

ONONDAGA LAKE AMBIENT MONITORING PROGRAM
ADDENDUM TO YEAR 2000 AMP TRIBUTARY MACROINVERTEBRATE
PROGRAM RESULTS

ONONDAGA COUNTY, NEW YORK

FINAL
November 2007

Prepared for
ONONDAGA COUNTY, NEW YORK

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Background

During development of an integrated biological database by EcoLogic and a separate effort to update the Biological Statistical Framework report by Dr. William Walker it was determined that tributary macroinvertebrate data for all three sites in Ley Creek and Harbor Brook had been inadvertently switched prior to calculating metrics in 2000. The switching of data seems to have originated due to confusion over the relationship between Facility Codes (a Chain of Custody ID used to track samples, ex. FC1400) and site designations (used when calculating metrics, ex. LCS1R1 which stands for Ley Creek Site 1 Replicate 1). This only affects the year 2000 calculations. The switched 2000 results were initially reported in the 2000 AMP report and carried over in subsequent reports where tributary macroinvertebrates were discussed (Macroinvertebrate Final reports to OCDWEP for 2000 and 2002, and Significant Findings Sections of AMP Annual Reports for 2000, 2002 and 2004). This addendum provides updated tables, figures and summary text for the 2000 macroinvertebrate sampling efforts. The summary tables, figures and text are presented with the 2002 and 2004 results so that temporal relationships can be evaluated. Future AMP reports, starting with 2006, will utilize these updated results.

In addition, in 2002, NYSDEC updated their guidance document for macroinvertebrate monitoring. This guidance document is used as the basis for the AMP macroinvertebrate program. The revised guidance document included new formulas for determining Biological Assessment Profile scores (BAP), revised models for Impact Source Determinations (ISD), and provided revisions to tolerance values used to calculate the Hilsenhoff Biotic Index (HBI). These revisions were not available when the 2000 and 2002 AMP reports were completed. These changes resulted in some minor adjustments to the calculated AMP metrics for some sites. In order to ensure consistency between this addendum and future reports, we have utilized the most recent calculation methods from the NYDEC guidance for all years. Future AMP reports, starting with 2006, will utilize these updated calculation methods.

Tributary Macroinvertebrate Results Addendum

Onondaga Creek

Onondaga Creek results were not affected by the switching of data in 2000. Modification to NYDEC guidance resulted in a slight decrease in HBI score at Site 4 Spencer Street in 2000. Since the HBI results are used as part of the calculation to determine BAP there was also a corresponding drop in that score. The original BAP score for this site was on the boundary of “Severe” and “Moderate” impact. The slight drop in BAP score after revision resulted in the new BAP designation being “Severe” impact in 2000 (Figure 1). Conclusions regarding this site are not changed substantially by this revision. Trends in macroinvertebrate community metrics at this location support the conclusion of an improving stream environment.

Ley Creek

The revision of the 2000 Ley Creek dataset resulted in substantially reduced annual variability. The NYSDEC guidance changes resulted in only minor adjustments. The corrections associated with switching the 2000 data were substantial. These adjustments resulted in the decrease in year 2000 BAP, and HBI scores and an increase in the Percent Oligochaetes from what was originally reported (Figure 3). These revised results indicate that the Ley Creek macroinvertebrate community was relatively stable from 2000 to 2004.

Overall, the revised dataset supports the conclusion that although some improvement has occurred for most metrics, conditions in Ley Creek remain severely impacted. The slight improvements that were observed appear to be related to decreased dominance of oligochaetes and corresponding improvements in HBI scores, this is indicative of slightly decreased levels of oxygen demanding wastes.

Harbor Brook

Like Ley Creek, the revision of the 2000 Harbor Brook dataset, due mostly to the switching of data, resulted in substantially reduced annual variability in the dataset. Year 2000 BAP, and HBI scores are greater, and Percent Oligochaetes decreased substantially from what was originally reported. These changes bring the 2000 Harbor Brook results more in line with what has been documented in 2002 and 2004, but some substantial differences between years remain (Figure 5). The revised dataset supports the conclusion that there was decreased impact at Site 1 Velasko Road after the year 2000. This change appear to be primarily due to decreases in oxygen-demanding wastes as indicated by the much improved HBI score and decline in the dominance of oligochaetes at that site. The macroinvertebrate community at Site 2 Hiawatha Blvd. has declined from the borderline “Moderately/Severely” impacted condition in 2000 and 2002 to “Severely” impacted in 2004. The corresponding drop in HBI score at this site seems to indicate that the decline is primarily due to increases in oxygen demanding wastes at this site. Site 3, Rt. 690 shows some variability in metrics but overall does not appear to have changed substantially.

References

- Bode, R.W. 1996. Quality Assurance Work Plan for Biological Stream Monitoring in New York State. NYSDEC Bureau of Monitoring and Assessment, Division of Water, Stream Biomonitoring Unit.
- Bode, R.W., M.A. Novak, and L.E. Abele. 2002. Quality Assurance Work Plan for Biological Stream Monitoring in New York State. NYSDEC Bureau of Monitoring and Assessment, Division of Water, Stream Biomonitoring Unit.
- EcoLogic, 2001. 2000 Onondaga Lake Annual Report. Report prepared for Onondaga County Department of Drainage and Sanitation, Syracuse NY.
- EcoLogic, 2001. 2000 Onondaga Lake and Tributaries Macroinvertebrate Monitoring. Report prepared for Onondaga County Department of Drainage and Sanitation, Syracuse NY.
- EcoLogic, 2003. 2002 Onondaga Lake Annual Report. Report prepared for Onondaga County Department of Water Environment Protection, Syracuse NY.
- EcoLogic, 2003. 2002 Onondaga Lake Tributaries Macroinvertebrate Monitoring. Report prepared for Onondaga County Department of Water Environment Protection, Syracuse NY.
- EcoLogic, 2005. 2004 Onondaga Lake Annual Report. Report prepared for Onondaga County Department of Water Environment Protection, Syracuse NY.

Table 1. Mean index value and corresponding mean NYSDEC Biological Assessment Profiles (BAP) Score and Designations from monitoring sites in Onondaga Creek in 2000, 2002, and 2004.

