

Quality Assurance Project Plan

EPA Watershed Assessment Pilot Yellow River

Purpose: An assessment of stream resources in the Upper Yellow River watershed located in central Wisconsin will be done during the 2011 field season to evaluate the utility of a stratified random (geometric) sampling design for assessing stream resources and to provide data for land and water resources management. Biological assessments using macroinvertebrate and fish assemblage data will be the primary measures of stream quality. Riparian and in-stream habitat features will be evaluated using qualitative assessment methods. Instantaneous measures of field chemical/physical parameters will be collected using electronic meters to measure water temperature, dissolved (D.O.) concentration, percent D.O. saturation, conductivity and pH. Water column transparency will be measured with a transparency tube. Repeated sampling of stream sites for water column nutrients, Biological Oxygen Demand (B.O.D.) and suspended sediment concentrations, and a single round of chlorophyll, E. coli sampling from all sites will be used to identify stressors to stream biota and geographic areas of degradation associated with land use. One round of water column and sediment samples from all sites will be analyzed for metals, polycyclic aromatic hydrocarbon, total organic carbon (TOC) and pesticides. Sediment samples will also be analyzed for dissolved organic carbon and nutrients.

Physical, chemical, and biological field and laboratory methods will follow standard (EPA and WDNR) operating procedures (SOPs). All field and lab data will be captured in WDNR electronic databases.

Data analyses will include the use of physical, chemical and biological measures to characterize the conditions of individual monitoring sites, and aggregated data will be used to assess entire streams, and each geometrically-derived catchment area. Analyses of land cover and land use, and in-stream physical and chemical measures will be done to determine if watershed land use can be correlated with in-stream water quality or biological conditions. Physical habitat features, water chemistry measures, and land use data will be used to evaluate the response of macroinvertebrates and fish to environmental stressors. These data will be used to identify areas within the watershed that appear to be degraded, and to identify land use practices that appear to be detrimental to stream integrity, to help guide improved land management efforts.

Objective:

1. Classify streams by Use Potential and determine if these potentials are being met.
2. Assess the physical, chemical, and biological conditions of stream survey sites, individual streams and overall watershed conditions.
3. Evaluate relationships between land use and in-stream physical and chemical stressors
4. Evaluate relationships between biota and physical and chemical stressors.
5. Identify streams and stream segments where changes in land management or Water Pollution Discharge Elimination System (WPDES) Discharge Permits will likely result in improved stream quality.

Specifically we will sample the fish and macroinvertebrate assemblages, physical stream habitat, in-situ/instantaneous water chemistry (pH, conductivity, D.O, Temp, turbidity); water grab samples will be collected and analyzed for BOD, Chlorides, Sulfates, Total Dissolved Solids, Total Suspended Solids, Chlorophyll a, Nutrients (Total Phosphorus, Total Kjeldahl Nitrogen, Nitrate-Nitrite-N and Ammonia), organochlorine and other pesticides and metals (Cadmium, Calcium, Copper, Iron, Lead, Magnesium and Zinc). Sediment samples will be collected and analyzed for Nutrients (Total Phosphorus, Total Kjeldahl Nitrogen, Ammonia), organochlorine pesticides, polycyclic aromatic hydrocarbons (PAHs) and metals (Arsenic, Cadmium, Copper, Iron, Lead, and Zinc).

Outcome: Assessment of stream resources should provide data and information to characterize the physical, chemical, and biological conditions of water resources, to direct management actions and evaluate the effectiveness of current watershed and point source management efforts. Primary goals of the Yellow River Watershed Assessment Project are to:

Apply a geometric sampling design to assess stream resources, in a cost effective and statistically valid fashion.

Use fish and macroinvertebrate assemblage data as primary indicators to assess stream conditions.

Use physical habitat, water chemistry, and land use data to identify stream stressors and streams or reaches most impacted by poor land management or other sources of impairment.

Apply advanced data analytical techniques to improve the data interpretation and reporting of stream assessment information to improve monitoring program efficiency and effectiveness.

Comments: Step 4: Specification of Project Boundaries

This assessment will focus on the rivers and streams of the Upper Yellow River Watershed in central Wisconsin.

Step 5: Decision Rules - How will data be used to make decisions?

The results from this sampling event will be used to:

- 1) Fish assemblage data will be used to determine if stream reaches and streams are properly classified.
- 2) Fish indices data will be used to determine if stream reaches and streams are meeting their Designated Use and ecologic potentials.
- 3) Physical habitat, water chemistry, macroinvertebrate, and fish assemblage data will collectively be used to evaluate the integrity of streams and stream reaches.
- 4) Land use, physical habitat, and water chemistry data will be used to identify threats to stream integrity and environmental conditions stressful to stream biota.

