

**APPENDIX I - BENTHIC
MACROINVERTEBRATE SURVEY
REPORT**

FIELD AND DATA REPORT

**DOWNTOWN PORTLAND
SEDIMENT CHARACTERIZATION**

WILLAMETTE RIVER
PORTLAND, OREGON

JANUARY 2009



Portland Office
434 NW Sixth Avenue, Suite 304
Portland, Oregon 97209
Tel: 503.224.0333 Fax 503.224.1851
www.swca.com

Benthic Macroinvertebrate Survey for Downtown Portland Sediment Characterization

Prepared for

GSI Water Solutions, Inc.
55 SW Yamhill Street, Suite 400
Portland, OR 97204

Prepared by

SWCA Environmental Consultants
Previously Fishman Environmental Services

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Introduction

A benthic macroinvertebrate survey was conducted by SWCA Environmental Consultants (SWCA) as part of the Downtown Portland Sediment Characterization (DPSC). SWCA collected and analyzed benthic macroinvertebrate samples from surface sediment (grab) samples collected by GSI Water Solutions (GSI) and its subcontractors. GSI collected sediments to assess the nature and extent of environmental contaminants within the Willamette River between river miles (RM) 12 and 16.

Results of the benthic macroinvertebrate study provide a qualitative understanding of the benthic infauna and are not sufficient for quantitative statistical analysis. Extrapolation or interpretation of these results to other similar areas of the river is not recommended without additional sample collection and finer taxonomic resolution needed to increase the statistical power of the data set.

Methods

GSI collected surface and subsurface sediment samples from the Willamette River between River Miles 12 and 16 following the procedures described in the *Sampling and Analysis Plan, Downtown Portland Sediment Characterization* (GSI 2008a). A powered Van Veen grab sampler (31 x 46.5 cm, area of 0.144 m²) was used to collect river bottom substrates up to 30 cm deep for sediment characterization purposes (i.e., surface sediment (grab) samples). Following collection of approximately 1/4 to 1/2 of the grab sampler volume for physical and environmental characterization at an off-site lab, the remaining upper 10 cm of each sediment grab was subsampled using a marked metal tube (11.5 cm diameter, Figure 1) and retained for benthic macroinvertebrate enumeration and identification. Four sub-samples per sediment grab were collected to retain a 0.0416 m² total area of biologically active benthic sediment per sample. Grab samples with inadequate remaining amounts of sediment, or where returned grabs consisted of large materials that could not be collected with the sub-sampling cylinder, were documented as *qualitative* (QUAL in the data table). For samples designated as *qualitative*, any observed organisms or the remaining upper 10 cm strata of sediment from the grab were placed in sample jars for qualitative analysis. Sample site water depths were collected from the sampling vessel's depth sounder or a lead line. Sediment grain size was analyzed at Columbia Analytical Services as described in the GSI's Sampling and Analysis Plan (SAP). Macroinvertebrate samples were transported daily from the sampling vessel to SWCA's processing lab. Samples were then washed in a 500 micron (0.5 mm) sieve to remove fines (Figure 2). Retained material was preserved in 70-80% ethanol for sorting and identification.

Preserved samples were sorted on a white sorting tray (Figure 3), and invertebrates examined at 1x to 25x magnifications using a stereo dissecting microscope. Multiple trays of material were sorted per sample, with every third tray re-examined by a second person for quality control. Organisms were identified to coarse levels, generally the family taxonomic level, using the following references: Burch (1973), Rudy and Rudy (1983), Pennak (1989), Thorp and Covich (1991), Merritt and Cummins (1996), and Nedeau et al. (2007). Preserved invertebrates were archived and collection information retained for future retrieval and re-examination.

Benthic invertebrates from *qualitative* samples were identified and noted, but not included in further analyses. Only whole organisms, or parts that were identified as a whole live specimen prior to preservation (e.g. lamprey ammocoetes), were included in tallies for further analyses. Data entry was quality checked by a second person and compared to field sampling notes, log books, and post-sampling maps.

Results

A total of 79 invertebrate samples (3,874 individual invertebrates and 5 whole lamprey ammocoetes) were collected during the study. Three of the samples were qualitative, and not used in further analysis. Seven sample sites (not included in the total tally above) did not have successful invertebrate samples collected (G004, G006, G060, G061, G081, G082, G084). A map of sampling sites is provided in GSI's Field and Data Report (GSI, 2008b).

The number of individual organisms collected from each invertebrate sample site ranged from 3 to 219 (average of 51 for 76 samples). Benthic organisms collected within the study reach are presented in order of overall abundance of taxa (Table 1). Thirty-six taxa groups (primarily family level) were distinguished.

Oligochaetes were most numerous, with Chironomids, *Corophium* (aka *Americorophium*), freshwater polychaete *Manaynkia speciosa*, and Asian clams comprising 91% of the total organisms collected in May, 2008. Sample water depths ranged from 10 to 79 feet. Table 2 displays the ten most common taxa collected by site presence and dominance, substrate association, depth range, and prey for salmonid fishes listed under the Endangered Species Act (ESA). A full list of numbers of taxa collected per sample location is presented in Table 5.

The most dominant invertebrate group over all sampling sites was oligochaete worms (Table 2); this was the dominant taxon at 50% of all the sampling sites and present at all 76 locations where full invertebrate samples were collected. Chironomids (midge fly larvae) were the second most dominant group (95% of sample sites), and were the most abundant species at 27% of all the sites sampled. At all but one site where Chironomid pupae were collected, their larvae were also present. *Corophium* amphipods (64% of sites), and non-native Asian clams (62%) were also well distributed throughout the DPSC reach. Photographs of select specimens are presented in Figures 5 - 10. This study also documented lamprey ammocoetes (filter feeding juvenile life stage that buries in sediments, Figure 9) from six grab sample sites on the east bank: whole specimens were collected from five of the sites G035, G051, G052, G056, and G058, a partial specimen was collected from site G057.

Table 3 and Figure 4 each display the presence of invertebrate groups within sample sites of the DPSC reach. Oligochaetes and midge larvae were ubiquitous, while approximately 75% of the taxa groups were sporadically distributed within the study reach.

The number of different taxa present at each site (taxa richness) ranged from 12 to 2 (Table 4). Sample site G048 had the greatest number of taxa. Potential associations between water depth and dominant substrate (grain size) with invertebrate groups were examined but not apparent in the data. Samples collected from shallow water depths (less than 20 feet deep) comprised 29% of the invertebrate sample sites where fines (fine sand and smaller substrate classes) were more prevalent than deeper sites (68% and 27%, respectively).

Discussion

Invertebrate community dominance and composition data from this survey are generally similar to those of other benthic studies from the lower Willamette and Columbia Rivers (McCabe et al. 1997; LWG 2002; Friesen et al. 2005). Oligochaete worms and Chironomid larvae were nearly ubiquitous throughout the DPSC study area and were the most dominant invertebrates within the study area. Though these two groups were not identified to species level, we observed taxonomic diversity within the two groups.

Associations between taxa presence and substrate size classes were not apparent in this data set, though potential associations were analyzed by dominant substrate, not total substrate composition (i.e. "medium gravel" was typically intermixed with sand or other sediments). Dominant species generally were evenly distributed across different water depths. The affinity of dominant species for medium gravel in the data set is due, at least in part, to the fact that substrates in 50% of all samples were dominated by medium gravel.

There are a number of limitations of the benthic invertebrate data presented here that preclude their use beyond a pilot survey-level study. The primary objective of the DPSC was to assess the nature and extent of environmental contaminants within this reach of the Willamette River, and sediment sampling stations were therefore generally biased to the locations of potential contaminant sources. The majority of the sample sites were close to the shoreline (within 300 feet), which in the DPSC reach is typical urban shoreline with many physical alterations and a high number of outfalls. Targeted sites for potential contaminant sources might also be likely to contain more frequently altered riverbottom habitat, which could limit invertebrate diversity. Some benthic macroinvertebrates are more mobile than others, and changes occur during their life histories, resulting in seasonal and annual, variations in local densities.

The relatively small number and size of samples collected, and the lack of sample replicates at each station presents statistical limitations for the data set. The lack of sample site replicates and the low densities of organisms per sample limit the statistical validity of hypothesis testing or correlation to specific locations, water depths, or sediment grain size. This study was not designed to examine correlations between invertebrates and sediment chemistry.

Seventy-six invertebrate samples were analyzed from sites within a 4.0 mile reach at downtown Portland. Assuming an average river width of 2,000 feet, the sampling area is 970 acres (42,240,000 square feet). Thus, the average spatial density per sample was 12.8 acres (i.e., 970 acres divided by 76 samples). A portion (0.0285 m²) of the powered Van Veen grab sample was collected for every site sampled. The likelihood of the small sample area detecting a highly variable distribution of invertebrates within a 4 mile long, (¼ mile wide) reach of river is small. Thus, the limited surface area sampled, and number of samples collected per location, do not allow for quantitative analyses of invertebrate populations or correlations with environmental conditions.