Year	Site Description	Species Richness		EPT Richness		HBI		PMA		NYSDEC	
		Index Mean	NYSDEC BAP Scale Mean	Index Mean	NYSDEC BAP Scale Mean	Index Mean	NYSDEC BAP Scale Mean	Index Mean	NYSDEC BAP Scale Mean	Mean BAP Score	BAP Impact Designation
2000											
1	Tully Farms Rd.	22	6.1	9.8	7.3	4.6	7.4	79%	8.9	7.4	Slight
2	Webster Rd.	30	8.6	5.8	4.9	6.3	5.3	56%	5.9	6.2	Slight
3	Dorwin Ave.	26	7.2	5.8	5.3	5.6	6.2	56%	6.0	6.2	Slight
4	Spencer Street	10	2.3	0.5	0.8	7.0	4.4	33%	2.2	2.4	Severe
2002											
1	Tully Farms Rd.	23	6.4	11.8	8.2	3.3	8.7	70%	7.9	7.8	None
2	Webster Rd.	28	8.0	4.8	4.7	5.3	6.5	49%	5.0	6.1	Slight
3	Dorwin Ave.	21	5.9	6.0	5.3	5.3	6.5	47%	4.7	5.6	Slight
4	Spencer Street	14	3.8	0.0	0.0	6.4	5.2	33%	2.3	2.8	Moderate
2004											
1	Tully Farms Rd.	25	7.1	7.8	6.3	4.4	7.6	55%	5.6	6.6	Slight
2	Webster Rd.	22	6.2	4.0	4.2	6.1	5.5	51%	5.3	5.3	Slight
3	Dorwin Ave.	20	5.7	5.0	4.8	5.3	6.5	55%	5.9	5.7	Slight
4	Spencer Street	22	6.1	1.8	2.6	6.1	5.5	38%	3.2	4.3	Moderate

Table 2. Mean index value and corresponding mean NYSDEC Biological Assessment Profiles (BAP) Score and Designations from monitoring sites in Ley Creek in 2000, 2002, and 2004. *Note that due to habitat changes, samples at Site 1 were collected with kick samples in 2004 and jab samples in other years. According to NYSDEC guidance PMA is calculated for kick sample sites and NCO for jab sites.

Year	Site Description	Species Richness		EPT Richness		HBI		PMA*		NCO		NYSDEC	
		NYSDEC		NYSDEC		NYSDEC		NYSDEC		Index Mean	Mean BAP Score	Mean BAP Score	BAP Impact Designation
		Index Mean	BAP Scale Mean	Index Mean	BAP Scale Mean	Index Mean	BAP Scale Mean	Index Mean	BAP Scale Mean				
2000													
1	Townline Road	14.8	4.1	0.3	0.4	8.9	1.8	--	--	3.3	3.8	2.5	Moderate/Severe
2	7th North Street	8.8	0.9	0.0	0.0	9.9	0.2	--	--	0.3	0.3	0.3	Severe
3	Park Street	14.0	3.8	0.0	0.0	9.3	1.2	--	--	2.8	3.5	2.1	Severe
2002													
1	Townline Road	15.3	4.4	0.0	0.0	9.1	1.4	--	--	4.5	3.8	2.4	Severe
2	7th North Street	7.8	0.4	0.0	0.0	9.9	0.2	--	--	1.3	1.8	0.6	Severe
3	Park Street	11.3	2.2	0.3	0.4	9.1	1.5	--	--	2.8	2.9	1.7	Severe
2004													
1	Townline Road	16.3	4.4	0.5	0.8	8.7	2.2	34%	2.4	--	--	2.5	Moderate/Severe
2	7th North Street	11.3	1.9	0.0	0.0	9.4	0.8	--	--	1.3	1.4	1.4	Severe
3	Park Street	18.0	5.9	1.0	1.5	7.6	4.0	--	--	6.0	5.5	4.2	Moderate

Table 3. Mean index value and corresponding mean NYSDEC Biological Assessment Profiles (BAP) Score and Designations from monitoring sites in Harbor Brook in 2000, 2002, and 2004. *Note that Site 1 and 2 use kick samples and Site 3 utilizes jab samples. According to NYSDEC guidance PMA is calculated for kick sample sites and NCO for jab sites.

Year	Site Description	Species Richness		EPT Richness		HBI		PMA		NCO		NYSDEC	
		NYSDEC		NYSDEC		NYSDEC		NYSDEC		NYSDEC		Mean BAP Score	BAP Impact Designation
		Index Mean	BAP Scale Mean	Index Mean	BAP Scale Mean	Index Mean	BAP Scale Mean	Index Mean	BAP Scale Mean	Index Mean	BAP Scale Mean		
2000	1 Velasko Road	16.0	4.3	1.5	2.2	6.7	4.7	32%	2.1	--	--	3.3	Moderate
	2 Hiawatha Blvd.	20.0	5.6	0.3	0.3	8.1	3.1	35%	2.6	--	--	2.9	Moderate
	3 Rt. 690	15.0	4.3	0.3	0.4	9.0	1.8	--	--	4.0	4.2	2.7	Moderate
2002	1 Velasko Road	18.8	5.2	2.3	2.9	5.2	6.6	42%	3.8	--	--	4.6	Moderate
	2 Hiawatha Blvd.	15.3	4.0	0.3	0.3	7.9	3.3	30%	1.8	--	--	2.4	Severe
	3 Rt. 690	16.8	5.3	0.0	0.0	8.4	2.6	--	--	3.0	3.6	2.9	Moderate
2004	1 Velasko Road	11.8	2.8	2.8	3.5	4.3	7.7	46%	4.5	--	--	4.6	Moderate
	2 Hiawatha Blvd.	15.5	4.1	0.0	0.0	9.0	1.7	23%	0.7	--	--	1.6	Severe
	3 Rt. 690	15.0	4.4	0.5	0.8	8.6	2.4	--	--	3.5	3.9	2.9	Moderate

Table 4. Impact Source Determination (ISD), Onondaga Creek, 2000, 2002, 2004. Numbers represent maximum similarity to macroinvertebrate community type models for each impact category. The highest similarities (within 5 percentage points of the highest) at each station are highlighted. Highest similarity represents probable type of impact and is bolded. * Note: Similarities less than 50% are less conclusive.

ISD Model Group	Site 1 - Tully Farms Road			Site 2 - Webster Road			Site 3 - Dorwin Ave			Site 4 - Spencer Street		
	2000	2002	2004	2000	2002	2004	2000	2002	2004	2000	2002	2004
Natural: minimal human impact	62	64	45	51	53	53	42	42	39	13	19	24
Nonpoint: nutrients, pesticides	35	41	39	57	49	51	63	58	61	21	35	29
Toxic	27	33	44	56	44	42	53	58	62	21	44	46
Organic: sewage, animal waste	28	27	31	60	41	42	47	59	47	41	29	48
Municipal/Industrial	23	26	35	42	39	42	56	60	58	42	33	49
Siltation	31	36	33	54	51	46	64	63	61	24	30	33
Impoundment	25	26	30	51	42	57	62	62	62	46	43	46

Table 5. Impact Source Determination (ISD), Ley Creek, 2000, 2002, 2004. Note that ISD can only be calculated for sites sampled with kick sampling therefore only Site 1 in 2004 has results. Numbers represent maximum similarity to macroinvertebrate community type models for each impact category. The highest similarities (within 5 percentage points of the highest) at each station are highlighted. Highest similarity represents probable type of impact and is bolded. * Note: Similarities less than 50% are less conclusive.

