

Aqua Survey, Inc.

**Taxonomic Identification of Benthic Invertebrates
from
Sediment Collected
In the Lower 17 Miles
Of the Lower Passaic River
In Support of the Lower Passaic Restoration Project
For
NJDOT/OMR**

**Earth Tech, Inc.
300 Broad Acres Drive
Bloomfield, NJ 07003**

September 9, 2005

ASI Job #: 25-068

*469 Point Breeze Road
Flemington, NJ 08822*

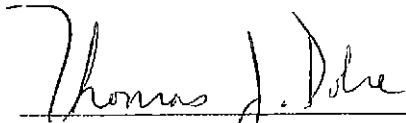
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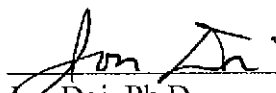
SIGNATURE PAGE

**Taxonomic Identification of Benthic Invertebrates from
Sediment Collected in the Lower 17 Miles of the Lower Passaic River In Support of the
Lower Passaic Restoration Project for NJDOT/OMR.**

This report, as well as all records and raw data were audited and found to be an accurate reflection of the study. Copies of raw data will be maintained by Aqua Survey, Inc., 469 Point Breeze Road, Flemington, New Jersey, 08822.


Thomas J. Dolce
Laboratory Manager

9/9/05
Date


Jon Doi, Ph.D
Executive Vice President

9-9-05
Date

SUMMARY

Twenty-eight samples of benthic invertebrate fauna were collected by Aqua Survey, Inc. personnel on June 30 and July 1, 2005 and were received by Aqua Survey on those same days. Samples were collected at approximately 25% of the sites where SPI data was collected and evenly distributed throughout the lower 17 miles of the Passaic River. Samples were preserved with 20% formalin in the field. Samples were rinsed with tap water and sieved through a 500- μ m sieve to remove the formalin and debris prior to picking. Benthic samples were completely picked to remove all invertebrates from the substrate and the organisms were stored in individual containers with 70% methanol until keyed. The organisms were then subsampled for approximately 100 organisms, counted and keyed to the lowest practical taxon (family, in most cases). Organism abundance ranged from 5 to 967 organisms.

This report contains a summary of the methodologies employed, the taxonomic references used and a complete inventory of the samples keyed. A table containing taxa richness and dominance index is included to aid in interpretation of the data.

Taxonomic Identification of Benthic Invertebrates

1. Objective

The objective of this study was to isolate and identify to lowest practical taxon the organisms in samples of benthic substrate collected from the lower 17 miles of the Passaic River in New Jersey.

2. Sample Information

Location: Lower 17 miles of the Passaic River, NJ

<u>Site Name</u>	<u>Sample ID #</u>
B-1	20050788
B-2	20050789
B-3	20050790
B-4	20050791
B-5	20050792
B-6	20050793
B-7	20050794
B-8	20050795
B-9	20050796
B-10	20050797
B-11	20050798
B-12	20050799
B-13	20050800
B-14	20050801
B-15	20050802
B-16	20050803
B-17	20050804
B-17A	20050805
B-18	20050806
B-19	20050807
B-20	20050808
B-21	20050809
B-22	20050810
B-23	20050811
B-24	20050812
B-25	20050813
B-26	20050814
B-27	20050815

Samples Received at ASI: June 30 & July 1, 2005

3. Methodology

3.1 Sample Preparation

Samples were preserved in the field with 20% formalin. At the laboratory samples were sieved to remove excess substrate and formalin and then sorted by hand to remove all invertebrates from the substrate. This was achieved by placing small amounts of sample carefully into a glass tray and placing a light table underneath it to clearly find any organisms. Any organisms found were placed into a labeled sample vial with clean 70% methanol. Samples were completely picked of all recognizable organisms.

Since the entire sample could not be subsampled effectively due to volume variation, the organisms were subsampled for identification purposes. Using the 100 count method (from Rapid Bioassessment Protocols for Use in Streams and Rivers; Benthic Microinvertebrates), the entire vial was emptied into a glass dish with 15 five cm by five cm grid marks on the bottom. The dish was shaken lightly to evenly distribute the organisms. Then using a random number chart (derived from a computer program), grids were selected, and all the organisms from that grid were removed until 100 organisms ($\pm 10\%$) were picked. More than one grid was used if needed to achieve 100 organisms. These subsampled organisms were placed in another vial (labeled as above, plus the descriptor "ID'd").

3.2 Taxonomy

Organisms were sorted by taxon and keyed to the lowest practical taxon using one or more of the following keys:

Bode, Robert W., Novak, Margaret A., Abele, Lawrence E., 1990. Biological Impairment Criteria for Flowing Waters in New York State. New York State Department of Environmental Conservation, Albany, NY.

Peckarsky, B.L., P.R. Fraissinet, M.A. Penton and D.J. Conklin, Jr., 1990 Freshwater Invertebrates of Northeastern North America. Cornell University Press, Ithaca, NY.

Pennak, Robert W., 1978 Freshwater Invertebrates of the United States, 2nd ed., John Wiley & Sons, Inc., New York, NY.

Smith, Robert Leo, 1990. Ecology and Field Biology. Harper Collins Publishing, New York, New York.

Merritt and Cummins, 1984. An Introduction to the Aquatic Insects of North America. Kendall/Hunt Publishing Company, Dubuque, Iowa.

USEPA Rapid Bioassessment Protocol (EPA 444/4-89/001).

The number of each taxa found in each sample was noted on a bench sheet.

3.3 Sample Storage

All organisms were stored in separately labeled vials filled with clean 70% methanol. The samples will be archived at Aqua Survey, Inc. for a maximum of five years, after which the samples will be returned to the client or properly disposed.

