

APPENDIX C: DEARBORN RIVER MACROINVERTEBRATE AND PERIPHYTON ANALYSIS

DEARBORN RIVER MACROINVERTEBRATE AND PERIPHYTON ANALYSIS

The following tables and figures provide additional detail for the macroinvertebrate and periphyton data collected in the Dearborn River watershed. Macroinvertebrate data were collected from five sites in the Dearborn River between 2000 and 2003, and five samples were collected during that time.

DEARBORN RIVER

Table C-1. Selected benthic macroinvertebrate metrics, dominant taxa, and Montana revised tolerance and periphyton values for the Dearborn River.

Chart ID	Sample Site ID Site Name	Metrics/Variables	2000		2002		2003		
			Value	TV	Value	TV	Value	TV	
DB-1	M12DBRNR05 Dearborn blw. Falls	Macroinvertebrates							
		%tolerant taxa					0.3		
		no. EPT taxa					19		
		%clingers					63.7		
		no. clinger taxa					17		
		HBI					2.92		
		Total score					15		
		% score					83		
		Dominant taxa						<i>Serratella</i>	2
								<i>Epeorus</i>	1
								<i>Eukiefferiella</i>	3
		Periphyton							
		Siltation Index					1.75 - no stress		
Disturbance Index					26.97 - minor stress				
DB-2	M12DBRNR03 Dearborn u/s	Macroinvertebrates							
		%tolerant taxa		8					
		no. EPT taxa		11					
		%clingers		69					
		no. clinger taxa		10					
		HBI		2.25					
		Total score		9					
		% score		50					
		dominant taxa						<i>Rhithrogena</i>	0
								<i>Brachycentrus</i>	1
								<i>Cricotopus</i>	8
		Periphyton							
		Siltation Index			2.52 - no stress				
Disturbance Index			43.27 - minor stress						
DB-3	M12DBRNR02 Dearborn @ Hwy 200	Macroinvertebrates							
		%tolerant taxa			29.15				
		no. EPT taxa			14				

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Chart ID	Sample Site ID Site Name	Metrics/Variables	2000		2002		2003		
			Value	TV	Value	TV	Value	TV	
		%clingers			53.4				
		no. clinger taxa			12				
		HBI			4.14				
		Total score			10				
		% score			56				
		dominant taxa				<i>Zaitzevia</i>	5		
						<i>Hydropsyche</i>	4		
						<i>Rhithrogena</i>	0		
		Periphyton							
		Siltation Index							
Disturbance Index									
DB-4	M12DBRNR04 Dearborn @ 287	Macroinvertebrates							
		%tolerant taxa	24.56				14.6		
		no. EPT taxa	7				14		
		%clingers	26.32				74.9		
		no. clinger taxa	8				17		
		HBI	3.89				3.75		
		Total score	9				9		
		% score	50				50		
		dominant taxa						<i>Brachycentrus</i>	1
								<i>Rheotanytarsus</i>	6
								<i>Claasenia</i>	2
								<i>Hydropsyche</i>	4
		Periphyton							
Siltation Index					6.9 - no stress				
Disturbance Index					39.87 - minor stress				
DB-5	M12DBRNR06 Dearborn blw. Flat	Macroinvertebrates							
		%tolerant taxa					20.1		
		no. EPT taxa					15		
		%clingers					75.3		
		no. clinger taxa					20		
		HBI					3.8		
		Total score					9		
		% score					50		
		dominant taxa						<i>Hydropsyche</i>	4
								<i>Claasenia</i>	2
								<i>Brachycentrus</i>	1
		Periphyton							
		Siltation Index					8.56 - no stress		
Disturbance Index					17.84 - no stress				

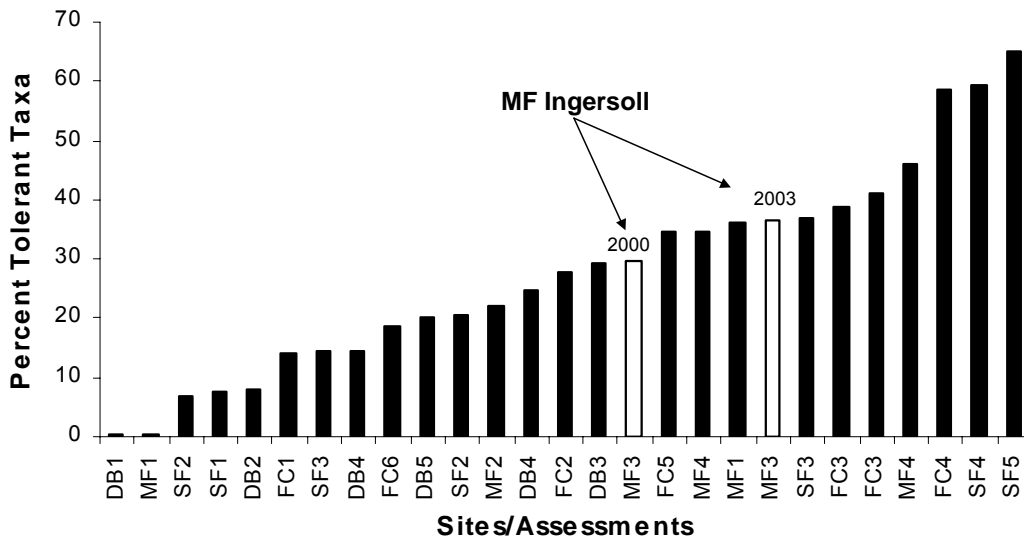


Figure C-1. Range of values for the metric Percent Tolerant Taxa over a 4-year sampling period, arranged in ascending order, by site. Several sites were sampled in both 2002 and 2003; a few sites had samples collected only in 2000.

