

40 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 5 (8–1–2005)						
A	37.08668	94.68768	15.0	15.6	0.6	hard bottom
B	37.08679	94.68788	19.2	19.2	0	gravel
C	37.08689	94.68802	19.8	19.8	0	gravel
D	37.08699	94.68811	20.1	20.1	0	gravel
E	37.08705	94.68829	18.3	19.3	1.0	rock bottom
Transect 6 (8–1–2005)						
A	37.08574	94.68910	19.0	19.4	.4	rock under mud
B	37.08569	94.68901	21.2	21.2	0	gravel
C	37.08558	94.68884	21.3	21.3	0	gravel
D	37.08548	94.68870	21.0	21.5	.5	gravel under mud
E	37.08540	94.68858	17.7	18.8	1.1	hard bottom
Transect 7 (8–1–2005)						
A	37.08404	94.68952	20.8	22.2	1.4	rock under mud
B	37.08416	94.68975	20.8	20.8	0	gravel
C	37.08428	94.68982	20.2	20.4	.2	gravel under mud
D	37.08439	94.68994	20.5	20.5	0	gravel
E	37.08446	94.69009	9.2	11.0	1.8	dense & hard bottom
Transect 8 (8–1–2005)						
A	37.08329	94.69107	3.1	7.5	4.4	very dense at depth
B	37.08317	94.69096	16.9	18.0	1.1	hard bottom
C	37.08306	94.69083	20.5	21.4	.9	gravel under mud
D	37.08296	94.69073	22.0	22.0	0	gravel
E	37.08286	94.69057	21.5	22.1	.6	hard bottom
F	37.08286	94.69041	17.5	19.3	1.8	hard bottom
Transect 9 (8–1–2005)						
A	37.08169	94.69134	21.1	23.6	2.5	rock under mud
B	37.08173	94.69143	24.8	24.8	0	gravel
C	37.08185	94.69163	22.4	22.4	0	gravel
D	37.08193	94.69169	21.5	21.7	.2	gravel under mud
E	37.08204	94.69187	15.8	17.8	2.0	very dense
Transect 10 (8–1–2005)						
A	37.08080	94.69270	21.1	21.9	.8	gravel under mud
B	37.08063	94.69258	22.9	22.9	0	gravel
C	37.08062	94.69251	23.4	23.4	0	gravel
D	37.08045	94.69234	21.6	23.4	1.8	gravel under mud
E	37.08037	94.69227	18.8	24.2	5.4	rock under mud
Transect 11 (8–1–2005)						
A	37.07918	94.69316	21.5	25.4	3.9	gravel under mud
B	37.07925	94.69329	24.9	25.4	.5	gravel under mud
C	37.07935	94.69341	25.3	25.3	0	gravel
D	37.07943	94.69357	23.8	23.8	0	rock

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 12 (8–1–2005)						
A	37.07815	94.69440	23.7	23.7	0	gravel
B	37.07793	94.69412	25.2	25.2	0	gravel
C	37.07790	94.69402	23.7	24.9	1.2	gravel under mud
D	37.07774	94.69386	12.6	15.9	3.3	very dense at bottom
Transect 13 (8–1–2005)						
A	37.07631	94.69443	10.0	17.1	7.1	
B	37.07634	94.69460	16.3	19.5	3.2	rock under mud
C	37.07639	94.69468	18.1	19.4	1.3	gravel under mud
D	37.07649	94.69493	21.4	21.4	0	gravel
E	37.07665	94.69505	23.1	23.1	0	gravel
F	37.07676	94.69512	23.6	24.1	.5	gravel under mud
G	37.07674	94.69519	22.6	23.9	1.3	rock under mud
H	37.07688	94.69538	7.4	9.9	2.5	rock under mud
Transect 14 (8–1–2005)						
A	37.07484	94.69533	11.5	11.6	.1	gravel under mud
B	37.07502	94.69535	13.3	13.3	0	gravel
C	37.07516	94.69553	13.2	13.2	0	gravel
D	37.07532	94.69579	16.0	16.0	0	gravel
E	37.07547	94.69606	17.2	19.1	1.9	gravel under mud
F	37.07556	94.69622	10.9	14.5	3.6	very dense, may be old bank material
Transect 15 (7–11–2005)						
A	37.07232	94.69261	2.3	4.7	2.4	
B	37.07196	94.69208	2.8	5.2	2.4	
C	37.07155	94.69159	2.9	4.9	2.0	
D	37.07123	94.69111	2.3	2.8	.5	
Transect 16 (7–12–2005)						
A	37.07356	94.69623	18.4	18.8	.4	gravel under mud
B	37.07375	94.69647	14.9	14.9	0	gravel
C	37.07395	94.69672	16.7	16.7	0	gravel
D	37.07414	94.69692	21.4	22.1	.7	gravel under mud
Transect 17 (7–11–2005)						
A	37.07118	94.69361	2.6	3.5	.9	
B	37.07080	94.69307	3.0	4.7	1.7	
C	37.07046	94.69259	3.1	5.6	2.5	
D	37.07007	94.69212	2.8	5.0	2.2	
E	37.06973	94.69163	2.0	2.2	.2	
Transect 18 (7–12–2005)						
A	37.07204	94.69684	14.6	14.6	0	gravel
B	37.07225	94.69704	19.5	19.5	0	gravel
C	37.07249	94.69731	22.3	22.3	0	gravel
D	37.07264	94.69754	22.1	22.1	0	rock
E	37.07272	94.69765	12.0	12.5	.5	

42 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 19 (7–11–2005)						
A	37.07003	94.69464	2.8	3.5	0.7	
B	37.06968	94.69421	3.3	3.4	.1	
C	37.06928	94.69361	3.4	6.2	2.8	
D	37.06886	94.69320	3.4	6.6	3.2	
E	37.06851	94.69265	2.9	3.8	.9	
F	37.06834	94.69243	2.3	2.4	.1	
Transect 20 (7–12–2005)						
A	37.06967	94.69646	9.2	10.6	1.4	
B	37.06991	94.69682	21.1	21.1	0	gravel
C	37.07019	94.69711	18.5	18.5	0	gravel/rock
D	37.07036	94.69727	25.7	25.7	0	gravel/rock
E	37.07055	94.69749	23.4	23.4	0	gravel
F	37.07063	94.69766	15.0	18.2	3.2	
Transect 21 (7–11–2005)						
A	37.06729	94.69358	2.6	5.6	3.0	
B	37.06744	94.69381	3.3	6.3	3.0	
C	37.06785	94.69435	3.6	5.8	2.2	
D	37.06822	94.69480	3.5	3.5	0	
E	37.06860	94.69530	3.3	5.4	2.1	
Transect 22 (7–11–2005)						
A	37.06604	94.69445	2.2	3.6	1.4	
B	37.06642	94.69497	3.0	5.9	2.9	
C	37.06680	94.69546	3.0	3.8	.8	
D	37.06717	94.69596	2.9	5.4	2.5	
E	37.06733	94.69621	2.9	3.5	.6	
F	37.06753	94.69647	2.9	8.2	5.3	
G	37.06773	94.69676	2.8	3.8	1.0	
H	37.06791	94.69701	18.5	20.9	2.4	
I	37.06806	94.69714	22.3	23.4	1.1	
J	37.06824	94.69746	14.5	14.5	0	gravel
K	37.06844	94.69767	9.4	9.4	0	gravel
L	37.06866	94.69795	7.9	7.9	0	
M	37.06886	94.69821	5.2	6.7	1.5	
Transect 23 (7–11–2005)						
A	37.06737	94.69886	7.4	11.4	4.0	
B	37.06722	94.69857	8.3	8.3	0	gravel
C	37.06704	94.69829	10.6	10.6	0	
D	37.06689	94.69803	14.3	14.7	0.4	
E	37.06680	94.69780	18.6	20.3	1.7	
F	37.06653	94.69758	15.3	17.7	2.4	
G	37.06635	94.69729	6.2	11.8	5.6	
H	37.06617	94.69704	2.4	7.6	5.2	
I	37.06575	94.69645	2.6	4.0	1.4	
J	37.06541	94.69600	2.7	5.7	3.0	

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 23 (7–11–2005)—Continued						
K	37.06506	94.69546	2.9	6.3	3.4	
L	37.06470	94.69497	2.3	3.6	1.3	
Transect 24 (7–11–2005)						
A	37.06329	94.69553	2.4	4.4	2.0	
B	37.06365	94.69607	2.4	3.3	.9	
C	37.06406	94.69660	2.7	6.4	3.7	
D	37.06444	94.69709	2.7	5.1	2.4	
E	37.06475	94.69757	2.5	6.8	4.3	
F	37.06495	94.69778	2.8	7.4	4.6	
G	37.06513	94.69812	11.7	14.3	2.6	
H	37.06535	94.69840	11.4	11.4	0	
I	37.06550	94.69863	10.7	10.8	.1	sand/gravel
J	37.06568	94.69884	11.4	12.4	1.0	gravel under mud
K	37.06590	94.69907	9.7	13.5	3.8	
L	37.06617	94.69942	8.0	8.0	0	rock?
M	37.06635	94.69975	13.6	14.9	1.3	gravel under mud
Transect 25 (7–11–2005)						
A	37.06477	94.70029	9.9	9.9	0	gravel
B	37.06456	94.70006	6.8	6.8	0	gravel
C	37.06436	94.69983	6.2	6.2	0	gravel
D	37.06413	94.69962	12.6	17.8	5.2	
E	37.06392	94.69943	10.4	15.6	5.2	
F	37.06377	94.69911	6.3	12.5	6.2	
G	37.06353	94.69893	3.3	8.6	5.3	grainy mud on pole
H	37.06314	94.69845	3.3	8.5	5.2	grainy mud on pole
I	37.06271	94.69799	3.6	7.8	4.2	
J	37.06233	94.69756	3.6	7.6	4.0	
K	37.06210	94.69730	3.0	7.6	4.6	
L	37.06173	94.69685	1.9	6.9	5.0	
Transect 26 (7–13–2005)						
A	37.06093	94.69608	1.6	2.0	.4	
B	37.06077	94.69587	1.9	3.7	1.8	
C	37.06060	94.69558	1.6	2.8	1.2	
D	37.06049	94.69546	1.2	2.3	1.1	
Transect 27 (7–13–2005)						
A	37.06284	94.70038	3.9	3.9	0	
B	37.06274	94.70014	5.3	10.7	5.4	
C	37.06232	94.69984	4.0	8.5	4.5	
D	37.06193	94.69934	3.8	9.8	6.0	
E	37.06154	94.69885	3.5	9.1	5.6	
F	37.06116	94.69848	3.8	8.5	4.7	
G	37.06069	94.69803	3.8	10.1	6.3	
H	37.06033	94.69755	2.7	7.3	4.6	

44 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 28 (7–13–2005)						
A	37.06001	94.69722	1.9	2.8	0.9	
B	37.05974	94.69707	2.0	3.2	1.2	
C	37.05959	94.69680	2.0	3.1	1.1	
D	37.05945	94.69666	1.6	2.2	.6	
E	37.05933	94.69639	1.1	1.7	.6	
Transect 29 (7–13–2005)						
A	37.06640	94.70110	1.5	1.9	.4	
B	37.06609	94.70123	5.9	6.1	.2	
C	37.06583	94.70109	9.0	9.0	0	gravel
D	37.06565	94.70115	8.8	8.8	0	gravel
E	37.06532	94.70109	1.3	3.3	2.0	
Transect 30 (7–13–2005)						
A	37.06474	94.70105	3.0	4.0	1.0	
B	37.06454	94.70107	10.4	10.4	0	hard pan
C	37.06431	94.70106	5.0	5.0	0	hard pan
D	37.06396	94.70105	7.5	7.5	0	hard pan
E	37.06378	94.70112	6.7	6.7	0	gravel
Transect 31 (7–13–2005)						
A	37.06288	94.70102	7.0	7.0	0	hard pan
B	37.06275	94.70100	3.8	3.8	0	hard pan
Transect 32 (7–13–2005)						
A	37.06592	94.70280	4.5	4.5	0	hard bed, unknown
B	37.06580	94.70277	6.0	6.0	0	gravel
C	37.06565	94.70278	4.2	4.2	0	gravel
Transect 33 (7–13–2005)						
A	37.06505	94.70279	6.1	6.1	0	gravel
B	37.06474	94.70277	7.5	7.5	0	hard bed
C	37.06449	94.70277	11.0	11.1	.1	hard bed
D	37.06422	94.70278	9.5	9.5	0	gravel
E	37.06393	94.70279	6.9	6.9	0	hard pan
F	37.06372	94.70278	8.5	8.5	0	gravel
G	37.06339	94.70273	5.4	5.5	.1	hard pan
H	37.06310	94.70274	5.2	5.2	0	hard pan
I	37.06284	94.70274	3.8	3.8	0	hard pan
J	37.06254	94.70273	3.5	3.7	.2	hard pan
Transect 34 (7–12–2005)						
A	37.06215	94.70449	2.5	2.5	0	rock
B	37.06252	94.70447	1.6	1.6	0	rock
C	37.06281	94.70445	6.4	6.4	0	rock
D	37.06305	94.70446	8.0	8.1	.1	gravel under mud
E	37.06335	94.70447	9.0	9.7	.7	
F	37.06361	94.70447	8.3	8.5	.2	
G	37.06388	94.70448	8.5	8.5	0	gravel

