Appendix D

Biological Assessment of Beal Slough

WWE
Wright Water Engineers, Inc.
2490 West 26th Ave., Suite 100A
Denver, Colorado 80211
(303) 480-1700 TEL
(303) 480-1020 FAX
www.wrightwater.com/wwe/
e-mail:krwright@wrightwater.com

July 10, 1997

RECEIVED
JUL 14 1997
OLSSON ASSOCIATES

Mr. Lalit Jha
Mr. Steve Masters
City of Lincoln - Public Works & Utilities
555 South Tenth Street
Lincoln, NE 68508

Mr. Glenn Johnson
Mr. Andy Bailey
Lower Platte South Natural Resources District
3125 Portia, P. O. Box 83581
Lincoln, NE 68501

Mr. John Cambridge
Mr. Bob Wolf
Olsson Associates
1111 Lincoln Mall
P. O. Box 84608
Lincoln, NE 68508

Re: Dr. Edwin Herricks Assessment of Beal Slough

Dear Gentlemen:

Please find enclosed the final version of Dr. Edwin Herricks' biological assessment of Beal Slough entitled, *Supplement to a Report of a Site Visit - Beal Slough, NE.*

Please do not hesitate to call with your questions and comments.

As always, my best regards.

Very truly yours,

WRIGHT WATER ENGINEERS, INC.

By: Jonathan E. Jones/KAB

Jonathan E. Jones, P.E.
Executive Vice President

Enclosure

cc: Mr. Tom Debo, Debo and Associates
Mr. Robert Hougtalen, Rose-Hulman Institute
Mr. Bill Wenk, Wenk Associates

C:\961-102\010kab\Edwinbioass.ltr.doc

Supplement to a
Report of a Site Visit
Beal Slough, Lincoln, NE

prepared by

Edwin E. Herricks, PhD
507 South Chicago Avenue
Champaign, IL

Introduction

A site visit was made to Beal Slough, a tributary to Salt Creek in Lincoln, Nebraska March 9 and 10, 1997, and a report of that visit was submitted on March 16, 1997. In that report, a description of biological sampling was provided, with only general observations of organism presence. This supplementary report provides more detailed biological sampling information developed from processing of samples collected on March 10.

Sampling

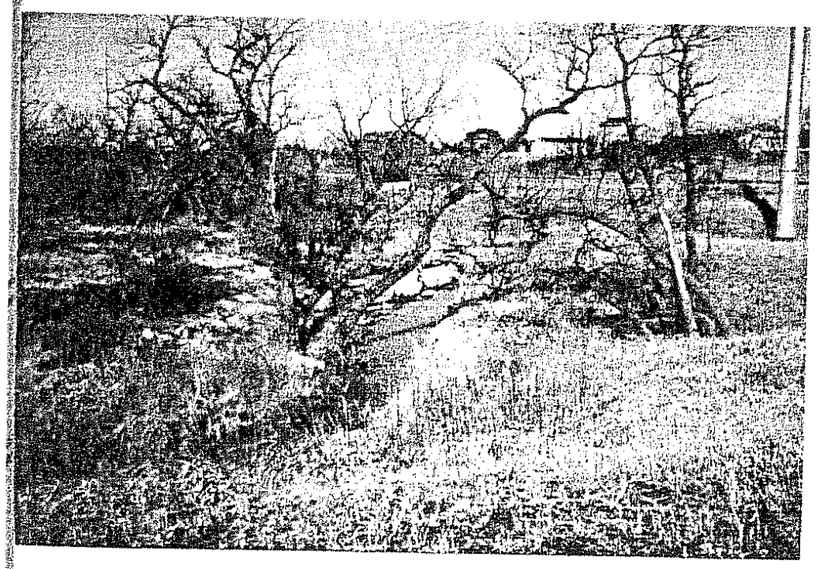
Observations at the six biological sampling stations, focusing on stream habitat, was made following guidance provided by the U. S. Geological Survey National Water Quality Assessment Program. At each station, a 5 minute kick net sample of benthic macroinvertebrates was collected following Rapid Bioassessment Procedure (RBP) methods. Benthic samples were preserved in 70% ethyl alcohol for later processing.

Results

The results of biological sampling are provided in Table 1. This table lists taxa observed in the samples and provides summary information for each sample. Photographs are provided for each sampling station

Table #1 Biological Sampling Data from Beal Slough, March 10, 1997 Sample

Nebraska	Beal Slough										
				84th St.	Pine Lake Road	56th St	48th St	US Trail Bridge	Near Confluence
Class	Order	Family	Tolerance						
Insecta	Diptera	Tipulidae	3	16	5	1	5	24	18
		Chironomidae	8	89	87	74	299		
		Psychodidae			9		1		
		Ceratopogonidae	6	4	5		5		
		Culicidae			14	1	46		
		Simulidae			12	13	33	2	1
		pupae							
		Libellulidae	9	1			3		
		Coenagrionidae	9			2			
		Cordulegastridae	3		7	21	236	4	2
	Trichoptera	Hydropsychidae	4	1	1	3	45	1	1
	Ephemeroptera	Heptageniidae	4		1				
		Baetidae	4				2		
		Caenidae				1			
Crustacea	Isopoda	Shaeromatidae	8				11		
	Amphipoda	Talitridae		5	1	1			
Mollusca	Gastropoda	Physidae	8	32		5	1		
Annelida	Nematoda	Oligochaeta	10	TNTC					
Total abundance				148	137	122	687	31	22
Taxa richness				8	9	10	12	4	4
EPT abundance				1	9	24	283	5	3
EPT richness				1	3	2	3	2	2
Shannon Diversity				1.28	1.29	1.29	1.43	0.75	0.66



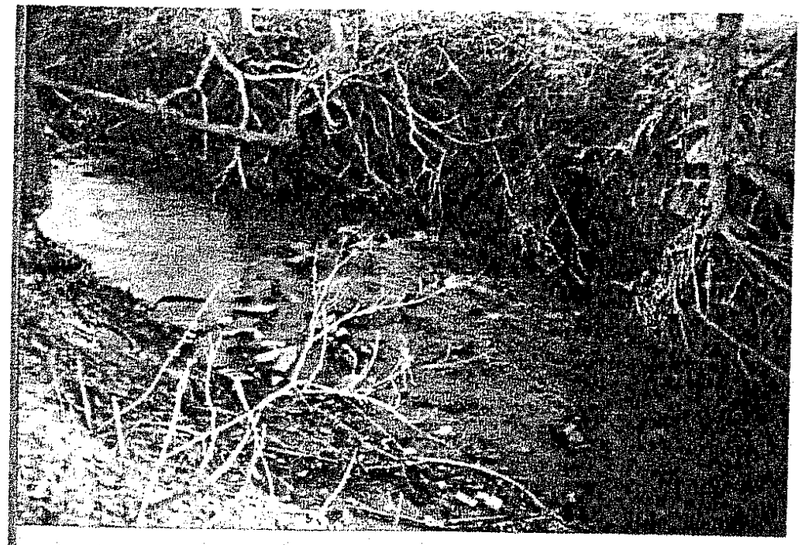
Beal Slough 84th Street Headwaters Area
(top) looking upstream
(bottom) looking downstream at sampled reach

84th St, Headwaters - Beal Slough in the headwaters was a generally straight, progressing to slightly braided section flowing through a heavily vegetated meadow/bottom area. East of 84th St Beal Slough had a single channel, approximately 18 inches wide, banks up to 18 inches high, and an iron stained clay bottom. Downstream from 84th St. flow was through a 6-9 ft. wide pool then through a narrower higher gradient area with a braided channel. Sampling was made of periphyton patches on the silty bottom at the downstream portion of the pool, and in the higher gradient, braided channel where gravel was observed. Sampling in this "riffle" area found the gravel armored a silt base. Probing in the channel revealed no obstructions to approximately 3 ft. While sampling I sunk approximately 1 ft into the substrate. It appears at this station that the channel location is maintained by vegetation in the "meadow/bottomlands" and has been relatively stable (as indicated by trees that appeared to be 20-30 years old).

