Anchorage Bugalogue 2000

MUNICIPALITY OF ANCHORAGE
WATERSHED MANAGEMENT PROGRAM

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Introduction

The Municipality of Anchorage (MOA) is currently studying the biotic community of streams within the Anchorage vicinity. Biological monitoring protocols using benthic macroinvertebrates are routinely used by federal, state, and local agencies for the assessment and tracking of water quality. Such protocols are based on the assumption that anthropogenic influences (e.g., sedimentation, nutrient enrichment, heavy metals canopy removal, etc.) will yield a corresponding and somewhat predictable change in the biota. Therefore, by monitoring macroinvertebrate communities, a wide range of environmental perturbations can be detected that would otherwise be possible only by intensive chemical and physical monitoring.

Stream ecology can be affected by a wide variety of human and natural factors. Sampling of stream habitat and benthic macroinvertebrates provides a unique assessment of the overall health of the streams. Relating these findings to information about the natural and human features found in the sampled basins can provide important information for management of land and water uses.

Stream Macrobiotic Community

Macroinvertebrates are those organisms lacking a backbone which are visible to the naked eye. In our Anchorage freshwater streams, they include the insects gastropods (snails), oligochaetes (worms), and others. But in most creek and streams the larval insects dominate the macroinvertebrate community. These organisms provide an excellent tool for stream quality assessment work.

The macroinvertebrates, being rather restricted to their immedicate habitat, cannot escape changes in water quality. If a mild-to-severe pollution problem impacts the creek, a considerable period of time may be required for the macroinvertebrate to fully recover former community structure. Therefore, these organisms provide a relative view of the overall quality of a stream at any given moment, and can be used to link degrading influences.

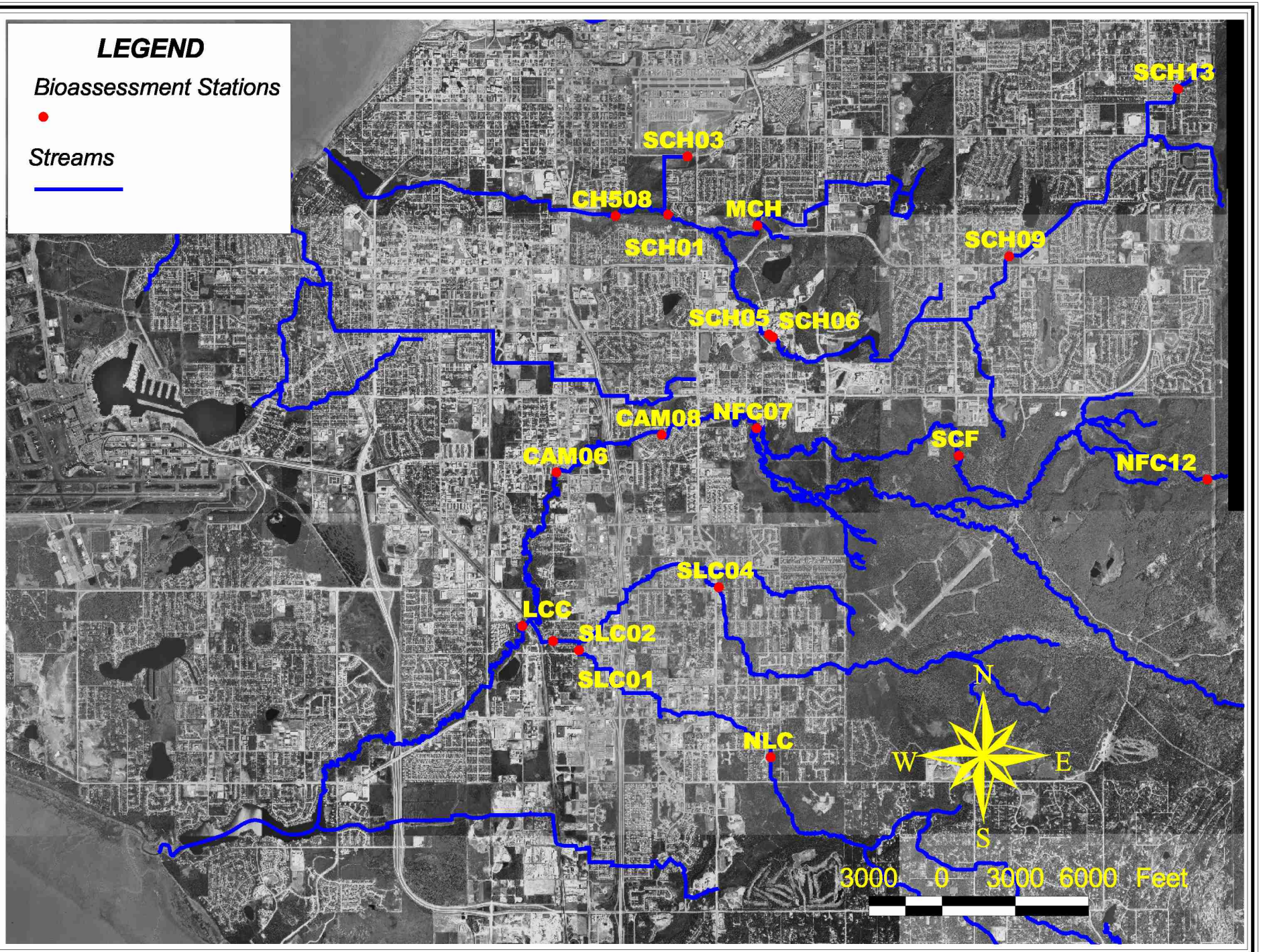
To evaluate the water quality of Municipality of Anchorage (MOA) streams, the rapid bioassessment methodology it developed for Alaska based on the U.S. Environmental Protection Agency's Rapid Bioassessment Protocols for wadeable streams and rivers was used. The method incoporates seven biologcal metrics into a unitless index, the Alaska Stream Condition Index (ASCI), for a final assessment of water quality condition based upon biological information.