The two most abundant taxonomic groups, oligochaetes and chironomids are generally tolerant of poor water quality conditions, but can also be found in areas with good water quality. A recent study specifically targeting oligochaetes at the species-level of identification (Lin and Yo 2008) showed correlation between some species' densities and pollution index ratings for specific locations. Given the prevalence of oligochaetes and chironomids at sites sampled within the DPSC,

greater taxonomic resolution of these groups may help in developing statistical analysis of invertebrates and site conditions.

Benthic taxa collected within the DPSC reach were generally similar to those collected by Friesen et al (2005) and LWG (2002) using similar sampling methods. Distribution of invertebrates is highly variable both spatially and seasonally, though less so with oligochaetes (Lin and Yo 2008). To achieve statistical power that can test hypotheses and draw quantitative correlations, 300-500 organisms per location are recommended, often requiring the combined sample area of 1 to 8 full Van Veen grab samples (US EPA 2001). Though data from this study cannot be used to quantitatively evaluate invertebrate populations, it can be used to inform studies of sediment contamination in the reach; this study provides a qualitative characterization of the benthic invertebrate community at grab sample locations in May 2008. Taken as a whole, the data set gives us a picture of the general benthic macroinvertebrate community in this reach.

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Figure 1. Sub-sampling from powered Van Veen Grab



Figure 3. Invertebrate sample sorting



Figure 2. Initial invertebrate sample washing

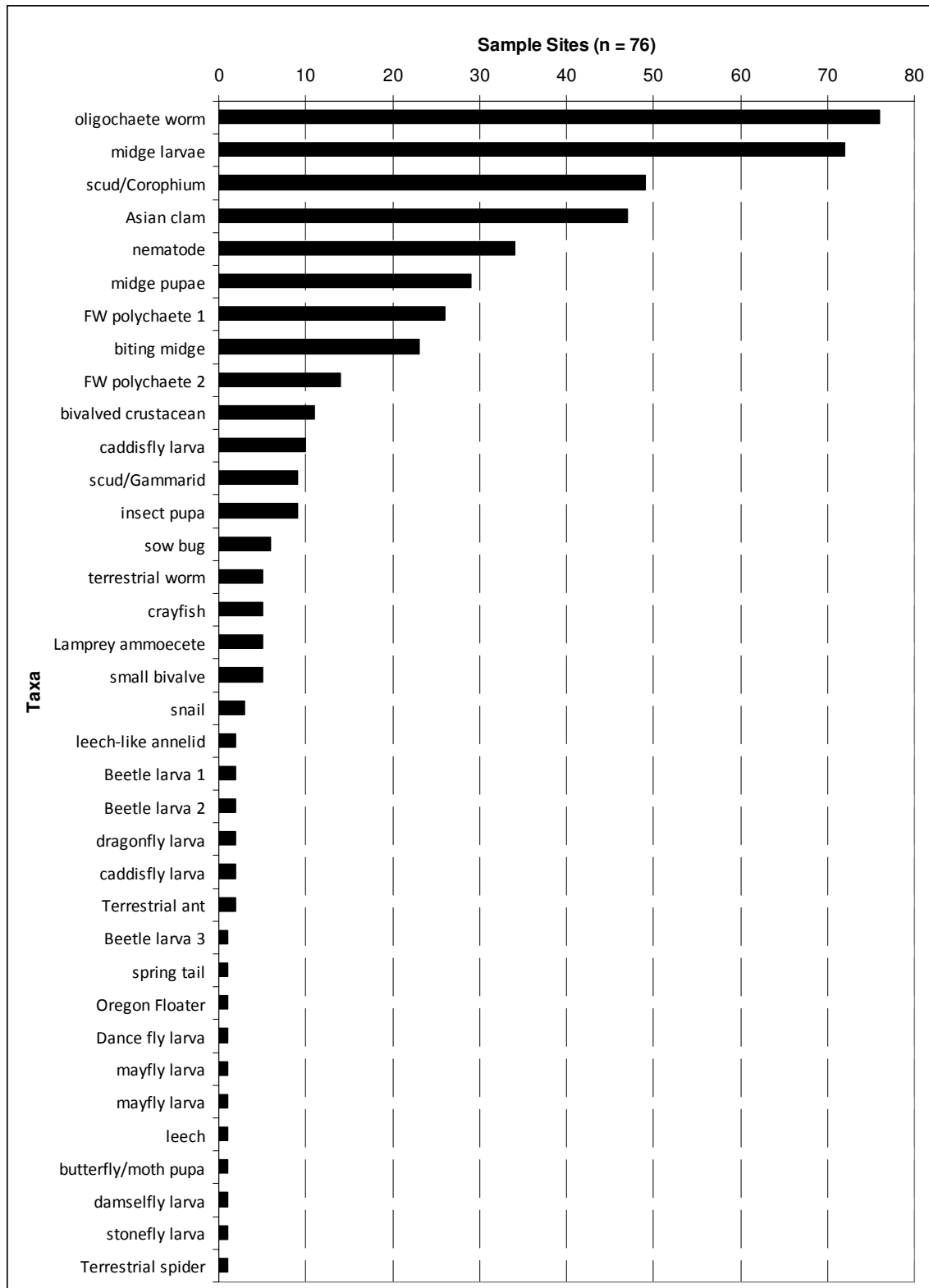


Figure 4. Number of Sites where Taxa were Detected



Figure 5. Example of sorted sample invertebrates during taxonomic identification; specimens include Corophium and Gammarid amphipods, clam, oligochaetes



Figure 7. Oligochaete specimens



Figure 6. Chironomid larva (larger specimen) and pupa (smaller specimen)



Figure 8. Asian clam (*Corbicula fluminea*)



Figure 9. Lamprey ammocoete



Figure 10. Freshwater polychaete, family Nereidadae

Table 1. Relative Overall Abundance of Whole Specimens by Taxa

class (c), order (o), family (f)]	Taxa (<i>Genus species</i>) [unid= unidentified]	Common Name	Total Collected
Oligochaeta (c)	unid	oligochaete worm	2005
Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	747
Amphipoda (o), Corophiidae (f)	<i>Corophium</i> sp.	scud, <i>Corophium</i>	591
Polychaeta (c), Serellidae (f)	<i>Manayunkia speciosa</i>	freshwater polychaete worm	106
Bivalvia (C), Corbiculidae (f)	<i>Corbicula fluminea</i>	Asian clam	93
Nematoda (p)	unid	nematode	71
Diptera (o), Chironomidae (f)	Chironomid pupae	midge fly pupae	68
Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge fly larva	39
Amphipoda (o), Gammaridae (f)	unid	scud, other	29
Annelida (p)	unid	aquatic worm	16
Ostracoda (c)	unid	bivalved crustacean	16
Polychaeta (c), Nerididae (f)	Family Nerididae	freshwater polychaete worm	14
Branchiobdellida (c)	unid	leech-like annelid worm	10
Diptera (o)	unid pupa	fly pupa 1	9
Isopoda (o)	unid	sow bug	9
Coleoptera (o)	unid	Beetle larva	8
Tricoptera (o)	unid	caddisfly larva	8
Bivalvia (c), Sphaeriidae (f)	unid	unid small bivalve clam	6
Decapoda (o)	unid and <i>Pacifiastacus</i> sp.	Crayfish	5
Petromyzontidae (f)	unid	Lamprey amoecete	5
Gastropoda (c)	unid	Snail	3
Isopoda (o), Asellidae (f)	unid	sow bug	3
Bivalvia (c), Unionidae (f)	<i>Anondonta oregonensis</i>	Oregon Floater clam	2
Diptera (o)	unid green pupae	fly pupa 2	2
Hymenoptera (o)	unid	Terrestrial ant	2
Odonata (o), Gomphidae (f)	unid and <i>Gomphus</i> sp.	dragonfly larva	2
Arachnid (f)	unid	Terrestrial spider	1
Collembola (o), Entomobryidae (f)	unid	spring tail	1
Diptera (o)	unid black pupa	insect pupa 3	1
Diptera (o), Empididae (f)	Empidid larva	Dance fly larva	1
Ephemeroptera (o), Baetidae	Baetid larva	mayfly larva, Baetid	1
Ephemeroptera (o), Ephemerellidae (f)	Ephemerella sp.	mayfly larva, Ephemerella	1
Hirundinea (c)	unid	leech	1
Lepidoptera (o)	unid	butterfly/moth pupa	1
Odonata (o), anisoptera	unid	damsely fly larva	1
Plecoptera (o), Perlidae (f)	Isoperla sp.	stonefly larva	1

