

Table 3-36. MKARNS proposed dredge areas with respect to unionid sample sites in Reach 5, 2004 (page 1 of 2).

Reach	Proposed dredge and disposal areas								Unionids near proposed dredge and disposal areas								
	Pool	DR/DI	Dn NM ¹	Up NM	Dist.	Site	Habitat	Substrate ²	B/P	Habitat	Depth	Substrate	Dredge Dist (m)	Direction	CPUE ³	Species	% Juv.
5	13	DR-97	P 1.2	2.0	0.8	30	Trib.	Br/St/Sd/Gr/Cb/Cl	P30-1	Tributary	1.2-5.2	Br/St/Sd/Gr/Cb/Cl	0	In	0	0	0
5	13	DR-96	P 0	0.4	0.4	30	Trib.	St/Cl/Sd/Cb/Bd		Tributary	0.9	St/Cl	1000	Dnstream	5	6	59
5	13	DI-110	308.9	309.2	0.3	NS	Cove			Tributary	0.6-6.1	Su/Cl/Sd/Cb/Bd	0	In	1	8	69
5	13	DR-98	311.3	312.6	1.3	NS	Outside		P31-1	Channel	2.4-4.6	Gr/Bd/Sd	0	In	<0.5	1	0
5	13	DR-99	314.2	315.4	1.2	31	Outside	Gr/Bd/Sd		Channel	3.4-4.0	Br/Cb/Gr/Sd	0	In	0	0	0
5	13	DR-100	315.4	317.4	2.0	31	Outside	Br/Cb/Gr/Sd		Inside	0.9	Sd/St	100	Shoreward	9	2	0
5	13	DR-101	317.4	319.5	2.1	31	Outside	Br/Gr/Sd/Bd	P32-1	Channel	2.4-4.0	Br/Gr/Sd/Bd	0	In	0	0	0
5	14	DI-111	319.6	320.8	1.2	NS	Straight			Outside	3.1-4.3	Bd/Br/Gr/Sd	0	In	1	2	0
5	14	DI-112	321.4	322.9	1.5	NS	Outside			Cove	0.9-2.1	Cl/Sd/St	<100	Dnstream	5	7	37
5	14	DI-113	322	324.4	2.4	NS	Inside		P33-1	Cove	1.5-3.4	Sd/Cl/St	0	In	13	9	26
5	14	DI-114	323.4	324.4	1.0	NS	Straight			Cove	0.9-5.8	Cl/Sd/St	0	In	2	4	5
5	14	DR-102	334.0	336.1	2.1	32	TW	Bd/Br/Gr/Sd		Channel	4.0-4.6	Sd/Cl/St	0	In	2	2	33
5	14	DI-116	336.4	336.5	0.1	33	Cove	Sd/Cl/St	P35-1	Cove	0.9-4.3	Cl/Sd/St/Cb/Gr	0	In	2	2	57
5	14	DI-115	336.2	336.4	0.1	33	Cove			NS							
5	15	DR-103	337.7	338.8	1.1	34	Channel	Sd/Cl/St		Peninsula	0.6-2.1	Sd/Cl/St/Dt	250	Shoreward	1	2	0
5	15	DR-104	SM 0	0.5	0.5	34	Cove	Cl/Sd/St/Cb/Gr	P35-2	Channel	2.4-9.8	Cl/St/Sd	0	In	0	2	100
5	15	DR-105	AC 0	0.3	0.3	34	Channel			Peninsula	0.9-1.1	Cl/Sd/St/Gr	0	In	2	1	0
5	15	DR-106	AC 3.5	4.9	1.4	35	Channel	Cl/St/Sd		Peninsula	0.9-1.5	Cl/St/Sd	0	In	7	9	5
5	15	DR-107	SB 0	1.3	1.3	35	Channel	Cl/St/Sd	P35-3	Island	2.1-2.4	Cl/St	0	In	0	0	0
5	15	DI-117	SB 0.2	1.0	0.8	35	Cove	Cl/Sd/Su/Gr		Island	0.9-1.5	Cl/St	0	In	1	5	20
5	15	DI-118	SB2.0	2.6	0.6	35	Outside			Island	0.9-1.5	Cl/St	0	In	1	5	20
5	15	DI-119	SB 4.6	5.4	0.8	35	Cove	Cl/St/Sd	P35-4	Island	2.1-3.4	St/Cl	100	Shoreward	5	3	0
5	15	DI-120	SB5.7	6.0	0.3	35	Cove			Island	0.9-1.2	Gr/Cl/Cb/St	40	Shoreward	6	3	0
5	15	DI-121	SB 6.4	6.7	0.3	35	Island	Cl/St		Cove	0.5-3.4	Cl/St/Gr/Sd	0	In	2	5	5
5	15	DI-122	SB 6.7	6.9	0.2	35	Island	Cl/St	P35-5	Channel	2.7-6.4	Cl/St/Sd	0	In	3	4	11
5	15	DI-123	SB7.2	7.4	0.2	35	Island			Peninsula	2.1-3.4	St/Cl	715	Shoreward	13	4	0
5	15	DR-108	SB 4.0	8.2	4.2	35	Channel	Cl/St/Sd/Gr/Cb/Bd/Dt		Peninsula	1.5-3.4	Cl/St/Sd/Bd	0	In	4	1	0
5	15	DR-109	342.3	344.5	2.2	36	Channel	Cl/St/Sd	P36-1	Channel	0.6	Cl/St/Sd	450	Shoreward	1	1	0
5	15	DR-110	344.2	345.0	0.5	36	Peninsula	Cl/St/Sd/Bd		Channel	0.9	Sd/Gr	0	In	0	0	0
5	15	DR-111	346.5	347.4	0.9	NS	Channel			Island	0.9-1.2	Cl/St	0	In	2	1	0
5	15	DR-112	347.8	349.4	1.6	37	Channel		P35-6	Island	1.2	Cl/St	250	Riverward	2	3	33
5	15	DI-124	348.0	348.3	0.3	37	Straight	Sd/Gr		Island	0.9	Sd/Gr	0	In	0	0	0
5	15	DI-125	348.4	348.8	0.4	37	Straight	Cl/St		Island	0.9	Cl/St	0	In	2	1	0
5	15	DI-126	348.5	348.6	0.1	37	Island		P35-7	Island	0.9	Sd/St	0	In	0	0	0
5	15	DI-127	348.4	348.9	0.5	37	Island			Island	0.9	Cl/St	0	In	0	0	0
5	15	DI-128	348.9	349.1	0.2	37	Island	Sd/St		Island	0.9	Sd/St	0	In	0	0	0
5	15	DI-129	349.0	349.3	0.3	37	Island	Cl/St	Island	0.9	Cl/St	0	In	1	1	100	

Table 3-36. MKARNS proposed dredge areas with respect to unionid sample sites in Reach 5, 2004 (page 2 of 2).

Reach	Proposed dredge and disposal areas							Unionids near proposed dredge and disposal areas									
	Pool	DR/DI	Dn NM ¹	Up NM	Dist.	Site	Habitat	Substrate ²	B/P	Habitat	Depth	Substrate	Dist from dredge (m)	Direction	CPUE ³	Species	% Juv.
5	15	DI-130	349.5	349.8	0.3	37	Straight										
5	15	DI-131	351.0	351.4	0.4	NS	Straight										
5	15	DI-132	353.1	354.2	1.1	38	Inside										
5	15	DI-133	354.1	356.5	2.4	38	Inside										
5	15	DR-113	355.4	356.4	1.0	38	Channel	Sd/St		Channel Island	3.4-3.7 0.9	Sd/St Sd/St	0 0	In In	1 0	1 0	0 0
5	15	DR-114	361.2	363.3	2.1	NS	Channel										
5	15	DR-115	363.9	366.5	2.6	39	Channel	Gr/Bd/Sd		Channel	4.6-5.5	Gr/Bd/Sd	0	In	1	1	0
5	15								P39-1	Straight	3.0-4.5	Cl/Sd/St/Dt	275	Shoreward	5	6	25
5	15								P39-2	Inside	1.5-3.0	Cl/Sd/St/Gr	<100	Shoreward	4	4	15
5	15								P39-3	Inside	2.0-4.0	Sd/Cl/St/Gr	<100	Shoreward	9	5	7
5	15								P39-4	Inside	1.5	Sd/St/Gr/Cl	<100	Shoreward	15	4	7
5	15								P39-5	Tailwater	2.5	Cl/St/Sd	220	Shoreward	6	6	8
5	15								P39-6	Straight	0.9-1.2	Cl/St	290	Shoreward	3	2	22
5	16	DR-116	366.6	367.6	1.0	40	Channel	Cl/St/Sd/Bd/Cb		Channel	0.8-5.0	Cl/St/Sd/Bd/Cb	0	In	1	7	8
5	16	DI-134	367.5	367.7	0.2	40	Outside										
5	16	DR-117	374.0	375.3	1.3	41	Channel			Outside Islands	2.0-3.0 0.5-2.1	Cl/St/Sd/Dt Cl/St	300 0	Dnstream In	1 1	3 3	0 0
5	16	DR-118	379.1	379.9	0.8	43	Channel	Sd/Cl/St		Channel	3.7-7.0	Sd/Cl/St	0	In	0	0	0
5	16					42	Oxbow			Oxbow	1.8	Cl/St	400	Shoreward	<0.5	1	0
5	16	DR-119	380.3	381.8	1.5	NS	Channel										
5	16	DR-120	B 0	0.2	0.2	NS	Cove										
5	16	DR-121	382.9	384.4	1.5	NS	Channel										
5	16	DR-122	389.2	391.5	3.5	44	Channel	Sd		Outside Channel	4.3-4.6 4.0-5.2	Sd/Gr Sd	0 0	In	0 0	0 0	0 0
5	16	DR-123	391.5	393.4	1.9	NS	Channel										
5	16	DI-135	393.3	393.8	0.5	NS	Straight										
Reach 5	DR miles				41.1												
	DI miles				16.8												

¹P = Poteau R., SM = Short Mountain Cove, AC = Alternate channel, SB = San Bois R., B = Boudinot R.

²Br = bedrock, Cb = cobble, Gr = gravel, Sd = sand, St = silt, Cl = clay, Dt = detritus

³CPUE = unionids/5min.

NA = unionids separated from channel by islands

DR = dredge, DI = disposal, NM = navigation mile, B = bed, P = patch, NS = not sampled

Table 3-37. Species composition and CPUE¹ within unionid beds and patches, Reach 5 (page 1 of 2).

Reach	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Pool	13	13	14	15	15	15	15	15	15	15	15	15	15	15	15	
Site	30	31	32	33	35	35	35	35	35	35	35	36	39	39	39	
Species	P30-1	P31-1	P32-1	P33-1	P35-1	P35-2	P35-3	P35-4	P35-5	P35-6	P35-7	P36-1	P39-1	P39-2	P39-3	P39-4
<i>Amblema plicata</i>	-	-	-	-	0.6	1.5	0.9	0.2	-	-	0.5	-	-	-	-	-
<i>Anodonta suborbiculata</i>	-	-	-	0.2	0.2	-	-	-	-	-	-	1.0	-	-	-	-
<i>Arcidens confragosus</i>	0.2	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-
<i>Fusconaia ebena</i>	-	-	-	0.1	-	-	0.1	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	-	-	0.1	2.0	-	-	-	-	-	-	0.3	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	0.2	-	0.2	0.1	-	-	-	0.2	-	-	-	-	0.3	1.3	2.3	0.7
<i>Megaloniaias nervosa</i>	-	-	-	0.1	-	-	-	0.2	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	1.5	2.8	3.8	2.0	0.7	2.5	0.4	0.8	1.3	0.5	-	0.3	1.3	2.3	5.0	13.3
<i>Potamilus ohioensis</i>	0.2	-	0.2	0.7	0.1	0.5	-	-	-	-	-	-	1.7	-	0.3	0.3
<i>Potamilus purpuratus</i>	-	-	0.2	-	-	-	0.6	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	0.5	-	-	0.6	0.4	-	-	0.2	-	-	-	0.3	-	-	-	-
<i>Quadrula aspera</i>	-	-	0.2	-	-	-	-	0.3	-	3.5	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	0.2	-	-	-	-	-	0.5	-	-	0.7	-	0.7	-
<i>Quadrula quadrula</i>	2.0	6.5	0.6	9.6	4.7	4.5	1.3	6.0	3.7	-	3.5	11.7	1.0	0.3	1.0	0.7
<i>Strophitus undulatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Toxolasma parvum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tritogonia verrucosa</i>	-	-	-	-	0.1	-	0.4	-	0.7	-	0.5	-	-	-	-	-
<i>Truncilla donaciformis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-
<i>Truncilla truncata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Utterbackia imbecillis</i>	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
No. of individuals	27	37	26	161	63	22	26	49	17	9	9	40	16	13	28	45
No. of 5min samples	6	4	5	12	9	2	7	6	3	2	2	3	3	3	3	3
Average CPUE	4.5	9.3	5.4	13.4	7.0	11.0	3.7	8.2	5.7	4.5	4.5	13.3	5.3	4.3	9.3	15.0
No of species	6	2	7	9	9	5	6	9	3	3	3	4	6	4	5	4
% Juveniles	59.3	0.0	37.0	26.1	4.8	4.5	11.5	2.0	0.0	0.0	0.0	0.0	25.0	15.4	7.1	6.7
% of species w/ juveniles	66.7	0.0	42.9	88.9	33.3	20.0	50.0	16.7	0.0	0.0	0.0	0.0	33.3	50.0	20.0	50.0

Nomenclature follows Turgeon *et al.* (1998) except *Q. aspera* (T. Watters, OSU, pers. comm., 2004)

¹CPUE = unionids/5min.

Table 3-37. Species composition and CPUE¹ within unionid beds and patches, Reach 5 (page 2 of 2).

