



*Keeping a watchful eye on the health of
Maine lakes since 1971*



Maine Field Guide to Aquatic Phenomena

phenomenon phenomena



Latin *phaenomenon*; Greek *phainómenon*

appearance

Two meanings:

- 1) A fact, occurrence, or circumstance observed or observable
- 2) Something that is impressive or extraordinary; a wonder

Synonyms:

event, incident, marvel, miracle



Publication of
Mitchell Center,
UMaine &
USGS Water
Resources Research
Institutes Program

Prepared by
Catherine
Schmitt
2005



Senator George J. Mitchell
Center for Environmental
and Watershed Research
Member of the University of Maine System

This digest is a publication of:
MITCHELL CENTER
at the University of Maine,
the U.S. Geological Survey
Water Resources Research
Institutes Program
5710 Norman Smith Hall
Orono, ME 04469-5710
tel: 207/581-3244
fax: 207/581-3320
www.umaine.edu/WaterResearch



MAINE DEPARTMENT
OF ENVIRONMENTAL
PROTECTION
17 State House Station
Augusta, ME 04333-0017
tel: 207/287-7688
800/452-1942
tty: 800/492-0859
www.maine.gov/dep/index.shtml

Prepared by:
Catherine Schmitt
May 2005

Field Guide Website
[www.umaine.edu/
WaterResearch/FieldGuide](http://www.umaine.edu/WaterResearch/FieldGuide)

A FIELD GUIDE TO AQUATIC PHENOMENA



*WHY IS WATER
DIFFERENT
COLORS?*



*WHAT'S THAT
FLOATING
ON THE WATER
SURFACE?*

Lakes and streams don't always look
or behave the way we expect.
Water can be full of strange colors,
unidentified blobs, and swimming
creatures. Something that at first
glance looks like pollution actually
might be a natural phenomenon.
The aquatic world is diverse. There
are all kinds of cool, weird, and
interesting things waiting to be
discovered in your nearby lake or
stream. This field guide will help
you identify some common
phenomena, and help you
distinguish pollution from
something natural. To see
more, visit [www.umaine.edu/
WaterResearch/FieldGuide](http://www.umaine.edu/WaterResearch/FieldGuide).

*WHAT'S THAT STUFF
IN THE WATER?*



*SPECKS,
BLOBS, AND
CLUMPS?*

Project Support



Maine Outdoor Heritage Fund
Maine Department of Environmental Protections
Onion Foundation
Contributions from Individuals and Lake Associations
In Kind Support

App Developers ~ ASAP Media Services



- Student-operated research and development organization at the University of Maine, Orono.
- Funding comes from implementing projects for both on and off campus clients (such as LSM).
- Students are responsible for all aspects of the development process: writing proposals, design, implementation, testing, and deployment.





Official Beta Launch!!



Google play



Available on the
App Store



Field Guide to Aquatic Phenomena VERSION 1.0



FAUNA



FLORA

Initial Focus:
common and/or
potentially problematic
phenomena that may be
encountered when out
on a lake in Maine



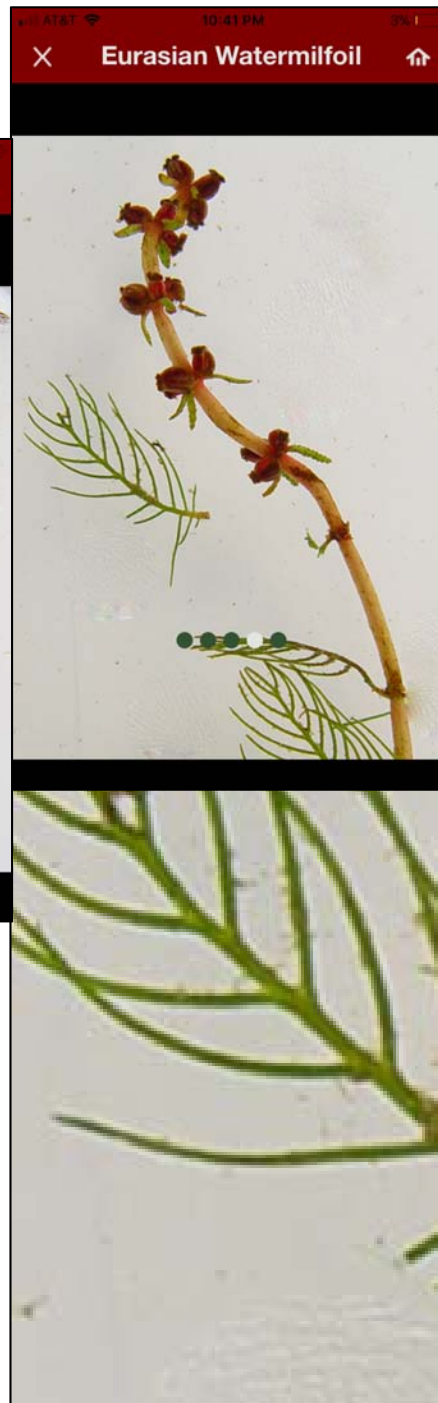
OTHER AQUATIC
PHENOMENA



AQUATIC INVADERS

Two Ways to Search:

- 1) series of simple decision trees or keys;
- 2) browsing the photos in each major sub-group



Each phenomenon will include descriptive & natural history information and an expandable catalog of images (which may be easily enlarged on touch screens)

FAUNA



Frogs: American toad; bull frog;
gray tree frog; green frog;
northern leopard frog; pickerel
frog; spring peeper; wood frog





Crustaceans

Crayfish: Allegheny crayfish;
Appalachian brook crayfish;
calico crayfish; red swamp
crayfish; rusty crayfish; spiny
cheek crayfish; virile crayfish;
white river crayfish

Other: amphipod (scud);
copepod; fairy shrimp;
isopod; waterflea



Fish



Cold water fish: brook trout; brown trout; lake trout; land locked salmon; rainbow trout

Warm water fish: alewife; black crappie; bluegill sunfish; chain pickerel; golden shiner; largemouth bass; muskellunge; northern pike; pumpkinseed sunfish; redbreast sunfish; rudd; smallmouth bass; white perch; yellow perch





Insects

Adults fly: blackfly; caddisfly; crane fly; damselfly; dragonfly; dronefly; fishfly; mayfly; midge; mosquito; stonefly



Adults swim, dive, float or 'skate' on surface: giant waterbug; predaceous diving beetle; springtail; water boatman; water strider; whirligig beetle





Bivalves: Asiatic clam; native freshwater mussels; quagga mussel; zebra mussel

Limpets: Freshwater limpet

Snails: bellmouth ramshorn; pointed campeloma; Chinese mystery snail



Turtles



Blanding's turtle; eastern box turtle; eastern painted turtle;
musk turtle; snapping turtle; spotted turtle; wood turtle



Other Aquatic Fauna

Bryozoan; egg mass;
flatworm; freshwater
jellyfish; freshwater
sponge; leech;
northern water snake;
water bear; water mite





OTHER LAKE PHENOMENA

Colored water: transparent brown water; green-colored water; murky or cloudy (turbid) water; orange or reddish-brown slime

On the surface of the water: lines of foam or debris; clumps of foam; oily sheen; yellowish powder

Other curiosities: lake balls; lines on rocks; fish kills; insect exuvia



FLORA

User-Friendly Administrative Dashboard

Lake Stewards of Maine - Catalog

User01



Changes

Catalog

User Administration

Manage Categories

Now Showing: All

Flora



Fauna



Other



Statistics

Hide Unpublished Changes: ☐

Sort by: Common Name



Small Bird



Sesamus Streetae

Click For More Info

Large Mouth
Bass



Micropterus Salmoides

Click For More Info

Allegheny
Crayfish



Orconectus Rusticus

Click For More Info

Appalachian
Brook Crayfish



Cambarus bartonii bartonii

Click For More Info

Bellmouth
Ramshorn



Small Bass



Bassius Smallius

Click For More Info

Foo



Something Scientific

Click For More Info

Alternate-flowered
Watermilfoil



Myriophyllum alterniflorum

Click For More Info

Asiatic Clam



Corbicula fluminea

Click For More Info

Berchtold's
Dandelion



A Salamander



Vagus Randomous

Click For More Info

Alewife



Alosa Pseudohorregus

Click For More Info

American
Toad



Anaxyrus americanus

Click For More Info

Batrachospermum



Batrachospermum

Click For More Info

Black Crappie



Propose New Entry



Changes

Catalog

User Administration

Manage Categories

Fauna

- ☒ Amphibians >
- ☒ Crustaceans >
- ☒ Fish >
- ☒ Insects >
- ☒ Mollusks
 - ☒ Bivalves >
 - ☒ Limpets >
 - ☒ Snails >
 - + Add New Mollusk
- ☒ Turtles >
- ☒ Other >
- + Add New Fauna

Flora >

Other >

Mollusks Category Picture



Change Picture

Submit Changes

Cancel

Lake Stewards of Maine - Add New Category

User01



Changes

Catalog

User Administration

Manage Categories

Category Image



Add Image

Category Name:

Supercategory:

Species:

Move Existing
Species Here

Create New Entry

Propose Category

Cancel

Lake Stewards of Maine - Propose New Entry

User01



* Required

Changes

Catalog

User Administration

Manage Categories

Primary Image *



Add Image



Add Image



Add Image



Add Image

Name*:

Scientific Name*:

Invasive*: ☐

Category*:

Identifying Characteristics:

Biology:

Diet:

Habitat:

Commonly Seen*:

Submit

Cancel

Lake Stewards of Maine - Propose New Entry

User01 ▼

* Required

Changes

Catalog

User Administration

Manage Categories


Primary Image *



Add Image







Add Image

Name*:

Invasive*: ☐

Identifying Ch

Biology:

Diet:

Habitat:

Commonly Seen*:

Drag Image

Choose a file to upload

Browse

Title:

Image Credit:

Description:

Submit

Cancel

Submit

Cancel

Lake Stewards of Maine - Changes

User01



Changes

Catalog

User Administration

Manage Categories

Search

Flora



Fauna



Other



Propose New Entry

Publish Changes

Propose Changes

Unreviewed Changes

Delete Proposal

Large Mouth Bass
Micropterus Salmoides
Cold Water Fish

Addition
By: User0123
On: 9/17/19

Delete Proposal

Foo
Something Scientific
Cold Water Fish

Removal
By: WhackyUser
On: 4/15/19

Delete Proposal

Allegheny Crayfish
Orconectes rusticus
Crayfish

Update
By: User_02
On: 5/15/19

Delete Proposal

Large Foot
Notus Bigfootus
Frog

Update
By: User_02
On: 5/15/19

Reviewed Changes

Mark as Unreviewed

Small Bird
Sesamus Streetae
Cold Water Fish

Addition
Reviewed By: some_user
On: 1/17/19

Mark as Unreviewed

Small Bass
Bassius Smalls
Warm Water Fish

Removal
Reviewed By: Somebody
On: 2/23/19

Mark as Unreviewed

A Salamander
Vagus Randomous
Salamander

Removal
Reviewed By: Somebody
On: 2/27/19

Mark as Unreviewed

Added Category "Some Mollusks" to "Mollusks"

Statistics

Unreviewed

1 Addition
1 Removal
2 Updates
4 Total Changes

Reviewed

1 Addition
1 Removal
1 Update
3 Total Changes

Lake Stewards of Maine - User Administration

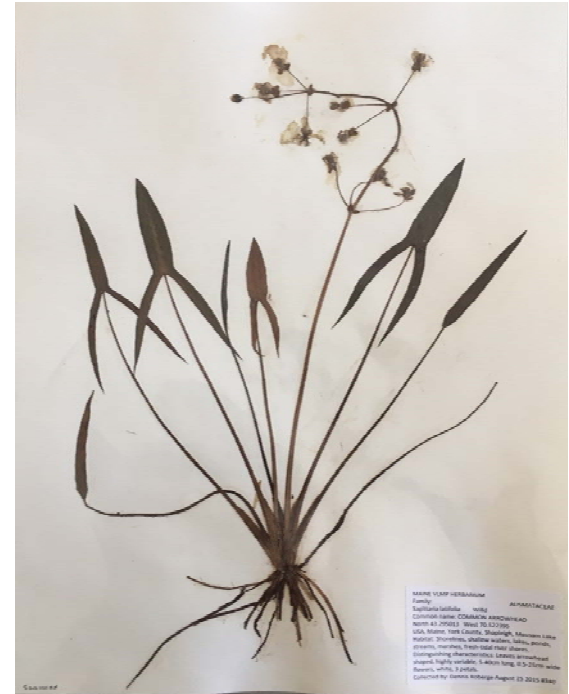
User01



Changes	Add New User			
Catalog	Username	Email	Permission	Date Added
User Administration	A_Person	Such.Yada@yahoo.com	Administrator	03/12/2017
Manage Categories	Cool_UserName	Such.Yada@yahoo.com	Moderator	01/23/2017
	Dylan01	Such.Yada@yahoo.com	User	05/18/2019
	Fake_name	Such.Yada@yahoo.com	Moderator	07/20/2016
	Fun_name	Such.Yada@yahoo.com	Moderator	02/01/2020
	Person01	Such.Yada@yahoo.com	Administrator	11/11/2015
	Person02	Such.Yada@yahoo.com	User	01/03/2019
	Person03	Yada.Yada@yahoo.com	User	01/25/2020
	User01	Such.Yada@yahoo.com	Administrator	04/26/2020
	WhackyUser	Such.Yada@yahoo.com	User	05/12/2020

What's Next?

- More phenomena; expanded catalog of images including LSM herbarium sheets
- Web based version available on computer screens
- Users submit photos for species identification and confirmation
- Digital “Flash cards”
- Users create personal journal of favorite phenomena





Crowd Sourcing

Users propose and help build new content:
new species, new images, info updates





App Testers Wanted!

- Sign up sheet in exhibit area
- We need:
 - ✓ name
 - ✓ email address
 - ✓ type of mobile device (Android or iOS)
- You'll receive an email soon, with instructions and tester code
- All beta-version feedback due by August 30
- Additional feedback is welcome any time!

We welcome you to
join us in this endeavor!!
We'll have a phenomenally good time!



www.lakestewardsme.org