ASCI scores have been devloped specifically for the Cook Inlet Basin, including the Anchorage Bowl. ASCI scores are based on seven factors subdivided into tow categories: 1) richness measures [total number of taxa, number of Ephemeroptera (E), number of Plecoptera (P), and number of Trichpter (T)] and, 2) composition measures (% EPT, % Chironomidae, and % Dominant taxon).

ASCI specific ecoregion expectations of unimpaired conditions would be considered "very good" and progressively diminishing values are classified as "good", "poor", and "very poor". Assessment results are based on ASCI scores for reference conditions by local ecoregion. Examples of macrobiotic communities reflecting these conditions are displayed on page 9.

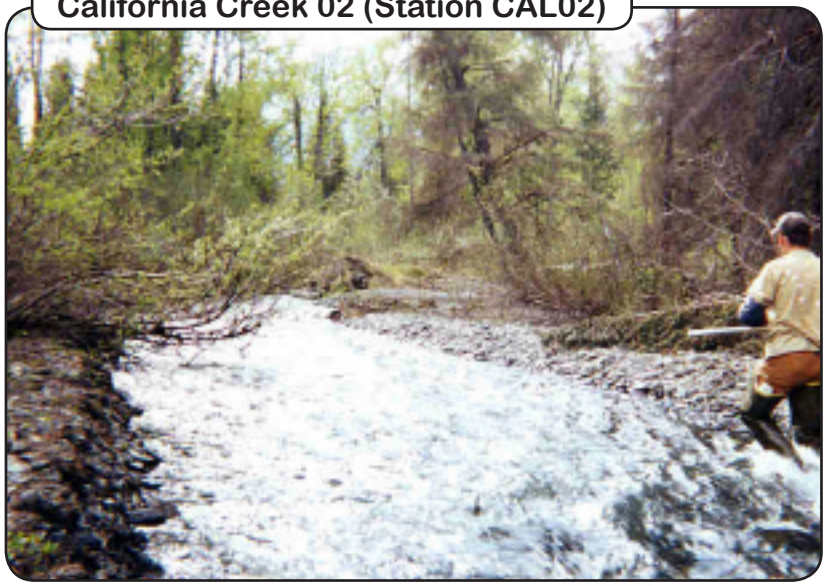
Year 2000 Sampling Log

Stream stations sampled in 2000 include 25 sites along Rabbit Creek, Ship Creek, Chester Creek, Campbell Creeks, Eagle River and Meadow Creek. The following sampling log graphically summarizes sampling results for selected stations for the year 2000. Stations included in this summary are shown on page 9.


