

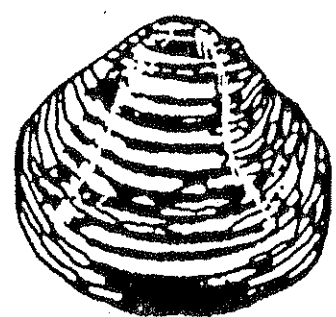
**Appendix A**                      **Keys to Lake Waccamaw  
Clams, Mussels and Snails**

see attachments

KEY TO MOLLUSKS OF LAKE WACCAMAW, N.C.

[Prepared by Hugh J. Porter - Curator Invertebrate Collections, Institute of Marine Sciences, University of North Carolina, Morehead City, NC; Illustrations mostly by H. Rip Barnes [UNC Institute of Marine Sciences] and Brenda Wynne [North Carolina DPR]; several by author; FEBRUARY 8, 1994.

- A BIVALVE MOLLUSK [two shells] ..... B  
 SNAIL [single shell] ..... I.
- B ROUND, FAT, CLAM LIKE, GENERALLY LESS THAN 1" INCH (25 mm) LENGTH ..... C.  
 ELLIPTICAL, RHOMBOIDAL, OVOIDAL, OR DISTORTED SHAPE - NOT CLAM LIKE; ADULTS  
 GENERALLY LARGER THAN 1" INCH (25 mm) LENGTH.  
 FRESHWATER MUSSELS ..... D.
- C VALVES WITH PROMINENT CONCENTRIC RIDGES ON SHINY OUTER SHELL SURFACE,  
 THICK SHELLED.



"Asian clam" *Corbicula fluminea* (Muller).  
 This clam has recently appeared in Lake Waccamaw and is now common in the shallow northern lake areas. So far it has not been found in the park area. The clam, introduced from Asia, is common throughout southern United States.

SMALL, THIN SHELLED, WITHOUT PROMINENT CONCENTRIC RIDGES; MAXIMUM SIZE ABOUT 1/4" INCH [6 mm], MOST LESS THAN 1/8" INCH [3 mm] LENGTH.

"Fingernail Clam" and/or "Peaclam"  
 Four species believed present, specific identifies in question.  
 Two possible species illustrated.

[TO BE SKETCHED OUT YET  
 WITHIN SEVERAL WEEKS BY  
 AUTHOR]

D. TOOTH AND/OR RIDGE STRUCTURES ON INNER SHELL NEAR BEAKS. .... E.

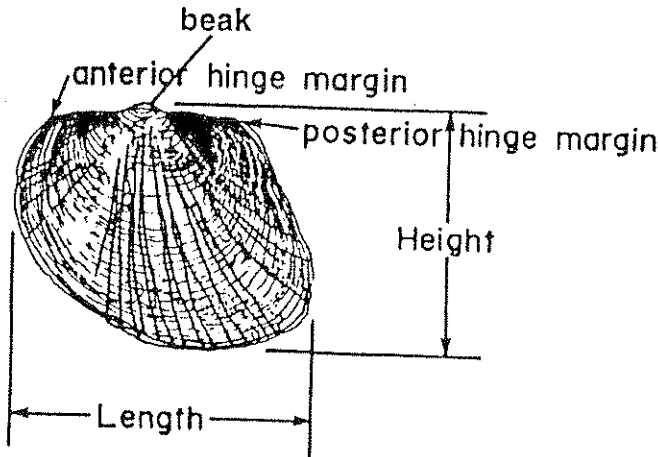
Insert drawing of hinge area of Atlantic Spike here.

NO TOOTH OR RIDGE STRUCTURES ON INNER SHELL NEAR BEAKS, OUTER SHELL COLOR USUALLY LIGHT GREENISH-YELLOW. [Note absence of tooth-like structures near beak on inner shell of interior shell drawing of Eastern floater].

