

# Evaluation of Freshwater Mollusk and Habitat

Clinch River, CRM 15.0 – 19.0  
Roane County, Tennessee

*Prepared for*  
Tennessee Valley Authority

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*Prepared by*  
Third Rock Consultants, LLC  
2526 Regency Road, Suite 180  
Lexington, KY 40503  
859.977.2000

Prepared by:



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Chelsey Olson

Reviewed by:



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Bert Remley

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## **I. PURPOSE**

The survey area is being evaluated for development along the lower Clinch River. As part of the evaluation, Tennessee Valley Authority (TVA) characterized the freshwater mollusk community in the Clinch River between river miles 15.0 and 19.0 (CRM). TVA previously surveyed mussels and habitat near the site (CRS) in 1982 (Jenkinson 1982). That study, as well as others (Ahlstedt 1984, Yokely 2005), showed that the lower Clinch River supports a mussel community with relatively low abundance and species richness. The low abundance and richness is primarily the result of impoundment of the Clinch River (Melton Hill and Norris Dams upstream) and mainstem Tennessee River (Watts Bar Dam downstream).

In 1991, TVA began a Reservoir Release Improvement program at Melton Hill Dam (CRM 23), which has presumably improved habitat conditions for mussels and other fauna in recent decades. Records of live pink mucket (federally endangered) and sheepsnose (proposed endangered), as well as relic shells of other federally listed species, have been found in this reach of the river.

## **II. MOLLUSK SURVEY PLAN**

The mollusk survey plan used survey methods and locations similar to that used by Jenkinson (1982) to provide a level of comparability between studies, as well as additional efforts to collect data near anticipated impact areas. A combination of semi-quantitative and qualitative sampling methods was used. Although quantitative sampling can provide a more accurate estimate of mollusk density and improve detection of small or buried individuals, this method was omitted due to potential legacy issues with contaminated sediments in this reach of the Clinch River (see Dive and Safety Plan below).

The study area included the river reach between CRM 15.0 and 19.0. Similar to the 1982 study, survey transects used to guide divers extended bank to bank and were spaced about 300 meters (or 0.2 miles) apart. Exhibits showing transect sites are located at pages 5 to 12. A photographic journal is contained in Appendix A. Currently, proposed discharge and intake sites may be located near CRM 16.0 and 17.9, respectively. Additional sampling transects were placed approximately 50 meters (m) upstream and downstream of both the discharge and intake sites. Thus, a total of 25 transects were sampled using semi-quantitative methods.

Divers collected all mussels (live and dead) within 1m wide by 10m long sections along one side of the transect (= semi-quantitative samples). Each 10m<sup>2</sup> area along transects was exhaustively searched by the diver using visual and tactile search methods. Due to the potential for legacy contamination issues, only the top 1 inch of riverbed substrate was disturbed by hand. A minimum of five minutes search time was spent per sample to ensure thorough coverage; actual time spent per sample was recorded to facilitate catch per hour calculations in conjunction with estimates of mussel density. Mussels were placed into a mesh collection bag that was retrieved and processed in the boat. The mesh size of the collection bag was no larger than 6mm.

Qualitative samples consisted of one-hour timed searches at each of five sites. Two of the five sites occurred at the discharge and intake sites, respectively. The remaining qualitative searches occurred in locations with the most suitable mollusk habitat based on results of the semi-quantitative sampling data and the best judgment of the on-site malacologist.

All live mussels were identified, counted, measured (length in mm), aged (external annuli count), sexed (if sexually dimorphic species), and returned to the river near their original location. Dead mussel shells were identified and scored as either fresh dead or relic; only fresh dead shells were quantified to provide an estimate of recent mortality. Zebra mussel (*Dreissena polymorpha*) abundance was recorded as an estimate of percent coverage on each infested live native (unionid) mussel.

A cursory, qualitative effort was spent collecting aquatic snails as well to characterize the general snail community in the study area. Since it was likely that snails would be present in limited areas containing large substrate particles, collection of snails was opportunistic. Divers collected all snails they encountered along the mussel transects. Snails were brought to the surface, identified, and all live snails were enumerated. While incidental collection of snails by divers did occur, these efforts did not hinder mussel sampling. Live snails were identified and counted on site, and sample location was recorded. Since shell condition is difficult to assess for dead snails, only a record of dead snail species was noted. No federally listed snails have been recorded in the Clinch River near the CRS.

General water quality conditions (temperature, dissolved oxygen, conductivity, and pH, and velocity) were measured at depths of one foot below the water surface and one foot above the riverbed surface at each river mile (*i.e.*, CRM 15, 16, 17, 18, and 19). Relative substrate composition (percent of each particle size) was estimated by the diver at the terminus of each 10-meter section of sampling transect. Depth and zebra mussel density was also recorded at these locations. GPS coordinates were recorded at each transect endpoint and at boundaries of qualitative searches (Appendix B).

### III. RESULTS

The field survey was conducted September 21 to 26, 2011 by Third Rock Consultants and Mainstream Commercial Divers. No live federally threatened or endangered species were encountered.

A total of 74 live mussels representing 6 species were collected during the survey (Table 1, page 3). Of these 74 specimens, 71.6% were *Quadrula pustulosa* with the next-most abundant species being *Leptodea fragilis* which accounted for 17.6% of the population. The semi-quantitative samples resulted in the collection of over 70% of recorded mussel species. Maximum density observed along semi-quantitative transects was 0.4 mussels/m<sup>2</sup> with an average of 0.02 mussels/m<sup>2</sup>. Qualitative sampling resulted in catch per unit efforts (CPUE) ranging from 0 to 9 mussels/hour and an average of 4.2 mussels/hour (Appendix C).

In addition to mussels, a total of 25 snails represented by one species, *Pleurocera canaliculatum*, were recorded. All snails were collected along the semi-quantitative transects. Snail density ranged from 0 to 1.3 snails/m<sup>2</sup>. The majority of snails were collected on T9 between 0 and 10 meters from the bank (Appendix D). Of the larger *P. canaliculatum* collected, the majority were worn to the point of lacking all periostracum.

Hard-packed clay, sand and bedrock were the dominant substrates in the study area. Depths averaged 16.5 feet with a maximum depth of 27 feet. Water quality measurements were collected at each river mile, CRM 15 through 19, both from one foot below the surface and one foot above the substrate. Water quality measurements were similar throughout the area, as were measurements taken near the surface and substrate (Table 2, page 3).

**TABLE 1 – ABUNDANCE SUMMARY, MUSSEL AND SNAIL SURVEY  
 CLINCH RIVER, CRM 15.0 – 19.0**

Taxa	Species	Method		Total	
		Semi-quantitative	Qualitative	Abundance	Relative Abundance
Mussels	<i>Quadrula pustulosa</i>	35	18	53	71.6
	<i>Leptodea fragilis</i>	12	1	13	17.6
	<i>Cyclonaias tuberculata</i>	1	2	3	4.1
	<i>Potamilus alatus</i>	2	0	2	2.7
	<i>Pyganodon grandis</i>	2	0	2	2.7
	<i>Elliptio crassidens</i>	1	0	1	1.4
	<b>TOTAL</b>	<b>53</b>	<b>21</b>	<b>74</b>	
Snails	<i>Pleurocera canaliculatum</i>	25	0	25	100.0
	<b>TOTAL</b>	<b>25</b>	<b>0</b>	<b>25</b>	

**TABLE 2 – WATER QUALITY**

Site (CRM)	Elevation	T (°C)	DO (mg/L)	pH	spC (µS)	Turbidity (NTU)
15	Surface	20.1	7.1	7.3	267.3	23.8
	Substrate (20')	20.1	7	7.5	267.1	22.9
16	Surface	20.4	6.91	7.49	263	16.5
	Substrate (10')	20.4	6.57	7.55	263	19.8
17	Surface	20.1	7.14	7.56	267.3	22
	Substrate (20')	20.1	7	7.57	267.6	23
18	Surface	20.1	6.94	7.39	267.6	21
	Substrate (27')	20.1	6.95	7.57	267.4	21.1
19	Surface	20.8	7.3	7.43	267.7	13.1
	Substrate (20')	19.9	7.1	7.6	267.7	13.7

Average temperatures, pH, conductivity, and turbidity were 20.2°C 7.0 mg/L, 266.6 µS, and 19.7 NTU, respectively. Flows ranged from near 0 to 0.3 feet/second in the morning to 2.23 feet/second when the dam was released in the afternoon.

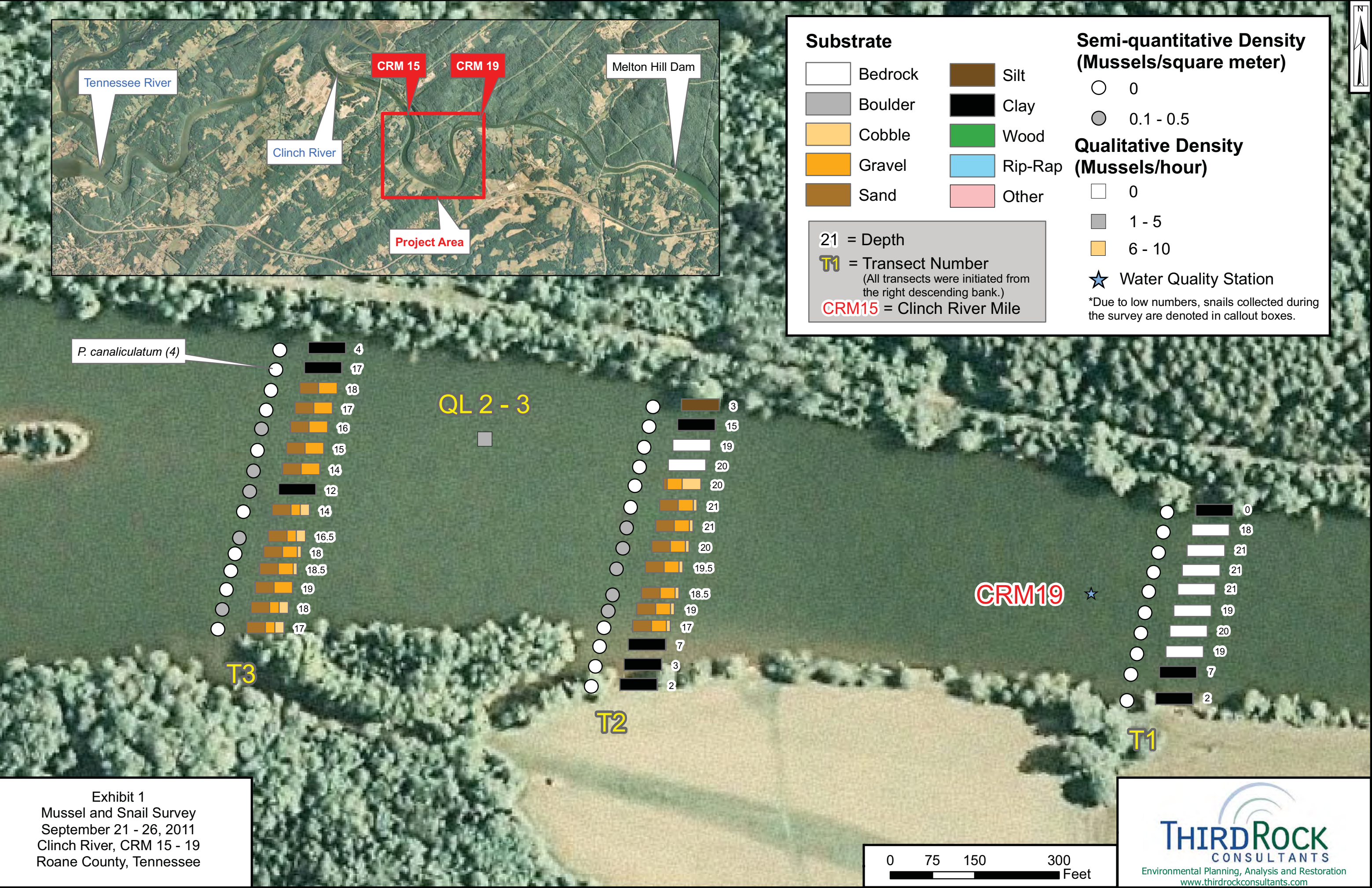
Of particular note were an abundance of zebra mussels encountered throughout the project area. Of the 74 mussels collected, only 3 were not infested by the invasive mussel. For infested mussels, the average area of coverage was 27.9%, with values ranging from 5% to 100%. Zebra mussels were especially abundant in areas of solid, stable substrates; when bedrock was encountered divers described their densities as “a blanket of zebra mussels.”

Only 3 fresh dead specimens were encountered during the survey. No juveniles were encountered while mussels 15 years or older were abundant (Appendix C and D). While no living threatened or endangered species were encountered during the survey, representative relics of several species were recorded, including *Cyprogenia stegaria* and *Dromus dromas*. Other relics encountered were *Actinonaias ligamentina*, *Pleurobema cordatum*, *Fusconaia subrotunda*, *Cumberlandia monodonta*, *Ellipsaria lineolata*, *Ptychobranchus fasciolaris*, *Obovaria subrotunda*, *Pleurobema rubrum*, *Ligumia recta*, *Lampsilis ovata*, and *Quadrula cylindrica*.