3.4 Data Analysis

The total number of organisms present and the number of taxa are presented.

The percent contribution of the dominant taxon was calculated by dividing the number of organisms in the most abundant taxon by the total number of organisms identified. No further analysis was conducted.

3.5 Quality Assurance

All samples were clearly marked with a sample number and client job number on arrival at Aqua Survey. These numbers serve as a tracking number for the sample throughout the processing. Taxonomic and enumeration data for each sample was recorded on a separate bench sheet, on which the sample and client job number, were clearly marked. Each vial was also marked with the sample/client number. Data was transferred from the raw data into a spreadsheet. Data was carefully cross-checked to guard against transcription errors.

For quality control, three samples were repeated for identification. The subsamples were reconstituted with the original organisms and then another 100 ($\pm 10\%$) organism subsample was picked and identified.

4. Results

Table 1 lists the identifications and numbers of each taxon found at the various locations. Table 2 shows the data analysis.

Table 1

Passaic River Restoration Project

ASI Job # 25-068

		TAXON				Sample ID			
Class	Order	Family	Genus	B1	B2	B3	B4		
Crustacea	Amphipoda	Gammaridae	<i>Gammarus</i> sp.	29	20050789	20050790	20050791		
	Isopoda	Idoteidae	<i>Chiridotea</i> sp.			1			
Polychaeta	Spionida	Spionidae	<i>Marenzelleria</i> (= <i>Scolecoplepides</i>) <i>viridis</i>			2	1		
Oligochaeta	Haplotaenida	Naididae		86	103	91	111		
Total # of Organisms in Sample				630	320	569	330		
Total # of Organisms Identified				115	103	113	113		

Table 1 continued

Passaic River Restoration Project

ASI Job # 25-068

		TAXON				Sample ID			
Class	Order	Family	Genus	B5 20050792	B6 20050793	B7 20050794	B8 20050795		
Bivalvia (juv.)				1*					
	Veneroidea	Sphaeriidae			7				
Crustacea	Amphipoda	Gammaridae	<i>Gammarus</i> sp.	9	2	7	1		
	Isopoda	Idoteidae	<i>Idotea phosphorea</i>	4					
		Cyathuridae	<i>Cyathura polita</i>		1		2		
	Mysidacea				1	2	13		
	Cumacea				1		3		
Polychaeta	Phyllodocta	Nereidae	<i>Nereis succinea</i>				1		
		Glyceridae	<i>Glycera</i> sp.			1			
	Spionida	Spionidae	<i>Marenzelleria</i> (= <i>Scolecoplepides</i>) <i>viridis</i>		3	15	6		
	Terebellida	Ampharetidae	<i>Polydora</i> sp.				3		
			<i>Hobsonia florida</i> (= <i>Hypaniola grayi</i>)	3			1		
Oligochaeta	Haplotaxida	Naididae		81	112	22	27		
Total # of Organisms in Sample				412	967	47	57		
Total # of Organisms Identified				98	127	47	57		

* Damaged

Table 1 continued

Passaic River Restoration Project

ASI Job # 25-068

Class	Order	Family	Genus	TAXON										
				B13 20050800	B14 20050801	B15 20050802	B16 20050803	Sample ID						
Bivalvia (juv.)	Veneroidea	Macrtridae	<i>Mulinia lateralis</i>											
		Sphaeriidae		12	9									
Crustacea	Decapoda	Crangonidae	<i>Crangon septemspinosa</i>	1	1									
	Isopoda	Cyathuridae	<i>Cyathura polita</i>	5	6									
	Mysidacea				8									
	Cumacea													
Polychaeta	Phyllodocida	Nereidae	<i>Nereis succinea</i>	8		1								
	Spionida	Spionidae	<i>Maranzelleria (=Scolecolepides) viridis</i>	55	6									
			<i>Polydora</i> sp.											
			<i>Streblospio benedicti</i>	3	4	2								17
	Capitellida	Capitellidae		14	11									
	Opheliida	Opheliidae	<i>Travisia carnea</i>			2								
	Orbiniida	Orbiniidae	<i>Scoloplos</i> sp.			38								7
Oligochaeta	Haplotaxida	Naididae			49	3								6
Total # of Organisms in Sample				98	94	46								35
Total # of Organisms Identified				98	94	46								35

Table 1 continued

Passaic River Restoration Project

ASI Job # 25-068

Class	TAXON				Sample ID			
	Order	Family	Genus	B17 20050804	B17A 20050805	B18 20050806	B19 20050807	
Bivalvia (juv.)	Veneroidea	Sphaeriidae				1		
Coelenterata	Hydroidea	Hydridae	<i>Hydra</i> sp.			21		
Crustacea	Amphipoda	Gammaridae	<i>Gammarus</i> sp.	2	35	12	28	
	Isopoda	Asellidae	<i>Asellus</i> sp.		1	2	4	
Insecta	Diptera	(pupae)			1	2		
		Chironomidae		56	42	28	78	
		Culicidae*		3				
Polychaeta	Sabellida	Sabellidae	<i>Manayunkia spectiosa</i>			1		
Hirudinea	Rhynchobdellida	Glossiphoniidae	<i>Placobdella</i> sp.			3	1	
Oligochaeta	Haplotaxida	Naididae			27	6	16	
Total # of Organisms in Sample				61	106	76	127	
Total # of Organisms Identified				61	106	76	632	