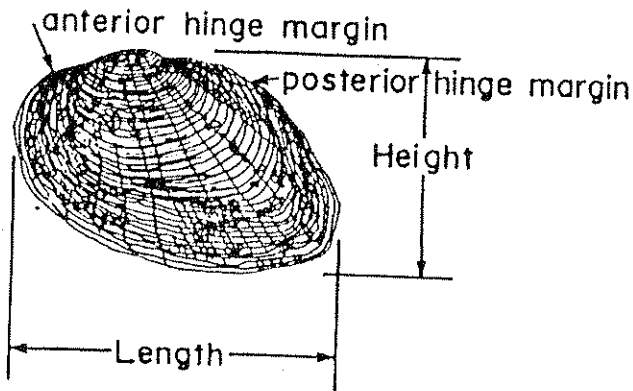
“Eastern floater” *Pyganodon cataracta* (Say)  
Maximum length in the lake is 3 inches (77 mm).  
Formerly known as the “Smooth Floater” *Anodonta teres*.

E SHELL HEIGHT IS GREATER THAN 1/2 OF THE SHELL LENGTH, OVAL TO OVAL-ELLIPTICAL SHAPE.

“Length” runs parallel to hinge of shell; “Height” runs at a 90° angle to length [perpendicular] ..... F.



SHELL HEIGHT IS LESS THAN 1/2 OF THE SHELL LENGTH; SHELL ELONGATED ..... G.

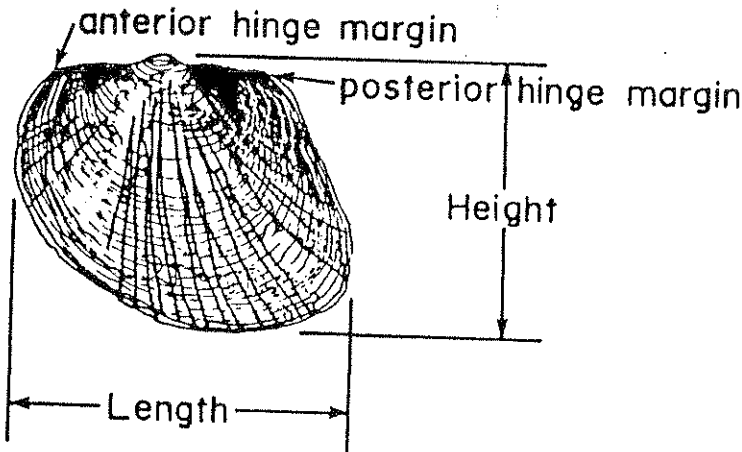


F. SHELL HEIGHT IS BETWEEN 1/2 AND 3/4 OF THE SHELL LENGTH; ELLIPTICAL TO RHOMBOIDAL SHAPE ..... H.

SHELL HEIGHT IS GREATER THAN 3/4 OF SHELL LENGTH, OVAL SHAPE; OUTER SHELL COLOR IS YELLOW TO LIGHT BROWN WITH THIN RAYS RADIATING FROM SHELL HINGE, PINKISH TO WHITE INTERIOR SHELL COLOR; ANTERIOR AND POSTERIOR HINGE MARGINS VERY ANGULAR.

“Tidewater mucket” *Leptodea ochracea* (Say).

This is a common Lake Waccamaw species; it has a discontinuous range along the Atlantic seaboard from Georgia north to Nova Scotia. Note also Waccamaw lampmussel in “K”. Maximum length is about 2.5 inches [64 mm].



G LONG, RECTANGULAR, RAZOR-SHAPED.

