

# AMBLE Ramble

Newsletter for Lake Michigan Volunteer AMBLE (Avian Monitoring for Botulism Lakeshore Events)

## 2011 • Summary

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U.S. Department of the Interior  
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Photo credit: Pat Schutt

Photo credit:  
Sharon Cobb

Photo credit: Tom Alt

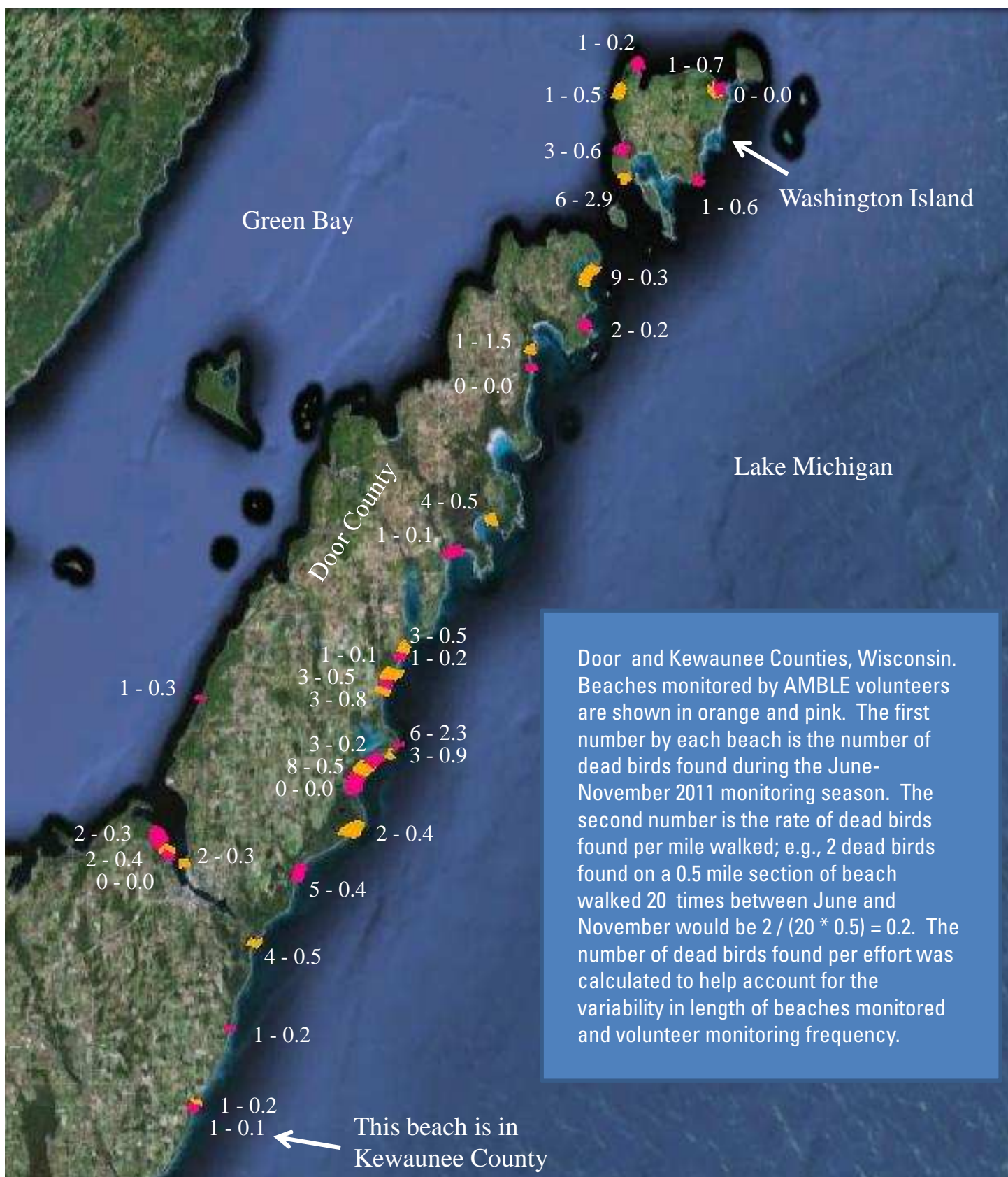
## The AMBLE Year in Numbers



- 52 AMBLE volunteers trained in May and June
- 44 volunteers submitted data
- 34 beach segments monitored
- 17.2 total miles of beach monitored
- 0.5 average length in miles of beaches monitored
- 446 surveys performed
- 312.7 miles walked
- 486 hours volunteered
- 1,375 pieces of trash picked up
- 15,567 live birds observed
- 5 sick birds observed
- 82 dead birds observed
- 10 dead birds that were < 24 hours dead
- 18 dead birds that were 24-48 hours dead
- 54 dead birds that were > 48 hours dead

What a fantastic first year for a new citizen science program! Thank you, thank you, thank you to all the wonderful AMBLE volunteers that invested their valuable time to collect weekly data on beach conditions and bird health in Door County, Wisconsin. This *AMBLE Ramble* summarizes the 2011 findings of the AMBLE network and incorporates findings from beach monitoring performed in other areas around Lake Michigan.