Table 2. Ten Most Common Taxa

Taxa Group	Number of sites where present	Number of sites where dominant*	Dominant substrate where present	Dominant substrate where taxon was dominant, no. of sites	Depth Range (feet)	Prey for ESA [§] fishes
Oligochaetes	76 (100%)	40.5 (50%)	Medium gravel, 37 (51%)	Medium gravel, 20 (47%)	10-79	
Chironomid larvae	72 (95%)	21.5 (27%)	Medium gravel, 36 (49%)	Medium gravel, 14 (61%)	10-79	Yes [‡]
Amphipods	49 (64%)	12 (15%)	Medium gravel, 29 (58%)	Medium gravel, 4 (33%)	11-79	Yes ^{‡^}
<i>Corbicula fluminea</i>	47 (62%)	NA	Medium gravel, 24 (63%)	NA	11-79	No
Nematodes	34 (45%)	1 (1%)	Medium gravel, 18 (55%)	Fine sand, 1 (100%)	11-79	
Chironomid pupae	29 (38%)	NA	Medium gravel, 14 (45%)	NA	10-79	Yes ^{‡^}
<i>Manayunkia speciosa</i>	26 (34%)	2 (3%)	Medium gravel, 21 (84%)	Medium gravel, 2 (100%)	16-79	
Ceratopogonid Larvae	23 (30%)	NA	Medium gravel, 8 (35%); Fine sand, 8 (35%)	NA	10-67	Yes ^{‡^}
Nerididae polychaete	14 (18%)	NA	Medium gravel, 9 (82%)	NA	11-64	
Ostracod	11 (14%)	NA	Medium gravel, 7 (64%)	NA	16-79	

NA = Taxa group not dominant at a site. * Includes sites with shared dominanc.
[‡] Vile et al. 2004, [^]Rondorf et al. 1990. [§] ESA: Endangered Species Act
Bold lettering indicates dominance

Table 3. Presence of Invertebrate Groups

Taxa [phylum (p), class (c), order (o), family (f)]	Taxa (<i>Genus species</i>) [unid= unidentified]	Common Name	Number of Sample Locations
Oligochaeta (c)	unid	oligochaete worm	76
Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	72
Amphipoda (o)	<i>Corophium</i> sp.	scud/Corophium	49
Bivalvia (c), Corbiculidae (f)	<i>Corbicula fluminea</i>	Asian clam	47
Nematoda (p)	unid	nematode	34
Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	29
Polychaeta (c), Serellidae (f)	<i>Manayunkia speciosa</i>	FW polychaete 1	26
Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	23
Polychaeta (c), Nerididae (f)	Nerididae (f)	FW polychaete 2	14
Ostracoda (c)	unid	bivalved crustacean	11
Tricoptera (o)	unid	caddisfly larva	10
Amphipoda (o), Gammaridae (f)	unid	scud/Gammarid	9
Diptera (o)	unid pupa	insect pupa	9
Isopoda (o)	unid	sow bug	6
annelida (p)	unid	terrestrial worm	5
decapoda (o)	unid, <i>Pacifiastacus</i> sp.	crayfish	5
Petromyzontidae (f)	unid	Lamprey amoecete	5
Bivalvia (c), Sphaeriidae (f)	unid	small bivalve	5
Gastropoda (c)	unid	snail	3
Branchiobdellida (c)	unid	leech-like annelid	2
Coleoptera (o), Elmidae (f)	unid	Beetle larva 1	2
Coleoptera (o), Hydropilidae (f)	unid	Beetle larva 2	2
Odonata (o), Gomphidae (f)	unid, <i>Gomphus</i> sp.	dragonfly larva	2
Tricoptera (o), Polycentropodidae (f)	unid, <i>Cemotina</i> sp.	caddisfly larva	2
Hymenoptera (o)	unid	Terrestrial ant	2
Coleoptera (o)	unid	Beetle larva 3	1
Collembola (o), Entomobryidae (f)	unid	spring tail	1
Bivalvia (c), Unionidae (f)	<i>Anondonta oregonensis</i>	Oregon Floater	1
Diptera (o), Empididae (f)	Empidid larvae	Dance fly larva	1
Ephemeroptera (o)	Baetidae (f)	mayfly larva	1
Ephemeroptera (o), Ephemerelidae (f)	<i>Ephemerella</i> sp.	mayfly larva	1
Hirundinea (c)	unid	leech	1
Lepidoptera (o)	unid	butterfly/moth pupa	1
Odonata (o), anisoptera	unid	damselfly larva	1
Plecoptera (o), Perlidae (f)	<i>Isoperla</i> sp.	stonefly larva	1
Arachnid (f)	unid	Terrestrial spider	1

Table 4. Richness of Taxa

Sample ID	No. of Taxa Groups	Whole Specimens	Sample ID	No. of Taxa Groups	Whole Specimens
G048	12	84	G072	5	208
G078	10	93	G013	5	49
G022	9	159	G025	5	40
G016	9	44	G075	5	37
G047	8	219	G073	5	36
G071	8	155	G067	5	36
G040	8	140	G059	5	33
G049	8	125	G057	5	20
G062	8	46	G050	5	20
G039	8	26	G019	5	19
G042	8	20	G035	5	16
G037	8	13	G002	5	14
G085	7	74	G033	5	3
G070	7	59	G007	4	104
G029	7	50	G052	4	92
G017	7	42	G024	4	78
G032	7	27	G014	4	55
G021	7	19	G008	4	46
G018	7	16	G020	4	39
G038	7	15	G030	4	27
G026	6	141	G012	4	27
G079	6	100	G063	4	25
G069	6	93	G045	4	12
G076	6	84	G023	4	12
G001	6	80	G066	4	9
G003	6	75	G065	4	7
G015	6	66	G051	4	5
G077	6	53	G055	4	5
G041	6	48	G009	3	143
G005	6	38	G080	3	45
G054	6	37	G010	3	38
G074	6	32	G028	3	24
G056	6	24	G031	3	9
G044	6	22	G046	2	33
G027	6	20	G036	2	16
G053	5	50	G064	2	3
G011	5	31			
G043	5	30	G034 QUAL	2	7
G058	5	28	G022 QUAL	3	15
G068	5	17			

Table 5. Specimen Collection Data.

Sample ID (DPSC-XXXX)	Sample Date	Water Depth (feet)	Dominant Substrate	Taxa [phylum (p), class (c), order (o), family (f)]	Taxa (Genus species) [unid=unidentified]	Common Name	Count	Comments
G001	5/19/2008	44	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	66	and 32 parts
G001	5/19/2008	44	Medium gravel	Oligochaeta (c)	Kincaidiana hexatheca	oligochaete worm	1	
G001	5/19/2008	44	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	4	
G001	5/19/2008	44	Medium gravel	Amphipoda (o)	Corophium sp.	scud	2	
G001	5/19/2008	44	Medium gravel	Isopoda (o)	unid	sow bug	1	
G001	5/19/2008	44	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	
G001	5/19/2008	44	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G002	5/19/2008	44	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G002	5/19/2008	44	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	7	and 17 parts
G002	5/19/2008	44	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	2	
G002	5/19/2008	44	Medium gravel	Amphipoda (o)	Corophium sp.	scud	3	
G002	5/19/2008	44	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	1	
G003	5/14/2008	37	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	4	
G003	5/14/2008	37	Medium gravel	Bivalvia (C)	Anendonta oregonensis	Oregon Floater	2	
G003	5/14/2008	37	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	42	and 37 parts
G003	5/14/2008	37	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	7	
G003	5/14/2008	37	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	5	
G003	5/14/2008	37	Medium gravel	Amphipoda (o)	Corophium sp.	scud	6	
G003	5/14/2008	37	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	9	at least 3 spp.
G005	5/19/2008	40	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	and 2 empty shells
G005	5/19/2008	40	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	6	
G005	5/19/2008	40	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	16	and 58 parts
G005	5/19/2008	40	Medium	Annelida (p)	unid	potentially	1	1 part very

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			gravel			terrestrial worm		large, earthworm like
G005	5/19/2008	40	Medium gravel	Nematoda (p)	unid	nematode	3	
G005	5/19/2008	40	Medium gravel	Amphipoda (o)	Corophium sp.	scud	4	and 3 parts
G005	5/19/2008	40	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	7	and 3 parts
G007	5/19/2008	40	Medium sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	6 empty
G007	5/19/2008	40	Medium sand	Oligochaeta (c)	unid	oligochaete worm with sand case	7	
G007	5/19/2008	40	Medium sand	Oligochaeta (c)	unid	oligochaete worm	83	and 191 parts
G007	5/19/2008	40	Medium sand	annelida (p)	unid	aquatic worm	1	wide gill-like structures attached to body wall
G007	5/19/2008	40	Medium sand	Nematoda (p)	unid	nematode	2	
G007	5/19/2008	40	Medium sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	11	
G008	5/19/2008	10	Fine sand	Oligochaeta (c)	unid	oligochaete worm	40	and 52 parts, including 3 <i>Branchiura sowerbyi</i>
G008	5/19/2008	10	Fine sand	Hirundinea (c)	unid	leech	1	
G008	5/19/2008	10	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	3	
G008	5/19/2008	10	Fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	2	
G009	5/20/2008	21	Very fine sand	Oligochaeta (c)	unid	oligochaete worm with sand case	3	
G009	5/20/2008	21	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	106	and 34 parts
G009	5/20/2008	21	Very fine sand	Oligochaeta (c)	Kincaidiana hexatheca	oligochaete worm	1	
G009	5/20/2008	21	Very fine sand	Oligochaeta (c)	Branchiura sowerbyi	oligochaete worm	2	
G009	5/20/2008	21	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	30	at least 2 spp.
G009	5/20/2008	21	Very fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	1	
G010	5/16/2008	16	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	14	and 17 parts

