biological Diversity.

11. Petitioner Latimer Kells resides at 420 East 82nd Street, Apt. 4-D, New York, New York, and is a member of petitioner Center for Biological Diversity.

12. Petitioner James Phillips resides at 622 Lakeshore Road, Essex, New York, and is a member of petitioner Center for Biological Diversity.

13. Petitioner Andrew Sabin resides at 146 Bluff Road, Amagansett, New York, and is a member of petitioner Center for Biological Diversity.

14. Petitioner Stephanie Stone resides at 689 Fort Washington Avenue, New York, New York, and is a member of petitioner Center for Biological Diversity.

15. Petitioner Wendy Townsend resides at 77 Toad Road, Callicoon, New York, and is a member of petitioner Center for Biological Diversity.

16. Petitioner David N. Miller resides at 82 Southwick Drive, Orchard Park, New York.

17. Petitioner John Bleech resides at 1738 North Davis Road, East Aurora, New York.

18. Petitioner Julie Boerner resides at 326 Bird Avenue, Buffalo, New York.

19. Petitioner Lynn K. Bennett resides at 2243 Fix Road, Grand Island, New York.

20. Petitioner Jason Grinnell resides at 71 East Toulon Drive, Cheektowaga, New York.

21. Petitioner Danielle Morris resides at 71 East Toulon Drive, Cheektowaga, New York.

22. Petitioner Subodh Kumar resides at 268 Cindy Drive, Williamsville, New York.

23. Petitioner Christopher Pennuto resides at 4636 West Overlook, Williamsville, New York.

24. Petitioner Mary A. Durlak resides at 465 South Street, East Aurora, New York.

25. Petitioner David Pawlak resides at 15 Jane Drive, Cheektowaga, New York.

26. Petitioner Marcia Burns resides at 208 Norwood Drive, West Seneca, New York.

27. Petitioner Mark W. Severson resides at 124 Lexington Avenue, Buffalo, New York.

28. Petitioner Sarah Chudyk resides at 57 Heritage Drive, Lancaster, New York.

29. Petitioner Thomas D. White resides at 59 Chaumont Drive, Amherst, New York.

30. Petitioner Cheryl Slisz resides at 49 Greendale Avenue, Tonawanda, New York.

31. Petitioner Gary W. Pettibone resides at 146 Old Farm Circle, Williamsville, New York.

32. Petitioner John Lang resides at 44 Erwin Street, Painted Post, New York.

33. Petitioner Tina M. Wynne resides at 2189 Fix Road, Grand Island, New York.

34. Petitioner Susan Chislett resides at 6064 Lake Avenue, Orchard Park, New York.

35. Petitioner Jennifer Jackson resides at 6814 Kimberly Drive, Lockport, New York.

36. Petitioner Jeffrey Hammer resides at 3875 Lockport Road, Sanborn, New York.

37. Petitioner Douglas Ridolfi resides at 4116 Deer Lake Drive, Amherst, New York.

38. Petitioner Lynn Yarmy resides at 1218 North Baldwin Street, Johnson City, New York.

39. Petitioner Michael A. Hart resides at 6909 Campbell Road, North Tonawanda, New York.

40. Petitioner Charlene Roe resides at 89 Unger Avenue, Buffalo, New York.

41. Petitioner Penny Felski resides at 821 Forest Avenue, Buffalo, New York. Ms. Felski is employed as a Keeper at the Buffalo Zoo.

42. Petitioner Mio Akashima resides at 53 Robie Street, Buffalo, New York.

43. Petitioner Gary Steele resides at 696 Crescent Avenue, Buffalo, New York. Mr. Steele is employed as an Apprentice at the Buffalo Zoo.

44. Petitioner Alicyn Ringler resides at 640 Montrose Avenue, Buffalo, New York. Ms. Ringler is employed as an Administrative Assistant at the Buffalo Zoo.

45. Petitioner Catherine Carroll resides at 193 Treadwell Avenue, Tonawanda, New York. Ms. Carroll is employed as a Keeper at the Buffalo Zoo.

46. Petitioner Rob Krywalski resides at 37 South Ellington Street, Depew, New York.

47. Petitioner Don McGuire resides at 7159 Ridge Road, Lockport, New York.

48. Petitioner Katrina McIntosh resides at 260 Danbury Drive, Cheektowaga, New York. Ms. McIntosh is employed as a Keeper at the Buffalo Zoo.