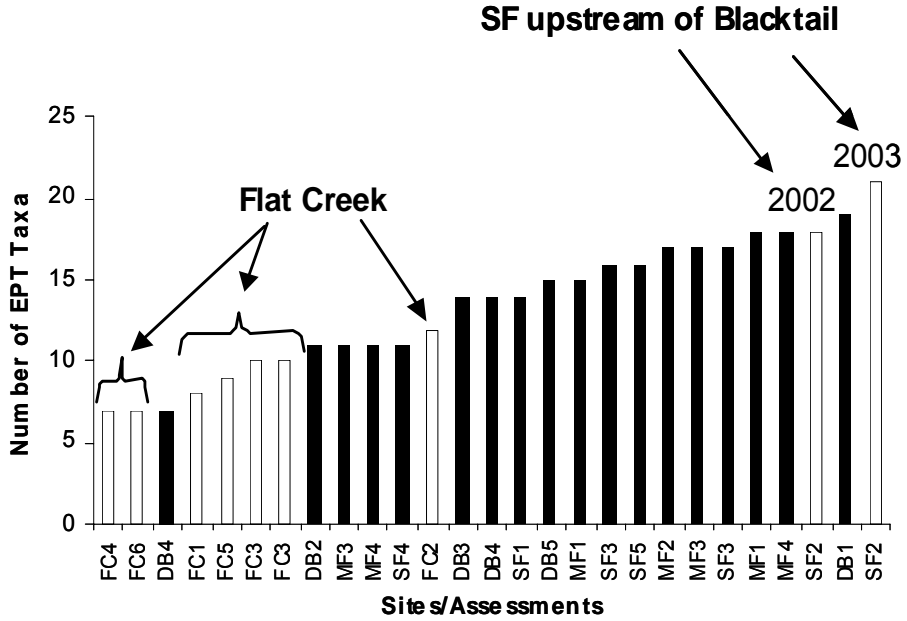


Figure C-2. Range of values for the metric Number of EPT Taxa over a 4-year sampling period, arranged in ascending order by site. Several sites were sampled in both 2002 and 2003.

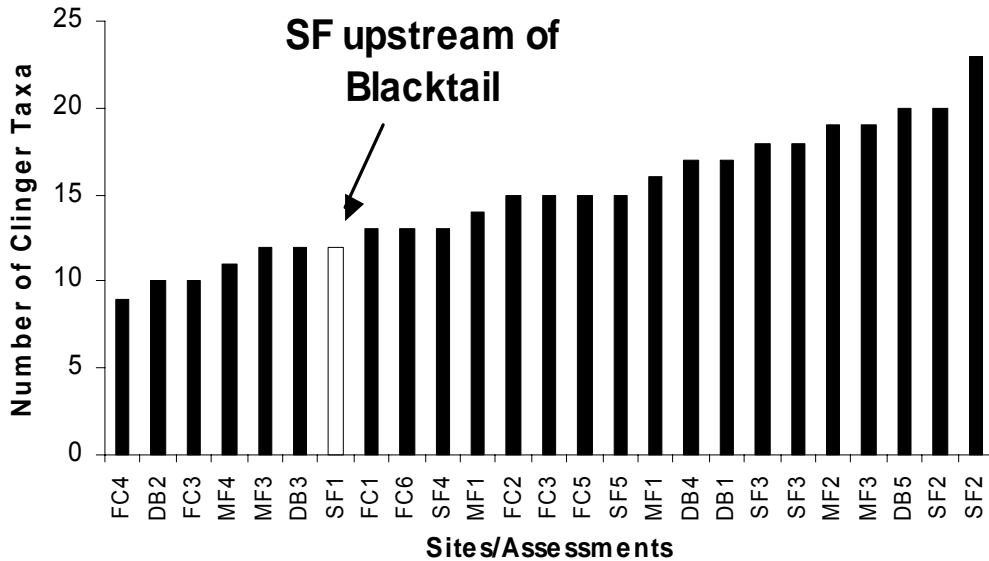


Figure C-3. Range of values for the metric Number of Clinger Taxa over a 4-year sampling period, arranged in ascending order by site. Several sites were sampled in both 2002 and 2003; a few sites had samples collected only in 2000.

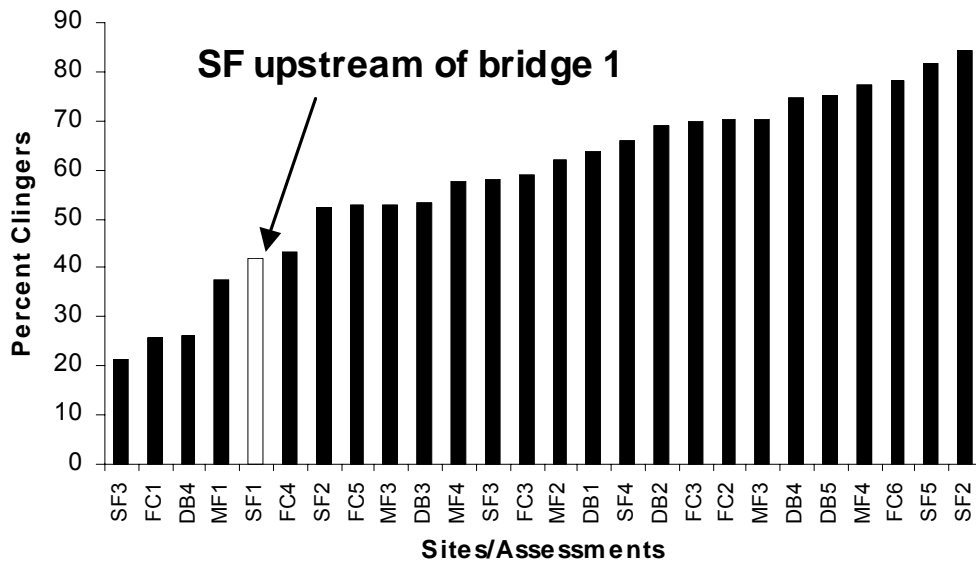


Figure C-4. Range of values for the metric Percent Clingers over a 4-year sampling period, arranged in ascending order, by site. Several sites were sampled in both 2002 and 2003; a few sites had samples collected only in 2000.

