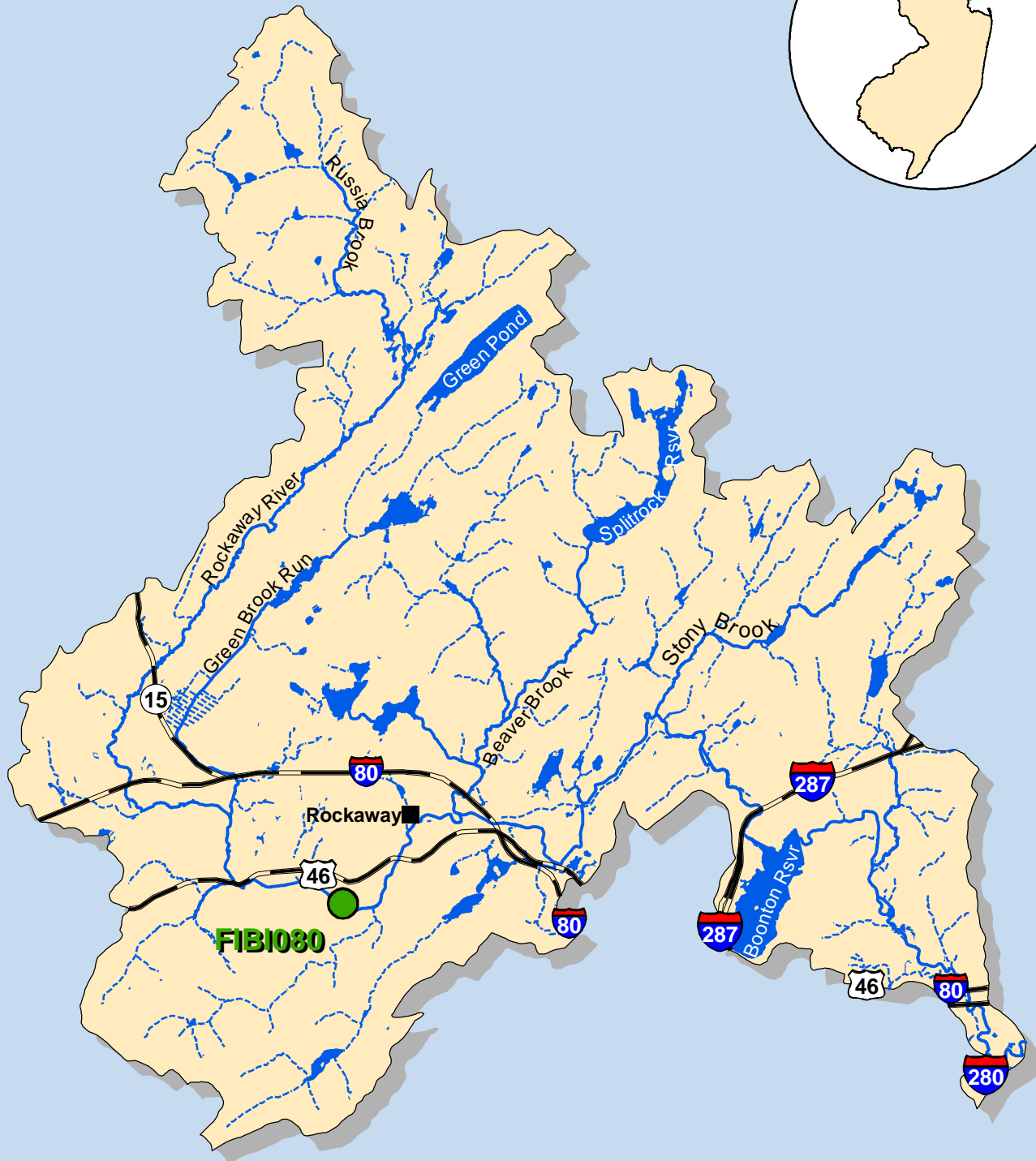
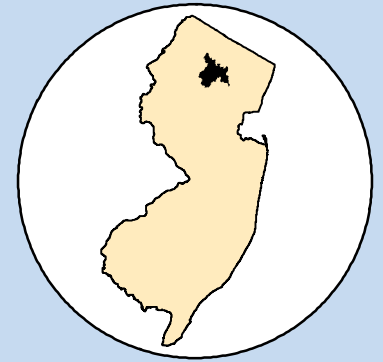