* pupae

Table 1 continued

Passaic River Restoration Project

ASI Job # 25-068

		TAXON				Sample ID		
Class	Order	Family	Genus	B20 20050808	B21 20050809	B22 20050810	B23 20050811	
Bivalvia	Veneroida	Sphaeriidae	<i>Sphaerium</i>		2			
Crustacea	Amphipoda	Gammaridae	<i>Gammarus</i> sp.		33		15	
Insecta	Diptera	Chironomidae		37	43	23	6	
Hirudinea	Rhynchobdellida	Glossiphoniidae	<i>Placobdella</i>			1		
Oligochaeta	Haplotaxida	Naididae		58	38	78	75	
Total # of Organisms in Sample				599	116	102	414	
Total # of Organisms Identified				95	116	102	96	

Table 1 continued

Passaic River Restoration Project

ASI Job # 25-068

Class	TAXON				Sample ID			
	Order	Family	Genus	B24 20050812	B25 20050813	B26 20050814	B27 20050815	
Bivalvia (juv.)	Veneroidea	Sphaeriidae	<i>Pisidium</i> sp.		1		2	
Crustacea	Amphipoda	Gammaridae	<i>Gammarus</i> sp.	11	79	27	2	
	Isopoda	Cyathuridae	<i>Cyathura polita</i>	2			1	
Polychaeta	Terebellida	Amparetidae	<i>Hobsonia florida</i> (= <i>Hypaniola grayi</i>)				5	
	Spionida	Spionidae	<i>Marenzelleria</i> (= <i>Scolecoplepides viridis</i>)				1	
	Opheliida	Opheliidae	<i>Ophelia</i> sp.				3	
Insecta	Diptera	Chironomidae		2			11	
Oligochaeta	Haplotaenida	Naididae		94	58	72	81	
Total # of Organisms in Sample				532	138	362	106	
Total # of Organisms Identified				109	138	99	106	

Table 2

Passaic River Restoration Project

ASI Job # 25 - 068

Metric	B-1 20050788	B-2 20050789	B-3 20050790	B-4 20050791	B-5 20050792	B-6 20050793	B-7 20050794	B-8 20050795
Total Number of Organisms	630	320	569	330	412	967	47	57
Total Number Identified	115	103	113	113	98	127	47	57
Taxa Richness	2	1	4	3	5	7	5	9
% Contribution Dominant Taxa	74.8	100.0	80.5	98.2	82.7	88.2	46.8	47.4

Metric	B-9 20050796	B-10 20050797	B-11 20050798	B-12 20050799	B-13 20050800	B-14 20050801	B-15 20050802	B-16 20050803
Total Number of Organisms	131	80	616	5	98	94	46	35
Total Number Identified	131	80	113	5	98	94	46	35
Taxa Richness	8	6	10	3	7	8	5	7
% Contribution Dominant Taxa	62.6	41.3	63.7	60.0	56.1	52.1	82.6	48.6

Metric	B-17 20050804	B-17A 20050805	B-18 20050806	B-19 20050807	B-20 20050808	B-21 20050809	B-22 20050810	B-23 20050811
Total Number of Organisms	61	106	76	632	599	116	102	414
Total Number Identified	61	106	76	127	95	116	102	96
Taxa Richness	3	5	9	5	2	4	3	3
% Contribution Dominant Taxa	91.8	39.6	36.8	61.4	61.1	37.1	76.5	78.1

Metric	B-24 20050812	B-25 20050813	B-26 20050814	B-27 20050815	B-30A 20050790	B-50A 20050792	B-24QA 20050812
Total Number of Organisms	532	138	362	106	569	412	532
Total Number Identified	109	138	99	106	103	111	116
Taxa Richness	4	3	2	8	3	7	4
% Contribution Dominant Taxa	86.2	57.2	72.7	76.4	68.9	81.1	91.4

Table 3

Passaic River Restoration Project
ASI Job #25-068
Sample Coordinates

Location	Easting	Northing
B-1	587707.65	706282.87
B-2	586688.97	703953.83
B-3	585339.64	701652.90
B-4	585055.27	699044.14
B-5	584892.18	696469.57
B-6	585447.75	693931.90
B-7	587394.97	692484.06
B-8	590055.38	692463.66
B-9	591535.75	694813.95
B-10	594142.64	695162.94
B-11	596278.56	695264.89
B-12	598131.33	693533.17
B-13	598145.77	690895.84
B-14	597485.09	688681.93
B-15	596595.33	685803.46
B-16	597395.01	683244.64
B-17	599586.92	740712.85
B-17a	600271.05	740076.53
B-18	599642.55	736695.94
B-19	597359.77	736221.42
B-20	596142.36	731236.64
B-21	596649.25	726184.62
B-22	592892.47	723101.85
B-23	591875.31	718088.62
B-24	592003.52	715606.18
B-25	590763.11	713245.86
B-26	589240.17	708421.77
B-27	589612.47	710996.48