Reach	5	5	
Pool	15	15	
Site	39	39	
Species	P39-5	P39-6	Total
<i>Amblema plicata</i>	-	-	5
<i>Anodonta suborbiculata</i>	-	-	3
<i>Arcidens confragosus</i>	-	-	2
<i>Fusconaia ebena</i>	-	-	2
<i>Fusconaia flava</i>	-	-	3
<i>Lampsilis teres</i>	-	-	1
<i>Leptodea fragilis</i>	0.5	0.3	8
<i>Megaloniaias nervosa</i>	-	-	2
<i>Obliquaria reflexa</i>	3.5	2.7	15
<i>Potamilus ohioensis</i>	0.5	-	8
<i>Potamilus purpuratus</i>	-	-	2
<i>Pyganodon grandis</i>	-	-	5
<i>Quadrula aspera</i>	-	-	3
<i>Quadrula nodulata</i>	-	-	
<i>Quadrula p. pustulosa</i>	0.5	-	4
<i>Quadrula quadrula</i>	0.5	-	15
<i>Strophitus undulatus</i>	-	-	
<i>Toxolasma parvus</i>	-	-	
<i>Tritogonia verrucosa</i>	-	-	4
<i>Truncilla donaciformis</i>	0.5	-	1
<i>Truncilla truncata</i>	-	-	
<i>Utterbackia imbecillis</i>	-	-	1
No. of individuals	12	9	588
No. of 5min samples	2	3	18
Average CPUE	6.0	3.0	
No of species	6	2	
% Juveniles	8.3	22.2	
% of species w/ juveniles	16.7	100.0	

Nomenclature follows Turgeon *et al.* (1998) except *Q. aspera* (T. Watters, OSU, pers. comm., 2004)

¹CPUE = unionids/5min.

Table 3-38. Location, habitat characteristics, and CPUE¹ of unionid beds (B) and patches (P), Reach 5, MKARNS, 2004 (page 1 of 2).

Reach	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Pool	13	13	14	15	15	15	15	15	15	15	15	15	15	15	15
Site	30	31	32	33	35	35	35	35	35	35	35	36	39	39	39
Species	P30-1	P31-1	P32-1	B33-1	P35-1	P35-2	P35-3	P35-4	P35-5	P35-6	P35-7	P36-1	P39-1	P39-2	P39-3
Channel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cove	-	-	5.4	13.4	-	-	3.7	8.2	-	-	-	-	-	-	-
Inside bend	-	9.3	-	-	-	-	-	-	-	-	-	-	-	4.3	9.3
Island	-	-	-	-	-	11.0	-	-	5.7	4.5	4.5	-	-	-	-
Outside bend	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxbow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peninsula	-	-	-	-	7.0	-	-	-	-	-	-	13.3	-	-	-
Straight reach	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-
Tailwater	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tributary	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ave. CPUE	4.5	9.3	5.4	13.4	7.0	11.0	3.7	8.2	5.7	4.5	4.5	13.3	5.3	4.3	9.3
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	DI	DI	Dredge	-	-	-	-	-	-	-	-	-
Depth (m)															
min	0.9	0.9	0.9	1.5	0.9	1.5	0.9	1.2	0.9	0.6	0.9	2.1	3.0	1.5	2.0
max	0.9	-	2.1	3.4	1.5	1.5	1.2	2.1	1.2	-	0.9	3.4	4.0	3.0	4.0
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-
Cobble	-	-	-	5	-	-	-	-	20	-	-	-	-	-	-
Gravel	-	-	-	15	-	-	-	-	40	-	10	-	-	5	5
Sand	-	60	40	35	5	-	10	-	5	10	-	-	15	35	55
Silt	75	40	5	20	20	5	-	25	10	20	10	50	15	15	15
Clay	25	-	55	25	75	90	90	70	20	70	80	50	65	45	25
Detritus	-	-	-	-	-	5	-	5	-	-	-	-	10	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
zebras/unionid	-	-	-	<0.1	-	-	-	-	-	-	-	-	<0.1	2.2	1.8

¹CPUE = unionids/5min.

DI = disposal, DF = dike field, NM = no modification

Table 3-38. Location, habitat characteristics, and CPUE¹ of unionid beds (B) and patches (P), Reach 5, MKARNS, 2004 (page 2 of 2).

Reach	5	5	5
Pool	15	15	15
Site	39	39	39
Species	P39-4	P39-5	P39-6
Channel	-	-	-
Cove	-	-	-
Inside bend	15.0	-	-
Island	-	-	-
Outside bend	-	-	-
Oxbow	-	-	-
Peninsula	-	-	-
Straight reach	-	-	3.0
Tailwater	-	6.0	-
Tributary	-	-	-
Ave. CPUE	15.0	6.0	3.0
Modification			
Existing	-	-	-
Proposed	-	-	-
Depth (m)			
min	1.5	2.5	0.9
max	-	-	1.2
Substrate			
Bedrock	-	-	-
Boulder	-	-	-
Cobble	-	-	-
Gravel	20	-	-
Sand	35	5	-
Silt	15	10	20
Clay	30	85	80
Detritus	-	-	-
Shell	-	-	-
zebras/unionid	-	3.1	-

¹CPUE = unionids/5min.

DI = disposal, DF = dike field, NM = no modification

Table 3-39. Site 30 unionid species and habitat characteristics (page 1 of 4).

Approx. NM Bank Bed/Patch	P0.1 R	P0.1 M	P0.1 R	P0.1 M	P0.1 M	P0.1 M	P0.1 M	P0.1 M	P0.1 M	P0.1 L	P0.4 R	P0.4 R	P0.4 R	P0.4 M	P0.4 M	P0.4 M
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	WD	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	FD	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Potamilus ohiensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	FD	-	-
<i>Potamilus purpuratus</i>	FD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Utterbackia imbecillis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Total	0	0	0	0	0	0	0	0	0	1	1	2	1	1	0	0
No. species live	0	0	0	0	0	0	0	0	0	1	1	2	1	1	0	0
No. species total	2	0	1	0	0	0	0	0	0	1	1	2	1	2	0	0
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification																
Existing	-	Dredge	Dredge	Dredge	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	DR-96	DR-96	DR-96	DR-96	-	-	-	-	-	DR-96	DR-96	DR-96
Habitat	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary
Depth (m)	0.9	1.8	4.3	4.9	5.5	5.2	4.9	4.0	4.3	3.7	1.5	1.5	0.6	2.7	3.7	4.6
Substrate																
Bedrock	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	10	80	-	60	10	-	-	-	-	-	-	-	-	-	-	-
Cobble	80	10	-	20	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	10	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Sand	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-
Silt	10	-	-	10	80	50	90	85	45	55	80	80	80	50	50	80
Clay	-	-	-	-	10	50	10	10	45	35	20	20	20	50	50	20
Detritus	-	-	-	-	-	-	-	-	10	10	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-39. Site 30 unionid species and habitat characteristics (page 2 of 4).

Approx. NM Bank Bed/Patch	P0.4 M	P0.4 M	P0.4 M	P0.4 L	P0.5 R	P0.5 M	P0.5 M	P0.5 M	P0.5 M	P0.5 M	P0.5 M	P0.5 M	P0.5 L	P0.5 L	P0.7 R P30-1	P0.7 R P30-1
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
<i>Megaloniaias nervosa</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3
<i>Potamilus ohiensis</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Quadrula aspera</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	1	1	1	-	-	-	-	1	-	-	-	-	1
<i>Utterbackia imbecillis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	0	1	3	2	1	0	0	0	0	1	0	1	1	1	7
No. species live	0	0	1	3	2	1	0	0	0	0	1	0	1	1	1	4
No. species total	0	0	1	3	2	1	0	0	0	0	1	0	1	1	1	4
Appr. Density (no./m2)	-	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-	<0.5	<0.5	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification																
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DR-96	DR-96	DR-96	-	-	DR-96	DR-96	DR-96	DR-96	-	-	-	-	-	-	-
Habitat	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary
Depth (m)	4.9	4.6	3.1	1.2	0.9	2.1	3.1	4.3	4.3	4.3	5.5	6.1	6.1	4.9	0.9	0.9
Substrate																
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	20	5	-	-	-	-	-	-	-	20	10	60	-	-	-	-
Gravel	20	5	-	-	-	-	-	-	-	20	30	-	-	-	-	-
Sand	40	60	-	-	-	-	-	-	-	20	60	40	-	-	-	-
Silt	10	15	80	50	50	50	50	60	60	20	-	-	50	60	75	75
Clay	10	15	20	50	50	50	50	40	40	20	-	-	50	40	25	25
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-39. Site 30 unionid species and habitat characteristics (page 3 of 4).

Approx. NM Bank Bed/Patch	P0.7 R P30-1	P0.7 R P30-1	P0.7 R P30-1	P0.7 R P30-1	P1.1 L	P1.1 R	P1.3 R	P1.3 M	P1.3 M	P1.3 M	P1.3 M	P1.3 L	P1.7 R	P1.7 M	P1.7 M	P1.7 M
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	2	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohiensis</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	3	5	3	-	-	-	-	-	-	-	-	-	-	-	-
<i>Utterbackia imbecillis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	4	5	7	0	0	0	0	0	0	0	0	0	0	0	0
No. species live	2	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0
No. species total	2	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification																
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	DR-97	DR-97	DR-97	DR-97	DR-97	DR-97	DR-97	DR-97	DR-97	DR-97
Habitat	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary
Depth (m)	0.9	0.9	0.9	0.9	6.1	2.1	2.1	3.7	4.0	4.3	4.3	4.0	1.2	3.1	3.1	3.7
Substrate																
Bedrock	-	-	-	-	-	-	100	100	99	98	100		-	96	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-		-	1	25	15
Gravel	-	-	-	-	-	-	-	-	-	-	-	20	-	1	50	25
Sand	-	-	-	-	-	-	-	-	-	1	-	50	50	1	25	40
Silt	75	75	75	75	40	50	-	-	1	-	-	30	50	1	-	20
Clay	25	25	25	25	60	50	-	-	-	-	-	-	-	-	-	-
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-39. Site 30 unionid species and habitat characteristics (page 4 of 4).

Approx. NM Bank Bed/Patch	P1.7 M	P1.7 M	P1.7 L	P2.0 R	P2.0 M	P2.0 M	P2.0 M	P2.0 M	P2.0 L	Total No.	%
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	1	2.3
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	2	4.7
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	-	1	2.3
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	-	11	25.6
<i>Potamilus ohiensis</i>	-	-	-	-	-	-	-	-	-	3	7.0
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	FD	
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	5	11.6
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	3	7.0
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	16	37.2
<i>Utterbackia imbecillis</i>	-	-	-	-	-	-	-	-	-	1	2.3
Total	0	0	0	0	0	0	0	0	0	43	
No. species live	0	0	0	0	0	0	0	0	0	9	
No. species total	0	0	0	0	0	0	0	0	0	10	
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	0.6	
Modification											
Existing	-	-	-	-	-	-	-	-	-		
Proposed	DR-97	DR-97	-	DR-97	DR-97	DR-97	DR-97	DR-97	DR-97		
Habitat	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary	Tributary		
Depth (m)	3.4	4.0	4.6	4.3	4.6	4.6	5.2	5.2	4.6		
Substrate											
Bedrock	-	100	-	-	-	99	99	99	99		
Boulder	-	-	-	-	5	-	-	-	-		
Cobble	10	-	30	-	-	-	-	-	-		
Gravel	50	-	50	10	5	-	1	-	-		
Sand	40	-	20	-	-	-	-	-	1		
Silt	-	-	-	70	70	1	-	1	-		
Clay	-	-	-	20	20	-	-	-	-		
Detritus	-	-	-	-	-	-	-	-	-		
Shell	-	-	-	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	-	-	-	-		
Zeb coverage of substr	-	-	-	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-40. Site 31 unionid species and habitat characteristics (page 1 of 2).

Approx. NM	314.2	314.4	314.8	315.0	315.2	316.0	316.0	316.0	316.0	316.3	316.3	317.0	317.0	317.0	317.0
Bank	R	M	L	M	R	R	L	L	L	L	L	L	L	L	L
Bed/Patch							P31-1	P31-1	P31-1	P31-1					
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	FD	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	1	-	-	-	1	3	6	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	-	9	9	4	4	-	-	-	-	-
Total	0	0	0	1	0	0	10	10	7	10	0	0	0	0	0
No. species live	0	0	0	1	0	0	2	2	2	2	0	0	0	0	0
No. species total	0	0	1	1	0	0	2	2	2	2	0	0	0	0	0
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	-	DF	DF	DF	DF	DF	-	DF	DF	DF
Proposed	-	DR-99	-	DR-99	DR-99	DR-100	-	-	-	-	-	-	-	-	-
Habitat	Outside	Channel	Inside	Channel	Outside	Outside	Inside	Inside	Inside	Inside	Inside	Channel	Inside	Inside	Inside
Depth (m)	4.3	4.6	3.1	3.7	2.4	4.0	0.9	0.9	0.9	-	-	5.2	2.1	3.1	-
Substrate															
Bedrock	-	100	-	-	-	50	-	-	-	-	-	-	-	-	-
Boulder	100	-	-	-	-	50	-	-	-	-	-	80	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	10	100	10	-
Gravel	-	-	-	30	80	-	-	-	-	-	-	10	-	30	60
Sand	-	-	100	70	20	-	100	50	50	50	50	-	-	30	20
Silt	-	-	-	-	-	-	-	50	50	50	50	-	-	30	20
Clay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dikey field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-40. Site 31 unionid species and habitat characteristics (page 2 of 2).