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 34 (7–12–2005)—Continued						
H	37.06415	94.70450	8.0	8.0	0	gravel
I	37.06443	94.70451	7.7	7.7	0	gravel
J	37.06470	94.70450	7.5	7.8	.3	
K	37.06494	94.70450	5.0	5.0	0	gravel
L	37.06522	94.70450	6.1	6.1	0	gravel
M	37.06554	94.70448	5.2	5.2	0	rock?
N	37.06185	94.70448	6.1	6.1	0	rock
O	37.06169	94.70444	1.9	1.9	0	rock
Transect 35 (7–13–2005)						
A	37.06089	94.70064	1.3	1.9	.6	
B	37.06052	94.70020	2.2	9.3	7.1	
C	37.06015	94.69971	4.6	11.3	6.7	
D	37.05975	94.69924	3.9	10.4	6.5	
E	37.05934	94.69882	3.5	9.4	5.9	
F	37.05890	94.69834	3.4	9.7	6.3	
G	37.05854	94.69785	2.3	5.9	3.6	
Transect 36 (7–13–2005)						
A	37.05927	94.70111	3.0	8.9	5.9	
B	37.05894	94.70062	3.4	4.2	.8	
C	37.05850	94.70016	3.8	5.5	1.7	
D	37.05806	94.69972	3.8	10.7	6.9	
E	37.05791	94.69952	4.3	11.0	6.7	
F	37.05769	94.69927	4.0	11.3	7.3	
G	37.05719	94.69880	2.3	8.6	6.3	
H	37.05699	94.69857	1.7	7.3	5.6	
Transect 37 (7–13–2005)						
A	37.05810	94.70201	1.7	4.4	2.7	
B	37.05776	94.70166	3.7	8.5	4.8	
C	37.05734	94.70119	5.3	7.4	2.1	
D	37.05695	94.70074	5.0	6.3	1.3	
E	37.05673	94.70053	3.8	4.3	.5	
F	37.05654	94.70030	7.0	8.4	1.4	
G	37.05631	94.70006	5.3	10.7	5.4	
H	37.05611	94.69983	2.8	7.1	4.3	
I	37.05590	94.69962	2.2	5.4	3.2	
Transect 38 (7–13–2005)						
A	37.05544	94.70140	11.7	12.1	.4	rock
B	37.05536	94.70126	13.5	19.6	6.1	
C	37.05527	94.70118	14.6	20.5	5.9	
D	37.05513	94.70102	15.6	20.9	5.3	
E	37.05507	94.70100	16.2	20.0	3.8	rock under mud
F	37.05494	94.70076	9.0	14.9	5.9	
G	37.05488	94.70066	4.2	9.3	5.1	

46 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 39 (7–13–2005)						
A	37.05539	94.70149	12.1	12.1	0	rock
B	37.05521	94.70147	14.9	19.4	4.5	
C	37.05503	94.70147	14.1	19.4	5.3	
D	37.05490	94.70145	14.5	18.4	3.9	
E	37.05476	94.70149	14.0	17.9	3.9	
F	37.05463	94.70150	12.1	17.6	5.5	
G	37.05451	94.70154	10.7	16.5	5.8	
H	37.05440	94.70155	9.1	14.8	5.7	
Transect 40 (7–13–2005)						
A	37.05450	94.70062	11.7	14.7	3.0	
B	37.05441	94.70081	17.2	22.0	4.8	
C	37.05431	94.70092	16.5	23.0	6.5	
D	37.05422	94.70101	13.5	19.9	6.4	
E	37.05407	94.70119	6.8	10.2	3.4	
Transect 41 (7–12–2005)						
A	37.05381	94.69962	9.5	14.6	5.1	
B	37.05363	94.69966	13.8	19.7	5.9	
C	37.05352	94.69976	12.7	17.4	4.7	
D	37.05337	94.69984	9.0	12.0	3.0	
E	37.05331	94.70000	6.8	11.7	4.9	
F	37.05324	94.70017	4.8	11.0	6.2	
G	37.05312	94.70022	3.4	8.5	5.1	
Transect 42 (7–12–2005)						
A	37.05289	94.69833	6.9	13.4	6.5	
B	37.05278	94.69844	8.0	15.4	7.4	
C	37.05274	94.69854	11.9	15.8	3.9	
D	37.05252	94.69870	9.9	12.3	2.4	
E	37.05233	94.69889	5.3	11.3	6.0	
F	37.05244	94.69867	9.3	12.4	3.1	
G	37.05225	94.69894	4.0	9.7	5.7	
H	37.05215	94.69909	2.8	7.7	4.9	
I	37.05207	94.69916	2.2	7.5	5.3	
Transect 43 (7–12–2005)						
A	37.05204	94.69688	3.5	6.6	3.1	
B	37.05192	94.69701	3.5	6.2	2.7	
C	37.05178	94.69713	5.9	9.5	3.6	
D	37.05168	94.69721	9.5	14.5	5.0	
E	37.05159	94.69734	11.3	13.7	2.4	
F	37.05150	94.69744	11.3	14.6	3.3	
G	37.05136	94.69761	9.4	13.0	3.6	
H	37.05121	94.69773	2.4	2.4	0	

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 44 (7–12–2005)						
A	37.05140	94.69541	2.4	2.9	0.5	
B	37.05113	94.69561	2.5	6.1	3.6	
C	37.05092	94.69587	2.9	6.8	3.9	
D	37.05080	94.69602	4.0	7.4	3.4	
E	37.05071	94.69614	6.5	8.0	1.5	
F	37.05058	94.69623	10.0	13.0	3.0	
G	37.05050	94.69633	10.7	15.4	4.7	
H	37.05037	94.69641	10.7	14.1	3.4	
I	37.05030	94.69654	9.5	11.2	1.7	gravel under mud
J	37.05019	94.69664	3.3	3.4	.1	
Transect 45 (7–12–2005)						
A	37.05061	94.69413	2.8	8.0	5.2	
B	37.05047	94.69431	3.0	8.9	5.9	
C	37.05037	94.69435	3.0	5.6	2.6	
D	37.05020	94.69442	2.6	7.1	4.5	
E	37.05015	94.69447	2.5	6.9	4.4	
F	37.05002	94.69458	2.2	4.7	2.5	
G	37.04989	94.69467	2.0	3.1	1.1	
H	37.04979	94.69492	2.5	6.3	3.8	
I	37.04964	94.69494	3.5	8.5	5.0	
J	37.04958	94.69493	5.0	11.0	6.0	
K	37.04952	94.69517	12.0	16.0	4.0	
L	37.04942	94.69528	11.5	17.0	5.5	
M	37.04926	94.69539	10.8	16.5	5.7	
N	37.04907	94.69550	2.0	2.0	0	hard bottom
Transect 46 (7–12–2005)						
A	37.04855	94.69405	12.0	17.4	5.4	
B	37.04835	94.69413	14.3	17.7	3.4	
C	37.04825	94.69415	13.8	19.2	5.4	
D	37.04818	94.69426	11.0	14.3	3.3	
E	37.04809	94.69437	5.2	7.9	2.7	
Transect 47 (7–12–2005)						
A	37.04725	94.69312	9.4	14.9	5.5	
B	37.04735	94.69290	13.0	18.6	5.6	
C	37.04745	94.69282	13.8	19.0	5.2	
D	37.04756	94.69278	12.6	15.9	3.3	
E	37.04772	94.69261	5.0	9.4	4.4	
Transect 48 (7–12–2005)						
A	37.04708	94.69138	7.7	13.2	5.5	
B	37.04697	94.69151	10.0	14.7	4.7	
C	37.04679	94.69148	9.9	13.2	3.3	
D	37.04675	94.69148	9.8	14.3	4.5	
E	37.04657	94.69159	8.5	13.0	4.5	

48 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 48 (7–12–2005)—Continued						
F	37.04637	94.69155	6.4	10.9	4.5	
G	37.04636	94.69176	6.5	12.4	5.9	
Transect 49 (7–12–2005)						
A	37.04731	94.68737	3.6	9.1	5.5	
B	37.04729	94.68729	6.3	9.4	3.1	
C	37.04711	94.68726	7.4	12.5	5.1	
D	37.04692	94.68724	7.4	9.6	2.2	
E	37.04678	94.68724	7.5	9.2	1.7	
F	37.04661	94.68722	6.9	12.5	5.6	
G	37.04655	94.68722	5.9	11.9	6.0	
H	37.04633	94.68718	3.7	7.8	4.1	
I	37.04623	94.68717	3.1	9.3	6.2	
J	37.04604	94.68712	2.1	7.5	5.4	
Transect 50 (7–12–2005)						
A	37.04670	94.68445	13.5	17.6	4.1	
B	37.04656	94.68442	12.5	16.5	4.0	
C	37.04644	94.68445	10.2	16.1	5.9	
D	37.04630	94.68445	10.0	13.0	3.0	
E	37.04613	94.68456	3.7	5.7	2.0	
Transect 51 (7–12–2005)						
A	37.04535	94.68305	4.2	4.3	.1	
B	37.04542	94.68294	7.5	7.6	.1	
C	37.04559	94.68281	9.6	13.8	4.2	
D	37.04563	94.68263	8.9	8.9	0	
E	37.04580	94.68254	6.0	6.6	.6	
F	37.04582	94.68235	6.0	8.5	2.5	
G	37.04597	94.68220	4.2	6.6	2.4	
Transect 52 (7–12–2005)						
A	37.04416	94.68169	3.2	3.8	.6	
B	37.04411	94.68190	6.1	6.3	.2	gravel under mud
C	37.04407	94.68205	10.0	14.8	4.8	
D	37.04401	94.68218	11.4	12.2	.8	gravel under mud
E	37.04393	94.68232	11.5	15.4	3.9	
F	37.04390	94.68244	5.0	5.0	0	rock
Transect 53 (7–12–2005)						
A	37.04263	94.68165	3.8	3.8	0	gravel
B	37.04280	94.68138	15.5	17.2	1.7	
C	37.04287	94.68118	10.4	12.2	1.8	
Transect 54 (7–12–2005)						
A	37.04230	94.68015	10.5	12.2	1.7	
B	37.04207	94.68018	7.5	8.9	1.4	
C	37.04191	94.68014	6.8	7.1	.3	
D	37.04169	94.68033	8.0	13.9	5.9	