### Map of Dead Birds Found per Effort

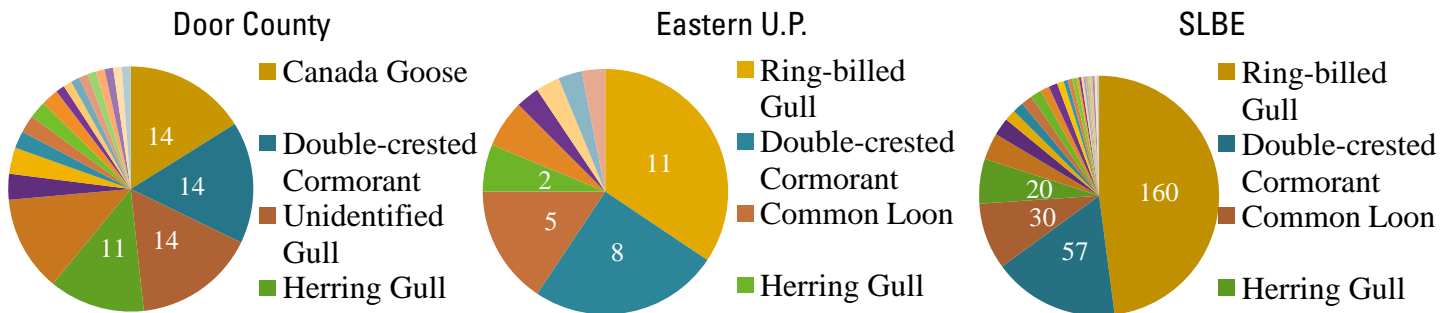


## Comparison of Three Study Sites

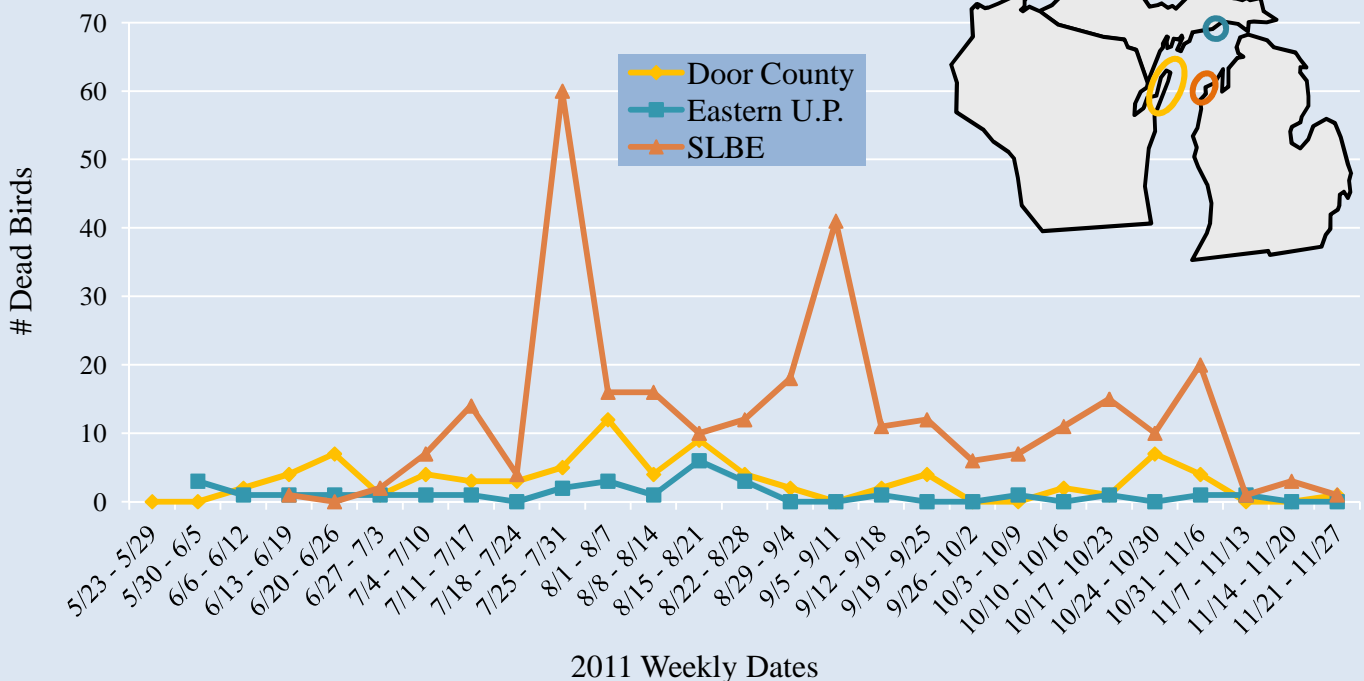
Monitoring for potential avian botulism mortality takes place at a few locations around Lake Michigan and is performed by both trained biologists and volunteers. The study sites for the avian botulism research funded by the Great Lakes Restoration Initiative are those beaches monitored every 7-10 days at three sites: 1) Door County, Wisconsin beaches monitored by AMBLE volunteers, 2) a stretch of shoreline in the eastern Upper Peninsula of Michigan monitored by Common Coast Research & Conservation, with support from Seney National Wildlife Refuge, and 3) beaches at the National Park Service’s Sleeping Bear Dunes National Lakeshore (SLBE) in Michigan monitored by SLBE volunteers and park staff.