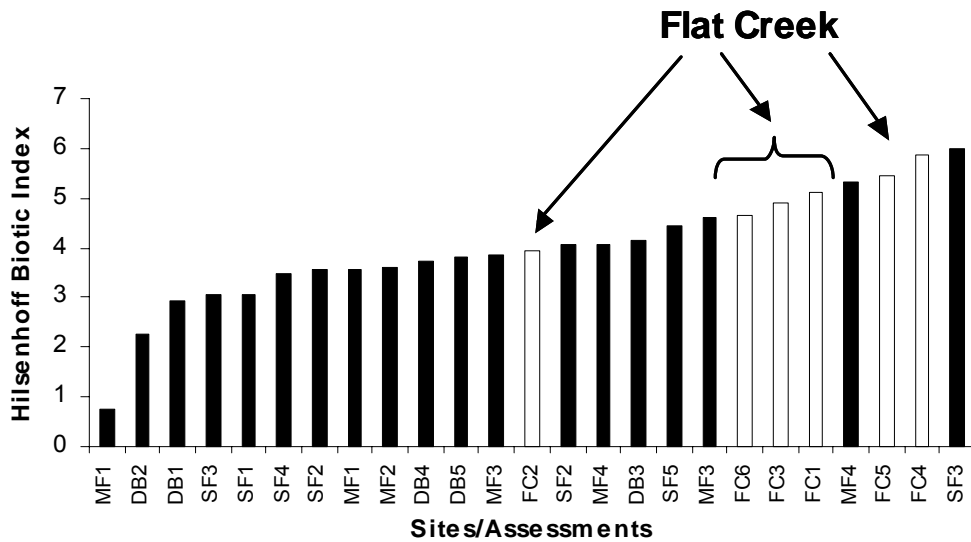


Figure C-5. Range of values for the metric Hilsenhoff Biotic Index over a 4-year sampling period, arranged in ascending order, by site. Several sites were sampled in both 2002 and 2003; a few sites had samples collected only in 2000.

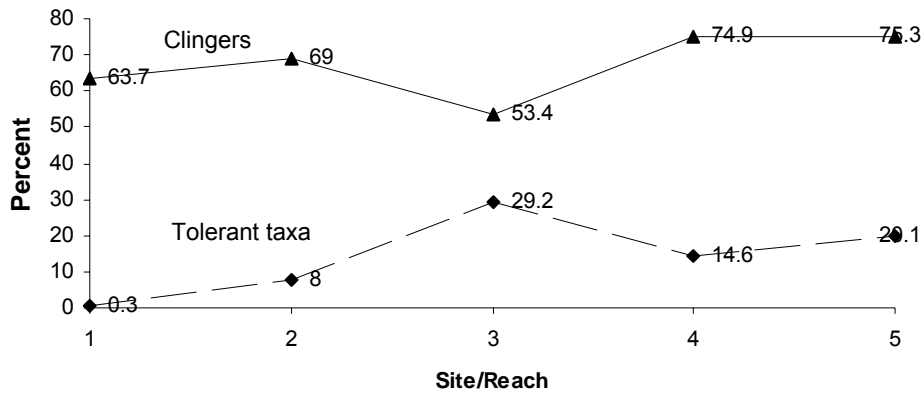


Figure C-6. Percent Clingers and Percent Tolerant Taxa from five reaches sampled on the Dearborn River mainstem from 2000-2003; the most recent data from each site are used. Reach numbers refer to Table C-1.

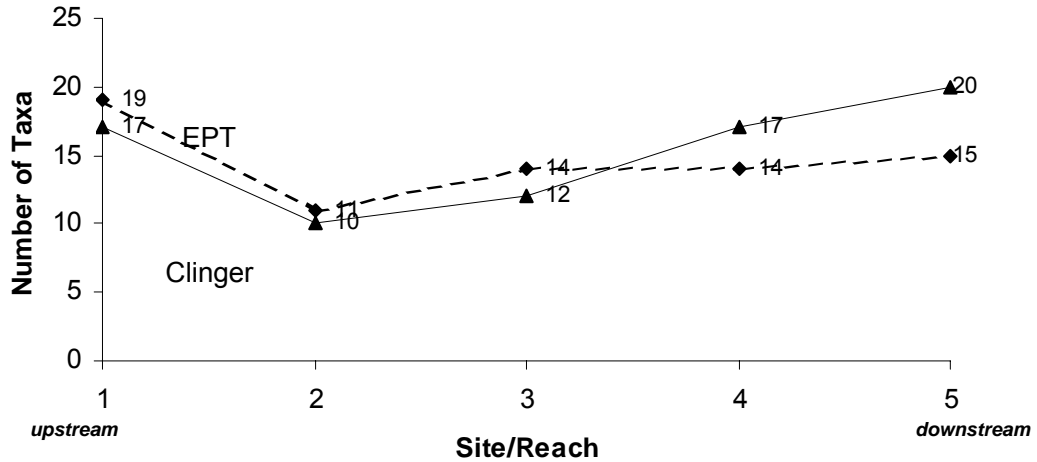


Figure C-7. Number of EPT Taxa and Clinger Taxa sampled from five reaches on the Dearborn River mainstem from 2000-2003; the most recent data from each site are used. Reach numbers refer to Table C-1.

