

Personal Presence

- # Kristin Stanford,
Ph.D. student,
Northern Illinois Univ.
- # Part-time island
resident
- # Research and
Outreach
- # “The Island Snake
Lady”



Nature Camps



Contests and Presentations



LAKE ERIE WATER SNAKE
POSTER CONTEST

Carrie Mandell

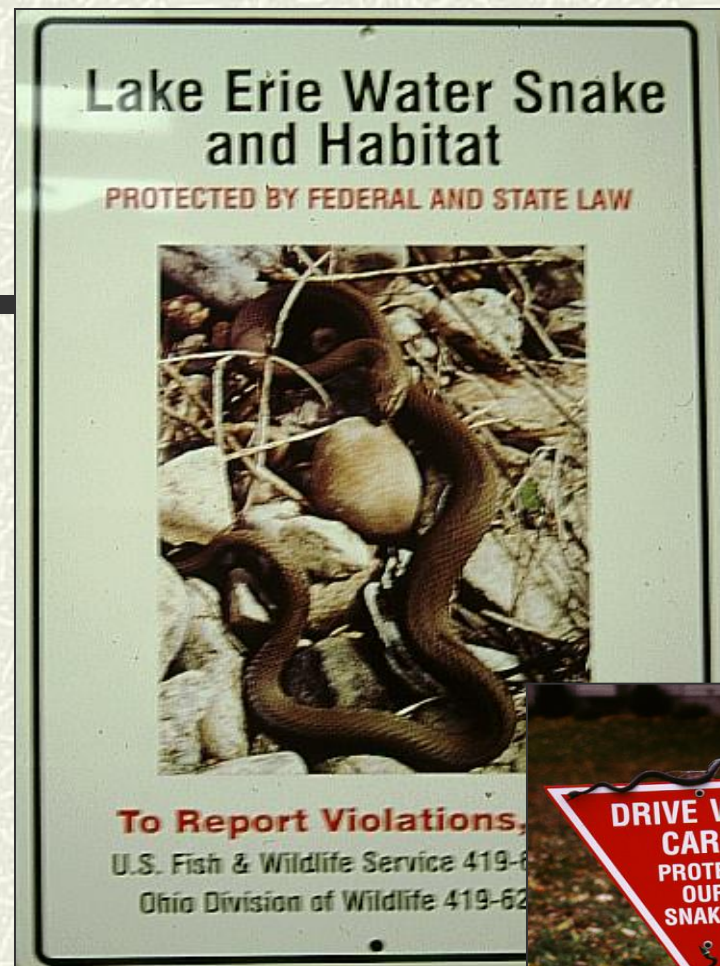
First Place

Secondary Division

South Bass Island School

Grade 11

Signs





LEWS NEWS



Photo: Angela Boyer, USFWS



Volume VI

September, 2002

Protecting Lake Erie's Natural Heritage

Telemetry Study Update

This summer, researchers from Northern Illinois University returned to the islands for the third year of the Lake Erie watersnake (LEWS) telemetry study. The LEWS, a Federal threatened and State endangered species, is found only in the western basin of Lake Erie. Field work from March through mid-May focused primarily on locating telemetered Lake Erie water snakes as they emerged from hibernation. In addition, radio transmitters were surgically implanted into 5 additional Lake Erie water snakes on 2 June 2002. This was possible because transmitters with at least a year of remaining battery life had been recovered from dead water snakes during the previous year.

Fieldwork conducted in late-May and early-June 2002 focused primarily on censusing adult Lake Erie water snake population size. The U.S. Fish and Wildlife Service is in the process of writing a recovery plan for the snake. This plan will identify the requirements for removing the snake from the threatened species list. One of the requirements will be a specific population size, and the information needed to calculate this population size will be obtained from the censuses completed over the past few years. Census efforts were quite successful during spring 2002; a total of 925 adult water snakes were captured and released at 15 study sites on Kelleys and the Bass Islands. New estimates of adult

population size generated using these data are generally consistent with other recent estimates.

Fieldwork since early June 2002 focused primarily on monitoring movement patterns of telemetered snakes. By keeping track of where and how often individual snakes are moving, researchers can further understand snake behavior, leading to a better grasp of how human activities might impact the snake. Assessment of this information will also aid in completing the Recovery Plan.