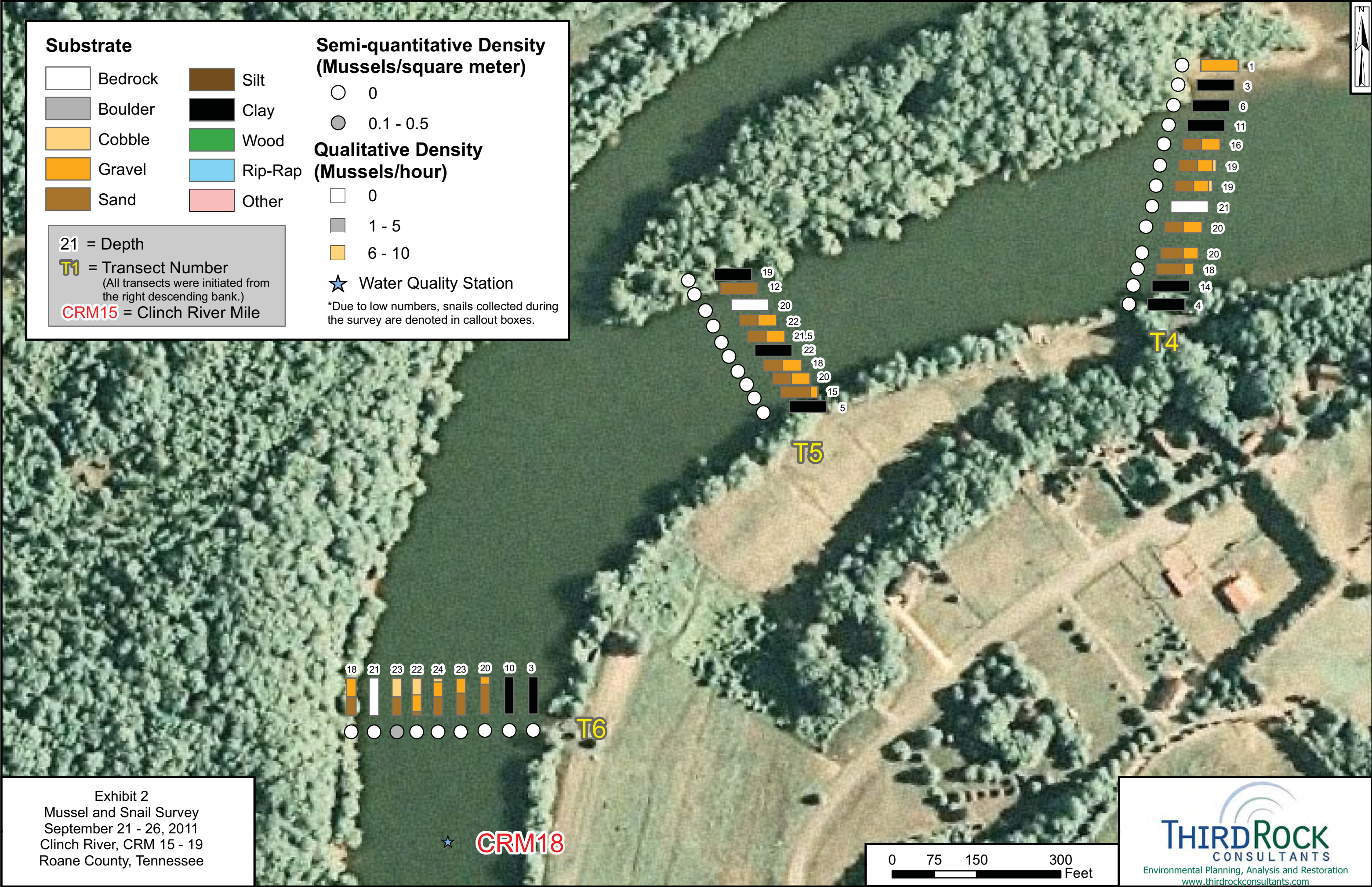
#### IV. REFERENCE

Howard, Chuck. 2010. TVA Mussel and Habitat Survey Plan. Clinch River CRM 15.0 – 19.0.