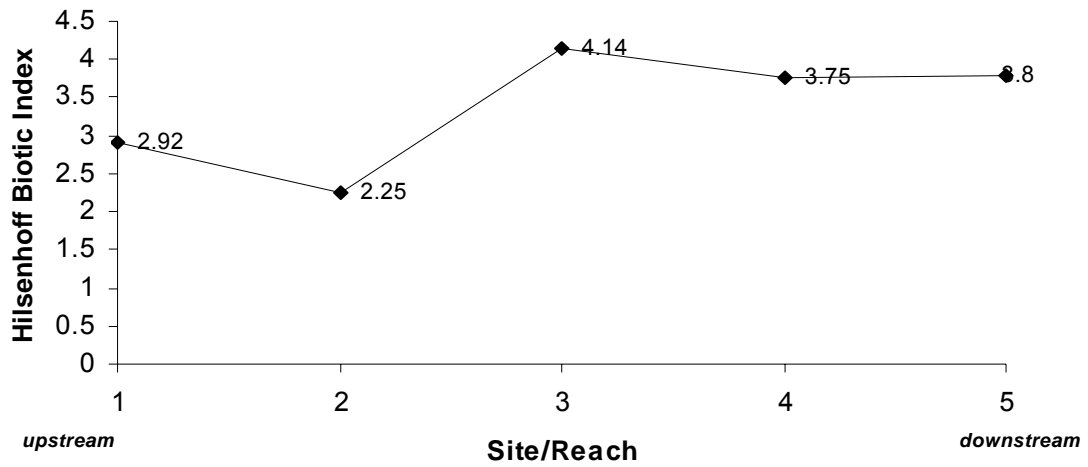


Figure C-8. Hilsenhoff Biotic Index from samples taken along five reaches of the Dearborn River mainstem from 2000-2003; the most recent data from each site are used. Reach numbers refer to Table C-1.

SOUTH FORK DEARBORN RIVER

Table C-2. Selected benthic macroinvertebrate metrics, dominant taxa, and Montana revised tolerance, and periphyton values for the South Fork of the Dearborn River

chart ID	Sample Site ID Site Name	Metrics/Variables	2000		2002		2003		
			Value	TV	Value	TV	Value	TV	
SF-1	SFD-1 SF Dearborn 100yds u/s first bridge and below Blacktail	Macroinvertebrate							
		%tolerant taxa	7.69						
		no. EPT taxa	14						
		%clingers	41.76						
		no. clinger taxa	12						
		HBI	3.08						
		Total score	14						
		% score	78						
		dominant taxa	<i>Orthocladius</i>	7					
			<i>Psychoglypha</i>	0					
			<i>Serratella</i>	2					
		Periphyton							
		Siltation Index							
Disturbance Index									
SF-2	M12SFDBR01 SF Dearborn u/s Blacktail	Macroinvertebrate							
		%tolerant taxa			20.7		6.8		
		no. EPT taxa			18		21		
		%clingers			52.6		84.5		
		no. clinger taxa			20		23		
		HBI			4.06		3.55		
		Total score			13		10		
		% score			72		56		
		dominant taxa	<i>Orthocladius</i>			7		<i>Simulium</i>	4
			<i>Pagastia</i>			2		<i>Serratella</i>	2
			<i>Zaitzevia</i>			5		<i>Epeorus</i>	1
		Periphyton							
		Siltation Index			11.09 - no stress				
Disturbance Index			16.91 - no stress						
SF-3	M12SFDBR02 SF Dearborn u/s 434	Macroinvertebrate							
		%tolerant taxa			14.4		36.9		
		no. EPT taxa			17		16		
		%clingers			21.23		57.9		
		no. clinger taxa			18		18		
		HBI			6.01		3.04		
		Total score			12		13		
		% score			67		72		
		dominant taxa	<i>Eukiefferiella</i>			3		<i>Agapetus</i>	0
			<i>Tveteria</i>			4		<i>Lepidostoma</i>	1
			<i>Skwala</i>			3		<i>Ochrotrichia</i>	4
		Periphyton							
		Siltation Index			31.84 - no stress				
Disturbance Index			6.87 - no stress						
SF-4	SFD-4 SF Dearborn d/s	Macroinvertebrate							
		%tolerant taxa	59.25						
		no. EPT taxa	11						

chart ID	Sample Site ID Site Name	Metrics/Variables	2000		2002		2003		
			Value	TV	Value	TV	Value	TV	
	434	%clingers	66.14						
		no. clinger taxa	13						
		HBI	3.47						
		Total score	9						
		% score	50						
		dominant taxa	<i>Optioservus</i>	3					
			<i>Sweltsa</i>	0					
		Periphyton							
		Siltation Index							
		Disturbance Index							
		SF-5	M12SFDBR04 SF Dearborn @ Confluence	Macroinvertebrate					
%tolerant taxa							65.1		
no. EPT taxa							16		
%clingers							81.7		
no. clinger taxa							15		
HBI							4.44		
Total score							13		
% score							72		
dominant taxa	<i>Optioservus</i>							3	
	<i>Zaitzevia</i>							5	
	<i>Nixe</i>							4	
Periphyton									
Siltation Index									
Disturbance Index									

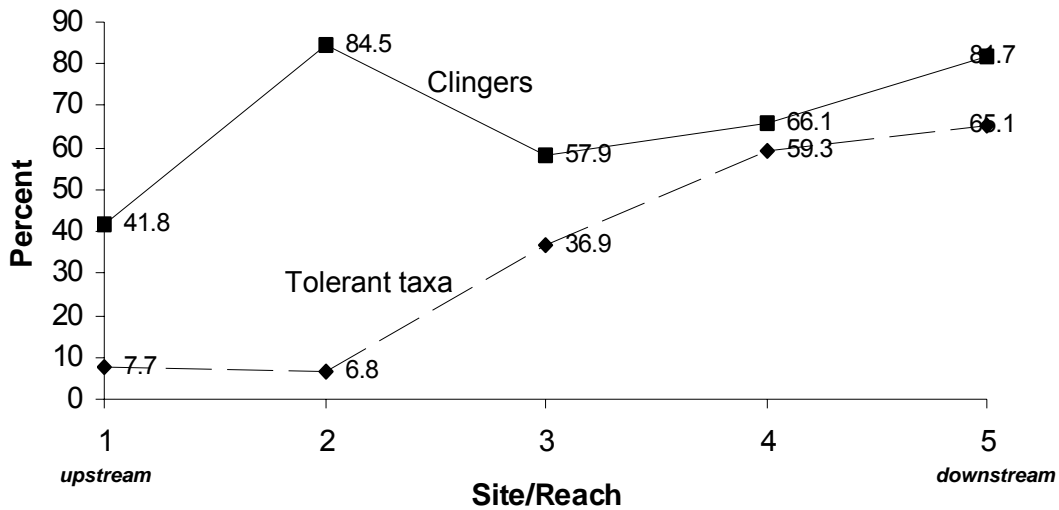


Figure C-9. Percent clingers and percent tolerant along 5 sites of the South Fork Dearborn River, sampled from 2000-2003; the most recent data from each site are used. Reach numbers refer to Table C-2.