Step 1: Statement of the Problem

Specifying Limits on Decision Errors

People

Name	Role	Status
MARK J HAZUGA	Coordinator of the project	Active
DANIEL R HELSEL	Coordinator of the project	Complete
MICHAEL A MILLER	Project Lead	Complete
RUTH A PERSON	Coordinator of the project	Active
LORI S TATE	Coordinator of the project	Active
CHRISTOPHER J WILLGER	Coordinator of the project	Active

Summary

Number of Monitoring Stations: 68

Number of Fieldwork Events by Status: Complete 447

Number of Quality Control Samples by Type: Field Blank 34
Duplicate Sample 46

Methods

- Grab Sample Procedures USEPA Watershed Pilot
- Habitat Baseline Survey Quantitative 2004
- Macroinvertebrate Baseline Protocols 2004 D-frame Kick Net
- Multi-Parameter Field Data - 2006 Sondes Guidelines

Equipment

Equipment Type	Description
Bug Sampler	Kick Net (Generic)
Electrofishing	BACKPACK SHOCKER

Form Parameters

Type	Parameter	Description
DNR_STORET	410	ALKALINITY TOTAL CaCO3
DNR_STORET	20	AMBIENT AIR TEMPERATURE - FIELD
SWIMS	403	Bank Height, Condition:
DNR_STORET	99426	BOTTOM OF SAMPLING INTERVAL (METERS)
DNR_STORET	99196	BOTTOM OF SAMPLING INTERVAL - (FEET)
SWIMS	401	Bottom Substrate
DNR_STORET	32	CLOUD COVER
DNR_STORET	94	CONDUCTIVITY FIELD
DNR_STORET	72002	DEPTH TO GROUNDWATER
DNR_STORET	300	DISSOLVED OXYGEN FIELD
SWIMS	411	Does monitored section represent stream? (yes/no) If not, what length (landmarks)
SWIMS	408	Fish Population/Diversity:
DNR_STORET	50050	FLOW RATE MGD
SWIMS	410	Future Work Needed:
DNR_STORET	65	GAGE HEIGHT FEET
SWIMS	409	Habitat Work Status:
SWIMS	405	Instream Fauna, Flora
SWIMS	406	Invertebrates:
DNR_STORET	301	OXYGEN, DISSOLVED, PERCENT OF SATURATION %
DNR_STORET	400	PH FIELD
SWIMS	412	Predominance of Undesireable Vegetation (algae or macrophytes)
SWIMS	402	Riparian Corridor Status
DNR_STORET	78	SECCHI DEPTH
DNR_STORET	49701	SECCHI DEPTH - FEET
DNR_STORET	99420	SECCHI DEPTH HIT BOTTOM
SWIMS	404	Sedimentation Evidence
SWIMS	413	Status or presence of fish holding habitat
SWIMS	400	Stream Characteristics: Ave. Width, Depth, Meanders (Description)
DNR_STORET	61	STREAM FLOW - CFS
DNR_STORET	10	TEMPERATURE FIELD
DNR_STORET	99424	TOP OF SAMPLING INTERVAL (METERS)
DNR_STORET	99195	TOP OF SAMPLING INTERVAL - (FEET)
DNR_STORET	61190	TRANSPARENCY TUBE MEASUREMENT
DNR_STORET	82078	TURBIDITY, FIELD NEPHELOMETRIC NTU
SWIMS	90002	USER PERCEPTION OF WATER QUALITY
SWIMS	90001	WATER COLOR (VISUAL)
SWIMS	90000	WATER COLUMN APPEARANCE
SWIMS	90327	Water Depth
SWIMS	90004	WATER LEVEL (STAFF GAUGE)
DNR_STORET	35	WIND VELOCITY (MILES PER HOUR)
SWIMS	407	YOY(P/A):

Intended Parameters

Type	Parameter	Description
DNR_STORET	20	AMBIENT AIR TEMPERATURE - FIELD
DNR_STORET	99426	BOTTOM OF SAMPLING INTERVAL (METERS)
DNR_STORET	99196	BOTTOM OF SAMPLING INTERVAL - (FEET)
DNR_STORET	32	CLOUD COVER
DNR_STORET	94	CONDUCTIVITY FIELD
DNR_STORET	72002	DEPTH TO GROUNDWATER
DNR_STORET	300	DISSOLVED OXYGEN FIELD
DNR_STORET	50050	FLOW RATE MGD
DNR_STORET	65	GAGE HEIGHT FEET
DNR_STORET	301	OXYGEN, DISSOLVED, PERCENT OF SATURATION %
DNR_STORET	400	PH FIELD
DNR_STORET	78	SECCHI DEPTH
DNR_STORET	49701	SECCHI DEPTH - FEET
DNR_STORET	99420	SECCHI DEPTH HIT BOTTOM
DNR_STORET	61	STREAM FLOW - CFS
DNR_STORET	10	TEMPERATURE FIELD
DNR_STORET	99424	TOP OF SAMPLING INTERVAL (METERS)
DNR_STORET	99195	TOP OF SAMPLING INTERVAL - (FEET)
DNR_STORET	61190	TRANSPARENCY TUBE MEASUREMENT
DNR_STORET	82078	TURBIDITY, FIELD NEPHELOMETRIC NTU