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G010	5/16/2008	16	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	20	at least 2 spp.
G010	5/16/2008	16	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G010	5/16/2008	16	Very fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	2	
G011	5/16/2008	20	Very fine sand	Oligochaeta (c)	unid	oligochaete worm with sand case	6	
G011	5/16/2008	20	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	5	and 5 parts
G011	5/16/2008	20	Very fine sand	Nematoda (p)	unid	nematode	1	
G011	5/16/2008	20	Very fine sand	Amphipoda (o)	Corophium sp.	scud	16	and 4 part
G011	5/16/2008	20	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	2	and 2 parts
G011	5/16/2008	20	Very fine sand	Coleoptera (o), Elmidae (f)	unid	Beetle larva	1	and 1 part
G012	5/16/2008	11	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	3	and 17 parts
G012	5/16/2008	11	Very fine sand	Nematoda (p)	unid	nematode	3	
G012	5/16/2008	11	Very fine sand	Amphipoda (o)	Corophium sp.	scud	12	and 1 part
G012	5/16/2008	11	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	9	at least 3 spp.
G013	5/16/2008	17	Medium silt	Oligochaeta (c)	unid	oligochaete worm	1	4 parts
G013	5/16/2008	17	Medium silt	Nematoda (p)	unid	nematode	1	
G013	5/16/2008	17	Medium silt	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	2 parts
G013	5/16/2008	17	Medium silt	Amphipoda (o)	Corophium sp.	scud	42	and 19 parts
G013	5/16/2008	17	Medium silt	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	6	and 3 parts
G014	5/16/2008	11	Very fine sand	Oligochaeta (c)	unid	oligochaete worm with sand case	5	
G014	5/16/2008	11	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	22	and 50 parts, including 1 <i>Branchiura sowerbyi</i>
G014	5/16/2008	11	Very fine sand	Nematoda (p)	unid	nematode	2	
G014	5/16/2008	11	Very fine sand	Amphipoda (o)	Corophium sp.	scud	22	and 1 part; some with eggs

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G014	5/16/2008	11	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	
G015	5/16/2008	29	Coarse silt	Oligochaeta (c)	unid	oligochaete worm with sand case	2	
G015	5/16/2008	29	Coarse silt	Oligochaeta (c)	unid	oligochaete worm	4	and 12 parts
G015	5/16/2008	29	Coarse silt	Amphipoda (o)	Corophium sp.	scud	31	and 2 parts
G015	5/16/2008	29	Coarse silt	Amphipoda (o), Gammaridae (f)	unid	scud	5	Likely Gammarus sp.
G015	5/16/2008	29	Coarse silt	Ostracoda (c)	unid	bivalved crustacean	1	
G015	5/16/2008	29	Coarse silt	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	14	and 1 parts
G015	5/16/2008	29	Coarse silt	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	3	
G015	5/16/2008	29	Coarse silt	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge larva	1	
G015	5/16/2008	29	Coarse silt	Ephemeroptera (o), Ephemerelidae (f)	Ephemerella sp.	mayfly larva	1	
G016	5/23/2008	22	Medium gravel	Bivalvia (c), Corbiculidae (f)	Corbicula fluminea	Asian clam	3	
G016	5/23/2008	22	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	3	and 22 parts
G016	5/23/2008	22	Medium gravel	Nematoda (p)	unid	nematode	4	
G016	5/23/2008	22	Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	2	
G016	5/23/2008	22	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	4	
G016	5/23/2008	22	Medium gravel	Amphipoda (o)	Corophium sp.	scud	7	
G016	5/23/2008	22	Medium gravel	Ostracoda (c)	unid	bivalved crustacean	1	
G016	5/23/2008	22	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	15	
G016	5/23/2008	22	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	3	
G016	5/23/2008	22	Medium gravel	Diptera (o)	unid pupa	insect pupa	1	
G016	5/23/2008	22	Medium gravel	Ephemeroptera (o)	potentially Baetidae family	mayfly larva	1	
G017	5/23/2008	30	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	7	
G017	5/23/2008	30	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	5	and 20 parts; some very large,

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G017	5/23/2008	30	Medium gravel	Nematoda (p)	unid	nematode	2	earthworm like
G017	5/23/2008	30	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	4	
G017	5/23/2008	30	Medium gravel	Amphipoda (o)	Corophium sp.	scud	9	
G017	5/23/2008	30	Medium gravel	Diptera (o)	unid pupa	insect pupa	1	
G017	5/23/2008	30	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	10	and 1 part
G017	5/23/2008	30	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G017	5/23/2008	30	Medium gravel	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	3	
G018	5/23/2008	24	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	and 1 shell
G018	5/23/2008	24	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	1	and 26 parts, including 1 <i>Branchiura sowerbyi</i>
G018	5/23/2008	24	Medium gravel	Nematoda (p)	unid	nematode	2	
G018	5/23/2008	24	Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	and 5 parts
G018	5/23/2008	24	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	7	
G018	5/23/2008	24	Medium gravel	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	2	
G018	5/23/2008	24	Medium gravel	Arachnid (f)	unid	Terrestrial spider	1	
G019	5/23/2008	28	Medium gravel	annelida (p)	unid	potentially terrestrial worm	1	very large, earthworm like
G019	5/23/2008	28	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	1	and 32 parts, including 2 <i>Branchiura sowerbyi</i>
G019	5/23/2008	28	Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	2	and 2 parts
G019	5/23/2008	28	Medium gravel	Amphipoda (o)	Corophium sp.	scud	1	
G019	5/23/2008	28	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	15	and 1 part
G020	5/23/2008	24	Medium gravel	Bivalvia (C), sphaeriidae (f)	unid	unid bivalve	2	
G020	5/23/2008	24	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	and 1 shell

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G020	5/23/2008	24	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	2	and 6 parts
G020	5/23/2008	24	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	33	at least 5 spp.
G021	5/27/2008	28	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	5	and 7 parts
G021	5/27/2008	28	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	1	3 cases
G021	5/27/2008	28	Medium gravel	Amphipoda (o)	Corophium sp.	scud	2	2 spp.
G021	5/27/2008	28	Medium gravel	Isopoda (o)	unid	sow bugs	1	1 head
G021	5/27/2008	28	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	6	
G021	5/27/2008	28	Medium gravel	Coleoptera (o), Hydropilidae (f)	unid	Beetle larva	5	appear as Hydropilidae, but legs/tarsi missing for ID
G021	5/27/2008	28	Medium gravel	Collembola (o), Entomobryidae (f)		spring tail	1	Typically inhabit surface film of water
G022	5/27/2008	16	Coarse silt	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	
G022	5/27/2008	16	Coarse silt	Oligochaeta (c)	unid	oligochaete worm with sand case	8	
G022	5/27/2008	16	Coarse silt	Oligochaeta (c)	unid	oligochaete worm	3	and 2 parts
G022	5/27/2008	16	Coarse silt	Oligochaeta (c)	Spirosperma nikolski	oligochaete worm	1	
G022	5/27/2008	16	Coarse silt	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	2	
G022	5/27/2008	16	Coarse silt	Amphipoda (o)	Corophium sp.	scud	96	and 39 parts; some amphipods completely enclosed in soft sand/silt cases/blobs
G022	5/27/2008	16	Coarse silt	Amphipoda (o), Gammaridae (f)	unid	scud	1	Likely Gammarus sp.
G022	5/27/2008	16	Coarse silt	Ostracoda (c)	unid	bivalved crustacean	2	
G022	5/27/2008	16	Coarse silt	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	37	
G022	5/27/2008	16	Coarse silt	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	4	
G022	5/27/2008	16	Coarse silt	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge larva	1	
G022	5/27/2008	16	Coarse silt	Tricoptera (o),	Cemotina sp.	caddisfly larva	1	