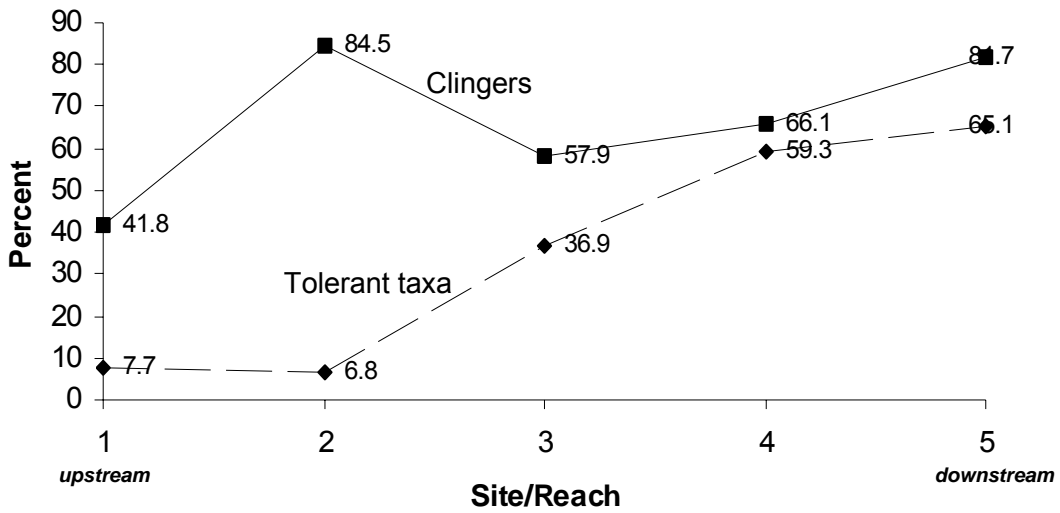


Figure C-10. Percent clingers and percent tolerant along 5 sites of the South Fork Dearborn River, sampled from 2000-2003; the most recent data from each site are used. Reach numbers refer to Table C-2.

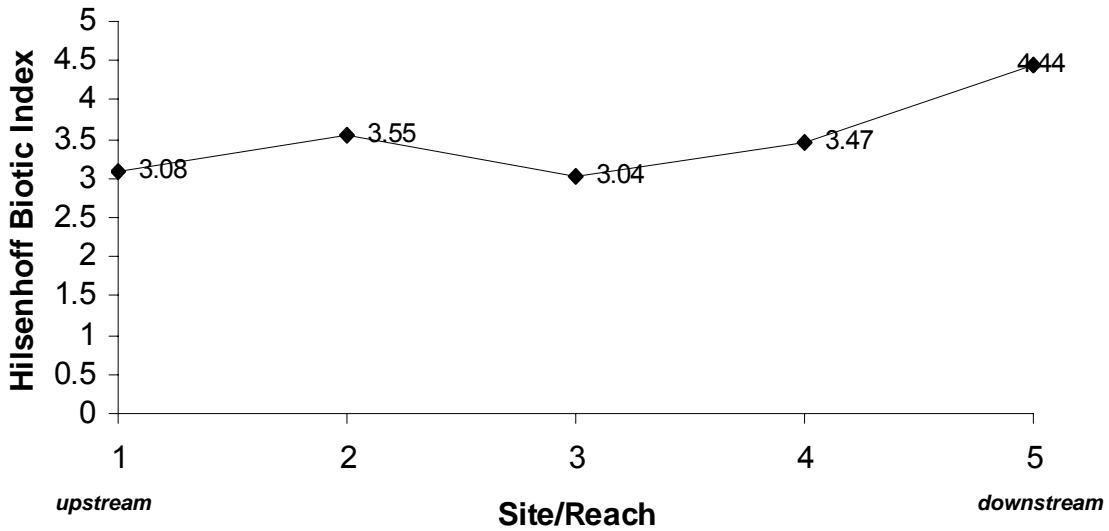


Figure C-11. Hilsenhoff Biotic Index from samples collected along 5 sites of the South Fork Dearborn River, sampled from 2000-2003; the most recent data from each sites are shown. Reach numbers refer to Table C-2.

MIDDLE FORK DEARBORN RIVER

Table C-3. Selected benthic macroinvertebrate metrics, dominant taxa, and Montana revised tolerance, and periphyton values for the Middle Fork of the Dearborn River