# Rockaway River - FIBI080



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



# SUMMARY OF RESULTS

## FIBI080 - Rockaway River



1. Stream Name:	Rockaway River
2. Sampling Date:	08-26-2003
3. Sampling Location:	W.Main and Blackwell St.
4. Municipality	Rockaway
5. County:	Morris
6. Watershed Management Area:	6
7. Contributing Drainage Area:	57.2 Square Miles
8. Electrofishing Gear:	Barge
9. FIBI Score and Rating:	48 - Excellent
10. Habitat Score and Rating:	145 - Suboptimal
11. Fishable Species Present:	Yes
12. Relevant AMNET <sup>1</sup> Station Data:	
Proximity of FIBI station to AMNET station:	AN0243
AMNET Rating:	Round 1 – Non-impaired Round 2 – Non-impaired Round 3 - Moderate
13. Stream Chemistries:	
Dissolved Oxygen	10.99 mg/L
Temperature.	20.5 °C
pH	8.98
Conductivity	419 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:	65%
18. Discharge:	190.7 ft. <sup>3</sup> /sec
19. Substrate:	45% Gravel and Sand, 50% Cobble, 5% Boulder
20. Habitat:	30% Riffle, 60% Run, 10% Pool
21. Snags	Yes
22. Periphyton	Moderate
23. Submerged Aquatic Vegetation	No
24. Other observations:	
25. Number of Fish Species Identified:	20
26. Total Number of Fish Collected:	324

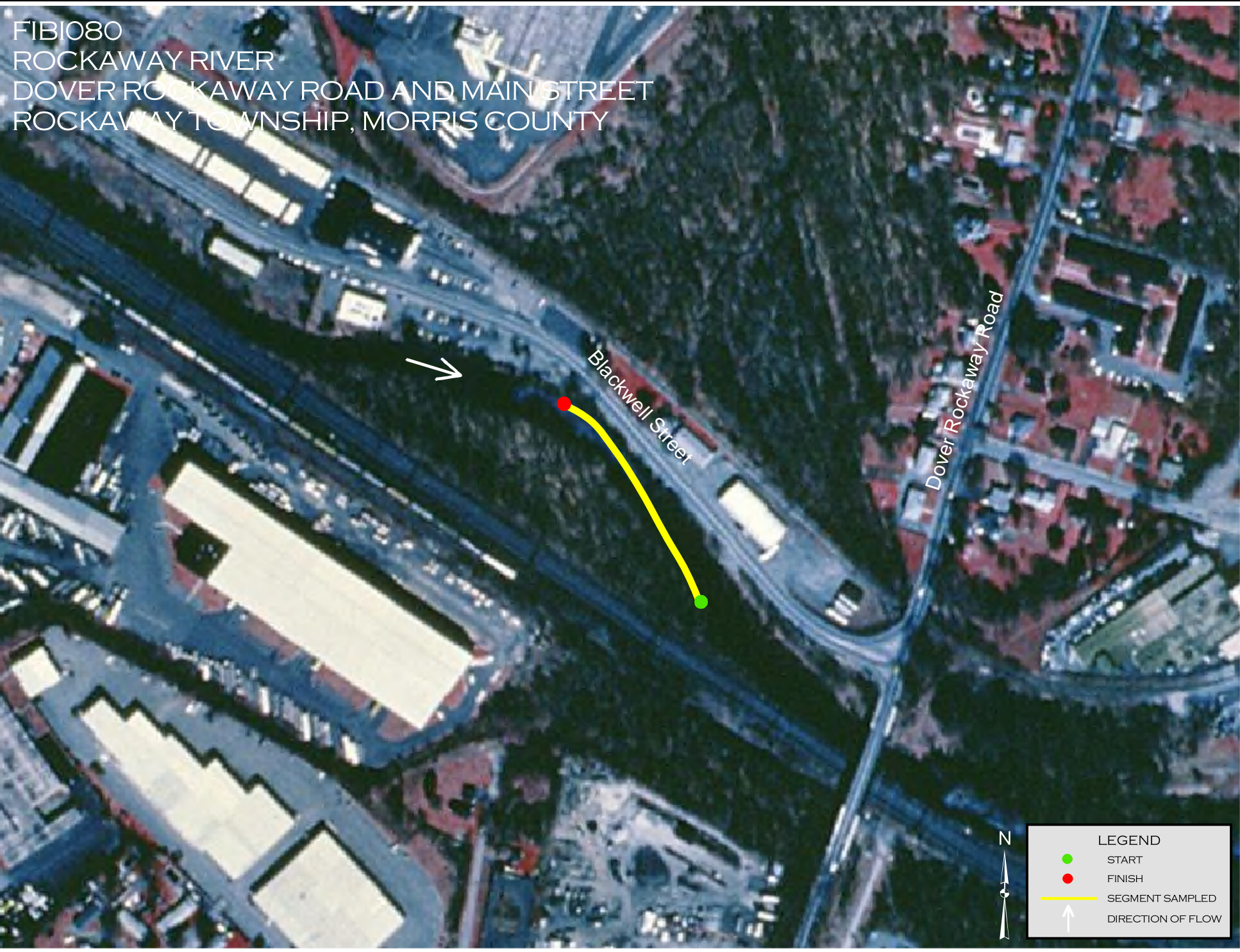
<sup>1</sup> AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.