Collected Parameters

Type	Parameter	Description	# Results
DNR_STORET	20	AMBIENT AIR TEMPERATURE - FIELD	1
SWIMS	53057	AMPHIPODA CRANGONYCTIDAE CRANGONYX	3
SWIMS	53068	AMPHIPODA HYALELLIDAE HYALELLA	16
SWIMS	55141	ANTHOATHECATAE HYDRIDAE HYDRA	3
SWIMS	53312	ARHYNCHOBDELLIDA ERPOBDELLIDAE ERPOBDELLA	1
SWIMS	53313	ARHYNCHOBDELLIDA ERPOBDELLIDAE ERPOBDELLA PUNCTATA	1
SWIMS	53321	ARHYNCHOBDELLIDA ERPOBDELLIDAE NEPHELOPSIS OBSCURA	2
SWIMS	53096	BASOMMATOPHORA ANCYLIDAE FERRISSIA	12
SWIMS	53130	BASOMMATOPHORA LYMNAEIDAE FOSSARIA	2
SWIMS	53105	BASOMMATOPHORA LYMNAEIDAE STAGNICOLA	3
SWIMS	53111	BASOMMATOPHORA PHYSIDAE PHYSA	9
SWIMS	53113	BASOMMATOPHORA PLANORBIDAE GYRAULUS	2
SWIMS	56237	BASOMMATOPHORA PLANORBIDAE GYRAULUS PARVUS	2
DNR_STORET	310	BOD 5 DAY	269
SWIMS	53299	BRANCHIOBDELLIDA	2
DNR_STORET	940	CHLORIDE	158
DNR_STORET	941	CHLORIDE DISS	111
DNR_STORET	99717	CHLOROPHYLL A, FLUORESCENCE (WELSCHMAYER 1994)	60
DNR_STORET	32	CLOUD COVER	2
SWIMS	51200	COLEOPTERA DYTISCIDAE	2
SWIMS	51206	COLEOPTERA DYTISCIDAE AGABUS	1
SWIMS	51202	COLEOPTERA DYTISCIDAE LIODESSUS AFFINIS	4
SWIMS	51403	COLEOPTERA DYTISCIDAE NEOPORUS	1
SWIMS	51131	COLEOPTERA ELMIDAE ANCYRONYX VARIEGATUS	1
SWIMS	51132	COLEOPTERA ELMIDAE DUBIRAPHIA	17
SWIMS	51134	COLEOPTERA ELMIDAE DUBIRAPHIA MINIMA	2
SWIMS	51135	COLEOPTERA ELMIDAE DUBIRAPHIA QUADRINOTATA	1
SWIMS	51136	COLEOPTERA ELMIDAE DUBIRAPHIA VITTATA	6
SWIMS	51143	COLEOPTERA ELMIDAE OPTIOSERVUS FASTIDITUS	30
SWIMS	51145	COLEOPTERA ELMIDAE STENELMIS	19
SWIMS	51146	COLEOPTERA ELMIDAE STENELMIS CRENATA	21
SWIMS	51149	COLEOPTERA ELMIDAE STENELMIS SANDERSONI	1
SWIMS	51426	COLEOPTERA HALIPLIDAE HALIPLUS	3
SWIMS	51514	COLEOPTERA HELOPHORIDAE HELOPHORUS	2
SWIMS	51515	COLEOPTERA HELOPHORIDAE HELOPHORUS (RHOPALOHELOPHORUS) ORIENTALIS	1
SWIMS	51471	COLEOPTERA HYDROPHILIDAE ANACAENA	1
DNR_STORET	94	CONDUCTIVITY FIELD	283
SWIMS	53354	DECAPODA CAMBARIDAE	1
SWIMS	53360	DECAPODA CAMBARIDAE ORCONNECTES	2
SWIMS	55092	DECAPODA CAMBARIDAE ORCONNECTES VIRILIS	1
SWIMS	51713	DIPTERA ATHERICIDAE ATHERIX	2
SWIMS	51714	DIPTERA ATHERICIDAE ATHERIX VARIEGATA	1
SWIMS	51719	DIPTERA CERATOPOGONIDAE	7
SWIMS	51720	DIPTERA CERATOPOGONIDAE ATRICHOPOGON	1
SWIMS	51740	DIPTERA CERATOPOGONIDAE BEZZIA/PALPOMYIA HILSENHOFF 1995	13
SWIMS	51855	DIPTERA CERATOPOGONIDAE CERATOPOGON	4
SWIMS	51830	DIPTERA CERATOPOGONIDAE CLINOHELEA/HETEROMYIA HILSENHOFF 1995	1
SWIMS	51741	DIPTERA CERATOPOGONIDAE CULICOIDES	5