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 55 (7–12–2005)						
A	37.04161	94.67809	7.7	10.0	2.3	
B	37.04171	94.67807	8.6	11.3	2.7	
C	37.04190	94.67804	7.4	9.1	1.7	
D	37.04204	94.67804	6.6	6.6	0	gravel
E	37.04217	94.67806	5.7	5.7	0	gravel
F	37.04230	94.67811	6.1	7.8	1.7	gravel under mud
G	37.04241	94.67812	4.9	8.1	3.2	
Transect 56 (7–12–2005)						
A	37.04277	94.67651	1.5	1.5	0	gravel
B	37.04257	94.67648	2.9	2.9	0	gravel
C	37.04256	94.67641	3.2	3.2	0	gravel
D	37.04240	94.67636	3.9	3.9	0	gravel
E	37.04220	94.67627	8.0	8.0	0	gravel
F	37.04207	94.67625	6.6	10.3	3.7	
G	37.04197	94.67619	3.8	8.2	4.4	
Transect 59 (8–19–2005)						
A	37.09272	94.68311	1.3	1.3	0	gravel likely coming from Short Creek
B	37.09283	94.68325	9.4	9.8	.4	gravel under mud
C	37.09292	94.68339	11.0	11.0	0	gravel
D	37.09300	94.68353	13.5	13.5	0	gravel
E	37.09306	94.68369	14.4	14.4	0	rock
F	37.09314	94.68383	14.9	14.9	0	gravel
G	37.09322	94.68400	14.3	14.3	0	rock
Transect 60 (8–19–2005)						
A	37.09831	94.67756	6.5	11.2	4.7	sediment on pole grainy; dense material, may be submerged original bank
B	37.09836	94.67769	13.6	14.0	.4	
C	37.09850	94.67775	16.0	16.0	0	
D	37.09861	94.67786	19.1	19.1	0	
E	37.09872	94.67794	21.3	21.3	0	
Transect 61 (8–18–2005)						
A	37.10064	94.66778	9.5	10.1	.6	mud over gravel
B	37.10075	94.66786	11.3	11.3	0	gravel
C	37.10086	94.66792	12.8	12.8	0	gravel
D	37.10097	94.66800	15.4	15.4	0	gravel
E	37.10108	94.66808	18.2	18.2	0	gravel
Transect 62 (8–18–2005)						
A	37.10486	94.65969	15.0	15.0	0	gravel
B	37.10500	94.65972	13.3	13.3	0	gravel
C	37.10514	94.65983	12.3	12.3	0	gravel
D	37.10522	94.65992	11.5	13.2	1.7	mud over hard bottom
E	37.10536	94.66006	5.5	10.0	4.5	mud over hard bottom

50 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Transect 63 (8–18–2005)						
A	37.10997	94.65464	17.1	17.1	0	rock
B	37.10997	94.65472	17.6	17.6	0	rock
C	37.11003	94.65486	17.9	17.9	0	rock
D	37.11006	94.65492	18.3	18.3	0	rock
E	37.11006	94.65506	11.3	15.1	3.8	mud over hard bottom
Transect 64 (8–18–2005)						
A	37.11408	94.66194	10.7	10.7	0	gravel
B	37.11403	94.66194	11.9	11.9	0	gravel
C	37.11392	94.66200	14.4	14.4	0	gravel
D	37.11386	94.66206	14.5	14.5	0	rock
E	37.11375	94.66208	7.5	7.5	0	rock
Transect 65 (8–18–2005)						
A	37.11900	94.66764	11.1	12.6	1.5	mud over gravel
B	37.11897	94.66775	11.7	11.7	0	gravel
C	37.11892	94.66786	11.8	11.8	0	gravel
D	37.11886	94.66797	13.2	13.2	0	rock
E	37.11878	94.66806	9.8	9.8	0	rock
Transect 66 (8–18–2005)						
A	37.12514	94.67033	7.8	7.8	0	gravel
B	37.12525	94.67044	9.2	9.2	0	gravel
C	37.12525	94.67056	10.1	10.1	0	gravel
D	37.12525	94.67067	11.5	11.5	0	gravel
E	37.12522	94.67081	9.4	9.4	0	rock
Transect 67 (8–18–2005)						
A	37.13275	94.66589	6.0	6.0	0	gravel
B	37.13278	94.66597	7.1	7.1	0	gravel
C	37.13281	94.66606	8.9	8.9	0	rock
D	37.13289	94.66611	12.4	12.4	0	rock
E	37.13294	94.66619	11.9	11.9	0	rock
Transect 68 (8–18–2005)						
A	37.13514	94.65833	11.1	11.5	.4	
B	37.13522	94.65833	9.9	9.9	0	
C	37.13531	94.65833	11.4	11.4	0	gravel
D	37.13536	94.65839	12.2	12.2	0	rock
E	37.13542	94.65839	10.8	10.8	0	rock
Transect A (7–13–2005)						
A	37.05693	94.69694	1.7	2.8	1.1	
B	37.05702	94.69687	1.8	5.9	4.1	
C	37.05719	94.69676	2.4	6.2	3.8	
D	37.05736	94.69664	2.0	2.6	.6	
E	37.05745	94.69651	1.5	1.8	.3	

Table A1. Latitude, longitude, depth to lakebed, depth to refusal, and estimated sediment thickness at sediment-thickness measurement sites (fig. 2) in Empire Lake, southeast Kansas, July and August 2005.—Continued

Transect site	Latitude (decimal degrees)	Longitude (decimal degrees)	Depth to lakebed (feet)	Depth to refusal (feet)	Estimated sediment thickness (feet)	Notes
Area P (7–13–2005)						
A	37.07007	94.69551	1.7	6.4	4.7	
B	37.07016	94.69576	1.5	6.3	4.8	
C	37.07103	94.69517	1.3	5.9	4.6	
D	37.07120	94.69532	1.6	5.0	3.4	
E	37.07143	94.69555	2.4	6.8	4.4	
F	37.07220	94.69577	1.6	4.2	2.6	
G	37.07253	94.69530	2.5	3.1	.6	
H	37.07384	94.69484	2.5	8.8	6.3	
I	37.07161	94.69564	2.5	4.5	2.0	
Area B (7–12–2005)						
A	37.06046	94.70402	2.1	3.3	1.2	
B	37.06005	94.70373	1.7	3.4	1.7	
C	37.05966	94.70341	0.5	3.0	2.5	
D	37.06016	94.70270	1.8	2.3	.5	
E	37.06047	94.70274	2.5	3.0	.5	
F	37.06044	94.70194	2.5	3.2	.7	
G	37.06083	94.70430	2.5	2.5	0	rock
H	37.06114	94.70423	1.7	2.3	.6	
I	37.06120	94.70445	2.5	2.5	0	rock

52 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A2. Latitude and longitude coordinates, water depth, estimated penetration depth, length of recovered core, and estimated recovery percentage for bottom-sediment coring sites at Empire Lake, southeast Kansas, and Blackberry Hay Farm Lake, southwest Missouri, 2005.

[--, not determined]

Coring site number (fig. 2)	Date cored (month/day/year)	Latitude (decimal degrees)	Longitude (decimal degrees)	Water depth (feet)	Estimated penetration depth (feet)	Length of recovered core (feet)	Estimated recovery percentage
Empire Lake							
E-1	04/01/05	37.06039	94.69606	2.5	--	--	--
E-2	08/02/05	37.07260	94.69108	2.3	2.0	1.4	70
E-3	08/02/05	37.07121	94.69240	3.0	2.8	2.4	86
E-4	08/02/05	37.06984	94.69327	3.0	3.1	2.5	81
E-5	08/02/05	37.06832	94.69375	2.8	3.9	3.4	87
E-6	08/02/05	37.06732	94.69498	2.9	2.8	2.4	86
E-7	08/02/05	37.06605	94.69563	2.7	3.7	2.8	76
E-8	08/02/05	37.06474	94.69629	2.5	3.9	3.2	82
E-9	08/02/05	37.06411	94.69791	2.7	4.6	3.5	76
E-10	04/01/05	37.06831	94.69706	22.0	--	1.0	--
E-11	08/08/05	37.04225	94.68015	11.4	--	1.0	--
E-14	08/08/05	37.04740	94.69299	13.3	6.1	4.4	72
E-15	08/08/05	37.05042	94.69643	10.7	5.4	4.3	80
E-17	08/08/05	37.05356	94.69971	13.6	5.6	4.3	77
E-18	08/08/05	37.05481	94.70113	16.3	6.3	4.1	65
E-19	08/08/05	37.07680	94.69522	20.5	2.9	1.7	59
E-20	08/09/05	37.06228	94.69550	1.8	3.1	2.2	71
E-21	08/09/05	37.06019	94.69644	2.0	1.8	1.2	67
E-22	08/09/05	37.05701	94.69622	1.5	4.5	3.6	80
E-23	08/19/05	37.07161	94.69564	2.5	--	2.5	--
E-24	08/19/05	37.05981	94.70325	1.3	--	1.5	--
E-25	09/15/05	37.10519	94.65992	11.0	1.2	1.1	92
E-26	09/15/05	37.04674	94.68456	13.4	4.5	2.6	58
E-27	09/15/05	37.04933	94.69536	11.2	5.1	3.8	75
E-29	09/15/05	37.06271	94.69899	3.0	8.3	5.7	69
E-30	09/15/05	37.06054	94.69901	4.0	8.7	7.0	80
E-31	09/15/05	37.05541	94.70093	13.6	8.9	6.9	78
E-32	09/15/05	37.05769	94.69967	4.7	8.5	6.3	74
E-33	09/16/05	37.05906	94.69948	3.9	8.2	5.9	72
E-36	09/16/05	37.06054	94.69905	3.8	7.7	5.7	74
Blackberry Hay Farm Lake							
BHF-1	09/16/05	37.32275	94.59892	6.6	3.5	2.6	74

Table A3. Results of chemical analyses of reference samples and comparison to most probable values.

[Shading indicates values outside of published limits for each constituent or ± 10 percent of the most probable value, whichever is greater. MPV, most probable value; %, percent dry weight; mg/kg, milligrams per kilogram; NIST, National Institute of Standards and Technology; --, not determined or not applicable; USGS, U.S. Geological Survey; ?, actual value in question; <, less than]

Sample source	Sample code		Aluminum		Antimony		Arsenic		Barium	
			Concentration (%)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV
NIST	2709	MPV	7.50 \pm 0.06	--	7.9 \pm 0.6	--	17.7 \pm 0.8	--	968 \pm 40	--
			7.4	-1.3	7.4	-6.3	19.0	7.3	1,000	3.3
			7.5	0	7.3	-7.6	18.0	1.7	1,000	3.3
NIST	2711 MT. Soil	MPV	6.53 \pm 0.09	--	19.4 \pm 1.8	--	105 \pm 8	--	726 \pm 38	--
			6.5	-.5	19.0	-2.1	110	4.8	760	4.7
			6.4	-2.0	19.0	-2.1	100	-4.8	760	4.7
NIST	1646a	MPV	2.30 \pm 0.02	--	.3	--	6.23 \pm 0.21	--	210	--
			2.3	0	.3	0	6.0	-3.7	220	4.8
			2.3	0	.3	0	6.0	-3.7	220	4.8
USGS	MAG-1	MPV	8.66 \pm 0.16	--	0.96 \pm 0.10	--	9.2 \pm 1.2	--	479 \pm 41	--
			8.6	-.7	.9	-6.3	9.3	1.1	520	8.6
			8.7	.5	.9	-6.3	8.8	-4.3	500	4.4
USGS	STM-1	MPV	9.73 \pm 0.12	--	1.66 \pm 0.15	--	4.6 \pm 0.6	--	560 \pm 60	--
			9.6	-1.3	1.6	-3.6	4.5	-2.2	620	10.7
			9.9	1.7	1.4	-15.7	5.2	13.0	600	7.1
USGS	SDO-1	MPV	6.49 \pm 0.14	--	4.1-4.8	--	68.5 \pm 8.6	--	397 \pm 38	--
			6.4	-1.4	4.4	--	69.0	.7	--	--
			6.3	-2.9	4.3	--	67.0	-2.2	--	--
USGS	SGR-1	MPV	3.45 \pm 0.11	--	3.4 \pm 0.5	--	67 \pm 5	--	290 \pm 40	--
			3.5	1.4	3.1	-8.8	64	-4.5	280	-3.4
			3.5	1.4	2.9	-14.7	61	-9.0	270	-6.9
USGS	SCO-1	MPV	7.23 \pm 0.11	--	2.5 \pm 0.1	--	12.4 \pm 1.4	--	570 \pm 30	--
			7.2	-4	2.4	-4.0	13.0	4.8	600	5.3
			7.3	1.0	2.4	-4.0	11.0	-11.3	580	1.8
USGS	QLO-1	MPV	8.56 \pm 0.10	--	2.1 \pm 0.4	--	3.5 \pm 1.8	--	1,370 \pm 80	--
			8.6	.5	1.6	-23.8	1.2	-65.7	1,500	9.5
			8.5	-.7	1.7	-19.0	2.0	-42.9	1,400	2.2
USGS	GSP-2	MPV	7.88 \pm 0.11	--	--	--	--	--	1,340 \pm 44	--
			7.8	-1.0	.4	--	1.3	--	1,400	4.5
			7.9	.3	.5	--	.5	--	1,400	4.5

