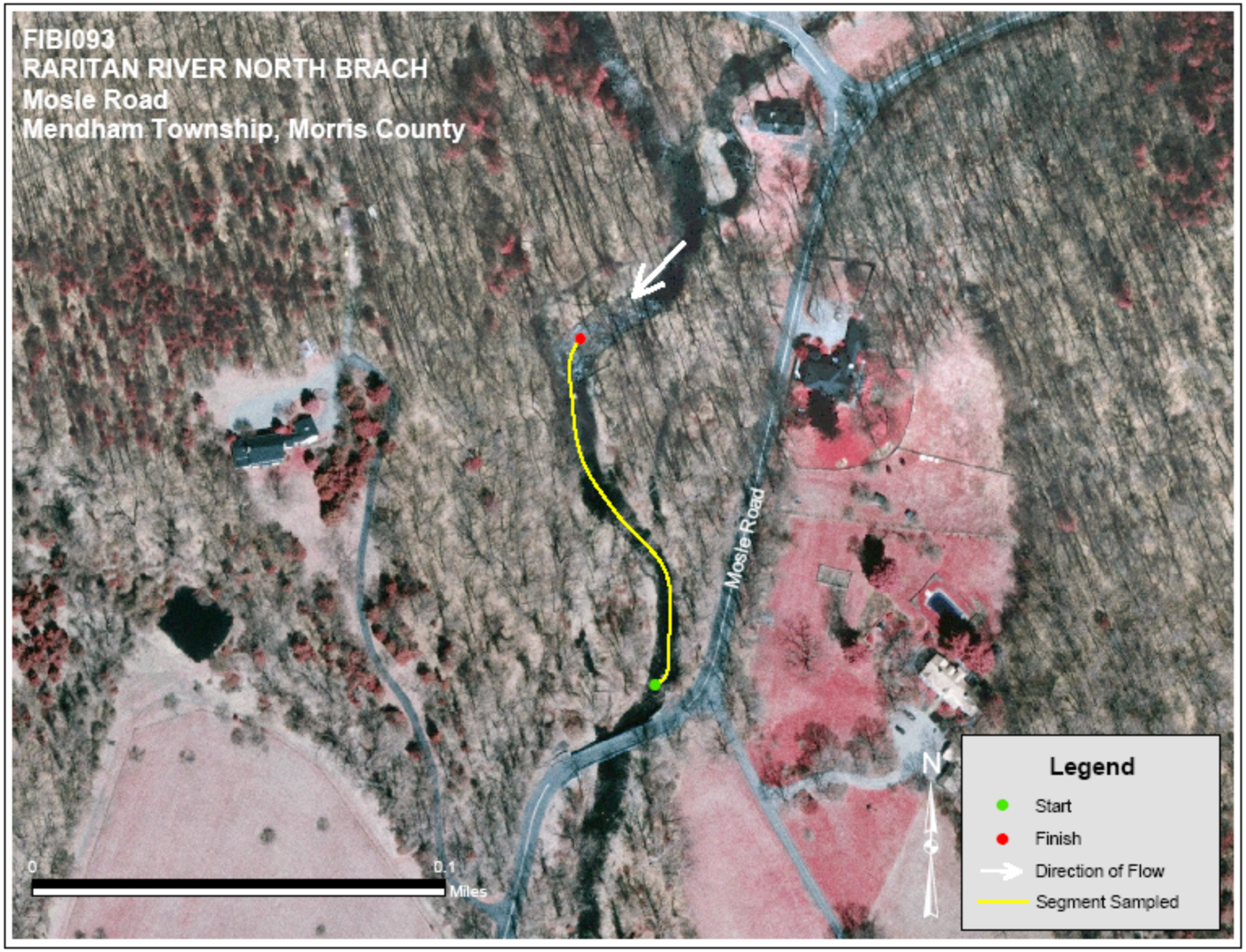
Raritan River North Branch - FIBI093
FIBI093
Pleasant Valley
Camp Saint John
Raritan River North Branch
FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)
IBI Ratings
Excellent
Good
Fair
Poor
N
0
0.25
0.5
Miles