49. Petitioner David Brigham resides at 260 Independence Drive, Orchard Park, New York. Mr. Brigham is employed as a Keeper at the Buffalo Zoo.

50. Petitioner Malia Somerville resides at 377 Starin Avenue, Buffalo, New York.

51. Petitioner Denise Maloney resides at 25 Fairview Court, Grand Island, New York. Ms. Maloney is employed as Director of Administration and Finance at the Buffalo Zoo.

52. Petitioner Jessica Turner resides at 285 Michael Avenue, Sloan, New York. Ms. Turner is employed as an Accounting Clerk at the Buffalo Zoo.

53. Petitioner Lyubov E. Burlakova resides at 349 Woodbridge Avenue, Buffalo, New York.

54. Petitioner Brianne L. Tulumello resides at 9 West Cavalier Drive, Cheektowaga, New York.

55. Petitioner Wendy L. Paterson resides at 1994 Delaware Avenue, Buffalo, New York.

56. Petitioner Alexander Y. Karatayev resides at 349 Woodbridge Avenue, Buffalo, New York.

57. Petitioner Rebecca J. Johnson resides at 320 Normal Avenue, Buffalo, New York.

58. Petitioner Christina Sheehan resides at 16 Lanesboro Street, Binghamton, New York. Ms. Sheehan is Interim Curator and Veterinary Assistant at the Binghamton Zoo.

59. Petitioner Kelsey Lotz resides at 226 Court Street, Binghamton, New York.

60. Petitioner Patrick Petkash resides at 5 Tobey Road, Harpursville, New York.

61. Petitioner Cyle Abbey resides at 534 Chenango Street, Binghamton, New York.

62. Petitioner Sara Slatsky resides at 1025 Reynolds Road, Johnson City, New York.

63. Petitioner Maria DeSisto-Petkash resides at 5 Tobey Road, Harpursville, New York.

64. Petitioner Stephanie Radzik resides at 1 McNamara Avenue, Binghamton, New York.

65. Petitioner Center for Biological Diversity ("CBD") is a 501(c)(3) not-for-profit, public interest corporation with over 675,000 members, including over 3,000 members in New York State. CBD's members are dedicated to protecting diverse native species and habitats through science, policy, education, and environmental law. CBD's Climate Law Institute works to promote sound conservation strategies in order to protect its members' recreational, wildlife viewing, scientific, and educational interests. CBD's members derive recreational, conservation and aesthetic benefits from the existence of rare species in the wild, including species that are in need of additional legal protections such as the hellbender salamander.

66. Petitioner Sierra Club Atlantic Chapter is a 501(c)(3) not-for-profit, volunteer-led environmental organization of 38,000 members statewide dedicated to protecting New York's air, land, water, and remaining wild places. Its offices are located at 353 Hamilton Street, Albany, New York 12210. Sierra Club's mission is to explore, enjoy, and protect the wild places of the Earth; to practice and promote the responsible use of the Earth's resources and ecosystems; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. Sierra Club's mission includes protecting rare and endangered species and the habitats upon which they depend for survivial.

67. Petitioner Earthjustice is a national not-for-profit environmental law firm that provides legal representation for environmental and community groups, local governments, Indian nations, and others on a wide range of environmental and natural resource issues, including the protection and conservation of endangered and threatened species of wildlife.

Hellbender Biology and Natural History Make This Species Highly Susceptible to Changes in its Environment

68. The hellbender (*Cryptobranchus alleganiensis Daudin*) is North America's only cryptobranchid species, and one of the world's largest salamanders. Hellbenders are long-lived. The longest recorded lifespan in captivity is 29 years (Nigrelli 1954), and the lifespan of a hellbender in the wild may exceed 30 years (Taber et al. 1975).

69. Adult hellbenders usually range in size from 29 – 51 cm total length, with record lengths of 68.6 cm for males and 74 cm for females (Fitch 1947, Petranka 1998).

70. The hellbender is completely aquatic, employing an unusual respiratory strategy. Larvae have functional external gills, which become reduced with age and generally disappear by the end of the second year (Bishop 1941). Adult respiration is almost entirely cutaneous, with the lungs most likely functioning primarily as hydrostatic organs. Adaptations including skin capillaries penetrating to the surface cell layer, a dorsoventrally flattened body, numerous skin folds, and behavioral rocking motions help bring in oxygen (Guimond and Hutchinson 1973).