54 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A3. Results of chemical analyses of reference samples and comparison to most probable values.—Continued

[Shading indicates values outside of published limits for each constituent or ± 10 percent of the most probable value, whichever is greater. MPV, most probable value; %, percent dry weight; mg/kg, milligrams per kilogram; NIST, National Institute of Standards and Technology; --, not determined or not applicable; USGS, U.S. Geological Survey; ?, actual value in question; <, less than]

Sample source	Sample code		Beryllium		Cadmium		Carbon, organic, total		Carbon, total	
			Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (%)	Percent difference from MPV	Concentration (%)	Percent difference from MPV
NIST	2709	MPV	--	--	0.4	--	--	--	1.2(?)	--
			5.5	--	.3	-25.0	1.1	--	1.1	-8.3
			5.6	--	.4	0	1.1	--	1.1	-8.3
NIST	2711 MT. Soil	MPV	--	--	41.70 \pm 0.25	--	--	--	2.0	--
			2.4	--	40	-4.1	1.7	--	1.7	-15.0
			2.2	--	40	-4.1	1.7	--	1.8	-10.0
NIST	1646a	MPV	<1	--	.2	--	--	--	--	--
			.9	--	.1	--	.5	--	2.0	--
			.9	--	.1	--	.6	--	0.6	--
USGS	MAG-1	MPV	3.2 \pm 0.4	--	0.2 \pm 0.1	--	--	--	2.15 \pm 0.40	--
			3.2	0	.2	--	2.2	--	2.3	7.0
			2.9	-9.4	.2	--	2.2	--	2.3	7.0
USGS	STM-1	MPV	9.6 \pm 0.6	--	0.27 \pm 0.05	--	--	--	0	--
			10.0	4.2	.3	11.1	<.1	--	<.1	--
			9.3	-3.1	.2	--	.1	--	<.1	--
USGS	SDO-1	MPV	3.3 \pm 0.6	--	--	--	--	--	9.95 \pm 0.44	--
			3.3	0	.1	--	9.3	--	9.8	-1.5
			3.0	-9.1	<.1	--	9.6	--	9.5	-4.5
USGS	SGR-1	MPV	1.06 \pm 0.16	--	0.93 \pm 0.05	--	24.8	--	28.0	--
			1.1	3.8	1.1	18.3	25.0	0.8	27.0	-3.6
			1.0	-5.7	1.1	18.3	27.0	8.9	27.0	-3.6
USGS	SCO-1	MPV	1.84 \pm 0.20	--	.14	--	--	--	0.81 \pm 0.12	--
			1.8	-2.2	.1	--	1.0	--	1.0	23.5
			1.7	-7.6	.1	--	1.0	--	1.0	23.5
USGS	QLO-1	MPV	1.89 \pm 0.17	--	.05?	--	--	--	<.01	--
			2.0	5.8	<.1	--	<.1	--	<.1	--
			1.7	-10.1	<.1	--	.1	--	<.1	--
USGS	GSP-2	MPV	1.5 \pm 0.2	--	--	--	--	--	--	--
			1.6	6.7	<.1	--	.1	--	.1	--
			1.5	0	<.1	--	.1	--	.1	--

Table A3. Results of chemical analyses of reference samples and comparison to most probable values.—Continued

[Shading indicates values outside of published limits for each constituent or ± 10 percent of the most probable value, whichever is greater. MPV, most probable value; %, percent dry weight; mg/kg, milligrams per kilogram; NIST, National Institute of Standards and Technology; --, not determined or not applicable; USGS, U.S. Geological Survey; ?, actual value in question; <, less than]

Sample source	Sample code		Chromium		Cobalt		Copper		Iron	
			Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (%)	Percent difference from MPV
NIST	2709	MPV	130 \pm 4	--	13.4 \pm 0.7	--	34.6 \pm 0.7	--	3.5 \pm 0.11	--
			120	-7.7	13	-3.0	33	-4.6	3.5	0
			120	-7.7	14	4.5	34	-1.7	3.6	2.9
NIST	2711 MT. Soil	MPV	47	--	10	--	114 \pm 2	--	2.89 \pm 0.06	--
			45	-4.3	9	-10.0	110	-3.5	2.8	-3.1
			44	-6.4	10	0	110	-3.5	2.8	-3.1
NIST	1646a	MPV	41 \pm 2	--	5	--	10 \pm 0.34	--	2.00 \pm 0.04	--
			39	-4.9	4	-20.0	9	-10.0	1.9	-5.0
			41	0	5	0	10	0	2.0	0
USGS	MAG-1	MPV	97 \pm 8	--	20.4 \pm 1.6	--	30 \pm 3	--	4.75 \pm 0.21	--
			100	3.1	22	7.8	28	-6.7	4.9	3.2
			99	2.1	21	2.9	27	-10.0	4.8	1.1
USGS	STM-1	MPV	4.3 \pm 2.6	--	0.90 \pm 0.15	--	4.6 \pm 2.0	--	3.65 \pm 0.07	--
			2.7	-37.2	<1	--	4	-13.0	3.6	-1.4
			5	16.3	<1	--	4	-13.0	3.6	-1.4
USGS	SDO-1	MPV	66.4 \pm 7.6	--	46.8 \pm 6.3	--	60.2 \pm 9.6	--	6.53 \pm 0.15	--
			70	5.4	49	4.7	55	-8.6	6.4	-2.0
			64	-3.6	46	-1.7	53	-12.0	6.3	-3.5
USGS	SGR-1	MPV	30 \pm 3	--	11.8 \pm 1.5	--	66 \pm 9	--	2.12 \pm 0.10	--
			33	10.0	11	-6.8	62	-6.1	2.0	-5.7
			31	3.3	11	-6.8	60	-9.1	2.0	-5.7
USGS	SCO-1	MPV	68 \pm 5	--	10.5 \pm 0.8	--	28.7 \pm 1.9	--	3.59 \pm 0.13	--
			72	5.9	11	4.8	28	-2.4	3.6	.3
			67	-1.5	11	4.8	27	-5.9	3.5	-2.5
USGS	QLO-1	MPV	3.2 \pm 1.7	--	7.2 \pm 0.5	--	29 \pm 3	--	3.04 \pm 0.10	--
			3	-6.3	7	-2.8	26	-10.3	3.0	-1.3
			4	25.0	7	-2.8	26	-10.3	2.9	-4.6
USGS	GSP-2	MPV	20 \pm 6	--	7 \pm 1	--	43 \pm 4	--	3.43 \pm 0.11	--
			16	-20.0	7	0	44	2.3	3.4	-.9
			21	5.0	7	0	43	0	3.3	-3.8

Table A3. Results of chemical analyses of reference samples and comparison to most probable values.—Continued

[Shading indicates values outside of published limits for each constituent or ± 10 percent of the most probable value, whichever is greater. MPV, most probable value; %, percent dry weight; mg/kg, milligrams per kilogram; NIST, National Institute of Standards and Technology; --, not determined or not applicable; USGS, U.S. Geological Survey; ?, actual value in question; <, less than]

Sample source	Sample code		Lead		Lithium		Manganese		Molybdenum	
			Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV
NIST	2709	MPV	18.9 \pm 0.5	--	--	--	538 \pm 17	--	2.0(?)	--
			19	0.5	54	--	530	-1.5	2	0
			20	5.8	55	--	530	-1.5	2	0
NIST	2711 MT. Soil	MPV	1,162 \pm 31	--	--	--	638 \pm 28	--	2	--
			1,200	3.3	28	--	640	.3	2	0
			1,100	-5.3	26	--	620	-2.8	2	0
NIST	1646a	MPV	12 \pm 1	--	17	--	234 \pm 3	--	2	--
			12	0	17	0	230	-1.7	2	0
			11	-8.3	17	0	230	-1.7	2	0
USGS	MAG-1	MPV	24 \pm 3	--	79 \pm 4	--	760 \pm 70	--	1.6 \pm 0.6	--
			28	16.7	81	2.5	720	-5.3	1	--
			26	8.3	78	-1.3	700	-7.9	1	--
USGS	STM-1	MPV	17.7 \pm 1.8	--	32 \pm 8	--	1,700 \pm 120	--	5.2 \pm 0.9	--
			18	1.7	37	15.6	1,600	-5.9	5	-3.8
			16	-9.6	36	12.5	1,600	-5.9	5	-3.8
USGS	SDO-1	MPV	27.9 \pm 5.2	--	28.6 \pm 5.5	--	325 \pm 39	--	134 \pm 21	--
			25	-10.4	32	11.9	310	-4.6	150	11.9
			23	-17.6	29	1.4	300	-7.7	140	4.5
USGS	SGR-1	MPV	38 \pm 4	--	147 \pm 26	--	267 \pm 34	--	35.1 \pm 0.9	--
			42	10.5	130	-11.6	230	-13.9	34	-3.1
			41	7.9	130	-11.6	230	-13.9	34	-3.1
USGS	SCO-1	MPV	31 \pm 3	--	45 \pm 3	--	408 \pm 30	--	1.37 \pm 0.16	--
			33	6.5	46	2.2	380	-6.9	1	--
			31	0	43	-4.4	380	-6.9	1	--
USGS	QLO-1	MPV	20.4 \pm 0.8	--	25 \pm 2	--	721 \pm 49	--	2.6 \pm 0.3	--
			21	2.9	27	8.0	680	-5.7	3	15.4
			21	2.9	25	0	680	-5.7	2	-23.1
USGS	GSP-2	MPV	42 \pm 3	--	36 \pm 1	--	320 \pm 20	--	2.1 \pm 0.6	--
			44	4.8	36	0	300	-6.3	2	-4.8
			40	-4.8	34	-5.6	300	-6.3	2	-4.8

Table A3. Results of chemical analyses of reference samples and comparison to most probable values.—Continued

[Shading indicates values outside of published limits for each constituent or ± 10 percent of the most probable value, whichever is greater. MPV, most probable value; %, percent dry weight; mg/kg, milligrams per kilogram; NIST, National Institute of Standards and Technology; --, not determined or not applicable; USGS, U.S. Geological Survey; ?, actual value in question; <, less than]