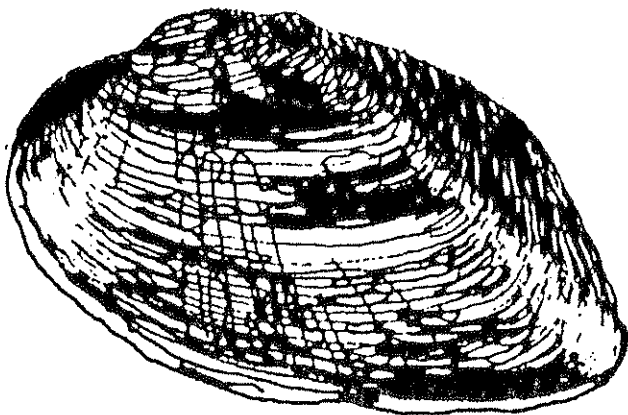
“Pod Lance” *Elliptio folliculata* (I. Lea). Occasionally found in the deeper waters and SW area of the lake near the Waccamaw River dam. Maximum Lake Waccamaw length is about 3.3 inches [84 mm]. This species can reach a length of 4.5 inches [114 mm] in other North Carolina habitats. Species is known only from SE North Carolina and Georgia. The Lake Waccamaw form may eventually be listed as an endemic Lake Waccamaw species.

MODERATELY ELONGATE, CAN BE BULLET-SHAPED

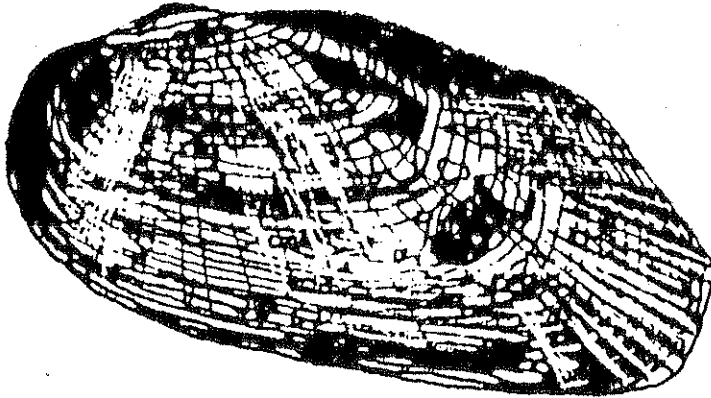
“Atlantic Spike” *Elliptio producta* (Conrad). Occasionally present in the West lake area near the Waccamaw River dam. Species has not been recorded from park area. Range of this species is believed to be on the Atlantic seaboard from Pennsylvania south into Florida. Maximum length in lake is less than 2 inches [51 mm]. This spike is known to reach a 4 inch [102 mm] length in other North Carolina habitats. Genetic studies of NC mussels resembling this species suggest that Lake Waccamaw specimens, while similar looking to other NC specimens, are genetically different. Thus, the scientific name of this mussel from Lake Waccamaw may be changed within the next several years.

- H PROMINENT ANGULAR RIDGE ON OUTER POSTERIOR SHELL SURFACE ..... I.
- POSTERIOR RIDGE AREA ON OUTER SHELL SURFACE NOT ANGULAR BUT ROUNDED ..... J.
- I BROWNISH GREEN TO DARK BROWN EXTERIOR WITHOUT COLORED RAYS -INNER SHELL COLOR IS WHITE. SHELL FREQUENTLY HIGHLY ERODED.

“Waccamaw spike,” *Elliptio waccamawensis* (I. Lea). Species is found only in Lake Waccamaw and is very common. As many as 132 per m<sup>2</sup> have been found in the lake. Maximum length is about 3 inches [76 mm].



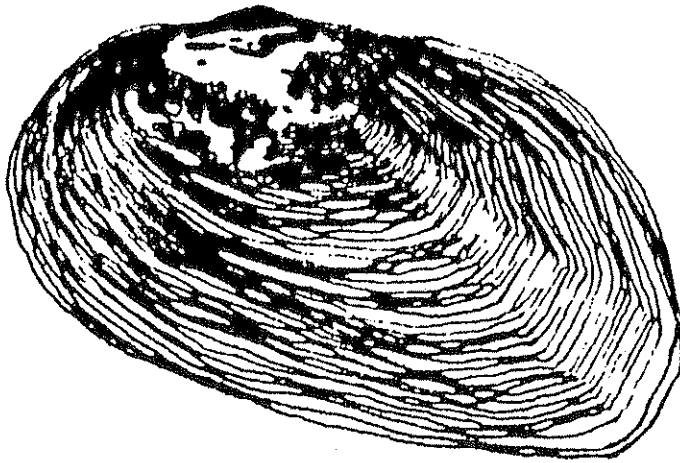
BROWNISH GREEN TO YELLOW GREEN SHELL WITH GREEN OR BROWN RADIATING RAYS NEAR POSTERIOR SHELL SURFACE INTERIOR SHELL COLOR WITH A TINGE OF VIOLET OR PINK.