FIBI080  
ROCKAWAY RIVER  
DOVER ROCKAWAY ROAD AND MAIN STREET  
ROCKAWAY TOWNSHIP, MORRIS COUNTY



Blackwell Street

Dover Rockaway Road



LEGEND	
	START
	FINISH
	SEGMENT SAMPLED
	DIRECTION OF FLOW

FIBI080 - Rockaway River @ W. Main & Blackwell St **Excellent** Good Fair Poor  
 Date Sampled - 8/26/2003

	<b>Score</b>
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	5
# 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 <b>Cyprinids</b> (I and BI)	5
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	<b>48</b>

**Stream Rating**

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

# HABITAT ASSESSMENT FOR *HIGH GRADIENT STREAMS* Rockaway R. (FIBI080) – 8/26/03

	Condition Category																				
	Optimal					Suboptimal					Marginal					Poor					
<b>1. Epifaunal Substrate /Available Cover</b>  <b>SCORE 14</b>	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 <u>not</u> new fall and <u>not</u> 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.					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>2. Embeddedness</b>  <b>SCORE 13</b>	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.					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>3. Velocity/Depth Regimes</b>  <b>SCORE 17</b>	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).					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>4. Sediment Deposition</b>  <b>SCORE 18</b>	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.					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>5. Channel Flow Status</b>  <b>SCORE 17</b>	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.					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>6. Channel Alteration</b>  <b>SCORE 15</b>	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.					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>7. Frequency of Riffles (or bends)</b>  <b>SCORE 10</b>	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.					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>8. Bank Stability (score each bank)</b> Note: determine left or right side by facing downstream. SCORE <u>6</u> (LB) SCORE <u>8</u> (RB)	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.					
	Left	10	9			8	7	6			5	4	3			2	1	0			
	Right	10	9			8	7	6			5	4	3			2	1	0			
<b>9. Bank Vegetative Protection (score each bank)</b>  SCORE <u>6</u> (LB) SCORE <u>9</u> (RB)	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	10	9			8	7	6			5	4	3			2	1	0			
	Right	10	9			8	7	6			5	4	3			2	1	0			
<b>10. Riparian Vegetative Zone Width (score each bank riparian zone)</b>  SCORE <u>4</u> (LB) SCORE <u>8</u> (RB)	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.					
	Left	10	9			8	7	6			5	4	3			2	1	0			
	Right	10	9			8	7	6			5	4	3			2	1	0			

