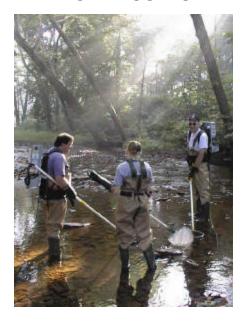






SUMMARY OF RESULTS – FIBI038



Middle Brook 1. Stream Name: 08/06/2001 2. Sampling Date: River Rd. (40 38 51N; 74 40 52W) 3. Sampling Location: Bedminster Twp. 4. Municipality Somerset 5. County: 6. Watershed Management Area: 7. Contributing Drainage Area (Sq. Mi.): 6.5 FW2-NT 8. Stream Water Quality Class: 9. FIBI Rating: Good (38) (See Appendix 3)

10. Habitat Assessment Rating: Suboptimal (155) (See Appendix 3)

11. Fishable Species Present: Yes

12. Relevant AMNET¹ Station Data:

Proximity of FIBI station to AMNET station: AN0355

AMNET Rating: 1994-Moderately Impaired; 1999-Non-Impaired

13. Stream Chemistries:

 $\begin{array}{ccc} Dissolved \ Oxygen \ (mg/l) & 7.61 \\ Temperature \ ^0C. & 23.1 \\ pH & 7.75 \\ Conductivity \ (\mu mhos/cm) & 245 \\ 14. \ Number \ of \ Fish \ With \ Anomalies: & 0 \end{array}$

15. Length of Stream Segment Sampled 150 meters (492 feet)

16. Water Clarity: Turbid
17. Average Forest Open Canopy: 10%
18. Discharge (ft. 3/sec.): 3.0

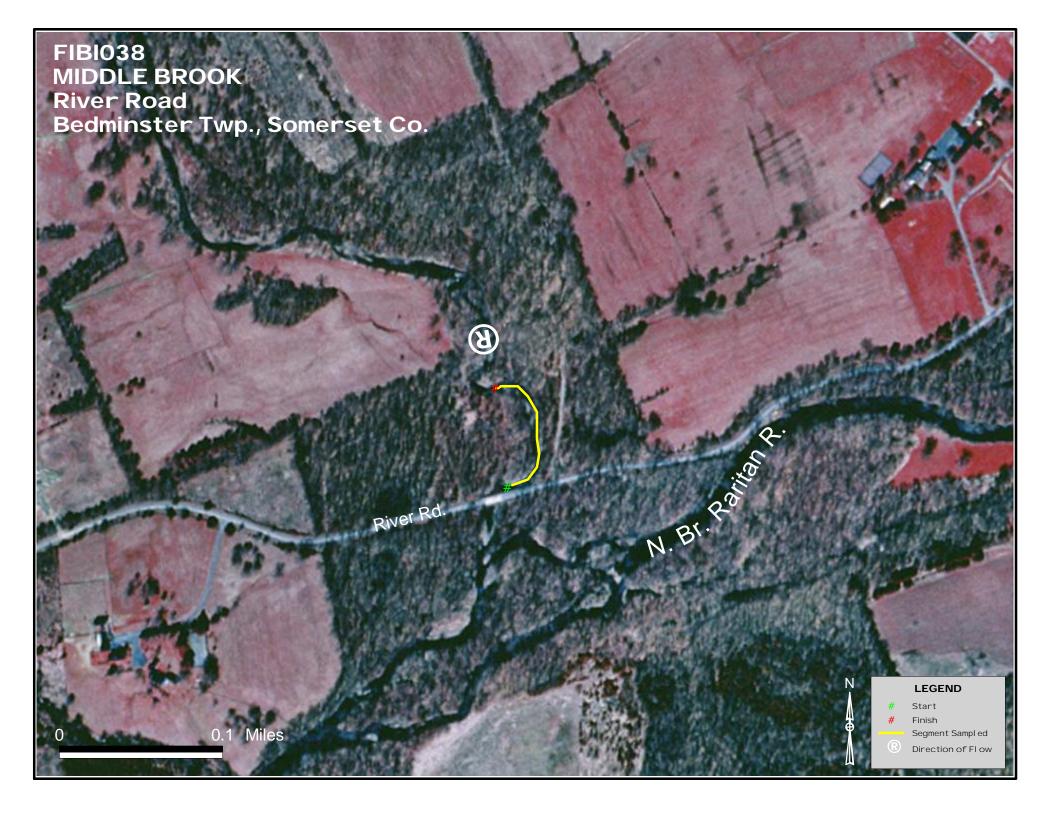
19. Substrate: (qualitative) 20% Gravel/Sand, 40% Cobble, 40% Silt 20. Habitat Type: (qualitative) 25% Riffle, 25% Run, 50% Pool

21. Other observations: extreme lack of fish

22. Number of Fish Species Identified: (see next page) 18

23. Total Number of Fish Collected: 129

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.