Approx. NM	317.3	317.5	317.6	318.4	318.4	318.4	319.2	319.2	319.2	319.2	319.4			
Bank	M	R	M	L	R	M	L	L	L	M	R	Total	%	
Bed/Patch												No.		
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	FD		
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	-	-	-	11	28.9	
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	1	2.6	
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	26	68.4	
Total	0	0	0	0	0	0	0	0	0	0	0	38		
No. species live	0	0	0	0	0	0	0	0	0	0	0	3		
No. species total	0	0	0	0	0	0	0	0	0	0	0	4		
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-			
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	1.5		
Modification														
	Existing	-	-	-	DF	-	-	-	-	-	-			
	Proposed	DR-100	DR-101	DR-101	-	DR-101	DR-101	-	-	-	DR-102			
Habitat		Channel	Outside	Channel	Inside	Outside	Channel	TW	TW	TW	TW	TW		
Depth (m)		3.4	3.1	3.1	2.4	4.0	2.4	2.4	2.4	2.4	3.4	1.5		
Substrate														
	Bedrock	100	-	100	-	100	-	-	-	-	100	-		
	Boulder	-	-	-	-	-	80	-	-	-	-	-		
	Cobble	-	50	-	-	-	-	-	-	-	-	-		
	Gravel	-	50	-	25	-	10	75	75	75	-	-		
	Sand	-	-	-	75	-	10	25	25	25	-	75		
	Silt	-	-	-	-	-	-	-	-	-	-	25		
	Clay	-	-	-	-	-	-	-	-	-	-	-		
	Detritus	-	-	-	-	-	-	-	-	-	-	-		
	Shell	-	-	-	-	-	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-		
Zeb coverage of substr	-	-	-	<1%	-	-	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-41. Site 32 unionid species and habitat characteristics (page 1 of 2).

Approx. NM	334.1	334.1	334.2	334.2	334.2	334.2	334.2	334.2	334.2	334.3	334.5	334.7	334.9	335.2	335.2	335.3
Bank	L	R	L	L	L	L	L	L	L	L	L	L	R	L	R	L
Bed/Patch			P32-1	P32-1	P32-1	P32-1	P32-1									
<i>Leptodea fragilis</i>	-	-	-	-	FD	1	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	4	3	2	9	1	-	-	-	-	-	-	-	-	2
<i>Potamilus ohioensis</i>	-	-	-	-	1	FD	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-
<i>Utterbackia imbecillis</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	0	4	5	5	12	1	0	0	0	0	0	0	0	0	2
No. species live	0	0	1	3	4	3	1	0	0	0	0	0	0	0	0	1
No. species total	0	0	1	3	5	4	1	0	0	0	0	0	0	0	0	1
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification																
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	DR-102	DR-102	-	-	DR-102	-	DR-102	
Habitat	Outside	Inside	Cove	Cove	Cove	Cove	Cove	Outside	Outside	Outside	Cove	Channel	Outside	Inside	Outside	
Depth (m)	4.6	4.0	0.9	1.5	1.8	2.1	-	4.7	3.1	4.3	2.4	2.4	4.3	2.7	3.1	
Substrate																
Bedrock	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	
Boulder	-	20	-	-	-	-	-	25	90	-	-	-	80	-	50	
Cobble	80	60	-	-	-	-	-	25	-	-	-	-	-	40	-	
Gravel	-	20	-	-	-	-	-	-	5	-	-	50	10	50	25	
Sand	10	-	50	45	45	30	25	40	-	-	90	50	10	10	25	
Silt	5	-	-	5	5	20	-	10	-	-	10	-	-	-	-	
Clay	5	-	50	50	50	50	75	-	5	-	-	-	-	-	-	
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

DI=disposal, DF=dikey field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-41. Site 32 unionid species and habitat characteristics (page 2 of 2).

Approx. NM	335.3	335.5	335.6	335.6		
Bank	L	M	L	R	Total	
Bed/Patch					No.	%
<i>Leptodea fragilis</i>	-	-	-	-	1	3.2
<i>Obliquaria reflexa</i>	-	-	-	-	21	67.7
<i>Potamilus ohioensis</i>	-	-	-	-	1	3.2
<i>Potamilus purpuratus</i>	-	-	-	-	1	3.2
<i>Quadrula aspera</i>	-	-	-	-	1	3.2
<i>Quadrula quadrula</i>	2	-	-	-	5	16.1
<i>Utterbackia imbecillis</i>	-	-	-	-	1	3.2
Total	2	0	0	0	31	
No. species live	1	0	0	0	7	
No. species total	1	0	0	0	7	
Appr. Density (no./m ²)	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	1.6	
Modification						
Existing	-	-	-	-		
Proposed	DR-102	DR-102	DR-102	-		
Habitat	Outside	Channel	TW	Inside		
Depth (m)	3.1	3.4	3.4	3.1		
Substrate						
Bedrock	-	80	100	50		
Boulder	50	10	-	25		
Cobble	-	10	-	25		
Gravel	25	-	-	-		
Sand	25	-	-	-		
Silt	-	-	-	-		
Clay	-	-	-	-		
Detritus	-	-	-	-		
Shell	-	-	-	-		
Zebras/unionid	-	-	-	-		
Zeb coverage of substr	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-42. Site 33 unionid species and habitat characteristics (page 1 of 2).

Approx. NM	336.2	336.2	336.2	336.2	336.2	336.3	336.3	336.4	336.4	336.4	336.4	336.4	336.4	336.5	336.5	336.5	336.5
Bank	R	R	R	R	R	R	R	R	R	R	R	R	R	L	L	L	L
Bed/Patch	P33-1	P33-1	P33-1	P33-1	P33-1	P33-1	P33-1	P33-1	P33-1	P33-1	P33-1	P33-1	P33-1				
<i>Anodonta suborbiculata</i>	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-
<i>Fusconaia ebena</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	1	1	2	1	5	1	-	4	3	3	3	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	2	-	-	-	-	2	3	-	1	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	2	1	3	-	-	-	1	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
<i>Quadrula quadrula</i>	14	18	6	8	8	9	4	10	9	14	8	7	-	-	-	-	1
Total	15	21	8	9	14	12	9	18	16	18	11	10	0	1	0	0	1
No. species live	2	3	2	2	3	4	4	4	4	3	2	3	0	1	0	0	1
No. species total	2	3	2	2	3	4	4	4	4	3	2	3	0	1	0	0	1
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification																	
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DI-116	DI-116	DI-116	DI-116	DI-116									DI-115	DI-115	DI-115	
Habitat	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove
Depth (m)	3.4	3.4	1.5	1.5	1.5	3.4	3.4	3.4	3.4	2.3	3.4	3.4	3.4	5.8	3.7	0.9	5.2
Substrate																	
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	25	25	25	-	-	-	-	-
Gravel	-	-	40	40	40	-	-	-	-	25	25	25	-	-	-	-	-
Sand	40	40	40	40	40	40	40	40	40	25	25	25	10	70	60	-	-
Silt	20	20	10	10	10	20	20	20	20	10	10	10	10	5	10	80	-
Clay	40	40	10	10	10	40	40	40	40	15	15	15	80	25	30	20	-
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebra/unionid	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dikey field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-42. Site 33 unionid species and habitat characteristics (page 2 of 2).

Approx. NM Bank Bed/Patch	336.5 L	336.6 L	336.6 L	336.6 L	336.7 L	336.7 L	336.7 L	Total No.	%
<i>Anodonta suborbiculata</i>	-	-	FD	-	-	-	-	2	1.1
<i>Fusconaia ebena</i>	-	-	-	-	-	-	-	1	0.6
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	1	0.6
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	1	0.6
<i>Obliquaria reflexa</i>	-	-	1	-	1	-	-	26	14.4
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	8	4.4
<i>Pyganodon grandis</i>	-	1	-	1	-	-	-	9	5.0
<i>Quadrula aspera</i>	-	1	1	1	3	-	-	7	3.9
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	2	1.1
<i>Quadrula quadrula</i>	-	3	1	2	1	1	-	124	68.5
Total	0	5	3	4	5	1	0	181	
No. species live	0	3	3	3	3	1	0	10	
No. species total	0	3	4	3	3	1	0	10	
Appr. Density (no./m ²)	-	<1	<1	<1	<1	<1	-		
Mean No./5min (CPUE)	-	-	-	-	-	-	-	7.9	
Modification									
Existing	-	-	-	-	-	-	-		
Proposed	-	DI-115	DI-115	DI-115	DI-115	DI-115	-		
Habitat	Cove	Cove	Cove	Cove	Cove	Cove	Cove		
Depth (m)	3.4	2.3	2.4	2.7	3.1	4.6	7.6		
Substrate									
Bedrock	-	-	-	-	-	-	-		
Boulder	-	-	-	-	-	-	-		
Cobble	-	-	-	-	-	-	-		
Gravel	-	-	-	-	-	-	-		
Sand	40	20	-	30	40	-	-		
Silt	20	10	20	-	10	20	80		
Clay	40	70	80	70	50	80	20		
Detritus	-	-	-	-	-	-	-		
Shell	-	-	-	-	-	-	-		
Zebra/unionid	-	0.2	0.3	1.0	0.7	2.0	-		
Zeb coverage of substr	-	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-43. Site 34 unionid species and habitat characteristics (page 1 of 2).

Approx. NM Bank Bed/Patch	337.4 R	337.4 R	337.4 R	337.5 R	337.5 R	337.5 M	337.6 R	337.6 M	337.7 M	338.0 M	337.7 R	337.7 R	337.7 R
<i>Potamilus ohiensis</i>	-	-	-	-	-	1	-	-	1	-	-	-	-
<i>Quadrula quadrula</i>	-	1	-	-	1	-	-	-	-	2	2	-	1
Total	0	1	0	0	1	1	0	0	1	2	2	0	1
No. species live	0	1	0	0	1	1	0	0	1	1	1	0	1
No. species total	0	1	0	0	1	1	0	0	1	1	1	0	1
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification													
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	DR-103	DR-103	DR-104	DR-104	DR-104
Habitat	Cove	Cove	Cove	Cove	Cove	Channel	Cove	Channel	Channel	Channel	Cove	Cove	Cove
Depth (m)	0.6	1.8	0.9	2.7	1.5	5.5	4.6	5.5	4.6	4.0	3.7	0.9	4.3
Substrate													
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	10	-	25	-	-	-	-	-	-	-	-	20	-
Gravel	5	-	25	-	-	-	-	-	-	-	-	20	-
Sand	45	-	-	-	-	34	-	34	40	34	-	50	34
Silt	-	10	-	5	10	33	30	33	20	33	20	10	33
Clay	40	90	50	95	90	33	70	33	40	33	80	-	33
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-43. Site 34 unionid species and habitat characteristics (page 2 of 2).

Approx. NM Bank Bed/Patch	337.7 R	Total No.	%
<i>Potamilus ohioensis</i>	4	6	46.2
<i>Quadrula quadrula</i>	-	7	53.8
Total	4	13	
No. species live	1	2	
No. species total	1	2	
Appr. Density (no./m2)	-		
Mean No./5min (CPUE)	-	0.9	
Modification			
Existing	-		
Proposed	DR-104		
Habitat	Cove		
Depth (m)	4.0		
Substrate			
Bedrock	-		
Boulder	-		
Cobble	-		
Gravel	-		
Sand	34		
Silt	33		
Clay	33		
Detritus	-		
Shell	-		
Zebras/unionid	-		
Zeb coverage of substr	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-44. Site 35 unionid species and habitat characteristics (page 1 of 7).

Approx. NM Bank Bed/Patch	SB0.1 L	SB0.1 L	SB0.1 L	SB0.1 L	SB0.2 L	SB0.2 L	SB0.4 M	SB0.5 L	SB0.6 R	SB0.7 L	SB1.0 L	SB1.0 M	SB1.2 M	SB4.0 M	SB4.1 M
<i>Amblema plicata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Anodonta suborbiculata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia ebena</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megalonaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Plectomerus dombeyanus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	2	-	2	1	-	1	1	1	-	4	2	-	-	-	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	0	3	1	0	1	1	1	0	4	2	0	1	0	0
No. species live	1	0	2	1	0	1	1	1	0	1	1	0	1	0	0
No. species total	1	0	2	1	0	1	1	1	0	1	1	0	1	0	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	DR-107	DI-117	DR-107	DI-117	DI-117	DR-107	DR-107	DR-108	DR-108
Habitat	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Channel	Penins.	Channel	Penins.	Penins.	Channel	Channel	Channel	Channel
Depth (m)	1.2	1.2	2.1	2.1	0.9	1.1	2.4	0.9	6.1	0.9	0.9	9.8	4.0	4.3	3.1
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	15	-	15	-	-	-	-	-
Sand	10	45	34	34	50	10	5	25	-	25	45	-	-	-	-
Silt	10	10	33	33	20	10	5	25	50	25	10	75	50	5	10
Clay	80	45	33	33	30	80	90	35	50	35	45	25	50	95	90
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-44. Site 35 unionid species and habitat characteristics (page 2 of 7).

Approx. NM	SB4.2	SB4.2	SB4.2	SB4.4	SB4.5	SB4.6	SB4.6	SB4.6	SB4.6	SB4.6	SB4.7	SB4.7	SB4.7	SB4.8	SB4.8
Bank	L	L	L	M	L	L	L	L	L	R	L	L	L	L	L
Bed/Patch	P35-1	P35-1	P35-1		P35-1	P35-1	P35-1	P35-1	P35-1		P35-1	P35-6	P35-6		
<i>Amblema plicata</i>	2	-	-	-	-	2	-	-	-	-	1	-	-	-	-
<i>Anodonta suborbiculata</i>	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia ebena</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megaloniais nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	2	-	-	-	-	-	4	-	-	1	-	1	-	-	-
<i>Plectomerus dombeyanus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	1	2	-	-	1	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Quadrula quadrula</i>	7	13	7	-	-	2	6	2	3	1	2	-	-	1	-
<i>Tritogonia verrucosa</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Total	12	15	9	0	2	4	11	4	3	2	3	8	1	1	0
No. species live	4	2	2	0	2	2	3	3	1	2	2	2	1	1	0
No. species total	4	2	2	0	2	2	3	3	1	2	2	2	1	1	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	<1	-	<1	<1	-	-
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DI-119	DI-119	DI-119	DR-108	DI-119	DI-119	DI-119	DI-119	DI-119	DI-119	-	DI-119	DI-119	DI-119	DI-119
Habitat	Penins.	Penins.	Penins.	Channel	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Island	Island	Penins.
Depth (m)	1.5	1.5	1.5	4.3	0.9	1.5	1.5	0.9	0.9	0.9	0.6	1.5	0.6	0.6	0.9
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand	-	-	-	-	10	5	5	10	10	50	5	10	10	10	-
Silt	50	50	50	10	10	5	5	10	10	10	5	20	20	-	10
Clay	50	50	50	90	80	90	90	90	80	80	30	90	70	70	90
Detritus	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-44. Site 35 unionid species and habitat characteristics (page 3 of 7).

