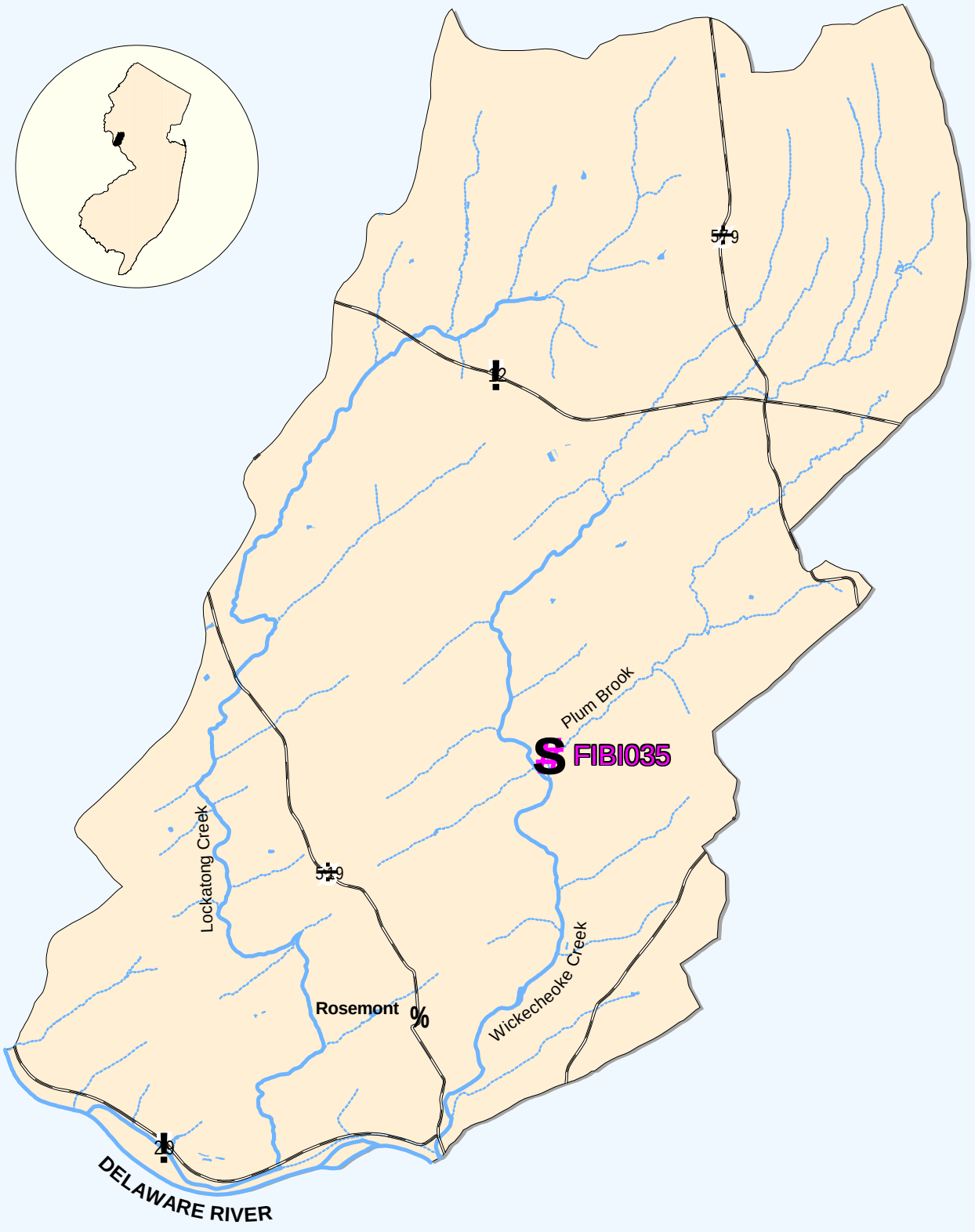
Plum Brook - FIBI035

Drainage Area of FIBI035: 5.5 Square Miles
Surface Water Quality Classification of FIBI035: FW2-TM



FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)