An interesting observation was made this summer related to movement patterns of snakes. A female Lake Erie water snake that was marked with a PIT tag (see page 4) on the south shore of Kelleys Island on 18 May 2001 was recaptured on Middle Island (a small Canadian island north of Kelleys Island) on 23 May 2002 by officials of the Ontario Ministry of Natural Resources. Two snakes were previously documented to have moved between Sugar and Middle Bass Islands. This new observation further documents occasional inter-island movements by Lake Erie water snakes. Researchers are not sure how the snake got from Kelleys to Middle Island; it may have swum or hitched a ride with an unsuspecting boater.

Also related to movement patterns is the news that Lake Erie water snakes have returned to Green Island! Lake Erie water snakes are known from

Dirty Jobs



Land Management

Public land

- 16% of total U.S. islands area*
- 10% of total island shoreline*
- Includes Parks, Wildlife Areas, Nature Preserves

Private land

- 84% U.S. island area*
- 90% of total island shoreline

*Prior to listing



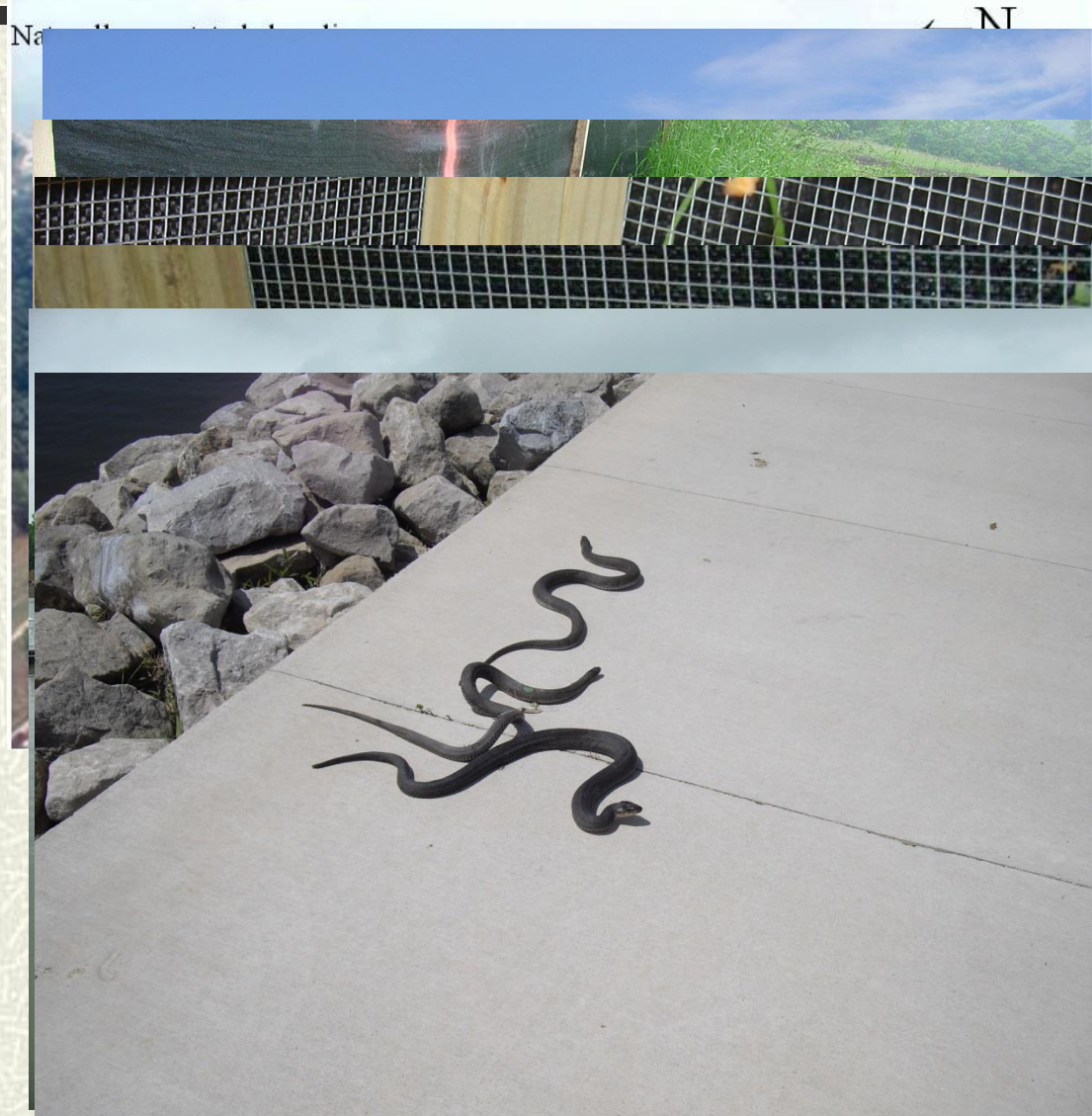
Public Land- ODNR

- # North Bass Island purchase
 - 602 acres
 - Most of island shoreline
 - High quality LEWS habitat



Public Land - ODNR

- Purchase and rehab of Middle Bass Island State Park and Marina
 - ~100 acres
 - Large shoreline expanses
 - Huge construction project
 - Minimized take, though some take was permitted
 - LEWS rapidly recolonized after construction



Public Land - ODNR

- # LEWS Management Plan for all ODNR properties
 - # Shoreline BMPs
 - # Inland BMPs
 - # Ensure suitable habitat in perpetuity

August 11, 2003

APPENDIX B

Lake Erie Water Snake Habitat Management Plan, Middle Bass Island State Park

The Lake Erie water snake habitat management plan specifies:

Measures ODNR will undertake to monitor, avoid and minimize adverse impacts to snake habitat and the procedures to deal with unforeseen circumstances. This management plan is consistent with the USFWS Lake Erie Water Snake Draft Recovery Plan, May 2003.

- ODNR will, to the maximum extent practicable, minimize impacts to Lake Erie water snake habitat; and

It is not likely that ODNR will injure or disrupt the normal behavior patterns of Lake Erie water snakes, providing the guidelines presented in this plan are observed and implemented.

The US Fish and Wildlife Service (Service) serves as the federal agency responsible for protecting the Lake Erie water snake. The Service conducts several types of consultations on Federal agency activities for listed species or designated critical habitats.