Middle Fork of the Dearborn River Biological Data Summary Table									
Chart ID	Sample Site ID Site Name	Macroinvertebrate Metrics/Variables	2000		2002		2003		
			Value	TV	Value	TV	Value	TV	
MF-1	M12MFDBR01 MF Dearborn @ Rogers Pass	Macroinvertebrates							
		%tolerant taxa			36.1		0.3		
		no. EPT taxa			18		15		
		%clingers			37.5		85.6		
		no. clinger taxa			16		14		
		HBI			3.58		0.77		
		Total score			14		16		
		% score			78		89		
		dominant taxa				<i>Baetis</i>	5	<i>Epeorus</i>	1
						<i>Drunella</i>	1	<i>Cinygmula</i>	0
						<i>Hydrobaenus</i>	8	<i>Drunella</i>	1
		Periphyton							
		Siltation Index				4.43 - no stress			
Disturbance Index				55.38 - mod. stress					
MF-2	MFD-2 MF Dearborn u/s 200	Macroinvertebrates							
		%tolerant taxa	22.1						
		no. EPT taxa	17						
		%clingers	62.2						
		no. clinger taxa	19						
		HBI	3.6						
		Total score	10						
		% score	56						
		dominant taxa		<i>Pagastia</i>	2				
				<i>Ochrotrichia</i>	4				
				<i>Orthocladus</i>	7				
Periphyton									
Siltation Index									
Disturbance Index									
MF-3	M12MFDBR04 MF Dearborn @ Ingersoll	Macroinvertebrates							
		%tolerant taxa	29.55				36.7		
		no. EPT taxa	11				17		
		%clingers	52.9				70.3		
		no. clinger taxa	12				19		
		HBI	4.6				3.86		
		Total score	10				11		
		% score	56				61		
		dominant taxa		<i>Polypedilum</i>	7			<i>Zaitzevia</i>	5
				<i>Orthocladus</i>	7			<i>Brachycentrus</i>	1
				<i>Optioservus</i>	3			<i>Optioservus</i>	3
	<i>Zaitzevia</i>		5						
Periphyton									
Siltation Index									
Disturbance Index									
MF-4	M12MFDBR02 MF Dearborn	Macroinvertebrates							
		%tolerant taxa			34.6		46.1		
		no. EPT taxa			11		18		

Middle Fork of the Dearborn River Biological Data Summary Table								
Chart ID	Sample Site ID Site Name	Macroinvertebrate Metrics/Variables	2000		2002		2003	
			Value	TV	Value	TV	Value	TV
	d/s 434	%clingers			57.7		77.4	
		no. clinger taxa			11		18	
		HBI			5.34		4.08	
		Total score			8		11	
		% score			44		61	
		dominant taxa			<i>Tanytarsus</i>	7	<i>Zaitzevia</i>	5
					<i>Optioservus</i>	3	<i>Optioservus</i>	3
					<i>Zaitzevia</i>	5	<i>Brachycentrus</i>	1
		Periphyton						
		Siltation Index			11.38 - no stress			
	Disturbance Index			22.54 - no stress				

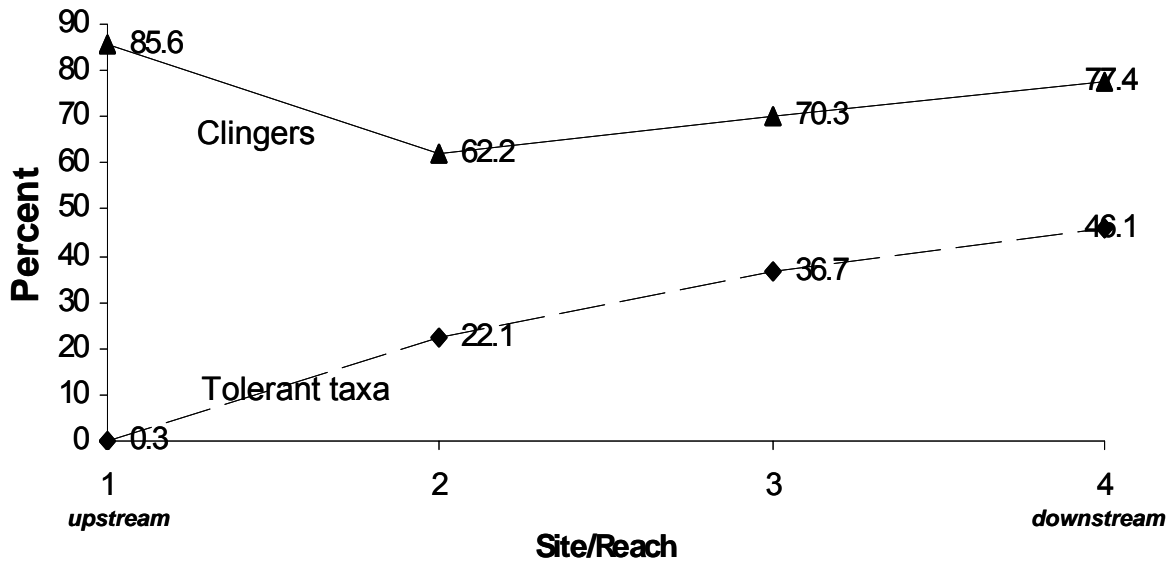


Figure C-12. Percent clingers and tolerant taxa from samples collected along 4 sites of the Middle Fork Dearborn River, sampled from 2000-2003; the most recent data from each site are shown. Reach numbers refer to Table C-3.