Male "Waccamaw fatmucket,, *Lampsilis fullerikati* R. I. Johnson. This mussel may also be known only from Lake Waccamaw. Positive separation of male Waccamaw fatmucket and Waccamaw spike specimens sometimes is possible only after microscopic examination of their posterior mantle tissues. For more information note also: "M." Recent genetic studies suggest that the Waccamaw fatmucket is the "Eastern lampmussel" *Lampsilis radiata* (Gmelin). The latter is known to range from the St. Lawrence River south to the Pee Dee river drainage.

J. EXTERIOR SHELL SURFACE SMOOTH TO LIGHTLY ROUGHENED BUT WITH SOME SHININESS PRESENT ..... K.

EXTERIOR SHELL SURFACE HAVING A CLOTH-LIKE TO VELVETY ROUGH APPEARANCE; COLOR IS DARK BROWN.



"Carolina spike," *Elliptio raveneli* (Conrad). Occasionally found near W shore of lake and thus may occur near the N.C. state park. This species may range between North Carolina and Florida. Maximum length is about 2.2 inches [56 mm] - lengths in flowing waters (rivers and streams) may be considerably larger. Separation of this species from the "Southern pondhorn" *Unio merus obesus* (I. Lea), which inhabits nearby stream systems, can only be performed reliably using soft tissue anatomy.

K. RHOMBOIDAL SHAPE, LOW ELLIPTICAL, OR DISTORTED SHAPE ..... L.

OVAL-ELLIPTICAL TO OVAL SHAPE, SHELL HEIGHT IS JUST LESS THAN 3/4 OF THE SHELL LENGTH; OUTER SHELL COLOR IS BROWNISH, INNER SHELL WITH WHITISH-BLUE TO VIOLET COLOR TINT; ANTERIOR AND POSTERIOR HINGE MARGINS SLIGHTLY ROUNDED;

“Waccamaw lampmussel” *Lampsilis crocata* (I. Lea)].

Rather rare North Carolina species - not known elsewhere in North Carolina; it is believed to occur also in Georgia and South Carolina. This species can be confused with the Tidewater mucket [see “F”] and most specialists believe the two forms represent the same species. In Lake Waccamaw the above length-height relationship seems a reliable differentiation between the two. A more reliable separation is afforded through examination of their respective mantle and gill tissues. Maximum length can reach 2.6 inches [66 mm].

L POSTERIOR SLOPE WELL ROUNDED, NO APPARENT RIDGE ..... M.

POSTERIOR RIDGE AREA WITH SEVERAL DEFINITE RADIATING RIDGES; INTERIOR COLOR A METALLIC BLUE.

“Savannah lilliput” *Toxolasma pullus* (Conrad)  
Rarely found - possibly because of its size and habitat. Seems to prefer the deeper peat bottoms of the lake. Small - maximum shell length seen in Lake Waccamaw is less than 5/8 inches [16 mm]. It reaches a length of 1.5 inches [37 mm] in other North Carolina localities. Known range of species includes North Carolina, South Carolina, and Georgia.



M EXTERIOR SHELL SMOOTH, BROWNISH GREEN TO YELLOW GREEN EXTERIOR COLOR, GREEN RADIATING RAYS NEAR POSTERIOR END INNER SHELL COLOR IS VIOLET TO PINKISH. POSTERIOR SHELL END OF FEMALES SLIGHTLY SWOLLEN



Female "Waccamaw fatmucket" *Lampsilis fullerkati*  
R. I. Johnson. Maximum length is about 2.9 inches  
[74 mm].