Approx. NM	SB5.3	SB5.3	SB5.5	SB5.5	SB5.6	SB5.7	SB5.7	SB5.8	SB5.8	SB5.8	SB6.0	SB6.0	SB6.0	SB6.0	SB6.0
Bank	M	M	M	M	M	M	R	M	R	R	L	L	L	L	L
Bed/Patch			P35-5	P35-5	P35-5				P35-7	P35-7	P35-3	P35-3	P35-3	P35-3	P35-3
<i>Amblema plicata</i>	-	-	-	-	-	-	1	-	-	1	1	1	-	-	2
<i>Anodonta suborbiculata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia ebena</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megalonaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	1	-	3	-	1	1	-	-	-	-	-	1	2
<i>Plectomerus dombeyanus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	1	1	-	-	2
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	1	4	2	5	3	1	1	6	1	2	-	-	2	2
<i>Tritogonia verrucosa</i>	-	-	-	1	1	-	-	-	1	-	-	-	1	-	-
Total	0	1	5	3	9	3	3	3	7	2	4	2	1	3	8
No. species live	0	1	2	2	3	1	3	3	2	2	3	2	1	2	4
No. species total	0	1	2	2	3	1	3	3	2	2	3	2	1	2	4
Appr. Density (no./m ²)	-	-	-	-	<1	-	-	-	1	0.5	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DR-108	DR-108	-	-	-	DR-108	-	DR-108	-	-	-	-	-	-	-
Habitat	Channel	Channel	Island	Island	Island	Channel	Cove	Channel	Island	Island	Cove	Cove	Cove	Cove	Cove
Depth (m)	2.7	3.4	1.2	0.9	1.2	3.2	0.9	0.9	0.9	0.9	1.2	1.2	1.2	0.9	0.9
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	25	25	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	40	15	25	10	-	-	-	-	-	-	-	-
Gravel	-	-	40	40	45	25	40	10	10	10	-	-	-	-	-
Sand	-	-	-	10	-	25	-	-	-	10	10	10	10	10	10
Silt	50	45	10	10	10	-	10	10	10	10	-	-	-	-	-
Clay	50	55	50	-	5	-	40	80	80	80	90	90	90	90	90
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-44. Site 35 unionid species and habitat characteristics (page 4 of 7).

Approx. NM Bank Bed/Patch	SB6.0 L P35-3	SB6.0 L P35-3	SB6.0 L P35-3	SB6.0 M	SB6.0 R P35-2	SB6.0 R P35-2	SB6.3 L	SB6.3 M	SB6.3 M	SB6.4 L	SB6.5 M	SB6.5 L	SB6.5 M	SB6.6 M	SB6.6 M
<i>Amblema plicata</i>	2	-	-	-	3	-	-	-	-	-	-	-	-	-	-
<i>Anodonta suborbiculata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia ebena</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megaloniais nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	-	-	2	3	-	-	-	-	-	-	-	-	-
<i>Plectomerus dombeyanus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Quadrula p. pustulosa</i>	-	-	-	-	WD	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	3	-	6	3	-	-	-	-	-	-	-	1	-
<i>Tritogonia verrucosa</i>	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	0	4	0	12	10	0	0	0	0	0	0	1	2	1
No. species live	2	0	2	0	5	3	0	0	0	0	0	0	1	2	1
No. species total	2	0	2	0	5	3	0	0	0	0	0	0	1	2	1
Appr. Density (no./m ²)	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	DR-108	-	-	DI-121	DR-108	DR-108	DI-121	DR-108	-	DR-108	DR-108	DR-108
Habitat	Cove	Cove	Cove	Channel	Island	Island	Island	Channel	Channel	Island	Channel	Island	Channel	Channel	Channel
Depth (m)	-	2.1	1.2	3.4	1.5	1.5	2.4	3.7	4.3	2.1	1.5	2.4	4.9	1.8	1.8
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-
Sand	10	-	10	-	-	-	-	-	-	-	-	-	-	-	-
Silt	-	65	-	10	5	5	40	15	70	50	10	50	70	40	40
Clay	90	35	90	80	90	90	60	80	30	50	80	50	20	50	50
Detritus	-	-	-	10	5	5	-	5	-	-	-	-	10	10	10
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-44. Site 35 unionid species and habitat characteristics (page 5 of 7).

Approx. NM Bank Bed/Patch	SB6.8 M	SB6.8 M	SB6.8 M	SB6.9 L	SB6.9 L	SB6.9 M	SB6.9 M	SB6.9 M	SB7.0 M	SB7.0 M	SB7.1 L	SB7.2 L	SB7.2 M	SB7.2 M	SB7.2 M
<i>Amblema plicata</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Anodonta suborbiculata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Arcidens confragosus</i>	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
<i>Fusconaia ebena</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	WD	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megaloniais nervosa</i>	1	1	-	-	1	-	-	1	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Plectomerus dombeyanus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	1	3	2	-	-	1	-	-	-	-	-	3	-	-	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Total	2	4	3	0	1	2	2	1	0	0	0	4	0	1	0
No. species live	2	2	2	0	1	2	2	1	0	0	0	2	0	1	0
No. species total	2	2	3	0	1	2	2	1	0	0	0	2	0	1	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DR-108	DR-108	DR-108	DI-122	DI-122	DR-108	DR-108	DR-108	DR-108	DR-108	DI-122	-	DR-108	DR-108	DR-108
Habitat	Channel	Channel	Channel	Island	Island	Channel	Channel	Channel	Channel	Channel	Island	Island	Channel	Channel	Channel
Depth (m)	1.8	1.8	1.8	1.5	0.9	1.5	2.3	2.7	1.2	2.4	1.8	0.9	1.8	3.1	1.5
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	10	25	10	-	-	-	-	-	-	-	-	5	-	-	-
Sand	-	-	-	-	-	-	-	-	-	-	-	20	10	10	30
Silt	-	-	10	40	40	20	20	50	50	50	50	-	50	70	30
Clay	90	50	80	60	60	80	80	50	50	40	50	75	40	20	40
Detritus	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-44. Site 35 unionid species and habitat characteristics (page 6 of 7).

Approx. NM Bank Bed/Patch	SB7.2 M	SB7.3 L	SB7.3 L	SB7.4 M	SB7.4 M	SB7.4 M	SB7.4 M	SB7.4 M	SB7.4 M	SB7.8 L P35-4	SB7.8 L P35-4	SB7.8 L P35-4	SB7.8 L P35-4	SB7.8 L P35-4	SB7.9 L P35-4	SB7.8 M
<i>Amblema plicata</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
<i>Anodonta suborbiculata</i>	WD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Arcidens confragosus</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
<i>Fusconaia ebena</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	FD	-	-
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	WD	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	WD	-	1	-	-	-	-
<i>Megalonaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	1	2	1	2	-	1	-	1	1
<i>Plectomerus dombeyanus</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	WD	WD	-	-	-	-	-
<i>Pyganodon grandis</i>	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	WD
<i>Quadrula quadrula</i>	-	1	3	-	-	2	2	2	2	9	4	2	5	5	11	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	2	3	0	0	2	4	4	4	13	7	4	6	5	14	3
No. species live	1	2	1	0	0	1	3	2	2	5	3	3	2	1	4	2
No. species total	2	2	1	0	0	1	3	2	2	7	5	3	2	2	4	3
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification																
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DR-108	-	-	DR-108	DR-108	DR-108	DR-108	DR-108	DR-108	-	-	-	-	-	-	DR-108
Habitat	Channel	Island	Island	Channel	Channel	Channel	Channel	Channel	Channel	Cove	Cove	Cove	Cove	Cove	Cove	Channel
Depth (m)	2.1	0.9	0.9	2.4	3.1	0.9	1.5	1.8	1.8	2.1	1.5	1.2	-	-	1.2	1.8
Substrate																
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	5	5	-	-	-	-	-	-	-	-	-	-	-	-	5
Sand	-	20	20	-	-	50	40	20	20	10	-	-	-	-	10	5
Silt	80	-	-	80	90	-	-	60	20	20	10	10	10	80	10	-
Clay	20	75	75	20	10	50	60	20	70	80	80	80	80	20	80	90
Detritus	-	-	-	-	-	-	-	-	-	-	10	10	10	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-44. Site 35 unionid species and habitat characteristics (page 7 of 7).

Approx. NM Bank Bed/Patch	SB7.8 M	SB7.8 M	SB7.8 R	SB7.8 R	SB7.9 M	No.	%
<i>Amblema plicata</i>	-	-	-	-	-	20	7.4
<i>Anodonta suborbiculata</i>	-	-	-	-	-	2	0.7
<i>Arcidens confragosus</i>	-	-	-	-	-	3	1.1
<i>Fusconaia ebena</i>	-	-	-	-	-	1	0.4
<i>Fusconaia flava</i>	-	-	-	-	-	6	2.2
<i>Lampsilis teres</i>	-	-	-	-	-	1	0.4
<i>Leptodea fragilis</i>	-	-	1	-	-	2	0.7
<i>Megalonaias nervosa</i>	-	1	-	-	-	6	2.2
<i>Obliquaria reflexa</i>	-	-	-	-	-	33	12.2
<i>Plectomerus dombeyanus</i>	-	-	-	-	-	1	0.4
<i>Potamilus ohioensis</i>	-	-	-	-	-	3	1.1
<i>Potamilus purpuratus</i>	-	-	-	-	-	5	1.8
<i>Pyganodon grandis</i>	-	-	-	-	-	9	3.3
<i>Quadrula aspera</i>	-	-	-	-	WD	11	4.1
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	1	0.4
<i>Quadrula quadrula</i>	-	-	-	2	-	159	58.7
<i>Tritogonia verrucosa</i>	-	-	-	-	-	8	3.0
Total	0	1	1	2	0	271	
No. species live	0	1	1	1	0	17	
No. species total	0	1	1	1	1	17	
Appr. Density (no./m ²)	-	-	-	-	-		
Modification							
Existing	-	-	-	-	-	#DIV/0!	
Proposed	DR-108	DR-108	-	-	DR-108		
Habitat	Channel	Channel	Cove	Cove	Channel		
Depth (m)	3.1	3.1	1.2	1.8	2.4		
Substrate							
Bedrock	-	-	-	-	-		
Boulder	-	5	-	-	-		
Cobble	25	-	-	-	-		
Gravel	-	-	-	-	-		
Sand	25	55	-	-	10	0.0	
Silt	-	5	85	80	10	0	
Clay	25	30	15	20	80	0	
Detritus	25	5	-	-	-	0	
Shell	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-		
Zeb coverage of substr	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

T109

Table 3-45. Site 36 unionid species and habitat characteristics (page 1 of 3).

Approx. NM	342.9	343.9	344.9	342.3	342.3	342.3	342.3	342.3	342.3	342.3	342.3	342.3	342.3	342.3
Bank	L	L	L	L	L	L	L	L	L	L	L	L	L	M
Bed/Patch	P36-1	P36-1	P36-1											
<i>Anodonta suborbiculata</i>	1	1	1	-	1	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	1	1	1	FD	-	1	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-
<i>Pyganodon grandis</i>	-	-	1	-	-	-	1	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Quadrula quadrula</i>	12	14	9	1	-	1	3	-	2	6	2	-	-	5
<i>Strophitus undulatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	13	15	12	2	2	1	4	1	2	7	2	0	0	6
No. species live	2	2	4	2	2	1	2	1	1	2	1	0	0	2
No. species total	2	2	4	2	2	2	2	1	1	2	1	0	0	2
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	1	1	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification														
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	-	-	-	-	-	DR-109
Habitat	Penins.	Penins.	Penins.	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Cove	Channel
Depth (m)	3.4	2.1	-	3.1	1.2	0.5	1.5	2.1	4.0	3.4	1.8	3.4	0.6	4.6
Substrate														
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	25	-
Gravel	-	-	-	50	50	35	-	-	-	-	-	-	30	-
Sand	-	-	-	15	-	-	-	40	-	-	-	-	10	-
Silt	50	50	50	15	20	20	10	40	40	40	40	55	20	50
Clay	50	50	50	15	25	45	90	20	60	60	60	45	15	50
Detritus	-	-	-	5	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	5	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	2.0	1.1	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-45. Site 36 unionid species and habitat characteristics (page 2 of 3).

Approx. NM	342.2	342.5	342.7	343.8	344.8	344.9	344.9	344.9	344.9	344.8	344.6	344.6	344.5	344.4	343.9
Bank	M	M	M	M	M	L	L	L	L	L	L	L	L	L	M
Bed/Patch															
<i>Anodonta suborbiculata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	WD	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
<i>Quadrula quadrula</i>	-	-	3	8	-	-	-	2	1	-	9	9	-	2	2
<i>Strophitus undulatus</i>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Total	0	0	3	10	0	0	0	3	2	0	9	9	0	2	3
No. species live	0	0	1	3	0	0	0	2	2	0	1	1	0	1	2
No. species total	0	0	1	3	0	0	0	2	2	1	1	1	0	1	2
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DR-109	DR-109	DR-109	DR-109	DR-109	DR-110	DR-110	DR-110	DR-110	DR-110	DR-110	DR-110	DR-110	DR-110	DR-110
Habitat	Channel	Channel	Channel	Channel	Channel	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.
Depth (m)	6.4	4.6	4.6		2.7	3.4	3.4	2.4	2.4	1.5	2.1	2.1	2.7	0.9	Channel
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	10	10	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand	-	-	-	10	10	-	-	-	-	-	-	-	-	80	-
Silt	75	70	50	10	10	60	80	50	70	50	10	10	50	20	20
Clay	25	30	50	80	80	40	20	50	30	50	80	80	50		80
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dikey field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-45. Site 36 unionid species and habitat characteristics (page 3 of 3).