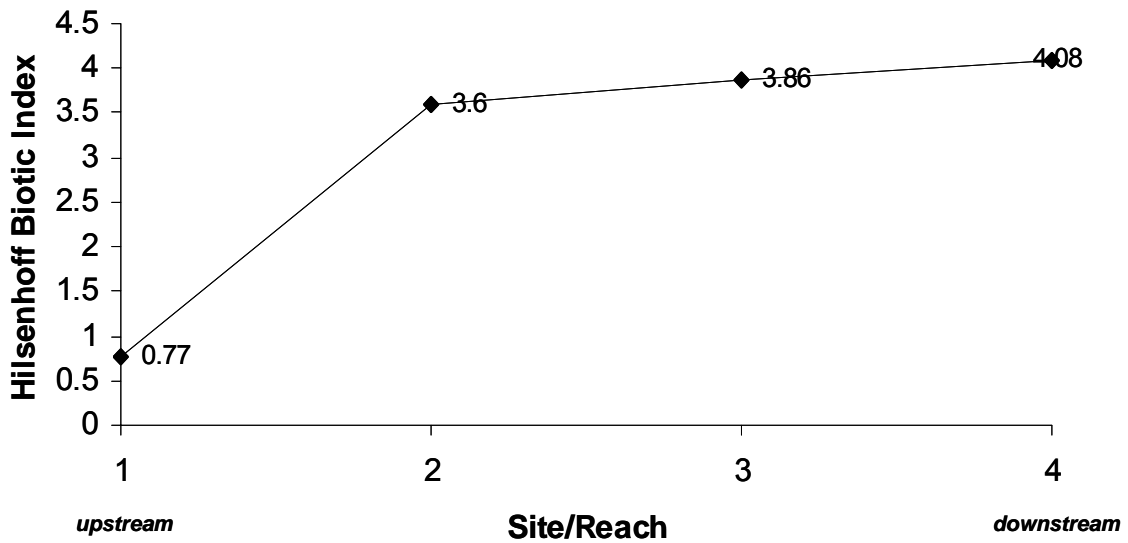


Figure C-13. Hilsenhoff Biotic Index from samples collected along 4 sites of the Middle Fork Dearborn River, sampled from 2000-2003; the most recent data from each site are shown. Reach numbers refer to Table C-3.

FLAT CREEK

Table C-4. Selected benthic macroinvertebrate metrics, dominant taxa, and Montana revised tolerance values for Flat Creek

Flat Creek Macroinvertebrate Data Summary Table									
chart ID	Sample Site ID Site Name	Macroinvertebrate Metrics/Variables	2000		2002		2003		
			Value	TV	Value	TV	Value	TV	
FC-1	M12FLATC02 Flat creek on Flat Crk Rd.	Macroinvertebrates							
		%tolerant taxa	14.1						
		no. EPT taxa	8						
		%clingers	25.7						
		no. clinger taxa	13						
		HBI	5.11						
		Total score	9						
		% score	50						
		dominant taxa	<i>Orthocladius</i>	7					
			<i>Eukiefferiella</i>	3					
			<i>Cricotopus</i>	8					
			Periphyton						
	Siltation Index								
	Disturbance Index								
FC-2	M12FLATC05 Flat creek @ Milford	Macroinvertebrates							
		%tolerant taxa					27.7		
		no. EPT taxa					12		
		%clingers					70.3		
		no. clinger taxa					15		
		HBI					3.94		
		Total score					8		
		% score					44		
		dominant taxa					<i>Brachycentrus</i>	1	
							<i>Baetis</i>	5	
							<i>Optioservus</i>	3	
			Periphyton						
	Siltation Index					25.96 - no stress			
	Disturbance Index					18.6 - no stress			
FC-3	M12FLATC03 Flat creek u/s Hwy 200	Macroinvertebrates							
		%tolerant taxa	41				38.8		
		no. EPT taxa	10				10		
		%clingers	59				70.1		
		no. clinger taxa	10				15		
		HBI	4.58				4.9		
		Total score	7				5		
		% score	39				28		
		dominant taxa					<i>Hydropsyche</i>	4	
							<i>Brachycentrus</i>	1	
							<i>Optioservus</i>	3	
			Periphyton						
	Siltation Index					33.79 - no stress			
	Disturbance Index					14.48 - no stress			
FC-4	F-7 Flat creek u/s Birdtail Rd	Macroinvertebrates							
		%tolerant taxa	58.68						
		no. EPT taxa	7						
		%clingers	43.11						
		no. clinger taxa	9						
		HBI	5.85						

Flat Creek Macroinvertebrate Data Summary Table									
chart ID	Sample Site ID Site Name	Macroinvertebrate Metrics/Variables	2000		2002		2003		
			Value	TV	Value	TV	Value	TV	
		Total score	4						
		% score	22						
		dominant taxa	<i>Simulium</i>	4					
			<i>Baetis</i>	5					
			<i>Tricorythodes</i>	5					
		Periphyton							
		Siltation Index							
Disturbance Index									
FC-5	M12FLATC08 Flat creek blw. Birdtail	Macroinvertebrates							
		%tolerant taxa					34.6		
		no. EPT taxa					9		
		%clingers					52.7		
		no. clinger taxa					15		
		HBI					5.45		
		Total score					6		
		% score					33		
		dominant taxa						<i>Baetis</i>	5
								<i>Hydropsyche</i>	4
								<i>Cheumatopsyche</i>	7
		Periphyton							
		Siltation Index						24.53 - no stress	
Disturbance Index						4.34 - no stress			
FC-6	M12FLATC04 Flat creek @ Mouth	Macroinvertebrates							
		%tolerant taxa					18.7		
		no. EPT taxa					7		
		%clingers					78.3		
		no. clinger taxa					13		
		HBI					4.65		
		Total score					5		
		% score					28		
		dominant taxa						<i>Hydropsyche</i>	4
								<i>Antocha</i>	5
								<i>Optioservus</i>	3
		Periphyton							
		Siltation Index						14.29 - no stress	
Disturbance Index						2.98 - no stress			