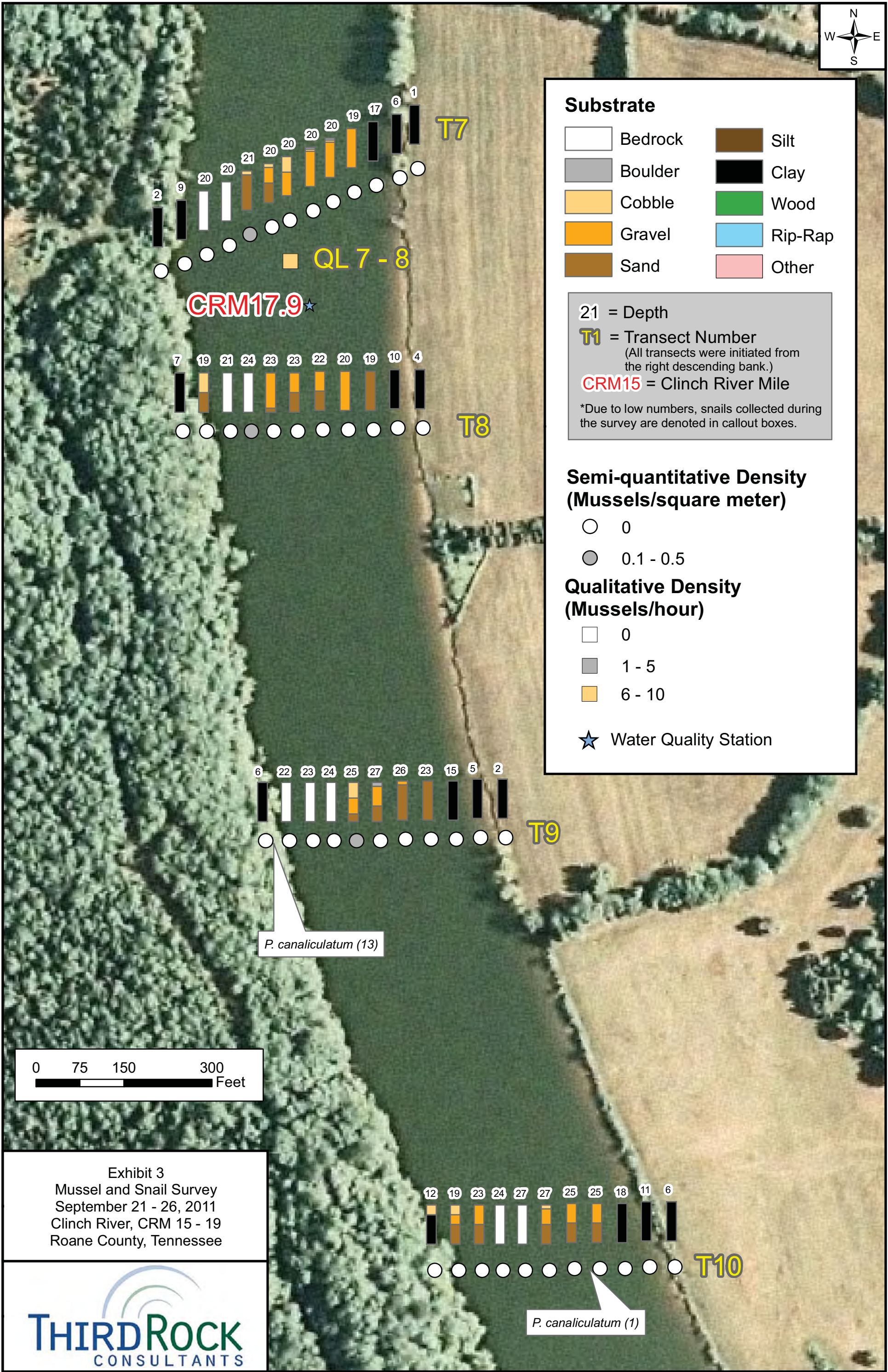




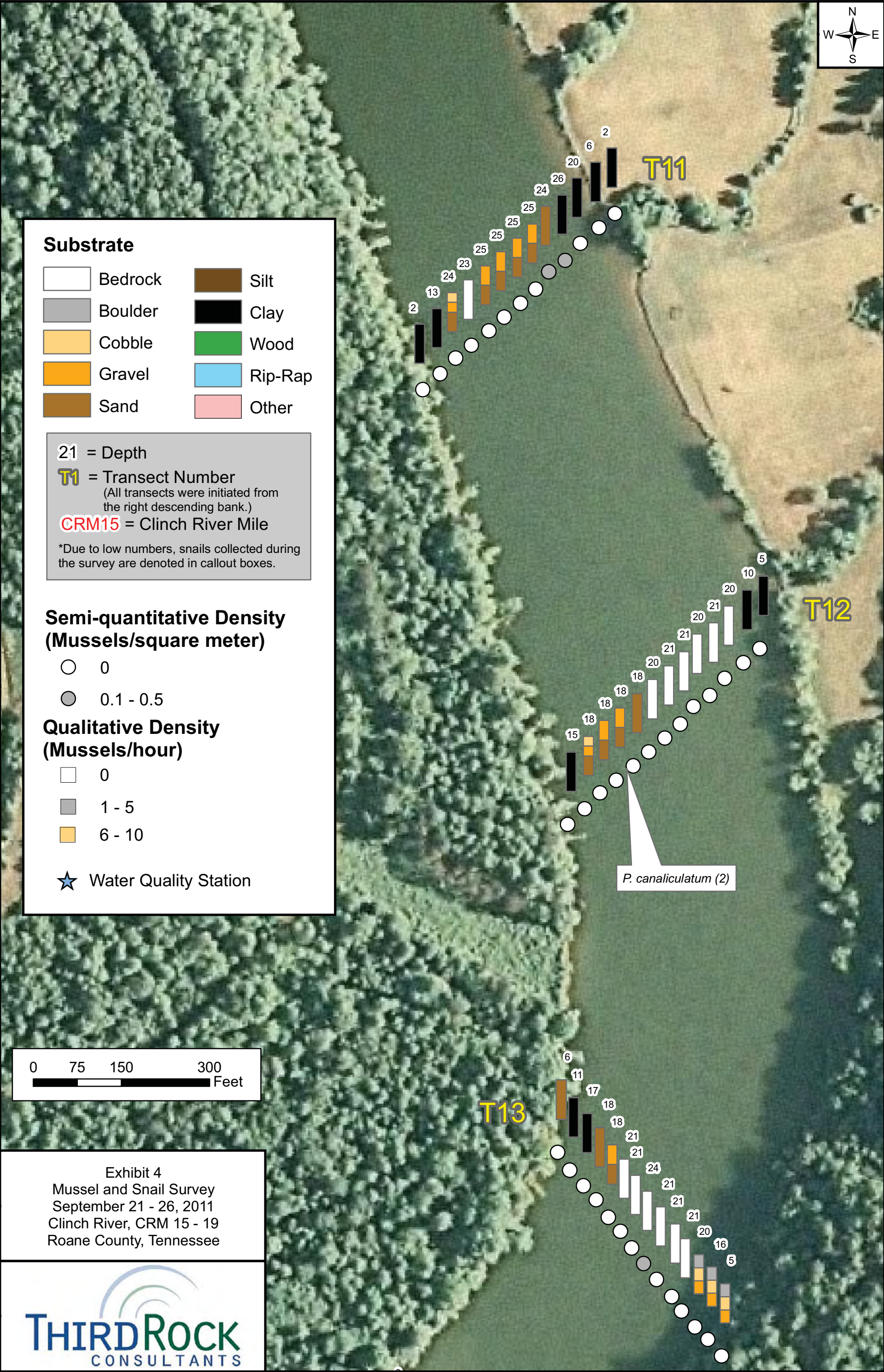




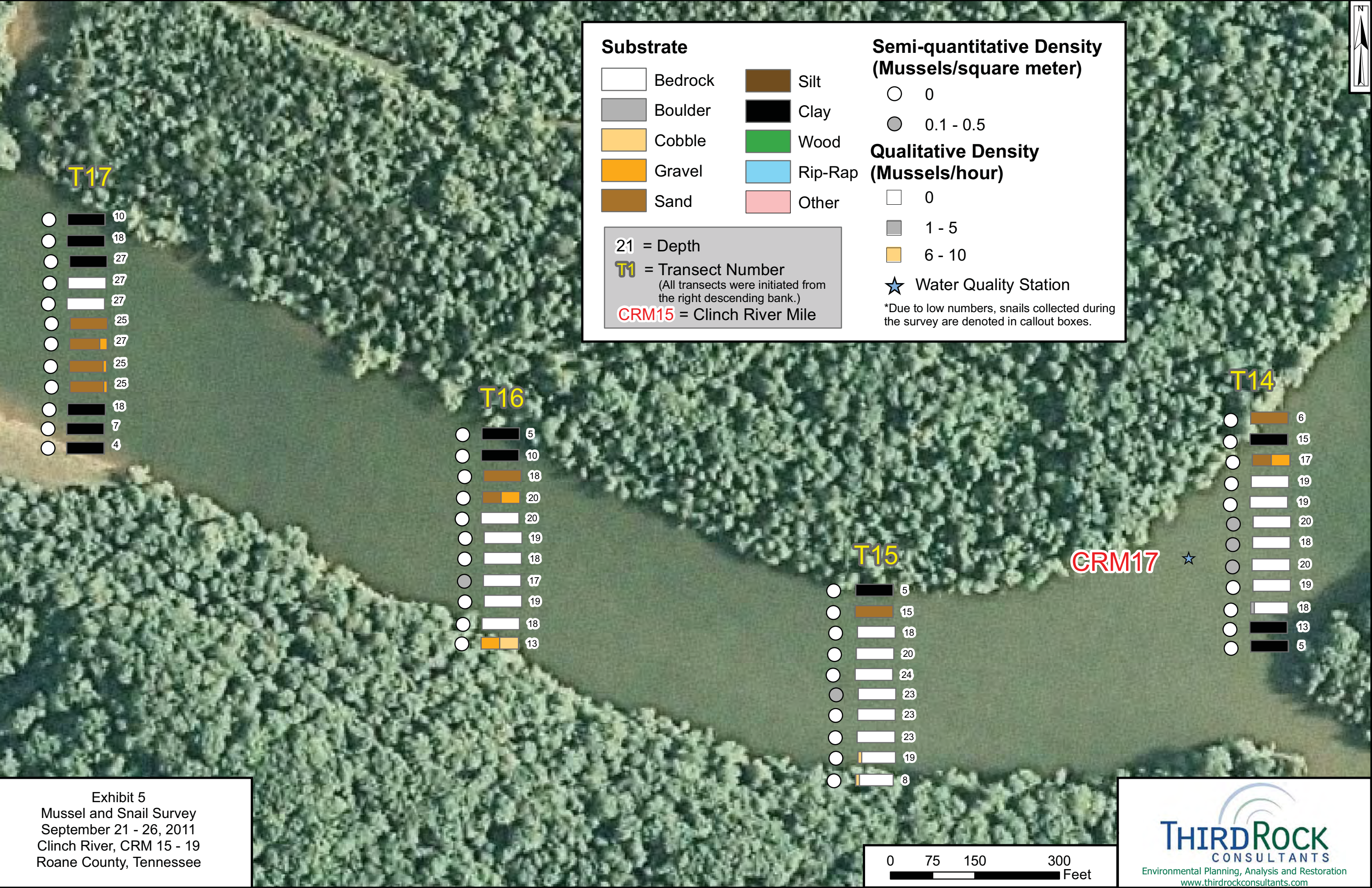














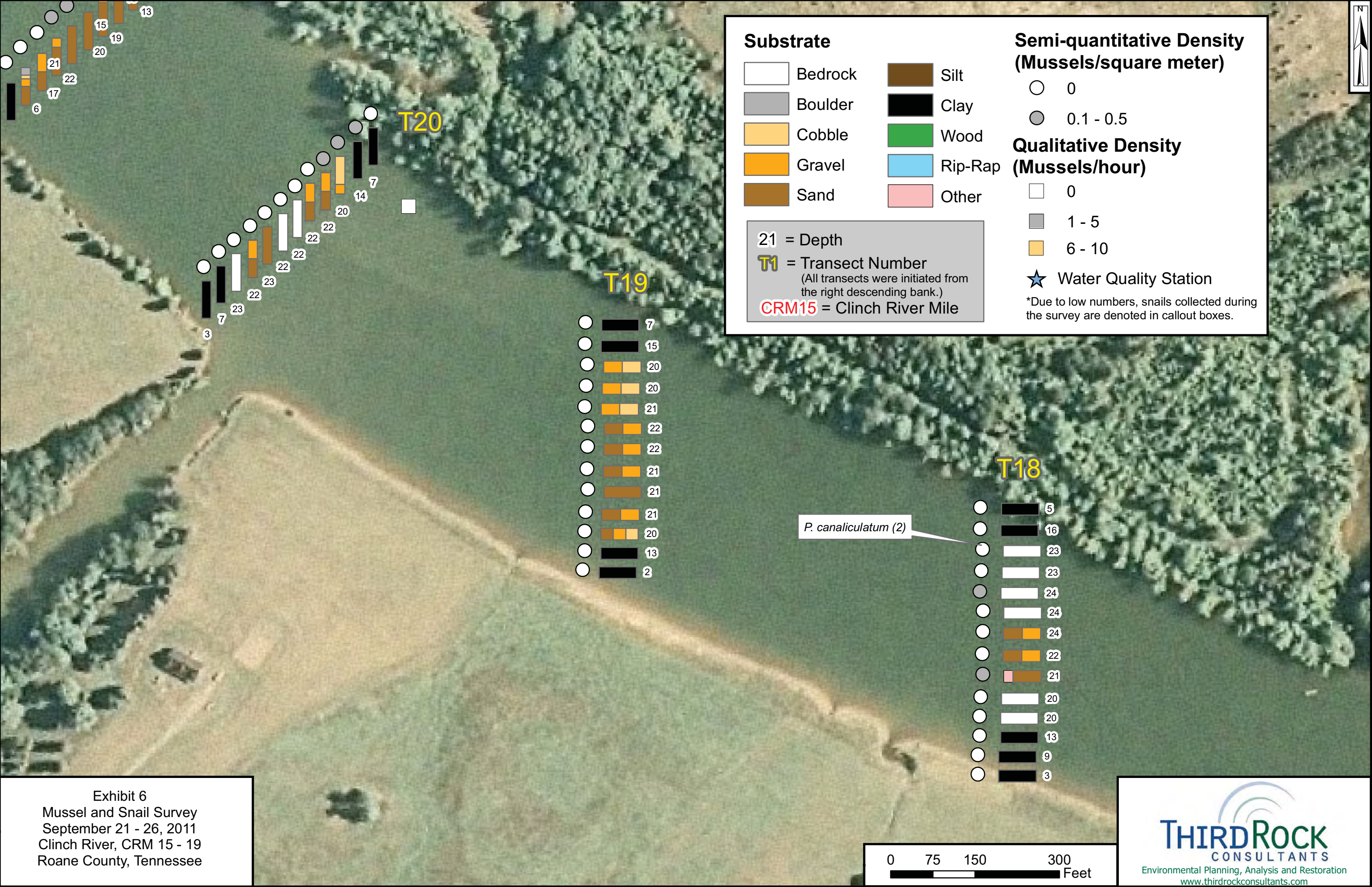
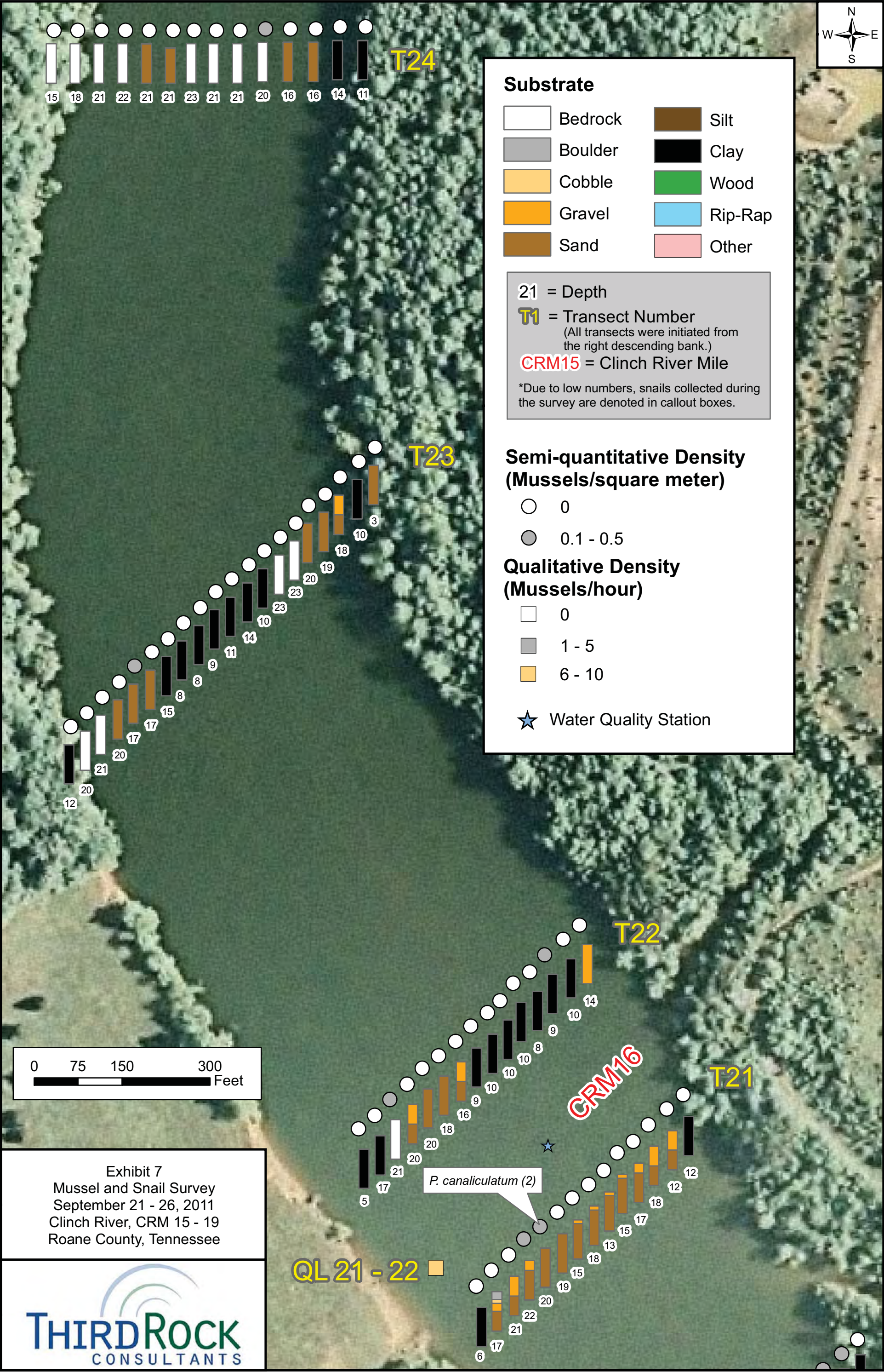


Exhibit 6  
Mussel and Snail Survey  
September 21 - 26, 2011  
Clinch River, CRM 15 - 19  
Roane County, Tennessee









**Substrate**

	Bedrock		Silt
	Boulder		Clay
	Cobble		Wood
	Gravel		Rip-Rap
	Sand		Other



21 = Depth

**T1** = Transect Number  
(All transects were initiated from the right descending bank.)




**CRM15** = Clinch River Mile


\*Due to low numbers, snails collected during the survey are denoted in callout boxes.

**Semi-quantitative Density  
(Mussels/square meter)**

-  0
-  0.1 - 0.5

**Qualitative Density  
(Mussels/hour)**

-  0
-  1 - 5
-  6 - 10

 Water Quality Station

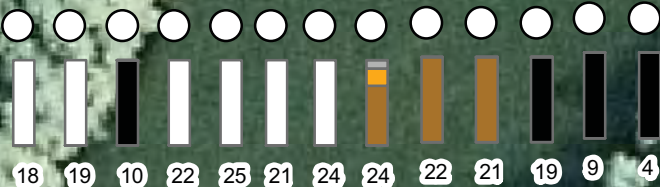
**CRM15**



0 75 150 300  
Feet

**QL 25 - CRM15**

Exhibit 8  
Mussel and Snail Survey  
September 21 - 26, 2011  
Clinch River, CRM 15 - 19  
Roane County, Tennessee



**T25**



## APPENDICES

## APPENDIX A – PHOTOGRAPHIC JOURNAL





*Transects T6, T7, T8*



*Transect T9*



*Transect T10*



*Transect T11*



*A. plicata and L. recta*



*C. stegaria and O. subrotunda*





*E. crassidens*



*L. fragilis*



*L. ovata*



*O. reflexa*



*P. alatus*



*P. rubrum*





*Relics*



*Zebra Mussel Infestation*



*Zebra Mussel infested Q. pustulosa*



## APPENDIX B – COORDINATES



## GPS Coordinates

Site	Latitude	Longitude
T1Begin	35.89948593	-84.36145619
T1End	35.89861622	-84.36173891
T2Begin	35.89993796	-84.36409389
T2E	35.89878252	-84.36426882
T3Begin	35.90038019	-84.36678775
T3End	35.89910933	-84.36695429
T4Begin	35.89960713	-84.36977900
T4End	35.89878537	-84.36980079
T5Begin	35.89878051	-84.37267176
T5End	35.89815354	-84.37238728
T6Begin	35.89683968	-84.37491844
T6End	35.89653206	-84.37392108
T7Begin	35.89457581	-84.37530083
T7End	35.89465158	-84.37427312
T8Begin	35.89359705	-84.37519345
T8End	35.89354207	-84.37407380
T9Begin	35.89161834	-84.37477268
T9End	35.89188446	-84.37372394
T10Begin	35.88954147	-84.37382058
T10End	35.88984230	-84.37283370
T11Begin	35.88763174	-84.37296177
T11End	35.88787984	-84.37186911
T12Begin	35.88570985	-84.37218829
T12End	35.88587606	-84.37079396
T13Begin	35.88351396	-84.37225744
T13End	35.88320978	-84.37123108
T14Begin	35.88213287	-84.37370173
T14End	35.88143801	-84.37300494