71. Hellbenders are habitat specialists, requiring cool, clean, flowing water (Smith 1907, Wheeler et al. 2003). They are primarily nocturnal, foraging along the stream bottom for crayfish and other prey, including fish, worms, frogs, and toads (Smith 1907). During the daytime they remain under large, flat slabs of rock, which are an essential component of hellbender habitat, providing cover and nest sites (Bishop 1941). Hellbenders are more active in the daytime during the breeding season, which occurs in the late summer and early fall in New York State (Bishop 1941).

72. Adult hellbenders are relatively sedentary; most remain at their site of capture, with few exceptions (see Nickerson and Mays 1973a, Humphries and Pauley 2005, Peterson 1987, Blais 1996, and Foster 2006). Very little is known about juvenile dispersal, although there is some indication that within a stream or river it might be extensive (Feist et al. 2014).

73. The habitat needs of the hellbender make it sensitive to environmental changes. Life history traits, including a long life span, an unusual respiratory system, and sedentary habits, make it susceptible to local extirpation and potentially slow to adapt to environmental changes.

The Species is Restricted Geographically in New York

A. Historical Distribution in New York

74. The earliest published accounts of hellbenders in New York come from Bishop (1941), who reported large numbers of hellbenders in streams in the Allegheny River and its tributaries. Bishop described taking thirteen specimens within the course of a single hour. An earlier account from Reese (1903) indicated that hellbenders were abundant in French Creek, but it is unclear whether he was referring to a stretch of this creek in New York or Pennsylvania. Early records of hellbender sightings exist for the numerous streams in the Allegheny River watershed.

75. Historically, three streams were documented to have hellbenders in the Susquehanna watershed (Bishop 1941, Bothner and Gottlieb 1991, Blais 1996). Historic newspaper accounts (from the early to mid-1900s) indicate that anglers regularly caught hellbenders on the main stem of the Susquehanna River in New York. For example, in 1964 the *Oneonta Star* reported that a group of high school boys took more than a dozen hellbenders from the river during an afternoon of fishing.

76. Bothner and Gottlieb (1991) reported locating a total of 29 hellbenders in the Susquehanna drainage during a two-year search, which took place during the late summer and early fall seasons of 1981 and 1982. Although all major tributaries were searched, hellbenders were only located on the Susquehanna and Unadilla Rivers, where they were present in all but one of the previously recorded sites, and were also found at several new locations.

77. A second study of the Susquehanna drainage located 25 hellbenders on Butternut Creek, a tributary of the Unadilla River. These animals were discovered over the course of nine mark-recapture surveys, totaling 107.2 person hours. During an additional 158 person hours spent searching historic sites in the drainage, no hellbenders were located (Blais 1996).

78. Between 1981 and 1988, the Allegheny River and its major tributaries were searched and a total of 303 hellbenders were located. All historic sites but one remained occupied, and new sites were discovered on the Allegheny River, Dodge Creek, and Tunungwant Creek (Bothner and Gottlieb 1991).

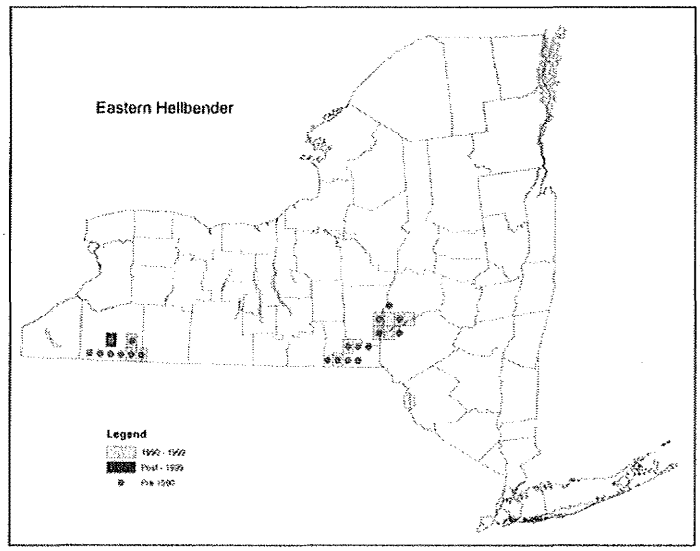

Figure 1. Historic and current range of the hellbender *(Cryptobranchus alleganiensis alleganiensis)* in New York State (NYS DEC Amphibian and Reptile Atlas, unpublished data).