Approx. NM	343.9	344.8	344.5	344.5	344.0	344.0	344.0	344.0	343.2	342.6	342.5	Total	%
Bank	M	L	L	L	L	L	L	L	L	L	L	No.	
Bed/Patch												No.	%
<i>Anodonta suborbiculata</i>	-	-	-	-	-	-	-	-	-	-	-	4	3.0
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	WD	
<i>Obliquaria reflexa</i>	-	-	1	-	-	1	-	-	-	-	-	6	4.5
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	2	1.5
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	3	2.2
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	3	2.2
<i>Quadrula quadrula</i>	-	-	3	3	2	7	7	2	-	-	-	115	85.8
<i>Strophitus undulatus</i>	-	-	-	-	-	-	-	-	-	-	-	1	0.7
Total	0	0	4	3	2	8	7	2	0	0	0	134	
No. species live	0	0	2	1	1	2	1	1	0	0	0	7	
No. species total	0	0	2	1	1	2	1	1	0	0	0	8	
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	3.4	
Modification													
Existing	-	-	-	-	-	-	-	-	-	-	-		
Proposed	-	-	-	-	-	-	-	-	-	-	-		
Habitat	Channel	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Penins.	Cove	Cove		
Depth (m)	3.1	2.4	3.1	3.1	3.4	3.4	3.4	3.4	0.9	1.8	3.4		
Substrate													
Bedrock	-	-	-	-	-	-	-	-	-	-	-		
Boulder	-	-	5	5	-	-	-	-	-	-	-		
Cobble	-	-	5	5	-	-	-	-	-	-	-		
Gravel	-	-	-	-	-	-	-	-	-	50	-		
Sand	-	-	5	5	-	-	-	-	10	-	-		
Silt	20	80	5	5	20	20	20	20	-	30	80		
Clay	80	20	80	80	80	80	80	80	90	20	20		
Detritus	-	-	-	-	-	-	-	-	-	-	-		
Shell	-	-	-	-	-	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-		
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-		

DI=disposal, DF=dikey field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-46. Site 37 unionid species and habitat characteristics (page 1 of 2).

Approx. NM	349.4	349.4	349.4	348.9	348.9	348.7	348.7	348.5	349.6	349.6	349.5	349.5
Bank	L	L	L	L	L	L	L	L	L	L	L	L
Bed/Patch												
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	WD
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	1	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	1	2	1	-	-	-	1	-
Total	-	-	-	-	1	2	1	-	1	-	1	-
No. species live	-	-	-	-	1	1	1	-	1	-	1	-
No. species total	-	-	-	-	1	1	1	-	1	-	1	1
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-
Modification												
Existing	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DI-129	DI-129	DI-129	DI-128	DI-129	DR-127	DR-127	DI-126				
Habitat	Island	Island	Island	Island	Island	Island	Island	Island	Island	Island	Island	Island
Depth (m)	0.6	1.5	1.5	0.9	0.9	0.9	1.2	0.6	0.6	0.6	0.6	0.6
Substrate												
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	10	-	-	-	-
Sand	80	40	40	90	-	-	-	90	5	25	10	10
Silt	10	20	-	10	40	25	25	-	5	25	10	10
Clay	10	20	40	-	60	75	75	-	80	25	80	80
Detritus	-	20	20	-	-	-	-	-	10	25	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-46. Site 37 unionid species and habitat characteristics (page 2 of 2).

Approx. NM	349.5	349.4	348.5	348.5	348.5		
Bank	L	L	L	L	L	Total	
Bed/Patch						No.	%
<i>Lampsilis teres</i>	-	-	-	-	-	WD	
<i>Obliquaria reflexa</i>	-	-	-	1	1	3	23.1
<i>Potamilus ohiensis</i>	-	-	-	-	1	1	7.7
<i>Quadrula quadrula</i>	-	-	-	3	1	9	69.2
Total	-	-	-	4	3	13	
No. species live	-	-	-	2	3		
No. species total	-	-	-	2	3		
Appr. Density (no./m2)	-	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	-		
Modification							
Existing	-	-	-	-	-		
Proposed	-	-	-	-	-		
Habitat	Island	Island	Island	Island	Island		
Depth (m)	3.4	0.6	1.2	1.2	1.2		
Substrate							
Bedrock	-	-	-	-	-		
Boulder	-	-	-	-	-		
Cobble	-	-	-	-	-		
Gravel	-	-	-	-	-		
Sand	-	80	-	-	-		
Silt	25	10	30	30	30		
Clay	25	10	70	70	70		
Detritus	50	-	-	-	-		
Shell	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-		
Zeb coverage of substr	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-47. Site 38 unionid species and habitat characteristics (page 1 of 2).

Approx. NM Bank Bed/Patch	355.8 M	355.1 M	355.8 R	356.4 R	356.3 R	355.5 R	355.1 R	355.0 R	354.9 R	354.6 R	354.6 R	354.0 R
<i>Leptodea fragilis</i>	-	-	-	-	-	1	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	1	-	1	-	-	-	-	-	FD	-	-
<i>Potamilus ohiensis</i>	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	1	-	1	-	1	-	-	-	-	-	-
No. species live	-	1	-	1	-	1	-	-	-	-	-	-
No. species total	-	1	-	1	-	1	-	-	-	1	-	-
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-
Modification												
Existing	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	DR-113	DR-113	DI-133									
Habitat	Channel	Channel	Island	Island	Island	Inside	Inside	Inside	Inside	Inside	Inside	Island
Depth (m)	3.4	3.7	0.9	7.0	6.7	2.7	1.1	0.9	0.6	4.6	0.9	1.5
Substrate												
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	20	-	-	-	-	5	-	-
Gravel	-	-	-	-	30	-	-	-	-	-	-	-
Sand	50	100	80	40	20	95	100	100	50	40	-	99
Silt	50	-	20	50	30	-	-	-	50	5	50	-
Clay	-	-	-	10	-	-	-	-	-	50	50	1
Detritus	-	-	-	-	-	5	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-47. Site 38 unionid species and habitat characteristics (page 2 of 2).

Approx. NM Bank Bed/Patch	353.9 R	354.7 M	357.2 L	357.2 L	355.8 L	Total No.	%
<i>Leptodea fragilis</i>	-	-	-	-	-	1	25
<i>Obliquaria reflexa</i>	-	-	-	-	-	2	50
<i>Potamilus ohioensis</i>	-	-	-	1	-	1	25
Total	-	-	-	1	-	4	
No. species live	-	-	-	1	-	3	
No. species total	-	-	-	1	-	3	
Appr. Density (no./m2)	-	-	-	-	-	-	
Mean No./5min (CPUE)	-	-	-	-	-	-	
Modification							
Existing	-	-	-	-	-		
Proposed	-	-	-	-	-		
Habitat	Island	Channel	Island	Island	Outside		
Depth (m)	-	2.3	2.6	-	-		
Substrate							
Bedrock	-	-	-	-	-		
Boulder	-	-	-	-	-		
Cobble	-	-	-	-	-		
Gravel	-	-	-	-	40		
Sand	10	50	50	50	-		
Silt	10	-	40	40	20		
Clay	80	50	10	10	40		
Detritus	-	-	-	-	-		
Shell	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-		
Zeb coverage of substr	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-48. Site 39 unionid species and habitat characteristics (page 1 of 4).

Approx. NM	366.0	366.0	365.5	365.5	365.5	365.5	365.5	365.5	365.3	365.3	365.3	364.5	364.5
Bank	R	R	R	R	R	L	L	R	R	R	R	R	R
Bed/Patch	P39-5	P39-5	P39-4	P39-4	P39-4	P39-6	P39-6	P39-3	P39-3	P39-3	P39-3	P39-2	P39-2
<i>Amblyma plicata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	WD	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	FD	1	-	2	-	-	1	1	4	2	1	2	-
<i>Obliquaria reflexa</i>	6	1	27	12	1	6	1	4	6	5	6	-	-
<i>Potamilus ohioensis</i>	1	-	-	-	1	-	-	-	1	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	1	-	-	-	-	-	-	-	1	1	-	-	-
<i>Quadrula quadrula</i>	-	1	1	-	1	-	-	-	2	1	-	1	-
<i>Truncilla donaciformis</i>	1	-	-	-	-	-	-	-	-	-	-	1	-
Total	9	3	28	14	3	6	2	5	14	9	8	3	3
No. species live	4	3	2	2	3	1	2	2	5	4	3	2	2
No. species total	5	3	2	2	4	1	2	2	5	4	3	2	2
Appr. Density (no./m2)	-	-	2	1	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification													
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	-	-	-	-	-
Habitat	TW	TW	Inside	Inside	Inside	Straight	Straight	Inside	Inside	Inside	Inside	Inside	Inside
Depth (m)	2.5	-	1.5	1.5	1.5	0.9	1.2	-	4.0	2.0	-	3.0	-
Substrate													
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	20	-	40	-	-	15	-	-	-	-	-
Sand	5	-	35	30	40	-	-	25	70	70	65	30	-
Silt	10	10	20	20	10	20	20	25	10	10	10	20	-
Clay	85	90	25	50	10	80	80	35	20	20	25	50	-
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	6.2	-	-	-	-	-	-	2.4	3.1	-	1.9	1.7	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-48. Site 39 unionid species and habitat characteristics (page 2 of 4).

Approx. NM	364.5	363.8	363.8	363.8	366.0	365.5	365.3	364.9	364.3	363.9	366.0	365.0	364.5
Bank	R	R	R	R	M	M	M	M	M	M	R	R	R
Bed/Patch	P39-2	P39-1	P39-1	P39-1									
<i>Amblyma plicata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	-	1	-	-	-	-	-	-	-	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	1	-	-	1	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	1	2	1	1	-	-	-	-	-	1	-	-	-
<i>Potamilus ohioensis</i>	FD	-	2	3	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	1	-	1	-	-	-	-	-	FD	-	-	-
<i>Quadrula quadrula</i>	-	-	2	1	-	-	-	-	-	-	-	-	-
<i>Truncilla donaciformis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	3	6	7	-	-	-	-	-	1	-	-	-
No. species live	2	2	4	5	-	-	-	-	-	1	-	-	-
No. species total	3	2	4	5	-	-	-	-	-	2	-	-	-
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification													
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	DR-115	DR-115	DR-115	DR-115	DR-115	DR-115	-	-	-
Habitat	Inside	Straight	Straight	Straight	Channel	Channel	Channel	Channel	Channel	Channel	TW	Inside	Inside
Depth (m)	1.5	3.0	4.5	4.0	4.6	4.6	4.6	4.8	5.5	4.7	7.5	1.0	4.0
Substrate													
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	100	-	-
Cobble	-	-	-	-	-	-	-	50	-	-	-	-	-
Gravel	20	-	-	-	90	90	90	50	80	90	-	15	15
Sand	10	15	20	10	10	5	10	-	20	-	-	25	25
Silt	10	15	10	20	-	5	-	-	-	-	-	20	20
Clay	60	65	60	60	-	-	-	-	-	-	-	40	40
Detritus	-	5	10	10	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	10	-	-	-
Zebras/unionid	3.0	-	-	0.1	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dikey field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-48. Site 39 unionid species and habitat characteristics (page 3 of 4).

Approx. NM Bank Bed/Patch	364.1 R	364.0 R	364.0 R	363.6 R	363.6 R	364.0 M	363.5 M	363.4 M	366.1 L	366.0 L	365.2 L	365.1 L	365.1 L
<i>Amblyma plicata</i>	WD	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fusconaia flava</i>	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	FD	FD	-	-	1	-	-	-	-	-	1	-
<i>Obliquaria reflexa</i>	1	1	1	-	-	1	-	-	1	-	-	1	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula aspera</i>	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	FD	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Truncilla donaciformis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	3	1	-	-	2	-	-	1	-	1	2	2
No. species live	1	3	1	-	-	2	-	-	1	-	1	2	1
No. species total	3	4	2	-	-	2	-	-	1	-	1	2	1
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification													
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	-	-	-	-	-
Habitat	Straight	Straight	Straight	Straight	Straight	Channel	Channel	Channel	TW	TW	Tributary	Outside	Outside
Depth (m)	1.5	1.0	1.5	2.5	4.0	3.0	4.9	4.8	-	2.1	1.5	3.4	-
Substrate													
Bedrock	-	-	-	-	-	-	100	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	15	-	-	50	-	-	-	-	-
Gravel	10	-	-	30	35	25	-	50	-	90	-	-	-
Sand	35	20	20	35	35	40	-	-	-	10	-	-	-
Silt	20	20	20	15	10	20	-	-	-	-	50	20	20
Clay	30	50	50	15	5	15	-	-	-	-	50	80	80
Detritus	5	10	10	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	3	0.3	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-48. Site 39 unionid species and habitat characteristics (page 4 of 4).