Sampling produced 8 taxa dominated by Oligochaete worms, the dipteran Chironomidae and physid snails. These taxa are typical of the substrate and observed characteristics of the reach (organic characteristics of substrates, flow, and riparian zone vegetation). In general, diversity was low (1.27) and would be even lower if oligochaete worms were introduced in the calculations.

Pine Lake Road - Beal Slough was sampled downstream from the Pine Lake Road bridge parallel to the parking lot for a small park. The reach consisted of an upstream pool narrowing to a riffle dominated by cobble and rubble over a silt bottom. Downstream from the sampled reach the stream channel meandered with high sinuosity. The average channel width at the riffle was 8-10 ft., a general bank width of 15-18 ft, and a bank height of 4-6 ft. The canopy along this reach was well developed. The banks were shear, and generally stable, protected by root wads. Primary sampling was conducted in the riffle where I immediately sunk into the silt bottom with disturbance of surface materials. The material in the channel was mainly non-native rubble. Observations downstream indicated the presence of gravel bars around meanders.

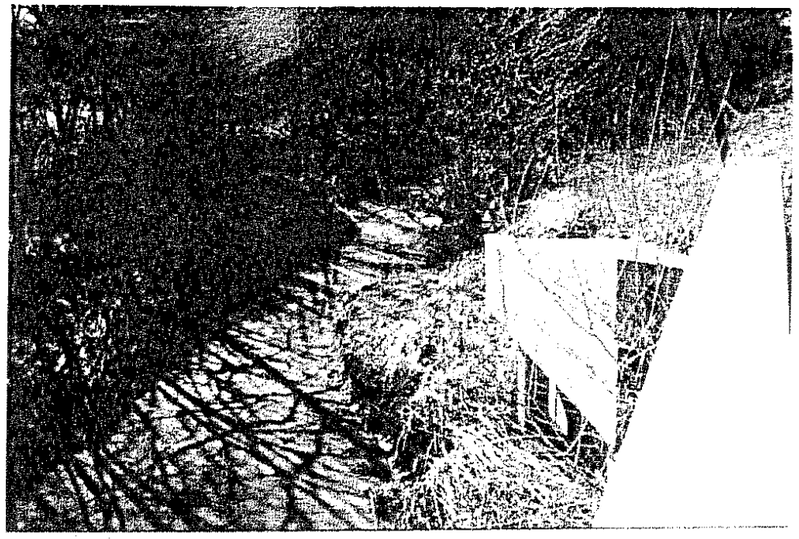
The macroinvertebrate sample from Beal Slough near Pine Lake Road was still dominated by Chironomidae, although dipteran taxa typical of coarser substrate and higher flow conditions were observed. Samples also produced one caddisfly and one mayfly taxa.

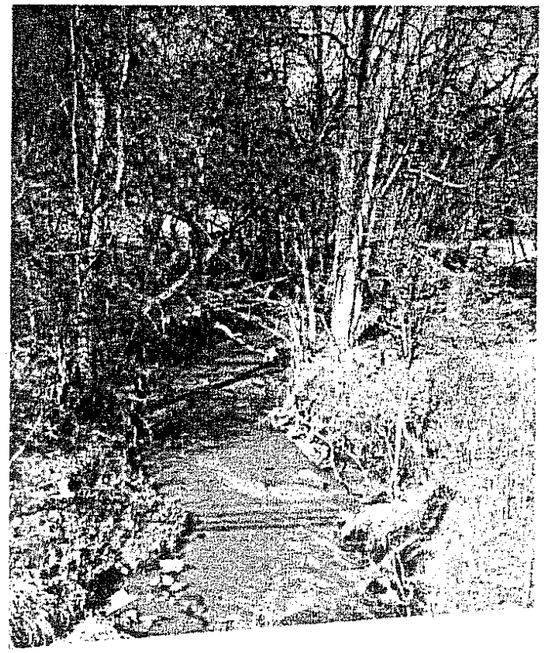


Beal Slough near Pine Lake Road
(top) sampled riffle
(bottom) downstream reach

56th Street - Sampling was conducted immediately downstream from the 56th St. bridge. The banks were shear, 5-6 ft high, with the channel consisting of a clay bottom overlain with rubble. The rubble in the channel appeared to originate from a brick cleaning yard located upstream. The reach sampled was approximately 75 ft. long with an average channel width of 4-8 ft. The upstream portion of this reach was a narrow (approximately 4 ft) with stream flow constricted over a rubble-free clay bottom. In the lower portion of the sampled reach the stream was wider with a large piece of rubble diverting flow into the bank exposing the roots of bank vegetation. Downstream from the sampled reach, Beal Slough meanders through a floodplain woodlot with trees estimated to be 20 -30 years old confined mainly to the channel margins.

Sampling in this reach provided a sample similar to the Pine Lake Sampling station with greater numbers of caddisflies and mayflies present. Ten taxa were present, dominated again by Chironomidae caddisflies were second most abundant.

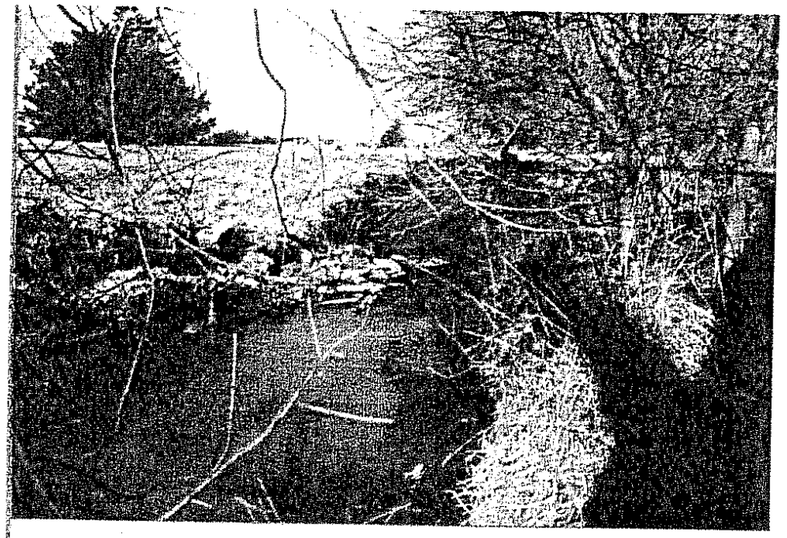


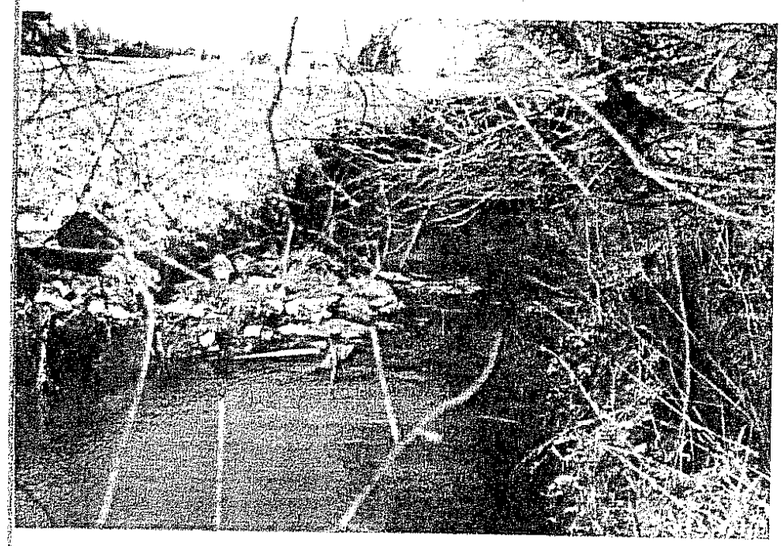


Beal Slough 56th Street (top) looking upstream

48th Street - The 48th Street sampling station was located in open parkland, downstream from the 48th St. bridge. The sampled location was a short riffle (20-25 ft) with a width of 8 - 10 ft.. This riffle was dominated by non-native materials, mainly construction rubble, and was associated with a channel draining a parking lot to the west. The stream in this reach was generally straight with a long pool (possibly associated with stream channelization) dominating the habitat upstream from the sampled riffle. Bank height was 5-6 ft., shear, and eroding on the south bank.