ISD Model Group	Site 1 - Townline Rd.			Site 2 - 7th North Street			Site 3 - Park Street		
	2000	2002	2004	2000	2002	2004	2000	2002	2004
Natural: minimal human impact	-	-	13	-	-	-	-	-	-
Nonpoint: nutrients, pesticides	-	-	28	-	-	-	-	-	-
Toxic	-	-	35	-	-	-	-	-	-
Organic: sewage, animal waste	-	-	68	-	-	-	-	-	-
Municipal/Industrial	-	-	58	-	-	-	-	-	-
Siltation	-	-	33	-	-	-	-	-	-
Impoundment	-	-	52	-	-	-	-	-	-

Table 6. Impact Source Determination (ISD), Harbor Brook, 2000, 2002, 2004. Note that ISD can only be calculated for sites sampled with kick sampling therefore Site 3 has no results. Numbers represent maximum similarity to macroinvertebrate community type models for each impact category. The highest similarities (within 5 percentage points of the highest) at each station are highlighted. Highest similarity represents probable type of impact and is bolded. * Note: Similarities less than 50% are less conclusive.

ISD Model Group	Site 1 - Velasko Road			Site 2 - Hiawatha Blvd.			Site 3 - Rt. 690		
	2000	2002	2004	2000	2002	2004	2000	2002	2004
Natural: minimal human impact	13	28	28	9	25	7	-	-	-
Nonpoint: nutrients, pesticides	22	24	26	24	35	18	-	-	-
Toxic	27	33	27	35	37	25	-	-	-
Organic: sewage, animal waste	46	25	19	62	61	49	-	-	-
Municipal/Industrial	65	51	53	53	75	74	-	-	-
Siltation	25	36	23	24	42	22	-	-	-
Impoundment	54	45	57	60	57	54	-	-	-

Onondaga Creek

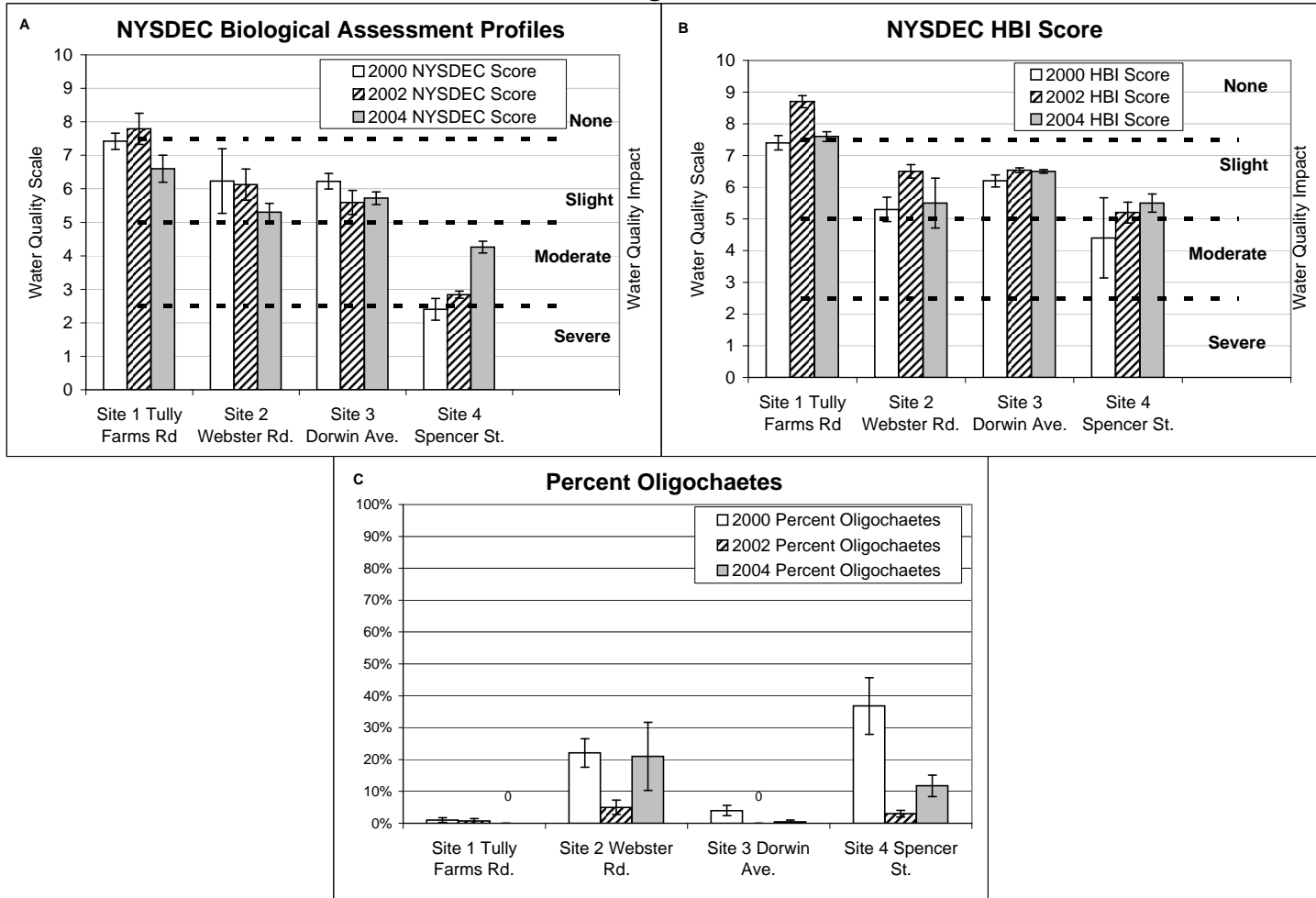


Figure 1 . NYSDEC water quality scale scores (A), NYSDEC HBI scores (B), and percent oligochaetes (C) of sites in Onondaga Creek collected in 2000, 2002, and 2004 Error bars are standard error.