Site	Latitude	Longitude
T15Begin	35.88175569	-84.37529446
T15End	35.88096678	-84.37553854
T16Begin	35.88237184	-84.37741332
T16End	35.88165804	-84.37793895
T17Begin	35.88341983	-84.37977592
T17End	35.88269144	-84.38052527
T18Begin	35.88452599	-84.38229226
T18End	35.88356509	-84.38289114
T19Begin	35.88549410	-84.38465654
T19End	35.88447830	-84.38528627
T20Begin	35.88639733	-84.38640232
T20End	35.88569585	-84.38745425
T21Begin	35.88756611	-84.38740228
T21End	35.88663789	-84.38868865
T22Begin	35.88818125	-84.38777243
T22End	35.88734692	-84.38938653
T23Begin	35.89032300	-84.38907707
T23End	35.88964557	-84.39093945
T24Begin	35.89245988	-84.38932199
T24End	35.89272190	-84.39070601
T25Begin	35.89453566	-84.38826185
T25End	35.89494922	-84.38926382
T25QL	35.89534443	-84.38866938
WQ15	35.90043719	-84.38793705
WQ16	35.88735363	-84.38842303
WQ18	35.89602713	-84.37444973
WQ19	35.89887438	-84.36144487



## APPENDIX C – MUSSEL DATA



## Mussel Data

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank(m)	Bank (L-R)	Species	Cond. (L/FD/WD/R)	Reprod (M,F,G,U)	Abund	Length (mm)	Age (yr)	Zebbs (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T1	0	10	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	0	100	0	0	0	0	1" silt, vegetation
Clinch River	SQ, 5	T1	10	20	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0		0	0	0	18	blanket of zebra mussels
Clinch River	SQ, 5	T1	20	30	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0	0	0	0	0	21	blanket of zebra mussels
Clinch River	SQ, 5	T1	30	40	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0	0	0	0	0	21	blanket of zebra mussels, some scattered gravel
Clinch River	SQ, 5	T1	40	50	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0	0	0	0	0	21	blanket of zebra mussels, some scattered gravel
Clinch River	SQ, 5	T1	50	60	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0	0	0	0	0	19	blanket of zebra mussels, some scattered gravel
Clinch River	SQ, 5	T1	60	70	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0	0	0	0	0	20	blanket of zebra mussels, some scattered gravel and silt
Clinch River	SQ, 5	T1	70	80	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0	0	0	0	0	19	blanket of zebra mussels, some scattered gravel and silt
Clinch River	SQ, 5	T1	80	90	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	0	100	0	0	0	7	1" silt
Clinch River	SQ, 5	T1	90	100	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	0	100	0	0	0	2	1" silt
Clinch River	SQ, 5	T2	0	10	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	100	0	0	0	0	3	vegetation
Clinch River	SQ, 5	T2	10	20	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	0	100	0	0	0	15	1" silt
Clinch River	SQ, 5	T2	20	30	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0	0	0	0	0	19	scattered boulders, blanket of zebras
Clinch River	SQ, 5	T2	30	40	-	No mussels	.	.	.	.	.	.	100	0	0	0	0	0	0	0	0	0	20	blanket of zebras
Clinch River	SQ, 5	T2	40	50	-	No mussels	.	.	.	.	.	.	0	0	50	40	10	0	0	0	0	0	20	
Clinch River	SQ, 5	T2	50	60	-	No mussels	.	.	.	.	.	.	0	0	10	40	50	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T2	60	70	-	<i>Quadrula pustulosa</i>	┘	.	1	79	15+	30	0	0	10	40	50	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T2	60	70	-	<i>Quadrula pustulosa</i>	┘	.	1	101	15+	30	0	0	10	40	50	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T2	60	70	-	<i>Quadrula pustulosa</i>	┘	.	1	82	15+	30	0	0	10	40	50	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T2	70	80	-	<i>Quadrula pustulosa</i>	┘	.	1	84	15+	30	0	0	10	40	50	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T2	80	90	-	<i>Quadrula pustulosa</i>	┘	.	1	78	15+	30	0	0	10	40	50	0	0	0	0	0	19.5	zebras
Clinch River	SQ, 5	T2	90	100	-	<i>Quadrula pustulosa</i>	┘	.	1	76	15+	30	0	0	10	40	50	0	0	0	0	0	18.5	zebra mussels thick on bottom
Clinch River	SQ, 5	T2	90	100	-	<i>Quadrula pustulosa</i>	┘	.	1	80	15+	30	0	0	10	40	50	0	0	0	0	0	18.5	zebra mussels thick on bottom
Clinch River	SQ, 5	T2	90	100	-	<i>Quadrula pustulosa</i>	┘	.	1	72	15+	30	0	0	10	40	50	0	0	0	0	0	18.5	zebra mussels thick on bottom
Clinch River	SQ, 5	T2	100	110	-	<i>Leptodea fragilis</i>	┘	.	1	114	12	30	0	0	10	40	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T2	100	110	-	<i>Elliptio crassidens</i>	┘	.	1	110	15+	30	0	0	10	40	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T2	110	120	-	No mussels	.	.	.	.	.	.	0	0	10	40	50	0	0	0	0	0	17	steep clay bank after meter mark
Clinch River	SQ, 5	T2	120	130	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	0	100	0	0	0	7	1" silt and vegetation
Clinch River	SQ, 5	T2	130	140	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	0	100	0	0	0	3	1" silt
Clinch River	SQ, 5	T2	140	150	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	0	100	0	0	0	2	1" silt
Clinch River	SQ, 5	T3	0	10	-	No mussels	.	.	.	.	.	.	0	0	0	0	0	0	100	0	0	0	4	
Clinch River	SQ, 5	T3	10	20	-	No mussels	┘	.	0	.	.	0	0	0	0	0	0	0	100	0	0	0	17	1" silt
Clinch River	SQ, 5	T3	10	20	-	No mussels	┘	.	0	.	.	0	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T3	10	20	-	No mussels	┘	.	0	.	.	0	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T3	10	20	-	No mussels	┘	.	0	.	.	0	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T3	20	30	-	No mussels	.	.	.	.	.	.	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T3	30	40	-	No mussels	.	.	.	.	.	.	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T3	40	50	-	<i>Leptodea fragilis</i>	┘	.	1	155	15+	15	0	0	0	50	50	0	0	0	0	0	16	
Clinch River	SQ, 5	T3	40	50	-	<i>Leptodea fragilis</i>	┘	.	1	134	15+	20	0	0	0	50	50	0	0	0	0	0	16	
Clinch River	SQ, 5	T3	40	50	-	No mussels	┘	.	0	.	.	0	0	0	0	50	50	0	0	0	0	0	16	
Clinch River	SQ, 5	T3	50	60	-	No mussels	.	.	.	.	.	.	0	0	0	50	50	0	0	0	0	0	15	
Clinch River	SQ, 5	T3	60	70	-	<i>Leptodea fragilis</i>	┘	.	1	95	10	30	0	0	0	50	50	0	0	0	0	0	14	



## Mussel Data

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank(m)	Bank (L-R)	Species	Cond. (L/FD/WD/R)	Reprod (M,F,G,U)	Abund	Length (mm)	Age (yr)	Zeb (%) m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T3	70	80	-	<i>Leptodea fragilis</i>	L	.	1	84	9	30	0	0	0	0	0	0	100	0	0	0	12	
Clinch River	SQ, 5	T3	70	80	-	<i>Leptodea fragilis</i>	L	.	1	138	15+	30	0	0	0	0	0	0	100	0	0	0	12	
Clinch River	SQ, 5	T3	80	90	-	No mussels	.	.	-	-	-	-	0	0	25	25	50	0	0	0	0	0	14	
Clinch River	SQ, 5	T3	90	100	-	<i>Leptodea fragilis</i>	L	.	1	115	8	30	0	0	25	25	50	0	0	0	0	0	16.5	
Clinch River	SQ, 5	T3	100	110	-	No mussels	.	.	-	-	-	-	0	0	10	40	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T3	110	120	-	No mussels	.	.	-	-	-	-	0	0	10	40	50	0	0	0	0	0	18.5	
Clinch River	SQ, 5	T3	120	130	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T3	130	140	-	<i>Leptodea fragilis</i>	L	.	1	95	7	25	0	0	25	25	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T3	130	140	-	<i>Quadrula pustulosa</i>	L	.	1	100	15+	25	0	0	25	25	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T3	140	150	-	No mussels	.	.	-	-	-	-	0	0	25	25	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T4	0	10	-	No mussels	.	.	-	-	-	-	0	0	0	100	0	0	0	0	0	0	1	1" silt
Clinch River	SQ, 5	T4	10	20	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	3	
Clinch River	SQ, 5	T4	20	30	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	6	no zebra mussels
Clinch River	SQ, 5	T4	30	40	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	11	
Clinch River	SQ, 5	T4	40	50	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	16	zebras
Clinch River	SQ, 5	T4	50	60	-	No mussels	.	.	-	-	-	-	0	0	10	40	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T4	60	70	-	No mussels	.	.	-	-	-	-	0	0	10	40	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T4	70	80	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	blanket of zebra mussels
Clinch River	SQ, 5	T4	80	90	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	20	
Clinch River	SQ, 5	T4	90	100	-	No mussels	.	.	-	-	-	-	0	0	0	40	60	0	0	0	0	0	20	
Clinch River	SQ, 5	T4	100	110	-	No mussels	.	.	-	-	-	-	0	0	0	25	75	0	0	0	0	0	18	no zebra mussels
Clinch River	SQ, 5	T4	110	120	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	14	1" silt
Clinch River	SQ, 5	T4	120	130	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	4	1" silt, timber debris
Clinch River	SQ, 5	T5	0	10	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	12	some sand, vegetation and timber debris
Clinch River	SQ, 5	T5	10	20	-	No mussels	.	.	-	-	-	-	0	0	0	0	100	0	0	0	0	0	19	
Clinch River	SQ, 5	T5	20	30	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	some cobble
Clinch River	SQ, 5	T5	30	40	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	22	zebras
Clinch River	SQ, 5	T5	40	50	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	21.5	
Clinch River	SQ, 5	T5	50	60	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	22	some silt, blanket of zebras
Clinch River	SQ, 5	T5	60	70	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	20	no zebra mussels
Clinch River	SQ, 5	T5	70	80	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T5	80	90	-	No mussels	.	.	-	-	-	-	0	0	0	20	80	0	0	0	0	0	15	few zebra mussels
Clinch River	SQ, 5	T5	90	100	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	5	some silt
Clinch River	SQ, 6	T6	0	10	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	zebras
Clinch River	SQ, 6	T6	10	20	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	light layer of sand
Clinch River	SQ, 5	T6	20	30	-	<i>Quadrula pustulosa</i>	L	.	1	72	12	25	0	0	50	0	50	0	0	0	0	0	23	
Clinch River	SQ, 5	T6	20	30	-	<i>Quadrula pustulosa</i>	L	.	1	84	15+	25	0	0	50	0	50	0	0	0	0	0	20	
Clinch River	SQ, 5	T6	30	40	-	No mussels	.	.	-	-	-	-	0	0	45	45	10	0	0	0	0	0	22	
Clinch River	SQ, 5	T6	40	50	-	No mussels	.	.	-	-	-	-	0	0	10	40	50	0	0	0	0	0	24	
Clinch River	SQ, 5	T6	50	60	-	No mussels	.	.	-	-	-	-	0	0	0	40	60	0	0	0	0	0	23	
Clinch River	SQ, 5	T6	60	70	-	No mussels	.	.	-	-	-	-	0	0	0	20	80	0	0	0	0	0	20	no zebra mussels
Clinch River	SQ, 5	T6	70	80	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	
Clinch River	SQ, 5	T6	80	90	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	3	vegetation
Clinch River	SQ, 5	T7	0	10	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	2	some silt
Clinch River	SQ, 5	T7	10	20	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	9	some silt
Clinch River	SQ, 5	T7	20	30	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	some silt
Clinch River	SQ, 5	T7	30	40	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	some cobble and gravel
Clinch River	SQ, 5	T7	40	50	-	<i>Quadrula pustulosa</i>	L	.	1	90	12	25	0	0	10	0	90	0	0	0	0	0	21	
Clinch River	SQ, 5	T7	50	60	-	No mussels	.	.	-	-	-	-	0	0	10	40	50	0	0	0	0	0	20	
Clinch River	SQ, 5	T7	60	70	-	No mussels	.	.	-	-	-	-	0	0	40	60	0	0	0	0	0	0	20	
Clinch River	SQ, 5	T7	70	80	-	No mussels	.	.	-	-	-	-	0	5	5	90	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T7	80	90	-	No mussels	.	.	-	-	-	-	0	5	5	90	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T7	90	100	-	No mussels	.	.	-	-	-	-	0	0	0	100	0	0	0	0	0	0	19	
Clinch River	SQ, 5	T7	100	110	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	17	
Clinch River	SQ, 5	T7	110	120	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	6	vegetation