SUMMARY OF RESULTS

FIBI093 – Raritan River North Branch

1. Stream Name:	Raritan River North Branch
2. Sampling Date:	08-02-2004
3. Sampling Location:	Mosle Road
4. Municipality	Mendham
5. County:	Morris
6. Watershed Management Area:	8
7. Contributing Drainage Area:	21.1 Square Miles
8. Electrofishing Gear:	2 Backpack
9. FIBI Score and Rating:	48 - Excellent
10. Habitat Score and Rating:	165- Optimal
11. Fishable Species Present:	Yes
12. Relevant AMNET[1] Station Data:	
Proximity of FIBI station to AMNET station:	2.09 mi. downstream AN0346
AMNET Rating:	Round 1 – Non-impaired Round 2 – Non-impaired Round 3 – Non-impaired
13. Stream Chemistries:	
Dissolved Oxygen	8.51 mg/L
Temperature.	21.5 ^{0}C
pH	7..97
Conductivity	250 μmhos/cm
14. Number of Fish With Anomalies:	0
15. Length of Stream Segment Sampled	150 Meters
16. Water Clarity:	Clear
17. Average Forest Open Canopy:	15.9%
18. Discharge:	64.0 ft.^{3}/sec
19. Substrate:	10% Gravel and Sand, 30% Cobble, 60% Boulder
20. Habitat:	70% Riffle, 20% Run, 10% Pool
21. Snags	Yes
22. Periphyton	Moderate
23. Submerged Aquatic Vegetation	No
24. Other observations:	
25. Number of Fish Species Identified:	16
26. Total Number of Fish Collected:	290

[1] AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.


FIBI093
RARITAN RIVER NORTH BRACH
Mosle Road
Mendham Township, Morris County
Mosle Road
0
0.1
Miles
N
Legend
Start
Finish
Direction of Flow
Segment Sampled

FIBI093- @ Raritan River North Branch **Excellent** Good Fair Poor

Date Sampled - 8/02/2004

	Score
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	3
# of Trout and Centrarchid Species (trout, bass, sunfish, crappie)	5
# of Intolerant Species (IS)	5
Proportion of Individuals as White Suckers	5
Proportion of Individuals as Generalists (carp, creek chub, banded killifish, goldfish, fathead minnow, green sunfish)	5
Proportion of Individuals as Insectivorous Cyprinids (I and BI)	5
Proportion of Individuals as Trout *whichever gives better score OR Proportion of Individuals as Piscivores (Excluding American Eel)*	5
Number of Individuals in Sample	5
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	48

Stream Rating

45-50	Excellent
37-44	Good
29-36	Fair
10-28	Poor

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS Raritan River NB (FIBI093) – 8/2/04

	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate /Available Cover SCORE 18	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient). 20 19 18 17 16	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale). 15 14 13 12 11	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed. 10 9 8 7 6	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking. 5 4 3 2 1 0
2. Embeddedness SCORE 14	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space. 20 19 18 17 16	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment. 15 14 13 12 11	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment. 10 9 8 7 6	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment. 5 4 3 2 1 0
3. Velocity/Depth Regimes SCORE 15	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m). 20 19 18 17 16	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes). 15 14 13 12 11	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low). 10 9 8 7 6	Dominated by 1 velocity / depth regime (usually slow-deep). 5 4 3 2 1 0
4. Sediment Deposition SCORE 13	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition. 20 19 18 17 16	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools. 15 14 13 12 11	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent. 10 9 8 7 6	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition. 5 4 3 2 1 0
5. Channel Flow Status SCORE 19	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed. 20 19 18 17 16	Water fills >75% of the available channel; or <25% of channel substrate is exposed. 15 14 13 12 11	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed. 10 9 8 7 6	Very little water in channel and mostly present as standing pools. 5 4 3 2 1 0
6. Channel Alteration SCORE 19	Channelization or dredging absent or minimal; stream with normal pattern. 20 19 18 17 16	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present. 15 14 13 12 11	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted. 10 9 8 7 6	Banks shored with gabion or concrete; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely. 5 4 3 2 1 0
7. Frequency of Riffles (or bends) SCORE 17	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important. 20 19 18 17 16	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15. 15 14 13 12 11	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25. 10 9 8 7 6	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25. 5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream. SCORE 8 (LB) SCORE 8 (RB)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. Left 10 9 Right 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. 8 7 6 8 7 6	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods. 5 4 3 5 4 3	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars. 2 1 0 2 1 0
9. Bank Vegetative Protection (score each bank) SCORE 9 (LB) SCORE 10 (RB)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. Left 10 9 Right 10 9	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. 8 7 6 8 7 6	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining. 5 4 3 5 4 3	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. 2 1 0 2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone) SCORE 6 (LB) SCORE 9 (RB)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. Left 10 9 Right 10 9	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally. 8 7 6 8 7 6	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal. 5 4 3 5 4 3	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities. 2 1 0 2 1 0