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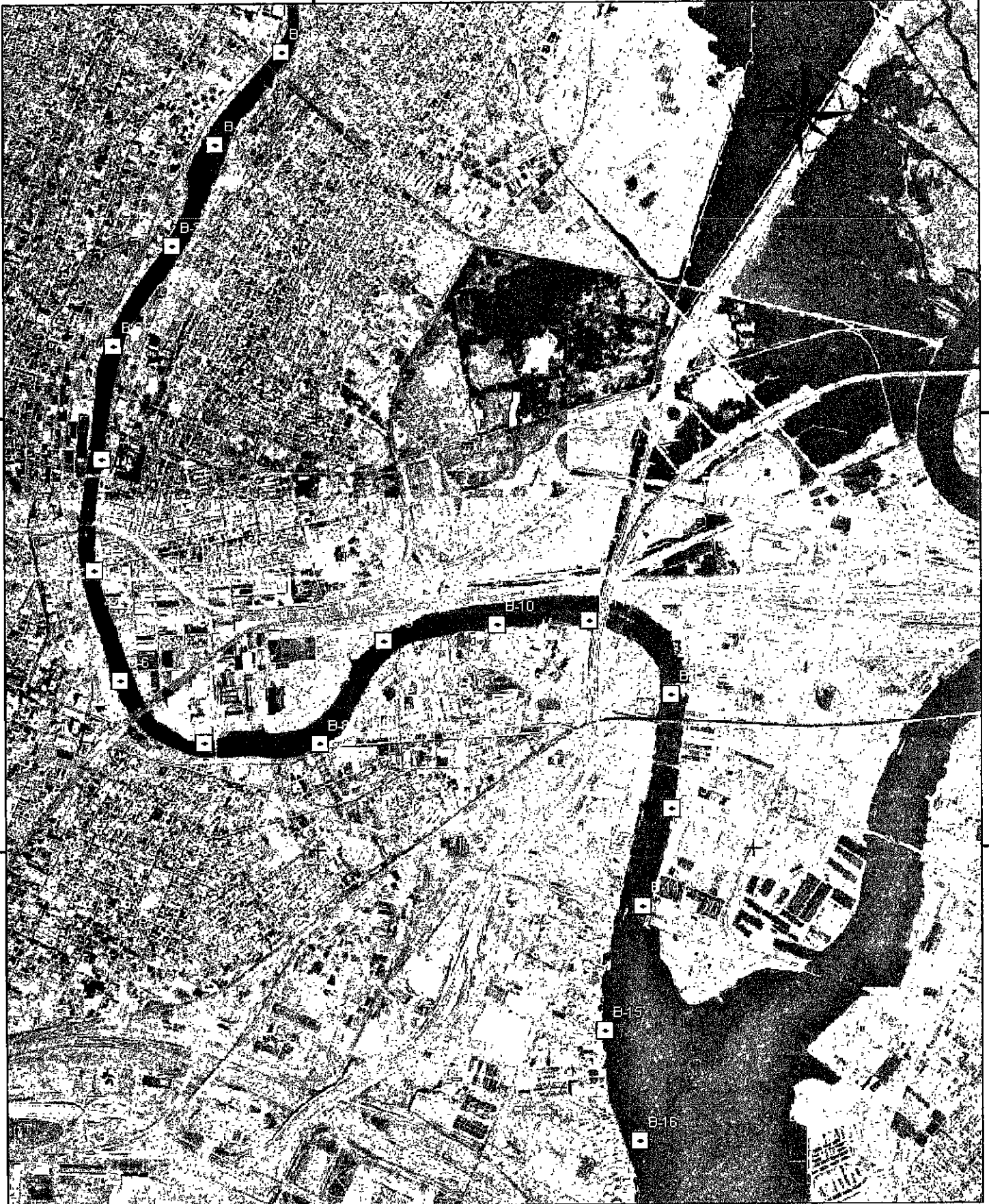
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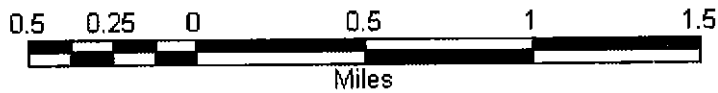
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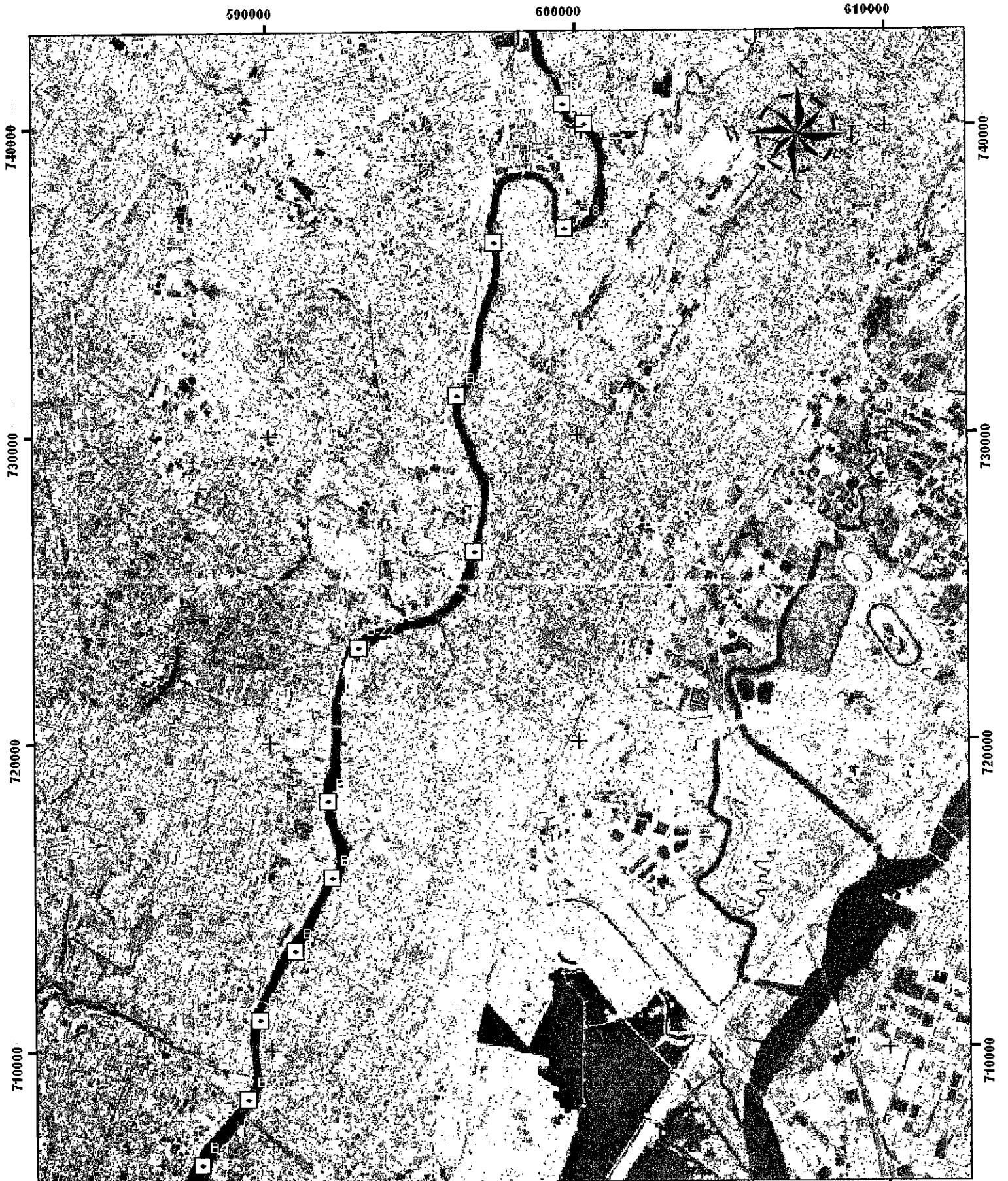