Approx. NM Bank Bed/Patch	364.7 L	664.5 L	364.4 L	364.1 L	364.0 L	364.0 L	364.0 L	363.9 L	363.9 L	Total No.	%
<i>Amblyma plicata</i>	-	-	-	-	-	-	-	-	-	WD	
<i>Fusconaia flava</i>	-	-	-	-	-	-	-	-	-	2	1.4
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	WD	
<i>Leptodea fragilis</i>	WD	-	-	-	-	-	-	-	-	18	12.3
<i>Obliquaria reflexa</i>	-	-	-	-	2	1	1	-	-	91	62.3
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	FD	-	9	6.2
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	1	1	0.7
<i>Quadrula aspera</i>	-	-	-	-	-	-	-	-	-	1	0.7
<i>Quadrula p. pustulosa</i>	-	-	-	-	1	1	1	-	-	8	5.5
<i>Quadrula quadrula</i>	-	-	-	-	1	-	-	-	1	14	9.6
<i>Truncilla donaciformis</i>	-	-	-	-	-	-	-	-	-	2	1.4
Total	-	-	-	-	4	2	2	-	2	146	
No. species live	-	-	-	-	3	2	2	-	2	9	
No. species total	1	-	-	-	3	2	2	1	2	11	
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	3.1	
Modification											
Existing	-	-	-	-	-	-	-	-	-		
Proposed	-	-	-	-	-	-	-	-	-		
Habitat	Straight										
Depth (m)	-	3.4	3.4	2.4	4.3	4.3	4.3	2.4	2.4		
Substrate											
Bedrock	-	100	-	-	-	-	-	-	-		
Boulder	-	-	-	-	-	-	-	-	-		
Cobble	20	-	-	30	-	-	-	-	-		
Gravel	50	-	30	10	-	-	-	-	-		
Sand	10	-	-	-	5	5	5	-	100		
Silt	20	-	30	30	30	30	30	50	-		
Clay	-	-	40	30	65	65	65	50	-		
Detritus	-	-	-	-	-	-	-	-	-		
Shell	-	-	-	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	-	-	-	-		
Zeb coverage of substr	-	-	-	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-49. Site 40 unionid species and habitat characteristics (page 1 of 2).

Approx. NM Bank Bed/Patch	367.8 L	367.5 L	367.5 L	367.4 L	367.4 L	367.4 L	367.3 L	367.7 M	367.6 M	367.5 M	367.2 M	367.2 M
<i>Amblyma plicata</i>	-	FD	-	-	-	-	-	-	-	-	1	-
<i>Anodonta suborbiculata</i>	-	1	-	FD	-	FD	FD	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	FD	FD	-	-
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	1	-	-	-
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	1	-	-	2
<i>Potamilus ohioensis</i>	-	-	-	WD	-	-	-	-	FD	-	-	-
<i>Pyganodon grandis</i>	-	-	WD	FD	1	WD	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	1	-	WWD	-	WD	FD	-	-	-	2	-
Total	-	2	-	-	1	-	-	-	2	-	3	2
No. species live	-	2	-	-	1	-	-	-	2	-	2	1
No. species total	-	3	1	4	1	3	2	-	4	1	2	1
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-
Modification												
	Existing Proposed	DF	DF	DF	DF	DF	DF	DF	-	-	-	-
Habitat		DR-116	DR-116	DR-116	DR-116	DR-116	DR-116	DR-116	DR-116	DR-116	DR-116	DR-116
Depth (m)	Inside	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Channel
Substrate		4.5	5.0	1.0	4.5	3.0						
		7.3	0.9	1.2	0.9	0.6	-	0.9				
	Bedrock	-	-	-	-	-	-	-	-	-	-	-
	Boulder	-	-	-	-	-	-	-	-	-	-	-
	Cobble	-	-	-	-	-	-	-	-	-	-	-
	Gravel	-	-	-	-	-	-	-	-	-	-	-
	Sand	15	-	-	-	40	-	-	25	-	-	-
	Silt	4	20	20	20	20	-	20	25	50	40	20
	Clay	80	80	80	80	40	-	80	75	25	50	60
	Detritus	1	-	-	-	-	-	-	-	-	-	-
	Shell	-	-	-	-	-	-	-	-	-	-	5
Zebras/unionid		-	0	-	-	0	-	-	-	-	-	-
Zeb coverage of substr		-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dikey field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-49. Site 40 unionid species and habitat characteristics (page 2 of 2).

Approx. NM Bank Bed/Patch	367.0 M	366.9 M	367.5 L	367.0 L	Total No.	%
<i>Amblyma plicata</i>	-	-	-	-	1	6.3
<i>Anodonta suborbiculata</i>	-	-	-	-	1	6.3
<i>Leptodea fragilis</i>	FD	-	FD	-	FD	
<i>Megaloniaias nervosa</i>	-	-	-	-	1	6.3
<i>Obliquaria reflexa</i>	-	-	1	-	4	25.0
<i>Potamilus ohioensis</i>	FD	-	1	FD	1	6.3
<i>Pyganodon grandis</i>	-	-	1	-	2	12.5
<i>Quadrula p. pustulosa</i>	-	1	-	-	1	6.3
<i>Quadrula quadrula</i>	-	-	2	-	5	31.3
Total	-	1	5	-	16	
No. species live	-	1	4	-	8	
No. species total	2	1	5	1	9	
Appr. Density (no./m2)	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	1.0	
Modification						
	Existing	-	-	-	-	
	Proposed	DR-116	DR-116			
Habitat	Channel	Channel	Inside	Inside		
Depth (m)	4.3	-	1.0	0.8		
Substrate						
	Bedrock	-	-	-	-	
	Boulder	15	-	-	-	
	Cobble	10	-	-	-	
	Gravel	-	-	-	-	
	Sand	-	45	-	25	6.4
	Silt	50	30	50	50	34.3
	Clay	25	25	50	25	40.7
	Detritus	-	-	-	-	0.0
	Shell	-	-	-	-	
Zebras/unionid	-	-	-	-		
Zeb coverage of substr	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-50. Site 41 unionid species and habitat characteristics.

Approx. NM Bank Bed/Patch	373.9 L	373.9 L	373.8 L	373.7 L	373.7 L	373.8 R	373.5 R	373.2 R	373.0 R	372.5 R	Total No.	%
Lasmigona c. complanata	-	-	-	-	-	WD	-	-	-	-	WD	
Leptodea fragilis	-	-	-	-	-	-	FD	FD	FD	WD	FD	
Obliquaria reflexa	2	-	-	-	-	2	1	-	-	-	5	45.5
Potamilus ohioensis	-	-	-	2	-	-	-	FD	FD	-	2	18.2
Pyganodon grandis	-	-	-	1	-	-	1	-	-	-	2	18.2
Quadrula quadrula	-	-	-	-	-	2	-	-	-	WD	2	18.2
Total	2	-	-	3	-	4	2	-	-	-	11	
No. species live	1	-	-	2	-	2	2	-	-	-	4	
No. species total	1	-	-	2	-	3	3	2	2	2	6	
Appr. Density (no./m2)	-	-	-	-	-	-	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	1.1	
Modification												
Existing	-	-	-	-	-	-	-	-	-	-		
Proposed	-	-	-	-	-	-	-	-	-	-		
Habitat	Island	Island	Island	Island	Island	Outside	Outside	Outside	Outside	Outside		
Depth (m)	0.5	0.5	0.6	2.1	-	2.0	2.5	2.0	3.0	3.0		
Substrate												
Bedrock	-	-	-	-	-	-	-	-	-	-		
Boulder	-	-	-	-	-	-	-	-	-	-		
Cobble	-	-	-	-	-	-	-	-	-	-		
Gravel	-	-	-	-	-	-	-	-	-	-		
Sand	-	-	-	-	-	-	-	25	60	-		
Silt	10	10	10	10	10	25	20	35	15	10		
Clay	90	90	90	90	90	75	80	15	25	90		
Detritus	-	-	-	-	-	-	-	25	-	-		
Shell	-	-	-	-	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	2	-	1	-	-		
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-51. Site 42 unionid species and habitat characteristics (page 1 of 2).

Approx. NM Bank/Bed/Patch	380.2 L	380.1 L	380.1 L	380.0 L	379.9 L	379.7 L	379.5 L	379.3 L	379.2 L	379.1 L	379.1 L
<i>Anodonta suborbiculata</i>	-	-	-	-	-	-	WD	-	-	-	-
<i>Lasmigona c. complanata</i>	-	-	-	-	-	-	-	-	WD	-	-
<i>Quadrula aspera</i>	-	-	-	-	WD	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	WD	-	-
<i>Toxolasma parvus</i>	-	-	-	-	-	-	-	-	-	-	-
Total	0	0	0	0	0	0	0	0	0	0	0
No. species live	0	0	0	0	0	0	0	0	0	0	0
No. species total	0	0	0	0	1	0	1	0	2	0	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-
Modification											
Existing	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	-	-	-
Habitat	Oxbow	Oxbow	Oxbow	Oxbow	Oxbow	Oxbow	Oxbow	Oxbow	Oxbow	Oxbow	Oxbow
Depth (m)	1.5	1.8	2.1	1.8	2.5	1.5	2.0	3.0	2.0	2.0	1.5
Substrate											
Bedrock	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	-	-	-	-
Sand	-	-	-	-	-	50	-	5	10	50	25
Silt	10	30	30	10	45	25	20	95	60	25	25
Clay	90	70	70	90	50	25	80	-	30	25	50
Detritus	-	-	-	-	5	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	2	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-51. Site 42 unionid species and habitat characteristics (page 2 of 2).

Approx. NM Bank Bed/Patch	379.0 L	378.9 L	378.9 L	378.9 L	Total No.	%
<i>Anodonta suborbiculata</i>	-	-	-	-	WD	
<i>Lasmigona c. complanata</i>	-	-	-	-	WD	
<i>Quadrula aspera</i>	-	-	-	-	WD	
<i>Quadrula quadrula</i>	-	-	-	-	WD	
<i>Toxolasma parvus</i>	-	-	-	1	1	100
Total	0	0	0	1	1	
No. species live	0	0	0	1	1	
No. species total	0	0	0	1	5	
Appr. Density (no./m ²)	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	0.1	
Modification						
Existing	-	-	-	-		
Proposed	-	-	-	-		
Habitat	Oxbow	Oxbow	Oxbow	Oxbow		
Depth (m)	5.0	1.5	1.5	1.8		
Substrate						
Bedrock	-	-	-	-		
Boulder	-	-	-	-		
Cobble	-	-	-	-		
Gravel	-	-	-	-		
Sand	-	-	25	-		
Silt	80	10	20	30		
Clay	20	90	55	70		
Detritus	-	-	-	-		
Shell	-	-	-	-		
Zebras/unionid	-	-	-	-		
Zeb coverage of substr	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-52. Site 43 unionid species and habitat characteristics.

Approx. NM	380.0	379.5	379.2	379.0	379.9	379.0	Total
Bank	M	M	M	M	R	M	
Bed/Patch							
Total	0	0	0	0	0	0	0
No. species live	0	0	0	0	0	0	0
No. species total	0	0	0	0	0	0	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-
Modification							
Existing	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-
Habitat	DR-118	DR-118	DR-118	DR-118	Island	Oxbow	
Depth (m)	Channel	Channel	Channel	Channel			
Substrate	5.5	5.2	6.1	7.0		3.7	
Bedrock	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-
Sand	100	90	100	95	-	-	-
Silt	-	5	-	5	10	30	-
Clay	-	5	-	-	90	70	-
Detritus	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-53. Site 44 unionid species and habitat characteristics.

Approx. NM	391.5	390.6	389.6	388.8	388.2	
Bank	R	R	M	M	M	
Replicate	A	A	A	A	A	Total
Bed/Patch						
Total	0	0	0	0	0	0
No. species live	0	0	0	0	0	0
No. species total	0	0	0	0	0	0
Appr. Density (no./m ²)	-	-	-	-	-	
Modification						
Existing	-	-	-	-	-	
Proposed	DR-122	DR-122	DR-122	-	-	
Habitat	Channel	Channel	Channel	Channel	Channel	
Depth (m)	4.3	4.6	2.7	4.0	5.2	
Substrate						
Bedrock	-	-	-	-	-	
Boulder	-	-	-	-	-	
Cobble	-	-	-	-	-	
Gravel	50	-	-	5	-	
Sand	50	100	-	90	100	
Silt	-	-	-	5	-	
Clay	-	-	-	-	-	
Detritus	-	-	-	-	-	
Shell	-	-	-	-	-	
Zebras/unionid	-	-	-	-	-	
Zeb coverage of substr	-	-	-	-	-	

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-54. Site 45 unionid species and habitat characteristics (page 1 of 3).

Approx. NM	401.2	400.3	401.2	401.2	400.3	400.3	401.2	400.3	399.2	398.7	398.3	399.2	399.2	399.2	398.7	398.3
Bank	R	R	M	M	M	M	L	L	R	R	R	R	M	L	M	M
Bed/Patch	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2
<i>Amblema plicata</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	FD	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
No. species live	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
No. species total	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification																
	Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proposed	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge
Habitat		TW	Inside	Channel	Channel	Channel	Channel	TW	Outside	Straight	Inside	Inside	Channel	Channel	Channel	Channel
Depth (m)		1.0	2.0	4.0	5.0	3.0	3.0	3.5	3.0	3.0	3.1	3.7	5.0	5.5	4.5	5.5
Substrate																
	Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-
	Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-
	Gravel	-	-	-	-	-	-	50	15	-	-	-	-	15	-	30
	Sand	25	20	-	-	25	20	20	30	30	-	100	30	15	90	50
	Silt	50	-	75	75	25	10	-	15	30	-	-	10	10	9	-
	Clay	25	80	25	25	50	70	30	40	30	-	-	60	10	-	100
	Detritus	-	-	-	-	-	-	-	-	10	-	-	-	-	1	-
	Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-54. Site 45 unionid species and habitat characteristics (page 2 of 3).