### Mussel Data

Site	Method/ Effort (m2,min)	Transect/ Sample	Min Dist bank (m)	Max Dist bank(m)	Bank (L,R)	Species	Cond. (L/FD/WD/R)	Reprod (M,F,G,U)	Abund	Length (mm)	Age (yr)	Zebs (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Ci	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T7	120	130	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	1	
Clinch River	SQ, 5	T8	0	10	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	7	
Clinch River	SQ, 5	T8	10	20	-	No mussels	.	.	-	-	-	-	0	0	50	0	50	0	0	0	0	0	19	zebras
Clinch River	SQ, 5	T8	20	30	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T8	30	40	-	<i>Quadrula pustulosa</i>	L	.	1	82	10	40	100	0	0	0	0	0	0	0	0	0	24	
Clinch River	SQ, 5	T8	40	50	-	No mussels	.	.	-	-	-	-	0	0	0	90	10	0	0	0	0	0	23	light blanket of zebra mussels
Clinch River	SQ, 5	T8	50	60	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	23	
Clinch River	SQ, 5	T8	60	70	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T8	70	80	-	No mussels	.	.	-	-	-	-	0	0	0	100	0	0	0	0	0	0	20	
Clinch River	SQ, 5	T8	80	90	-	No mussels	.	.	-	-	-	-	0	0	0	0	100	0	0	0	0	0	19	
Clinch River	SQ, 5	T8	90	100	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	
Clinch River	SQ, 5	T8	100	110	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	4	some silt
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	0	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	0	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	0	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	0	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	No mussels	L	.	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	10	20	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	22	zebras
Clinch River	SQ, 5	T9	20	30	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	23	zebras
Clinch River	SQ, 5	T9	30	40	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	24	zebras
Clinch River	SQ, 5	T9	40	50	-	<i>Leptodea fragilis</i>	FD	.	1	123	14	30	0	0	40	40	20	0	0	0	0	0	25	
Clinch River	SQ, 5	T9	50	60	-	No mussels	.	.	-	-	-	-	0	10	0	50	40	0	0	0	0	0	27	
Clinch River	SQ, 5	T9	60	70	-	No mussels	.	.	-	-	-	-	0	0	0	10	90	0	0	0	0	0	26	
Clinch River	SQ, 5	T9	70	80	-	No mussels	.	.	-	-	-	-	0	0	0	0	100	0	0	0	0	0	23	
Clinch River	SQ, 5	T9	80	90	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	15	
Clinch River	SQ, 5	T9	90	100	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	5	some silt, vegetation
Clinch River	SQ, 5	T9	100	110	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	2	
Clinch River	SQ, 5	T10	0	10	-	No mussels	.	.	-	-	-	-	0	0	25	0	0	0	75	0	0	0	12	some silt
Clinch River	SQ, 5	T10	10	20	-	No mussels	.	.	-	-	-	-	0	0	25	25	50	0	0	0	0	0	19	some silt
Clinch River	SQ, 5	T10	20	30	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	23	sand and gravel over bedrock
Clinch River	SQ, 5	T10	30	40	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	24	covered by zebras
Clinch River	SQ, 5	T10	40	50	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	27	covered by zebras
Clinch River	SQ, 5	T10	50	60	-	No mussels	.	.	-	-	-	-	0	0	10	40	50	0	0	0	0	0	27	covered by zebras
Clinch River	SQ, 5	T10	60	70	-	No mussels	.	.	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T10	70	80	-	No mussels	L	.	-	-	-	0	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T10	80	90	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	18	
Clinch River	SQ, 5	T10	90	100	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	11	some silt
Clinch River	SQ, 5	T10	100	110	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	6	
Clinch River	SQ, 5	T11	0	10	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	2	some silt
Clinch River	SQ, 5	T11	10	20	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	13	
Clinch River	SQ, 5	T11	20	30	-	No mussels	.	.	-	-	-	-	0	0	25	25	50	0	0	0	0	0	24	zebra mussels, timber debris
Clinch River	SQ, 5	T11	30	40	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	23	covered by zebras



## Mussel Data

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank(m)	Bank (L-R)	Species	Cond. (L/FD/WD/R)	Reprod (M,F,G,U)	Abund	Length (mm)	Age (yr)	Zebs (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T11	40	50	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T11	50	60	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T11	60	70	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T11	70	80	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T11	80	90	-	<i>Potamilus alatus</i>	L	-	1	82	5	30	0	0	0	0	100	0	0	0	0	0	24	
Clinch River	SQ, 5	T11	90	100	-	<i>Potamilus alatus</i>	L	-	1	117	6	5	0	0	0	0	0	0	100	0	0	0	26	
Clinch River	SQ, 5	T11	100	110	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	20	
Clinch River	SQ, 5	T11	110	120	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	6	
Clinch River	SQ, 5	T11	120	130	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	2	
Clinch River	SQ, 5	T12	0	10	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	15	zebras
Clinch River	SQ, 5	T12	10	20	-	No mussels	-	-	-	-	-	-	0	0	25	25	50	0	0	0	0	0	18	zebras
Clinch River	SQ, 5	T12	20	30	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	zebras
Clinch River	SQ, 5	T12	30	40	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	zebras
Clinch River	SQ, 5	T12	40	50	-	No mussels	L	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	18	zebras
Clinch River	SQ, 5	T12	50	60	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T12	60	70	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T12	70	80	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T12	80	90	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T12	90	100	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T12	100	110	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	zebras, some clay
Clinch River	SQ, 5	T12	110	120	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	
Clinch River	SQ, 5	T12	120	130	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	5	some silt
Clinch River	SQ, 5	T13	0	10	-	No mussels	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	6	
Clinch River	SQ, 5	T13	10	20	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	11	2" silt
Clinch River	SQ, 5	T13	20	30	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	17	2" silt
Clinch River	SQ, 5	T13	30	40	-	No mussels	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	18	
Clinch River	SQ, 5	T13	40	50	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T13	50	60	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T13	60	70	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T13	70	80	-	<i>Quadrula pustulosa</i>	L	-	1	109	15+	30	100	0	0	0	0	0	0	0	0	0	24	many dead shells
Clinch River	SQ, 5	T13	80	90	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T13	90	100	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T13	100	110	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T13	110	120	-	No mussels	-	-	-	-	-	-	0	33.3	33.3	33.3	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T13	120	130	-	No mussels	-	-	-	-	-	-	0	33.3	33.3	33.3	0	0	0	0	0	0	16	
Clinch River	SQ, 5	T13	130	140	-	No mussels	-	-	-	-	-	-	0	33.3	33.3	33.3	0	0	0	0	0	0	5	some silt
Clinch River	SQ, 5	T14	0	10	-	No mussels	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	6	
Clinch River	SQ, 5	T14	10	20	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	15	
Clinch River	SQ, 5	T14	20	30	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T14	30	40	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	19	zebras and silt
Clinch River	SQ, 5	T14	40	50	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	19	gravel and sand scattered on bedrock
Clinch River	SQ, 5	T14	50	60	-	<i>Quadrula pustulosa</i>	L	-	1	80	12	15	100	0	0	0	0	0	0	0	0	0	20	gravel and sand scattered on bedrock
Clinch River	SQ, 5	T14	60	70	-	<i>Quadrula pustulosa</i>	L	-	1	70	8	30	100	0	0	0	0	0	0	0	0	0	18	some silt
Clinch River	SQ, 5	T14	70	80	-	<i>Quadrula pustulosa</i>	L	-	1	80	15+	40	100	0	0	0	0	0	0	0	0	0	20	some silt
Clinch River	SQ, 5	T14	80	90	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	19	some silt
Clinch River	SQ, 5	T14	90	100	-	No mussels	-	-	-	-	-	-	90	10	0	0	0	0	0	0	0	0	18	
Clinch River	SQ, 5	T14	100	110	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	13	
Clinch River	SQ, 5	T14	110	120	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	5	
Clinch River	SQ, 5	T15	0	10	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	5	vegetation
Clinch River	SQ, 5	T15	10	20	-	No mussels	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	15	
Clinch River	SQ, 5	T15	20	30	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	18	
Clinch River	SQ, 5	T15	30	40	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	1" cobble and gravel mix over top of bedrock



## Mussel Data

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank(m)	Bank (L,R)	Species	Cond. (L/FD/WD/R)	Reprod (M,F,G,U)	Abund	Length (mm)	Age (yr)	Zebz (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T15	40	50	-	No mussels							100	0	0	0	0	0	0	0	0	0	24	1" cobble and gravel mix over top of bedrock
Clinch River	SQ, 5	T15	50	60	-	<i>Quadrula pustulosa</i>	L		1	79	11	40	100	0	0	0	0	0	0	0	0	0	23	
Clinch River	SQ, 5	T15	60	70	-	No mussels							100	0	0	0	0	0	0	0	0	0	23	some silt
Clinch River	SQ, 5	T15	70	80	-	No mussels							100	0	0	0	0	0	0	0	0	0	23	some silt
Clinch River	SQ, 5	T15	80	90	-	No mussels							90	0	10	0	0	0	0	0	0	0	19	
Clinch River	SQ, 5	T15	90	100	-	No mussels							90	0	10	0	0	0	0	0	0	0	8	
Clinch River	SQ, 5	T16	0	10	-	No mussels							0	0	0	0	0	0	100	0	0	0	5	no zebra mussels, some silt
Clinch River	SQ, 5	T16	10	20	-	No mussels							0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some silt
Clinch River	SQ, 5	T16	20	30	-	No mussels							0	0	0	0	100	0	0	0	0	0	18	no zebra mussels
Clinch River	SQ, 5	T16	30	40	-	No mussels							0	0	0	50	50	0	0	0	0	0	20	
Clinch River	SQ, 5	T16	40	50	-	No mussels							100	0	0	0	0	0	0	0	0	0	20	1" gravel over bedrock, zebras present
Clinch River	SQ, 5	T16	50	60	-	No mussels							100	0	0	0	0	0	0	0	0	0	19	
Clinch River	SQ, 5	T16	60	70	-	No mussels							100	0	0	0	0	0	0	0	0	0	18	
Clinch River	SQ, 5	T16	70	80	-	<i>Quadrula pustulosa</i>	J		1	80	13	0	100	0	0	0	0	0	0	0	0	0	17	light gravel/sand mix over bedrock
Clinch River	SQ, 5	T16	80	90	-	No mussels							100	0	0	0	0	0	0	0	0	0	19	light gravel/sand mix over bedrock
Clinch River	SQ, 5	T16	90	100	-	No mussels							100	0	0	0	0	0	0	0	0	0	18	
Clinch River	SQ, 5	T16	100	110	-	No mussels							0	0	50	50	0	0	0	0	0	0	13	1" cobble/gravel mix over clay bottom
Clinch River	SQ, 5	T17	0	10	-	No mussels							0	0	0	0	0	0	100	0	0	0	10	no zebra mussels
Clinch River	SQ, 5	T17	10	20	-	No mussels							0	0	0	0	0	0	100	0	0	0	18	
Clinch River	SQ, 5	T17	20	30	-	No mussels							0	0	0	0	0	0	100	0	0	0	27	
Clinch River	SQ, 5	T17	30	40	-	No mussels							100	0	0	0	0	0	0	0	0	0	27	light layer of sand
Clinch River	SQ, 5	T17	40	50	-	No mussels							100	0	0	0	0	0	0	0	0	0	27	light layer of sand
Clinch River	SQ, 5	T17	50	60	-	No mussels							0	0	0	0	100	0	0	0	0	0	25	
Clinch River	SQ, 5	T17	60	70	-	No mussels							0	0	0	20	80	0	0	0	0	0	27	zebras
Clinch River	SQ, 5	T17	70	80	-	No mussels							0	0	0	10	90	0	0	0	0	0	25	
Clinch River	SQ, 5	T17	80	90	-	No mussels							0	0	0	10	90	0	0	0	0	0	25	
Clinch River	SQ, 5	T17	90	100	-	No mussels							0	0	0	0	0	0	100	0	0	0	18	
Clinch River	SQ, 5	T17	100	110	-	No mussels							0	0	0	0	0	0	100	0	0	0	7	
Clinch River	SQ, 5	T17	110	120	-	No mussels							0	0	0	0	0	0	100	0	0	0	4	
Clinch River	SQ, 5	T18	0	10	-	No mussels							0	0	0	0	0	0	100	0	0	0	5	some silt
Clinch River	SQ, 5	T18	10	20	-	No mussels							0	0	0	0	0	0	100	0	0	0	16	
Clinch River	SQ, 5	T18	20	30	-	No mussels	J					0	100	0	0	0	0	0	0	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T18	20	30	-	No mussels	J					0	100	0	0	0	0	0	0	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T18	30	40	-	No mussels							100	0	0	0	0	0	0	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T18	40	50	-	<i>Leptodea fragilis</i>	J		1	120	12	20	100	0	0	0	0	0	0	0	0	0	24	zebras and silt
Clinch River	SQ, 5	T18	50	60	-	No mussels							100	0	0	0	0	0	0	0	0	0	24	
Clinch River	SQ, 5	T18	60	70	-	No mussels							0	0	0	50	50	0	0	0	0	0	24	
Clinch River	SQ, 5	T18	70	80	-	No mussels							0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T18	80	90	-	No mussels	J		1	68	14	40	0	0	0	0	75	0	0	0	0	25	21	broken shells
Clinch River	SQ, 5	T18	90	100	-	No mussels							100	0	0	0	0	0	0	0	0	0	20	gravel and sand scattered on bedrock
Clinch River	SQ, 5	T18	100	110	-	No mussels							100	0	0	0	0	0	0	0	0	0	20	cobble, gravel and sand scattered on bedrock
Clinch River	SQ, 5	T18	110	120	-	No mussels							0	0	0	0	0	0	100	0	0	0	13	some silt
Clinch River	SQ, 5	T18	120	130	-	No mussels							0	0	0	0	0	0	100	0	0	0	9	some silt
Clinch River	SQ, 5	T18	130	140	-	No mussels							0	0	0	0	0	0	100	0	0	0	3	some silt
Clinch River	SQ, 6	T19	0	10	-	No mussels							0	0	0	0	0	0	100	0	0	0	7	
Clinch River	SQ, 6	T19	10	20	-	No mussels							0	0	0	0	0	0	100	0	0	0	15	zebras and timber debris
Clinch River	SQ, 6	T19	20	30	-	No mussels							0	0	50	50	0	0	0	0	0	0	20	
Clinch River	SQ, 6	T19	30	40	-	No mussels							0	0	50	50	0	0	0	0	0	0	20	