The sample from the 48th St. reach produced the highest abundance, the highest number of taxa, and a corresponding highest diversity of any stations sampled. Although Chironomidae were present in high numbers, caddisflies were present in nearly equal numbers and mayflies had the highest abundance of any station sampled.

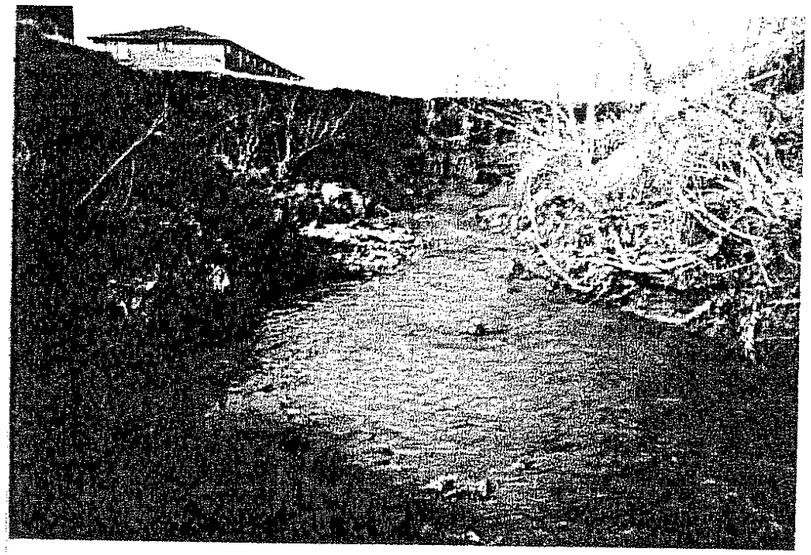


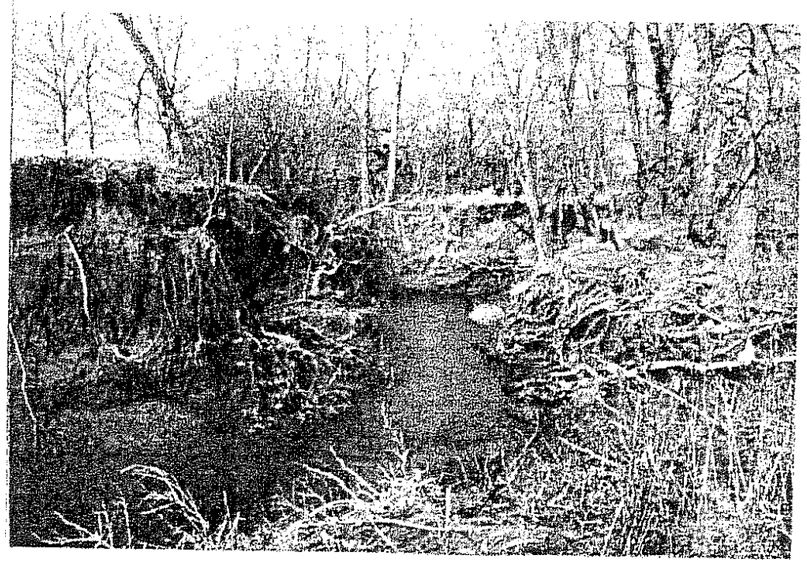


Beal Slough 48th Street
(top) general view looking downstream
(bottom) sampled riffle/rubble area

Upstream Trail Bridge. Beal Slough was sampled downstream from the eastern most hiking trail bridge (located between 27th and 40th St.). The sampled reach consisted of an approximately 100 ft. riffle consisting of rubble to cobble overlaying a silt and clay bottom with bank heights of 8 to 10 ft. Gravel and sand were also present in stream substrates. Upstream, the south bank was protected by gabions with flow from an upstream pool constricted by a bar to a channel along the north bank with a clay bottom that was rubble and gravel free. Downstream from this area the stream channel widened with substrate dominated by rubble and cobble with some gravel and sand in bars. The south bank showed evidence of recent bank caving with vegetated mats present in a terrace 2-3 ft. higher than the present channel bottom. Along the north bank, a vegetated terrace sloped from east to west suggesting historic bank slumping in this area.

Only four taxa, and low numbers of individuals (31) were observed at the Upstream Trail Bridge Station. The macroinvertebrate community was dominated by Chironomidae, and a few caddisflies and an single mayfly were present in samples.

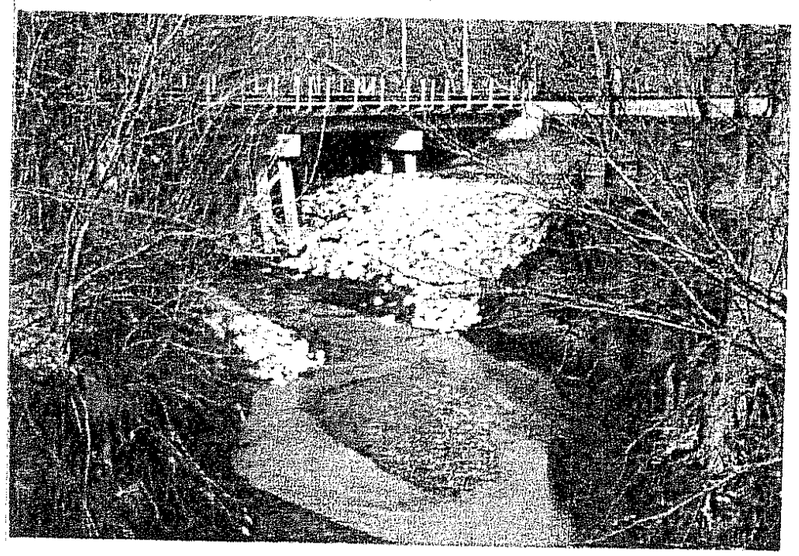




Beal Slough Upstream Trail Bridge
(top) sampled riffle
(bottom) downstream reach

Beal Slough Near the Confluence with Salt Creek - A silt bar, armored by gravel was sampled between the highway bridge and the newly constructed bridge of the Burlington Northern Railroad. The reach was approximately 200 ft long with a channel width of approximately 25 ft and a bank width of approximately 50 ft. Bank height was 15-18 ft and shear. A clay lens was present along the north bank, with the bar constricting the channel to a width of approximately 6 ft. Flow was rapid (2-3 ft./sec. estimated) and the bottom was unobstructed. Following sampling at the head of the bar, the south channel (approximately 6 ft. wide) was sampled. The substrate in this channel was dominated by silt and at the downstream end of the bar, a probe of the bottom revealed no obstructions to approximately 4 ft.

Only four taxa and 22 individuals were sampled near the confluence with Salt Creek, the same four taxa observed at the Upstream Trail Bridge Station.



Beal Slough near Confluence w/ Salt Creek
(top) looking upstream
(bottom) looking downstream at sampled bar.

Comparison With Previous Studies

Studies of Salt Creek have been performed by Brown and Caldwell. In these studies, biological sampling was conducted on Salt Creek at Station BSSO/SSO, upstream from the confluence of Beal Slough and Salt Creek, and BSS1B, downstream from the confluence of Salt Creek and Middle Creek (with Haines Branch also flowing into Salt Creek between the Beal Creek confluence and Station BSS1B). None of these stations are on Beal Creek, but they are representative of the possible faunal composition of this upstream area of Salt Creek/Beal Slough. The data reported for these stations is provided in Appendix A. The collections were made in August 1994, December 1994, February 1995, and August 1995. The taxa richness was 31 and BSS00 and 22 at BSS1B. BSS00 had a diverse mayfly fauna while BSS1B had a diverse Diperan/Chironomidae fauna.