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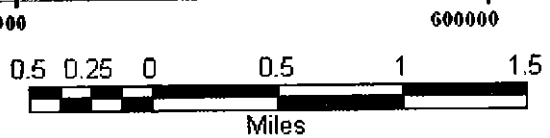
Lower Passaic River

Benthic Community

Sampling Locations



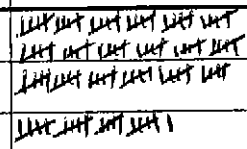
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 469 Point Breeze Rd.
 Flemington, NJ 08822



Lower Passaic River
 Benthic Community 18
 Sampling Locations

APPENDIX

Client: 25-068 PPP	Sample ID: B4	Sample #: 200507911
Location:	Date of Sampling: 6/30/05	Page 1 of 1
Taxonomy by: Chris Dyk		Date: 8/16/05

Class	Order	Family	Genus	# of organisms	Total
Oligochaeta	Hydrotestida	Naididae			11
Crustacea	Amphipoda	Gammaridae	Gammarus	1	1
Polychaeta		Spionidae	M. viridis ①	1	1

113

Notes: ① = *Monzonellaria (= Scoloculepides) viridis* Total in sample: 330

Client: 25-068 PRP	Sample ID: B6	Sample #: 2050793
Location:	Date of Sampling: 6/20/05	Page 1 of 1
Taxonomy by: Chris Doyle		Date: 8/24/05

Class	Order	Family	Genus	# of organisms	Total
Bivalvia		Sphaeriidae Sphaeriidae		11	7
Crustacea	Mysidacea			1	1
	Amphipoda	Gammaridae	Gammarus	11	2
	Copepoda			1	1
	Isopoda	Cyathidae	Cyathura plicata	1	1
Oligochaeta	Haplousida	Naididae		112	112
Polychaeta		Spionidae	M. viridis	111	3

127

Notes: ① Mistake CD Total in sample: 967



Client: 25-068 PRP	Sample ID: B7	Sample #: 200507941
Location:	Date of Sampling: 6/27/05	Page 1 of 1
Taxonomy by: <i>Chin Doyle</i>		Date: 8/21/05

Class	Order	Family	Genus	# of organisms	Total
Oligochaeta	Haplousida	Naididae			22
Polychaeta		Spionidae	M. viridus		15
		Glyceridae	Glycer sp.		1
Copepoda	Amphipoda	Commuinidae	Commuin		7
	Myxideacea				2
Annelid Pieces					

(47)

Entire sample ID'd

Notes: _____



Client: 25-068 PFP	Sample ID: B8	Sample #: 20050795
Location:	Date of Sampling: 6/22/05	Page 1 of 1
Taxonomy by: Claire Dyle		Date: 8/24/05

Class	Order	Family	Genus	# of organisms	Total
Oligochaeta	Haplotoxida	Naididae			27
Polychaeta		Nereididae	Nereis succinea	1	1
		Spionidae	Polydora sp.		3
			M. viridis		6
		Amphelidae		1	1
Crustacea	Isopoda	Cytheridae	Cythera polita		2
	Aysidae				13
	Amphipoda	Gammaridae	Gammarus	1	1
	Cumacea				3
Annelid Pore					

(57)

Entire Sample JD'd

Notes: _____



Client: 25-068 PRP	Sample ID: B9	Sample #: 20050796
Location:	Date of Sampling: 6/30/05	Page 1 of 1
Taxonomy by: Chris Dyle		Date: 8/24/05

Class	Order	Family	Genus	# of organisms	Total
Bivalve (juv)		Sphaeriidae			13
Crustacea	Isopoda	Cyathidae	Cyathura polita		3
	Cumacea				20
	Mysidacea				8
Polycheta		Spiroidae	Streblospio benedicti		1
			M. viridis		3
			Polydora sp.		1
Oligochaeta					82
Annelid Picee					

131

Entire sample ID'd

Notes: _____



Client: 25-068 PRP	Sample ID: B10	Sample #: 20050797
Location:	Date of Sampling: 6/30/05	Page 1 of 1
Taxonomy by: Chris Doyle		Date: 8/24/05