LEGEND
Bioassessment Stations
Streams
SCH13
SCH03
CH508
MCH
SCH01
SCH09
SCH05
SCH06
CAM08
NFC07
SCF
NFC12
CAM06
SLC04
LCC
SLC02
SLC01
NLC
N
W
E
S
3000 0 3000 6000 Feet

Station Descriptions

California Creek 02 (Station CAL02)



SITE SPECS

Site Location: California Creek 02*

Sample ID: MACAL02A

Northing: 2547074.367

Easting: 652506.033

Sample Date: 6/1/00

Sample Time: 4:45

Temperature: 65

Weather (Previous 7 Day Precipitation): Light

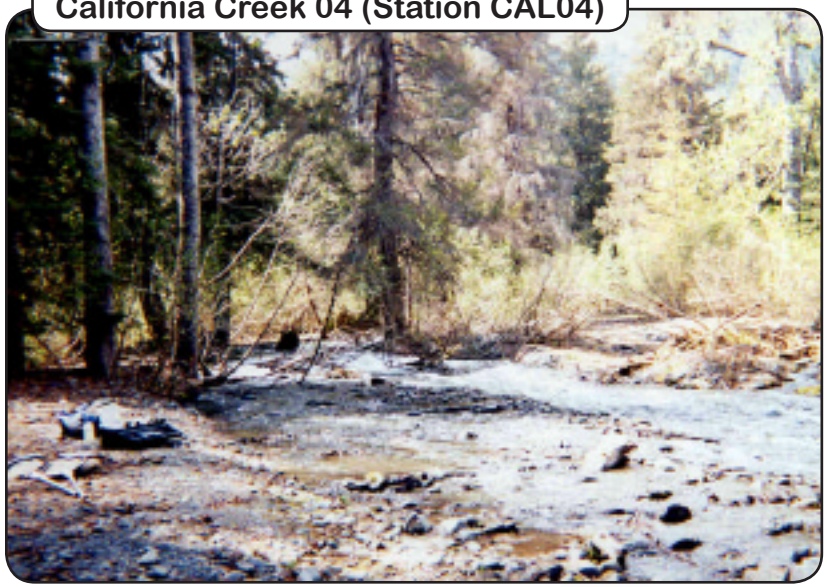
* Site location not shown on page 9

EPT Taxa

Other Taxa

Total Taxa:	15	% Chironomidae:	7%
Ephemeroptera (E) Taxa:	3	% Dominant Taxon:	60%
Plecoptera (P) Taxa:	4	% EPT:	89%
Trichoptera (T) Taxa:	2	ASCI Score:	30

California Creek 04 (Station CAL04)



SITE SPECS

Site Location: California Creek 04*

Sample ID: MACAL04A

Northing: 2547454.886

Easting: 612834.222

Sample Date: 6/1/00

Sample Time: 3:15

Temperature: 68

Weather (Previous 7 Day Precipitation): None

* Site location not shown on page 9

EPT Taxa

Other Taxa

Total Taxa:	14	% Dominant Taxon:	47%
Ephemeroptera (E) Taxa:	4	% EPT:	88%
Plecoptera (P) Taxa:	3	ASCI Score:	32
Trichoptera (T) Taxa:	2	Assessment:	Good
% Chironomidae:	8%		

Campbell Creek 06 (Station CAM06)