Approx. NM	399.2	398.7	398.3	397.7	397.2	396.6	395.6	395.0	397.7	397.2	397.0	396.6	395.6	395.0	397.7	397.2
Bank	L	L	L	R	R	R	R	R	M	M	M	M	M	M	L	L
Bed/Patch	DR-2	DR-2	DR-2	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3
<i>Amblema plicata</i>	-	WD	-	-	-	-	WD	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	1	WD	-	-	-	-	-	-	-	-	-	-	1
<i>Obliquaria reflexa</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	-	WD	-	-	-	-	-	-	-	-	1
Total	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	2
No. species live	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	2
No. species total	0	1	0	2	1	0	2	0	0	0	1	0	0	0	0	2
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification																
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge
Habitat	Straight	Outside	Outside	Straight	Straight	Straight	Straight	Channel	Channel	Channel	Straight	Channel	Channel	Channel	Channel	Straight
Depth (m)	2.5	4.0	2.1	3.0	4.0	5.0	4.8	6.0	4.6	4.6	5.0	4.0	5.0	6.0	3.4	1.8
Substrate																
Bedrock	-	100	-	-	-	-	-	-	-	-	40	45	45	-	-	-
Boulder	-	-	-	5	-	50	50	10	90	-	-	15	25	-	90	-
Cobble	-	-	-	5	-	40	50	10	-	-	5	5	10	-	-	-
Gravel	-	-	-	-	-	-	-	-	10	-	10	5	5	-	10	-
Sand	30	-	-	-	95	5	-	25	-	90	7	20	7	45	-	40
Silt	10	-	70	10	5	5	-	10	-	5	8	5	8	10	-	40
Clay	60	-	30	80	-	-	-	45	-	-	25	5	-	45	-	-
Detritus	-	-	-	-	-	-	-	-	-	5	5	-	-	-	-	20
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	5	10	1	-	-	35	8	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-54. Site 45 unionid species and habitat characteristics (page 3 of 3).

Approx. NM	397.0	395.0	394.9	394.9	397.0	397.0	396.6	395.6	394.9	394.7		
Bank	L	L	M	L	L	L	L	L	R	L		
Bed/Patch	DR-3	DR-3	DR-4	DR-4							No.	%
<i>Amblema plicata</i>	-	-	-	-	-	-	-	-	-	-	1	7.7
<i>Leptodea fragilis</i>	-	-	-	-	WD	-	-	-	-	-	2	15.4
<i>Obliquaria reflexa</i>	-	-	-	-	3	-	-	-	-	-	8	61.5
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	1	7.7
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	1	7.7
Total	0	0	0	0	3	0	0	0	0	0	13	
No. species live	0	0	0	0	1	0	0	0	0	0	5	
No. species total	0	0	0	0	2	0	0	0	0	0	5	
Aprr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	0.3	
Modification												
Existing	-	-	Dredge	-	-	-	-	-	-	-		
Proposed	Dredge	Dredge	Dredge	Dredge	-	-	-	-	-	-		
Habitat	Channel	Straight	Channel	Channel	Straight	Straight	Straight	Straight	Inside	Outside		
Depth (m)	5.0	6.0	4.0	5.5	2.0	3.5	4.0	4.8	2.7	5.5		
Substrate												
Bedrock	-	-	-	100	-	-	-	-	-	-		
Boulder	-	3	-	-	-	-	-	-	-	-		
Cobble	-	2	-	-	-	-	-	8	-	-		
Gravel	-	20	-	-	-	-	-	7	20	-		
Sand	60	25	100	-	20	20	35	25	50	-		
Silt	10	10	-	-	20	20	10	10	30	60		
Clay	30	40	-	-	50	50	55	50	-	40		
Detritus	-	-	-	-	10	10	-	-	-	-		
Shell	-	-	-	-	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	-	-	-	-	-		
Zeb coverage of substr	-	-	-	50	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-55. Site 46 unionid species and habitat characteristics (page 1 of 2).

Approx. NM	402.8	402.2	403.1	402.6	402.0	402.8	402.2	403.1	402.6	402.0	402.8	402.2	403.5
Bank	R	R	R	R	R	M	M	L	L	L	L	L	R
Bed/Patch	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	FD
<i>Obliquaria reflexa</i>	-	-	1	-	-	-	-	-	FD	-	-	-	1
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	1	-	-	-	1	-	-
Total	0	0	1	0	0	0	1	0	0	0	1	0	1
No. species live	0	0	1	0	0	0	1	0	0	0	1	0	1
No. species total	0	0	1	0	0	0	1	0	1	0	1	0	2
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification													
Existing	Dredge	-	-	-	-	Dredge	-	-	-	-	Dredge	-	-
Proposed	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	-
Habitat	Straight	Straight	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Straight	Straight
Depth (m)	1.8	-	2.1	4.0	2.7	4.0	4.0	2.7	4.0	2.7	2.7	-	3.0
Substrate													
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	15	-	-	-	-
Cobble	-	20	-	5	40	-	-	-	-	30	30	-	10
Gravel	30	-	-	10	-	75	5	30	-	-	-	-	-
Sand	-	20	-	20	-	25	5	-	25	-	-	20	25
Silt	-	20	30	40	-	-	5	-	20	40	40	20	25
Clay	70	40	70	25	60	-	85	70	30	30	30	60	40
Detritus	-	-	-	-	-	-	-	-	10	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	10	-	10	-	-	5	-	10	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-55. Site 46 unionid species and habitat characteristics (page 2 of 2).

Approx. NM Bank Bed/Patch	403.5 M	403.5 M	403.5 M	403.5 L	Total No.	%
<i>Leptodea fragilis</i>	-	-	-	-	FD	-
<i>Obliquaria reflexa</i>	-	-	-	-	2	50
<i>Potamilus ohioensis</i>	-	-	-	-	2	50
Total	0	0	0	0	4	
No. species live	0	0	0	0	2	
No. species total	0	0	0	0	3	
Appr. Density (no./m ²)	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	0.2	
Modification						
Existing	-	-	-	-		
Proposed	-	-	-	-		
Habitat						
Depth (m)	Channel 7.0	Channel 6.5	Straight 8.0	Straight 6.0		
Substrate						
Bedrock	-	-	-	-		
Boulder	-	-	-	-		
Cobble	-	-	-	-		
Gravel	20	5	15	-		
Sand	60	20	45	15		
Silt	20	20	15	10		
Clay	-	55	25	75		
Detritus	-	-	-	-		
Shell	-	-	-	-		
Zebras/unionid	-	-	-	-		
Zeb coverage of substr	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-56. Site 47 unionid species and habitat characteristics (page 1 of 5).

Approx. NM	420.3	420.3	420.5	420.3	421.3	421.2	421.2	421.0	420.4	420.3	419.8	419.8	419.8	419.7	419.0
Bank	R	R	M	M	L	L	L	L	L	L	R	R	R	R	R
Bed/Patch	DR-4	DR-4	DR-4	DR-4	DR-4	DR-4	DR-4	DR-4	DR-4	DR-4	DR-3	DR-3	DR-3	DR-3	DR-3
<i>Amblema plicata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	1	FD	-	-	-	WD	-	-	-
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	WD	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	-	-	5	5	1	-	1
<i>Pleurobema cordatum</i>	-	-	-	-	-	-	-	-	WD	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	WD	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	FD	-	1	-	-	1
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Total	0	0	0	0	0	0	1	1	0	0	7	6	2	0	3
No. species live	0	0	0	0	0	0	1	1	0	0	2	3	2	0	3
No. species total	1	0	0	0	0	0	1	2	2	1	2	3	2	0	3
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	Dredge	Dredge	Dredge	-	-	-	-	-	-	-	-
Proposed	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge
Habitat	Inside	Inside	Channel	Channel	TW	TW	TW	Island	Channel	Channel	Outside	Inside	Inside	Inside	Inside
Depth (m)	4.5	4.5	3.0	5.0	3.0	1.0	2.0	1.0	4.3	3.5	3.5	1.8	1.8	3.0	3.4
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	8	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	7	8	15	30	-	-	-	-	-	30	-	-	-	-	-
Gravel	8	10	25	30	-	5	-	100	25	5	10	30	-	-	
Sand	15	25	50	30	10	20	25	20	-	30	10	15	30	-	
Silt	7	10	10	10	10	10	10	10	-	15	5	10	10	-	
Clay	55	40	-	-	70	60	50	70	-	-	80	65	30	10	
Detritus	-	-	-	-	10	10	10	-	-	-	-	-	-	90	
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Zebras/unionid	-	-	-	-	-	-	2	-	-	-	2.9	1.3	13.0	-	
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-56. Site 47 unionid species and habitat characteristics (page 2 of 5).

Approx. NM	419.8	419.8	419.7	419.7	419.0	419.8	419.7	419.7	419.0	416.5	416.5	416.5	414.3	414.3	414.3
Bank	M	M	M	M	M	L	L	L	L	R	M	L	R	M	L
Bed/Patch	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-3	DR-2	DR-2	DR-2	DR-1	DR-1	DR-1
<i>Amblema plicata</i>	-	-	WD	-	-	WD	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	FD
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	1	-	-	-	-	-	-	-	1	-	-	-	-	-	5
<i>Pleurobema cordatum</i>	-	-	WD	WD	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	WD	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	WD	2	FD	-	FD	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	0	0	0	2	0	0	0	1	0	0	0	0	0	5
No. species live	2	0	0	0	1	0	0	0	1	0	0	0	0	0	1
No. species total	2	0	2	2	1	3	0	1	1	0	0	0	0	0	2
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge
Habitat	Channel	Channel	Channel	Channel	Channel	Channel	Outside	Channel	Outside	Straight	Straight	Channel	Straight	Channel	Channel
Depth (m)	5.0	3.0	4.3	4.3	4.9	3.0	5.2	4.3	4.3	2.4	3.4	4.3	4.3	4.0	4.0
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	10	-	-	-	20	-	-	-	-	-	-	-	-	-
Gravel	30	25	100	100	80	20	80	-	-	-	100	100	60	75	-
Sand	30	25	-	-	20	20	20	-	-	100	-	-	15	25	-
Silt	10	15	-	-	-	20	-	40	25	-	-	-	10	-	50
Clay	30	15	-	-	-	20	-	50	75	-	-	-	15	-	50
Detritus	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-56. Site 47 unionid species and habitat characteristics (page 3 of 5).

Approx. NM	414.3	415.9	415.6	415.0	415.0	418.4	417.2	417.2	416.9	416.1	412.2	411.8	411.6	411.6
Bank	L	R	R	R	R	R	R	R	R	R	R	R	R	R
Bed/Patch	DR-1													
<i>Amblema plicata</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Leptodea fragilis</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	-	-	-	1	2	-	-	-	-	-	1	-
<i>Pleurobema cordatum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	2	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	FD	-
<i>Quadrula nodulata</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	1	-	-	-	-	-	-	2	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Total	1	0	0	0	0	2	6	0	0	0	0	0	5	0
No. species live	1	0	0	0	0	2	4	0	0	0	0	0	4	0
No. species total	1	0	0	0	0	2	4	0	0	0	0	0	5	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification														
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	Dredge	-	-	-	-	-	-	-	-	-	-	-	-	-
Habitat	Straight	Outside	Outside	Outside	Oxbow	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight
Depth (m)	5.0	5.0	3.0	5.0	4.5	3.7	3.1	3.1	6.7	4.0	4.0	3.1	5.0	5.5
Substrate														
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	50	25	50	-	-	-	-	-	-	-	-	-	-
Cobble	-	25	50	25	-	-	-	-	-	-	-	-	-	-
Gravel	25	13	15	-	-	-	-	-	100	100	-	-	-	-
Sand	12	-	-	-	-	-	-	-	-	-	20	-	-	-
Silt	38	10	-	-	85	-	15	15	-	-	10	20	5	40
Clay	25	2	10	25	15	-	85	85	-	-	70	80	95	60
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	20	-
Zeb coverage of substr	-	-	-	1	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-56. Site 47 unionid species and habitat characteristics (page 4 of 5).

Approx. NM	418.4	417.9	417.2	416.9	416.1	415.9	415.6	412.2	411.8	415.0	417.9	415.9	415.6	415.0	419.7
Bank	M	M	M	M	M	M	M	M	M	M	M	L	L	L	L
Bed/Patch															
<i>Amblema plicata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pleurobema cordatum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohiensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	FD
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. species live	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. species total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Habitat	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Inside	Straight	Inside	Inside	Inside	Oxbow
Depth (m)	5.5	4.0	5.8	5.5	6.7	6.0	7.0	5.5	4.0	5.0	5.2	6.5	6.5	5.0	5.0
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	100	-	-	-	3	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50
Cobble	45	-	-	-	-	25	25	-	-	-	-	-	-	12	-
Gravel	45	75	75	75	90	40	25	80	90	-	75	-	-	13	50
Sand	10	15	15	25	-	25	-	20	10	-	15	50	-	5	-
Silt	-	10	10	-	10	-	-	-	-	-	10	25	50	5	-
Clay	-	-	-	-	-	10	50	-	-	-	-	25	50	62	-
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-56. Site 47 unionid species and habitat characteristics (page 5 of 5).

Approx. NM Bank Bed/Patch	419.7 L	419.7 L	419.7 L	419.7 L	418.4 L	417.9 L	417.2 L	416.9 L	416.1 L	412.2 L	411.8 L	411.6 L	411.5 L	Total No.	%
<i>Amblema plicata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.0
<i>Leptodea fragilis</i>	-	FD	-	-	-	-	-	-	-	-	-	-	-	2	3.9
<i>Megaloniaias nervosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	WD	
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	-	-	-	2	-	25	49.0
<i>Pleurobema cordatum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	WD	
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5.9
<i>Potamilus purpuratus</i>	-	1	-	1	-	-	-	-	-	-	1	-	-	5	9.8
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	FD	
<i>Quadrula nodulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.0
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	4	7.8
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	6	11.8
<i>Tritogonia verrucosa</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	4	7.8
Total	0	1	0	1	1	0	0	0	0	0	2	2	0	51	
No. species live	0	1	0	1	1	0	0	0	0	0	2	1	0	9	
No. species total	0	2	0	1	1	0	0	0	0	0	2	1	0	12	
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	
Modification															
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Habitat															
Depth (m)	Oxbow	Oxbow	Oxbow	Oxbow	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight		
Substrate	5.0	5.3	5.3	5.2	3.1	6.1	5.8	4.9	6.1	4.0	3.7	2.5	4.0		
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-		
Boulder	-	-	-	-	-	-	-	-	-	25	-	-	-		
Cobble	-	-	-	-	25	-	-	-	75	25	-	-	3		
Gravel	10	-	-	-	75	-	75	-	-	25	-	-	2		
Sand	-	-	-	-	-	-	15	-	-	25	-	-	-		
Silt	-	50	50	10	-	30	10	40	-	-	20	50	-		
Clay	90	50	50	90	-	70	-	60	25	-	80	50	95		
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-		
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-		
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-57. Site 48 unionid species and habitat characteristics.