SWIMS	51815	DIPTERA CERATOPOGONIDAE MALLOCHOHELEA	1
SWIMS	51812	DIPTERA CERATOPOGONIDAE NILOBEZZIA	3
SWIMS	51792	DIPTERA CERATOPOGONIDAE PROBEZZIA	4
SWIMS	51804	DIPTERA CERATOPOGONIDAE SPHAEROMIAS	2
SWIMS	52784	DIPTERA CHIRONOMINAE 4	2
SWIMS	54605	DIPTERA CHIRONOMINAE 4 CHIRONOMUS	9
SWIMS	52851	DIPTERA CHIRONOMINAE 4 CLADOPELMA	1
SWIMS	52787	DIPTERA CHIRONOMINAE 4 CLADOTANYTARSUS	38
SWIMS	52804	DIPTERA CHIRONOMINAE 4 CONSTEMPELLINA	1
SWIMS	52855	DIPTERA CHIRONOMINAE 4 CRYPTOCHIRONOMUS	16
SWIMS	52863	DIPTERA CHIRONOMINAE 4 CRYPTOTENDIPES	2
SWIMS	52885	DIPTERA CHIRONOMINAE 4 DICROTENDIPES	8
SWIMS	52888	DIPTERA CHIRONOMINAE 4 DICROTENDIPES FUMIDUS	4
SWIMS	54630	DIPTERA CHIRONOMINAE 4 DICROTENDIPES SIMPSONI	1
SWIMS	52898	DIPTERA CHIRONOMINAE 4 EINFELDIA	1
SWIMS	52906	DIPTERA CHIRONOMINAE 4 ENDOCHIRONOMUS SUBTENDENS	3
SWIMS	54632	DIPTERA CHIRONOMINAE 4 GLYPTOTENDIPES	4
SWIMS	52806	DIPTERA CHIRONOMINAE 4 MICROPSECTRA	55
SWIMS	52943	DIPTERA CHIRONOMINAE 4 MICROTENDIPES PEDELLUS GROUP PINDER, REISS 1983	23
SWIMS	52944	DIPTERA CHIRONOMINAE 4 MICROTENDIPES RYDALENSIS GROUP PINDER, REISS 1983	1
SWIMS	52975	DIPTERA CHIRONOMINAE 4 PARALAUTERBORNIELLA NIGROHALTERALE	1
SWIMS	52809	DIPTERA CHIRONOMINAE 4 PARATANYTARSUS	20
SWIMS	52977	DIPTERA CHIRONOMINAE 4 PARATENDIPES	15
SWIMS	52979	DIPTERA CHIRONOMINAE 4 PHAENOPSECTRA	1
SWIMS	54680	DIPTERA CHIRONOMINAE 4 PHAENOPSECTRA PUNCTIPES GROUP EPLER 2001	6
SWIMS	54681	DIPTERA CHIRONOMINAE 4 POLYPEDILUM	52
SWIMS	54712	DIPTERA CHIRONOMINAE 4 POLYPEDILUM (POLYPEDILUM) FALLAX GROUP EPLER 2001	2
SWIMS	54713	DIPTERA CHIRONOMINAE 4 POLYPEDILUM (POLYPEDILUM) ILLINOENSE GROUP EPLER 2001	1
SWIMS	54706	DIPTERA CHIRONOMINAE 4 POLYPEDILUM (POLYPEDILUM) LAETUM	1
SWIMS	54726	DIPTERA CHIRONOMINAE 4 POLYPEDILUM (TRIPODURA) SCALAENUM GROUP EPLER 2001	6
SWIMS	53017	DIPTERA CHIRONOMINAE 4 PSEUDOCHIRONOMUS	1
SWIMS	52813	DIPTERA CHIRONOMINAE 4 RHEOTANYTARSUS	36
SWIMS	53031	DIPTERA CHIRONOMINAE 4 SAETHERIA	1
SWIMS	52820	DIPTERA CHIRONOMINAE 4 STEPELLINELLA	4
SWIMS	54732	DIPTERA CHIRONOMINAE 4 STENOCHIRONOMUS	4
SWIMS	53041	DIPTERA CHIRONOMINAE 4 STICTOCHIRONOMUS	23
SWIMS	52822	DIPTERA CHIRONOMINAE 4 TANYTARSUS	14
SWIMS	53044	DIPTERA CHIRONOMINAE 4 TRIBELOS	1
SWIMS	52982	DIPTERA CHIRONOMINAE 4 TRIBELOS JUCUNDUS	2
SWIMS	53050	DIPTERA CHIRONOMINAE 4 XENOCHIRONOMUS XENOLABIS	2
SWIMS	54843	DIPTERA CHIRONOMINAE 4 ZAVRELIELLA MARMORATA	3
SWIMS	52163	DIPTERA DIXIDAE DIXELLA	1
SWIMS	51874	DIPTERA EMPIDIDAE HEMERODROMIA	17
SWIMS	51890	DIPTERA EPHYDRIDAE -- PUPA	1
SWIMS	56134	DIPTERA EPHYDRIDAE HYDRELLIA	1

