



**ILLINOIS NATURAL  
HISTORY SURVEY**  
PRAIRIE RESEARCH INSTITUTE

**SURVEYS FOR THE MUDPUPPY (*NECTURUS MACULOSUS*)  
IN LAKE MICHIGAN NEAR MONTROSE HARBOR**



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**Report Prepared For**

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## Introduction

The Chicago Shoreline Storm Damage Reduction Project was authorized in the Water Resources Development Act of 1996, Section 101 (a)(12). The City of Chicago and the Chicago Park District are the local sponsors for this project. The purpose of the project is to prevent storm erosion of parklands and reduce flooding of Lake Shore Drive. Project limits for construction will be constrained by the Marovitz (Waveland) Golf Course (**Figure 1**). As part of the project, the existing rubble mound is to be replaced with new stone, which consists of various sized chunks of quarried limestone. The existing rubble mound potentially provides habitat for the Mudpuppy, *Necturus maculosus*.

*Necturus maculosus*, is a large (up to 19" in length, but averages 12"), fully aquatic salamander distinguished from other salamanders in Illinois by having four toes on the hind feet and large bushy gills. A dark line that bisects the eye terminates at the external gills and the species often has dark blotches on its sides and tail (Petranka 1998). Their range extends from southern Quebec to northern Alabama, Mississippi, and Georgia. They inhabit a multitude of habitats including muddy canals, large fast-flowing rivers, and large cool water lakes (Petranka 1998). In Illinois, they primarily inhabit lakes, ponds, rivers, and large creeks with clear water, but can survive in alternative habitat if rocky areas are available for reproduction (Phillips et al. 1999). The species is most active in October and November when breeding occurs, although a second breeding bout may occur in late winter and early spring. Females deposit eggs in nests under rocks, logs and other cover objects in May and June (Petranka 1998). Eggs hatch in one to two months and the larvae do not reach reproductive age for five years. Mudpuppies are predatory and prey consists of mostly invertebrates (annelids, insects, mollusks and crayfish) but may also include amphibians and fish. Mudpuppies are primarily nocturnal. During the day they shelter under rocks, logs, bank undercuts, and other cover objects. They predominantly forage for food at night but may forage during the day in weedy and muddy habitats (Petranka 1998). Mudpuppies appear to be most active at cooler water temperatures with most captures occurring at water temperatures around 40° Fahrenheit.

In 2010, the Mudpuppy was added to the list of threatened and endangered species in Illinois due to a decrease in recent observations of the species in the state (Illinois Endangered Species Protection Board 2011; Mankowski 2010, 2012). Further, the Mudpuppy is the only known glochidial host of the Salamander Mussel, *Simpsonaias ambigua* (Mollusca, Unionidae). Glochidia are the microscopic larval stage of freshwater mussels that parasitize the gills of fish or, in the case of *S. ambigua*, Mudpuppies for a time prior to dropping to the substrate where they begin taking the form of a typical mussel. The Salamander Mussel is an endangered species in Illinois and a candidate for federal listing by the United States Fish and Wildlife Service. Thus, conserving *N. maculosus* may aid in the conservation of *S. ambigua*.

Mudpuppies are known to occur in Lake Michigan. The specimen collected closest to the Chicago Shoreline Storm Damage Reduction Project was collected from Montrose Beach by Wren in 1942 (Chicago Academy of Sciences 10871). More recently, a specimen was collected from the Chicago Harbor by Veraldi and Morris in 1999 (INHS

15252). In order to proceed with the Chicago Shoreline Storm Damage Reduction Project, the Illinois Department of Natural Resources has required survey of this area for the presence or absence of *N. maculosus*.

### **Materials and Methods**

We used rigid metal funnel traps (18"x12"x8") baited with canned cat food and/or sardines in oil. Eighteen traps were set along the shoreline on 29 January at approximately 1400 hrs. We checked the traps on 30 January at approximately 900 hrs. Extreme wave action at the south end of the study site caused some of the traps to become wedged in the rocks. We removed the remaining traps from the southern end, re-baited them and set them at the north end of the study site. These traps were checked on 31 January and checked and removed on 1 February.

### **Results**

The traps that were wedged in the rocks (red dots in **Figure 1**) could not be checked and are therefore considered "zero sample nights". The remaining traps yielded 37 sample nights of effort (**Table 1**). We captured one Round Goby, *Neogobius melanostomus*, and numerous Zebra Mussels, *Dreissena polymorpha*, both of which are introduced, invasive species that are common in the Illinois portion of Lake Michigan. No Mudpuppies were encountered.

### **Literature Cited**

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**Figure 1.** Overview of project location showing placement of baited traps deployed for *N. maculosus* between 29 January and 01 February 2013 by C.A. Phillips, A.R. Kuhns and J.S. Tiemann.

**Table 1.** Coordinates of traps set between 29 January 2013 and 01 February 2013. Coordinates recorded as decimal degrees in Map Datum NAD 83. Note that some traps resulted in zero sample nights because they were never recovered.

Trap #	Latitude	Longitude	Sample Nights
1	41.95252	-87.64001	1
2	41.95284	-87.64017	2
3	41.95322	-87.64032	1
4	41.95354	-87.64045	0
5	41.95391	-87.64062	1
6	41.95409	-87.64073	1
7	41.95441	-87.64087	0
8	41.95453	-87.64094	0
9	41.95484	-87.64100	1
10	41.95504	-87.64101	1
11	41.95529	-87.64121	1
12	41.95567	-87.64134	0
13	41.95636	-87.64146	1
14	41.95654	-87.64143	1
15	41.95687	-87.64149	3
16	41.95712	-87.64157	3
17	41.95910	-87.64168	3
18	41.95845	-87.64177	3
19	41.95910	-87.64168	2
20	41.95746	-87.64152	2
21	41.95826	-87.64172	2
22	41.95938	-87.64164	2
23	41.95963	-87.64162	2
24	41.95980	-87.64155	2
25	41.96015	-87.64152	2