HABITAT SCORE
165

HABITAT SCORES	VALUE
OPTIMAL	160 – 200
SUB-OPTIMAL	110 – 159
MARGINAL	60 – 109
POOR	< 60

FIBI093 08-02-2004

Raritan River North Branch

LISTED IN ORDER OF ABUNDANCE

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Longnose Dace	*Rhinichthys cataractae*	65	
Blacknose Dace	*Rhinichthys atratulus*	53	
Brown Trout	*Salmo trutta*	45	3.0 – 11.8
White Sucker	*Catostomus commersoni*	39	
Tessellated Darter	*Etheostoma olmstedi*	10	
Smallmouth Bass	*Micropterus dolomieu*	9	2.6 – 7.5
Fallfish	*Semotilus corporalis*	8	
Rock Bass	*Ambloplites rupestris*	8	5.5 – 7.9
Green Sunfish	*Lepomis cyanellus*	7	2.4 – 5.1
Redbreast Sunfish	*Lepomis auritus*	5	1.6 – 5.1
Rainbow Trout	*Oncorhynchus mykiss*	4	8.6 – 11.0
American Eel	*Anguilla rostrata*	2	
Sea Lamprey	*Petromyzon marinus*	2	
Pumpkinseed	*Lepomis gibbosus*	2	2.4
Bluegill	*Lepomis macrochirus*	1	3.4 – 6.5
Creek Chub	*Semotilus atromaculatus*	1	

Species Identified at Raritan River N.B. (FIBI093)

(Not to Scale)

John Scarola

Longnose Dace

Konrad Schmidt

Blacknose Dace

John Scarola

Brown Trout

John Scarola

White Sucker

John Scarola

Tessellated Darter

John Scarola

Smallmouth Bass

Species Identified at Raritan River N.B. (FIBI093)

(Not to Scale)

John Scarola

Fallfish

John Scarola

Rockbass

Konrad Schmidt

Green Sunfish

John Scarola

Redbreast Sunfish

John Scarola

Rainbow Trout

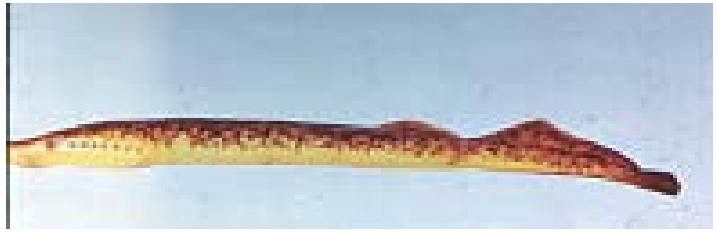
John Scarola

American Eel

Species Identified at Raritan River N.B. (FIBI093)

(Not to Scale)

John Scarola



Sea Lamprey

John Scarola

Pumpkinseed

John Scarola

Bluegill

Konrad Schmidt

Creek Chub

Dead River - FIBI094
287
Spring Brook
FIBI094
Dead River
Camp Sunshine
78
FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)
IBI Ratings
Excellent
Good
Fair
Poor
N
0
0.5
1
Miles