For more information see note "X". J

EXTERIOR COLOR A SHINY YELLOW GREEN, OCCASIONALLY WITH GREEN RADIATING RAYS NEARER POSTERIOR END; INNER SHELL COLOR BLUISH WHITE; POSTERIOR SHELL END OF FEMALES ABNORMALLY SWOLLEN; MAXIMUM LENGTH IN LAKE WACCAMAW IS ABOUT 1.6 INCHES [41 mm].

"Eastern creekshell" *Villosa delumbis* (Conrad)].  
Occasionally found in W near shore region near the  
Waccamaw River dam. Species seems restricted to  
Atlantic drainage from North Carolina south to near  
Florida. Maximum length in lake is about 1.6 inches  
[41 mm]. Posterior shell shape of this shell in  
running waters can be almost bilobed or highly  
distorted.

SNAILS

- 1 COILED SHELL ..... 2.
- CONE-SHAPED SHELL - LIMPETS ..... 10
- 2 GREATER THAN 1/8" inch [3 mm] LENGTH ..... 3.
- LESS THAN 1/8" inch [3 mm] LENGTH ..... 9.
- 3 SHELL LENGTH NOTICEABLY GREATER THAN SHELL WIDTH ..... 4.
- SHELL LENGTH NOT NOTICEABLY GREATER THAN SHELL WIDTH ..... 7.

- ③<sup>4.</sup> APERTURE (MOUTH OF SHELL) ON RIGHT SIDE OF SHELL [SPIRE POINTING UPWARDS] .. 5
- APERTURE (MOUTH OF SHELL) ON LEFT SIDE OF SHELL [SPIRE POINTING UPWARDS], VERY FRAGILE SEMI-TRANSLUCENT SHELL.

“Bayou physa” *Physella hendersoni* (Clench)  
Occasionally found throughout Lake Waccamaw region. Overall range is from North Carolina south to Florida and west to Mississippi river. Maximum length less than 1/2 inch [13 mm].

- 5 OPAQUE, NON-FRAGILE SHELL ..... 6.
- TRANSLUCENT, FRAGILE SHELL WITH SHARP POINTED SPIRE ALMOST MIRROR IMAGE OF THE Bayou physa.

“Mimic lymnaea”, *Pseudosuccinea columella* (Say).  
To date species has only been found attached to plant stems in Big Creek. It may be found subsequently in similar Lake Waccamaw habitats. It is a common Atlantic drainage species. Maximum known Waccamaw drainage length less than 1/4 inch [6 mm]. Know to reach 5/8 inch [16 mm] length in other North Carolina localities.

- 6 STRAW COLORED TO YELLOW, USUALLY WITH SQUARE LIKE WHORLS, OPERCULUM WITH A SPIRAL NUCLEUS

"Ridged lioplax", *Lioplax subcarinata* (Say).  
Common near-shore Lake Waccamaw species; uncommon elsewhere in North Carolina waters. The species is also known to occur from New York south into North Carolina within the Atlantic drainage. Maximum length in lake is about 3/4 inch [19 mm].

MEDIUM TO DARK BROWN WITH ROUNDED WHORLS; SHELL MOUTH OR APERTURE PARALLEL TO SHELL LENGTH AXIS [note second figure]; OPERCULUM WITH A SPIRAL NUCLEUS

"Pointed campeloma", *Campeloma decisum* (Say).  
Common near shore Lake Waccamaw species. A common species occurring east of the Mississippi River from Nova Scotia into the Great Lakes and south possibly into Texas. May reach 1 inch [25 mm] length - largest snail in lake.

- 7 FLATTENED SPIRE, NON-GLOBULAR SHAPE..... 8.

GLOBULAR SHAPE - LENGTH ABOUT EQUAL TO WIDTH; LIGHT BROWN COLOR; SHELL MOUTH OR APERTURE NOT PARALLEL TO SHELL LENGTH AXIS, AS WITH THE CAMPELOMA SPECIES, BUT ANGULAR TO THE LENGTH AXIS [note second figure].