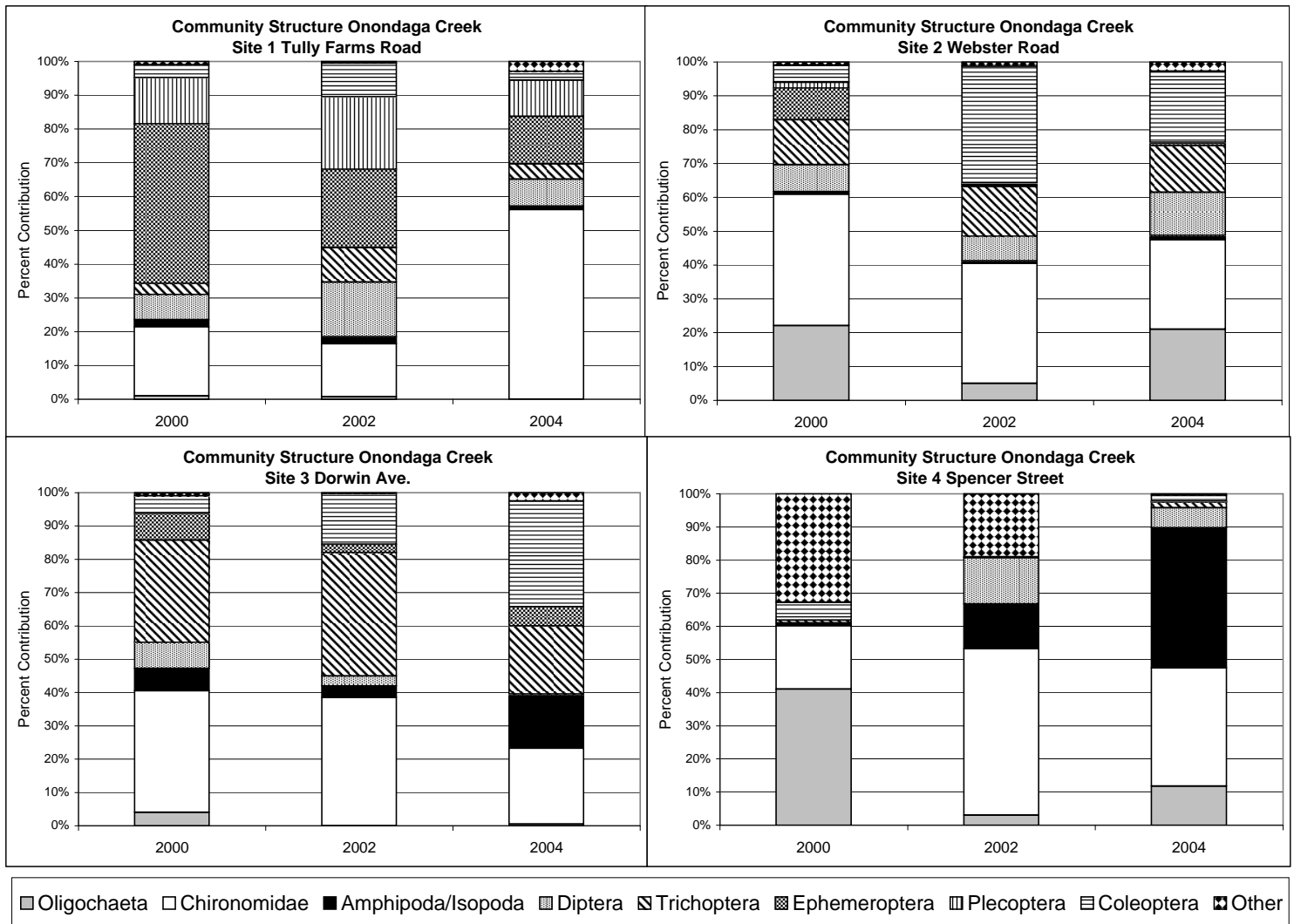


Figure 2 . Community structure of macroinvertebrate communities at Onondaga Creek sites in 2000, 2002, and 2004.

Ley Creek

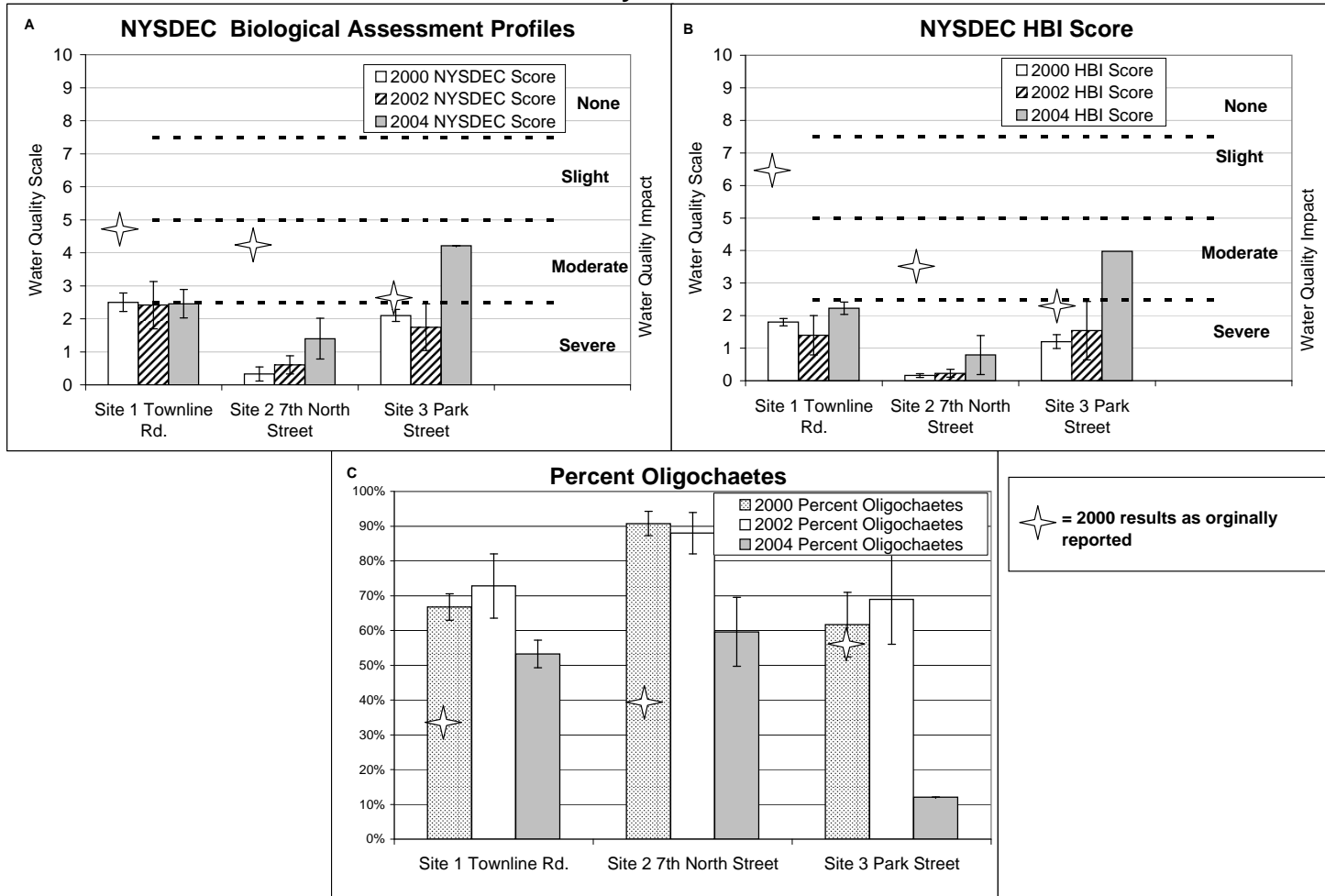


Figure 3. NYSDEC water quality scale scores (A), NYSDEC HBI scores (B), and percent oligochaetes (C) of sites in Ley Creek collected in 2000, 2002, and 2004. Error bars are standard error. Note: Site 3, Park Street, in 2004 had fewer organisms in all four replicates (22, 19, 30 and 12) than is needed to calculate NYSDEC metrics (100). As a result replicates were combined into a single sample of 83 organisms to approach the 100 organisms needed, therefore no standard error was calculated. A single replicate at Site 2, 7th North Street, in 2004 also had few organism, this replicate was not used in the analysis.