Study Site (see map)	# Dead Birds	# Sick Birds	# Miles Monitored	Dead Birds per Mile
Door County	82	5	17	5
Eastern U.P.	29	3	7	4
SLBE	298	37	58	5

## Species of Sick or Dead Birds Found



## Timeline of Dead Birds Found





## Avian Botulism Type E Testing

The table below summarizes avian botulism type E testing performed on bird specimens submitted to the USGS National Wildlife Health Center from Door County in 2011. In addition to AMBLE volunteers, the Wisconsin Department of Natural Resources (WDNR), U.S. Department of Agriculture’s Animal Plant Health Inspection Service - Wildlife Services Program, U.S. Fish and Wildlife Service’s Green Bay National Wildlife Refuge, and The Ridges Sanctuary also collected and submitted specimens. Reports from these groups, and casual reports relayed by AMBLE volunteers, add 137 other sick or dead birds to the 87 found during official AMBLE walks for a total of 224 sick or dead birds reported in Door County in 2011.

Species	# Collected	# Tested	# Positive	Notes
American White Pelican	2	2	0	2 equivocal*
Canada Goose	3	1	0	2 decomposed
Common Loon	1	1	0	
Double-crested Cormorant	8	6	3	2 equivocal*
Herring Gull	1	1	1	
Hooded Merganser	1	1	1	
Horned Grebe	1	1	1	
Mallard	1	1	0	1 equivocal*
Ring-billed Gull	8	7	6	
<b>TOTALS</b>	<b>26</b>	<b>21</b>	<b>12</b>	

\* Equivocal results could not be determined to be definitively positive or negative

## Wisconsin DNR Wildlife Health Section Monitoring

Melissa Clark, a researcher with the WDNR Wildlife Health Section, monitors beach segments in Door County that total 3.8 miles. These beaches have been monitored by the WDNR since 2008. In 2011, she found seven dead birds; two Ring-billed Gulls and one unidentified bird at the town of Clay Banks beach, one Herring Gull at Frank Murphy County Park, one unidentified gull at Whitefish Dunes State Park, one American White Pelican at the Clearing Folk School, and one Double-crested Cormorant at Newport State Park.

None of these seven birds were fresh enough for avian botulism testing but Melissa transported other dead birds collected by AMBLE volunteers, Whitefish Dunes State Park staff, and other DNR employees to the USGS National Wildlife Health Center in Madison for botulism testing. Thanks, Melissa!



Photo credit: John Tracey



**Trivia :**  
What is often referred to as a “Canadian” goose is technically a “Canada” goose.

USGS National Wildlife Health Center pathologist, Dr. David Green, performs a necropsy on a goose from Door County. Photo credit: Allison Klein

## Canada Goose Mortality Event

Determining cause of death in wildlife can be like an episode of the popular TV show “CSI: Crime Scene Investigation.” However, when dead animals are found you can’t ask neighboring flocks or herds what they saw the night of the die-off. There are no cell phone records or bank statements indicating odd behavior of the recently dead. Trained wildlife pathologists learn how to read clues in carcasses to attempt to figure out what happened.

A spike in Canada goose morbidity and mortality around Green Bay was detected in summer 2011. Between July 7 and August 15, a total of 66 Canada geese were reported sick or dead in Door County, Wisconsin and the Upper Peninsula of Michigan.