Although Chironomidae taxa were not differentiated in this study, the taxa richness observed at all stations in this sampling of Beal Slough was well below the taxa richness found in nearby stations on Salt Creek in the year long study of Salt Creek. The difference is taxa abundance is particularly marked when the Near Confluence Station on Beal Slough is compared with nearby (upstream) Salt Creek sampling. The near confluence station in this study produced only four taxa. Further, the decline in taxa abundance as samples are compared from upstream through downstream sampling stations is important. Although the decline in taxa abundance may be due to many causes, I suspect that the most important limit is habitat, in particular stable habitat. For example, at sampling stations where large substrate materials provided somewhat stable habitat, taxa richness was greater than sampling stations where bottom substrates were unstable.

The sampling results for Beal Slough in March, 1997 do suggest that the upstream reaches of Beal Slough may have a macrobenthic community that is comparable to regional macrobenthic communities. (note: the survey methods used in this study included a single 5 minute kick sample, while survey techniques in the Brown and Caldwell study were more intensive and taxonomic discrimination was more sophisticated than the family-level identification used in this study).

General Recommendations for Master Plan

The analysis of the biological sampling completed on March, 10, 1997 is complete. With the completion of this analysis two recommendations for the Master Plan for Beal Slough find further support.

1. The recommendation that the Master Plan, Beal Slough should be divided into two regions for planning purposes is confirmed by biological sampling. Although in my initial recommendations I suggested a division near 56th Street, the biological results suggest that at least to 48th Street macroinvertebrate communities can be sustained if substrate conditions are suitable.

2. The results of this sampling also confirm by initial recommendation that expenditures of resources on biological sampling should be limited at this time. Although upstream regions of Beal Slough may be comparable to regional macrobentic fauna, first priority of Master Plan activities should be stabilization of habitat, then consideration of stream aquatic life resources. I still make this recommendation with reservations because sampling did indicate upstream areas have the potential for supporting a reasonably diverse macrobenthic community. Every effort should be made to protect these upstream resources through planning and regulation of this developing area.

Appendix A

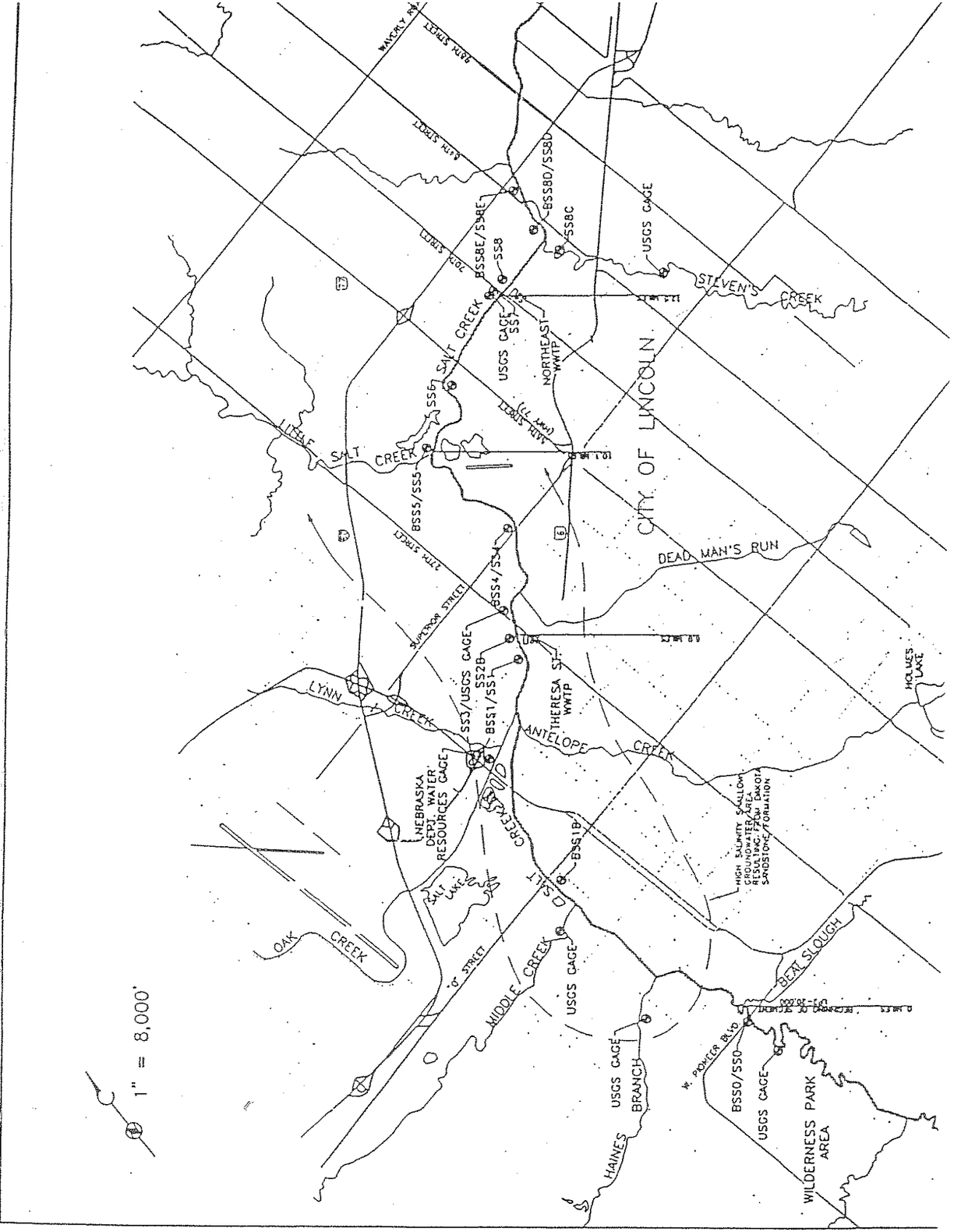


Table 1. Description of the Metrics for the Invertebrate Community Index and the Index of Biotic Integrity.

ICI Metrics	Description
Taxa Richness	total number of taxa present
EPT Taxa Richness Index	total number of pollution-sensitive Ephemeroptera, Plecoptera, and Tricoptera taxa present.
Chironomidae Species	total number of Chironomidae species
Modified Hilsenhoff Biotic Index	overall tolerance of the community to organic pollution
Ratio of EPT and Chironomidae Abundances	measures community balance of relatively intolerant taxa (EPT) to relatively tolerant taxa (Chironomidae)
Percent Contribution of Dominant Taxon	measures community balance by the proportion of the most abundant taxon
Ratio of Scraper and Filtering Collector Functional Feeding Groups	measures function of the community by comparing proportions of organisms that feed on attached periphyton (scrapers) to those that filter organic material from water. Suspended organic debris is a pollution indicator.
Jaccard Coefficient of Community Similarity Index	measures the degree of similarity in taxonomic composition between two stations in terms of taxon presence or absence

IBI Metrics	Description
Species Richness	measures the variety of species present
Number of Individuals in Sample	measures the abundance of the fish
Number of Native Cyprinid Species	these species are sensitive and comprise most of the fish biomass in Nebraska streams
Number of Intolerant Species	measures the presence of pollution-intolerant species
Percent of Tolerant Species	proportion of tolerant species in the community
Percent of Individuals as Omnivores	the proportion of the community that feeds on both animal and plant material and have a generalized feeding strategy
Percent of Individuals as Insectivores	the proportion of the community that feeds on insects and have a specialized feeding strategy
Percent of Individuals with Disease, Tumors, Fin Damage and Skeletal Anomalies	presence or absence of stressed individuals

TABLE 7. LIST AND ABUNDANCE OF MACROINVERTEBRATE SPECIES BY STATION THAT WERE COLLECTED FROM SIX STATIONS ON SALT CREEK IN LINCOLN, NEBRASKA DURING THE WEEK OF AUGUST 30, 1994.