SITE SPECS

Site Location: Campbell Creek 06

Sample ID: MACAM06A

Northing: 2621540.986

Easting: 520840.097

Sample Date: 5/23/00

Sample Time: 3:50

Temperature: N/A

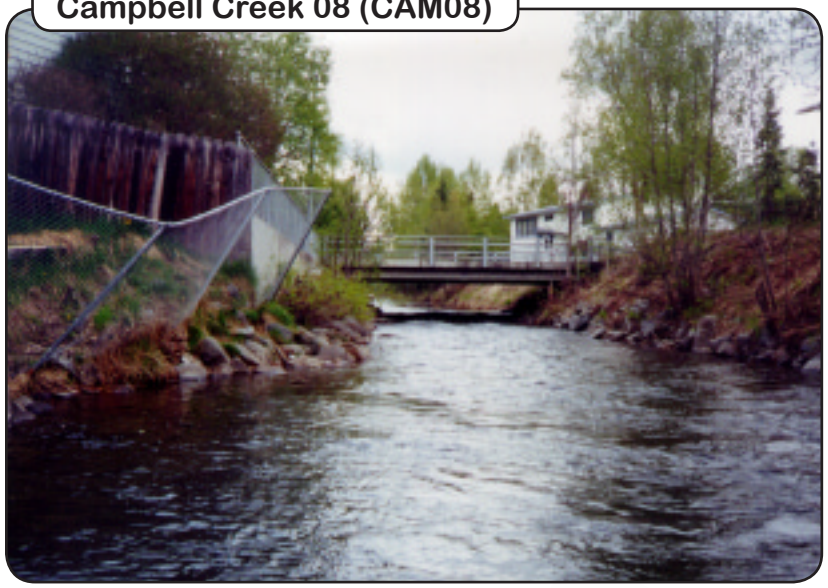
Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	14	% Dominant Taxon:	58%
Ephemeroptera (E) Taxa:	4	% EPT:	14%
Plecoptera (P) Taxa:	3	ASCI Score:	26
Trichoptera (T) Taxa:	2	Assessment:	Good
% Chironomidae:	58%		

Campbell Creek 08 (CAM08)



SITE SPECS

Site Location: Campbell Creek 08

Sample ID: MACAM08A

Northing: 2624089.062

Easting: 525541.885

Sample Date: 5/23/00

Sample Time: 3:15

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	16	% Dominant Taxon:	69%
Ephemeroptera (E) Taxa:	3	% EPT:	14%
Plecoptera (P) Taxa:	3	ASCI Score:	20
Trichoptera (T) Taxa:	1	Assessment:	Poor
% Chironomidae:	69%		

Campbell Creek - North Fork 07 (Station NFC07)

SITE SPECS

Site Location: Campbell Creek - North Fork 07

Sample ID: MANFC07A & B

Northing: 2622783.901

Easting: 531575.528

Sample Date: 5/24/00

Sample Time: 11:50

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	13	% Dominant Taxon:	72%
Ephemeroptera (E) Taxa:	2	% EPT:	15%
Plecoptera (P) Taxa:	3	ASCI Score:	18
Trichoptera (T) Taxa:	1	Assessment:	
% Chironomidae:	72%		

Campbell Creek - North Fork 12 (Station NFC12)

SITE SPECS

Site Location: Campbell Creek - North Fork 12

Sample ID: MANFC12A

Northing: 2621324.83

Easting: 549772.281

Sample Date: 5/25/00

Sample Time: 9:40

Temperature: 50

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	14	% Dominant Taxon:	59%
Ephemeroptera (E) Taxa:	4	% EPT:	36%
Plecoptera (P) Taxa:	2	ASCI Score:	26
Trichoptera (T) Taxa:	2	Assessment:	Good
% Chironomidae:	59%		

Campbell Creek - South Fork (Station SFC)

SITE SPECS

Site Location: Campbell Creek - South Fork

Sample ID: MASFC11A

Northing: 2621183.483

Easting: 539474.946

Sample Date: 5/23/00

Sample Time: 12:30

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	18	% Dominant Taxon:	61%
Ephemeroptera (E) Taxa:	5	% EPT:	33%
Plecoptera (P) Taxa:	3	ASCI Score:	32
Trichoptera (T) Taxa:	3	Assessment:	Good
% Chironomidae:	61%		

Chester Creek 08 (Station CHS08)

SITE SPECS

Site Location: Chester Creek 08

Sample ID: MASCHE08A

Northing: 2631501.733

Easting: 525476.485

Sample Date: 5/22/00

Sample Time: 9:30

Temperature: 50

Weather (Previous 7 Day Precipitation): Moderate

EPT Taxa

Other Taxa

Total Taxa:	13	% Dominant Taxon:	51%
Ephemeroptera (E) Taxa:	1	% EPT:	11%
Plecoptera (P) Taxa:	2	ASCI Score:	24
Trichoptera (T) Taxa:	3	Assessment:	Good
% Chironomidae:	51%		

Chester Creek - Middle Fork (Station MCH)