## Mussel Data

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank(m)	Bank (L-R)	Species	Cond. (L/FD/WD/R)	Reprod (M,F,G,U)	Abund	Length (mm)	Age (yr)	Zebz (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 6	T19	40	50	-	No mussels	-	-	-	-	-	-	0	0	50	50	0	0	0	0	0	0	21	
Clinch River	SQ, 6	T19	50	60	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 6	T19	60	70	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 6	T19	70	80	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	21	
Clinch River	SQ, 6	T19	80	90	-	<i>Quadrula pustulosa</i>	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	21	
Clinch River	SQ, 6	T19	90	100	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	21	
Clinch River	SQ, 6	T19	100	110	-	No mussels	-	-	-	-	-	-	0	0	33.3	33.3	33.3	0	0	0	0	0	20	
Clinch River	SQ, 6	T19	110	120	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	13	
Clinch River	SQ, 6	T19	120	130	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	2	some silt
Clinch River	SQ, 5	T20	0	10	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	7	some silt
Clinch River	SQ, 5	T20	10	20	-	<i>Quadrula pustulosa</i>	-	-	1	80	13	30	0	0	0	0	0	0	100	0	0	0	14	some silt
Clinch River	SQ, 5	T20	10	20	-	<i>Quadrula pustulosa</i>	-	-	1	73	12	50	0	0	0	0	0	0	100	0	0	0	14	over bedrock
Clinch River	SQ, 5	T20	20	30	-	<i>Pyganodon grandis</i>	-	-	1	152	14	10	0	0	75	25	0	0	0	0	0	0	20	
Clinch River	SQ, 5	T20	30	40	-	<i>Quadrula pustulosa</i>	-	-	1	69	10	20	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	30	40	-	<i>Quadrula pustulosa</i>	-	-	1	45	8	50	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	30	40	-	<i>Quadrula pustulosa</i>	-	-	1	50	9	50	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	30	40	-	<i>Quadrula pustulosa</i>	-	-	1	80	15+	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	40	50	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	50	60	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	22	thin layer of sand
Clinch River	SQ, 5	T20	60	70	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	70	80	-	No mussels	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	80	90	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	23	
Clinch River	SQ, 5	T20	90	100	-	No mussels	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	23	blanket of zebra mussels
Clinch River	SQ, 5	T20	100	110	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	7	some silt
Clinch River	SQ, 5	T20	110	120	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	3	some silt
Clinch River	SQ, 5	T21	0	10	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	12	some silt
Clinch River	SQ, 5	T21	10	20	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	12	
Clinch River	SQ, 5	T21	20	30	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T21	30	40	-	No mussels	-	-	-	-	-	-	0	0	0	25	75	0	0	0	0	0	17	
Clinch River	SQ, 5	T21	40	50	-	No mussels	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	15	
Clinch River	SQ, 5	T21	50	60	-	No mussels	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	18	
Clinch River	SQ, 5	T21	60	70	-	No mussels	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	13	
Clinch River	SQ, 5	T21	70	80	-	No mussels	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	15	
Clinch River	SQ, 5	T21	80	90	-	No mussels	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	19	
Clinch River	SQ, 5	T21	90	100	-	<i>Quadrula pustulosa</i>	-	-	1	78	9	20	0	0	0	0	100	0	0	0	0	0	20	
Clinch River	SQ, 5	T21	90	100	-	<i>Quadrula pustulosa</i>	-	-	1	72	9	5	0	0	0	0	100	0	0	0	0	0	20	
Clinch River	SQ, 5	T21	90	100	-	<i>Cyclonaias tuberculata</i>	-	-	1	87	12	40	0	0	0	0	100	0	0	0	0	0	20	
Clinch River	SQ, 5	T21	100	110	-	<i>Quadrula pustulosa</i>	-	-	1	60	7	30	0	0	0	25	75	0	0	0	0	0	21	
Clinch River	SQ, 5	T21	100	110	-	<i>Quadrula pustulosa</i>	-	-	1	54	7	40	0	0	0	25	75	0	0	0	0	0	21	
Clinch River	SQ, 5	T21	100	110	-	<i>Quadrula pustulosa</i>	-	-	1	74	12	10	0	0	0	25	75	0	0	0	0	0	21	
Clinch River	SQ, 5	T21	100	110	-	<i>Leptodea fragilis</i>	-	-	1	114	6	20	0	0	0	25	75	0	0	0	0	0	21	
Clinch River	SQ, 5	T21	110	120	-	No mussels	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T21	120	130	-	No mussels	-	-	-	-	-	-	0	20	10	20	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T21	130	140	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	6	
Clinch River	SQ, 5	T22	0	10	-	No mussels	-	-	-	-	-	-	0	0	0	100	0	0	0	0	0	0	14	no zebra mussels, some silt
Clinch River	SQ, 5	T22	10	20	-	No mussels	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	20	30	-	<i>Pyganodon grandis</i>	-	-	1	165	14	5	0	0	0	0	0	0	100	0	0	0	9	no zebra mussels, some gravel



### Mussel Data

Site	Method/ Effort (m2,min)	Transect/ Sample	Min Dist bank (m)	Max Dist bank(m)	Bank (L,R)	Species	Cond. (L/FD/WD/R)	Reprod (M,F,G,U)	Abund	Length (mm)	Age (yr)	Zebs (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Ci	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T22	20	30	-	<i>Leptodea fragilis</i>	L		1	80	8	5	0	0	0	0	0	0	100	0	0	0	9	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	30	40	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	8	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	40	50	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	50	60	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	60	70	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	70	80	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	9	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	80	90	-	No mussels			-	-	-	-	0	0	0	50	50	0	0	0	0	0	16	no zebra mussels
Clinch River	SQ, 5	T22	90	100	-	No mussels			-	-	-	-	0	0	0	0	100	0	0	0	0	0	18	no zebra mussels
Clinch River	SQ, 5	T22	100	110	-	No mussels			-	-	-	-	0	0	0	0	100	0	0	0	0	0	20	no zebra mussels
Clinch River	SQ, 5	T22	110	120	-	No mussels			-	-	-	-	0	0	0	50	50	0	0	0	0	0	20	no zebra mussels
Clinch River	SQ, 5	T22	120	130	-	<i>Quadrula pustulosa</i>	L		1	78	15+	25	100	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T22	120	130	-	<i>Quadrula pustulosa</i>	L		1	82	15+	25	100	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T22	130	140	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	17	no zebra mussels
Clinch River	SQ, 5	T22	140	150	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	5	no zebra mussels
Clinch River	SQ, 5	T23	0	10	-	No mussels			-	-	-	-	0	0	0	0	100	0	0	0	0	0	3	
Clinch River	SQ, 5	T23	10	20	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	some sand
Clinch River	SQ, 5	T23	20	30	-	No mussels			-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T23	30	40	-	No mussels			-	-	-	-	0	0	0	0	100	0	0	0	0	0	19	
Clinch River	SQ, 5	T23	40	50	-	No mussels			-	-	-	-	0	0	0	0	100	0	0	0	0	0	20	
Clinch River	SQ, 5	T23	50	60	-	No mussels			-	-	-	-	100	0	0	0	0	0	0	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T23	60	70	-	No mussels			-	-	-	-	100	0	0	0	0	0	0	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T23	70	80	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	14	soft clay
Clinch River	SQ, 5	T23	80	90	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	hard-packed clay
Clinch River	SQ, 5	T23	90	100	-	No mussels			-	-	-	-	0	0	0	0	0	0	100	0	0	0	11	hard

### Mussel Data

Site	Method/ Effort (m2,min)	Transect/ Sample	Min Dist bank (m)	Max Dist bank(m)	Bank (L,R)	Species	Cond. (L/FD/WD/R)	Reprod (M,I,F,G,U)	Abund	Length (mm)	Age (yr)	Zebbs (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T24	130	140	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	15	some clay
Clinch River	SQ, 5	T25	0	10	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	4	
Clinch River	SQ, 5	T25	10	20	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	9	zebras
Clinch River	SQ, 5	T25	20	30	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	19	hard-packed
Clinch River	SQ, 5	T25	30	40	-	No mussels	.	.	-	-	-	-	0	0	0	0	100	0	0	0	0	0	21	
Clinch River	SQ, 5	T25	40	50	-	No mussels	.	.	-	-	-	-	0	0	0	0	100	0	0	0	0	0	22	
Clinch River	SQ, 5	T25	50	60	-	No mussels	.	.	-	-	-	-	0	10	0	20	70	0	0	0	0	0	24	
Clinch River	SQ, 5	T25	60	70	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	24	
Clinch River	SQ, 5	T25	70	80	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T25	80	90	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	25	
Clinch River	SQ, 5	T25	90	100	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	22	
Clinch River	SQ, 5	T25	100	110	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	22	some sand
Clinch River	SQ, 5	T25	110	120	-	No mussels	.	.	-	-	-	-	100	0	0	0	0	0	0	0	0	0	19	some sand, timber debris
Clinch River	SQ, 5	T25	120	130	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	
Clinch River	QL	T2-T3	LDB	50	-	Quadrula pustulosa	┐	.	1	98	15+	35	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T2-T3	LDB	50	-	Quadrula pustulosa	┐	.	1	74	13	30	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T2-T3	LDB	50	-	Quadrula pustulosa	┐	.	1	95	20	25	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T2-T3	LDB	50	-	Quadrula pustulosa	┐	.	1	90	15+	10	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Quadrula pustulosa	┐	.	1	92	15+	25	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Quadrula pustulosa	┐	.	1	88	15+	25	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Quadrula pustulosa	┐	.	1	90	15+	40	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Quadrula pustulosa	┐	.	1	85	15+	50	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Quadrula pustulosa	┐	.	1	72	14	25	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Quadrula pustulosa	┐	.	1	87	13	5	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Cyclonaias tuberculata	┐	.	1	84	15+	100	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Quadrula pustulosa	┐	.	1	74	15+	25	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T7-T8	30	50	-	Quadrula pustulosa	┐	.	1	70	12	0	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T19-T20	RDB	50	-	No mussels	.	.	-	-	-	-	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T21-T22	10	30	-	Leptodea fragilis	┐	.	1	85	9	10	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T21-T22	10	30	-	Quadrula pustulosa	┐	.	1	85	15+	30	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T21-T22	10	30	-	Quadrula pustulosa	┐	.	1	93	15+	30	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T21-T22	10	30	-	Quadrula pustulosa	┐	.	1	90	15+	30	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T21-T22	10	30	-	Quadrula pustulosa	┐	.	1	90	15+	30	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T21-T22	10	30	-	Quadrula pustulosa	┐	.	1	50	12	30	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T21-T22	10	30	-	Quadrula pustulosa	┐	.	1	85	15+	30	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T21-T22	10	30	-	Cyclonaias tuberculata	FD	.	1	62	10	60	0	0	0	0	0	0	0	0	0	0		
Clinch River	QL	T25-CRM15	LDB	30		No mussels	.	.	-	-	-	-	0	0	0	0	0	0	0	0	0	0		



## APPENDIX D – SNAIL DATA

# Snail Data

## TVA FIELD DATASHEET - MUSSELS

PROJECT NAME/##

LOCATION (river/mile/county/state)