- **Early consultations** are held before an application is actually filed with a Federal agency to determine at an early planning stage what effect a proposed action may have on a species or critical habitat and what modifications may be needed to remove or minimize those effects. ODNR will initiate early consultations with the Service when appropriate.

Additional information regarding Lake Erie water snake habitat and biology can be found at: <http://endangered.fws.gov/>

Contact the US Fish and Wildlife Service at 614/469-6923 or Division of Wildlife at 614/265-6329. The Service's address is: 6950 Americana Parkway, Suite H, Reynoldsburg, Ohio 43068-4127.



**Middle Bass Island
State Park**



Public Land - ODNR

- # South Bass Island State Park
- # Green Island State Wildlife Area
- # Kelleys Island State Park
- # North Pond State Nature Preserve
- # Kelleys Island Alvar
- # Kuehnle Wildlife Area
- # Fox's Marsh Wildlife Area
- # Oak Point State Park
- # North Bass Island State Park



Local Champions

- # BSC, WRLC, PIBTPD
- # Many successful grants
- # Acquisition of property with ESA Sect. 6 & Clean Ohio Grants (OEPA)



Private Land Management

Perpetual Conservation Easements through Black Swamp Conservancy

- Voluntary
- Aid in achieving recovery goals
- Tax incentives
- Held by land conservancy, funded by Ohio DNR



Private Land Management

LEWS Guidelines

- Voluntary
- Timeframes for construction
- Mowing recommendations
- Shoreline mgmt.
- Contact info for regulatory agencies



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
6950 Americana Parkway, Suite H
Reynoldsburg, Ohio 43068-4127
(614) 469-6923 / FAX (614) 469-6919

U.S. Fish and Wildlife Service Lake Erie Watersnake Management Guidelines for Construction, Development, and Land Management Activities May 2, 2003

The Lake Erie Watersnake is a federally listed threatened species that occurs on the islands in the western basin of Lake Erie. When an agency or individual is involved in Lake Erie island development activities, the U.S. Fish and Wildlife Service (Service) encourages the use of caution to avoid take of Lake Erie Watersnakes. "Take" is defined as to pursue, harm, harass, hunt, wound, kill, trap, capture, collect, or to attempt to engage in any of these activities. "Harm" is further defined as any action that injures or disrupts the normal behavior patterns of the snake. Section 9(a)(1)(B) of the Endangered Species Act states that "it is unlawful for any person subject to the jurisdiction of the United States to take any such species within the United States or the territorial sea of the United States." The Service recommends that anyone planning a development project on the Lake Erie islands should contact us early in the planning stages for project design assistance.