SUMMARY OF RESULTS

FIBI094 – Dead River[1]

1. Stream Name:	Dead River
2. Sampling Date:	07-22-2004
3. Sampling Location:	Liberty Corner Road
4. Municipality	Bernards
5. County:	Somerset
6. Watershed Management Area:	6
7. Contributing Drainage Area:	3.6 Square Miles
8. Electrofishing Gear:	2 Backpack
9. FIBI Score and Rating:	38 - Good
10. Habitat Score and Rating:	166- Optimal
11. Fishable Species Present:	Yes
12. Relevant AMNET[2] Station Data:	
Proximity of FIBI station to AMNET station:	0.54 mi. upstream AN0266
AMNET Rating:	Round 1 – Moderate Round 2 – Non-impaired Round 3 – Non-impaired
13. Stream Chemistries:	
Dissolved Oxygen	8.4 mg/L
Temperature.	21.0 ^{0}C
pH	7.40
Conductivity	400 μmhos/cm
14. Number of Fish With Anomalies:	1 Creek chub with a lesion
15. Length of Stream Segment Sampled	150 Meters
16. Water Clarity:	Clear
17. Average Forest Open Canopy:	18.7%
18. Discharge:	2.1 ft.^{3}/sec
19. Substrate:	35% Gravel and Sand, 50% Cobble, 5% Boulder, 10% Silt
20. Habitat:	20% Riffle, 10% Run, 70% Pool
21. Snags	Yes
22. Periphyton	Moderate
23. Submerged Aquatic Vegetation	No
24. Other observations:	
25. Number of Fish Species Identified:	15
26. Total Number of Fish Collected:	474

[1] Site has been eliminated from the Fish IBI Monitoring Network due to a contributing drainage area of less than 5 square miles.

[2] AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.

FIBI094
DEAD RIVER
Liberty Corner Road
Bernards Township, Somerset County
Liberty Corner Road
N
0
0.1
Miles
Legend
Start
Finish
Direction of Flow
Segment Sampled

FIBI094- @ Dead River Excellent **Good** Fair Poor

Date Sampled - 7/22/2004

	Score
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	5
# of Trout and Centrarchid Species (trout, bass, sunfish, crappie)	5
# of Intolerant Species (IS)	1
Proportion of Individuals as White Suckers	5
Proportion of Individuals as Generalists (carp, creek chub, banded killifish, goldfish, fathead minnow, green sunfish)	1
Proportion of Individuals as Insectivorous Cyprinids (I and BI)	3
Proportion of Individuals as Trout *whichever gives better score OR Proportion of Individuals as Piscivores (Excluding American Eel)*	3
Number of Individuals in Sample	5
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	38

Stream Rating

45-50	Excellent
37-44	Good
29-36	Fair
10-28	Poor

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS Dead River (FIBI094) – 7/22/04