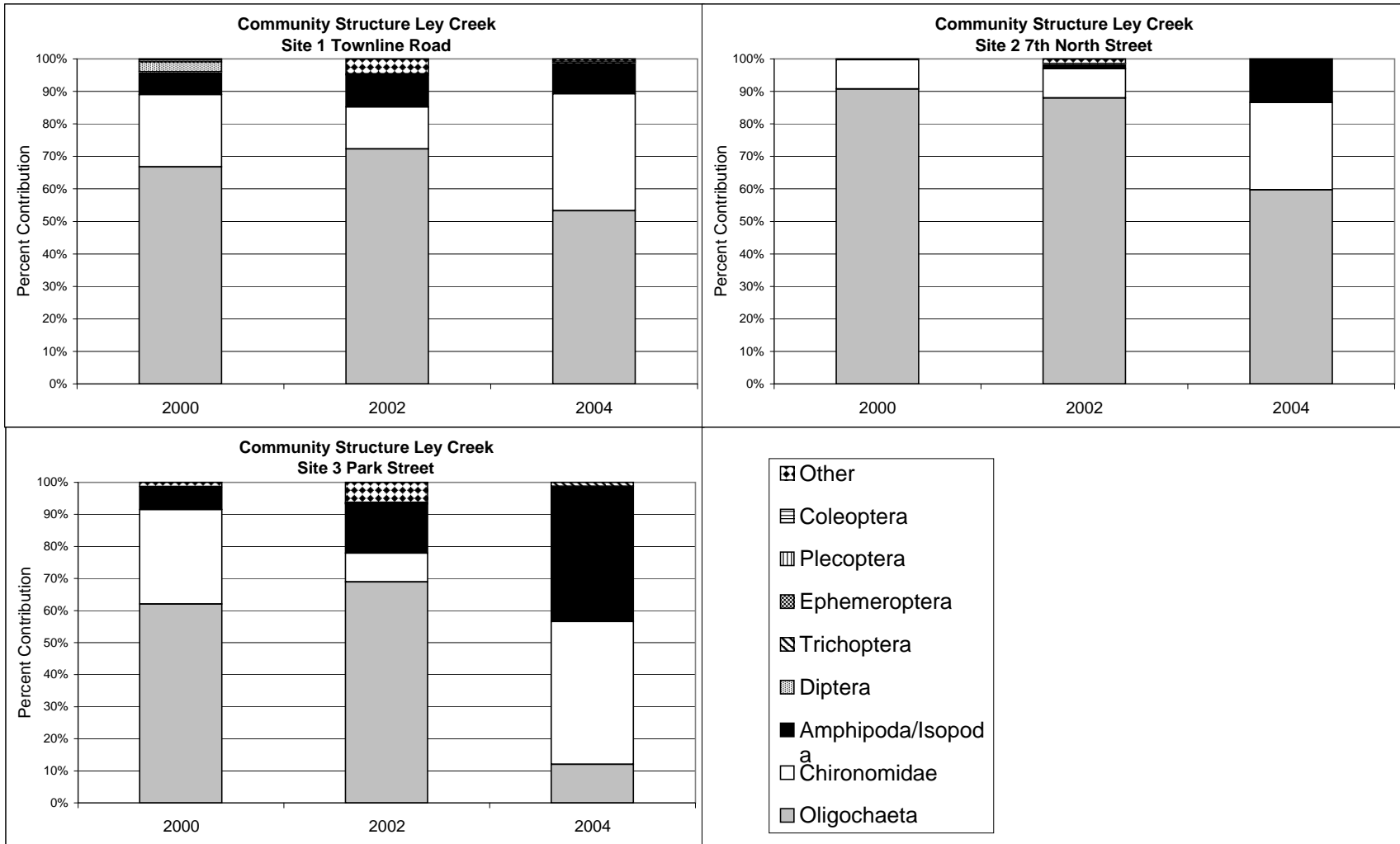


Figure 4. Community structure of the macroinvertebrate communities at Ley Creek sites in 2000, 2002, and 2004.