Class	Order	Family	Genus	# of organisms	Total
Rivulina (juv)		Sphaeriidae			10
Crustacea	Isopoda	Cyathoidea	Cyathura polita		2
	Mysidacea				22
	Amphipoda	Gammaridae	Gammarus sp.		4
Polycheeta		Sphaeriidae	M. vicinus		9
Oligochaeta					33
Mysidacea Pieces					
Annelid Pieces					

80

Entire sample ID'd

Notes: _____

Client: 25-068 PRP	Sample ID: B13	Sample #: 200508001
Location:	Date of Sampling: 6/20/05	Page 1 of 1
Taxonomy by: <i>Christa Doyle</i>		Date: 8/25/05

Class	Order	Family	Genus	# of organisms	Total
		Sphaeriidae			12
Crustacea	Isopoda	Cyathroidea	<i>Cyathura pilifera</i>		5
	Decapoda	Campanulidae	<i>Campanula septemspinosa</i>		1
Polychaeta		Nereididae	<i>Nereis succinea</i>		5
		Spiracidae	<i>M. viridis</i>		55
			<i>Streblospio benedicti</i>		3
		Cirratulidae			14
Annelid Pieces					11

98 /

① Total in sample = 219

Notes: _____

① Mistake CD Entire sample ID'd.
 Many Annelid pieces in sample

Client: 25-068 PRP	Sample ID: B14	Sample #: 20508011
Location:	Date of Sampling: 6/3/05	Page 1 of 1
Taxonomy by: <i>Cheri Dyer</i>		Date: 8/25/05

Class	Order	Family	Genus	# of organisms	Total
Bivalvia (juv)		Sphaeridae			9
Crustacea	Isopoda	Cyathuridae	Cyathura plicata		6
	Mysidacea				8
	Decapoda	Crangonidae	Crangon septempinnatus	1	1
Polychaeta		Spiranidae	Streblospio benedicti		4
			M. viridis		6
		Cephalellidae			11
Oligochaeta	Haplaxida	Naididae		 	49
Annelid Pieces					

94

Entire sample ID'd

Notes: _____



Client: 25-068 PRP	Sample ID: B16	Sample #: 20050803
Location:	Date of Sampling: 6/30/05	Page 1 of 1
Taxonomy by: Chris Doyle		Date: 8/25/05

Class	Order	Family	Genus	# of organisms	Total
Bivalvia		Anatridae	Mulinia lateralis	1	1
Crustacea	Decapoda	Cragidae	Crago septempinnata	1	1
	Mysidacea			11	2
	Cumacea			1	1
Polychaeta		Orbinidae	Scoloplos sp.		7
		Spionidae	Streblospio benedicti		17
Oligochaeta	Haplousiida	Naididae			6
Annelid Pöcc					

Entire sample ID'd

Notes: _____

Client: 25-068 PRP	Sample ID: B17A	Sample #: 20050805
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: Chris Doyle		Date: 8/25/05

Class	Order	Family	Genus	# of organisms	Total
Crustacea	Amphipoda	Gammaridae	Gammarus sp.		35
	Isopoda	Asellidae	Asellus sp.	1	
Insecta	Diptera	Chironomidae			42
	Diptera	Pupae		1	
Oligochaeta	Haplortixida	Naididae			27
Annelid Piece				1	

1061

Entire sample ID'd

Notes: _____

Client: 25-068 PRP	Sample ID: B18	Sample #: 20050806
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: <i>Chia Dyle</i>		Date: 8/25/05

Class	Order	Family	Genus	# of organisms	Total
B. velvia (juv)		sphaeriidae		1	1
Coelenterata	Hydroida	Hydridae	Hydra sp.		21
Crustacea	Amphipoda	Gammaridae	Gammarus sp.		12
	Isopoda	Asellidae	Asellus sp.		2
Polychaeta		Sebellidae ^①	Manyunkia speciosa	1	1
Hirudinea	Rhynchobdellida	Glossiphoniidae	Placobdella		3
Insecta	Diptera	Chironomidae			28
	Diptera	pupae			2
Oligochaeta					6
Amelid Pieces					

76

Notes: ① Freshwater Polychaete! Entire Sample ID'd



Client: 25-068 PRP	Sample ID: B19	Sample #: 20050107
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: <i>Cheri Doyle</i>		Date: 8/26/05

Class	Order	Family	Genus	# of organisms	Total
Crustacea	Amphipoda	Gammaridae	Gammarus sp.		28
	Isopoda	Asellidae	Asellus		4
Oligocheta	Haplosetidae	Naididae			16
					16
Insecta	Diptera	Chironomidae			78
Hydradinea	Rhyacabdellicida	Glossiphoniidae	Plecoabdella	1	1

127

Total in sample: 632

Notes: _____



Client: 25-068 PRP	Sample ID: B21	Sample #: 20050809
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: Chris Doyle	Date: 8/26/05	

Class	Order	Family	Genus	# of organisms	Total
Bivalvia		Sphaeriidae	Sphaerium	11	2
Crustacea	Amphipoda	Gammaridae	Gammarus sp.		33
Insecta	Diptera	Chironomidae			43
Oligochaeta	Hoploteuxida	Naididae			38
Annelid piece					

116

Entire sample ID'd

Notes: _____



Client: 25-068 PRP	Sample ID: B22	Sample #: 20050810
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: Chris Dwyer		Date: 8/26/05

Class	Order	Family	Genus	# of organisms	Total
Oligochaeta	Heptotaxida	Naididae			78
Insecta	Diptera	Chironomidae			23
Hydradinea	Rhynchobdellida	Glossiphoniidae	Plecoabdella	1	1
Annelid pieces					