Four Canada goose carcasses were transported for testing to the USGS National Wildlife Health Center (NWHC) in Madison, Wisconsin by the Wisconsin Department of Natural Resources Wildlife Health Section and the U.S. Department of Agriculture’s Animal Plant Health Inspection Service - Wildlife Services Program. Two of these geese could not be thoroughly tested for possible causes of death because they were decayed, probably due in part to the high summer temperatures at the time of the goose die-off. These geese did, however, test negative for avian influenza and West Nile virus and levels of lead in the livers were below detection limits. Both of these geese were emaciated, but the cause of emaciation is unknown.

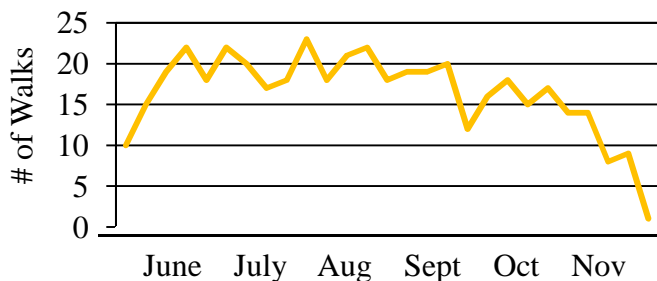
The remaining two geese delivered to NWHC

(one from the Upper Peninsula) had both been euthanized in the field by trained professionals. Avian botulism tests were negative; however, a false-negative result is possible for euthanized birds because if the toxin is in insufficient quantities to result in the bird’s death it may not be detected in the assay. However, one of these geese was emaciated and because botulism is an acute disease, birds with avian botulism are generally in good body condition. Both of these geese also tested negative for avian influenza, West Nile virus, avian paramyxovirus, and Newcastle disease virus. No pathogenic bacteria were isolated from the tissues of these birds and levels of lead were below detection limits. Brain acetyl cholinesterase levels were also within the normal range, indicating these geese had no recent exposure to organophosphate or carbamate insecticides. Since all test results were negative the cause of death could not be definitively determined. It is possible these geese had an infection that caused emaciation but had cleared by the time of death, thus making cause of death undetectable during laboratory testing.

During this same time period, two geese from the Upper Peninsula were submitted to the Michigan Department of Natural Resources Wildlife Disease Lab in Lansing, Michigan for cause of death determination. One goose tested positive for botulism type C. The other goose had pulmonary congestion and swelling and excess internal fluid around the heart and in the abdomen, but no causative agent could be determined.

## 2011 Highlights

- Avian botulism type E confirmed as cause of low-level bird mortality in Door County, Wisconsin and Sleeping Bear Dunes, Michigan
- Mortality peaked in summer at all three study sites; botulism mortality typically peaks in fall
- Mostly gulls and cormorants affected
- Concurrent alewife die off
- Canada Goose mortality event emphasized 1) the benefit of having a network of trained volunteers on site and 2) that not all birds found dead on Lake Michigan die of avian botulism type E
- Cause of death other than botulism also found at Sleeping Bear Dunes; a Herring Gull had aspergillosis (fungal avian respiratory infection)
- AMBLE volunteer monitoring effort was consistent in summer but decreased in fall (see graph), mostly due to waterfowl hunting on beaches and seasonal migration of volunteers



## Outreach and Press

AMBLE partners and volunteers received quite a bit of publicity in 2011:

- Flyers, newspapers, and radio in Door County
- Findings relayed at monthly conference calls and annual meeting with avian botulism researchers
- Conferences:
  - Symposium on Society and Resource Management
  - State of the Lakes Ecosystem Conference
  - Midwest Fish and Wildlife Conference
- Newsletters and blogs:
  - *USGS National Wildlife Health Center* newsletter
  - *GeoHealth* newsletter
  - *Great Lakes Echo* blog
- Federal level presentations:
  - USGS Office of the Associate Director For Ecosystems - poster as example of ecosystems work
  - Congressional Briefing on “Global threats from emerging wildlife diseases and invasive species” highlighted volunteer botulism monitoring

## AMBLE in 2012

The AMBLE citizen science program will continue in Door County, Wisconsin next year! We are looking for more local partners and volunteers. Please contact Jenny Chipault ([AMBLE@usgs.gov](mailto:AMBLE@usgs.gov), 608-270-2473) with ideas or suggestions for 2012.

## Thanks to AMBLE volunteers and partners!



## Disclaimer

Information presented in this newsletter is not intended for citation as scientific literature.

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Unless otherwise noted, all writing and pictures in this newsletter are the product of Jenny Chipault, USGS National Wildlife Health Center.