Harbor Brook

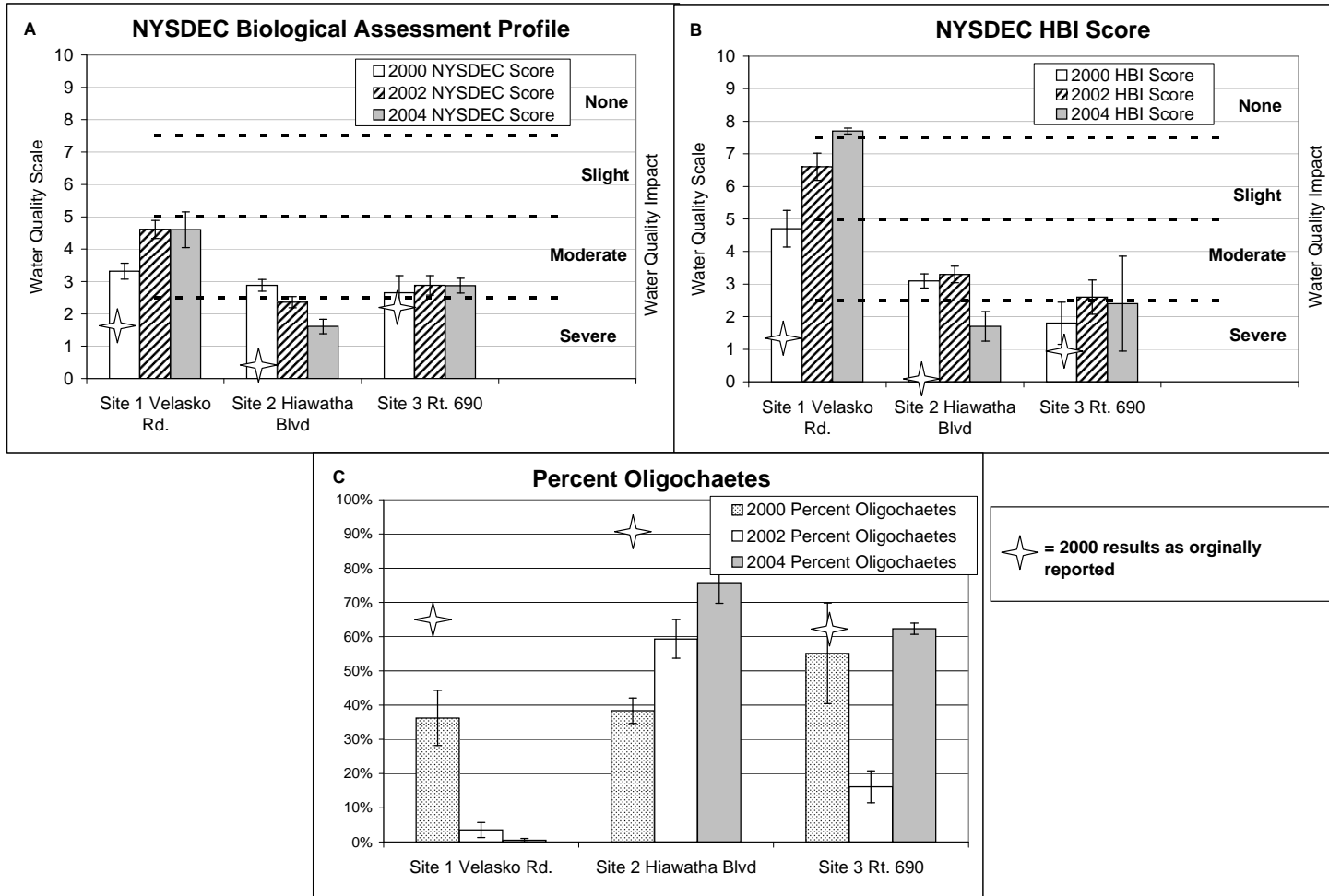


Figure 5 . NYSDEC water quality scale scores (A), NYSDEC HBI scores (B), and percent oligochaetes (C) of sites in Harbor Brook collected in 2000, 2002, and 2004 . Error bars are standard error. Note: At Site 3 Rt 690 in 2004, fewer than the 100 organisms needed to calculate NYSDEC metrics were collected in three of the four replicates. Because of this, those three replicates were combined into a single sample. Therefore the results and standard errors for that site are the result of two replicates not four.

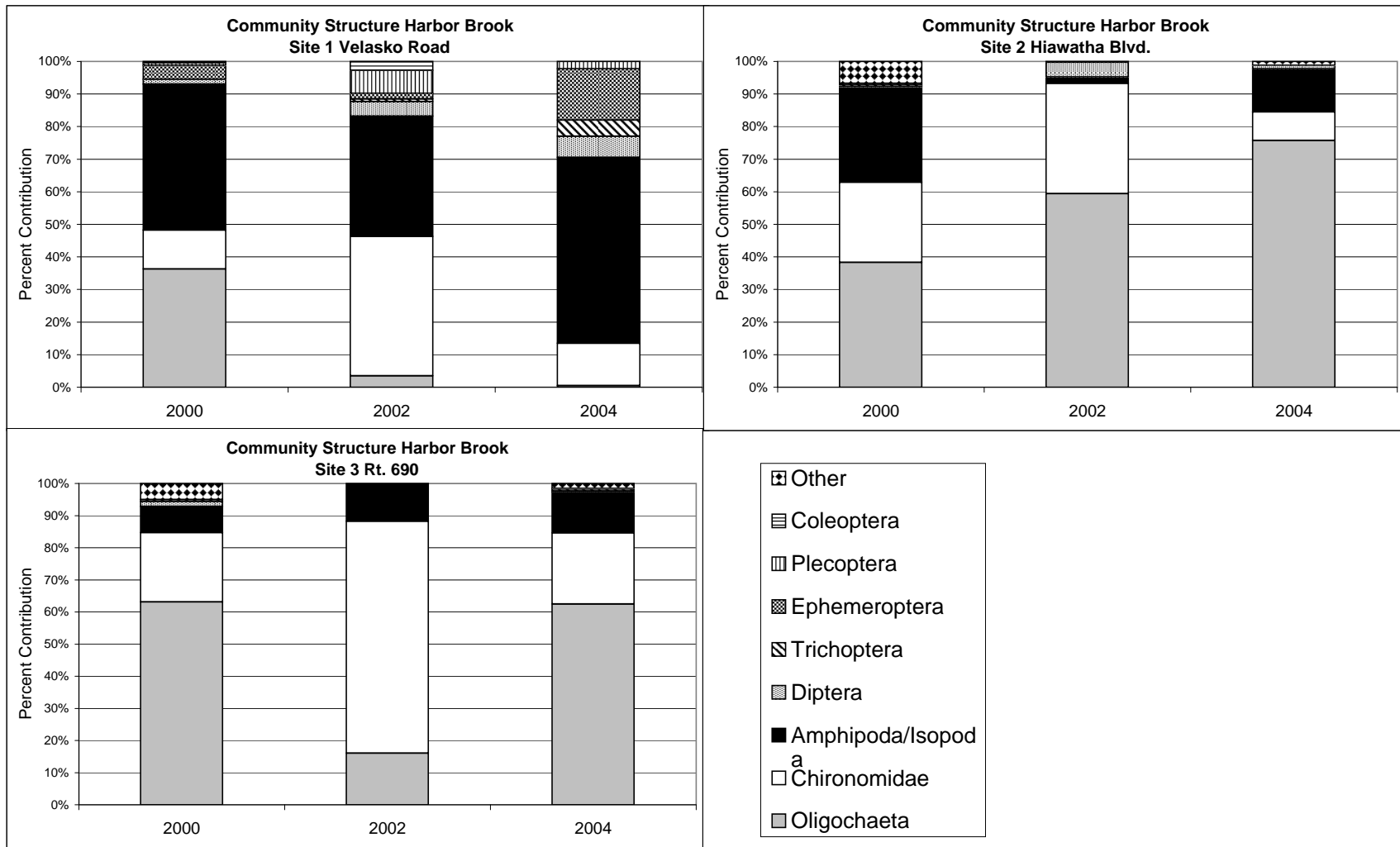


Figure 6 . Community structure of the macroinvertebrate communities at Harbor Brook sites in 2000, 2002, and 2004.

Appendix. Raw data of 2000 Onondaga Lake Tributary macroinvertebrate kick and jab samples.