	BSS00	BSS01	BSS04	BSS05	BSS08	BSS10
ANNELIDA						
Oligochaeta	5	50	43	29	18	58
CRUSTACEA						
Amphipoda						
Hyalella azteca	3					4
Mysidacea						
Mysis relicta		1				
INSECTA						
Collembola	1					
Emphemeroptera						
Baetis sp.	8					
Baetis intercalaris	21					
Isonychia (Isonychia) sp.	7				1	
Stenacron sp.	26					
Stenonema femoratum	2					
Stenonema integrum	4		1			
Stenonema/Heptagenia	1					
Tricorythodes Sp.	18	2			1	
Odonata						
Zygoptera						
Argia sp.	1	1		1	2	
Coenagrioniche G. Sp.		1	1			1
Hetaerina sp.	1	1	1			
Hemiptera						
Trichocorixa sp.	17	3	4	5	5	
Gerridae G. sp	1	1				
Rheumatobates sp.	7					
Megaloptera						
Sialis sp.	1				1	
Coleoptera						
Berosus Sp. (L)				2	1	
Berosus Sp. (A)				1		
Dubiraphia sp. (A)	7		1		1	
Dubiraphia sp. (L)	2				1	
Laccophilus maculosus (A)		1				
Macronychus sp. (A)	1					
Macronychus sp. (L)	1		1			
Stenelmis sp. (L)	1					
Tropisternus sp. (A)	2					
Uvarus Sp. (A)			1			

TABLE 7. LIST AND ABUNDANCE OF MACROINVERTEBRATE SPECIES BY STATION THAT WERE COLLECTED FROM SIX STATIONS ON SALT CREEK IN LINCOLN, NEBRASKA DURING THE WEEK OF AUGUST 30, 1994.

	BSS00	BSS01	BSS04	BSS05	BSS08	BSS10
Diptera						
Ablabesmyia sp.	2	4	3	1	5	7
Chironomidae G. sp. (P)	5	38	32	32	14	28
Chironomini 2	1					
Chironomus Sp.		4			5	2
Clinotanypus Sp.					2	
Cricotopus bicinctus grp.		42	34	10	13	26
Cricotopus festivellus grp.		25	7	6	2	24
Cricotopus (isocladius) sp.		23	10	51	9	12
Cricotopus S. Str.		8	5	6	2	14
Cryptochironomus Sp.						5
Culicoides Sp. (L)						1
Dicrotendipes sp.	2	27	10	4	3	
Endochironomus Sp.						2
Ephydridae G. Sp.		1				
Glyptotendipes Sp.		6	2		5	5
Hemerodromia Sp. (P)			1			
Hemerodromia Sp. (L)						2
Polypedilum sp.	24	67	92	59	110	129
Simulium sp.	1		1			
Tanypodinae G. sp.	3		3			
Tanypus Sp.					2	
Tanytarsini G. sp.	1					
Tanytarsus Sp.			2		2	7
Thienemannimyia Sp. grp.				4	3	7
Unidentifiable	1		1	1		
Trichoptera						
Hydropsyche Sp.	7	5	2		2	2
Cheumatopsyche sp.	20	16		1		
Nectopsyche pavida	5					
TOTAL	204	290	224	181	194	309

Note: Total does not include pupa or unidentified species.

TABLE 8. LIST AND ABUNDANCE OF MACROINVERTEBRATE SPECIES BY STATION THAT WERE COLLECTED FROM EIGHT STATIONS ON SALT CREEK IN LINCOLN, NEBRASKA THE WEEK OF DECEMBER 19, 1994.

	BSS00	BSS1B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
ANNELIDA								
Oligochaeta	11	122	87	112	75	77	78	112
CRUSTACEA								
Amphipoda								
Hyalella azteca	4							
INSECTA								
Collembola		1			2	5	1	
Ephemeroptera								
Stenacron sp.	14	1						
Baetis sp.					2	1		
Odonata								
Zygoptera								
Argia sp.	1							
Coenagrionidae G. sp.					1	1		
Hetaerina sp.	1							
Ischnura/Anomalagrion sp.						1		
Hemiptera								
Trichocorixa sp.	8	2		8	3	8		7
Homoptera			1		1			
Coleoptera								
Berosus sp. (L)				1				
Carabidae G. sp. (A)				1				
Curculionidae G. sp. (A)						1		
Liodessus sp. (A)	2							
Dubiraphia sp. (L)	2							
Helophorus sp. (A)				1	1			
Laccophilus maculosus (A)				1				
Stenelmis sp. (L)							1	1
Diptera								
Brillia sp.						1	2	
Ceratopogon sp.				3				
Chaetocladius sp.	58	56	22	24	11	5	6	52
Chironomidae G. sp. (P)			2	3	1			
Chironomus sp.	13	6	77	37	27	7	8	52
Cricotopus bicinctus grp.	1			3	1	4	1	
Cricotopus (Isocladius) sp.	12	158	38	8	14	48	32	3
Cryptochironomus sp.	3		1		1	2	5	11
Culicoides sp.	4	50	9	6	30	18	18	6

TABLE 8. LIST AND ABUNDANCE OF MACROINVERTEBRATE SPECIES BY STATION THAT WERE COLLECTED FROM EIGHT STATIONS ON SALT CREEK IN LINCOLN, NEBRASKA THE WEEK OF DECEMBER 19, 1994.

	BSS00	BSS1B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Dicrotendipes sp.	1	11	1	7	6	14	17	10
Endochironomus sp.								2
Ephydridae G. sp.		9	4	4	30	24	1	4
Glyptotendipes sp.				1	4	1	6	6
Hemerodromia sp.		3						1
Hemerodromia sp. grp.	1							
Paraphaenocladius sp.		3					5	
Paratanytarsus sp.					2			2
Paratrichocladius sp.	30	17	3	10	9	12	24	8
Pericoma sp.		1						
Polypedilum sp.	3	14	1	3	2	5	5	8
Probezzia sp.	3	6	1	3		3	3	4
Procladius sp.		3						
Pseudolimnophila sp.								
Psychoda sp.			1	1	1			1
Simulium sp.	3	6			2		3	2
Tabanus sp.	2							
Tanypus sp.		11						
Tanytarsus sp.		3			1		2	2
Telopelopia sp.	11		1		1	1	1	
Thienemannimyia sp. grp.	4	3	3	1	1	2	1	5
Tipula sp.								1
Unidentifiable				1	1		5	2
Trichoptera								
Hydropsyche sp.	6				1	1		3
Cheumatopsyche sp.	2			1	1			3
Cyrnellus fraternus								1
GASTROPODA								
Lymnophila								
Physella sp.		2			2	1		4
	210	488	251	236	232	243	220	311

Note: Total does not include pupa or unidentified species.

TABLE 9. MACROINVERTEBRATES COLLECTED FROM STATIONS ON SALT CREEK, LINCOLN, NEBRASKA. COLLECTIONS WERE MADE IN FEBRUARY 1995.

Phylum	Class	Order	Family	Genus/species	Station							
					BSS00	BSS1B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Annelida	Oligochaeta				45	64	23	84	62	37	43	58
Arthropoda	Crustacea	Amphipoda	Talitridae	*Hyalella azteca*	1							
Arthropoda	Insecta	Collembola	Talitridae							1		
Arthropoda	Insecta	Ephemeroptera	Baetidae	*unid. baetid*								1
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	*Stenacron sp.*	21							2
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	*Stenonema pulchellum*		1						
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	*Stenonema terminatum*	2							
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	*unid. heptageniid*	1						3	
Arthropoda	Insecta	Odonata	Coenagrionidae	*Argia sp.*					1	1		
Arthropoda	Insecta	Odonata	Coenagrionidae	*Ischnura/Anomalagrion*		2	1					
Arthropoda	Insecta	Odonata	Gomphidae	*Gomphus sp.*							1	
Arthropoda	Insecta	Hemiptera	Corixidae	*Sigara sp.*		1	1	3	2	5	1	2
Arthropoda	Insecta	Hemiptera	Corixidae	*Trichocorixa sp.*	5	1	2			15		5
Arthropoda	Insecta	Hemiptera	Corixidae	*unid. corixid*						1		7
Arthropoda	Insecta	Hemiptera	Pleidae	*Neoplea sp.*	1							
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*Cheumatopsyche sp.*	1				1			4
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*Hydropsyche sp.*	1							
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*Potamyia flava*	3		1					1
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*unid. hydropsychid*	2							
Arthropoda	Insecta	Trichoptera	Leptoceridae	*Nectopsyche sp.*		1						
Arthropoda	Insecta	Coleoptera	Dytiscidae	*Agabus sp.*			1				1	
Arthropoda	Insecta	Coleoptera	Elmidae	*Dubiraphia sp.*	2							
Arthropoda	Insecta	Coleoptera	Elmidae	*Macronychus glabratus*	2							
Arthropoda	Insecta	Coleoptera	Elmidae	*Stenelmis sp.*			2					
Arthropoda	Insecta	Coleoptera	Haliplidae	*Peltodytes lengi*		1	1					
Arthropoda	Insecta	Coleoptera	Hydrophilidae	*Berosus sp.*								1
Arthropoda	Insecta	Diptera	Ceratopogonidae	*Ceratopogon sp.*								1
Arthropoda	Insecta	Diptera	Ceratopogonidae	*Culicoides sp.*		13	3	4	20	10	3	5
Arthropoda	Insecta	Diptera	Chironomidae	*Chironomus [L]*			15	33	12	7	9	9
Arthropoda	Insecta	Diptera	Chironomidae	*Cryptochironomus [L]*	1		1		1		1	3
Arthropoda	Insecta	Diptera	Chironomidae	*Dicrotendipes [L]*		3	13	1	7	10	29	12
Arthropoda	Insecta	Diptera	Chironomidae	*Dicrotendipes fumidus*	1			2				1
Arthropoda	Insecta	Diptera	Chironomidae	*Dicrotendipes neomodestus*				1				
Arthropoda	Insecta	Diptera	Chironomidae	*Glyptochironomus [L]*			1		1	2	4	
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum convictum-gr.*			1	1			1	2