B. Current Distribution and Status in New York Indicate That the Species Has Declined Non-Cyclically Throughout a Significant Portion of its Range

79. Recent studies indicate that hellbender population numbers in the Allegheny drainage have experienced a rapid and drastic decline. In 2004 and 2005, the sites surveyed in

the 1980's were resurveyed (Foster 2006, Foster et al. 2009). One historic site was extirpated and population numbers declined by an average of 44% across all sites. Only one site had a population of equivalent size to what was found in the 1980's survey (Table 1 and Figure 2).

80. Although a few new hellbender sites have recently been discovered in the Allegheny drainage, the capture numbers have been small and it is questionable whether these populations are sustainable.

Table 1: Estimates of hellbender population size and ecological density for eight sites in the Allegheny River Drainage during the 1980s (modified from Gottlieb, 1991) and in 2004-05. Population size estimates were calculated using a variation of the Lincoln-Peterson Index. [a]Five hellbenders were located during the recapture event. [b]Surveyed in 2004 and in 2005. [c]Surveyed in 1985 and in 1988. (From Foster et al. 2009).

Site	Site Area (m^2) (% habitable)		Estimated N (± 95% CI)		Ecological Density (#/10m^2 habitable area)	
	1980s	2004-05	1980s	2004-05	1980s	2004-05
1	424 (2)	2355 (2)	3.0 (2.9)	0[a]	2.63	0
2	1208 (2-3)	12,240 (2)	6.0 (2.0)	24.8 (16.2)	1.67 – 2.5	1.01
3	806 (2-5)	4512 (1)	5.0 (2.7)	0	1.23 – 3.13	0
4[b]	624 (10)	3640 (5)	23.3 (19.1)	35 (35.4)	3.33	1.92
				11.6 (3.8)		0.64
5	6048 (8-10)	8901 (6)	40.4 (19.6)	49.4 (31.0)	0.67 – 0.83	0.93
6	2082 (6-8)	11,666 (1)	24.2 (17.4)	10.0 (6.9)	1.43 – 2.0	0.85
7[c]	1592 (6-8)	4554 (3)	52.0 (12.6)	22.5 (10.0)	4 – 5.56	1.64
			58.5 (27.3)		4.55 – 5.88	
8	14,003 (3-5)	15,741 (3)	45.2 (14.6)	21.6 (13.2)	0.61 – 1.08	0.46

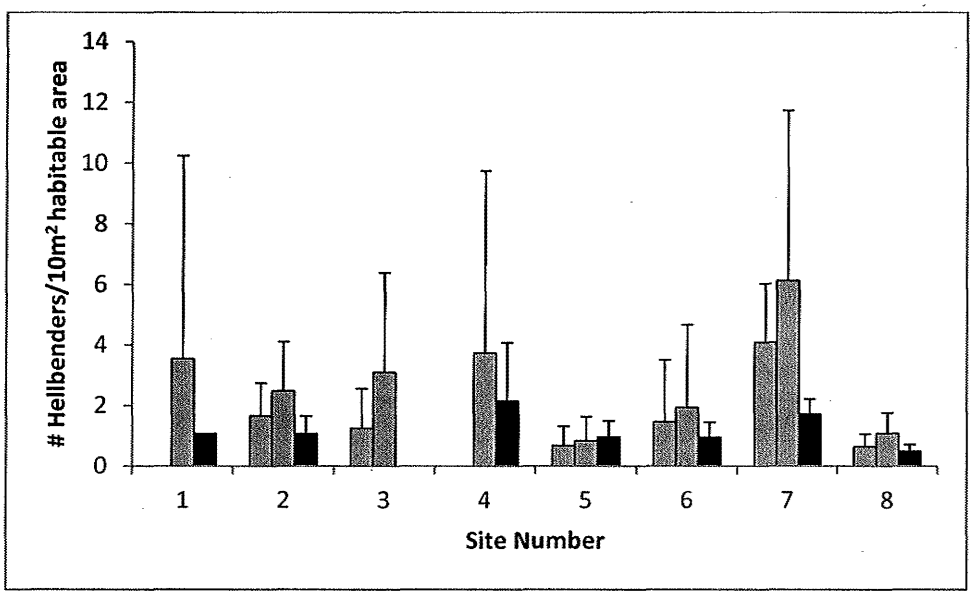

FIG. 2. Size class distribution of Hellbenders captured in the Allegheny River drainage during the fall seasons of 2004 and 2005, as compared to historical data from Hellbenders captured during the fall seasons of 1983-85 and 1988 (Bothner and Gottlieb, 1991; Gottlieb, 1991). The size distributions differ significantly between the two time periods ($\chi^2 = 17.393$, df = 4, $P < 0.005$).
▒ = 1983-85 and 1988; ■ = 2004-05. (From Foster et al. 2009).