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			silt	Polycentropodidae (f)				
G022	5/27/2008	16	Coarse silt	Plecoptera (o), Perlidae (f)	Isoperla sp.	stonefly larva	1	predators of chironomids
G023	5/23/2008	16	Coarse silt	Oligochaeta (c)	unid	oligochaete worm	3	and 12 parts
G023	5/23/2008	16	Coarse silt	Oligochaeta (c)	Branchiura sowerbyi	oligochaete worm	2	
G023	5/23/2008	16	Coarse silt	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	
G023	5/23/2008	16	Coarse silt	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G023	5/23/2008	16	Coarse silt	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	1	
G023	5/23/2008	16	Coarse silt	Diptera (o)	unid black pupa	insect pupa	1	
G024	5/23/2008	24	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	44	and 119 parts, including 1 <i>Branchiura sowerbyi</i> , and 1 very large specimen
G024	5/23/2008	24	Very fine sand	Oligochaeta (c)	Branchiura sowerbyi	oligochaete worm	1	
G024	5/23/2008	24	Very fine sand	Amphipoda (o)	Corophium sp.	scud	6	
G024	5/23/2008	24	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	21	at least 3 spp.
G024	5/23/2008	24	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G024	5/23/2008	24	Very fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	4	
G025	5/23/2008	25	Fine sand	Oligochaeta (c)	unid	oligochaete worm	9	and 30 parts
G025	5/23/2008	25	Fine sand	Amphipoda (o)	Corophium sp.	scud	1	
G025	5/23/2008	25	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	28	
G025	5/23/2008	25	Fine sand	Diptera (o)	unid pupa	insect pupa	1	
G025	5/23/2008	25	Fine sand	Tricoptera (o), polycentropodidae (f)	unid	caddisfly larva	1	in sand case
G026	5/21/2008	22	Fine sand	Oligochaeta (c)	unid	oligochaete worm	109	at least 3 spp; and 56 parts, including 1 <i>Branchiura sowerbyi</i>
G026	5/21/2008	22	Fine sand	Polychaeta (c)	Family Nerididae	freshwater	1	and 1 parts

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G026	5/21/2008	22	Fine sand	Amphipoda (o)	Corophium sp.	polychaete scud	1	
G026	5/21/2008	22	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	26	at least 3 spp; and 1 parts
G026	5/21/2008	22	Fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	3	
G026	5/21/2008	22	Fine sand	Diptera (o)	unid pupa	insect pupa	1	
G026	5/21/2008	22	Fine sand	Tricoptera (o)	unid	caddisfly larva	1	3 empty sand cases
G027	5/21/2008	18	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	0	1 shell
G027	5/21/2008	18	Fine sand	Oligochaeta (c)	unid	oligochaete worm	23	and 89 parts
G027	5/21/2008	18	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	
G027	5/21/2008	18	Fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	2	
G027	5/21/2008	18	Fine sand	Diptera (o)	unid pupa	insect pupa	1	
G027	5/21/2008	18	Fine sand	Tricoptera (o)	unid	caddisfly larva	1	2 empty sand cases
G028	5/21/2008	11	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G028	5/21/2008	11	Fine sand	Oligochaeta (c)	unid	oligochaete worm	19	and 18 parts, including 2 <i>Branchiura sowerbyi</i>
G028	5/21/2008	11	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	3	
G028	5/21/2008	11	Fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G029	5/21/2008	24	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G029	5/21/2008	24	Fine sand	Oligochaeta (c)	unid	oligochaete worm	22	and 66 parts
G029	5/21/2008	24	Fine sand	Nematoda (p)	unid	nematode	2	
G029	5/21/2008	24	Fine sand	Amphipoda (o)	Corophium sp.	scud	1	
G029	5/21/2008	24	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	19	at least 2 spp.
G029	5/21/2008	24	Fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G029	5/21/2008	24	Fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	3	
G029	5/21/2008	24	Fine sand	Tricoptera (o)	unid	caddisfly larva	1	1 empty sand case
G030	5/21/2008	26	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	11	1 very long; and 60 parts
G030	5/21/2008	26	Medium	Amphipoda (o),	unid	scud	3	Likely

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G030	5/21/2008	26	gravel Medium gravel	Gammaridae (f) Isopoda (o)	unid	sow bugs	1	Gammarus sp.
G030	5/21/2008	26	gravel Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	10	at least 2 spp.
G030	5/21/2008	26	gravel Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G031	5/21/2008	15	gravel Medium gravel	Oligochaeta (c)	unid	oligochaete worm	2	and 15 parts
G031	5/21/2008	15	gravel Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	and 4 parts
G031	5/21/2008	15	gravel Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	7	
G032	5/20/2008	30	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G032	5/20/2008	30	Fine sand	Oligochaeta (c)	unid	oligochaete worm	10	and 19 parts
G032	5/20/2008	30	Fine sand	Nematoda (p)	unid	nematode	1	
G032	5/20/2008	30	Fine sand	Amphipoda (o)	Corophium sp.	scud	3	and 6 parts
G032	5/20/2008	30	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	9	and 2 parts
G032	5/20/2008	30	Fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G032	5/20/2008	30	Fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	2	
G032	5/20/2008	30	Fine sand	Tricoptera (o)	unid	caddisfly larva	0	2 empty sand cases
G033	5/20/2008	26	gravel Medium gravel	Bivalvia (C), sphaeriidae (f)	unid	small bivalve	1	and 1 shell
G033	5/20/2008	26	gravel Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	1 shell
G033	5/20/2008	26	gravel Medium gravel	Oligochaeta (c)	unid	oligochaete worm	1	and 1 parts
G033	5/20/2008	26	gravel Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	0	and 5 parts
G033	5/20/2008	26	gravel Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	1	
G033	5/20/2008	26	gravel Medium gravel	Amphipoda (o)	Corophium sp.	scud	1	1 parts
G035	5/20/2008	19	gravel Medium gravel	Petromyzontidae (f)	unid	Lamprey amoecete	1	
G035	5/20/2008	19	gravel Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	1	
G035	5/20/2008	19	gravel Medium gravel	Oligochaeta (c)	unid	oligochaete worm	6	and 17 parts
G035	5/20/2008	19	gravel Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	and 5 parts

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G035	5/20/2008	19	Medium gravel	Amphipoda (o)	Corophium sp.	scud	2	
G035	5/20/2008	19	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	6	at least 2 spp.; and 1 parts
G036	5/20/2008	28	Fine sand	Oligochaeta (c)	unid	oligochaete worm	8	and 14 parts
G036	5/20/2008	28	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	8	
G037	5/20/2008	23	Fine sand	Gastropoda (c)	unid	snail	1	
G037	5/20/2008	23	Fine sand	Bivalvia (c)	unid	small bivalve	1	
G037	5/20/2008	23	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G037	5/20/2008	23	Fine sand	Oligochaeta (c)	unid	oligochaete worm	2	and 22 parts
G037	5/20/2008	23	Fine sand	Nematoda (p)	unid	nematode	1	
G037	5/20/2008	23	Fine sand	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	and 1 parts
G037	5/20/2008	23	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	5	
G037	5/20/2008	23	Fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	1	
G038	5/20/2008	28	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	and 1 parts
G038	5/20/2008	28	Fine sand	Oligochaeta (c)	unid	oligochaete worm	3	and 22 parts
G038	5/20/2008	28	Fine sand	Nematoda (p)	unid	nematode	2	
G038	5/20/2008	28	Fine sand	Amphipoda (o), Gammaridae (f)	unid	scud	1	Likely Gammarus sp.
G038	5/20/2008	28	Fine sand	Isopoda (o)	unid	sow bugs	2	
G038	5/20/2008	28	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	
G038	5/20/2008	28	Fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	2	
G039	5/20/2008	23	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	0	1 shell
G039	5/20/2008	23	Fine sand	Oligochaeta (c)	unid	oligochaete worm	6	and 16 parts
G039	5/20/2008	23	Fine sand	Nematoda (p)	unid	nematode	11	
G039	5/20/2008	23	Fine sand	Amphipoda (o)	Corophium sp.	scud	1	and 1 parts
G039	5/20/2008	23	Fine sand	Ostracoda (c)	unid	bivalved crustacean	1	
G039	5/20/2008	23	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	3	and 5 parts
G039	5/20/2008	23	Fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	2	
G039	5/20/2008	23	Fine sand	Diptera (o)	unid green	insect pupae	2	

