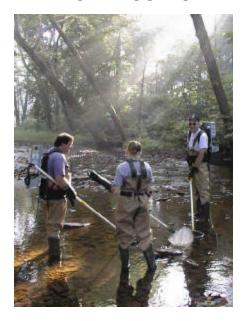


FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)





#### **SUMMARY OF RESULTS – FIBI023**



Neshanic River 1. Stream Name: 08/03/2001 2. Sampling Date:

along Kuhl Rd. (40 28 39N; 74 50 35W) 3. Sampling Location:

Raritan Twp. 4. Municipality Hunterdon 5. County:

6. Watershed Management Area: 23.1 7. Contributing Drainage Area (Sq. Mi.): FW2-NT 8. Stream Water Quality Class:

Fair (36) (See Appendix 3) 9. FIBI Rating:

Suboptimal (130) (See Appendix 3) 10. Habitat Assessment Rating:

Yes 11. Fishable Species Present:

12. Relevant AMNET<sup>1</sup> Station Data:

Proximity of FIBI station to AMNET station: 0.94 mi.upstream of AN0333

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

13. Stream Chemistries:

7.6 Dissolved Oxygen (mg/l) 21.8 Temperature <sup>0</sup>C. 8.3 pН Conductivity (µmhos/cm) 356 14. Number of Fish With Anomalies:

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

16. Water Clarity: Clear 50% 17. Average Forest Open Canopy: 18. Discharge (ft.<sup>3</sup>/sec.): 5.3

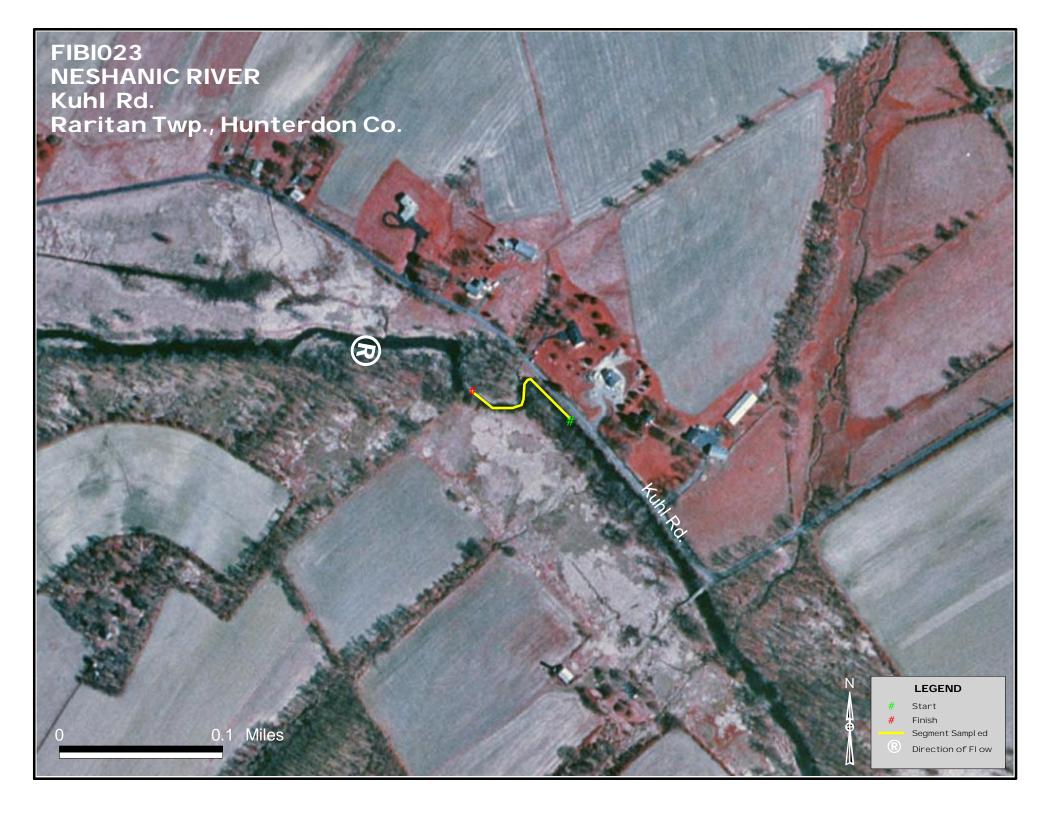
19. Substrate: (qualitative) 20% Gravel/Sand, 45% Cobble, 10% Boulder, 5% Mud, 5% Silt, 15% Bedrock

10% Riffle, 65% Run, 25% Pool 20. Habitat Type: (qualitative) Rip Rap on Stream Bank 21. Other observations:

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

23. Total Number of Fish Collected: 1393

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.