SWIMS	52581	DIPTERA ORTHOCLADIINAE 1	1
SWIMS	52590	DIPTERA ORTHOCLADIINAE 1 BRILLIA	6
SWIMS	52601	DIPTERA ORTHOCLADIINAE 1 CHAETOCLADIUS	13
SWIMS	52609	DIPTERA ORTHOCLADIINAE 1 CORYNONEURA	18
SWIMS	59934	DIPTERA ORTHOCLADIINAE 1 CRICOTOPUS	1
SWIMS	54420	DIPTERA ORTHOCLADIINAE 1 CRICOTOPUS (CRICOTOPUS) BICINCTUS	5
SWIMS	52631	DIPTERA ORTHOCLADIINAE 1 CRICOTOPUS (ISOCLADIUS) SYLVESTRIS GROUP CRANSTON ET AL. 1983	1
SWIMS	54584	DIPTERA ORTHOCLADIINAE 1 CRICOTOPUS/ORTHOCLADIUS FERRINGTON ET AL. 2008	39
SWIMS	52635	DIPTERA ORTHOCLADIINAE 1 DIPLOCLADIUS CULTRIGER	19
SWIMS	52640	DIPTERA ORTHOCLADIINAE 1 EUKIEFFERIELLA	3
SWIMS	52645	DIPTERA ORTHOCLADIINAE 1 EUKIEFFERIELLA DEVONICA GROUP CRANSTON ET AL. 1983	1
SWIMS	52659	DIPTERA ORTHOCLADIINAE 1 HETEROTRISSOCLADIUS MARCIDUS	1
SWIMS	52668	DIPTERA ORTHOCLADIINAE 1 HYDROBAENUS	8
SWIMS	52677	DIPTERA ORTHOCLADIINAE 1 LIMNOPHYES	23
SWIMS	54452	DIPTERA ORTHOCLADIINAE 1 METRIOCNEMUS EURYNOTUS	1
SWIMS	52691	DIPTERA ORTHOCLADIINAE 1 NANOCLADIUS	4
SWIMS	54514	DIPTERA ORTHOCLADIINAE 1 PARACRICOTOPUS	2
SWIMS	52603	DIPTERA ORTHOCLADIINAE 1 PARAKIEFFERIELLA	4
SWIMS	52722	DIPTERA ORTHOCLADIINAE 1 PARAMETRIOCNEMUS	32
SWIMS	52725	DIPTERA ORTHOCLADIINAE 1 PARAPHAENOCLADIUS	2
SWIMS	55677	DIPTERA ORTHOCLADIINAE 1 PSECTROCLADIUS	1
SWIMS	52745	DIPTERA ORTHOCLADIINAE 1 PSEUDOSMITTIA	1
SWIMS	54555	DIPTERA ORTHOCLADIINAE 1 RHEOCRICOTOPUS GLABRICOLLIS	2
SWIMS	54557	DIPTERA ORTHOCLADIINAE 1 RHEOCRICOTOPUS ROBACKI	1
SWIMS	54563	DIPTERA ORTHOCLADIINAE 1 STILOCLADIUS CLINOPECTEN	2
SWIMS	52767	DIPTERA ORTHOCLADIINAE 1 THIENEMANNIELLA	17
SWIMS	51907	DIPTERA PSYCHODIDAE PERICOMA	2
SWIMS	52316	DIPTERA PTYCHOPTERIDAE BITTACOMORPHA CLAVIPES	1
SWIMS	52398	DIPTERA SCIOMYZIDAE -- PUPA	1
SWIMS	51963	DIPTERA SIMULIIDAE PROSIMULIUM	2
SWIMS	51928	DIPTERA SIMULIIDAE SIMULIUM	12
SWIMS	51949	DIPTERA SIMULIIDAE SIMULIUM DECORUM	2
SWIMS	56097	DIPTERA SIMULIIDAE SIMULIUM FIBRINFLATUM/JENNINGSI/LUGGERI SCHMUDE UNPUBL.	1
SWIMS	51936	DIPTERA SIMULIIDAE SIMULIUM GOULDINGI	1
SWIMS	54901	DIPTERA SIMULIIDAE SIMULIUM PILOSUM	1
SWIMS	51941	DIPTERA SIMULIIDAE SIMULIUM TUBEROSUM "COMPLEX"	6
SWIMS	51942	DIPTERA SIMULIIDAE SIMULIUM VENUSTUM "COMPLEX"	1
SWIMS	56135	DIPTERA SIMULIIDAE SIMULIUM VIOLATOR	1
SWIMS	51944	DIPTERA SIMULIIDAE SIMULIUM VITTATUM "COMPLEX"	4
SWIMS	52034	DIPTERA TABANIDAE CHRYSOPS	5
SWIMS	52059	DIPTERA TABANIDAE TABANUS/ATYLOTUS HILSENHOFF 1995	1
SWIMS	52409	DIPTERA TANYPODINAE 0	15
SWIMS	52411	DIPTERA TANYPODINAE 0 ABLABESMYIA	2
SWIMS	52432	DIPTERA TANYPODINAE 0 CLINOTANYPUS	2
SWIMS	56141	DIPTERA TANYPODINAE 0 CONCHAPELOPIA/HELOPELOPIA SCHMUDE UNPUBL.	40
SWIMS	52457	DIPTERA TANYPODINAE 0 LABRUNDINIA	5