If Found Please Call 859-619-8011

Date

Page

of

Collectors

WCO

SUBSTRATE (%)

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank (m)	Bank (L,R)	Species	Cond. (L/FD/ WD/R)	Repro d (M,F,G ,U)	Abund	Length (mm)	Age (yr)	Zeb s (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T1	0	10	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	1" silt, vegetation
Clinch River	SQ, 5	T1	10	20	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	18	blanket of zebra mussels
Clinch River	SQ, 5	T1	20	30	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	blanket of zebra mussels
Clinch River	SQ, 5	T1	30	40	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	blanket of zebra mussels, some scattered gravel
Clinch River	SQ, 5	T1	40	50	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	blanket of zebra mussels, some scattered gravel
Clinch River	SQ, 5	T1	50	60	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	19	blanket of zebra mussels, some scattered gravel
Clinch River	SQ, 5	T1	60	70	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	blanket of zebra mussels, some scattered gravel and silt
Clinch River	SQ, 5	T1	70	80	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	19	blanket of zebra mussels, some scattered gravel and silt
Clinch River	SQ, 5	T1	80	90	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	7	1" silt
Clinch River	SQ, 5	T1	90	100	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	2	1" silt
Clinch River	SQ, 5	T2	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	3	vegetation
Clinch River	SQ, 5	T2	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	15	1" silt
Clinch River	SQ, 5	T2	20	30	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	19	scattered boulders, blanket of zebras
Clinch River	SQ, 5	T2	30	40	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	blanket of zebras
Clinch River	SQ, 5	T2	40	50	-	No snails	-	-	-	-	-	0	0	50	40	10	0	0	0	0	0	0	20	
Clinch River	SQ, 5	T2	50	60	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T2	60	70	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T2	60	70	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T2	60	70	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T2	70	80	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T2	80	90	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	19.5	zebras
Clinch River	SQ, 5	T2	90	100	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	18.5	zebra mussels thick on bottom
Clinch River	SQ, 5	T2	90	100	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	18.5	zebra mussels thick on bottom
Clinch River	SQ, 5	T2	90	100	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	18.5	zebra mussels thick on bottom
Clinch River	SQ, 5	T2	100	110	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T2	100	110	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T2	110	120	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	17	steep clay bank after meter mark
Clinch River	SQ, 5	T2	120	130	-	No snails	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	7	1" silt and vegetation
Clinch River	SQ, 5	T2	130	140	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	3	1" silt
Clinch River	SQ, 5	T2	140	150	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	2	1" silt
Clinch River	SQ, 5	T3	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	4	
Clinch River	SQ, 5	T3	10	20	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	17	1" silt
Clinch River	SQ, 5	T3	10	20	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T3	10	20	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T3	10	20	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T3	20	30	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T3	30	40	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T3	40	50	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	16	
Clinch River	SQ, 5	T3	40	50	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	16	
Clinch River	SQ, 5	T3	40	50	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	50	50	0	0	0	0	0	16	
Clinch River	SQ, 5	T3	50	60	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	15	
Clinch River	SQ, 5	T3	60	70	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	14	
Clinch River	SQ, 5	T3	70	80	-	No snails	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	12	
Clinch River	SQ, 5	T3	70	80	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	12	
Clinch River	SQ, 5	T3	80	90	-	No snails	-	-	-	-	-	0	0	0	25	25	50	0	0	0	0	0	14	
Clinch River	SQ, 5	T3	90	100	-	No snails	-	-	-	-	-	0	0	0	25	25	50	0	0	0	0	0	16.5	
Clinch River	SQ, 5	T3	100	110	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T3	110	120	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	18.5	
Clinch River	SQ, 5	T3	120	130	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T3	130	140	-	No snails	-	-	-	-	-	0	0	0	25	25	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T3	130	140	-	No snails	-	-	-	-	-	0	0	0	25	25	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T3	140	150	-	No snails	-	-	-	-	-	0	0	0	25	25	50	0	0	0	0	0	17	



# Snail Data

TVA FIELD DATASHEET - MUSSELS

PROJECT NAME/##

LOCATION (river/mile/county/state)

If Found Please Call 859-619-8011

Date

Page

Collectors

WCO

of

SUBSTRATE (%)

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank (m)	Bank (L,R)	Species	Cond. (L/FD/ WD/R)	Repro d (M,F,G ,U)	Abund	Length (mm)	Age (yr)	Zeb s (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T4	0	10	-	No snails	-	-	-	-	-	-	0	0	0	100	0	0	0	0	0	0	1	1" silt
Clinch River	SQ, 5	T4	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	3	
Clinch River	SQ, 5	T4	20	30	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	no zebra mussels
Clinch River	SQ, 5	T4	30	40	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	11	
Clinch River	SQ, 5	T4	40	50	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	16	zebras
Clinch River	SQ, 5	T4	50	60	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T4	60	70	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	19	
Clinch River	SQ, 5	T4	70	80	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	blanket of zebra mussels
Clinch River	SQ, 5	T4	80	90	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	20	
Clinch River	SQ, 5	T4	90	100	-	No snails	-	-	-	-	-	0	0	0	0	40	60	0	0	0	0	0	20	
Clinch River	SQ, 5	T4	100	110	-	No snails	-	-	-	-	-	0	0	0	0	25	75	0	0	0	0	0	18	no zebra mussels
Clinch River	SQ, 5	T4	110	120	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	14	1" silt
Clinch River	SQ, 5	T4	120	130	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	4	1" silt, timber debris
Clinch River	SQ, 5	T5	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	12	some sand, vegetation and timber debris
Clinch River	SQ, 5	T5	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	19	
Clinch River	SQ, 5	T5	20	30	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	some cobble
Clinch River	SQ, 5	T5	30	40	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	zebras
Clinch River	SQ, 5	T5	40	50	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	21.5	
Clinch River	SQ, 5	T5	50	60	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	22	some silt, blanket of zebras
Clinch River	SQ, 5	T5	60	70	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	20	no zebra mussels
Clinch River	SQ, 5	T5	70	80	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T5	80	90	-	No snails	-	-	-	-	-	0	0	0	0	20	80	0	0	0	0	0	15	few zebra mussels
Clinch River	SQ, 5	T5	90	100	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	5	some silt
Clinch River	SQ, 6	T6	0	10	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	18	zebras
Clinch River	SQ, 6	T6	10	20	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	light layer of sand
Clinch River	SQ, 5	T6	20	30	-	No snails	-	-	-	-	-	0	0	0	50	0	50	0	0	0	0	0	23	
Clinch River	SQ, 5	T6	20	30	-	No snails	-	-	-	-	-	0	0	0	50	0	50	0	0	0	0	0	20	
Clinch River	SQ, 5	T6	30	40	-	No snails	-	-	-	-	-	0	0	45	45	10	0	0	0	0	0	0	22	
Clinch River	SQ, 5	T6	40	50	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	24	
Clinch River	SQ, 5	T6	50	60	-	No snails	-	-	-	-	-	0	0	0	0	40	60	0	0	0	0	0	23	
Clinch River	SQ, 5	T6	60	70	-	No snails	-	-	-	-	-	0	0	0	0	20	80	0	0	0	0	0	20	no zebra mussels
Clinch River	SQ, 5	T6	70	80	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	10	
Clinch River	SQ, 5	T6	80	90	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	3	vegetation
Clinch River	SQ, 5	T7	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	2	some silt
Clinch River	SQ, 5	T7	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	9	some silt
Clinch River	SQ, 5	T7	20	30	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	some silt
Clinch River	SQ, 5	T7	30	40	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	some cobble and gravel
Clinch River	SQ, 5	T7	40	50	-	No snails	-	-	-	-	-	0	0	10	0	90	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T7	50	60	-	No snails	-	-	-	-	-	0	0	0	10	40	50	0	0	0	0	0	20	
Clinch River	SQ, 5	T7	60	70	-	No snails	-	-	-	-	-	0	0	40	60	0	0	0	0	0	0	0	20	
Clinch River	SQ, 5	T7	70	80	-	No snails	-	-	-	-	-	0	5	5	90	0	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T7	80	90	-	No snails	-	-	-	-	-	0	5	5	90	0	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T7	90	100	-	No snails	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	0	19	
Clinch River	SQ, 5	T7	100	110	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	17	
Clinch River	SQ, 5	T7	110	120	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	6	vegetation
Clinch River	SQ, 5	T7	120	130	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	1	
Clinch River	SQ, 5	T8	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	7	
Clinch River	SQ, 5	T8	10	20	-	No snails	-	-	-	-	-	0	0	50	0	50	0	0	0	0	0	0	19	zebras
Clinch River	SQ, 5	T8	20	30	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T8	30	40	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	24	
Clinch River	SQ, 5	T8	40	50	-	No snails	-	-	-	-	-	0	0	0	0	90	10	0	0	0	0	0	23	light blanket of zebra mussels
Clinch River	SQ, 5	T8	50	60	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	23	
Clinch River	SQ, 5	T8	60	70	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T8	70	80	-	No snails	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	0	20	

# Snail Data

TVA FIELD DATASHEET - MUSSELS

PROJECT NAME/#

LOCATION (river/mile/county/state)

If Found Please Call 859-619-8011

Date

Page

Collectors

WCO

of

Substrate (%)

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank (m)	Bank (L,R)	Species	Cond. (L/FD/ WD/R)	Repro d (M,F,G ,U)	Abund	Length (mm)	Age (yr)	Zeb s (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T8	80	90	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	19	
Clinch River	SQ, 5	T8	90	100	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	
Clinch River	SQ, 5	T8	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	4	some silt
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	0	10	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	0	0	0	100	0	0	0	6	soft clay, vegetation
Clinch River	SQ, 5	T9	10	20	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	22	zebras
Clinch River	SQ, 5	T9	20	30	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	23	zebras
Clinch River	SQ, 5	T9	30	40	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	24	zebras
Clinch River	SQ, 5	T9	40	50	-	No snails	-	-	-	-	-	-	0	0	40	40	20	0	0	0	0	0	25	
Clinch River	SQ, 5	T9	50	60	-	No snails	-	-	-	-	-	-	0	10	0	50	40	0	0	0	0	0	27	
Clinch River	SQ, 5	T9	60	70	-	No snails	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	26	
Clinch River	SQ, 5	T9	70	80	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	23	
Clinch River	SQ, 5	T9	80	90	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	15	
Clinch River	SQ, 5	T9	90	100	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	5	some silt, vegetation
Clinch River	SQ, 5	T9	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	2	
Clinch River	SQ, 5	T10	0	10	-	No snails	-	-	-	-	-	-	0	0	25	0	0	0	75	0	0	0	12	some silt
Clinch River	SQ, 5	T10	10	20	-	No snails	-	-	-	-	-	-	0	0	25	25	50	0	0	0	0	0	19	some silt
Clinch River	SQ, 5	T10	20	30	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	23	sand and gravel over bedrock
Clinch River	SQ, 5	T10	30	40	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	24	covered by zebras
Clinch River	SQ, 5	T10	40	50	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	27	covered by zebras
Clinch River	SQ, 5	T10	50	60	-	No snails	-	-	-	-	-	-	0	0	10	40	50	0	0	0	0	0	27	covered by zebras
Clinch River	SQ, 5	T10	60	70	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T10	70	80	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T10	80	90	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	18	
Clinch River	SQ, 5	T10	90	100	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	11	some silt
Clinch River	SQ, 5	T10	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	6	
Clinch River	SQ, 5	T11	0	10	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	2	some silt
Clinch River	SQ, 5	T11	10	20	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	13	
Clinch River	SQ, 5	T11	20	30	-	No snails	-	-	-	-	-	-	0	0	25	25	50	0	0	0	0	0	24	zebra mussels, timber debris
Clinch River	SQ, 5	T11	30	40	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	23	covered by zebras
Clinch River	SQ, 5	T11	40	50	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T11	50	60	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T11	60	70	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T11	70	80	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	25	
Clinch River	SQ, 5	T11	80	90	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	24	
Clinch River	SQ, 5	T11	90	100	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	26	
Clinch River	SQ, 5	T11	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	20	
Clinch River	SQ, 5	T11	110	120	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	6	
Clinch River	SQ, 5	T11	120	130	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	2	
Clinch River	SQ, 5	T12	0	10	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	15	zebras
Clinch River	SQ, 5	T12	10	20	-	No snails	-	-	-	-	-	-	0	0	25	25	50	0	0	0	0	0	18	zebras
Clinch River	SQ, 5	T12	20	30	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	zebras
Clinch River	SQ, 5	T12	30	40	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	zebras



# Snail Data

TVA FIELD DATASHEET - MUSSELS

PROJECT NAME/##

LOCATION (river/mile/county/state)

If Found Please Call 859-619-8011

Date

Page

of

Collectors

WCO

SUBSTRATE (%)