SITE SPECS

Site Location: Chester Creek - Middle Fork

Sample ID: MAMCH02A

Northing: 2631210.001

Easting: 530768.56

Sample Date: 5/22/00

Sample Time: 2:00

Temperature: 60

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	8	% Dominant Taxon:	76%
Ephemeroptera (E) Taxa:	1	% EPT:	2%
Plecoptera (P) Taxa:	1	ASCI Score:	20
Trichoptera (T) Taxa:	2	Assessment:	Good
% Chironomidae:	20%		

Chester Creek - South Fork 01 (Station SCH01)

SITE SPECS

Site Location: Chester Creek - South Fork 01

Sample ID: MASCH01A

Northing: 2629663.22

Easting: 530113.95

Sample Date: 5/22/00

Sample Time: 10:30

Temperature: 55

Weather (Previous 7 Day Precipitation): Moderate

EPT Taxa

Other Taxa

Total Taxa:	16	% Dominant Taxon:	57%
Ephemeroptera (E) Taxa:	1	% EPT:	15%
Plecoptera (P) Taxa:	4	ASCI Score:	30
Trichoptera (T) Taxa:	3	Assessment:	Very Good
% Chironomidae:	57%		

Chester Creek - South Fork 03 (Station SCH03)

SITE SPECS

Site Location: Chester Creek - South Fork 03

Sample ID: MASCH03A

Northing: 2634049.311

Easting: 529242.52

Sample Date: 5/22/00

Sample Time: 12:30

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	13	% Dominant Taxon:	27%
Ephemeroptera (E) Taxa:	1	% EPT:	15%
Plecoptera (P) Taxa:	3	ASCI Score:	30
Trichoptera (T) Taxa:	2	Assessment:	Very Good
% Chironomidae:	26%		

Chester Creek - South Fork 05 (Station SCH05)

SITE SPECS

Site Location: Chester Creek - South Fork 05

Sample ID: MASCH05A

Northing: 2625830.78

Easting: 531763.264

Sample Date: 5/22/00

Sample Time: 3:00

Temperature: 60

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	11	% Dominant Taxon:	42%
Ephemeroptera (E) Taxa:	1	% EPT:	18%
Plecoptera (P) Taxa:	1	ASCI Score:	22
Trichoptera (T) Taxa:	3	Assessment:	Good
% Chironomidae:	42%		

Chester Creek - South Fork 06 (Station SCH06)

SITE SPECS

Site Location: Chester Creek - South Fork 06

Sample ID: MASCH06A

Northing: 2625830.78

Easting: 531763.264

Sample Date: 5/22/00

Sample Time: 3:47

Temperature: 60

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	12	% Dominant Taxon:	39%
Ephemeroptera (E) Taxa:	1	% EPT:	13%
Plecoptera (P) Taxa:	0	ASCI Score:	26
Trichoptera (T) Taxa:	5	Assessment:	Good
% Chironomidae:	39%		

Chester Creek - South Fork 09 (Station SCH09)

SITE SPECS

Site Location: Chester Creek - South Fork 09

Sample ID: MASCH09A

Northing: 2632661.936

Easting: 540562.438

Sample Date: 5/23/00

Sample Time: 11:15

Temperature: 55

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	11	% Dominant Taxon:	64%
Ephemeroptera (E) Taxa:	1	% EPT:	16%
Plecoptera (P) Taxa:	3	ASCI Score:	18
Trichoptera (T) Taxa:	2	Assessment:	Poor
% Chironomidae:	64%		

Chester Creek - South Fork 13 (Station SCH13)

SITE SPECS

Site Location: Chester Creek - South Fork 13

Sample ID: MASCH13A

Northing: 2635741.833

Easting: 549171.377

Sample Date: 5/23/00

Sample Time: 10:00

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	13	% Dominant Taxon:	75%
Ephemeroptera (E) Taxa:	1	% EPT:	12%
Plecoptera (P) Taxa:	1	ASCI Score:	18
Trichoptera (T) Taxa:	3	Assessment:	Poor
% Chironomidae:	75%		

Little Campbell Creek (Station LCC)

SITE SPECS

Site Location: Little Campbell Creek

Sample ID: MALCA01A & B

Northing: 2614333.042

Easting: 521785.367

Sample Date: 5/24/00

Sample Time: 10:20

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	7	% Dominant Taxon:	89%
Ephemeroptera (E) Taxa:	0	% EPT:	0%
Plecoptera (P) Taxa:	0	ASCI Score:	4
Trichoptera (T) Taxa:	1	Assessment:	Very Poor
% Chironomidae:	90%		