TABLE 9. MACROINVERTEBRATES COLLECTED FROM STATIONS ON SALT CREEK, LINCOLN, NEBRASKA. COLLECTIONS WERE MADE IN FEBRUARY 1995.

Phylum	Class	Order	Family	Genus/species	Station							
					BSS00	BSS1B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum fallax?*						1		
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum halterale-gr.*		1	4		1		4	6
Arthropoda	Insecta	Diptera	Chironomidae	*Pseudochironomus*		1	2	2				
Arthropoda	Insecta	Diptera	Chironomidae	*Stictochironomus*							1	
Arthropoda	Insecta	Diptera	Chironomidae	*unid. chironomini [L]*							1	
Arthropoda	Insecta	Diptera	Chironomidae	*unid. chironomini [P]*								
Arthropoda	Insecta	Diptera	Chironomidae	*Cladotanytarsus mancus-gr.*		2	2					1
Arthropoda	Insecta	Diptera	Chironomidae	*Micropsectra*	2			4		1		1
Arthropoda	Insecta	Diptera	Chironomidae	*Paratanytarsus*	1							
Arthropoda	Insecta	Diptera	Chironomidae	*unid. tanytarsini [P]*	1							
Arthropoda	Insecta	Diptera	Chironomidae	*Ablabesmyia mallochi*	2							
Arthropoda	Insecta	Diptera	Chironomidae	*Conchapelopia/Helopelopia*	2							
Arthropoda	Insecta	Diptera	Chironomidae	*Hayesomyia senata*	3				1	2		1
Arthropoda	Insecta	Diptera	Chironomidae	*Larsia/Natarsia*			2		1	4	2	
Arthropoda	Insecta	Diptera	Chironomidae	*Meropelopia/Hayesomyia*		1	3				1	1
Arthropoda	Insecta	Diptera	Chironomidae	*Tanypus stellatus?*						1	1	
Arthropoda	Insecta	Diptera	Chironomidae	*Tanypus neopunctipennis*			2			2		1
Arthropoda	Insecta	Diptera	Chironomidae	*Thienemannimyia-gr.*	1							
Arthropoda	Insecta	Diptera	Chironomidae	*unid. tanypodini [P]*	1							
Arthropoda	Insecta	Diptera	Chironomidae	*Zavrelimyia?*	1							
Arthropoda	Insecta	Diptera	Chironomidae	*Corynoneura*	1							
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) [L]*	1	1	1			1		
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) [P]*	1				1			
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) bicinctus*	1		4	1	2	3	6	1
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) tremulus-gr. [L]*	19	14	18	10	20	26	104	36
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (I.) sylvestris [L]*		77	54	14	38	143	57	13
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus/Orthocladius*	2							
Arthropoda	Insecta	Diptera	Chironomidae	*Diplocladius*								2
Arthropoda	Insecta	Diptera	Chironomidae	*Hydrobaenus*	2		6	10	5	5	2	1
Arthropoda	Insecta	Diptera	Chironomidae	*Limnophyes*				1				
Arthropoda	Insecta	Diptera	Chironomidae	*Nanocladius crassicornus*	2							
Arthropoda	Insecta	Diptera	Chironomidae	*Orthocladius (O.) [P]*	3						1	
Arthropoda	Insecta	Diptera	Chironomidae	*Orthocladius clarkei?*		1						1
Arthropoda	Insecta	Diptera	Chironomidae	*Orthocladius mallochi*	2							
Arthropoda	Insecta	Diptera	Chironomidae	*Orthocladius obumbratus*	13	1	3		1	1		

TABLE 9. MACROINVERTEBRATES COLLECTED FROM STATIONS ON SALT CREEK, LINCOLN, NEBRASKA. COLLECTIONS WERE MADE IN FEBRUARY 1995.

Phylum	Class	Order	Family	Genus/species	Station							
					BSS00	BSS1B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Arthropoda	Insecta	Diptera	Chironomidae	*Parakiefferiella*								3
Arthropoda	Insecta	Diptera	Chironomidae	*Paraphaenocladius [L]*	7	4	30	30	15	12	10	7
Arthropoda	Insecta	Diptera	Chironomidae	*Paraphaenocladius [P]*	1							
Arthropoda	Insecta	Diptera	Chironomidae	*Pseudosmittia*		28	1	2	2	2	1	3
Arthropoda	Insecta	Diptera	Chironomidae	*Rheocricotopus robacki*	9							
Arthropoda	Insecta	Diptera	Chironomidae	*Smittia*				1				
Arthropoda	Insecta	Diptera	Chironomidae	*Thienemanniella [L]*	2							
Arthropoda	Insecta	Diptera	Chironomidae	*Thienemanniella [P]*	4							
Arthropoda	Insecta	Diptera	Chironomidae	*unid. orthocladiini [P]*	2							
Arthropoda	Insecta	Diptera	Psychodidae	*Psychoda sp.*			1					
Arthropoda	Insecta	Diptera	Psychodidae	*unid. psychodid [P]*						3		1
Arthropoda	Insecta	Diptera	Simuliidae	*Simulium vittatum*	16		4	1	5	5	2	3
Arthropoda	Insecta	Diptera	Tipulidae	*Erioptera sp.*			1					
Arthropoda	Insecta	Diptera	Tipulidae	*Oromosia sp.*								1
Arthropoda	Insecta	Diptera	Unkn. family	*unid. dipteran [P]*						1		
Arthropoda	Insecta	Diptera	(Muscomorpha)	*unid. muscomorphid [L]*				1				
Mollusca	Gastropoda	Basommatopho	Physidae	*Physella*					1			
				Total No. of Individuals	175	218	204	205	199	297	284	188
				Total No. of Species	33	20	31	19	21	24	22	31

Note: Totals do not include unidentified species or pupa.

TABLE 10. MACROINVERTEBRATES COLLECTED FROM STATIONS ON SALT CREEK, LINCOLN, NEBRASKA. COLLECTIONS WERE MADE IN AUGUST 1995.