Facility code	3187	3188	3189	3190	3191	3192	3193	3194	3195	3196	3197	3198	3199	3200	3201	3202	3203	3204	3205	3206	3207	3208
Trib	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	HB	HB	HB	HB	HB	HB
Site	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	1	1	1	1	2	2
Replicate	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
<i>Dugesia tigrina</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Enchytraeus</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lumbricillus</i>	0	0	0	2	0	0	0	0	1	0	0	0	0	1	7	0	0	0	0	0	0	0
Lumbriculidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0
<i>Dero digitata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Nais elinguis</i>	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ophidonais serpentina</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Aulodrilus pigueti</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ilyodrilus templetoni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Limnodrilus cervix</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	12	5
<i>Limnodrilus claparedetianus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
<i>Limnodrilus hoffmeisteri</i>	0	0	0	0	1	0	0	0	0	2	0	5	3	0	5	14	38	26	42	23	0	0
<i>Limnodrilus profundicola</i>	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
<i>Limnodrilus udekemianus</i>	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	1	3	8	3	0	0
<i>Potamothenix bedoti</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Potamothenix bavaricus</i>	0	0	0	0	0	0	0	0	0	2	1	6	0	0	0	0	0	1	0	0	0	0
<i>Potamothenix moldaviensis</i>	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	1	0	4	2	0	0	0
<i>Quistadrilus multisetosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Tubifex tubifex</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubificid immature: bifids	0	0	0	0	12	25	14	14	4	0	1	2	4	46	1	7	62	43	12	45	33	61
Tubificid immature: h+p	0	0	0	0	1	6	1	2	0	0	0	0	4	4	1	0	1	0	0	0	1	1
Lumbricidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Allolobophora chlorotica</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eiseniella tetraedra</i>	0	1	0	1	0	0	1	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0
<i>Helobdella stagnalis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Mooreobdella fervida</i>	0	0	0	0	0	0	0	0	0	0	0	18	29	24	6	0	0	0	0	0	0	0
<i>Mooreobdella microstoma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hygrobatas</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Torrenticola</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Crangonyx pseudogracilis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gammarus fasciatus</i>	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0
<i>Gammarus pseudolimnaeus</i>	5	0	1	2	1	0	1	1	8	11	2	3	0	0	0	4	5	4	14	0	0	0
<i>Gammarus</i> (immature/damaged)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Caecidotea</i> (immature/female)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
<i>Caecidotea racovitzai</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Baetis</i>	26	53	51	34	8	0	13	12	3	1	3	4	0	0	0	3	0	0	0	0	0	0
<i>Procladius</i>	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Epeorus</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Heptagenia</i>	3	1	4	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paraleptophlebia</i>	1	1	2	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tricorythodes</i>	0	0	0	0	1	1	0	1	5	12	3	0	0	0	0	0	0	0	0	0	0	0
<i>Boyeria</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coenagrionidae immature	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lanthes parvulus</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perlodidae	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Acronuria</i>	2	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Agnetina</i>	7	9	5	5	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Leuctra</i>	1	1	2	8	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pteronarcys</i>	4	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sweltsa</i>	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Nigronia serricornis</i>	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Sialis</i>	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
<i>Glossosoma</i>	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydropsychidae pupae	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Cheumatopsyche</i>	0	0	0	0	0	3	0	0	1	3	1	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche</i> (early instar)	1	4	1	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche betteni</i>	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche bronta</i>	0	0	0	0	11	0	17	9	9	25	26	35	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche slossonae</i>	1	0	1	0	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche sparna</i>	0	1	0	0	0	0	4	1	1	2	12	1	0	0	0	0	0	0	0	0	0	0
<i>Hydroptila</i>	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<i>Oecetis (Pseudosetodes) avara</i> grp.	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
<i>Dolophilodes</i>	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dubiraphia</i>	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Optioservus</i>	1	2	6	6	2	3	5	6	1	0	1	0	1	2	1	0	0	0	0	0	0	0
<i>Promoresia</i>	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
<i>Stenelmis</i>	0	0	0	0	0	0	2	0	5	1	9	1	2	5	1	0	0	0	0	0	0	0
<i>Atherix</i>	0	0	0	0	2	0	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chironomidae pupae	0	0	0	0	3	3	0	5	0	4	2	0	0	0	0	2	2	7	0	0	0	0
<i>Larsia</i>	0	0	0	1	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Natarsia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Procladius (Holotanypus)</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	2	0	0	3	6
<i>Thienemanniella</i> grp.	15	4	8	7	0	3	2	3	8	5	1	1	0	0	0	2	2	1	1	0	0	0
<i>Diamesa</i>	0	0	0	0	2	1	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pagastia</i>	0	0	0	0	0	0	1	0	0	5	2	1	3	7	5	28	0	0	0	0	0	0
<i>Prodiamesa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Brillia flavifrons</i>	2	2																				

Appendix. Raw data of 2000 Onondaga Lake Tributary macroinvertebrate kick and jab samples.

Facility code	3187	3188	3189	3190	3191	3192	3193	3194	3195	3196	3197	3198	3199	3200	3201	3202	3203	3204	3205	3206	3207	3208
Trib	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	OC	HB	HB	HB	HB	HB	HB
Site	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	1	1	1	1	1	2
Replicate	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
<i>Cryptochironomus</i>	0	0	0	0	1	4	0	1	4	1	0	0	0	0	1	0	10	1	12	4	0	0
<i>Cryptotendipes</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dicortendipes modestus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microtendipes pedellus</i> grp.	0	0	0	0	1	7	1	2	6	4	3	2	0	0	0	0	0	0	0	0	0	0
<i>Phaenopsectra obediens</i> grp.	0	0	0	0	0	0	0	0	1	5	0	2	0	0	0	1	0	0	0	0	0	0
<i>Polypedium aviceps</i>	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polypedium fallax</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polypedium laterale</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polypedium illinoense</i> grp.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polypedium laetum</i>	0	0	1	1	1	1	1	2	9	3	1	2	0	0	0	0	0	0	0	0	0	0
<i>Polypedium scalaenum</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
<i>Stictochironomus</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cladotanytarsus</i>	0	0	0	0	20	23	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microsectra</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
<i>Rheotanytarsus</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Stempellinella</i>	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tanytarsus</i>	4	10	4	6	1	8	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0
<i>Chelifera</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hemerodromia</i>	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0
Muscidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psychodidae pupae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
<i>Pericoma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Psychoda</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Simulium</i>	0	1	0	0	2	0	4	8	2	1	8	8	0	0	0	1	2	4	3	0	0	0
<i>Chrysops</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Antocha</i>	0	0	0	0	1	0	3	0	3	2	3	2	0	0	0	0	0	0	0	0	0	0
<i>Dicranota</i>	0	0	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hexatoma</i>	7	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tipula</i>	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Musculium</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
<i>Pisidium casertanum</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pisidium compressum</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Pisidium dubium</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
<i>Fossaria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
<i>Physa cf. heterostropha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix. Raw data of 2000 Onondag