Sample source	Sample code		Nickel		Nitrogen, total		Phosphorus		Selenium	
			Concentration (mg/kg)	Percent difference from MPV	Concentration (%)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV
NIST	2709	MPV	88 \pm 5	--	--	--	620 \pm 50	--	1.57 \pm 0.08	--
			85	-3.4	0.07	--	650	4.8	1.6	1.9
			85	-3.4	.10	--	630	1.6	1.6	1.9
NIST	2711 MT. Soil	MPV	20.6 \pm 1.1	--	--	--	860 \pm 70	--	1.52 \pm 0.14	--
			21	1.9	.10	--	880	2.3	.9	-40.8
			19	-7.8	.10	--	810	-5.8	1.6	5.3
NIST	1646a	MPV	23	--	--	--	270 \pm 10	--	0.19 \pm 0.03	--
			22	-4.3	.10	--	280	3.7	.1	--
			21	-8.7	.06	--	280	3.7	.2	--
USGS	MAG-1	MPV	53 \pm 8	--	--	--	710 \pm 90	--	1.16 \pm 0.12	--
			50	-5.7	.30	--	760	7.0	1.0	-13.8
			45	-15.1	.30	--	690	-2.8	1.2	3.4
USGS	STM-1	MPV	3.0 \pm 1.6	--	--	--	690 \pm 60	--	0.008 \pm 0.002	--
			3	0	<.01	--	730	5.8	.1	--
			2	-33.3	<.1	--	680	-1.4	<.1	--
USGS	SDO-1	MPV	99.5 \pm 9.9	--	0.35 \pm 0.04	--	480 \pm 31	--	1.9-6.8	--
			97	-2.5	.30	-14.3	500	4.2	2.1	--
			92	-7.5	.40	14.3	450	-6.3	2.2	--
USGS	SGR-1	MPV	29 \pm 5	--	--	--	1,430 \pm 290	--	3.5 \pm 0.28	--
			29	0	1.00	--	1,200	-16.1	3.5	0
			26	-10.3	.90	--	1,200	-16.1	3.8	8.6
USGS	SCO-1	MPV	27 \pm 4	--	--	--	900 \pm 90	--	0.89 \pm 0.06	--
			26	-3.7	<.01	--	960	6.7	.8	-10.1
			24	-11.1	.06	--	860	-4.4	.9	1.1
USGS	QLO-1	MPV	5.8 \pm 3.6	--	--	--	1,110 \pm 70	--	0.009 \pm 0.002	--
			3	-48.3	<.01	--	1,200	8.1	<.1	--
			2	-65.5	<.1	--	1,100	-9	<.1	--
USGS	GSP-2	MPV	17 \pm 2	--	--	--	1,300 \pm 100	--	--	--
			16	-5.9	<.01	--	1,300	0	.1	--
			15	-11.8	<.1	--	1,200	-7.7	.1	--

58 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A3. Results of chemical analyses of reference samples and comparison to most probable values.—Continued

[Shading indicates values outside of published limits for each constituent or ± 10 percent of the most probable value, whichever is greater. MPV, most probable value; %, percent dry weight; mg/kg, milligrams per kilogram; NIST, National Institute of Standards and Technology; --, not determined or not applicable; USGS, U.S. Geological Survey; ?, actual value in question; <, less than]

Sample source	Sample code		Silver		Strontium		Sulfur, total		Thallium	
			Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (%)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV
NIST	2709	MPV	0.41 \pm 0.03	--	231 \pm 2	--	0.089 \pm 0.02	--	0.74 \pm 0.05	--
			<.5	--	240	3.9	.08	--	<50	--
			<.5	--	240	3.9	.08	--	<50	--
NIST	2711 MT. Soil	MPV	4.63 \pm 0.39	--	245.3 \pm 0.7	--	0.042 \pm 0.001	--	2.47 \pm 0.15	--
			5.0	8.0	250	1.9	.04	--	<50	--
			5.0	8.0	250	1.9	.04	--	<50	--
NIST	1646a	MPV	<.3	--	68	--	0.35 \pm 0.04	--	<.5	--
			<.5	--	72	5.9	.34	-2.9	<50	--
			<.5	--	72	5.9	.32	-8.6	<50	--
USGS	MAG-1	MPV	.08	--	146 \pm 15	--	0.39 \pm 0.07	--	0.590 \pm ?	--
			<.5	--	160	9.6	.36	-7.7	<50	--
			<.5	--	140	-4.1	.32	-17.9	<50	--
USGS	STM-1	MPV	.08	--	700 \pm 30	--	<.01	--	0.260 \pm 0.050	--
			<.5	--	690	-1.4	<.01	--	<50	--
			<.5	--	700	0	<.01	--	<50	--
USGS	SDO-1	MPV	0.1-0.2	--	75.1 \pm 11	--	5.35 \pm 0.44	--	8.3?	--
			<.6	--	85	13.2	5.10	-4.7	<50	--
			<.5	--	79	5.2	4.90	-8.4	<50	--
USGS	SGR-1	MPV	0.01-0.20	--	420 \pm 30	--	1.53 \pm 0.11	--	0.330 \pm ?	--
			<.5	--	400	-4.8	1.40	-8.5	<50	--
			<.5	--	390	-7.1	1.40	-8.5	<50	--
USGS	SCO-1	MPV	.13	--	174 \pm 16	--	0.063 \pm 0.009	--	0.72 \pm 0.13	--
			<.5	--	190	9.2	.06	--	<50	--
			<.5	--	170	-2.3	.06	--	<50	--
USGS	QLO-1	MPV	.06	--	336 \pm 12	--	<.01	--	0.220 \pm 0.040	--
			<.5	--	340	1.2	<.01	--	<50	--
			<.5	--	320	-4.8	<.01	--	<50	--
USGS	GSP-2	MPV	--	--	240 \pm 10	--	--	--	1.1	--
			<.5	--	250	4.2	.04	--	<50	--
			<.5	--	250	4.2	.04	--	<50	--

Table A3. Results of chemical analyses of reference samples and comparison to most probable values.—Continued

[Shading indicates values outside of published limits for each constituent or ± 10 percent of the most probable value, whichever is greater. MPV, most probable value; %, percent dry weight; mg/kg, milligrams per kilogram; NIST, National Institute of Standards and Technology; --, not determined or not applicable; USGS, U.S. Geological Survey; ?, actual value in question; <, less than]

Sample source	Sample code		Tin		Titanium		Vanadium		Uranium		Zinc	
			Concentration (mg/kg)	Percent difference from MPV	Concentration (%)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV	Concentration (mg/kg)	Percent difference from MPV
NIST	2709	MPV	--	--	0.342 \pm 0.024	--	112 \pm 5	--	3	--	106 \pm 3	--
			3	--	.34	-0.6	110	-1.8	<50	--	110	3.8
			2	--	.34	-6	110	-1.8	<50	--	110	3.8
NIST	2711 MT. Soil	MPV	--	--	0.306 \pm 0.023	--	81.6 \pm 2.9	--	2.6	--	350.4 \pm 4.8	--
			4	--	.31	1.3	82	.5	<50	--	360	2.7
			4	--	.30	-2.0	79	-3.2	<50	--	360	2.7
NIST	1646a	MPV	1	--	0.46 \pm 0.02	--	45 \pm 1	--	2	--	49 \pm 2	--
			2	100.0	.46	0	44	-2.2	<50	--	49	0
			<1	--	.44	-4.3	43	-4.4	<50	--	49	0
USGS	MAG-1	MPV	4	--	0.450 \pm 0.040	--	140 \pm 6	--	2.7 \pm 0.3	--	130 \pm 6	--
			3	-25.0	.43	-4.4	140	0	<50	--	140	7.7
			4	0	.41	-8.9	130	-7.1	<50	--	140	7.7
USGS	STM-1	MPV	6.8 \pm 1.2	--	0.081 \pm 0.007	--	8.7 \pm 5.2	--	9.06 \pm 0.13	--	235 \pm 22	--
			8	17.6	.08	-1.2	3	-65.5	<50	--	250	6.4
			8	17.6	.08	-1.2	3	-65.5	<50	--	240	2.1
USGS	SDO-1	MPV	3.7 \pm 1.2	--	0.426 \pm 0.019	--	160 \pm 21	--	48.8 \pm 6.5	--	64.1 \pm 6.9	--
			3	-18.9	.41	-3.8	160	0	51	4.5	70	9.2
			2	-45.9	.41	-3.8	150	-6.3	<50	--	70	9.2
USGS	SGR-1	MPV	1.9 \pm 0.6	--	0.152 \pm 0.015	--	128 \pm 6	--	5.4 \pm 0.4	--	74 \pm 9	--
			2	5.3	.15	-1.3	120	-6.3	<50	--	81	9.5
			1	--	.14	-7.9	120	-6.3	<50	--	75	1.4
USGS	SCO-1	MPV	3.7 \pm 0.8	--	0.376 \pm 0.039	--	131 \pm 13	--	3.0 \pm 0.2	--	103 \pm 8	--
			4	8.1	.35	-6.9	130	-8	<50	--	110	6.8
			3	-18.9	.33	-12.2	120	-8.4	<50	--	100	-2.9
USGS	QLO-1	MPV	2.3 \pm 0.1	--	0.374 \pm 0.020	--	54 \pm 6	--	1.94 \pm 0.12	--	61 \pm 3	--
			2	-13.0	.38	1.6	50	-7.4	<50	--	65	6.6
			2	-13.0	.35	-6.4	48	-11.1	<50	--	60	-1.6
USGS	GSP-2	MPV	--	--	0.40 \pm 0.01	--	52 \pm 4	--	2.4	--	120 \pm 10	--
			7	--	.40	0	53	1.9	<50	--	120	0
			6	--	.39	-2.5	50	-3.8	<50	--	120	0

60 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A4. Cesium-137 and lead-210 activities for bottom-sediment samples collected from coring sites E-27 and E-36 in Empire Lake (fig. 2B), southeast Kansas, and coring site BHF-1 in Blackberry Hay Farm Lake (fig. 1), southwest Missouri, September 2005.

[All activities in picocuries per gram. <, less than; --, not applicable]

Sediment core interval	Coring site E-27		Coring site E-36		Coring site BHF-1	
	Cesium-137	Lead-210	Cesium-137	Lead-210	Cesium-137	Lead-210
1 (bottom)	<0.05	1.42	<0.05	0.69	0.23	1.73
2	<.05	1.22	<.05	.76	<.05	1.47
3	<.05	1.44	<.05	.96	.20	.59
4	<.05	1.01	<.05	1.09	.20	1.52
5	<.05	1.62	<.05	.91	.85	1.84
6	<.05	1.54	<.05	1.07	.64	1.96
7	<.05	1.01	<.05	.77	.51	2.23
8	<.05	1.62	<.05	.84	.27	1.27
9	<.05	1.51	<.05	1.00	.30	2.32
10	.14	2.09	<.05	.80	.25	2.34
11	.15	3.26	<.05	.95	.25	1.87
12	.13	3.92	<.05	1.01	.20	3.12
13	.17	3.85	<.05	.96	.22	3.87
14	.15	3.80	<.05	1.05	--	--
15 (top)	--	--	.09	1.53	--	--

Table A5. Estimated bulk density of bottom sediment at coring sites in Empire Lake, southeast Kansas, 2005.[lb/ft³, pounds per cubic foot; --, not applicable]

Coring site number (fig. 2)	Depth interval (inches)	Estimated bulk density (lb/ft ³)	Computed mean bulk density ¹ (lb/ft ³)	Coring site number (fig. 2)	Depth interval (inches)	Estimated bulk density (lb/ft ³)	Computed mean bulk density ¹ (lb/ft ³)	
E-2	0-7.25	46.0	--	E-17	0-11.5	42.9	--	
	7.25-14.5	58.1	52.0		11.5-23.0	48.5	--	
E-3	0-9.0	44.7	--		23.0-34.5	56.2	--	
	9.0-18.0	51.2	--		34.5-46.0	59.6	51.8	
	18.0-27.0	48.4	48.1	E-18	0-11.5	40.3	--	
E-4	0-9.0	43.9	--		11.5-23.0	45.2	--	
	9.0-18.0	47.5	--		23.0-34.5	45.3	--	
	18.0-27.0	49.6	47.0		34.5-46.0	56.2	46.8	
E-5	0-11.0	43.2	--	E-19	0-9.5	45.2	--	
	11.0-22.0	47.7	--	9.5-19.0	52.0	48.6		
	22.0-33.0	46.9	45.9	E-20	0-11.0	52.2	--	
E-6	0-10.5	49.6	--		11.0-22.0	51.8	52.0	
	10.5-21.0	56.0	52.8	E-21	0-11.0	57.4	57.4	
E-7	0-10.7	55.3	--		E-22	0-9.5	47.0	--
	10.7-21.4	54.0	--		9.5-19.0	63.5	--	
	21.4-32.1	58.4	55.9		19.0-28.5	62.0	--	
E-8	0-10.7	55.7	--	28.5-38.0	62.9	58.8		
	10.7-21.4	55.3	--	E-23	0-7.0	58.4	--	
	21.4-32.1	53.3	54.8		8.0-14.0	63.6	61.0	
E-9	0-10.5	65.3	--	E-24	0-9.0	53.1	53.1	
	10.5-21.0	61.6	--		E-26	0-10.0	45.7	--
	21.0-31.5	58.4	--	10.0-20.0	44.6	--		
	31.5-42.0	64.6	62.5	20.0-30.0	54.8	48.4		
E-10	0-12.0	40.7	40.7	E-29	0-11.0	64.5	--	
E-11	0-8.0	38.4	38.4		11.0-22.0	58.1	--	
	E-14	0-12.4	44.9		--	22.0-33.0	56.7	--
12.4-24.8		46.5	--	33.0-44.0	58.8	--		
24.8-37.2		64.9	--	44.0-55.0	67.1	--		
37.2-49.6		66.6	55.7	55.0-66.0	67.6	62.1		
E-15	0-12.0	46.4	--	E-30	0-10.7	59.8	--	
	12.0-24.0	59.7	--		10.7-21.4	65.5	--	
	24.0-36.0	57.6	--		21.4-32.1	68.3	--	
	36.0-48.0	57.2	55.2		32.1-42.8	63.6	--	
				42.8-53.5	65.6	64.6		