"Buffalo pebblesnail" *Gillia altilis* (L. Lea). Occasionally found in deeper waters of Lake Waccamaw. This species also occurs within the Atlantic drainage from New York south into South Carolina. Maximum length about 1/4" inch [6 mm];

- 8 SHELL SMALL, ABOUT 1/8 INCH [3 mm] LENGTH; OPERCULAR OPENING GREATLY INFLATED; WHITE TO LIGHT TAN.

"Marsh sprite", *Micromenetus alabamensis* (Pilsbry).

A species found on grass stems and rotten logs within Lake Waccamaw. It has been found along the shore of the state park. Species seems known only from North Carolina and Alabama.

SHELL LENGTH ABOUT 1/4" INCH [6 mm] , OPERCULAR OPENING ABOUT SAME HEIGHT AS SHELL; YELLOW TO REDDISH BROWN COLOR.

"Marsh rams-horn" *Planorbella trivolvis* (Say). Occasionally found throughout Lake Waccamaw. This is a common species within the Atlantic and Mississippi drainages from Canada south into Florida. Maximum width approaches 1/2 inch [13 mm].

- 9 SHELL FLATTENED - Immature specimen of a previously discussed species ..... see #8.

SPIRE GENERALLY SOMEWHAT POINTED, APERTURE LENGTH LESS THAN TOTAL SHELL LENGTH.

"Waccamaw amnicola" *Amnicola sp.* or

"Waccamaw siltsnail" *Cincinnati sp.*

Both species, extremely common throughout the lake, are known only from Lake Waccamaw. A density of over 800 m<sup>2</sup> has been recorded for the Waccamaw siltsnail.

10 ELLIPTICAL, APEX OF CONE BLUNT AND ALMOST CENTRALLY LOCATED, SHELL SIDES FLATTENED TO SLIGHTLY CONVEX; LENGTH GENERALLY LESS THAN 1/4" INCH [6 mm].

"Dusky ancyliid" *Laevapex fuscus* (C.B. Adams).  
Believed to be very rare in the lake. Found on emergent vegetation and soft drink bottles. Currently, known only at Waccamaw from Big Creek drainage but probably occurs sparingly in waters of the lake. Species has a wide distribution in the Atlantic drainage.

OVAL WITH NEARLY PARALLEL LATERAL SIDES; APEX OF CONE POINTED AND NEAR POSTERIOR SHELL EDGE; POSTERIOR SIDE OF CONE CONCAVE - ANTERIOR SIDE FLAT OR SLIGHTLY CONVEX; SHORT MICROSCOPIC RIBBLETS SURROUNDING APEX; LENGTH GENERALLY LESS THAN 1/8" INCH [3 mm].

"Blackwater ancyliid" *Ferrissia hendersoni* Walker  
Believed to be very rare in Lake Waccamaw. May live attached to plants living within the lake. Available published data indicates it may be a North Carolina endemic. Only known Lake Waccamaw collection was in 1908. It is known to occur nearby in other lakes.