Phylum	Class	Order	Family	Genus/species	Station							
					BSS00	BSS01B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Annelida	Oligochaeta				40	73	30	62	24	58	42	194
Arthropoda	Crustacea	Amphipoda	Talitridae	*Hyalella azteca*								1
Arthropoda	Insecta	Ephemeroptera	Baetidae	*Baetis intercalaris*	6							
Arthropoda	Insecta	Ephemeroptera	Baetidae	*Baetis sp.*	4							
Arthropoda	Insecta	Ephemeroptera	Baetidae	*Callibaetis sp.*		1					1	
Arthropoda	Insecta	Ephemeroptera	Baetidae	*Centroptilum sp.*	9							
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	*Stenacron sp.*	17							
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	*Leucrocuta hebe*	1							
Arthropoda	Insecta	Ephemeroptera	Oligoneuriidae	*Isonychia sp.*		1						
Arthropoda	Insecta	Ephemeroptera	Tricorythidae	*Tricorythodes sp.*	46	2						
Arthropoda	Insecta	Odonata	Calopterygidae	*Hetaerina americana*							1	
Arthropoda	Insecta	Odonata	Calopterygidae	*unid. calopterygid*			1			1		
Arthropoda	Insecta	Odonata	Coenagrionidae	*Argia sp.*	1							
Arthropoda	Insecta	Odonata	Coenagrionidae	*Argia apicalis*				1		2	1	2
Arthropoda	Insecta	Odonata	Coenagrionidae	*unid. coenagrionid*							1	1
Arthropoda	Insecta	Odonata	Gomphidae	*Stylurus laurae*			1					1
Arthropoda	Insecta	Odonata	Libellulidae	*Plathemis sp.*		2						
Arthropoda	Insecta	Hemiptera	Corixidae	*Sigara sp.*			1					
Arthropoda	Insecta	Hemiptera	Corixidae	*Trichocorixa sp.*	1							
Arthropoda	Insecta	Hemiptera	Corixidae	*Palmacorixa gillettei gillettei*	1	1	1		5	1	5	3
Arthropoda	Insecta	Hemiptera	Corixidae	*unid. corixid*				1				2
Arthropoda	Insecta	Hemiptera	Pleidae	*Neoplea sp.*	7	1	2				7	3
Arthropoda	Insecta	Megaloptera	Corydalidae	*Corydalus cornutus*		1						
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*Cheumatopsyche sp.*						1	1	
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*Hydropsyche simulans*	13		1	2	1	2		3
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*Hydropsyche bidens*	4		2			3	1	
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*Hydropsyche sp.*	4							
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*Potamyia flava*	1							
Arthropoda	Insecta	Trichoptera	Hydropsychidae	*unid. hydropsychid*	1							1
Arthropoda	Insecta	Trichoptera	Hydroptilidae	*Hydroptila sp.*		1				1		2
Arthropoda	Insecta	Trichoptera	Leptoceridae	*Nectopsyche candida*								
Arthropoda	Insecta	Coleoptera	Dryopidae	*Helichus sp.*	1					1		
Arthropoda	Insecta	Coleoptera	Dytiscidae	*Hydroporus sp.*	1	2	2	2	4	2	2	2
Arthropoda	Insecta	Coleoptera	Elmidae	*Dubiraphia sp.*							2	
					6	2		1	1			

TABLE 10. MACROINVERTEBRATES COLLECTED FROM STATIONS ON SALT CREEK, LINCOLN, NEBRASKA. COLLECTIONS WERE MADE IN AUGUST 1995.

Phylum	Class	Order	Family	Genus/species	Station							
					BSS00	BSS01B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Arthropoda	Insecta	Coleoptera	Elmidae	*Macronychus glabratus*	2					1		
Arthropoda	Insecta	Coleoptera	Elmidae	*Stenelmis humerosa-sinuata-gr.*	2							
Arthropoda	Insecta	Coleoptera	Elmidae	*Stenelmis sp.*	3							1
Arthropoda	Insecta	Coleoptera	Haliplidae	*Peltodytes dietrichi?*					1			
Arthropoda	Insecta	Coleoptera	Haliplidae	*Peltodytes lengi*							1	
Arthropoda	Insecta	Coleoptera	Hydrophilidae	*Berosus exignus?*							2	
Arthropoda	Insecta	Coleoptera	Hydrophilidae	*Berosus pugnax?*							1	
Arthropoda	Insecta	Coleoptera	Hydrophilidae	*Berosus sp.*			1			1		
Arthropoda	Insecta	Coleoptera	Hydrophilidae	*Enochrus sp.*					1			
Arthropoda	Insecta	Diptera	Ceratopogonidae	*Ceratopogon sp.*		1						
Arthropoda	Insecta	Diptera	Ceratopogonidae	*Culicoides sp.*		1						
Arthropoda	Insecta	Diptera	Ceratopogonidae	*unid. ceratopogonid*		1					1	
Arthropoda	Insecta	Diptera	Chironomidae	*Chironomus [L]*		2	7	4	5	4	1	1
Arthropoda	Insecta	Diptera	Chironomidae	*Chironomus [P]*			4		1			
Arthropoda	Insecta	Diptera	Chironomidae	*Cryptochironomus [L]*		1				2		1
Arthropoda	Insecta	Diptera	Chironomidae	*Cryptochironomus [P]*							1	
Arthropoda	Insecta	Diptera	Chironomidae	*Dicrotendipes [L]*	1	4	14	8	8	7	6	7
Arthropoda	Insecta	Diptera	Chironomidae	*Dicrotendipes [P]*		1		3	1	3	4	
Arthropoda	Insecta	Diptera	Chironomidae	*Dicrotendipes neomodestus*		23	40	36	12	24	26	13
Arthropoda	Insecta	Diptera	Chironomidae	*Glyptochironomus [L]*		1	13	20	8	10	54	6
Arthropoda	Insecta	Diptera	Chironomidae	*Glyptochironomus [P]*							3	
Arthropoda	Insecta	Diptera	Chironomidae	*Parachironomus*				1	2	1		
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum [P]*	1	1	2	2		1	2	
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum convictum-gr.*	6	3	3	4	3	8	20	23
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum halterale-gr.*			1	1	2			2
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum illinoense-gr. [L]*	4	6	15	15	27	17	17	4
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum illinoense-gr. [P]*	1							
Arthropoda	Insecta	Diptera	Chironomidae	*Polypedilum scalaenum-gr.*	3							2
Arthropoda	Insecta	Diptera	Chironomidae	*Saetheria tylus [L]*					1	1		
Arthropoda	Insecta	Diptera	Chironomidae	*Saetheria tylus [P]*					2	1		
Arthropoda	Insecta	Diptera	Chironomidae	*Tribelos fusicorne*							1	
Arthropoda	Insecta	Diptera	Chironomidae	*unid. chironomini [L]*			1					
Arthropoda	Insecta	Diptera	Chironomidae	*unid. chironomini [P]*	1				1			
Arthropoda	Insecta	Diptera	Chironomidae	*Cladotanytarsus mancus-gr.*			2					

TABLE 10. MACROINVERTEBRATES COLLECTED FROM STATIONS ON SALT CREEK, LINCOLN, NEBRASKA. COLLECTIONS WERE MADE IN AUGUST 1995.

Phylum	Class	Order	Family	Genus/species	Station							
					BSS00	BSS01B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Arthropoda	Insecta	Diptera	Chironomidae	*Rheotanytarsus [L]*	2	1			1			
Arthropoda	Insecta	Diptera	Chironomidae	*Rheotanytarsus [P]*					1			
Arthropoda	Insecta	Diptera	Chironomidae	*Tanytarsus [P]*			1		1	1		2
Arthropoda	Insecta	Diptera	Chironomidae	*Tanytarsus glabrascens-gr. sp. 1*			1	1	2	7	4	11
Arthropoda	Insecta	Diptera	Chironomidae	*Tanytarsus sp. 5*	1	2	2		2	4		
Arthropoda	Insecta	Diptera	Chironomidae	*Ablabesmyia mallochi*		6	4	1	1	2	4	
Arthropoda	Insecta	Diptera	Chironomidae	*Hayesomyia senata*	6	1	1		1	1	1	2
Arthropoda	Insecta	Diptera	Chironomidae	*Larsia/Natarsia*			1		2	3	1	2
Arthropoda	Insecta	Diptera	Chironomidae	*Meropelopia/Hayesomyia*			1					
Arthropoda	Insecta	Diptera	Chironomidae	*Procladius (H.)*						1		1
Arthropoda	Insecta	Diptera	Chironomidae	*Tanypus neopunctipennis*		2	1		8	2		6
Arthropoda	Insecta	Diptera	Chironomidae	*unid. tanypodini [P]*				1				
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) [L]*		3	2		2	4	1	
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) [P]*	1	6	2	5	10	5	1	3
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) bicinctus*	1	11	10	9	13	4	9	3
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) tremulus-gr. [L]*		20	25	10	26	7	9	1
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (C.) tremulus-gr. [P]*								1
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (I.) sylvestris [L]*		7	8	1	11		1	
Arthropoda	Insecta	Diptera	Chironomidae	*Cricotopus (I.) sylvestris [P]*			1		1			
Arthropoda	Insecta	Diptera	Chironomidae	*Nanocladius [P]*		1						
Arthropoda	Insecta	Diptera	Chironomidae	*Nanocladius distinctus*			1	1		3		
Arthropoda	Insecta	Diptera	Chironomidae	*Orthocladius (O.) [L]*			1					
Arthropoda	Insecta	Diptera	Chironomidae	*Thienemanniella [L]*		2						
Arthropoda	Insecta	Diptera	Psychodidae	*Psychoda sp.*					1			
Arthropoda	Insecta	Diptera	Stratiomyiidae	*Odontomyia/Hedriodiocus*								
Arthropoda	Insecta	Diptera	Tipulidae	*Gonomyia sp.*		1		1			1	
Arthropoda	Insecta	Diptera	(Muscomorpha)	*unid. muscomorphid [L]*								
Mollusca	Gastropoda	Basommatophora	Physidae	*Physella*		2		3	2	1	6	4
				Total No. of Individuals	188	185	191	185	177	187	223	301
				Total No. of Species	29	30	28	22	29	33	30	28