62 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A5. Estimated bulk density of bottom sediment at coring sites in Empire Lake, southeast Kansas, 2005.—Continued

[lb/ft³, pounds per cubic foot; --, not applicable]

Coring site number (fig. 2)	Depth interval (inches)	Estimated bulk density (lb/ft³)	Computed mean bulk density¹ (lb/ft³)	Coring site number (fig. 2)	Depth interval (inches)	Estimated bulk density (lb/ft³)	Computed mean bulk density¹ (lb/ft³)
E-31	0–11.4	43.3	--	E-33	0–11.4	58.9	--
	11.4–22.8	50.8	--		11.4–22.8	57.3	--
	22.8–34.2	49.5	--		22.8–34.2	63.3	--
	34.2–45.6	57.6	--		34.2–45.6	64.9	--
	45.6–57.0	53.1	--		45.6–57.0	60.5	--
	57.0–68.4	56.7	--		57.0–68.4	62.4	61.2
	68.4–79.8	62.6	53.4				
E-32	0–12.0	49.2	--				
	12.0–24.0	58.7	--				
	24.0–36.0	65.6	--				
	36.0–48.0	67.4	--				
	48.0–60.0	62.0	--				
	60.0–72.0	66.0	61.5				

¹Mean bulk density computed as the average of the bulk densities for the individual depth intervals for each core.

Table A6. Constituent concentrations for bottom-sediment samples collected from coring site E-1 (fig. 2B) in Empire Lake, southeast Kansas, April 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration		
	Interval 1 (bottom of core)	Interval 2 (middle of core)	Interval 3 (top of core)
Nutrients			
Total nitrogen (TN), mg/kg	1,200	1,200	1,300
Total phosphorus (TP), mg/kg	620	630	580
Carbon			
Carbon (total organic, TOC), %	1.3	1.3	1.4
Carbon (total), %	1.6	1.6	1.8
Trace elements			
Aluminum, %	4.5	3.9	3.2
Antimony, mg/kg	.7	.7	.5
Arsenic, mg/kg	6.2	4.5	3.3
Barium, mg/kg	490	470	450
Beryllium, mg/kg	1.7	1.4	1.1
Cadmium, mg/kg	61	52	29
Chromium, mg/kg	77	74	48
Cobalt, mg/kg	18	13	9.1
Copper, mg/kg	47	36	21
Iron, %	1.9	1.6	1.3
Lead, mg/kg	240	230	180
Lithium, mg/kg	30	26	21
Manganese, mg/kg	500	410	380
Mercury, mg/kg	.22	.29	.12
Molybdenum, mg/kg	.8	<1.0	<1.0
Nickel, mg/kg	42	39	24
Selenium, mg/kg	.9	.9	.7
Silver, mg/kg	<.5	<.5	<.5
Strontium, mg/kg	73	68	67
Sulfur, %	.22	.17	.09
Thallium, mg/kg	<50	<50	<50
Tin, mg/kg	--	--	--
Titanium, %	.45	.42	.39
Uranium, mg/kg	<50	<50	<50
Vanadium, mg/kg	61	51	40
Zinc, mg/kg	7,200	4,500	3,100

64 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A7. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring sites E-2, E-4, E-8, E-10, and E-11 (fig. 2B) in Empire Lake, southeast Kansas, April and August 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration				
	Site E-2	Site E-4	Site E-8	Site E-10	Site E-11
Percentage of silt and clay	77	96	96	76	88
Nutrients					
Total nitrogen (TN), mg/kg	1,000	1,800	2,000	2,500	2,000
Total phosphorus (TP), mg/kg	730	730	740	1,200	1,100
Carbon					
Carbon (total organic, TOC), %	1.5	1.9	1.8	2.1	2.3
Carbon (total), %	1.7	2.0	2.0	2.4	2.6
Trace elements					
Aluminum, %	4.3	5.7	5.6	5.6	4.3
Antimony, mg/kg	.8	1.0	.9	1.0	.7
Arsenic, mg/kg	5.8	8.3	9.2	8.3	4.5
Barium, mg/kg	470	510	540	500	490
Beryllium, mg/kg	1.6	2.2	2.3	1.9	1.6
Cadmium, mg/kg	46	60	43	18	29
Chromium, mg/kg	65	72	65	67	61
Cobalt, mg/kg	21	23	16	15	9
Copper, mg/kg	33	44	38	26	24
Iron, %	2.0	2.6	2.8	2.5	1.7
Lead, mg/kg	220	310	340	170	220
Lithium, mg/kg	30	41	36	38	26
Manganese, mg/kg	900	710	670	820	450
Mercury, mg/kg	--	--	--	--	-
Molybdenum, mg/kg	1	<2	1	3	1
Nickel, mg/kg	48	55	49	26	23
Selenium, mg/kg	.2	.9	1.0	.9	.3
Silver, mg/kg	<.5	<1.0	<.5	.9	1.2
Strontium, mg/kg	78	79	79	77	67
Sulfur, %	.32	.34	.24	.15	.15
Thallium, mg/kg	<50	<50	<50	<50	<50
Tin, mg/kg	4	4	3	3	3
Titanium, %	.42	.47	.49	.50	.45
Uranium, mg/kg	<50	<50	<50	<50	<50
Vanadium, mg/kg	59	81	82	78	58
Zinc, mg/kg	7,800	7,400	8,300	2,500	3,500

Table A8. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site E-6 (fig. 2B) in Empire Lake, southeast Kansas, August 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration				
	Interval 1 (bottom of core)	Interval 2	Interval 3	Interval 4	Interval 5 (top of core)
Percentage of silt and clay	95	98	98	95	96
Nutrients					
Total nitrogen (TN), mg/kg	2,000	2,000	2,000	1,000	2,000
Total phosphorus (TP), mg/kg	820	830	730	1,300	940
Carbon					
Carbon (total organic, TOC), %	2.1	2.0	1.8	1.7	1.7
Carbon (total), %	2.3	2.2	1.9	1.8	2.3
Trace elements					
Aluminum, %	5.9	6.3	6.0	5.8	4.8
Antimony, mg/kg	1.0	1.0	1.0	1.0	.8
Arsenic, mg/kg	8.7	12	11	16	6.0
Barium, mg/kg	560	560	550	560	520
Beryllium, mg/kg	2.7	2.9	2.4	2.1	1.7
Cadmium, mg/kg	71	51	48	39	37
Chromium, mg/kg	70	70	67	84	72
Cobalt, mg/kg	24	22	23	23	15
Copper, mg/kg	59	65	35	48	34
Iron, %	3.2	3.3	2.8	2.9	2.2
Lead, mg/kg	620	430	290	270	230
Lithium, mg/kg	37	40	38	38	33
Manganese, mg/kg	1,500	790	490	700	970
Mercury, mg/kg	--	--	--	--	--
Molybdenum, mg/kg	1	1	1	2	1
Nickel, mg/kg	56	71	63	51	33
Selenium, mg/kg	1.4	1.2	.9	.8	.5
Silver, mg/kg	<.5	<.5	<.5	.5	.9
Strontium, mg/kg	83	80	79	83	84
Sulfur, %	.30	.23	.32	.30	.18
Thallium, mg/kg	<50	<50	<50	<50	<50
Tin, mg/kg	2	3	4	5	6
Titanium, %	.50	.47	.52	.53	.45
Uranium, mg/kg	<50	<50	<50	<50	<50
Vanadium, mg/kg	90	93	89	86	64
Zinc, mg/kg	13,000	11,000	9,500	6,100	4,900

66 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A9. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring sites E–14, E–17, E–19, and E–22 (fig. 2B) in Empire Lake, southeast Kansas, August 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration			
	Site E–14	Site E–17	Site E–19	Site E–22
Percentage of silt and clay	97	94	93	96
Nutrients				
Total nitrogen (TN), mg/kg	1,000	1,000	2,000	1,000
Total phosphorus (TP), mg/kg	810	790	970	610
Carbon				
Carbon (total organic, TOC), %	1.8	1.7	1.7	1.4
Carbon (total), %	1.9	1.9	1.8	1.6
Trace elements				
Aluminum, %	4.9	4.6	5.2	4.3
Antimony, mg/kg	.8	.8	.8	.8
Arsenic, mg/kg	6.3	5.6	7.4	5.8
Barium, mg/kg	570	530	490	560
Beryllium, mg/kg	2.0	1.8	1.8	1.7
Cadmium, mg/kg	29	29	14	36
Chromium, mg/kg	62	68	65	57
Cobalt, mg/kg	13	12	14	16
Copper, mg/kg	27	31	20	24
Iron, %	2.0	1.8	2.3	1.9
Lead, mg/kg	280	250	140	160
Lithium, mg/kg	31	29	34	28
Manganese, mg/kg	760	610	630	840
Mercury, mg/kg	--	--	--	--
Molybdenum, mg/kg	1	1	2	1
Nickel, mg/kg	26	24	26	41
Selenium, mg/kg	.7	.5	.7	.7
Silver, mg/kg	.6	.5	.7	.5
Strontium, mg/kg	71	70	80	77
Sulfur, %	.11	.13	.13	.24
Thallium, mg/kg	<50	<50	<50	<50
Tin, mg/kg	4	5	4	3
Titanium, %	.49	.46	.49	.47
Uranium, mg/kg	<50	<50	<50	<50
Vanadium, mg/kg	70	64	76	62
Zinc, mg/kg	5,100	4,600	2,300	6,400

Table A10. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring sites E-23, E-24, E-25, and E-26 (fig. 2B) in Empire Lake, southeast Kansas, August and September 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration			
	Site E-23	Site E-24	Site E-25	Site E-26
Percentage of silt and clay	90	88	86	96
Nutrients				
Total nitrogen (TN), mg/kg	1,000	1,000	2,000	2,000
Total phosphorus (TP), mg/kg	830	610	1,100	760
Carbon				
Carbon (total organic, TOC), %	1.6	1.6	1.7	1.8
Carbon (total), %	1.8	1.8	1.8	2.0
Trace elements				
Aluminum, %	5.1	4.2	5.4	4.5
Antimony, mg/kg	.9	.7	.9	.8
Arsenic, mg/kg	9.1	5.6	7.2	4.7
Barium, mg/kg	510	520	530	520
Beryllium, mg/kg	2.2	1.5	1.9	1.8
Cadmium, mg/kg	60	25	7.3	32
Chromium, mg/kg	66	73	65	56
Cobalt, mg/kg	16	12	16	11
Copper, mg/kg	49	28	20	25
Iron, %	2.6	1.7	2.5	1.7
Lead, mg/kg	350	170	100	280
Lithium, mg/kg	34	29	36	28
Manganese, mg/kg	1,100	620	1,100	530
Mercury, mg/kg	--	--	--	--
Molybdenum, mg/kg	1	<1	1	1
Nickel, mg/kg	39	32	33	22
Selenium, mg/kg	1.0	.5	.8	1.0
Silver, mg/kg	.8	<.5	<.5	.8
Strontium, mg/kg	78	77	84	69
Sulfur, %	.33	.23	.10	.13
Thallium, mg/kg	<50	<50	<50	<50
Tin, mg/kg	3	3	3	6
Titanium, %	.47	.45	.49	.47
Uranium, mg/kg	<50	<50	<50	<50
Vanadium, mg/kg	75	59	79	62
Zinc, mg/kg	9,300	3,700	1,300	4,700