## Appendix B

# All Known Fish and Mollusk Species in Lake Waccamaw and Waccamaw River

### FISH

#### Longnose Gar

*Lepisosteus osseus*

#### Bowfin

*Amia calva*

#### American Eel

*Anguilla rostrata*

#### American Shad

*Alosa sapidissima*  
in river, not lake

#### Gizzard Shad

*Dorosoma cepedianum*

#### Eastern Mudminnow

*Umbra pygmaea*

#### Redfin Pickerel

*Esox americanus*

#### Chain Pickerel

*Esox niger*

#### Carp

*Cyprinus carpio*

#### Eastern Silvery Minnow

*Hybognathus regius*  
in river, not lake

#### Golden Shiner

*Notemigonus crysoleucas*

#### Ironcolor Shiner

*Notropis chalybaeus*

#### Dusky Shiner

*Notropis cummingsae*  
in river, not lake

#### Taillight Shiner

*Notropis maculatus*

#### Coastal Shiner

*Notropis petersoni*

#### Creek Chubsucker

*Erimyzon oblongus*

#### Lake Chubsucker

*Erimyzon sucetta*

#### Spotted Sucker

*Minytrema melanops*  
in river, not lake

#### White Catfish

*Ictalurus catus*

#### Yellow Bullhead

*Ictalurus natalis*  
in river, not lake

#### Brown Bullhead

*Ictalurus nebulosus*

#### Flat Bullhead

*Ictalurus platycephalus*

#### Tadpole Madtom

*Noturus gyrinus*

#### Margined Madtom

*Noturus insignis*  
in river, not lake

#### Broadtail Madtom

*Noturus n. sp.*

**Swampfish**

*Chologaster cornuta*  
in river, not lake

**Pirate Perch**

*Aphredoderus sayanus*

**Lined Top-minnow**

*Fundulus lineolatus*

**Waccamaw Killifish**

*Fundulus waccamensis*

**Mosquitofish**

*Gambusia affinis*

**Waccamaw Silverside**

*Menidia extensa*

**White Perch**

*Morone americana*

**Mud Sunfish**

*Acantharchus pomotis*

**Flier**

*Centrarchus macropterus*

**Blackbanded Sunfish**

*Enneacanthus chaetodon*  
in river, not lake

**Bluespotted Sunfish**

*Enneacanthus gloriosus*

**Banded Sunfish**

*Enneacanthus obesus*

**Redbreast Sunfish**

*Lepomis auritus*

**Pumpkinseed**

*Lepomis gibbosus*

**Warmouth**

*Lepomis gulosus*

**Bluegill**

*Lepomis macrochirus*

**Dollar Sunfish**

*Lepomis marginatus*  
in river, not lake

**Redear Sunfish**

*Lepomis microlophus*

**Spotted Sunfish**

*Lepomis punctatus*  
in river, not lake

**Largemouth Bass**

*Micropterus salmoides*

**Black Crappie**

*Pomoxis nigromaculatus*

**Everglades Pygmy Sunfish**

*Elassoma evergladei*

**Banded Pygmy Sunfish**

*Elassoma zonatum*

**Carolina Pygmy Sunfish**

*Elassoma boehlkei*  
in river, not lake

**Swamp Darter**

*Etheostoma fusiforme*

**Tessellated Darter**

*Etheostoma olmstedi*  
in river, not lake

**Waccamaw Darter**

*Etheostoma perlongum*

**Sawcheek Darter**

*Etheostoma serriferum*  
in river, not lake

**Yellow Perch**

*Perca flavescens*

## SNAILS

of Lake Waccamaw and Big Creek

### Bayou physa

*Physella hendersoni* (Clench)

Occasionally found throughout Lake Waccamaw region.

### Mimic lymnaea

*Pseudosuccinea columella* (Say)

To date species has only been found attached to plant stems in Big Creek.

### Ridged lioplax

*Lioplax subcarinata* (Say)

Common near-shore Lake Waccamaw species; uncommon elsewhere in North Carolina waters.

### Pointed campeloma

*Campeloma decisum* (Say)

Common near shore Lake Waccamaw species.

### Buffalo pebblesnail

*Gillia atrilis* (L. Lea)

Occasionally found in deeper waters of Lake Waccamaw.

### Marsh sprite

*Micromenetus alabamensis* (Pilsbry)

A species found on grass stems and rotten logs within Lake Waccamaw. It has been found along the shore of the state park. Species seems known only from North Carolina and Alabama.

### Marsh rams-horn

*Planorbella trivolvis* (Say)

Occasionally found throughout Lake Waccamaw.

### Waccamaw amnicola

*Ammicola* sp.

### and Waccamaw siltsnail

*Circinnatia* sp.

Both species, extremely common throughout the lake, are known only from Lake Waccamaw. A density of over 800 m<sup>2</sup> has been recorded for

the Waccamaw siltsnail.

### Dusky ancyld

*Laevapex fuscus* (C.B. Adams)

Believed to be very rare in the lake. Found on emergent vegetation and soft drink bottles. Currently, known only at Waccamaw from Big Creek drainage but probably occurs sparingly in waters of the lake.