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					pupae			
G040	5/20/2008	53	Coarse sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	
G040	5/20/2008	53	Coarse sand	Oligochaeta (c)	unid	oligochaete worm with sand case	69	
G040	5/20/2008	53	Coarse sand	Oligochaeta (c)	unid	oligochaete worm	28	and 49 parts
G040	5/20/2008	53	Coarse sand	Nematoda (p)	unid	nematode	1	
G040	5/20/2008	53	Coarse sand	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	3	
G040	5/20/2008	53	Coarse sand	Amphipoda (o)	Corophium sp.	scud	23	and 13 parts
G040	5/20/2008	53	Coarse sand	Ostracoda (c)	unid	bivalved crustacean	2	
G040	5/20/2008	53	Coarse sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	11	at least 3 spp.; and 3 parts
G040	5/20/2008	53	Coarse sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G040	5/20/2008	53	Coarse sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	1	
G041	5/15/2008	11	Fine sand	Bivalvia (c)	unid	small bivalve	1	
G041	5/15/2008	11	Fine sand	Oligochaeta (c)	unid	oligochaete worm	26	and 49 parts, including 1 <i>Spirosperma nikolski</i>
G041	5/15/2008	11	Fine sand	Nematoda (p)	unid	nematode	2	2 spp.
G041	5/15/2008	11	Fine sand	Polychaeta (c)	Family Nerididae	freshwater polychaete	3	and 2 parts
G041	5/15/2008	11	Fine sand	Amphipoda (o)	Corophium sp.	scud	2	
G041	5/15/2008	11	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	14	at least 2 spp.; and 1 parts
G042	5/15/2008	30.8	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	and 1 shell
G042	5/15/2008	30.8	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	1	
G042	5/15/2008	30.8	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	12	and 77 parts, including 4 <i>Spirosperma nikolski</i> , 1 <i>Kinciadiana hexatheca</i>
G042	5/15/2008	30.8	Medium gravel	Oligochaeta (c)	<i>Spirosperma nikolski</i>	oligochaete worm	1	
G042	5/15/2008	30.8	Medium gravel	Nematoda (p)	unid	nematode	1	
G042	5/15/2008	30.8	Medium	Diptera (o),	Chironomid	midge larvae	1	

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G042	5/15/2008	30.8	gravel Medium gravel	Chironomidae (f) Diptera (o), Ceratopogonidae (f)	larvae Ceratopogonidae larva	biting midge	1	
G042	5/15/2008	30.8	Medium gravel	Coleoptera (o), Hydrophilidae (f)	unid	Beetle larva	0	1 part in poor condition, potential Hydrophilidae larva
G042	5/15/2008	30.8	Medium gravel	Odonata (o), Gomphidae (f)	unid	dragonfly larva	1	
G042	5/15/2008	30.8	Medium gravel	Lepidoptera (o)	unid	butterfly/moth pupa	1	likely terrestrial
G043	5/15/2008	39	Medium sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	3	and 1 empty shell
G043	5/15/2008	39	Medium sand	Oligochaeta (c)	unid	oligochaete worm with sand case	13	
G043	5/15/2008	39	Medium sand	Oligochaeta (c)	unid	oligochaete worm	0	24 parts, including 1 <i>Kinciadiana hexatheca</i>
G043	5/15/2008	39	Medium sand	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	1	
G043	5/15/2008	39	Medium sand	Amphipoda (o)	Corophium sp.	scud	12	and 7 parts
G043	5/15/2008	39	Medium sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G044	5/15/2008	31	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	20	and 35 parts, including 3 <i>Spirosperma nikolski</i>
G044	5/15/2008	31	Medium gravel	Nematoda (p)	unid	nematode	3	
G044	5/15/2008	31	Medium gravel	Amphipoda (o)	Corophium sp.	scud	14	and 5 parts
G044	5/15/2008	31	Medium gravel	Ostracoda (c)	unid	bivalved crustacean	2	
G044	5/15/2008	31	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	1	
G044	5/15/2008	31	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G044	5/15/2008	31	Medium gravel	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	1	
G045	5/15/2008	27	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G045	5/15/2008	27	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	1	
G045	5/15/2008	27	Medium gravel	Oligochaeta (c)	unid	oligochaete	6	and 5 parts

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G045	5/15/2008	27	gravel Medium gravel	Amphipoda (o)	Corophium sp.	worm scud	3	and 7 parts
G045	5/15/2008	27	gravel Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G046	5/15/2008	32	gravel Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	3	
G046	5/15/2008	32	gravel Medium gravel	Oligochaeta (c)	unid	oligochaete worm	5	and 40 parts
G046	5/15/2008	32	gravel Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	
G046	5/15/2008	32	gravel Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	1	
G046	5/15/2008	32	gravel Medium gravel	Amphipoda (o)	Corophium sp.	scud	17	and 17 parts, 1 egg case
G046	5/15/2008	32	gravel Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	6	
G047	5/22/2008	30	gravel Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	8	and 2 empty shells
G047	5/22/2008	30	gravel Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	111	
G047	5/22/2008	30	gravel Medium gravel	Oligochaeta (c)	unid	oligochaete worm	23	29 parts, including 1 <i>Kinciadiana hexatheca</i>
G047	5/22/2008	30	gravel Medium gravel	Oligochaeta (c)	Spirosperma nikolski	oligochaete worm	2	
G047	5/22/2008	30	gravel Medium gravel	Nematoda (p)	unid	nematode	1	
G047	5/22/2008	30	gravel Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	5	
G047	5/22/2008	30	gravel Medium gravel	Amphipoda (o)	Corophium sp.	scud	41	including <i>C. salmonis</i> ; and 17 parts
G047	5/22/2008	30	gravel Medium gravel	Ostracoda (c)	unid	bivalved crustacean	2	
G047	5/22/2008	30	gravel Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	18	
G047	5/22/2008	30	gravel Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	6	
G047	5/22/2008	30	gravel Medium gravel	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge larva	2	
G048	5/13/2008	16	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	and 1 empty shell
G048	5/13/2008	16	Fine sand	Oligochaeta (c)	unid	oligochaete worm with sand case	13	
G048	5/13/2008	16	Fine sand	Oligochaeta (c)	unid	oligochaete	25	and 95 parts,

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						worm		including 3 <i>Spirosperma nikolski</i> , 1 <i>Kincaidiana hexatheca</i>
G048	5/13/2008	16	Fine sand	Oligochaeta (c)	<i>Spirosperma nikolski</i>	oligochaete worm	1	
G048	5/13/2008	16	Fine sand	Nematoda (p)	unid	nematode	2	
G048	5/13/2008	16	Fine sand	Polychaeta (c)	<i>Manayunkia speciosa</i>	freshwater polychaete	5	
G048	5/13/2008	16	Fine sand	Branchiobdellida (c)	unid	leech-like annelid worm	7	2 spp., ectosymbionts on crayfish
G048	5/13/2008	16	Fine sand	Amphipoda (o)	<i>Corophium</i> sp.	scud	14	and 2 parts
G048	5/13/2008	16	Fine sand	Amphipoda (o), Gammaridae (f)	unid	scud	1	and 1 parts; Likely <i>Gammarus</i> sp.
G048	5/13/2008	16	Fine sand	Isopoda (o)	unid	sow bugs	4	
G048	5/13/2008	16	Fine sand	decapoda (o)	unid, incomplete specimen	crayfish	1	3 arm pieces
G048	5/13/2008	16	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	16	at least 2 spp.
G048	5/13/2008	16	Fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G048	5/13/2008	16	Fine sand	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	1	
G048	5/13/2008	16	Fine sand	Coleoptera (o)	unid	Beetle larva	1	
G048	5/13/2008	16	Fine sand	Tricoptera (o)	unid	caddisfly larva	1	head only
G049	5/13/2008	19	Medium gravel	Bivalvia (C), Corbiculidae (f)	<i>Corbicula fluminea</i>	Asian clam	12	and 2 empty shell
G049	5/13/2008	19	Medium gravel	annelida (p)	unid	large worm	7	very large, earthworm like-potentially terrestrial; and 12 parts of same
G049	5/13/2008	19	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	26	and 71 parts
G049	5/13/2008	19	Medium gravel	Oligochaeta (c)	<i>Spirosperma nikolski</i>	oligochaete worm	7	
G049	5/13/2008	19	Medium gravel	Oligochaeta (c)	<i>Kincaidiana hexatheca</i>	oligochaete worm	2	
G049	5/13/2008	19	Medium gravel	Polychaeta (c)	<i>Manayunkia speciosa</i>	freshwater polychaete	2	
G049	5/13/2008	19	Medium gravel	Branchiobdellida (c)	unid	leech-like annelid worm	3	ectosymbionts on crayfish
G049	5/13/2008	19	Medium gravel	Amphipoda (o)	<i>Corophium</i> sp.	scud	54	and 24 parts
G049	5/13/2008	19	Medium gravel	Amphipoda (o), Gammaridae (f)	unid	scud	10	and 1 part; Likely