The Service has developed the following guidelines to assist in avoiding take of Lake Erie Watersnakes. These season-based guidelines utilize the most current scientific information available and present a general overview of watersnake habitat. The guidelines may change as new information becomes available. Although implementation of these guidelines does not remove legal liability associated with take of a Federally threatened species, the Service believes that if you follow these guidelines, you are not likely to incidentally take Lake Erie Watersnakes. Furthermore, these guidelines discuss the area of habitat used by 90% of the Lake Erie Watersnake population, however all Lake Erie Watersnakes are protected from take, no matter where they occur.

Winter Hibernation Habitat Guidelines

Lake Erie Watersnakes enter hibernation in September and October, and emerge in April and May. The watersnakes hibernate in suitable sites located above water level on both the island shoreline and island interior. Research indicates that 90% of Lake Erie Watersnakes hibernate within 528 feet (161 m) of the shoreline. Suitable winter hibernation sites include the following locations: cracks and crevices in bedrock; rock piles; animal burrows; tree root masses and cavities; and human-made structures such as rock walls, erosion barriers, foundations, drainage tiles, building pads, and piled debris on the ground surface. During hibernation, Lake Erie Watersnakes are unable to move and are vulnerable to any disturbance of their hibernation sites. Any excavation activity, removal of suitable tree roots, destruction of human-made structures (walls, etc.) or disturbance of other suitable hibernation habitat sites may cause take of Lake Erie Watersnakes.

At island sites where suitable winter hibernation habitat exists, excavation activity should not occur during the hibernation season. Activities to be avoided include, but are not limited to, digging

SECT. 7—COOPERATION WITH OTHER FEDERAL AGENCIES



Sect. 7 Consultation

- # Federal actions—funded, authorized, or carried out by any Federal govt. entity
 - # Must consult with USFWS if action “may affect” ESA listed species
 - # Army Corps of Engineers is Federal agency that regulates “Waters of the U.S.”=Lake Erie, among others.
-

U.S. Army Corps of Engineers

- # All docks, shoreline stabilization projects, dredging, etc. requires permit from Corps
 - # LEWS occurs in these areas on islands
 - # Must consult with USFWS before issuing permits
 - # Required minimization measures in design, timing of these projects to protect LEWS
-

Snake-friendly design



Timing of Activities



Mitigation



SECT. 10—PERMITS



Sect. 10 Permits

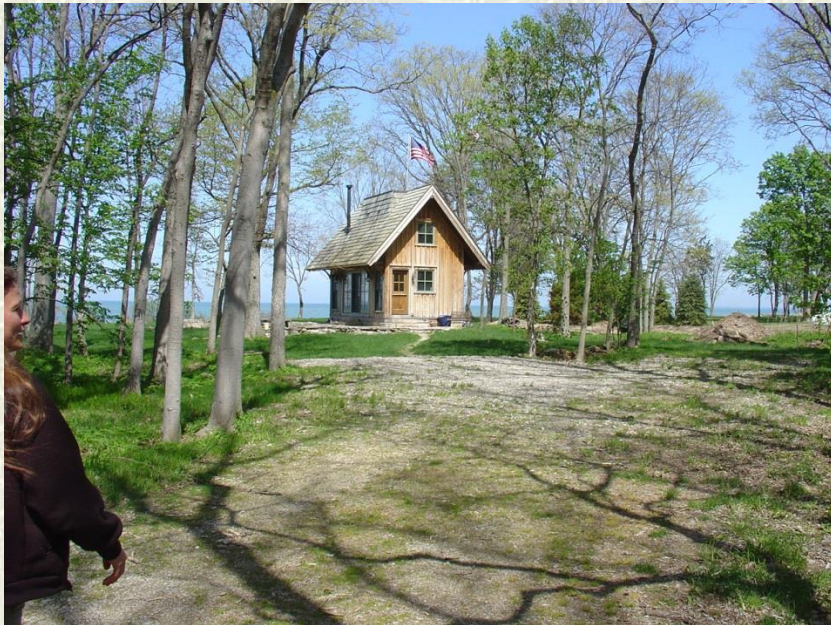
Research and recovery permits

- NIU for all research activities; authorizes limited unintentional take during research