81. Hellbender populations in the Susquehanna drainage are also in serious jeopardy (Table 2). Intensive searches in the last several years have revealed only two hellbenders in one of the most populous historically occupied sites (T. Bell, pers. comm.) and repeated searching in many other historic areas have resulted in either zero or one hellbender captures (Quinn 2010, Quinn et al. 2013). It is therefore likely that hellbenders at several of these sites have been extirpated.

82. Thorough surveys by Robin Foster and DEC over the last three field seasons (2012-2014) have found no hellbenders in 25 sites identified as containing suitable habitat.

83. Based on the above data, the total number of reproducing individuals is currently insufficient to ensure the continued survival of hellbenders in the state, and the current number of viable and self-sustaining populations of the species statewide is insufficient to ensure the

continued survival of the species in the state. Consequently, hellbenders are in imminent danger of extirpation or extinction in New York.

Table 2. Numbers of hellbenders reported in the Susquehanna River watershed before and after 2000. Pre-2000 numbers of animals reported include the following sources: Soule and Lindberg 1991; Breisch (memo to NYSDEC) 1990, newspaper articles, and NYS Natural Heritage records. Post-2000 reports include results from three systematic surveys of the watershed, totaling hundreds of person-hours. *Additional records from the 1930s list hellbenders in the mainstem Susquehanna as "abundant" but do not provide actual numbers (Bishop, 1941).

Stream	Number of Animals Reported Before 2000	Number of Animals Reported Since 2000
Tributary 1	51	1
Tributary 2	13	2
Tributary 3	2	0
Susquehanna Mainstem	27*	2

Existing Regulatory Mechanisms Are Insufficient to Protect the Species or its Habitat

84. The hellbender is currently listed in New York as a "species of special concern," *see* 6 NYCRR § 182.5(c)(4)(i), which means that the Department has determined that it is "at risk of becoming threatened in New York." *Id.* § 182.2(u). In 2006, New York State passed legislation authorizing the Department to promulgate regulations concerning the taking, importation, transportation, possession or sale of any species of special concern, but DEC has not promulgated regulations pursuant to that general statutory authorization or regarding protection of hellbenders specifically. *See* ECL § 11-0535(3).

85. The federal government does not offer any protection or special status to eastern hellbenders, although the Ozark subspecies was listed as endangered in 2010. The U.S. Fish and Wildlife Service considers the hellbender a species of conservation concern and is preparing a

status assessment to determine whether federal protection is warranted. The draft status assessment (reviewed independently by McMillan and Foster in 2012) cites widespread extirpation and decreasing population sizes of hellbenders throughout their range (Mayasich et al. 2003, Wheeler et al. 2003, Foster et al. 2009, Kaunert 2011) and unabated threats including disease, human-mediated habitat loss, and pollution. However, federal protection is likely years away from becoming a reality.

The Continued Survival of the Hellbender in New York is Threated by Habitat Destruction Or Modification, Overuse of the Species, Disease, Pollution and Predation

86. The hellbender in New York faces grave threats, including modification and loss of habitat, water quality degradation, inadvertent collection by anglers, invasive species, and disease.

87. One of the most significant threats to hellbenders is modification or loss of habitat, including siltation, impoundment, dams/fragmentation, and degradation of water quality. Siltation is believed to impact habitat of adults and juveniles, burying potential nesting sites and filling interstitial spaces in course substrate. Increased sediment loads also may destroy eggs, and even reduce crayfish (prey) abundance. Furthermore, increased sediment may impact respiration in these primarily skin-breathing animals. Sources of sediment include mining, road construction, agriculture, logging, and development in riparian areas.

88. Dam construction fragments hellbender habitat, reduces water flow and dissolved oxygen, and sometimes increases temperature. In the 1930s, the Allegheny River in Allegany State Park was known for having a high abundance of hellbenders (based on newspaper accounts from the 1930s). This site was flooded by the opening of the Kinzua Dam in 1965.

