

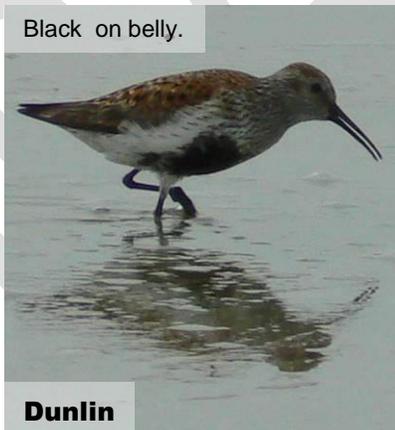
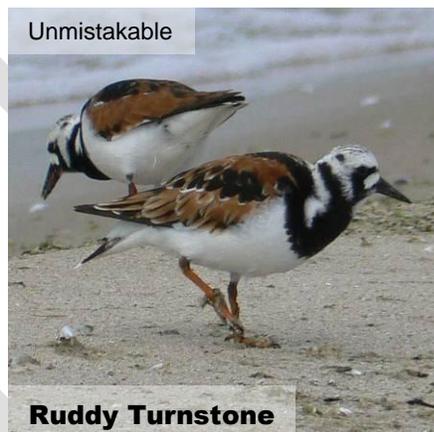
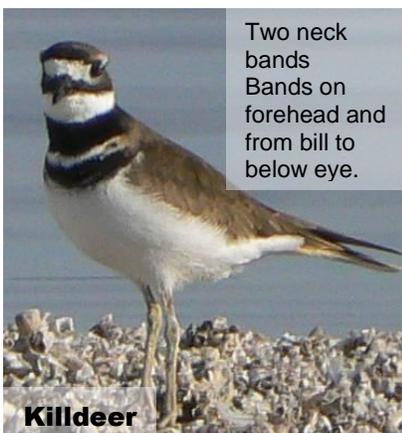
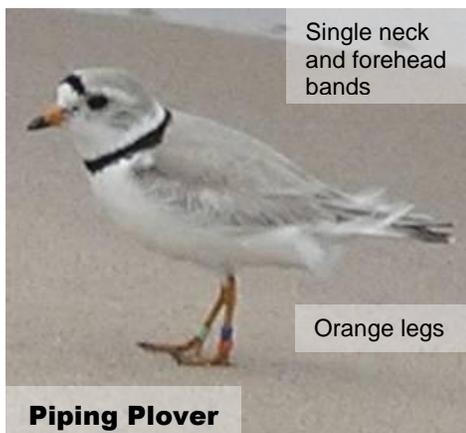


**Birds and Fish  
of  
Lake Michigan's Shore**

**A Guide for Botulism E  
Shoreline Patrol  
Volunteers**

Photos by Alice Van Zoeren unless otherwise noted

## Some birds of the Lake Michigan shore - Alive





**Common Loon**

John Ester



**Common Merganser**



**Trumpeter Swan**



**Red-breasted Merganser**



**Mute Swan (Non-native)**



**Mallard**



**Double-crested Cormorant**

John Ester



**Bufflehead**



Short straight-tipped tail  
Constant, rowing wing-beats

American Crow



Long wedge-shaped tail  
Often soars.

Common Raven



Crow  
2 7/8 - 3 5/8"  
Raven  
3 3/4 - 4 3/4"

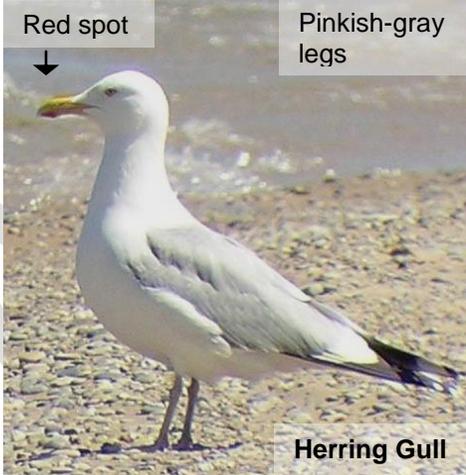


Black Ring



Yellow-green legs

Ring-billed Gull



Red spot



Pinkish-gray legs

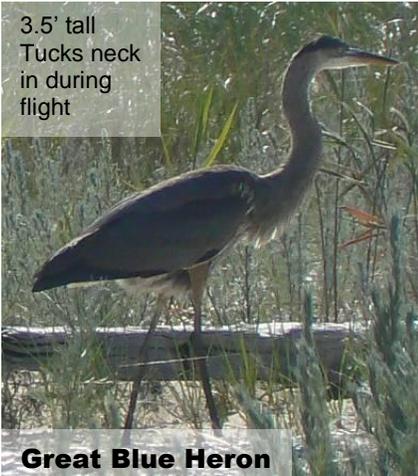
Herring Gull



Ring-billed  
1 7/8 - 2 1/4"  
Herring  
2 1/2 - 2 7/8"