Facility code	3209	3210	3211	3212	3213	3214	3215	3216	3217	3218	3219	3220	3221	3222	3223	3224	3225	3226
Trib	HB	HB	HB	HB	HB	HB	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC
Site	2	2	3	3	3	3	1	1	1	1	2	2	2	2	3	3	3	3
Replicate	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Dugesia tigrina</i>	0	0	0	0	3	0	0	0	0	0	6	0	4	0	7	0	0	1
<i>Enchytraeus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lumbricillus</i>	0	0	0	0	0	0	3	29	7	15	8	1	6	2	13	3	0	2
Lumbriculidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dero digitata</i>	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<i>Nais elinguis</i>	0	0	0	0	2	1	0	0	0	0	0	0	0	0	9	0	0	3
<i>Ophidonais serpentina</i>	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	3	0	0
<i>Aulodrilus pigueti</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ilyodrilus templetoni</i>	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Limnodrilus cervix</i>	1	8	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Limnodrilus claparedetianus</i>	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Limnodrilus hoffmeisteri</i>	18	16	8	6	3	6	1	3	1	1	8	6	3	13	6	18	1	12
<i>Limnodrilus profundicola</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Limnodrilus udekemianus</i>	6	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
<i>Potamothenix bedoti</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Potamothenix bavaricus</i>	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1
<i>Potamothenix moldaviensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Quistadrilus multisetosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tubifex tubifex</i>	0	0	0	0	0	0	0	0	1	1	1	3	0	3	0	0	0	1
Tubificid immature: bifids	48	64	64	32	66	35	23	19	12	7	21	20	13	5	12	51	2	49
Tubificid immature: h+p	2	0	3	0	2	1	0	8	3	2	7	10	6	9	4	2	2	5
Lumbricidae	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Allolobophora chlorotica</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Eiseniella tetraedra</i>	0	0	0	0	0	0	5	1	1	0	0	0	0	0	1	0	0	0
<i>Helobdella stagnalis</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
<i>Mooreobdella fervida</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Mooreobdella microstoma</i>	0	0	0	0	0	0	0	0	0	2	7	0	2	0	2	0	0	0
<i>Hygrobatas</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
<i>Torrenticola</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Crangonyx pseudo-gracilis</i>	0	0	0	0	0	0	2	0	0	0	0	2	1	2	0	0	0	0
<i>Gammarus fasciatus</i>	0	0	2	0	0	0	7	5	9	9	7	10	6	6	0	0	0	0
<i>Gammarus pseudolimnaeus</i>	0	0	3	3	2	13	35	18	45	47	9	14	12	13	1	0	0	0
<i>Gammarus</i> (immature/damaged)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
<i>Caecidotea</i> (immature/female)	0	0	0	1	0	2	0	0	1	0	0	4	12	8	7	2	6	2
<i>Caecidotea racovitzai</i>	0	0	0	0	1	1	0	0	1	0	1	4	3	3	1	1	3	0
<i>Baetis</i>	0	0	0	0	0	0	8	6	2	1	0	0	0	0	0	0	0	0
<i>Procladius</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Epeorus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Heptagenia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paraleptophlebia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tricorythodes</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Boyeria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coenagrionidae immature	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lamthus parvulus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perlodidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Acronuria</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Agnetina</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Leuctra</i>	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
<i>Pteronarcys</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sweltsa</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Nigronia serricornis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sialis</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
<i>Glossosoma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydropsychidae pupae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cheumatopsyche</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche</i> (early instar)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche betteni</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche bronta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche slossonae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche sparna</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydroptila</i>	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
<i>Oecetis (Pseudosetodes) avara</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dolophilodes</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dubiraphia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Optioservus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Promoresia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Stenelmis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Atherix</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chironomidae pupae	1	0	1	7	1	1	0	0	0	0	0	1	3	0	6	0	1	0
<i>Larsia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Natarsia</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
<i>Procladius (Holotanypus)</i>	11	8	3	14	5	8	0	0	0	0	0	0	0	0	0	0	0	0
<i>Thienemannimyia</i> grp.	1	0	0	0	0	0	1	1	2	3	5	7	3	2	0	1	0	0
<i>Diamesa</i>	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0
<i>Pagastia</i>	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0	0	0
<i>Prodiamesa</i>	0	0	0	0	0	0	3	6	10	6	3	2	1	1	2	2	4	3
<i>Brillia flavifrons</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cricotopus bicinctus</i>	0	0	1	0	1	0	0	0	0	0	2	0	3	0	2	4	0	0
<i>Cricotopus sylvestris</i> grp.	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cricotopus triannulatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cricotopus trifascia</i>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
<i>Cricotopus/Orthocladius</i>	0	0	0	0	0	0	1	0	0	0	3	0	1	1	3	0	2	0
<i>Cricotopus (Isocladius)</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eukiefferiella brehmi</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eukiefferiella claripennis</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eukiefferiella devonica</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eukiefferiella</i> (early instar)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Psectrocladius</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rheocricotopus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Thienemannella</i> cf. <i>xena</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tvetenia bavarica</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tvetenia discoloripes</i> grp.	0	0	0	0														

Appendix. Raw data of 2000 Onondag

Facility code	3209	3210	3211	3212	3213	3214	3215	3216	3217	3218	3219	3220	3221	3222	3223	3224	3225	3226
Trib	HB	HB	HB	HB	HB	HB	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC	LC
Site	2	2	3	3	3	3	1	1	1	1	2	2	2	2	3	3	3	3
Replicate	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Crypochironomus</i>	0	0	0	0	0	1	2	0	1	0	0	0	2	0	1	0	0	0
<i>Cryptotendipes</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dicortendipes modestus</i>	0	0	1	3	2	1	0	0	0	0	0	0	0	0	1	0	0	0
<i>Microtendipes pedellus</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Phaenopsectra obediens</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polypedium aviceps</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polypedium fallax</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
<i>Polypedium laterale</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<i>Polypedium illinoense</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polypedium laetum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Polypedium scalaenum</i> grp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Stictochironomus</i>	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
<i>Cladotanytarsus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microsectra</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
<i>Rheotanytarsus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Stempellinella</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tanytarsus</i>	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0
<i>Chelifera</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hemerodromia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Muscidae	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0
Psychodidae pupae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pericoma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
<i>Psychoda</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0
<i>Simulium</i>	0	0	0	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0
<i>Chrysops</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Antocha</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dicranota</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
<i>Hexatoma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tipula</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Musculium</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pisidium casertanum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pisidium compressum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pisidium dubium</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Fossaria</i>	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
<i>Physa cf. heterostropha</i>	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0