89. Adverse water quality impacts to hellbender habitat may include thermal or chemical pollution (Mayasich et al. 2003, USFWS 2004), as well as water withdrawal, sedimentation, and pollutants. Habitat disturbance, largely due to recreational activities, also may impact hellbender populations. Recreational watercraft and ATV use in areas used by hellbenders could have negative consequences for hellbenders (USFWS 2004). Additionally, herpetological enthusiasts repeatedly visiting sites and flipping over rocks in search of hellbenders can be problematic. There is evidence that a site in the Susquehanna drainage that was visited annually no longer supports a viable population of hellbenders.

90. Another significant threat to the hellbender is collection. In the past this was for scientific and educational uses (Branch 1933) or for the commercial pet trade, but unintentional harvest by recreational anglers continues to be a problem. Mortality related to recreational fishing is largely the result of misconceptions about hellbenders. Some anglers erroneously believe that hellbenders are poisonous, and that they destroy game fish. Historic newspaper accounts (from about 1850 through the early 1970s) almost always indicate that the hellbender(s) caught was(were) killed. Recent conversations with 'bank' anglers indicate that older generations continue to consider hellbenders as 'vermin', although younger anglers seem more interested in them as a unique species (Foster pers. comm.). In the past, there even have been reports of organized hellbender hunts. For example, in the 1930s the Allegany School of Natural History held an annual 'Hellbender Party' during which students caught as many hellbenders as they could and stuffed them for museums (Life Magazine 1938).

91. Disease, fungal infections, and parasites have been associated with some amphibian declines. *Saprolegnia*, or water mold, infections have been reported in captive hellbenders (Smith 1907). Three species of nematodes (*Falcaustra catesbeianae*, *Urodelnema*

mackini, *Kamegainema cingula*) and one species of cestode (*Proteocephalidae* gen. sp.) have been identified as parasites of hellbenders (Hasegawa and Ikeda 2003). Most recently, chytrid fungus, *Batrachochytrium dendrobatidis*, has been implicated in global amphibian declines (Berger et al. 1998) and has been found in other hellbender populations (e.g. Bodinof et al. 2011). This chytrid has been found in hellbenders in the Allegheny drainage as well (Kenneth Roblee, pers. comm.) but it is unclear what impact this disease will have on the present hellbender populations.

92. Recent work in the Allegheny drainage suggests chytrid could have very serious and long term impacts on hellbenders. Another emerging disease with potential to severely impact hellbender populations is ranavirus (Daszak et al. 1999, Kik et al. 2011), which is currently being tested for in New York hellbender populations.

93. Some researchers believe that predation and intraspecific aggression play a role in hellbender declines. Natural predators of hellbenders are thought to include northern pike, muskellunge, turtles, and water snakes (Nickerson and Mays 1973b). Several state agencies have speculated that introduced game fish may detrimentally impact hellbender populations (Mayasich et al. 2003).

94. Abnormalities and wounds are relatively common in New York hellbenders (Foster 2006), and while these abnormalities are unlikely to have any major impact on populations by themselves, they may exacerbate impacts due to other threats (Miller and Miller 2005).

95. Finally, introduced rusty crayfish (*Orconectes rusticus*), may be impacting hellbenders in New York streams. A survey in the summer of 2014 revealed large populations of rusty crayfish in the Susquehanna drainage in sites where hellbenders were expected to be found.

In the Pennsylvania Susquehanna rusty crayfish invasion seems to be associated with a decline in hellbender populations (Peter Petokas, pers. comm.).

Summary

96. New York is at the northern edge of the eastern hellbender salamander's range. With projected changes in climate, New York may be a critical region for endurance of hellbender populations.

97. Hellbenders face numerous threats in New York, including sedimentation, low water quality, lack of habitat, and disease. Significant declines in hellbender populations in both the Allegheny and Susquehanna watersheds suggest that this species, without protection, could become extirpated in the near future in the Susquehanna drainage, and may also disappear from the Allegheny drainage.

WHEREFORE, the undersigned Petitioners respectfully request pursuant to ECL § 11-0311 that the hellbender salamander be added to either the list of endangered species set forth at 6 NYCRR § 182.5(a)(4) or, alternatively, the list of threatened species at 6 NYCRR § 182.5(b)(4).

Dated: New York, New York
November 20, 2014

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I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name] Date: 10/8/14

Amy McMillan
973 Stony Point Road
Grand Island, NY 14072

Robin L Foster
[Name] Date: 10/8/2014

Robin Foster
252 Victoria Blvd.
Kenmore, NY 14217

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Alvin R. Breisch
[Name]

11 Oct 2014
Date

Alvin R. Breisch
29 Fiddlehead Lane
Altamont, NY 12009

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

PETER A. ROSENBAUM, Ph.D.