68 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A11. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring sites E–29, E–31, E–32, and E–33 (fig. 2B) in Empire Lake, southeast Kansas, September 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration			
	Site E–29	Site E–31	Site E–32	Site E–33
Percentage of silt and clay	95	97	95	94
Nutrients				
Total nitrogen (TN), mg/kg	2,000	2,000	2,000	2,000
Total phosphorus (TP), mg/kg	820	880	730	730
Carbon				
Carbon (total organic, TOC), %	1.8	1.8	1.7	1.6
Carbon (total), %	2.1	2.1	1.9	1.9
Trace elements				
Aluminum, %	5.6	5.0	4.5	4.7
Antimony, mg/kg	1.1	.8	.8	.9
Arsenic, mg/kg	10	5.8	6.0	7.2
Barium, mg/kg	490	530	530	540
Beryllium, mg/kg	2.4	1.8	1.8	1.8
Cadmium, mg/kg	72	27	23	24
Chromium, mg/kg	69	71	62	63
Cobalt, mg/kg	13	13	12	13
Copper, mg/kg	56	41	27	31
Iron, %	2.9	2.0	1.9	2.1
Lead, mg/kg	950	260	270	270
Lithium, mg/kg	34	30	28	30
Manganese, mg/kg	490	690	670	670
Mercury, mg/kg	--	--	--	--
Molybdenum, mg/kg	1	1	1	1
Nickel, mg/kg	42	25	26	30
Selenium, mg/kg	1.7	.9	.6	1.0
Silver, mg/kg	<.5	<.5	<.5	.5
Strontium, mg/kg	75	68	70	71
Sulfur, %	.40	.10	.10	.10
Thallium, mg/kg	<50	<50	<50	<50
Tin, mg/kg	3	4	3	3
Titanium, %	.44	.47	.48	.46
Uranium, mg/kg	<50	<50	<50	<50
Vanadium, mg/kg	80	64	66	69
Zinc, mg/kg	11,000	3,800	4,200	4,600

Table A12. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site E-27 (fig. 2B) in Empire Lake, southeast Kansas, September 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration				
	Interval 1 (bottom of core)	Interval 2	Interval 3	Interval 4	Interval 5
Percentage of silt and clay	98	100	100	99	99
Nutrients					
Total nitrogen (TN), mg/kg	2,000	2,000	2,000	2,000	2,000
Total phosphorus (TP), mg/kg	680	700	710	710	570
Carbon					
Carbon (total organic, TOC), %	1.9	1.7	1.8	1.8	1.6
Carbon (total), %	2.0	1.8	2.0	2.0	1.7
Trace elements					
Aluminum, %	5.0	5.0	5.6	5.4	4.5
Antimony, mg/kg	.9	.9	1.1	.9	.8
Arsenic, mg/kg	5.5	6.3	6.9	7.2	5.7
Barium, mg/kg	570	580	620	650	590
Beryllium, mg/kg	2.0	2.1	2.2	2.1	1.7
Cadmium, mg/kg	40	38	28	29	18
Chromium, mg/kg	54	54	55	54	50
Cobalt, mg/kg	13	12	14	16	13
Copper, mg/kg	42	43	33	30	26
Iron, %	1.9	2.0	2.2	2.3	1.8
Lead, mg/kg	590	560	330	240	260
Lithium, mg/kg	30	30	32	32	27
Manganese, mg/kg	370	610	820	1,500	1,300
Mercury, mg/kg	--	--	--	--	-
Molybdenum, mg/kg	1	1	1	1	1
Nickel, mg/kg	23	24	24	24	18
Selenium, mg/kg	1.2	1.3	1.0	.8	.8
Silver, mg/kg	<.5	<.5	<.5	<.5	<.5
Strontium, mg/kg	67	68	67	67	66
Sulfur, %	.17	.13	.07	.07	.09
Thallium, mg/kg	<50	<50	<50	<50	<50
Tin, mg/kg	2	3	3	2	2
Titanium, %	.48	.49	.51	.54	.50
Uranium, mg/kg	<50	<50	<50	<50	<50
Vanadium, mg/kg	70	72	76	76	63
Zinc, mg/kg	8,500	8,900	6,500	6,600	4,100

70 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A12. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site E-27 (fig. 2B) in Empire Lake, southeast Kansas, September 2005.—Continued

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration				
	Interval 6	Interval 7	Interval 8	Interval 9	Interval 10
Percentage of silt and clay	66	98	99	97	93
Nutrients					
Total nitrogen (TN), mg/kg	2,000	2,000	2,000	2,000	2,000
Total phosphorus (TP), mg/kg	650	770	700	640	710
Carbon					
Carbon (total organic, TOC), %	1.6	1.8	1.7	1.6	1.7
Carbon (total), %	1.8	2.0	2.0	1.8	1.9
Trace elements					
Aluminum, %	5.3	5.5	4.8	4.7	4.3
Antimony, mg/kg	1.0	.8	1.0	.9	.8
Arsenic, mg/kg	7.0	7.1	5.6	4.7	4.5
Barium, mg/kg	630	630	580	560	530
Beryllium, mg/kg	2.0	2.3	2.1	1.8	1.6
Cadmium, mg/kg	22	33	36	21	27
Chromium, mg/kg	54	55	58	54	57
Cobalt, mg/kg	14	16	14	12	11
Copper, mg/kg	27	31	31	26	24
Iron, %	2.1	2.3	1.9	1.9	1.7
Lead, mg/kg	240	310	400	280	260
Lithium, mg/kg	31	33	30	29	27
Manganese, mg/kg	900	1,000	820	560	420
Mercury, mg/kg	--	--	--	--	--
Molybdenum, mg/kg	1	1	1	1	<1
Nickel, mg/kg	22	28	23	21	25
Selenium, mg/kg	.8	1.0	.6	.8	.9
Silver, mg/kg	<.5	<.5	<.5	1.2	1.4
Strontium, mg/kg	67	67	65	66	66
Sulfur, %	.08	.10	.11	.09	.12
Thallium, mg/kg	<50	<50	<50	<50	<50
Tin, mg/kg	3	4	3	3	3
Titanium, %	.52	.50	.50	.50	.46
Uranium, mg/kg	<50	<50	<50	<50	<50
Vanadium, mg/kg	74	79	71	66	57
Zinc, mg/kg	5,000	8,000	6,900	4,100	3,800

Table A12. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site E-27 (fig. 2B) in Empire Lake, southeast Kansas, September 2005.—Continued

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration			
	Interval 11	Interval 12	Interval 13	Interval 14 (top of core)
Percentage of silt and clay	76	96	97	94
Nutrients				
Total nitrogen (TN), mg/kg	2,000	2,000	2,000	2,000
Total phosphorus (TP), mg/kg	780	950	1,100	1,100
Carbon				
Carbon (total organic, TOC), %	1.9	2.2	2.4	2.3
Carbon (total), %	2.0	2.3	2.4	2.5
Trace elements				
Aluminum, %	4.1	4.5	4.5	4.5
Antimony, mg/kg	.8	.7	.7	.7
Arsenic, mg/kg	4.9	3.8	4.9	4.4
Barium, mg/kg	510	530	530	540
Beryllium, mg/kg	1.5	1.7	1.7	1.7
Cadmium, mg/kg	26	29	30	29
Chromium, mg/kg	52	61	60	63
Cobalt, mg/kg	9	10	11	9
Copper, mg/kg	22	24	24	23
Iron, %	1.6	1.7	1.8	1.8
Lead, mg/kg	220	230	230	210
Lithium, mg/kg	25	28	28	27
Manganese, mg/kg	410	450	540	630
Mercury, mg/kg	--	--	--	--
Molybdenum, mg/kg	1	1	1	1
Nickel, mg/kg	23	25	26	24
Selenium, mg/kg	1.0	1.1	1.2	.9
Silver, mg/kg	1.0	1.3	1.2	1.6
Strontium, mg/kg	65	70	71	71
Sulfur, %	.12	.14	.16	.14
Thallium, mg/kg	<50	<50	<50	<50
Tin, mg/kg	3	3	2	3
Titanium, %	.45	.45	.45	.46
Uranium, mg/kg	<50	<50	<50	<50
Vanadium, mg/kg	53	59	61	59
Zinc, mg/kg	3,200	3,600	3,700	3,600

72 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A13. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site E-36 (fig. 2B) in Empire Lake, southeast Kansas, September 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration			
	Interval 0 (original flood-plain material)	Interval 1 (bottom of core)	Interval 2	Interval 3
Percentage of silt and clay	82	100	98	99
Nutrients				
Total nitrogen (TN), mg/kg	2,000	2,000	2,000	2,000
Total phosphorus (TP), mg/kg	500	710	760	630
Carbon				
Carbon (total organic, TOC), %	1.6	2.2	2.0	1.9
Carbon (total), %	1.6	2.4	2.4	2.2
Trace elements				
Aluminum, %	4.2	5.5	5.5	5.1
Antimony, mg/kg	.7	1.0	1.2	.9
Arsenic, mg/kg	4.9	8.1	9.6	8.5
Barium, mg/kg	480	500	460	470
Beryllium, mg/kg	1.4	2.1	2.2	2.1
Cadmium, mg/kg	12	51	73	76
Chromium, mg/kg	47	61	66	57
Cobalt, mg/kg	9	16	16	13
Copper, mg/kg	17	43	53	45
Iron, %	1.7	2.7	3.1	2.6
Lead, mg/kg	380	580	730	530
Lithium, mg/kg	26	32	32	30
Manganese, mg/kg	170	730	650	410
Mercury, mg/kg	--	--	--	--
Molybdenum, mg/kg	<1	1	1	1
Nickel, mg/kg	18	33	40	41
Selenium, mg/kg	.6	1.3	1.5	1.2
Silver, mg/kg	<.5	<.5	<.5	<.5
Strontium, mg/kg	67	72	71	70
Sulfur, %	.04	.31	.44	.30
Thallium, mg/kg	<50	<50	<50	<50
Tin, mg/kg	2	3	3	2
Titanium, %	.43	.45	.43	.43
Uranium, mg/kg	<50	<50	<50	<50
Vanadium, mg/kg	58	76	77	71
Zinc, mg/kg	1,700	8,400	12,000	12,000

Table A13. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site E-36 (fig. 2B) in Empire Lake, southeast Kansas, September 2005.—Continued

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration			
	Interval 4	Interval 5	Interval 6	Interval 7
Percentage of silt and clay	99	100	97	99
Nutrients				
Total nitrogen (TN), mg/kg	2,000	2,000	2,000	2,000
Total phosphorus (TP), mg/kg	720	620	550	650
Carbon				
Carbon (total organic, TOC), %	2.0	1.9	1.6	1.9
Carbon (total), %	2.1	2.2	1.9	2.1
Trace elements				
Aluminum, %	5.8	5.3	4.4	5.4
Antimony, mg/kg	1.0	1.0	.9	.9
Arsenic, mg/kg	9.1	7.9	6.6	8.1
Barium, mg/kg	500	480	490	520
Beryllium, mg/kg	2.6	2.1	1.8	2.0
Cadmium, mg/kg	71	75	41	60
Chromium, mg/kg	64	61	50	57
Cobalt, mg/kg	14	13	10	13
Copper, mg/kg	48	39	41	41
Iron, %	3.1	2.5	2.0	2.4
Lead, mg/kg	590	550	530	530
Lithium, mg/kg	35	32	26	32
Manganese, mg/kg	450	420	580	480
Mercury, mg/kg	--	--	--	--
Molybdenum, mg/kg	1	1	1	1
Nickel, mg/kg	46	41	27	38
Selenium, mg/kg	1.4	1.2	1.1	1.2
Silver, mg/kg	<.5	<.5	<.5	<.5
Strontium, mg/kg	74	72	65	69
Sulfur, %	.27	.33	.20	.27
Thallium, mg/kg	<50	<50	<50	<50
Tin, mg/kg	3	2	2	2
Titanium, %	.46	.44	.43	.46
Uranium, mg/kg	<50	<50	<50	<50
Vanadium, mg/kg	81	73	61	74
Zinc, mg/kg	10,000	11,000	8,100	9,900