Little Campbell Creek - North Fork (Station NLC)

SITE SPECS

Site Location: Little Campbell Creek - North Fork

Sample ID: MANFLC04A

Northing: 2616078.162

Easting: 530171.157

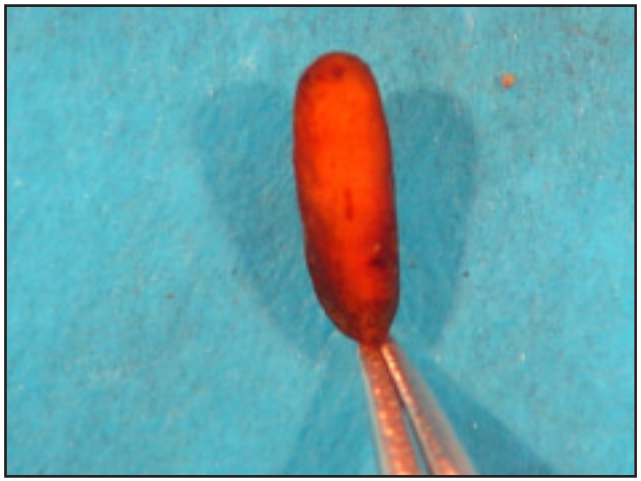
Sample Date: 5/24/00

Sample Time: 2:00

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa



Other Taxa

Total Taxa:	7	% Dominant Taxon:	94%
Ephemeroptera (E) Taxa:	0	% EPT:	0%
Plecoptera (P) Taxa:	0	ASCI Score:	4
Trichoptera (T) Taxa:	1	Assessment:	Very Poor
% Chironomidae:	94%		

Little Campbell Creek - South Fork 01 (Station SLC01)

SITE SPECS

Site Location: Little Campbell Creek - South Fork 01

Sample ID: MASFLC01A

Northing: 2613116.693

Easting: 522916.304

Sample Date: 5/24/00

Sample Time: 9:05

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	8	% Dominant Taxon:	90%
Ephemeroptera (E) Taxa:	0	% EPT:	1%
Plecoptera (P) Taxa:	0	ASCI Score:	6
Trichoptera (T) Taxa:	2	Assessment:	Very Poor
% Chironomidae:	90%		

Little Campbell Creek - South Fork 02 (Station SLC02)

SITE SPECS

Site Location: Little Campbell Creek - South Fork 02

Sample ID: MASFLC02A

Northing: 2613128.179

Easting: 528117.856

Sample Date: 5/24/00

Sample Time: 3:00

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	14	% Dominant Taxon:	87%
Ephemeroptera (E) Taxa:	2	% EPT:	10%
Plecoptera (P) Taxa:	3	ASCI Score:	14
Trichoptera (T) Taxa:	2	Assessment:	Poor
% Chironomidae:	87%		

Little Campbell Creek - South Fork 04 (Station SLC04)

SITE SPECS

Site Location: Little Campbell Creek - South Fork 04

Sample ID: MASFLC04A

Northing: 2609082.388

Easting: 534067.443

Sample Date: 5/25/00

Sample Time: 11:15

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

EPT Taxa

Other Taxa

Total Taxa:	11	% Dominant Taxon:	76%
Ephemeroptera (E) Taxa:	1	% EPT:	9%
Plecoptera (P) Taxa:	1	ASCI Score:	12
Trichoptera (T) Taxa:	2	Assessment:	Poor
% Chironomidae:	76%		

Rabbit Creek (Station RAB)

SITE SPECS

Site Location: Rabbit Creek*

Sample ID: MALR02A & B

Northing: 2588152.73

Easting: 529899.823

Sample Date: 5/25/00

Sample Time: 1:10

Temperature: 55

Weather (Previous 7 Day Precipitation): None

* Site location not shown on page 9

EPT Taxa

Other Taxa

Total Taxa:	19	% Dominant Taxon:	36%
Ephemeroptera (E) Taxa:	4	% EPT:	66%
Plecoptera (P) Taxa:	5	ASCI Score:	36
Trichoptera (T) Taxa:	2	Assessment:	Very Good
% Chironomidae:	28%		

Meadow Creek 02 (Station MEA02)