[Name]

September 13, 2014
(Date)

Peter A. Rosenbaum, Ph.D.
(Signature)

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Donna M. Fernandes

Donna M. Fernandes, PhD

October 8, 2014
Date

President / CEO Buffalo Zoo
300 Parkside Ave Buffalo, NY 14214

To Whom it May Concern,

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

David Calligeros
407 North Broadway
Upper Nyack, NY 10960
Member of the Center for Biological Diversity

22 September 2014

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

John R. Davis
[Name]

9/21/14
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Latimer Kells
420 East 82nd Street
Apartment 4-D
New York, NY 10028

Date: 9/22/14

Affiliation: Center for Biological Diversity

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name] James Phillips
Essex, NY

Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Andrew Saul

[Name]

9/11/2017

Date

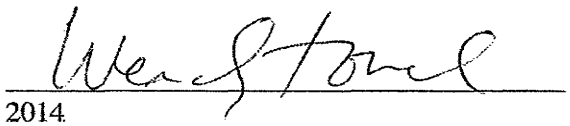
My name is Stephanie Stone. I live at 689 Fort Washington Avenue, #3d, New York, NY 10040. I am a member of the Center for Biological Diversity and having read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species, I agree with and support the Petition.

Stephanie Stone
[Name]

10/12/14
Date

Wendy Townsend
77 Toad Road
Callicoon, NY 12723
author, and member of Center for Biological Diversity

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.



September 15, 2014

Wendy Townsend

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

David Miller — 10/9/14

[Name] — Date

David Miller
82 Southwick Drive
Orchard Park, NY 14127

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name]

10/09/2014
Date

John Bleech
1738 North Davis Rd
East Aurora, NY 14052

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Julie Boerner — 10-10-14

[Name] Date

Julie Boerner

326 Bird Ave

Buffalo, NY 14213

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name]		Date	
10/15/14	Lynn K. Bennett	Lynn K Bennett	2243 FOXKO GRAND ISLAND, NY 14072

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Jason Grinnell 10/14/14

[Name] Date

71 E Toulon Drive, Cheektowaga, NY 14227

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Danielle Moni
[Name]

10.15.14
Date

71 E Taylor Dr
Cheektowaga NY
14227

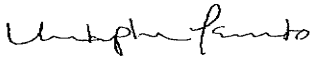
I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Subodh Kumar

Subodh Kumar
268 Cindy Drive
Williamsvillle, NY 14221

10/16/2014
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.



15 Oct, 2014

Christopher Pennuto — Date

4636 West Overlook, Williamsville, NY 14221

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Mary A Durlak _______________ Oct 9, 2014 _______________

[Name] Date

Mary A Durlak
465 South St
East Aurora, NY 14052

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

David Pawlak
[Name]

10-9-2014
Date

David Pawlak
15 Jane Drive
Cheektowaga NY 14227

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Marcia Burns
[Name]

10/9/14
Date

Marcia Burns
208 Norwood Drive
West Seneca, N.Y. 14224

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Mark W Severson
[Name]

10/9/14
Date

Mark W. Severson
124 Lexington Ave.
Buffalo, NY 14222

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Sarah A. Chudyk
[Name]

10/9/2014
Date

Sarah Chudyk
57 Heritage Drive
Lancaster NY 14086

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Thomas D. White
[Name]

10/9/2014
Date

59 Chaumont Dr.
Amherst NY 14221

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Cheryl A. Sliz
[Name]

10/9/14
Date

Cheryl Sliz

49 Greendale Ave

Tonawanda NY 14150

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Gary W. Pettibone
[Name]

10/9/14
Date

146 Old Farm Circle
Williamsville, NY 14221

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

John Lang
[Name]

10/09/14
Date

John Lang
44 Erwin St.
Painted Post NY 14870

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Tina M Wynne
[Name]

10/9/14
Date

Tina M. Wynne
2189 Fix Rd
Grand Island, NY 14072

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Susan Chislett
[Name] Susan Chislett

10-9-14
Date

6064 Lake Ave
Orchard Park NY 14127

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name]

10/9/14
Date

Jennifer Jackson

6814 Kimberly Dr.
Lockport, NY 14094

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name] 10/9/14 Date

Jeffrey Hammer

3875 Lockport Rd

Sanborn NY 14132

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Douglas Ridolfi
[Name]

OCT. 10 2014
Date

Douglas Ridolfi
4116 Deer Lakes Drive
Amherst NY 14228

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Lynn Yarmey
[Name]

10/9/14
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name]

10/22/14
Date

MICHAEL A. HART
6909 CAMPBELL BLVD
APT G.
NORTH TONAWANDA, NY 14120

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander t the New York State list of endangered and threatened species and I agree with and support the Petition.