HABITAT SCORE

145

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

# FIBI080 08-26-2003

Rockaway River

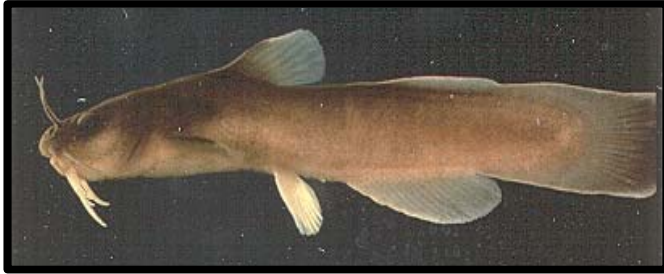
## LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Spottail shiner	<i>Notropis hudsonius</i>	81	
Tesselated darter	<i>Etheostoma olmstedii</i>	56	
Fallfish	<i>Semotilus corporalis</i>	32	
Redbreast sunfish	<i>Lepomis auritus</i>	29	1.8 - 4.5
Common shiner	<i>Luxilus cornutus</i>	27	
Bluegill sunfish	<i>Lepomis macrochirus</i>	25	3.7 - 3.9
Blacknose dace	<i>Rhinichthys atratulus</i>	24	
Chain pickerel	<i>Esox niger</i>	9	2.6 - 5.7
American brook lamprey	<i>Lampetra appendix</i>	8	
White sucker	<i>Catostomus commersoni</i>	6	
Brown trout	<i>Salmo trutta</i>	6	6.3 - 11.0
Pumpkinseed sunfish	<i>Lepomis gibbosus</i>	5	3.1
Smallmouth bass	<i>Micropterus dolomieu</i>	4	1.8 - 9.6
Margined madtom	<i>Noturus insignis</i>	4	
Yellow bullhead	<i>Ameiurus natalis</i>	2	3.3 - 3.5
Golden shiner	<i>Notemigonus crysoleucas</i>	2	
Redfin pickerel	<i>Esox americanus americanus</i>	1	5.7
Brook trout	<i>Salvelinus fontinalis</i>	1	10.6
Rock bass	<i>Ambloplites rupestris</i>	1	7.1
Brown bullhead	<i>Ameiurus nebulosus</i>	1	3.3

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

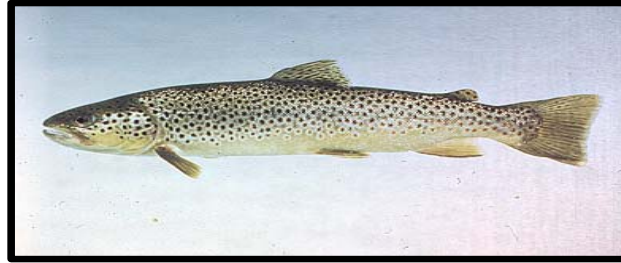
**Species Identified at Rockaway River (FIBI080)**  
(Not to Scale)

Schute



**Margined Madtom**

John Scarola



**Brown Trout**

John Scarola



**White Sucker**

Jenkins & Burkhead



**Redfin Pickerel**

John Scarola



**Bluegill**

John Scarola



**Blacknose Dace**

**Species Identified at Rockaway River (FIBI080)**  
(Not to Scale)

John Scarola



**Redbreast Sunfish**

John Scarola



**Yellow Bullhead**

John Scarola



**Pumpkinseed**

John Scarola



**Golden Shiner**

John Scarola



**Tessellated Darter**

Don Beimborn



**Brook Trout**



**Species Identified at Rockaway River (FIBI080)**  
(Not to Scale)

John Scarola



**Common Shiner**

John Scarola



**Brown Bullhead**

Konrad Schmidt



**Spottail Shiner**

John Scarola



**Chain Pickerel**

John Scarola



**Fallfish**

**Species Identified at Rockaway River (FIBI080)**  
(Not to Scale)

John Scarola



**Smallmouth Bass**

John Scarola



**Rock Bass**

Konrad Schmidt



**American Brook Lamprey**