SWIMS	52464	DIPTERA TANYPODINAE 0 LARSIA	1
SWIMS	52477	DIPTERA TANYPODINAE 0 NATARSIA	10
SWIMS	52482	DIPTERA TANYPODINAE 0 NILOTANYPUS	1
SWIMS	52539	DIPTERA TANYPODINAE 0 PARAMERINA	2
SWIMS	52489	DIPTERA TANYPODINAE 0 PROCLADIUS	4
SWIMS	54776	DIPTERA TANYPODINAE 0 THIENEMANNIMYIA GROUP	21
SWIMS	52531	DIPTERA TANYPODINAE 0 ZAVRELIMYIA	4
SWIMS	52072	DIPTERA TIPULIDAE ANTOCHA	1
SWIMS	52076	DIPTERA TIPULIDAE DICRANOTA	13
SWIMS	52085	DIPTERA TIPULIDAE ERIOPTERA	2
SWIMS	52120	DIPTERA TIPULIDAE LIMNOPHILA	1
SWIMS	52129	DIPTERA TIPULIDAE PEDICIA ALBIVITTA	1
SWIMS	52130	DIPTERA TIPULIDAE PILARIA	2
SWIMS	52135	DIPTERA TIPULIDAE PSEUDOLIMNOPHILA	1
SWIMS	52140	DIPTERA TIPULIDAE TIPULA	9
DNR_STORET	300	DISSOLVED OXYGEN FIELD	308
DNR_STORET	99188	E COLI COLILERT QUANTITRAY MPN	69
SWIMS	50116	EPHEMEROPTERA BAETIDAE	4
SWIMS	50140	EPHEMEROPTERA BAETIDAE ACENTRELLA	1
SWIMS	50142	EPHEMEROPTERA BAETIDAE ACENTRELLA TURBIDA	4
SWIMS	50144	EPHEMEROPTERA BAETIDAE ACERPENNA MACDUNNOUGHII	6
SWIMS	50145	EPHEMEROPTERA BAETIDAE ACERPENNA PYGMAEA	20
SWIMS	50118	EPHEMEROPTERA BAETIDAE BAETIS BRUNNEICOLOR	1
SWIMS	56129	EPHEMEROPTERA BAETIDAE BAETIS FLAVISTRIGA GROUP	11
SWIMS	50120	EPHEMEROPTERA BAETIDAE BAETIS INTERCALARIS	3
SWIMS	50119	EPHEMEROPTERA BAETIDAE LABIOBAETIS FRONDALIS	1
SWIMS	50150	EPHEMEROPTERA BAETIDAE PROCLOEON	1
SWIMS	50174	EPHEMEROPTERA BAETISCIDAE BAETISCA LAURENTINA	1
SWIMS	50183	EPHEMEROPTERA CAENIDAE CAENIS	22
SWIMS	50184	EPHEMEROPTERA CAENIDAE CAENIS ANCEPS	1
SWIMS	50189	EPHEMEROPTERA CAENIDAE CAENIS LATIPENNIS	7
SWIMS	50217	EPHEMEROPTERA EPHEMERELLIDAE EURYLOPHELLA	1
SWIMS	50233	EPHEMEROPTERA EPHEMERIDAE HEXAGENIA	1
SWIMS	50243	EPHEMEROPTERA HEPTAGENIIDAE	7
SWIMS	50280	EPHEMEROPTERA HEPTAGENIIDAE LEUCROCUTA HEBE	6
SWIMS	50259	EPHEMEROPTERA HEPTAGENIIDAE MACCAFFERTIUM	2
SWIMS	50260	EPHEMEROPTERA HEPTAGENIIDAE MACCAFFERTIUM EXIGUUM	1
SWIMS	50263	EPHEMEROPTERA HEPTAGENIIDAE MACCAFFERTIUM MEDIOPUNCTATUM	7
SWIMS	50264	EPHEMEROPTERA HEPTAGENIIDAE MACCAFFERTIUM MODESTUM	3
SWIMS	50266	EPHEMEROPTERA HEPTAGENIIDAE MACCAFFERTIUM TERMINATUM	1
SWIMS	50267	EPHEMEROPTERA HEPTAGENIIDAE MACCAFFERTIUM VICARIUM	7
SWIMS	50258	EPHEMEROPTERA HEPTAGENIIDAE STENACRON INTERPUNCTATUM	10
SWIMS	50261	EPHEMEROPTERA HEPTAGENIIDAE STENONEMA FEMORATUM	10
SWIMS	50351	EPHEMEROPTERA ISONYCHIIDAE ISONYCHIA	3
SWIMS	50287	EPHEMEROPTERA LEPTOPHLEBIIDAE LEPTOPHLEBIA	29
SWIMS	50317	EPHEMEROPTERA METRETOPODIDAE SIPHLOPLECTON BASALE	1
SWIMS	54808	HAPLOTAXIDA ENCHYTRAEIDAE	12
SWIMS	56157	HAPLOTAXIDA NAIDIDAE CHAETOGASTER DIAPHANUS	6
SWIMS	54920	HAPLOTAXIDA NAIDIDAE DERO	10