74 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A13. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site E–36 (fig. 2B) in Empire Lake, southeast Kansas, September 2005.—Continued

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration			
	Interval 8	Interval 9	Interval 10	Interval 11
Percentage of silt and clay	100	100	96	100
Nutrients				
Total nitrogen (TN), mg/kg	2,000	2,000	2,000	2,000
Total phosphorus (TP), mg/kg	640	610	690	610
Carbon				
Carbon (total organic, TOC), %	1.9	1.8	2.0	1.7
Carbon (total), %	2.1	2.0	2.1	1.8
Trace elements				
Aluminum, %	5.9	5.6	6.1	5.3
Antimony, mg/kg	.8	.9	.9	.9
Arsenic, mg/kg	8.5	7.2	7.9	6.4
Barium, mg/kg	520	530	540	520
Beryllium, mg/kg	2.2	2.0	2.2	2.0
Cadmium, mg/kg	35	25	25	23
Chromium, mg/kg	60	57	63	57
Cobalt, mg/kg	16	14	14	14
Copper, mg/kg	27	24	28	25
Iron, %	3.0	2.6	3.0	2.6
Lead, mg/kg	250	170	250	220
Lithium, mg/kg	35	34	35	32
Manganese, mg/kg	510	450	540	630
Mercury, mg/kg	--	--	--	--
Molybdenum, mg/kg	1	1	1	1
Nickel, mg/kg	48	41	40	37
Selenium, mg/kg	.9	.9	1.0	1.0
Silver, mg/kg	<.5	<.5	<.5	<.5
Strontium, mg/kg	73	73	73	71
Sulfur, %	.16	.13	.14	.16
Thallium, mg/kg	<50	<50	<50	<50
Tin, mg/kg	3	3	3	4
Titanium, %	.47	.50	.49	.49
Uranium, mg/kg	<50	<50	<50	<50
Vanadium, mg/kg	78	76	83	74
Zinc, mg/kg	5,000	4,700	4,600	4,400

Table A13. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site E-36 (fig. 2B) in Empire Lake, southeast Kansas, September 2005.—Continued

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration			
	Interval 12	Interval 13	Interval 14	Interval 15 (top of core)
Percentage of silt and clay	96	99	97	86
Nutrients				
Total nitrogen (TN), mg/kg	2,000	2,000	1,000	1,000
Total phosphorus (TP), mg/kg	610	590	570	770
Carbon				
Carbon (total organic, TOC), %	1.6	1.6	1.5	1.4
Carbon (total), %	1.7	1.8	1.6	1.6
Trace elements				
Aluminum, %	5.1	5.0	5.3	4.5
Antimony, mg/kg	1.0	.8	.8	.7
Arsenic, mg/kg	5.8	5.0	7.9	6.9
Barium, mg/kg	540	510	520	470
Beryllium, mg/kg	1.9	1.8	1.8	1.5
Cadmium, mg/kg	22	28	26	27
Chromium, mg/kg	54	53	58	69
Cobalt, mg/kg	13	15	15	12
Copper, mg/kg	26	25	38	51
Iron, %	2.2	2.2	2.1	1.9
Lead, mg/kg	350	250	230	200
Lithium, mg/kg	30	30	32	28
Manganese, mg/kg	670	590	340	300
Mercury, mg/kg	--	--	--	--
Molybdenum, mg/kg	1	1	1	1
Nickel, mg/kg	28	35	31	30
Selenium, mg/kg	1.1	.7	.8	.7
Silver, mg/kg	.6	<.5	<.5	<.5
Strontium, mg/kg	68	67	71	67
Sulfur, %	.09	.14	.13	.19
Thallium, mg/kg	<50	<50	<50	<50
Tin, mg/kg	3	3	4	2
Titanium, %	.48	.46	.50	.42
Uranium, mg/kg	<50	<50	<50	<50
Vanadium, mg/kg	69	67	70	58
Zinc, mg/kg	4,200	5,200	4,300	4,200

76 Sedimentation and Occurrence of Selected Chemical Constituents in Bottom Sediment, Empire Lake, Kansas, 1905–2005

Table A14. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site BHF–1 in Blackberry Hay Farm Lake (fig. 1), southwest Missouri, September 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration				
	Interval 1 (bottom of core)	Interval 2	Interval 3	Interval 4	Interval 5
Percentage of silt and clay	93	82	84	48	71
Nutrients					
Total nitrogen (TN), mg/kg	1,000	800	1,000	1,000	1,000
Total phosphorus (TP), mg/kg	430	280	340	340	410
Carbon					
Carbon (total organic, TOC), %	1.2	.9	1.1	1.0	1.3
Carbon (total), %	1.2	.9	1.2	1.1	1.2
Trace elements					
Aluminum, %	4.7	3.4	4.0	4.1	4.8
Antimony, mg/kg	.9	.8	1.0	.9	.9
Arsenic, mg/kg	6.7	5.9	6.1	5.9	7.2
Barium, mg/kg	470	380	440	490	460
Beryllium, mg/kg	1.5	1.2	1.4	1.4	1.5
Cadmium, mg/kg	.4	.1	.3	.4	.4
Chromium, mg/kg	56	42	49	50	57
Cobalt, mg/kg	9	10	11	10	11
Copper, mg/kg	13	8.8	11	11	13
Iron, %	2.1	1.8	1.8	1.7	2.1
Lead, mg/kg	33	24	37	33	36
Lithium, mg/kg	32	24	28	30	34
Manganese, mg/kg	400	400	290	330	450
Mercury, mg/kg	--	--	--	--	--
Molybdenum, mg/kg	1	1	1	1	1
Nickel, mg/kg	27	12	14	14	16
Selenium, mg/kg	.7	.5	.6	.6	.4
Silver, mg/kg	.6	.6	<.5	<.5	<.5
Strontium, mg/kg	73	57	65	69	73
Sulfur, %	.07	.02	.03	.04	.06
Thallium, mg/kg	<50	<50	<50	<50	<50
Tin, mg/kg	2	1	2	2	2
Titanium, %	.50	.43	.47	.49	.50
Uranium, mg/kg	<50	<50	<50	<50	<50
Vanadium, mg/kg	74	58	65	63	73
Zinc, mg/kg	99	38	66	82	92

Table A14. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site BHF-1 in Blackberry Hay Farm Lake (fig. 1), southwest Missouri, September 2005.—Continued

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration				
	Interval 6	Interval 7	Interval 8	Interval 9	Interval 10
Percentage of silt and clay	98	98	98	96	95
Nutrients					
Total nitrogen (TN), mg/kg	1,000	1,000	1,000	1,000	1,000
Total phosphorus (TP), mg/kg	450	450	450	420	420
Carbon					
Carbon (total organic, TOC), %	1.2	1.3	1.2	1.1	1.1
Carbon (total), %	1.3	1.4	1.2	1.3	1.2
Trace elements					
Aluminum, %	5.1	5.2	5.3	5.1	4.9
Antimony, mg/kg	1.0	1.0	1.0	1.0	1.0
Arsenic, mg/kg	7.9	7.7	7.4	6.4	6.5
Barium, mg/kg	500	510	530	520	500
Beryllium, mg/kg	1.7	1.7	1.7	1.6	1.6
Cadmium, mg/kg	.5	.4	.3	.2	.3
Chromium, mg/kg	60	59	61	58	56
Cobalt, mg/kg	11	12	11	10	11
Copper, mg/kg	13	13	14	13	13
Iron, %	2.3	2.3	2.2	2.1	2.0
Lead, mg/kg	40	38	37	34	33
Lithium, mg/kg	36	35	36	34	33
Manganese, mg/kg	480	460	420	380	360
Mercury, mg/kg	--	--	--	--	--
Molybdenum, mg/kg	1	1	1	1	1
Nickel, mg/kg	18	18	17	16	16
Selenium, mg/kg	.6	.7	.8	.7	.8
Silver, mg/kg	<.5	<.5	<.5	<.5	.6
Strontium, mg/kg	75	76	78	78	76
Sulfur, %	.05	.05	.07	.08	.07
Thallium, mg/kg	<50	<50	<50	<50	<50
Tin, mg/kg	2	2	2	2	2
Titanium, %	.52	.49	.52	.54	.51
Uranium, mg/kg	<50	<50	<50	<50	<50
Vanadium, mg/kg	80	80	83	79	77
Zinc, mg/kg	100	100	86	82	88

Table A14. Percentage of silt and clay and constituent concentrations for bottom-sediment samples collected from coring site BHF–1 in Blackberry Hay Farm Lake (fig. 1), southwest Missouri, September 2005.—Continued

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration		
	Interval 11	Interval 12	Interval 13 (top of core)
Percentage of silt and clay	94	91	95
Nutrients			
Total nitrogen (TN), mg/kg	1,000	1,000	1,000
Total phosphorus (TP), mg/kg	480	590	690
Carbon			
Carbon (total organic, TOC), %	1.1	1.1	1.1
Carbon (total), %	1.2	1.1	1.3
Trace elements			
Aluminum, %	4.9	4.6	4.6
Antimony, mg/kg	.9	.9	.9
Arsenic, mg/kg	7.1	7.4	8.1
Barium, mg/kg	500	480	470
Beryllium, mg/kg	1.6	1.5	1.5
Cadmium, mg/kg	.4	.5	.5
Chromium, mg/kg	61	56	55
Cobalt, mg/kg	12	11	11
Copper, mg/kg	13	13	13
Iron, %	2.1	2.1	2.2
Lead, mg/kg	33	31	30
Lithium, mg/kg	34	31	31
Manganese, mg/kg	400	500	680
Mercury, mg/kg	--	--	--
Molybdenum, mg/kg	1	1	1
Nickel, mg/kg	16	14	14
Selenium, mg/kg	.6	.5	.7
Silver, mg/kg	.6	<.5	<.5
Strontium, mg/kg	76	73	74
Sulfur, %	.07	.04	.03
Thallium, mg/kg	<50	<50	<50
Tin, mg/kg	2	2	2
Titanium, %	.53	.49	.49
Uranium, mg/kg	<50	<50	<50
Vanadium, mg/kg	79	74	75
Zinc, mg/kg	110	110	120

Table A15. Percentage of silt and clay and constituent concentrations for flood-plain soil samples collected from sites SCF-1 and SRF-1 (fig. 2B) near Empire Lake, southeast Kansas, August 2005.

[mg/kg, milligrams per kilogram; %, percent dry weight; <, less than; --, not determined]

Constituent and unit of measurement	Constituent concentration	
	Site SCF-1	Site SRF-1
Percentage of silt and clay	70	48
Nutrients		
Total nitrogen (TN), mg/kg	1,600	1,400
Total phosphorus (TP), mg/kg	480	650
Carbon		
Carbon (total organic, TOC), %	1.4	1.2
Carbon (total), %	1.4	1.3
Trace elements		
Aluminum, %	2.9	3.9
Antimony, mg/kg	.8	.8
Arsenic, mg/kg	3.8	5.1
Barium, mg/kg	450	430
Beryllium, mg/kg	1.0	1.3
Cadmium, mg/kg	.9	4.3
Chromium, mg/kg	35	48
Cobalt, mg/kg	6	9
Copper, mg/kg	12	13
Iron, %	1.1	1.6
Lead, mg/kg	36	68
Lithium, mg/kg	20	27
Manganese, mg/kg	490	520
Mercury, mg/kg	--	--
Molybdenum, mg/kg	1	1
Nickel, mg/kg	9	15
Selenium, mg/kg	.2	.4
Silver, mg/kg	<.5	<1.0
Strontium, mg/kg	59	69
Sulfur, %	.02	.04
Thallium, mg/kg	<50	<100
Tin, mg/kg	1	1
Titanium, %	.43	.46
Uranium, mg/kg	<50	<100
Vanadium, mg/kg	42	57
Zinc, mg/kg	200	750

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