FIBI038 - Middle Brook @ River Ro Date Sampled - 8/06/2001	d	Excellent	Good	Fair	Poor
				Score	
# of Fish Species				5	
# of Benthic Insectivorous Species (I	31)			5]
# of Trout and Centrarchid Species (trout, bass, sunfish,	crappie)		5]
# of Intolerant Species (IS)				1]
Proportion of Individuals as White St	uckers			5]
Proportion of Individuals as Generali	StS (carp, creek chub, ba	ınded killifish,		5]
goldfish, fathead minnow, green sunfish) Proportion of Individuals as Insective	orous Cyprinids (I an	nd BI)		1	
Proportion of Individuals as Trout OR	*whichever	gives bette	er score		
Proportion of Individuals as Piscivior	es (Excluding Americ	can Eel)*		3]
Number of Individuals in Sample				3]
Proportion of Individuals w/disease/a	nomalies (excluding	blackspot)		5]
Total				38	

Stream Rating

45-50 Excellent37-44 Good29-36 Fair10-28 Poor

HABITAT ASSESSMENT FOR HIGH GRADIENT STREAMS Middle Brook (FIBI038) – 8/6/01

	Condition Category					
	Optimal	Suboptimal	Marginal	Poor		
1. Epifaunal Substrate /Available Cover	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).	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 prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.		
SCORE 19	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.		
SCORE 16	20 19 18 17 <mark>16</mark>	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
3. Velocity/Depth Regimes	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)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).		
SCORE 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
4. Sediment Deposition	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.	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.	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.	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.		
SCORE 11	20 19 18 17 16	15 14 13 12	10 9 8 7 6	5 4 3 2 1 0		
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.		
SCORE 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	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.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.		
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
7. Frequency of Riffles (or bends)	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.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.		
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60- 100% of bank has erosional scars.		
SCORE5 (LB) SCORE5 (RB)	Left Bank 10 9 Right Bank 10 9	8 7 6 8 7 6	5 4 3 5 4 3	2 1 0 2 1 0		
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	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.	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.	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.		
	Left Bank 10 9	8 7 6	5 4 3 5 4 3	2 1 0 2 1 0		
SCORE9_ (LB)			5 4 3	7 1 0		
SCORE9_ (LB) SCORE9_ (RB) 10. Riparian Vegetative Zone Width (score each bank riparian zone) SCORE10_ (LB)	Right Bank 10 Width of riparian zone > 18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. Left Bank 9	8 7 6 Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone < 6 meters: little or no riparian vegetation due to human activities.		

HABITAT SCORE

155

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

FIBI038 08/06/01

MIDDLE BROOK

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Tesselated Darter	Etheostoma olmstedi	24	
Green Sunfish*	Lepomis cyanellus	13	2.3 - 4.6
Longnose Dace	Rhinichthys cataractae	13	
White Sucker*	Catostomus commersoni	12	
Bluegill*	Lepomis macrochirus	11	1.2 - 3.5
Redbreast Sunfish*	Lepomis auritus	10	4.3 - 4.7
Banded Killifish	Fundulus diaphanus	7	
Rock Bass*	Ambloplites rupestris	7	2.4 - 6.3
Blacknose Dace	Rhinichthys atratulus	6	
American Eel*	Anguilla rostrata	6	
Pumpkinseed*	Lepomis gibbosus	5	3.1 - 3.5
Largemouth Bass*	Micropterus salmoides	4	1.6 - 3.5
Redfin Pickerel*	Esox americanus americanus	3	3.1 - 6.7
Golden Shiner	Notemigonus crysoleucas	2	
Yellow Perch*	Perca flavescens	2	2.0
Brown Bullhead*	Ameiurus nebulosus	2	4.7 - 5.9
Creek Chub	Semotilus atromaculatus	1	
Swallowtail Shiner	Notropis procne	1	

^{*} Regulated as a fishable species under current New Jersey Fish and Wildlife codes

FIGURE 1.1 (Not to Scale)

Species Identified at Middle Brook (FIBI038)



White Sucker



Pumpkinseed



Brown Bullhead



Rock Bass



Green Sunfish



Redbreast Sunfish

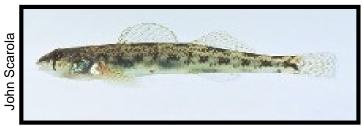
FIGURE 1.1 (Not to Scale)

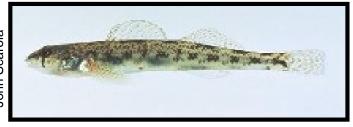
Species Identified at Middle Brook (FIBI038)



Redfin Pickerel

Largemouth Bass



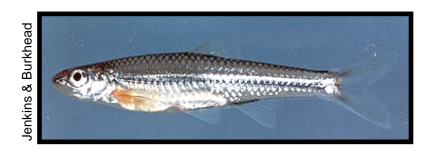




Tesselated Darter

Yellow Perch



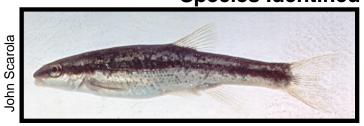


Longnose Dace

Swallowtail Shiner

FIGURE 1.1 (Not to Scale)

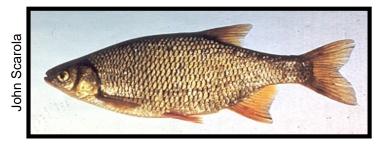
Species Identified at Middle Brook (FIBI038)

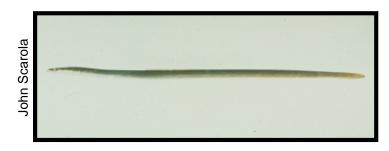




Blacknose Dace

Bluegill





Golden Shiner

American Eel



Creek Chub

FIGURE 1.1 (Not to Scale)

Species Identified at Middle Brook (FIBI038)



Banded Killifish