N

0 1 2 3 Miles

SUMMARY OF RESULTS – FIBI035

1. Stream Name:	Plum Brook
2. Sampling Date:	07/06/2001
3. Sampling Location:	Pine Hill Rd. (40 27 43N; 74 58 04W)
4. Municipality	Delaware Twp.
5. County:	Hunterdon
6. Watershed Management Area:	11
7. Contributing Drainage Area (Sq. Mi.):	5.5
8. Stream Water Quality Class:	FW2-TM
9. FIBI Rating:	Good (42) (See Appendix 3)
10. Habitat Assessment Rating:	Suboptimal (158) (See Appendix 3)
11. Fishable Species Present:	Yes
12. Relevant AMNET[1] Station Data:	
Proximity of FIBI station to AMNET station:	AN0093
AMNET Rating:	1992-Non-Impaired; 1997-Moderately Impaired
13. Stream Chemistries:	
Dissolved Oxygen (mg/l)	7.9
Temperature ^{0}C.	17.4
pH	8
Conductivity (µmhos/cm)	145
14. Number of Fish With Anomalies:	0
15. Length of Stream Segment Sampled	150 meters (492 feet)
16. Water Clarity:	Clear
17. Average Forest Open Canopy:	Mostly Closed
18. Discharge (ft.^{3}/sec.):	5.3
19. Substrate: (qualitative)	5% Gravel/Sand, 80% Cobble, 15% Boulder
20. Habitat Type: (qualitative)	40% Riffle, 30% Run, 30% Pool
21. Other observations:	N/A
22. Number of Fish Species Identified: (see next page)	10
23. Total Number of Fish Collected:	284

[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.


FIBI035
PLUM BROOK
Pine Hill Road
Delaware Twp., Hunterdon Co.
Pine Hill Rd.
0
0.1 Miles
N
LEGEND
Start
Finish
Segment Sampled
Direction of Flow

FIBI035 - Plum Brook @ Pine Hill Rd Excellent **Good** Fair Poor

Date Sampled - 7/06/01

	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)	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 Pisciviores (Excluding American Eel)*	1
Number of Individuals in Sample	5
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	**42**

Stream Rating

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

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS Plum Brook (FIBI035) – 7/6/01

	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 12	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 19	20 **19** 18 17 16	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 14	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 14	20 19 18 17 16	15 **14** 13 12 11	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 8	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 19	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.
SCORE ___9___ (LB)	Left Bank 10 **9**	8 7 6	5 4 3	2 1 0
SCORE ___8___ (RB)	Right Bank 10 9	**8** 7 6	5 4 3	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.
SCORE ___10__ (LB)	Left Bank **10** 9	8 7 6	5 4 3	2 1 0
SCORE ___10__ (RB)	Right Bank **10** 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	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.
SCORE ___10 (LB)	Left Bank **10** 9	8 7 6	5 4 3	2 1 0
SCORE ___5_ (RB)	Right Bank 10 9	8 7 6	**5** 4 3	2 1 0

HABITAT SCORE

158

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

FIBI035 07/06/01

PLUM BROOK

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Blacknose Dace	*Rhinichthys atratulus*	201	
Creek Chub	*Semotilus atromaculatus*	33	
White Sucker*	*Catostomus commersoni*	23	
American Eel*	*Anguilla rostrata*	11	
Common Shiner	*Luxilus cornutus*	5	
Green Sunfish*	*Lepomis cyanellus*	4	2.5 - 3.9
Largemouth Bass*	*Micropterus salmoides*	3	2.0 - 2.2
Bluegill*	*Lepomis macrochirus*	2	2.2 - 2.4
Golden Shiner	*Notemigonus crysoleucas*	1	
Tesselated Darter	*Etheostoma olmstedi*	1	

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

FIGURE 1.1 (Not To Scale)

Species Identified at Plum Brook (FIBI035)

John Scarola

Blacknose Dace

Konrad Schmidt

Green Sunfish

John Scarola

Tesselated Darter

Konrad Schmidt

Creek Chub

John Scarola

Bluegill

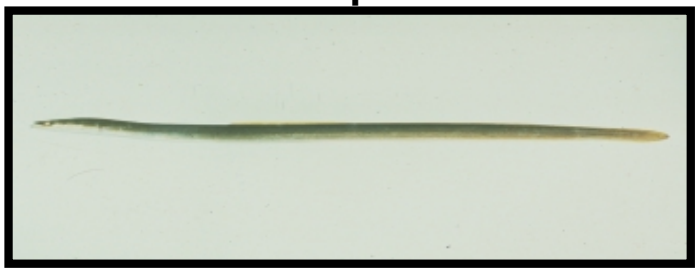
John Scarola

Golden Shiner

FIGURE 1.1 (Not To Scale)

Species Identified at Plum Brook (FIBI035)

John Scarola



American Eel

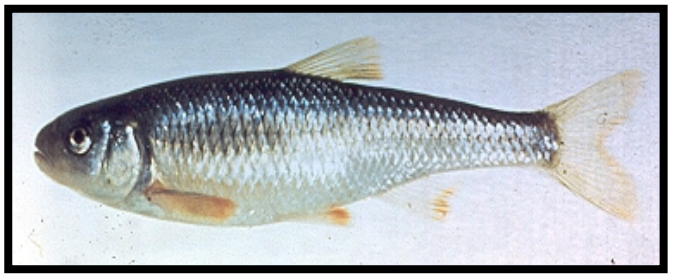
AFS

Largemouth Bass

John Scarola

White Sucker

John Scarola



Common Shiner