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank (m)	Bank (L,R)	Species	Cond. (L/FD/ WD/R)	Repro d (M,F,G ,U)	Abund	Length (mm)	Age (yr)	Zeb s (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T12	40	50	-	<i>Pleurocera canaliculatum</i>	L	-	2	-	-	0	0	0	0	0	100	0	0	0	0	0	18	zebras
Clinch River	SQ, 5	T12	50	60	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T12	60	70	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T12	70	80	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T12	80	90	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T12	90	100	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T12	100	110	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	zebras, some clay
Clinch River	SQ, 5	T12	110	120	-	No snails	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	10	
Clinch River	SQ, 5	T12	120	130	-	No snails	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	5	some silt
Clinch River	SQ, 5	T13	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	6	
Clinch River	SQ, 5	T13	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	11	2' silt
Clinch River	SQ, 5	T13	20	30	-	No snails	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	17	2' silt
Clinch River	SQ, 5	T13	30	40	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	18	
Clinch River	SQ, 5	T13	40	50	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T13	50	60	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T13	60	70	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	zebras
Clinch River	SQ, 5	T13	70	80	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	24	many dead shells
Clinch River	SQ, 5	T13	80	90	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T13	90	100	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T13	100	110	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	21	
Clinch River	SQ, 5	T13	110	120	-	No snails	-	-	-	-	-	0	33.3	33.3	33.3	0	0	0	0	0	0	0	20	zebras
Clinch River	SQ, 5	T13	120	130	-	No snails	-	-	-	-	-	0	33.3	33.3	33.3	0	0	0	0	0	0	0	16	
Clinch River	SQ, 5	T13	130	140	-	No snails	-	-	-	-	-	0	33.3	33.3	33.3	0	0	0	0	0	0	0	5	some silt
Clinch River	SQ, 5	T14	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	6	
Clinch River	SQ, 5	T14	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	0	15	
Clinch River	SQ, 5	T14	20	30	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	17	
Clinch River	SQ, 5	T14	30	40	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	19	zebras and silt
Clinch River	SQ, 5	T14	40	50	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	19	gravel and sand scattered on bedrock
Clinch River	SQ, 5	T14	50	60	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	gravel and sand scattered on bedrock
Clinch River	SQ, 5	T14	60	70	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	18	some silt
Clinch River	SQ, 5	T14	70	80	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	some silt
Clinch River	SQ, 5	T14	80	90	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	19	some silt
Clinch River	SQ, 5	T14	90	100	-	No snails	-	-	-	-	-	90	10	0	0	0	0	0	0	0	0	0	18	
Clinch River	SQ, 5	T14	100	110	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	13	
Clinch River	SQ, 5	T14	110	120	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	5	
Clinch River	SQ, 5	T15	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	5	vegetation
Clinch River	SQ, 5	T15	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	15	
Clinch River	SQ, 5	T15	20	30	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	18	
Clinch River	SQ, 5	T15	30	40	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	bedrock
Clinch River	SQ, 5	T15	40	50	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	24	bedrock
Clinch River	SQ, 5	T15	50	60	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	23	
Clinch River	SQ, 5	T15	60	70	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	23	some silt
Clinch River	SQ, 5	T15	70	80	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	23	some silt
Clinch River	SQ, 5	T15	80	90	-	No snails	-	-	-	-	-	90	0	10	0	0	0	0	0	0	0	0	19	
Clinch River	SQ, 5	T15	90	100	-	No snails	-	-	-	-	-	90	0	10	0	0	0	0	0	0	0	0	8	
Clinch River	SQ, 5	T16	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	5	no zebra mussels, some silt
Clinch River	SQ, 5	T16	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some silt
Clinch River	SQ, 5	T16	20	30	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	18	no zebra mussels
Clinch River	SQ, 5	T16	30	40	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	20	
Clinch River	SQ, 5	T16	40	50	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	1" gravel over bedrock, zebras present
Clinch River	SQ, 5	T16	50	60	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	19	
Clinch River	SQ, 5	T16	60	70	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	18	
Clinch River	SQ, 5	T16	70	80	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	17	light gravel/sand mix over bedrock
Clinch River	SQ, 5	T16	80	90	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	19	light gravel/sand mix over bedrock

# Snail Data

TVA FIELD DATASHEET - MUSSELS

PROJECT NAME/#

LOCATION (river/mile/county/state)

If Found Please Call 859-619-8011

Date

Page

Collectors

WCO

of

SUBSTRATE (%)

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank (m)	Bank (L,R)	Species	Cond. (L/FD/ WD/R)	Repro d (M,F,G ,U)	Abund	Length (mm)	Age (yr)	Zeb s (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T16	90	100	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	18	
Clinch River	SQ, 5	T16	100	110	-	No snails	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	0	13	1" cobble/gravel mix over clay bottom
Clinch River	SQ, 5	T17	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels
Clinch River	SQ, 5	T17	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	18	
Clinch River	SQ, 5	T17	20	30	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	27	
Clinch River	SQ, 5	T17	30	40	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	27	light layer of sand
Clinch River	SQ, 5	T17	40	50	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	27	light layer of sand
Clinch River	SQ, 5	T17	50	60	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	25	
Clinch River	SQ, 5	T17	60	70	-	No snails	-	-	-	-	-	0	0	0	0	20	80	0	0	0	0	0	27	zebras
Clinch River	SQ, 5	T17	70	80	-	No snails	-	-	-	-	-	0	0	0	0	10	90	0	0	0	0	0	25	
Clinch River	SQ, 5	T17	80	90	-	No snails	-	-	-	-	-	0	0	0	0	10	90	0	0	0	0	0	25	
Clinch River	SQ, 5	T17	90	100	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	18	
Clinch River	SQ, 5	T17	100	110	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	7	
Clinch River	SQ, 5	T17	110	120	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	4	
Clinch River	SQ, 5	T18	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	5	some silt
Clinch River	SQ, 5	T18	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	16	
Clinch River	SQ, 5	T18	20	30	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	100	0	0	0	0	0	0	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T18	20	30	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	100	0	0	0	0	0	0	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T18	30	40	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T18	40	50	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	24	zebras and silt
Clinch River	SQ, 5	T18	50	60	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	24	
Clinch River	SQ, 5	T18	60	70	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	24	
Clinch River	SQ, 5	T18	70	80	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T18	80	90	-	No snails	-	-	-	-	-	0	0	0	0	0	75	0	0	0	0	25	21	broken shells
Clinch River	SQ, 5	T18	90	100	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	gravel and sand scattered on bedrock
Clinch River	SQ, 5	T18	100	110	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	20	bedrock
Clinch River	SQ, 5	T18	110	120	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	13	some silt
Clinch River	SQ, 5	T18	120	130	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	9	some silt
Clinch River	SQ, 5	T18	130	140	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	3	some silt
Clinch River	SQ, 6	T19	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	7	
Clinch River	SQ, 6	T19	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	15	zebras and timber debris
Clinch River	SQ, 6	T19	20	30	-	No snails	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	0	20	
Clinch River	SQ, 6	T19	30	40	-	No snails	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	0	20	
Clinch River	SQ, 6	T19	40	50	-	No snails	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	0	21	
Clinch River	SQ, 6	T19	50	60	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 6	T19	60	70	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 6	T19	70	80	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	21	
Clinch River	SQ, 6	T19	80	90	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	21	
Clinch River	SQ, 6	T19	90	100	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	21	
Clinch River	SQ, 6	T19	100	110	-	No snails	-	-	-	-	-	0	0	0	33.3	33.3	33.3	0	0	0	0	0	20	
Clinch River	SQ, 6	T19	110	120	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	13	
Clinch River	SQ, 6	T19	120	130	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	2	some silt
Clinch River	SQ, 5	T20	0	10	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	7	some silt
Clinch River	SQ, 5	T20	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	14	some silt
Clinch River	SQ, 5	T20	10	20	-	No snails	-	-	-	-	-	0	0	0	0	0	0	0	100	0	0	0	14	over bedrock
Clinch River	SQ, 5	T20	20	30	-	No snails	-	-	-	-	-	0	0	0	75	25	0	0	0	0	0	0	20	
Clinch River	SQ, 5	T20	30	40	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	30	40	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	30	40	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	30	40	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	40	50	-	No snails	-	-	-	-	-	0	0	0	0	50	50	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	50	60	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	22	thin layer of sand
Clinch River	SQ, 5	T20	60	70	-	No snails	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	0	22	
Clinch River	SQ, 5	T20	70	80	-	No snails	-	-	-	-	-	0	0	0	0	0	100	0	0	0	0	0	22	



# Snail Data

TVA FIELD DATASHEET - MUSSELS

PROJECT NAME/##

LOCATION (river/mile/county/state)

If Found Please Call 859-619-8011

Date

Page

Collectors

WCO

of

Substrate (%)

Site	Method/ Effort (m2,min)	Transct/ Sample	Min Dist bank (m)	Max Dist bank (m)	Bank (L,R)	Species	Cond. (L/FD/ WD/R)	Repro d (M,F,G ,U)	Abund	Length (mm)	Age (yr)	Zeb s (#,% m2 or shell)	Be	Bo	Cb	Gr	Sd	St	Cl	Wd	RipRap	Othr	Depth (ft)	Notes
Clinch River	SQ, 5	T20	80	90	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	23	
Clinch River	SQ, 5	T20	90	100	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	23	blanket of zebra mussels
Clinch River	SQ, 5	T20	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	7	some silt
Clinch River	SQ, 5	T20	110	120	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	3	some silt
Clinch River	SQ, 5	T21	0	10	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	12	some silt
Clinch River	SQ, 5	T21	10	20	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	12	
Clinch River	SQ, 5	T21	20	30	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	
Clinch River	SQ, 5	T21	30	40	-	No snails	-	-	-	-	-	-	0	0	0	25	75	0	0	0	0	0	17	
Clinch River	SQ, 5	T21	40	50	-	No snails	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	15	
Clinch River	SQ, 5	T21	50	60	-	No snails	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	18	
Clinch River	SQ, 5	T21	60	70	-	No snails	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	13	
Clinch River	SQ, 5	T21	70	80	-	No snails	-	-	-	-	-	-	0	0	0	10	90	0	0	0	0	0	15	
Clinch River	SQ, 5	T21	80	90	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	19	
Clinch River	SQ, 5	T21	90	100	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	20	
Clinch River	SQ, 5	T21	90	100	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	20	
Clinch River	SQ, 5	T21	90	100	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	20	
Clinch River	SQ, 5	T21	100	110	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	25	75	0	0	0	0	0	21	
Clinch River	SQ, 5	T21	100	110	-	<i>Pleurocera canaliculatum</i>	L	-	1	-	-	0	0	0	0	25	75	0	0	0	0	0	21	
Clinch River	SQ, 5	T21	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	25	75	0	0	0	0	21	
Clinch River	SQ, 5	T21	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	25	75	0	0	0	0	21	
Clinch River	SQ, 5	T21	100	110	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	21	
Clinch River	SQ, 5	T21	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	20	10	20	50	0	0	21	
Clinch River	SQ, 5	T21	110	120	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	22	
Clinch River	SQ, 5	T21	120	130	-	No snails	-	-	-	-	-	-	0	0	0	100	0	0	0	0	0	0	17	
Clinch River	SQ, 5	T21	130	140	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	6	
Clinch River	SQ, 5	T22	0	10	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	14	no zebra mussels, some silt
Clinch River	SQ, 5	T22	10	20	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	20	30	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	9	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	20	30	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	9	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	30	40	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	8	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	40	50	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	50	60	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	60	70	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	10	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	70	80	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	9	no zebra mussels, some gravel
Clinch River	SQ, 5	T22	80	90	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	16	no zebra mussels
Clinch River	SQ, 5	T22	90	100	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	18	no zebra mussels
Clinch River	SQ, 5	T22	100	110	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	no zebra mussels
Clinch River	SQ, 5	T22	110	120	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	no zebra mussels
Clinch River	SQ, 5	T22	120	130	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	21	zebras
Clinch River	SQ, 5	T22	120	130	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	21	zebras
Clinch River	SQ, 5	T22	130	140	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	17	no zebra mussels
Clinch River	SQ, 5	T22	140	150	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	5	no zebra mussels
Clinch River	SQ, 5	T23	0	10	-	No snails	-	-	-	-	-	-	0	0	0	50	50	0	0	0	0	0	3	
Clinch River	SQ, 5	T23	10	20	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	10	some sand
Clinch River	SQ, 5	T23	20	30	-	No snails	-	-	-	-	-	-	0	0	0	0	100	0	0	0	0	0	18	
Clinch River	SQ, 5	T23	30	40	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	19	
Clinch River	SQ, 5	T23	40	50	-	No snails	-	-	-	-	-	-	100	0	0	0	0	0	0	0	0	0	20	
Clinch River	SQ, 5	T23	50	60	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T23	60	70	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	23	zebras and silt
Clinch River	SQ, 5	T23	70	80	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	14	soft clay
Clinch River	SQ, 5	T23	80	90	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	10	hard-packed clay
Clinch River	SQ, 5	T23	90	100	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	11	hard-packed clay, no zebra mussels
Clinch River	SQ, 5	T23	100	110	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	9	hard-packed clay, no zebra mussels
Clinch River	SQ, 5	T23	110	120	-	No snails	-	-	-	-	-	-	0	0	0	0	0	0	100	0	0	0	8	hard-packed clay, no zebra mussels