Habitat Conservation Plan and Incidental Take Permits

- 2 issued to private landowners; authorizes limited take due to construction of homes, requires minimization/mitigation measures.
-

Permits





SUCCESS AND DELISTING

Range

- # LEWS have recolonized Green Island after an absence of more than 20 years.
- # Small island populations have persisted.



Population Persistence

Year	Four Largest U.S. Islands LEWS Populations				Small Island Populations	Combined U.S. Islands
	Kelleys	South Bass	Middle Bass	North Bass		
Recovery Goal	900	850	620	410	Not applicable	5555
2001	1860	1560	770	160	780	5130
2002	2150	1400	1300	550	780	6180
2003	2190	1490	1920	270	780	6650
2004	2750	1590	1460	460	1270	7530
2005	2450	1590	1920	790	920	7670
2006	2800	2670	3710	1380	1430	11990
2007	3930	2110	2480	970	890	10380
2008	3430	2540	3090	760	2060	11880
2009	2850	2630	4370	1170	960	11980
2010	3700	2070	2030	730	1270	9800

King and Stanford 2011

Habitat Management

Island	Property	Length of shoreline	Land within 69 m of shore	Partner
		(mi)	(ac)	
Kelleys	Kelleys Island State Park; North Pond State Nature Preserve; Kelleys Island Alvar; Long Point Preserve; Schollenberger easement	1.47	58.44	ODNR, CMNH, LEIC-BSC
<i>Kelleys Goal</i>		<i>0.75</i>	<i>20.5</i>	
South Bass	South Bass Island State Park; Oak Point State Park; Scheef East Point Preserve	0.82	19.3	ODNR; PIBTPD, LEIC-BSC
<i>South Bass Goal</i>		<i>0.7</i>	<i>19.3</i>	
Middle Bass	Middle Bass Island State Park; Kuehnle Wildlife Area; Petersen Woods; Lawrence Evans; Middle Bass East Point Preserve	1.87	55.3	ODNR; LEIC-BSC; PIBTPD
<i>Middle Bass Goal</i>		<i>0.51</i>	<i>14.1</i>	
North Bass	North Bass Island State Park; Fox's Marsh Wildlife Area	6.19	168.8	ODNR
<i>North Bass Goal</i>		<i>0.34</i>	<i>9.1</i>	
Green	Green Island Wildlife Area	1.06	16.34	ODNR
Total All Islands		11.41	318.18	
<i>TOTAL GOAL</i>		<i>4.6</i>	<i>126</i>	

Intentional Mortality

Public Opinion Surveys

- Outreach campaign has reached nearly all residents, understanding of the snake has increased
 - 66% positive or neutral toward snakes
 - 14% would kill a LEWS if not listed
 - Remains a concern, but not a significant impact on rapidly growing population.
-

Delisting!

- # August 2011
- # 23rd species delisted due to recovery
- # Possible through successful partnerships, dedicated people, available funds



Post-Delisting Monitoring

- # Continue monitoring population parameters and threats for 5 years post-delisting
 - Population size, realized population growth—remaining stable (King et al 2014)
 - Round goby=88% of prey (King et al 2014)
 - Managed habitat remains suitable
 - Public opinion fairly constant
-

Thoughts...

- # ESA can and does prevent extinction and allow recovery—LEWS as a case study
- # Without partnerships at State, Local, and Federal levels, recovery would not have happened
- # LEWS listing generated money for conservation that otherwise would not have been available
- # Brought focus to islands as places with significant natural resources
- # Short time frame from listing-delisting is unusual; small range, many partners, high fecundity



THANK YOU!

Megan_Seymour@fws.gov
614-416-8993 ext 16