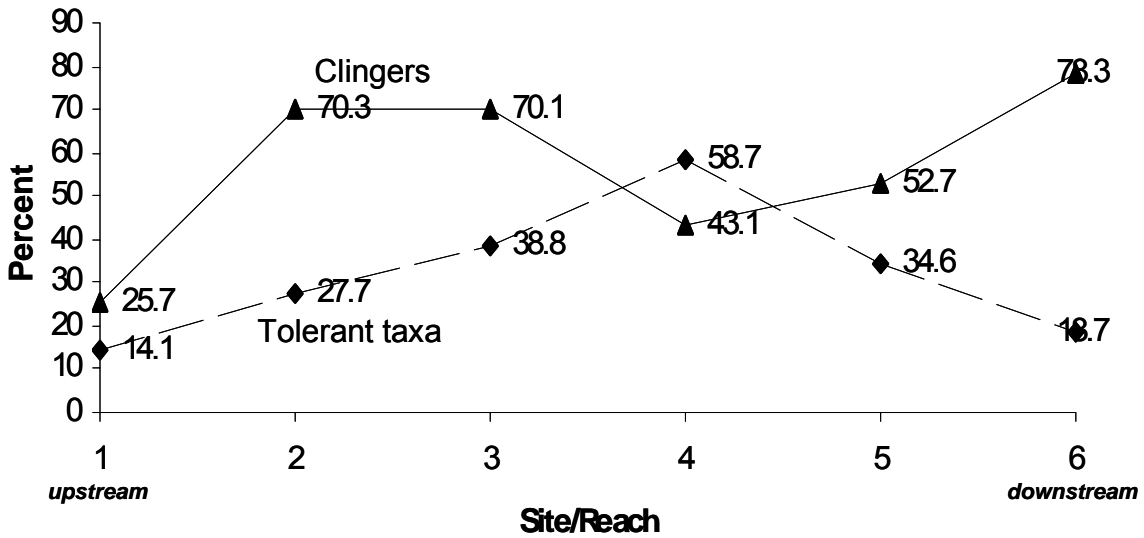


Figure C-14. Percent clingers and tolerant taxa from samples collected along 6 sites of the Flat Creek mainstem, sampled from 2000-2003; the most recent data from each site are shown. Reach numbers refer to Table C-4.

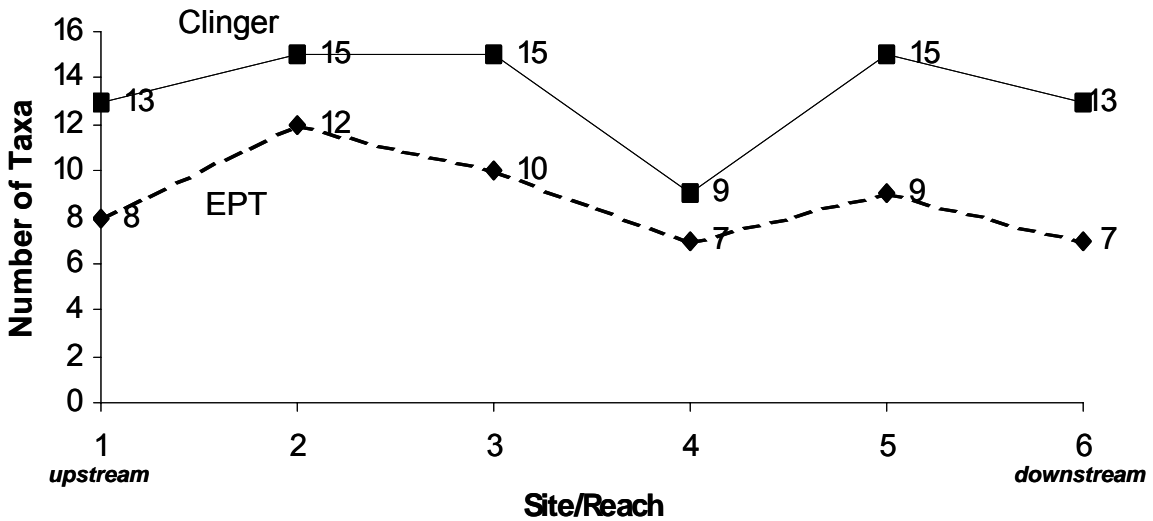


Figure C-15. Number of clinger and EPT taxa from samples collected along 6 sites of the Flat Creek mainstem, sampled from 2000-2003; the most recent data from each site are shown. Reach numbers refer to Table C-4.

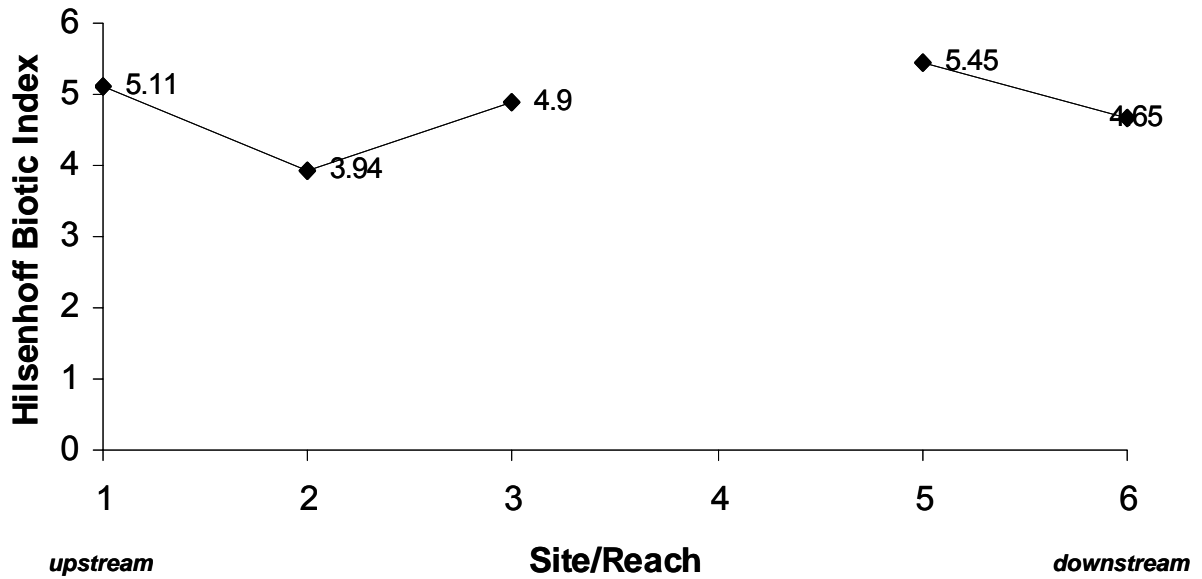


Figure C-16. Hilsenhoff Biotic Index from samples collected along 6 sites of the Flat Creek mainstem, sampled from 2000-2003; the most recent data from each site are shown. Reach numbers refer to Table C-4.