SWIMS	56164	HAPLOTAXIDA NAIDIDAE DERO FLABELLIGER	1
SWIMS	56163	HAPLOTAXIDA NAIDIDAE DERO VAGA	1
SWIMS	56166	HAPLOTAXIDA NAIDIDAE HAEMONAIS WALDVOGELI	1
SWIMS	54828	HAPLOTAXIDA NAIDIDAE NAIS BEHNINGI	8
SWIMS	54829	HAPLOTAXIDA NAIDIDAE NAIS BRETSCHERI	3
SWIMS	54831	HAPLOTAXIDA NAIDIDAE NAIS COMMUNIS	12
SWIMS	54921	HAPLOTAXIDA NAIDIDAE NAIS PARDALIS	11
SWIMS	54832	HAPLOTAXIDA NAIDIDAE NAIS SIMPLEX	9
SWIMS	54833	HAPLOTAXIDA NAIDIDAE NAIS VARIABILIS	23
SWIMS	56172	HAPLOTAXIDA NAIDIDAE PIGUETIELLA BLANCI	1
SWIMS	56173	HAPLOTAXIDA NAIDIDAE PIGUETIELLA MICHIGANENSIS	3
SWIMS	54876	HAPLOTAXIDA NAIDIDAE PRISTINA	7
SWIMS	54923	HAPLOTAXIDA NAIDIDAE PRISTINA AEQUISETA	5
SWIMS	56187	HAPLOTAXIDA NAIDIDAE PRISTINA AEQUISETA/LEIDYI	2
SWIMS	56189	HAPLOTAXIDA NAIDIDAE PRISTINA BREVISETA/PLUMISETA/SYNCLITES	1
SWIMS	56183	HAPLOTAXIDA NAIDIDAE PRISTINA JENKINAE	4
SWIMS	56184	HAPLOTAXIDA NAIDIDAE PRISTINA LEIDYI	2
SWIMS	54925	HAPLOTAXIDA NAIDIDAE SLAVINA APPENDICULATA	9
SWIMS	56191	HAPLOTAXIDA NAIDIDAE SPECARIA JOSINAE	2
SWIMS	55204	HAPLOTAXIDA NAIDIDAE STYLARIA LACUSTRIS	3
SWIMS	53301	HAPLOTAXIDA TUBIFICIDAE	55
SWIMS	54929	HAPLOTAXIDA TUBIFICIDAE AULODRILUS LIMNOBIUS	2
SWIMS	56196	HAPLOTAXIDA TUBIFICIDAE AULODRILUS PIGUETI	1
SWIMS	54874	HAPLOTAXIDA TUBIFICIDAE AULODRILUS PLURISETA	13
SWIMS	53307	HAPLOTAXIDA TUBIFICIDAE BRANCHIURA SOWERBYI	1
SWIMS	53304	HAPLOTAXIDA TUBIFICIDAE LIMNODRILUS	1
SWIMS	53305	HAPLOTAXIDA TUBIFICIDAE LIMNODRILUS HOFFMEISTERI	1
SWIMS	56117	HAPLOTAXIDA TUBIFICIDAE QUISTADRILUS	3
SWIMS	53428	HEMIPTERA BELOSTOMATIDAE BELOSTOMA FLUMINEUM	3
SWIMS	53478	HEMIPTERA CORIXIDAE SIGARA GROSSOLINEATA	1
SWIMS	53424	HEMIPTERA VELIIDAE RHAGOVIELIA OBESA	1
SWIMS	53138	HETEROSTROPHA VALVATIDAE VALVATA TRICARINATA	1
SWIMS	53072	ISOPODA ASELLIDAE CAECIDOTEA	6
SWIMS	54961	ISOPODA ASELLIDAE CAECIDOTEA COMMUNIS	1
SWIMS	53073	ISOPODA ASELLIDAE CAECIDOTEA INTERMEDIA	8
SWIMS	55627	ISOPODA ASELLIDAE CAECIDOTEA RACOVITZAI	30
SWIMS	54958	LEPIDOPTERA CRAMBIDAE	1
SWIMS	54810	LUMBRICULIDA LUMBRICULIDAE	18
SWIMS	51068	MEGALOPTERA CORYDALIDAE CORYDALUS CORNUTUS	1
SWIMS	51074	MEGALOPTERA SIALIDAE SIALIS	3
SWIMS	53143	NEOTAENIOGLOSSA HYDROBIIDAE	1
SWIMS	53528	NEUROPTERA SISYRIDAE	1
SWIMS	53531	NEUROPTERA SISYRIDAE SISYRA	2
DNR_STORET	625	NITROGEN KJELDAHL TOTAL	269
DNR_STORET	608	NITROGEN NH3-N DISS	269
DNR_STORET	631	NITROGEN NO3+NO2 DISS (AS N)	269
SWIMS	50397	ODONATA CALOPTERYGIDAE	1
SWIMS	50399	ODONATA CALOPTERYGIDAE CALOPTERYX AEQUABILIS	1
SWIMS	50400	ODONATA CALOPTERYGIDAE CALOPTERYX MACULATA	5
SWIMS	50404	ODONATA COENAGRIONIDAE	4