Charlene Roe Charlene Roe 10-08-14
[Name] [Signature] [Date]
89 Unger Avenue Buffalo NY, 14210
[Address]

Ella Caira ella Caira 10/9/14
[Name] [Signature] [Date]
148 Murray Street Fort Erie ON Canada L2A2B2
[Address]

51 West Oakwood Wilson NY Kay Noonan 10/9/14
[Name] [Signature] [Date]

[Address]

Penny Felski Penny Felski 10/9/14
[Name] [Signature] [Date]
821 Forest Ave #3 Buffalo, NY 14209
[Address]

Mio Akashima Mio Akashi 10/10/14
[Name] [Signature] [Date]
53 Robie St. Buffalo, NY 14214
[Address]

Gary Steele Gary R. Steele 10/13/14
[Name] [Signature] [Date]
696 Crescent Ave. 4pt. Lower Buffalo, NY 14216
[Address]

Alicyn Ringler Alicyn Ringler 10/13/2014
[Name] [Signature] [Date]
640 Montrose Ave Buffalo, NY 14223
[Address]

Catherine Carroll Catherine A Carroll 10/13/14
[Name] [Signature] [Date]
193 Treadwell Rd. Tonawanda NY 14150
[Address]

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander t the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name]	[Signature]	[Date]
MELISSA YANCEY	Melissa Yancey	13 Oct 14
[Address]		
1610 Broadway Grand Island NY 14072		

[Name]	[Signature]	[Date]
Rob Krywalski	[signature]	10/14/14
[Address]		
37 S. Ellington Depew NY 14043		

[Name]	[Signature]	[Date]
Don McGuire	[signature]	10-14-14
[Address]		
9159 Ridge Rd Ransomville NY 14131		

[Name]	[Signature]	[Date]
Katrina McIntosh	Katrina McIntosh	10/14/14
[Address]		
260 Danbury Dr Cheektowaga NY 14225		

[Name]	[Signature]	[Date]
David Brigham	[signature]	10/14/14
[Address]		
260 Independence Dr. Orchard Park NY 14127		

[Name]	[Signature]	[Date]
Malia Somerville	[signature]	10/14/14
[Address]		
377 Starin Ave. Buffalo, NY 14216		

[Name]	[Signature]	[Date]
Denise JB Maloney	[signature]	10/14/14
[Address]		
25 Fairview ct Grand Island NY 14072-2949		

[Name]	[Signature]	[Date]
Jessica Turner	[signature]	10/14/14
[Address]		
285 Michael Ave. Sloan, NY 14212		

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Lyubov E. Burlakova — 10/20/2014
[Name] — Date

Lyubov E. Burlakova

Brianne L. Tulumello Brianne L Tulumello 10/20/2014

Wendy L. Paterson 10/20/2014

Alexander Karatayev 10/20/2014

Alexander Y. Karatayev

Rebecca Jo Johnson 10/20/2014

Adresses:

- L. Burlakova, A. Karatayev - 349 Woodbridge Ave Buffalo NY 14214
- W. Paterson - 1994 Delaware Ave., Buffalo, NY 14216
- B. Tulumello - 9 West Cavalier Dr, Cheektowaga, NY 14227
- R. Johnson - 320 Normal Avenue Buffalo, NY 14213

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Cynthia Skelton
[Name]

10/8/2014
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Kelsey L Foy
[Name]

10/9/14
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

[Name]

10/9/14
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Cyle Abbey
[Name]

10/8/15
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Lisa Slatsky
[Name]

10/10/14
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Maria Dadio-Petkash
[Name]

10/9/14
Date

I have read the foregoing Petition to the New York State Department of Environmental Conservation to list the hellbender salamander to the New York State list of endangered and threatened species and I agree with and support the Petition.

Stephanie Radish
[Name]

10/11/14
Date

CENTER FOR BIOLOGICAL DIVERSITY

By:_____

Mollie Matteson
Senior Scientist

EARTHJUSTICE

By: 

Christopher Amato, Esq.
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New York, NY 10005
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camato@earthjustice.org