102

Entire sample ID'd

Notes: _____



Client: 25-068 PRP	Sample ID: B23	Sample #: 20050811
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: <i>Cheri Doyle</i>		Date: 8/26/05

Class	Order	Family	Genus	# of organisms	Total
Crustacea	Amphipoda	Gammaridae	Gammarus sp.		15
Insecta	Diptera	Chironomidae			6
Oligochaeta	Haplotoxida	Naididae		 	75
Annelid (Pieces)					

Total in sample: 414

Notes: _____



Client: 25-068 PRP	Sample ID: 324	Sample #: 2050812
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: Chris Doyle		Date: 8/26/05

Class	Order	Family	Genus	# of organisms	Total
Crustacea	Amphipoda	Gammaridae	Gammarus sp.	11	11
	Tropidocopa	Cyathuridae	Cyathura polita	2	2
Insecta	Diptera	Chironomidae		2	2
Oligochaeta	Haplotaenidae	Naididae		94	94

Total in sample: 532

Notes: _____



3

Client: 25-068 PRP	Sample ID: B25	Sample #: 20050812
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: Chris Doyle	Date: 8/26/05	

Class	Order	Family	Genus	# of organisms	Total
Bivalvia (juv.)	Veneroida	Sphaeriidae	Pisidium	1	1
Crustacea	Amphipoda	Gammaridae	Gammarus sp.	 	79
Oligochaeta	Hoplodorida	Naididae		 	58
Annelid piece					

138

Entire Sample ID'd

Notes: _____



14

Client: 25-068 PRP	Sample ID: 326	Sample #: 2005 08/13
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: Chris Doyle		Date: 8/29/05

Class	Order	Family	Genus	# of organisms	Total
Crustacea	Amphipoda	Gammaridae	Gammarus sp.		27
Oligochaeta	Heptelocida	Naididae		 	72

1

99

Total in sample: 362

Notes: _____

Client: 25-068 PRP	Sample ID: B3 - QA	Sample #: 20050790
Location:	Date of Sampling: 6/30/05	Page 1 of 1
Taxonomy by: Chris Doyle		Date: 8/29/05

Class	Order	Family	Genus	# of organisms	Total
Crustacea	Amphipoda	Gammaridae	Gammarus sp.		27
Polychoeta	Spionida	Spionidae	M. v. r. dis		5
Oligochaeta	Aphelodesmida	Naididae		 	71

103

Total in sample: 569

 Notes: _____

Client: 25-068 PRP	Sample ID: 35-QA	Sample #: 20050792
Location:	Date of Sampling: 6/30/05	Page 1 of 1
Taxonomy by: Chris Ryker	Date: 8/24/05	

Class	Order	Family	Genus	# of organisms	Total
Crustacea	Amphipoda	Gammaridae	Gammarus sp.		11
	Isopoda	Cytheridae	Cythera psilota		1
		Idoteidae	Idotea phosporus		1
Polychaeta	Terebellida	Amphictidae	Hobsonia floridan		4
	Spionida	Spionidae	A. v. edis		2
	Cirratellida	Cirratellidae			2
Oligochaeta	Hoplotoxida	Naididae		 	90

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Notes: Note: Many Oligochaete fragments in sample. Total in sample: 412

Client: 25-068 PRP	Sample ID: 324-QA	Sample #: 2005 0812
Location:	Date of Sampling: 7/1/05	Page 1 of 1
Taxonomy by: Chris Dugli		Date: 8/29/05

Class	Order	Family	Genus	# of organisms	Total
Crustacea	Amphipoda	Gammaridae	Gammarus sp.	III	8
	Isopoda	Cyathidae	Cyathia polita		1
Insecta	Diptera	Chironomidae			1
Oligochaeta	Haplousiidae	Naididae			106

116

Total in sample: 532

Notes: _____

25-068

CHAIN OF CUSTODY RECORD

FACILITY/LOCATION: <i>Lower Passaic River Restoration Project</i>	METHOD OF SHIPMENT: <i>Allied Biological</i> TO FROM <i>Truck</i>
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SAMPLING AND ANALYSES AUTHORIZED BY: <i>NSDOT</i>	DATE: <i>7/25/05</i>
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SAMPLE #	SAMPLING LOCATION AND DESCRIPTION	DATE	TIME	SAMPLE TYPE			# OF CONT.	ANALYSES REQUIRED
				C	G	SOLID		
20050788	B1	6/30/05	—	/		Benthic	1	~630
20050789	B2	6/30/05	—	/			1	~320
20050790	B3	6/30/05	—	/			1	~569
20050791	B4	6/30/05	—	/			1	~330
20050792	B5	6/30/05	—	/			1	~412
20050793	B6	6/30/05	—	/			1	~967
20050794	B7	6/30/05	—	/			1	~90
20050795	B8	6/30/05	—	/			1	~98
20050796	B9	6/30/05	—	/			1	~187

SAMPLE COLLECTED BY: <i>AST</i>	EXACT SAMPLING LOCATION: <i>Lower Passaic River</i>
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SAMPLE RELINQUISHED BY: <i>Jeff Clem</i>	SAMPLE RECEIVED BY: <i>Cheri Dyle</i>	DATE <i>7/25/05</i>	TIME <i>1720hrs</i>
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SAMPLE RELINQUISHED BY:	SAMPLE RECEIVED BY:	DATE	TIME
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SAMPLE RELINQUISHED BY:	SAMPLE RECEIVED BY:	DATE	TIME
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SAMPLE RELINQUISHED BY:	SAMPLE RECEIVED BY:	DATE	TIME
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SAMPLE RELINQUISHED AFTER ANALYSES:	ANALYZED SAMPLE RECEIVED BY:	DATE	TIME
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SAMPLE DESCRIPTION:	# OF CONTAINERS:
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25-068
CHAIN OF CUSTODY RECORD