SWIMS	50418	ODONATA COENAGRIONIDAE CHROMAGRION CONDITUM	1
SWIMS	56094	ODONATA COENAGRIONIDAE COENAGRION/ENALLAGMA SCHMUDE UNPUBL.	2
SWIMS	50423	ODONATA COENAGRIONIDAE ENALLAGMA	1
SWIMS	50450	ODONATA COENAGRIONIDAE NEHALENNIA IRENE	1
SWIMS	50489	ODONATA GOMPHIDAE GOMPHUS	1
DNR_STORET	301	OXYGEN, DISSOLVED, PERCENT OF SATURATION %	3
DNR_STORET	400	PH FIELD	306
DNR_STORET	665	PHOSPHORUS TOTAL	269
SWIMS	50001	PLECOPTERA CAPNIIDAE	6
SWIMS	50002	PLECOPTERA CAPNIIDAE ALLOCAPNIA	15
SWIMS	50040	PLECOPTERA NEMOURIDAE AMPHINEMURA	1
SWIMS	50053	PLECOPTERA PERLIDAE	1
SWIMS	50054	PLECOPTERA PERLIDAE ACRONEURIA	2
SWIMS	50062	PLECOPTERA PERLIDAE NEOPERLA	1
SWIMS	50066	PLECOPTERA PERLIDAE PARAGNETINA MEDIA	2
SWIMS	50101	PLECOPTERA PERLODIDAE CLIOPERLA CLIO	1
SWIMS	50106	PLECOPTERA TAENIOPTERYGIDAE	1
SWIMS	50111	PLECOPTERA TAENIOPTERYGIDAE TAENIOPTERYX	6
DNR_STORET	530	RESIDUE TOTAL NFLT (TOTAL SUSPENDED SOLIDS)	269
SWIMS	53338	RHYNCHOBDELLIDA GLOSSIPHONIIDAE GLOSSIPHONIA COMPLANATA	2
SWIMS	55274	RHYNCHOBDELLIDA GLOSSIPHONIIDAE HELOBDELLA	3
SWIMS	53328	RHYNCHOBDELLIDA GLOSSIPHONIIDAE HELOBDELLA STAGNALIS	5
SWIMS	53335	RHYNCHOBDELLIDA GLOSSIPHONIIDAE PLACOBDELLA ORNATA	1
DNR_STORET	32000	SAMPLE SIZE LITERS	60
SWIMS	56233	SCOLECIDA AEOLOSOMATIDAE	1
DNR_STORET	946	SULFATE DISS	114
DNR_STORET	945	SULFATE TOTAL	155
DNR_STORET	99530	SUSPENDED SEDIMENT	269
DNR_STORET	136	TEMPERATURE AT LAB	338
DNR_STORET	10	TEMPERATURE FIELD	308
DNR_STORET	134	TOTAL DISSOLVED SOLIDS 180 C	269
DNR_STORET	61190	TRANSPARENCY TUBE MEASUREMENT	305
SWIMS	51048	TRICHOPTERA DIPSEUDOPSIDAE PHYLOCENTROPUS	1
SWIMS	50698	TRICHOPTERA HYDROPSYCHIDAE CERATOPSYCHE BRONTA	7
SWIMS	50699	TRICHOPTERA HYDROPSYCHIDAE CERATOPSYCHE MOROSA BIFIDA FORM SCHMUDE, HILSENHOFF 1986	2
SWIMS	50655	TRICHOPTERA HYDROPSYCHIDAE CHEUMATOPSYCHE	36
SWIMS	50668	TRICHOPTERA HYDROPSYCHIDAE HYDROPSYCHE BETTENI	17
SWIMS	50670	TRICHOPTERA HYDROPSYCHIDAE HYDROPSYCHE DICANTHA	1
SWIMS	50711	TRICHOPTERA HYDROPTILIDAE	1
SWIMS	50715	TRICHOPTERA HYDROPTILIDAE HYDROPTILA	1
SWIMS	50743	TRICHOPTERA HYDROPTILIDAE LEUCOTRICHIA PICTIPES	1
SWIMS	50757	TRICHOPTERA HYDROPTILIDAE OXYETHIRA	2
SWIMS	50781	TRICHOPTERA LEPIDOSTOMATIDAE LEPIDOSTOMA	1
SWIMS	50795	TRICHOPTERA LEPTOCERIDAE CERACLEA	1
SWIMS	50831	TRICHOPTERA LEPTOCERIDAE OECETIS	1
SWIMS	50859	TRICHOPTERA LIMNEPHILIDAE	13
SWIMS	50874	TRICHOPTERA LIMNEPHILIDAE IRONOQUIA	1
SWIMS	50877	TRICHOPTERA LIMNEPHILIDAE LIMNEPHILUS	1

SWIMS	50905	TRICHOPTERA LIMNEPHILIDAE PLATYCENTROPUS	1
SWIMS	50911	TRICHOPTERA LIMNEPHILIDAE PYCNOPSYCHE	1
SWIMS	50952	TRICHOPTERA PHILOPOTAMIDAE CHIMARRA ATERRIMA	6
SWIMS	50954	TRICHOPTERA PHILOPOTAMIDAE CHIMARRA OBSCURA	9
SWIMS	50962	TRICHOPTERA PHRYGANEIDAE AGRYPNIA	1
SWIMS	50974	TRICHOPTERA PHRYGANEIDAE PTILOSTOMIS	5
SWIMS	50998	TRICHOPTERA POLYCENTROPODIDAE POLYCENTROPUS	2
SWIMS	51030	TRICHOPTERA PSYCHOMYIIDAE PSYCHOMYIA FLAVIDA	4
SWIMS	53093	TRICLADIDA	4
SWIMS	54807	TRICLADIDA PLANARIIDAE DUGESIA TIGRINA	3
SWIMS	53079	TROMBIDIFORMES	13
DNR_STORET	82078	TURBIDITY, FIELD NEPHELOMETRIC NTU	2
SWIMS	53163	VENEROIDA PISIDIIDAE PISIDIUM	29
SWIMS	53153	VENEROIDA PISIDIIDAE SPHAERIUM	3

Lab Fee Budget

Test Code	Description	Test Group	# Planned	Unit Cost	Total Cost
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