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G049	5/13/2008	19	Medium gravel	decapoda (o)	unid	crayfish	1	Gammarus sp. Likely <i>Pacifiastacus</i> sp.
G049	5/13/2008	19	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	11	at least 2 spp.
G050	5/13/2008	13	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	and 1 empty shell
G050	5/13/2008	13	Fine sand	Oligochaeta (c)	unid	oligochaete worm	13	and 77 parts, including 3 <i>Branchiura sowerbyi</i>
G050	5/13/2008	13	Fine sand	decapoda (o)	Pacifiastacus sp.	crayfish	1	
G050	5/13/2008	13	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	5	
G050	5/13/2008	13	Fine sand	Odonata (o), Gomphidae (f)	Gomphus sp.	dragonfly larva	1	
G051	5/13/2008	11	Very fine sand	Petromyzontidae (f)	unid	Lamprey amoecete	1	
G051	5/13/2008	11	Very fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G051	5/13/2008	11	Very fine sand	Oligochaeta (c)	unid	oligochaete worm with sand case	1	
G051	5/13/2008	11	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	1	and 6 parts, including 1 <i>Branchiura sowerbyi</i>
G051	5/13/2008	11	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	1	
G052	5/13/2008	10	Very fine sand	Petromyzontidae (f)	unid	Lamprey amoecete	1	
G052	5/13/2008	10	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	91	and 86 parts, including 1 <i>Branchiura sowerbyi</i>
G052	5/13/2008	10	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	18	at least 3 spp.
G052	5/13/2008	10	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G052	5/13/2008	10	Very fine sand	Odonata (o), anisoptera	unid	damselfly larva	1	
G053	5/13/2008	16	Very fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	0	1 empty shell
G053	5/13/2008	16	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	34	and 35 parts
G053	5/13/2008	16	Very fine sand	Oligochaeta (c)	Kincaidiana hexatheca	oligochaete worm	1	
G053	5/13/2008	16	Very fine sand	Polychaeta (c)	Manayunkia	freshwater	1	

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G053	5/13/2008	16	sand Very fine sand	Diptera (o), Chironomidae (f)	speciosa Chironomid larvae	polychaete midge larvae	12	at least 2 spp.
G053	5/13/2008	16	Very fine sand	Diptera (o)	unid pupae	insect pupae	2	2 unidentified pupae- potential tricoptera
G054	5/13/2008	18	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	4	
G054	5/13/2008	18	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	26	and 15 parts
G054	5/13/2008	18	Medium gravel	Nematoda (p)	unid	nematode	1	
G054	5/13/2008	18	Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	
G054	5/13/2008	18	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	2	
G054	5/13/2008	18	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	2	
G054	5/13/2008	18	Medium gravel	Tricoptera (o)	unid	caddisfly larvae	1	no case
G055	5/13/2008	37	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G055	5/13/2008	37	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	1	and 5 parts
G055	5/13/2008	37	Medium gravel	Nematoda (p)	unid	nematode	1	
G055	5/13/2008	37	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	2	
G056	5/14/2008	23	Medium gravel	Petromyzontidae (f)	unid	Lamprey amoecete	1	
G056	5/14/2008	23	Medium gravel	Gastropoda (c)	unid	snail	1	
G056	5/14/2008	23	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	3	and 1 empty shell
G056	5/14/2008	23	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	4	
G056	5/14/2008	23	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	10	and 13 parts
G056	5/14/2008	23	Medium gravel	Amphipoda (o)	Corophium sp.	scud	1	
G056	5/14/2008	23	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	and 4 parts
G057	5/14/2008	36	Medium gravel	Petromyzontidae (f)	unid	Lamprey amoecete	0	1 part in poor condition
G057	5/14/2008	36	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	16	and 6 parts
G057	5/14/2008	36	Medium gravel	Amphipoda (o)	Corophium sp.	scud	1	

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G057	5/14/2008	36	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	2	
G057	5/14/2008	36	Medium gravel	Hymenoptera (o)	unid	Terrestrial ant	1	
G058	5/14/2008	44	Medium gravel	Petromyzontidae (f)	unid	Lamprey amoecete	1	in poor condition
G058	5/14/2008	44	Medium gravel	Gastropoda (c)	unid	snail	0	1 empty shell
G058	5/14/2008	44	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	21	and 53 parts
G058	5/14/2008	44	Medium gravel	Oligochaeta (c)	Spirosperma nikolski	oligochaete worm	2	
G058	5/14/2008	44	Medium gravel	Nematoda (p)	unid	nematode	1	
G058	5/14/2008	44	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	3	
G059	5/27/2008	39	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	3	
G059	5/27/2008	39	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	33	and 109 parts
G059	5/27/2008	39	Medium gravel	Amphipoda (o)	Corophium sp.	scud	1	
G059	5/27/2008	39	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	5	
G059	5/27/2008	39	Medium gravel	Hymenoptera (o)	unid	Terrestrial ant	1	
G062	5/14/2008	64	Very fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	3	1 very small specimen; and 1 empty shell
G062	5/14/2008	64	Very fine sand	Oligochaeta (c)	unid	oligochaete worm	29	and 33 parts
G062	5/14/2008	64	Very fine sand	annelida (p)	unid cases	soft sand cases	7	appear similar to other oligochaete cases
G062	5/14/2008	64	Very fine sand	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	and 1 part
G062	5/14/2008	64	Very fine sand	Amphipoda (o)	Corophium sp.	scud	9	and 10 parts
G062	5/14/2008	64	Very fine sand	decapoda (o)	Pacifiastacus sp.	crayfish	1	
G062	5/14/2008	64	Very fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	
G062	5/14/2008	64	Very fine sand	Diptera (o)	unid pupa	insect pupa	1	
G062	5/14/2008	64	Very fine sand	Tricoptera (o)	unid	caddisfly larvae	1	sand case
G063	5/12/2008	37	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	0	2 empty shells
G063	5/12/2008	37	Fine sand	Oligochaeta (c)	unid	oligochaete	20	and 121 parts

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G063	5/12/2008	37	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	worm midge larvae	4	
G063	5/12/2008	37	Fine sand	Diptera (o), Empididae (f)	Empidid larvae	Dance fly larva	1	
G064	5/12/2008	37	Very coarse sand	Oligochaeta (c)	unid	oligochaete worm	2	and 4 parts
G064	5/12/2008	37	Very coarse sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	1	
G065	5/12/2008	35.5	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	0	2 empty shells
G065	5/12/2008	35.5	Fine sand	Oligochaeta (c)	unid	oligochaete worm	6	and 12 parts
G065	5/12/2008	35.5	Fine sand	decapoda (o)	unid, incomplete specimen	crayfish	0	1 claw
G065	5/12/2008	35.5	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	1	
G066	5/12/2008	66	Coarse sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G066	5/12/2008	66	Coarse sand	Oligochaeta (c)	unid	oligochaete worm	2	and 6 parts
G066	5/12/2008	66	Coarse sand	Amphipoda (o)	Corophium sp.	scud	2	2 spp.
G066	5/12/2008	66	Coarse sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	
G067	5/12/2008	57	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	3	
G067	5/12/2008	57	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	8	and 25 parts
G067	5/12/2008	57	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	5	
G067	5/12/2008	57	Medium gravel	Amphipoda (o)	Corophium sp.	scud	3	and 3 parts
G067	5/12/2008	57	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	15	and 1 parts
G067	5/12/2008	57	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G068	5/14/2008	58	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G068	5/14/2008	58	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	3	
G068	5/14/2008	58	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	5	and 25 parts
G068	5/14/2008	58	Medium gravel	Nematoda (p)	unid	nematode	2	

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G068	5/14/2008	58	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	1	
G068	5/14/2008	58	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	5	
G069	5/22/2008	42	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	0	1 empty shell
G069	5/22/2008	42	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	51	
G069	5/22/2008	42	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	19	and 21 parts, including 2 <i>Kinciadiana hexatheca</i>
G069	5/22/2008	42	Medium gravel	Nematoda (p)	unid	nematode	2	
G069	5/22/2008	42	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	5	
G069	5/22/2008	42	Medium gravel	Amphipoda (o)	Corophium sp.	scud	0	1 parts
G069	5/22/2008	42	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	16	
G069	5/22/2008	42	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	10	1 in case
G070	5/16/2008	34	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	1 empty shell
G070	5/16/2008	34	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	12	
G070	5/16/2008	34	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	8	and 14 parts
G070	5/16/2008	34	Medium gravel	Amphipoda (o)	Corophium sp.	scud	14	and 1 parts
G070	5/16/2008	34	Medium gravel	Ostracoda (c)	unid	bivalved crustacean	1	
G070	5/16/2008	34	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	20	
G070	5/16/2008	34	Medium gravel	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	2	
G070	5/16/2008	34	Medium gravel	Coleoptera (o), Elmidae (f)	unid	Beetle larva	1	
G071	5/16/2008	43	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	1 empty shell
G071	5/16/2008	43	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	154	
G071	5/16/2008	43	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	16	at least 2 spp., 1 Lumbriculid; and 2 parts
G071	5/16/2008	43	Medium gravel	Nematoda (p)	unid	nematode	1	