FACILITY/LOCATION: <i>Lower Passaic River Restoration Project</i>				METHOD OF SHIPMENT: <i>Allied Biological Truck</i>					
SAMPLING AND ANALYSES AUTHORIZED BY: <i>NTDOT</i>						DATE: <i>7/25/05</i>			
SAMPLE #	SAMPLING LOCATION AND DESCRIPTION	DATE	TIME	SAMPLE TYPE			# OF CONT.	ANALYSES REQUIRED	
				C	G	SOLID			
<i>20050797</i>	<i>B10</i>	<i>6/30/05</i>	<i>-</i>		<i>/</i>	<i>Benthic</i>	<i>1</i>	<i>~172</i>	
<i>20050798</i>	<i>B11</i>	<i>6/30/05</i>	<i>-</i>		<i>/</i>		<i>1</i>	<i>~616</i>	
<i>20050799</i>	<i>B12</i>	<i>6/30/05</i>	<i>-</i>		<i>/</i>		<i>1</i>	<i>~13</i>	
<i>20050800</i>	<i>B13</i>	<i>6/30/05</i>	<i>-</i>		<i>/</i>		<i>1</i>	<i>~215</i>	
<i>20050801</i>	<i>B14</i>	<i>6/30/05</i>	<i>-</i>		<i>/</i>		<i>1</i>	<i>~138</i>	
<i>20050802</i>	<i>B15</i>	<i>6/30/05</i>	<i>-</i>		<i>/</i>		<i>1</i>	<i>~7085</i>	
<i>20050803</i>	<i>B16</i>	<i>6/30/05</i>	<i>-</i>		<i>/</i>		<i>1</i>	<i>~58</i>	
<i>20050804</i>	<i>B17</i>	<i>7/1/05</i>	<i>-</i>		<i>/</i>		<i>1</i>	<i>~70</i>	
<i>20050805</i>	<i>B-17A</i>	<i>7/1/05</i>	<i>-</i>		<i>/</i>		<i>1</i>	<i>~127</i>	
SAMPLE COLLECTED BY: <i>ASI</i>				EXACT SAMPLING LOCATION: <i>Lower Passaic</i>					
SAMPLE RELINQUISHED BY: <i>Jeff Clemens</i>				SAMPLE RECEIVED BY: <i>Chen Doyle</i>			DATE: <i>7/25/05</i>	TIME: <i>1700hrs</i>	
SAMPLE RELINQUISHED BY:				SAMPLE RECEIVED BY:			DATE:	TIME:	
SAMPLE RELINQUISHED BY:				SAMPLE RECEIVED BY:			DATE:	TIME:	
SAMPLE RELINQUISHED BY:				SAMPLE RECEIVED BY:			DATE:	TIME:	
SAMPLE RELINQUISHED AFTER ANALYSES:				ANALYZED SAMPLE RECEIVED BY:				DATE:	TIME:
SAMPLE DESCRIPTION:						# OF CONTAINERS:			



25-068

CHAIN OF CUSTODY RECORD

FACILITY/LOCATION: <i>Lower Passaic River Restoration Project</i>	METHOD OF SHIPMENT: <i>Allied Biological</i> TO FROM <i>TRUCK</i>
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SAMPLING AND ANALYSES AUTHORIZED BY: <i>NJDOT</i>	DATE: <i>7/25/05</i>
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SAMPLE #	SAMPLING LOCATION AND DESCRIPTION	DATE	TIME	SAMPLE TYPE			# OF CONT.	ANALYSES REQUIRED
				C	G	SOLID		
<i>20050806</i>	<i>B18</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>	<i>Benthic</i>	<i>1</i>	<i>~ 97</i>
<i>20050807</i>	<i>B19</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 632</i>
<i>20050808</i>	<i>B20</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 599</i>
<i>20050809</i>	<i>B21</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 221</i>
<i>20050810</i>	<i>B22</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 176</i>
<i>20050811</i>	<i>B23</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 414</i>
<i>20050812</i>	<i>B24</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 532</i>
<i>20050813</i>	<i>B25</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 161</i>
<i>20050814</i>	<i>B26</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 362</i>
<i>20050815</i>	<i>B27</i>	<i>7/1/05</i>	<i>—</i>		<i>/</i>		<i>1</i>	<i>~ 244</i>

SAMPLE COLLECTED BY: <i>ASI</i>	EXACT SAMPLING LOCATION: <i>Lower Passaic River</i>
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SAMPLE RELINQUISHED BY: <i>[Signature]</i>	SAMPLE RECEIVED BY: <i>Chin Doyle</i>	DATE <i>7/25/05</i>	TIME <i>1700hrs</i>
SAMPLE RELINQUISHED BY:	SAMPLE RECEIVED BY:	DATE	TIME
SAMPLE RELINQUISHED BY:	SAMPLE RECEIVED BY:	DATE	TIME
SAMPLE RELINQUISHED BY:	SAMPLE RECEIVED BY:	DATE	TIME

SAMPLE RELINQUISHED AFTER ANALYSES:	ANALYZED SAMPLE RECEIVED BY:			
	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:70%;"></td> <td style="width:15%; padding: 5px;">DATE</td> <td style="width:15%; padding: 5px;">TIME</td> </tr> </table>		DATE	TIME
	DATE	TIME		

SAMPLE DESCRIPTION:	# OF CONTAINERS:
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