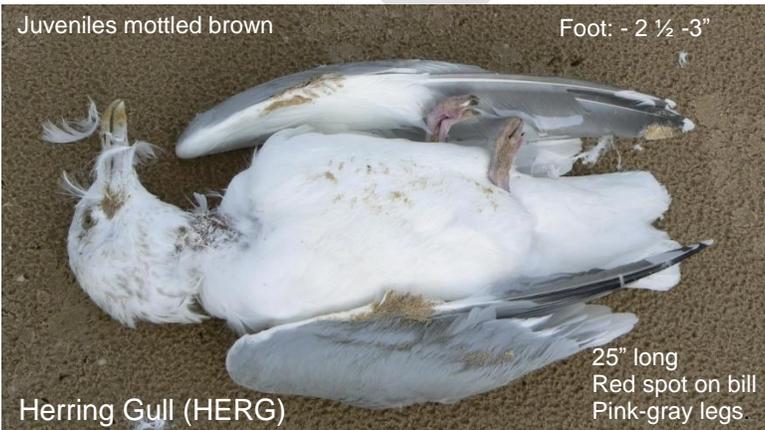
Merlin



3.5' tall  
Tucks neck in during flight

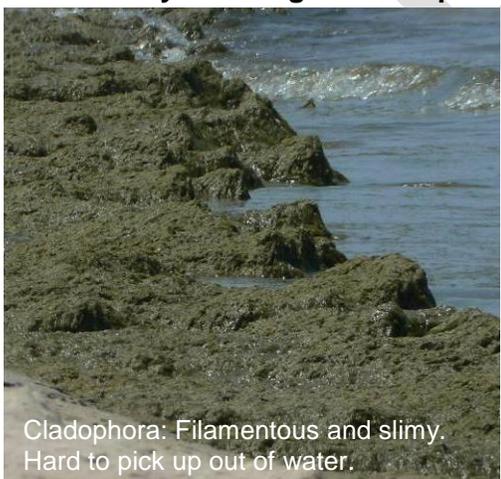
Great Blue Heron

**Some birds of the Lake Michigan shore - Dead**





**Commonly seen Algae: Cladophora, Chara and Diatoms**



# Commonly Found Fish



**Drum**  
Up to 3' long.  
Two large fins on back that almost meet.



**Lake Trout**  
Usually 2', up to 4'.  
Deeply forked tail.  
Irregular worm-like markings.



**Carp**  
Up to 3' long.  
Large scales.  
One long fin on back.



**Round Goby (normal color)**  
Usually 3-6" long. Up to 10".  
Round head, bulging eyes.



**Coho Salmon**  
2 1/2 -3' long.  
Concave tail with spots at base



**Round Goby (black from botulism)**  
Gobies turn black to varying degrees when affected by botulism.

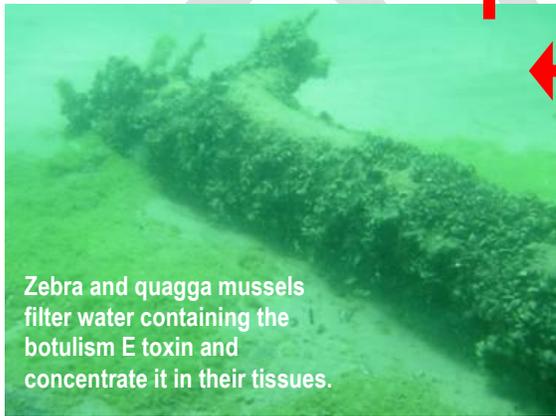


**Sturgeon**  
Bony plates over body.  
2-6' long.  
Can live 120 years.

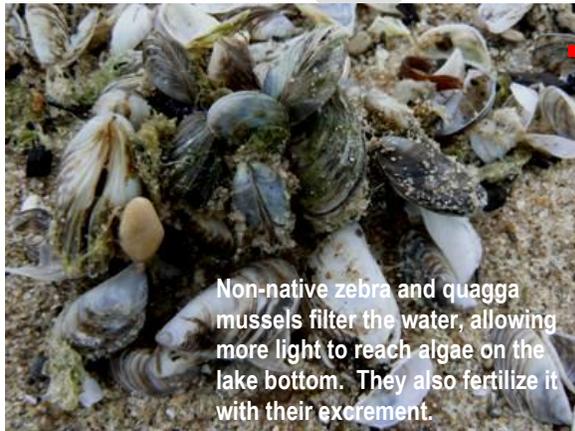


**Gizzard Shad**

## Some Possible Pathways for Botulism E in Lake Michigan's food webs



**Start**



Additional References:

Birds:

[The Sibley Field Guide to Birds of Eastern North America](#) by David Sibley  
[The National Geographic Field Guide to the Birds of North America](#)  
[Birds of North America](#) by Robbins, Bruun, Zim and Singer  
[Birds of Leelanau County and Sleeping Bear Dunes National Lakeshore](#) by C. Francke and L. Graf

Fish:

<http://www.seagrant.wisc.edu/greatlakesfish/framefish.html> (Fish ID and information)  
<http://www.glerl.noaa.gov/seagrant/GLWL/Fish/Fish.html> (Fish ID)  
<http://www.great-lakes.org/fishid.html> (Trout and Salmon ID)

Animal Tracks:

[A Field Guide to Animal Tracks](#) by Olaus J. Murie  
[Tracking and the Art of Seeing](#) by Paul Rezendes  
[Bird Tracks and Sign](#) by Mark Elbrock  
[Animal Tracks of the Great Lakes](#) by Ian Sheldon

Botulism E:

<http://www.miseagrant.umich.edu/upwellings/issues/07apr/07apr-article4.html>  
<http://www.miseagrant.umich.edu/habitat/avian.html>  
[http://www.michigan.gov/dnr/0,1607,7-153-10370\\_12150\\_12220-26493--,00.html](http://www.michigan.gov/dnr/0,1607,7-153-10370_12150_12220-26493--,00.html)