### Blackwater ancyloid

*Ferrissia hendersoni* (Walker)

Believed to be very rare in Lake Waccamaw. May live attached to plants living within the lake. Available published data indicates it may be a North Carolina endemic. Only known Lake Waccamaw collection was in 1908. It is known to occur nearby in other lakes.

## CLAMS and MUSSELS

of Lake Waccamaw

### Asian clam

*Corbicula fluminea* (Muller)

This clam has recently appeared in Lake Waccamaw and is now common in the shallow northern lake areas.

### Fingernail Clam and/or Peaclam

Four species believed present, specific identification of them is in question at present time.

### Eastern floater

*Pyganodon cataracta* (Say)

### Tidewater mucket

*Leptodea ochracea* (Say)

This is a common Lake Waccamaw species.

### Pod Lance

*Elliptio folliculata* (L. Lea)

Occasionally found in the deeper waters and SW area of the lake near the Waccamaw River dam.



### **Atlantic Spike**

*Elliptio producta* (Conrad)

Occasionally present in the West lake area near the Waccamaw River dam.

### **Waccamaw spike**

*Elliptio waccamawensis* (I. Lea)

Species is found only in Lake Waccamaw. As many as 132 per m<sup>2</sup> have been found in the lake.

### **Waccamaw fatmucket**

*Lampsilis fullerkeri* (R. I. Johnson)

This mussel may also be known only from Lake Waccamaw. Recent genetic studies suggest that the Waccamaw fatmucket may be the Eastern lampmussel *Lampsilis radiata* (Gmelin)

### **Carolina spike**

*Elliptio raveneli* (Conrad).

Occasionally found near W shore of lake and thus may occur near the N.C. state park. Separation of this species from the Southern pondhorn

*Unio merus obesus* (I. Lea) which inhabits nearby stream systems is imperfect as yet.

### **Waccamaw lampmussel**

*Lampsilis crucata* (I. Lea)

Rather rare North Carolina species - not known elsewhere in North Carolina.

### **Savannah lilliput**

*Toxolasma pultus* (Conrad)]

Rarely found - possibly because of its size and habitat. Seems to prefer the deeper peat bottoms of the lake.

### **Eastern creeksnail**

*Villosa delumbis* (Conrad)

Occasionally found in W near shore region near the Waccamaw River dam.

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY  
COLLEGE OF FORESTRY AND WILDLIFE RESOURCES  
DEPARTMENT OF FISHERIES AND WILDLIFE SCIENCES

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Blacksburg, Virginia 24060-0321  
Fax Number: (703) 231-7580

FACSIMILE TRANSMISSION COVER SHEET

TO: Tom Howard : Name  
Dix Parks Recreation : Company/Institution  
(919) 870-6843 : Fax Number

FROM: Dick News : Name

Number of Pages in Transmission (including cover page): 2

Date: 7/26/94

Notes:

The report looks good This page could  
stand a couple corrections  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Parks & Recreation

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Dr. Phillip K. McKnelly, Director



April 11, 1994

Dr. Richard Neves  
US Department of Fish and Wildlife  
Virginia Tech  
Blacksburg, VA 24061

Dear Dr. Neves:

Enclosed you'll find a draft copy of the Environmental Education Learning Experience (EELE) developed for Lake Waccamaw State Park. The program is designed for students in grades 6, 7 and 8, and is concentrated on freshwater mussels and the water chemistry of Lake Waccamaw.

If your time permits, we would appreciate a review of the entire document; however if that is not feasible, then On-Site #1 Mussel Lake (p. 4.1), the Appendices (p. 8.1) and Pre-visit #1 Fun With Freshwater Mussels (p. 3.1) would be the priorities.

Because of our accelerated production schedule, we only have two weeks between the draft stage and the start of the final workup (graphics, final formatting, etc.). If you could have your comments to me by April 25 it would be most helpful. In addition to mailing any reviewed material, our fax number is 919-870-6843. I can be reached by phone at 846-9991.

Thank you for your help

Sincerely,

Tom Howard  
District I & E Specialist