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G071	5/16/2008	43	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	2	
G071	5/16/2008	43	Medium gravel	Amphipoda (o)	Corophium sp.	scud	17	4 with eggs; and 4 parts
G071	5/16/2008	43	Medium gravel	Amphipoda (o), Gammaridae (f)	unid	scud	3	Likely Gammarus sp.
G071	5/16/2008	43	Medium gravel	Ostracoda (c)	unid	bivalved crustacean	2	
G071	5/16/2008	43	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	10	at least 3 spp.
G071	5/16/2008	43	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G071	5/16/2008	43	Medium gravel	Tricoptera (o)	unid	caddisfly larva	1	sand case
G072	5/16/2008	40	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	1 empty shell
G072	5/16/2008	40	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	7	and 30 parts
G072	5/16/2008	40	Medium gravel	Amphipoda (o)	Corophium sp.	scud	1	and 3 parts
G072	5/16/2008	40	Medium gravel	Ostracoda (c)	unid	bivalved crustacean	1	
G072	5/16/2008	40	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	16	and 1 parts
G073	5/16/2008	65	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	
G073	5/16/2008	65	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	11	and 24 parts
G073	5/16/2008	65	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	13	
G073	5/16/2008	65	Medium gravel	Amphipoda (o)	Corophium sp.	scud	4	1 with eggs; and 1 parts
G073	5/16/2008	65	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	6	and 2 parts
G074	5/16/2008	45	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	8	
G074	5/16/2008	45	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	0	and 10 parts, including 2 <i>Spirosperma nikolski</i>
G074	5/16/2008	45	Medium gravel	Nematoda (p)	unid	nematode	0	1 part
G074	5/16/2008	45	Medium gravel	Amphipoda (o)	Corophium sp.	scud	2	and 4 parts
G074	5/16/2008	45	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	20	at least 3 spp.; and 2 parts
G074	5/16/2008	45	Medium gravel	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	1	
G074	5/16/2008	45	Medium gravel	Tricoptera (o)	unid	caddisfly larva	1	larval head-

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			gravel					incomplete specimen
G075	5/22/2008	17	Fine sand	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	1	
G075	5/22/2008	17	Fine sand	Oligochaeta (c)	unid	oligochaete worm	1	and 1 parts
G075	5/22/2008	17	Fine sand	Nematoda (p)	unid	nematode	1	
G075	5/22/2008	17	Fine sand	Amphipoda (o)	Corophium sp.	scud	32	and 7 parts
G075	5/22/2008	17	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	1	and 3 parts
G075	5/22/2008	17	Fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G076	5/22/2008	67	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	6	
G076	5/22/2008	67	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	48	
G076	5/22/2008	67	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	11	1 large long; and 20 parts
G076	5/22/2008	67	Medium gravel	Nematoda (p)	unid	nematode	8	
G076	5/22/2008	67	Medium gravel	Amphipoda (o)	Corophium sp.	scud	3	and 1 parts
G076	5/22/2008	67	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	7	
G076	5/22/2008	67	Medium gravel	Diptera (o), Ceratopogonidae (f)	Ceratopogonidae larva	biting midge	1	
G077	5/23/2008	79	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	0	2 empty complete shells
G077	5/23/2008	79	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	12	and 19 parts
G077	5/23/2008	79	Medium gravel	Nematoda (p)	unid	nematode	1	
G077	5/23/2008	79	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	14	
G077	5/23/2008	79	Medium gravel	Amphipoda (o)	Corophium sp.	scud	4	and 1 part
G077	5/23/2008	79	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	19	
G077	5/23/2008	79	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	3	
G078	5/23/2008	79	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	6	1 empty shell
G078	5/23/2008	79	Medium gravel	Bivalvia (c)	unid	small bivalve	1	
G078	5/23/2008	79	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with	10	

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G078	5/23/2008	79	Medium gravel	Oligochaeta (c)	unid	sand case oligochaete worm	7	1 large long; and 85 parts
G078	5/23/2008	79	Medium gravel	Nematoda (p)	unid	nematode	2	
G078	5/23/2008	79	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	16	
G078	5/23/2008	79	Medium gravel	Amphipoda (o)	Corophium sp.	scud	2	and 2 parts
G078	5/23/2008	79	Medium gravel	Amphipoda (o), Gammaridae (f)	unid	scud	2	Likely Gammarus sp.
G078	5/23/2008	79	Medium gravel	Isopoda (o), Asellidae (f)	unid	sow bugs	3	potential Lirceus sp.
G078	5/23/2008	79	Medium gravel	Ostracoda (c)	unid	bivalved crustacean	1	
G078	5/23/2008	79	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	38	at least 3 spp.
G078	5/23/2008	79	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	4	and 1 parts
G078	5/23/2008	79	Medium gravel	Diptera (o)	unid pupa	insect pupa	1	
G079	5/21/2008	34	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	
G079	5/21/2008	34	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	35	
G079	5/21/2008	34	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	15	and 25 parts, including 6 <i>Kinciadiana hexatheca</i>
G079	5/21/2008	34	Medium gravel	Oligochaeta (c)	Spirosperma nikolski	oligochaete worm	1	
G079	5/21/2008	34	Medium gravel	Nematoda (p)	unid	nematode	1	
G079	5/21/2008	34	Medium gravel	Polychaeta (c)	Family Nerididae	freshwater polychaete	1	and 1 part
G079	5/21/2008	34	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	5	
G079	5/21/2008	34	Medium gravel	Amphipoda (o)	Corophium sp.	scud	20	and 6 parts
G079	5/21/2008	34	Medium gravel	Isopoda (o)	unid	sow bugs	1	
G079	5/21/2008	34	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	18	and 2 parts
G079	5/21/2008	34	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G080	5/21/2008	34	Fine sand	Oligochaeta (c)	unid	oligochaete worm with sand case	2	
G080	5/21/2008	34	Fine sand	Oligochaeta (c)	unid	oligochaete worm	36	and 81 parts, including 1 very long

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								w/tail inclosed in sand case and 1 <i>Branchiura sowerbyi</i>
G080	5/21/2008	34	Fine sand	Nematoda (p)	unid	nematode	1	
G080	5/21/2008	34	Fine sand	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	5	
G080	5/21/2008	34	Fine sand	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	
G085	5/27/2008	46	Medium gravel	Bivalvia (C), Corbiculidae (f)	Corbicula fluminea	Asian clam	2	1 empty shell
G085	5/27/2008	46	Medium gravel	Oligochaeta (c)	unid	oligochaete worm with sand case	37	
G085	5/27/2008	46	Medium gravel	Oligochaeta (c)	unid	oligochaete worm	18	and 27 parts, including 3 <i>Spirosperma nikolski</i> , 1 <i>Kinciadiana hexatheca</i>
G085	5/27/2008	46	Medium gravel	Nematoda (p)	unid	nematode	2	
G085	5/27/2008	46	Medium gravel	Polychaeta (c)	Manayunkia speciosa	freshwater polychaete	1	
G085	5/27/2008	46	Medium gravel	Amphipoda (o)	Corophium sp.	scud	21	and 12 parts
G085	5/27/2008	46	Medium gravel	Amphipoda (o), Gammaridae (f)	unid	scud	3	Likely Gammarus sp.
G085	5/27/2008	46	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	2	
G085	5/27/2008	46	Medium gravel	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G085	5/27/2008	46	Medium gravel	Tricoptera (o)	unid, incomplete specimen	caddisfly larva	1	larval head-poor condition
G022 QUAL	5/23/2008	22	NA	Oligochaeta (c)	unid	oligochaete worm with sand case	3	
G022 QUAL	5/23/2008	22	NA	Amphipoda (o)	Corophium sp.	scud	6	
G022 QUAL	5/23/2008	22	NA	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	4	
G022 QUAL	5/23/2008	22	NA	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	2	
G034 QUAL	5/20/2008	23.7	NA	Oligochaeta (c)	unid	oligochaete worm	5	and 1 parts
G034 QUAL	5/20/2008	23.7	NA	Diptera (o), Chironomidae (f)	Chironomid larvae	midge larvae	1	
G034 QUAL	5/20/2008	23.7	NA	Diptera (o), Chironomidae (f)	Chironomid pupae	midge pupae	1	

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G083 QUAL	5/22/2008	48	NA	Oligochaeta (c)	unid	oligochaete worm	0	and 3 parts in very poor condition
G004	5/19/2008	50	NA	Missing physical invertebrate sample				Successful sample not collected, bent teeth on grab
G006	5/19/2008	42	Medium gravel	Missing physical invertebrate sample				Material not available for benthic invertebrate sample collection
G060	6/10/2008	39	Very fine sand	Missing physical invertebrate sample				Material not available for benthic invertebrate sample collection
G061	6/10/2008	39	Fine sand	Missing physical invertebrate sample				Material not available for benthic invertebrate sample collection
G081	5/21/2008	56	NA	Missing physical invertebrate sample				Material not available for benthic invertebrate sample collection
G082	5/22/2008	47	NA	Missing physical invertebrate sample				Material not available for benthic invertebrate sample collection
G084	5/22/2008	45	NA	Missing physical invertebrate sample				Material not available for benthic invertebrate sample collection