FIBI023 - Neshanic River @ Kuhl Rd Date Sampled - 8/03/2001	Excellent Good	Fair	Poor
		Score	-
# of Fish Species		5	
# of Benthic Insectivorous Species (BI)		5	
# of Trout and Centrarchid Species (trout, base	ss, sunfish, crappie)	5	]
# of Intolerant Species (IS)		1	
Proportion of Individuals as White Suckers		1	
Proportion of Individuals as Generalists (carp,	creek chub, banded killifish,	5	
goldfish, fathead minnow, green sunfish)			7
Proportion of Individuals as Insectivorous Cy	orinids (I and BI)	3	
Proportion of Individuals as Trout OR	*whichever gives better score		
Proportion of Individuals as Pisciviores (Exclu	ıding American Eel)*	1	
Number of Individuals in Sample		5	
Proportion of Individuals w/disease/anomalies	s (excluding blackspot)	5	
Total		36	

#### **Stream Rating**

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

### HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS Neshanic River (FIBI023) – 8/3/01

	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 14	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 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 13	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 17	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 13	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	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	is not present.  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 10	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.	
SCORE6 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	
SCORE6 (RB)	Right Bank 10 9  More than 90% of the streambank	8 7 6 70-90% of the streambank	5 4 3 50-70% of the streambank	2 1 0  Less than 50% of the streambank	
9. Bank Vegetative Protection (score each bank)	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.	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.	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.	surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE6 (LB) SCORE5_ (RB)	Left Bank         10         9           Right Bank         10         9	8 7 <b>6</b> 8 7 6	5 4 3 5 4 3	2 1 0 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.	
SCORE2 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0	

HABITAT SCORE

**130** 

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

### FIBI023 08/03/01

### NESHANIC RIVER

### LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
White Sucker*	Catostomus commersoni	522	
Common Shiner	Luxilus cornutus	191	
Tesselated Darter	Etheostoma olmstedi	130	
Redbreast Sunfish*	Lepomis auritus	109	2.4 - 6.5
Spottail Shiner	Notropis hudsonius	91	
Green Sunfish*	Lepomis cyanellus	71	2.2 - 4.6
Rock Bass*	Ambloplites rupestris	61	2.8 - 6.3
Spotfin Shiner	Cyprinella spiloptera	41	
American Eel*	Anguilla rostrata	33	
Blacknose Dace	Rhinichthys atratulus	33	
Banded Killifish	Fundulus diaphanus	25	
Swallowtail Shiner	Notropis procne	17	
Bluegill*	Lepomis macrochirus	14	2.6 - 3.9
Longnose Dace	Rhinichthys cataractae	12	
Pumpkinseed*	Lepomis gibbosus	11	2.8 - 3.1
Satinfin Shiner	Cyprinella analostana	10	
Yellow Bullhead*	Ameiurus natalis	10	3.5 - 8.7
Creek Chubsucker	Erimyzon oblongus	4	
Fathead Minnow	Pimephales promelas	2	
Golden Shiner	Notemigonus crysoleucas	2	
Creek Chub	Semotilus atromaculatus	2	
Largemouth Bass*	Micropterus salmoides	1	3.1
Comely Shiner	Notropis amoenus	1	

<sup>\*</sup> Regulated as a fishable species under current New Jersey Fish and Wildlife codes



AFS

**Tesselated Darter** 

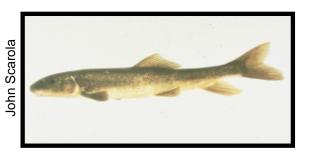
Largemouth Bass

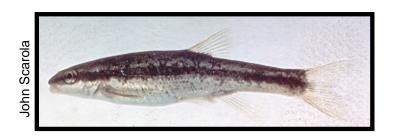




Bluegill

**Satinfin Shiner** 





**White Sucker** 

**Blacknose Dace** 



**Redbreast Sunfish** 



**Yellow Perch** 



**American Eel** 



**Creek Chub** 



Pumpkinseed



**Longnose Dace** 



Yellow Bullhead



**Spotfin Shiner** 



**Rock Bass** 



**Creek Chubsucker** 



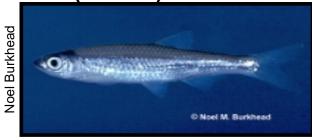
**Fathead Minnow** 



**Common Shiner** 



**Spottail Shiner** 



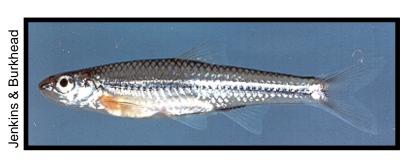
**Comely Shiner** 



**Golden Shiner** 



**Banded Killifish** 



**Swallowtail Shiner**