	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate /Available Cover SCORE 18	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient). 20 19 18 17 16	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet preferred for colonization (may rate at high end of scale). 15 14 13 12 11	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed. 10 9 8 7 6	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking. 5 4 3 2 1 0
2. Embeddedness SCORE 16	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space. 20 19 18 17 16	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment. 15 14 13 12 11	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment. 10 9 8 7 6	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment. 5 4 3 2 1 0
3. Velocity/Depth Regimes SCORE 12	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m). 20 19 18 17 16	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes). 15 14 13 12 11	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low). 10 9 8 7 6	Dominated by 1 velocity / depth regime (usually slow-deep). 5 4 3 2 1 0
4. Sediment Deposition SCORE 18	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition. 20 19 18 17 16	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools. 15 14 13 12 11	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent. 10 9 8 7 6	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition. 5 4 3 2 1 0
5. Channel Flow Status SCORE 9	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed. 20 19 18 17 16	Water fills >75% of the available channel; or <25% of channel substrate is exposed. 15 14 13 12 11	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed. 10 9 8 7 6	Very little water in channel and mostly present as standing pools. 5 4 3 2 1 0
6. Channel Alteration SCORE 19	Channelization or dredging absent or minimal; stream with normal pattern. 20 19 18 17 16	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present. 15 14 13 12 11	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted. 10 9 8 7 6	Banks shored with gabion or concrete; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely. 5 4 3 2 1 0
7. Frequency of Riffles (or bends) SCORE 18	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important. 20 19 18 17 16	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15. 15 14 13 12 11	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25. 10 9 8 7 6	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25. 5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream. SCORE 8 (LB)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. Left 10 9	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. 8 7 6	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods. 5 4 3	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars. 2 1 0
SCORE 8 (RB)	Right 10 9	8 7 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank) SCORE 10 (LB)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. Left 10 9	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. 8 7 6	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining. 5 4 3	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. 2 1 0
SCORE 10 (RB)	Right 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone) SCORE 10 (LB)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. Left 10 9	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally. 8 7 6	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal. 5 4 3	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities. 2 1 0
SCORE 10 (RB)	Right 10 9	8 7 6	5 4 3	2 1 0

HABITAT SCORE

166

HABITAT SCORES	VALUE
OPTIMAL	160 – 200
SUB-OPTIMAL	110 – 159
MARGINAL	60 – 109
POOR	< 60

FIBI094 07-22-2004

Dead River

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Green Sunfish	*Lepomis cyanellus*	203	2.6 – 6.1
Creek Chub	*Semotilus atromaculatus*	158	
Tessellated Darter	*Etheostoma olmstedi*	26	
Blacknose Dace	*Rhinichthys atratulus*	22	
Bluegill	*Lepomis macrochirus*	21	1.6 – 3.7
White Sucker	*Catostomus commersoni*	14	
Pumpkinseed	*Lepomis gibbosus*	7	3.4 – 4.1
Redfin Pickerel	*Esox americanus americanus*	6	6.5 – 8.3
Largemouth Bass	*Micropterus salmoides*	4	1.4 – 2.2
Redbreast Sunfish	*Lepomis auritus*	4	1.4 – 3.4
Longnose Dace	*Rhinichthys cataractae*	3	
Common Shiner	*Notropis cornutus*	3	
Spottail Shiner	*Notropis hudsonius*	1	
Yellow Bullhead	*Ameiurus natalis*	1	3.2
Redbreast x Pumpkinseed Hybrid	*Lepomis auritus x gibbosus*	1	

Species Identified at Dead River (FIBI094)

(Not to Scale)

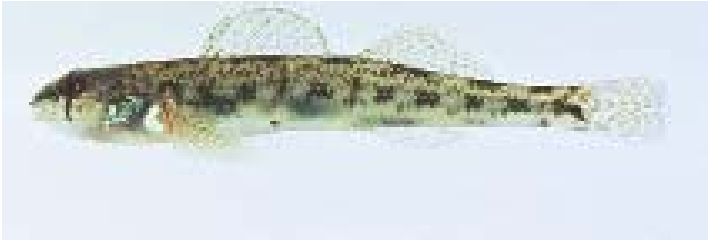
Konrad Schmidt

Green Sunfish

Konrad Schmidt

Creek Chub

John Scarola



Tessellated Darter

John Scarola

Blacknose Dace

John Scarola

Bluegill

John Scarola

White Sucker

Species Identified at Dead River (FIBI094)

(Not to Scale)

John Scarola

Pumpkinseed

Jenkins, Burkhead

Redfin Pickerel

AFS

Largemouth Bass

John Scarola

Redbreast Sunfish

John Scarola

Longnose Dace

John Scarola

Common Shiner

Species Identified at Dead River (FIBI094)

(Not to Scale)

Konrad Schmidt

Spottail Shiner

John Scarola

Yellow Bullhead

No Picture Available

Hybrid Redbreast X Pumpkinseed