SITE SPECS

Site Location: Meadow Creek 02*

Sample ID: MAMEA02A

Northing: 2673849.74

Easting: 573367.285

Sample Date: 5/26/00

Sample Time: 10:45

Temperature: 55

Weather (Previous 7 Day Precipitation): Moderate

* Site location not shown on page 9

EPT Taxa

Other Taxa

Total Taxa:	13	% Dominant Taxon:	45%
Ephemeroptera (E) Taxa:	2	% EPT:	63%
Plecoptera (P) Taxa:	3	ASCI Score:	30
Trichoptera (T) Taxa:	2	Assessment:	Good
% Chironomidae:	16%		

Meadow Creek 04 (Station MEA04)

SITE SPECS

Site Location: Meadow Creek 04*

Sample ID: MAMEA04A

Northing: 2676603.158

Easting: 575155.422

Sample Date: 5/26/00

Sample Time: 11:45

Temperature: 55

Weather (Previous 7 Day Precipitation): Moderate

* Site location not shown on page 9

EPT Taxa

Other Taxa

Total Taxa:	19	% Dominant Taxon:	30%
Ephemeroptera (E) Taxa:	3	% EPT:	56%
Plecoptera (P) Taxa:	4	ASCI Score:	36
Trichoptera (T) Taxa:	3	Assessment:	Very Good
% Chironomidae:	15%		

Meadow Creek 06 (Station MEA06)

SITE SPECS

Site Location: Meadow Creek 06*

Sample ID: MAMEA06A

Northing: 2675216.234

Easting: 580289.546

Sample Date: 5/26/00

Sample Time: 9:30

Temperature: 50

Weather (Previous 7 Day Precipitation): Moderate

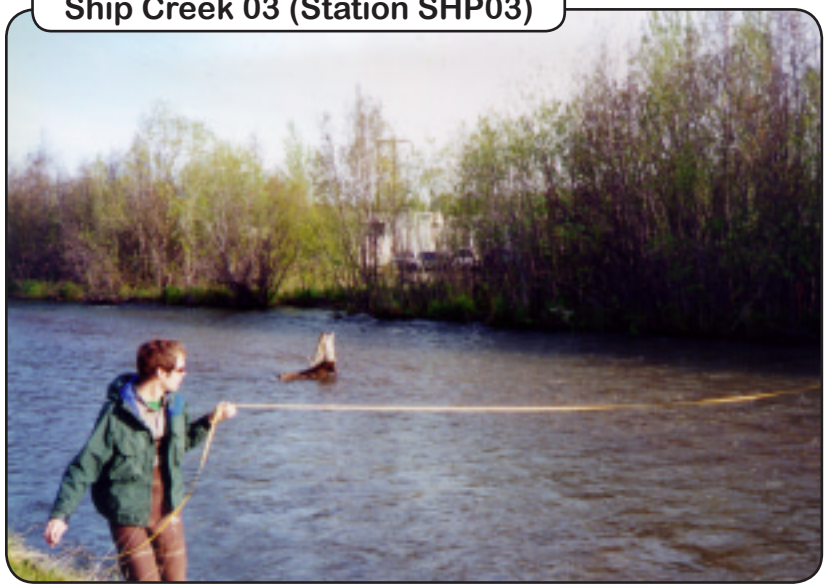
* Site location not shown on page 9

EPT Taxa

Other Taxa

Total Taxa:	13	% Dominant Taxon:	43%
Ephemeroptera (E) Taxa:	3	% EPT:	68%
Plecoptera (P) Taxa:	3	ASCI Score:	32
Trichoptera (T) Taxa:	2	Assessment:	Good
% Chironomidae:	19%		

Ship Creek 03 (Station SHP03)



SITE SPECS

Site Location: Ship Creek 03*

Sample ID: MASHI03A

Northing: 2640836.835

Easting: 522029.098

Sample Date: 5/23/00

Sample Time: 9:05

Temperature: N/A

Weather (Previous 7 Day Precipitation): Light

* Site location not shown on page 9

EPT Taxa

Other Taxa

Total Taxa:	11	% Dominant Taxon:	63%
Ephemeroptera (E) Taxa:	4	% EPT:	3%
Plecoptera (P) Taxa:	2	ASCI Score:	18
Trichoptera (T) Taxa:	1	Assessment:	Poor
% Chironomidae:	63%