Note: Totals do not include unidentified species or pupa.

TABLE 11. INVERTEBRATE COMMUNITY INDEX (ICI) METRICS AND SCORES FOR MACROINVERTEBRATE COLLECTIONS FROM SIX STATIONS ON SALT CREEK IN LINCOLN, NEBRASKA. COLLECTIONS WERE MADE ON SEPTEMBER 1, 994. SCORES ARE BASED ON 1995 METRICS REVISIONS FOR THE NEBRASKA STREAM CLASSIFICATION STUDY.

Metrics		BSS00	BSS01	BSS04	BSS05	BSS08	BSS10
Taxa Richness	value	31	21	20	13	23	18
	score	5	3	3	3	3	3
EPT	value	11	3	2	1	3	1
	score	5	1	1	1	1	1
Chironomid Richness	value	4	9	9	8	13	12
	score	3	5	5	5	5	5
Biotic Index	value	3.75	3.71	3.49	3.62	3.40	3.53
	score	1	1	3	1	3	1
EPT/Chironomid Ratio	value	0.80	0.10	0.02	0.01	0.02	0.01
	score	5	1	1	1	1	1
Percent Dominant Taxa	value	12.75%	23.07%	41.23%	32.93%	56.95%	41.70%
	score	5	3	1	3	1	1
Scraper:Collector-Filterer Ratio	value	0.26	0.00	0.01	0.00	0.00	0.03
	score	3	1	1	1	1	1
Jaccard Index	value	1.00	0.26	0.29	0.18	0.27	0.09
	score	5	3	3	1	3	1
Total Score		32	18	18	16	18	14

TABLE 12. INVERTEBRATE COMMUNITY INDEX (ICI) METRICS AND SCORES FOR MACROINVERTEBRATE COLLECTIONS FROM STATIONS ON SALT CREEK IN LINCOLN, NEBRASKA. COLLECTIONS WERE MADE DECEMBER 1995. SCORES ARE BASED ON 1995 METRIC REVISIONS FOR THE NEBRASKA STREAM CLASSIFICATION STUDY.

Metrics		BSS00	BSS1B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Taxa Richness	value	25	22	15	21	27	24	21	27
	score	5	3	3	3	5	5	3	5
EPT	value	3	1	0	1	3	2	0	3
	score	1	1	1	1	1	1	1	1
Chironomid Richness	value	8	9	7	7	11	9	11	10
	score	5	5	5	5	5	5	5	5
Biotic Index	value	2.51	3.58	4.04	3.66	3.65	3.51	3.46	3.59
	score	5	1	1	1	1	3	3	1
EPT/Chironomid Ratio	value	0.31	0.00	0.00	0.02	0.06	0.02	0.00	0.07
	score	1	1	1	1	1	1	1	1
Percent Dominant Taxa	value	28%	32%	35%	47%	32%	32%	35%	36%
	score	3	3	3	1	3	3	3	3
Scraper:Collector-Filterer Ratio	value	0.20	0.01	0.00	0.00	0.01	0.01	0.01	0.02
	score	1	1	1	1	1	1	1	1
Jaccard Index	value	1.00	0.38	0.33	0.38	0.44	0.44	0.44	0.41
	score	5	5	5	5	5	5	5	5
Total Score		26	20	20	18	22	24	22	22

TABLE 14. INVERTEBRATE COMMUNITY INDEX (ICI) METRICS AND SCORES FOR MACROINVERTEBRATE COLLECTIONS FROM STATIONS ON SALT CREEK IN LINCOLN, NEBRASKA. COLLECTIONS WERE MADE AUGUST 1995. SCORES ARE BASED ON 1995 METRICS REVISIONS FOR THE NEBRASKA STREAM CLASSIFICATION STUDY.

Metrics		BSS00	BSS1B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Taxa Richness	value	29	30	28	22	29	33	30	28
	score	5	5	5	3	5	5	5	5
EPT	value	12	3	2	1	1	4	3	3
	score	5	1	1	1	1	3	1	1
Chironomid Richness	value	8	17	21	14	20	20	15	16
	score	5	5	5	5	5	5	5	5
Biotic Index	value	3.79	4.03	4.06	3.99	4.01	4.14	3.31	4.02
	score	1	1	1	1	1	1	3	1
EPT/Chironomid Ratio	value	4.46	0.04	0.02	0.02	0.01	0.06	0.02	0.07
	score	5	1	1	1	1	1	1	1
Percent Dominant Taxa	value	24%	39%	21%	34%	15%	31%	24%	64%
	score	3	1	3	3	5	3	3	1
Scraper:Collector-Filterer Ratio	value	0.16	0.01	0.00	0.02	0.02	0.02	0.06	0.03
	score	1	1	1	1	1	1	1	1
Jaccard Index	value	1	0.26	0.24	0.21	0.26	0.29	0.26	0.33
	score	5	3	3	3	3	3	3	5
Total Score		30	18	20	18	22	22	22	20

TABLE 13. INTERTEBRATE COMMUNITY INDEX (ICI) METRICS AND SCORES FOR MACROINVERTEBRATE COLLECTIONS FROM STATIONS ON SALT CREEK IN LINCOLN, NEBRASKA. COLLECTIONS WERE MADE FEBRUARY 1995. SCORES ARE BASED ON 1995 METRICS REVISIONS FOR THE NEBRASKA STREAM CLASSIFICATION STUDY.

Metrics		BSS00	BSS1B	BSS01	BSS04	BSS05	BSS08	BSS10	BSS11
Taxa Richness	value	33	20	31	19	21	24	22	31
	score	5	3	5	3	3	5	3	5
EPT	value	5	2	1	0	1	0	0	3
	score	3	1	1	1	1	1	1	1
Chironomid Richness	value	21	12	19	15	14	17	16	20
	score	5	5	5	5	5	5	5	5
Biotic Index	value	3.88	3.37	3.29	3.47	3.59	3.72	3.12	3.41
	score	1	3	3	3	1	1	3	3
EPT/Chironomid Ratio	value	0.37	0.01	0.01	0.00	0.01	0.00	0.00	0.07
	score	1	1	1	1	1	1	1	1
Percent Dominant Taxa	value	26%	35%	26%	41%	31%	48%	37%	31%
	score	3	3	3	1	3	1	3	3
Scraper:Collector-Filterer Ratio	value	0.20	0.01	0.05	0.05	0.04	0.02	0.01	0.02
	score	1	1	1	1	1	1	1	1
Jaccard Index	value	1	0.13	0.21	0.18	0.23	0.24	0.15	0.28
	score	5	1	3	1	3	3	1	3
Total Score		24	18	22	16	18	18	18	22