Approx. NM Bank Bed/Patch	427.4 R DR-1	427.4 M DR-1	427.3 R	427.0 R	426.9 M	426.9 M	427.4 L	427.3 L	Total
Total	0	0	0	0	0	0	0	0	-
No. species live	0	0	0	0	0	0	0	0	-
No. species total	0	0	0	0	0	0	0	0	-
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-
Modification									
	Existing	-	-	-	-	-	-	-	-
	Proposed	Dredge	Dredge	-	-	-	-	-	-
Habitat		Inside	Channel	Inside	Inside	Channel	Channel	Outside	Outside
Depth (m)		1.5	7.9	4.2	4.8	4.5	5.1	7.9	4.2
Substrate									
	Bedrock	-	-	-	-	-	-	-	-
	Boulder	-	-	-	-	-	-	-	-
	Cobble	-	-	-	-	-	-	60	-
	Gravel	-	-	-	-	-	-	-	-
	Sand	-	-	-	-	-	-	-	-
	Silt	-	40	50	40	50	-	-	50
	Clay	-	60	50	60	50	100	40	50
	Detritus	-	-	-	-	-	-	-	-
	Shell	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-58. Site 49 unionid species and habitat characteristics (page 1 of 4).

Approx. NM	436.9	436.9	436.9	436.9	433.0	433.0	433.0	436.8	436.3	436.1	436.8	436.3	436.8
Bank	L	L	L	L	L	L	L	R	R	R	M	M	L
Bed/Patch	P49-2	P49-2	P49-2	P49-2	P49-1	P49-1	P49-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	2	6	5	1	8	6	4	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	1	-	1	-	-	-	-	-	-	-	-	1
<i>Quadrula p. pustulosa</i>	-	-	-	-	2	3	1	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>Tritogonia verrucosa</i>	-	1	-	-	1	-	-	-	-	-	-	-	1
Total	3	10	5	2	11	9	5	0	0	0	0	0	2
No. species live	2	4	1	2	3	2	2	0	0	0	0	0	2
No. species total	2	4	1	2	3	2	2	0	0	0	0	0	2
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification													
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge
Habitat	Outside	Outside	Outside	Outside	Inside	Inside	Inside	Inside	Inside	Inside	Channel	Channel	Outside
Depth (m)	3.9	3.9	3.9	3.9	5.0	4.0	4.8	3.9	1.5	4.5	6.0	4.8	3.9
Substrate													
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	-	-	-	50	70	-
Sand	-	-	-	-	30	20	25	-	-	-	25	20	-
Silt	25	25	25	25	30	20	25	40	10	25	25	10	25
Clay	50	50	50	50	40	60	50	60	80	50	-	-	50
Detritus	25	25	25	25	-	-	-	-	10	25	-	-	25
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	5%	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-58. Site 49 unionid species and habitat characteristics (page 2 of 4).

Approx. NM	436.3	434.3	434.2	434.0	433.8	433.5	434.3	434.0	433.8	433.5	433.5	434.3	433.8	433.5
Bank	L	R	R	R	R	R	M	M	M	M	M	L	L	L
Bed/Patch	DR-1	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	-	-	-	1	-	-	-	-	-	-	-	FD	-
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	-	-	1	-	-	-	-	-	-	-	-	1	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	FD	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	0	0	1	1	0	0	0	0	0	0	0	2	0
No. species live	0	0	0	1	1	0	0	0	0	0	0	0	2	0
No. species total	0	0	0	1	2	0	0	0	0	0	0	0	3	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification														
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge
Habitat	Outside	Straight	Straight	Inside	Straight	Straight	Channel	Channel	Channel	Channel	Channel	Straight	Outside	Straight
Depth (m)	3.0	4.0	5.0	2.8	5.0	3.8	4.0	5.5	4.5	5.0	4.8	-	2.5	2.0
Substrate														
Bedrock	-	65	-	-	50	-	30	45	-	50	100	-	-	-
Boulder	-	-	25	-	-	25	5	-	-	25	-	-	-	25
Cobble	-	-	-	-	-	-	10	-	-	-	-	-	-	15
Gravel	-	1	25	-	-	20	20	5	100	25	-	-	-	45
Sand	-	7	-	20	20	-	20	20	-	-	-	5	-	-
Silt	20	7	15	40	20	30	15	30	-	-	-	5	50	10
Clay	50	20	15	40	10	25	-	-	-	-	-	90	50	5
Detritus	30	-	20	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-58. Site 49 unionid species and habitat characteristics (page 3 of 4).

Approx. NM Bank Bed/Patch	435.8 R	435.6 R	435.6 R	435.3 R	435.3 R	433.0 R	437.1 R	437.0 R	434.8 R	434.6 R	437.1 M	437.0 M	435.8 M	435.5 M
<i>Lampsilis teres</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	1	-	-	-	1	-	1	-	-	-	-	-
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Potamilus ohioensis</i>	-	FD	-	-	-	-	-	WD	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	1	1	-	-	-	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	1	1	1	1	0	2	0	1	0	0	0	0	0
No. species live	0	1	1	1	1	0	2	0	1	0	0	0	0	0
No. species total	0	2	1	1	1	0	2	1	1	0	0	0	0	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification														
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Habitat	Inside	Inside	Inside	Inside	Inside	Outside	Straight	Straight	Straight	Straight	Channel	Channel	Channel	Channel
Depth (m)	5.0	1.5	0.8	1.0	5.8	4.0	3.0	5.1	1.8	5.0	5.4	6.0	7.0	6.5
Substrate														
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	25	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	25	-	-	-	25	-	-	10	10
Sand	40	20	15	15	25	-	100	-	25	5	40	20	50	50
Silt	20	20	15	15	20	5	-	40	25	20	20	30	15	10
Clay	20	60	70	70	50	45	-	60	40	50	40	50	25	30
Detritus	10	-	-	-	5	-	-	-	10	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-58. Site 49 unionid species and habitat characteristics (page 4 of 4).

Approx. NM Bank Bed/Patch	435.5 M	435.3 M	434.6 M	433.0 M	434.4 M	436.1 L	435.9 L	435.3 L	437.1 L	434.8 L	434.8 L	434.6 L	Total No.	%
<i>Lampsilis teres</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	1.6
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	1	-	-	-	1	7	11.3
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	-	-	-	-	-	-	33	53.2
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	-	-	-	1	-	-	2	3.2
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	-	-	-	-	-	-	2	3.2
<i>Quadrula nodulata</i>	-	-	-	-	-	-	-	-	-	1	-	-	6	9.7
<i>Quadrula p. pustulosa</i>	-	-	WD	-	-	-	-	FD	-	-	-	-	6	9.7
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	-	2	3.2
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	-	-	-	-	-	-	3	4.8
Total	0	0	0	0	0	0	0	1	0	2	0	1	62	
No. species live	0	0	0	0	0	0	0	1	0	2	0	1	9	
No. species total	0	0	1	0	0	0	0	2	0	2	0	1	9	
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	1.2	
Modification														
Existing	-	-	-	-	-	-	-	-	-	-	-	-		
Proposed	-	-	-	-	-	-	-	-	-	-	-	-		
Habitat	Channel	Channel	Channel	Channel	Tributary	Outside	Outside	Outside	Straight	Straight	Straight	Straight		
Depth (m)	5.0	7.0	5.0	5.0	3.5	4.5	5.0	5.0	3.0	5.5	5.8	4.5		
Substrate														
Bedrock	-	-	-	-	-	-	-	-	-	15	-	-		
Boulder	-	-	-	-	-	-	-	-	-	-	-	-		
Cobble	-	-	-	-	-	-	-	-	-	-	-	-		
Gravel	33	-	25	-	-	-	-	10	-	-	20	-		
Sand	33	60	35	-	7	-	2	15	-	50	10	25		
Silt	34	5	5	-	8	20	8	10	50	20	20	25		
Clay	-	30	35	100	85	70	87	60	50	-	50	50		
Detritus	-	5	-	-	-	10	3	5	-	15	-	-		
Shell	-	-	-	-	-	-	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-		
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-59. Site 50 unionid species and habitat characteristics (page 1 of 3).

Approx. NM	442.8	442.8	442.8	442.8	442.8	444.7	444.6	444.5	444.3	444.2	444.0	443.7	444.5	444.4	444.2
Bank	L	L	L	L	L	M	M	M	M	M	M	M	L	L	L
Bed/Patch	P50-1	P50-1	P50-1	P50-1	P50-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1	DR-1
<i>Amblyma plicata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	4	-	1	-	-	-	-	-	-	-	-	-	-
<i>Obliquaria reflexa</i>	2	5	7	1	-	-	-	-	-	-	WD	-	-	1	-
<i>Potamilus ohioensis</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	WD	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	2	-	1	-	-	-	-	1	-	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tritogonia verrucosa</i>	1	3	-	FD	-	-	-	-	-	-	-	-	-	-	-
Total	4	11	13	2	1	0	0	0	1	0	0	0	0	1	0
No. species live	3	4	4	2	1	0	0	0	1	0	0	0	0	1	0
No. species total	3	4	5	3	1	0	0	0	1	0	1	0	0	1	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification															
Existing	-	-	-	-	-	Dredge	Dredge	Dredge	-	-	-	-	Dredge	-	-
Proposed	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge
Habitat	Straight	Straight	Straight	Straight	Straight	Channel	Channel	Channel	Channel	Channel	Channel	Channel	Straight	Straight	Straight
Depth (m)	2.5	2.5	2.5	1.5	1.5	5.0	4.8	4.3	4.5	4.5	4.2	4.2	4.0	3.0	2.7
Substrate															
Bedrock	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	80	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	10	30	90	-	25	-	-	-	-
Sand	-	-	-	-	-	-	-	30	-	90	25	100	-	-	-
Silt	50	20	20	10	10	60	-	40	10	10	-	-	80	50	20
Clay	50	80	80	90	90	-	-	-	-	-	50	-	20	50	80
Detritus	-	-	-	-	-	40	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	2	5	4	-	-	-	-	1	-	-	-	-	1	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-59. Site 50 unionid species and habitat characteristics (page 2 of 3).

Approx. NM	444.0	443.7	443.4	442.3	443.0	442.9	443.1	442.7	442.5	442.3	442.0	443.2	441.5	440.7
Bank	L	L	L	R	R	R	M	M	M	L	L	L	M	M
Bed/Patch	DR-1	DR-1	DR-1	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-2	DR-3	DR-3
<i>Amblyma plicata</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Leptodea fragilis</i>	-	-	-	FD	-	-	-	-	-	-	-	1	-	-
<i>Obliquaria reflexa</i>	1	-	-	-	-	-	-	-	1	1	-	1	-	-
<i>Potamilus ohioensis</i>	-	-	FD	-	1	-	-	-	-	-	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-
<i>Pyganodon grandis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula nodulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<i>Quadrula quadrula</i>	-	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Tritogonia verrucosa</i>	1	-	-	-	1	1	-	-	-	-	-	-	-	-
Total	3	0	0	1	2	2	0	0	2	1	0	2	0	0
No. species live	3	0	0	1	2	2	0	0	2	1	0	2	0	0
No. species total	3	0	1	2	2	2	0	0	2	1	0	2	0	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification														
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge	Dredge
Habitat	Straight	Straight	Straight	Outside	Straight	Straight	Channel	Channel	Channel	Inside	Inside	Straight	Channel	Channel
Depth (m)	2.7	3.3	2.7	5.3	3.0	1.5	5.0	5.5	6.0	4.0	2.5	3.0	4.8	4.2
Substrate														
Bedrock	-	-	-	-	-	-	100	-	-	-	-	-	-	-
Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobble	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	45	-	-	10	-	30	-
Sand	-	-	-	-	-	5	-	-	90	-	-	-	70	100
Silt	20	20	30	50	40	25	-	40	-	40	10	80	-	-
Clay	80	80	70	50	60	70	-	15	10	60	80	20	-	-
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	50	5.5	0.5	-	-	-	50	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
 R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

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Table 3-59. Site 50 unionid species and habitat characteristics (page 3 of 3).

Approx. NM Bank Bed/Patch	440.0 M DR-3	441.5 L DR-3	440.7 L DR-3	440.0 L DR-3	444.8 L	442.0 R	Total No.	%
<i>Amblyma plicata</i>	-	-	-	-	-	-	1	2.2
<i>Leptodea fragilis</i>	-	-	-	-	-	-	6	13.0
<i>Obliquaria reflexa</i>	-	-	-	-	-	-	20	43.5
<i>Potamilus ohioensis</i>	-	-	-	-	-	-	2	4.3
<i>Potamilus purpuratus</i>	-	-	-	-	-	-	3	6.5
<i>Pyganodon grandis</i>	-	-	-	-	-	-	WD	
<i>Quadrula nodulata</i>	-	-	-	-	-	-	1	2.2
<i>Quadrula p. pustulosa</i>	-	-	-	-	-	-	5	10.9
<i>Quadrula quadrula</i>	-	-	-	-	-	-	1	2.2
<i>Tritogonia verrucosa</i>	-	-	-	-	-	-	7	15.2
Total	0	0	0	0	0	0	46	
No. species live	0	0	0	0	0	0	9	
No. species total	0	0	0	0	0	0	10	
Appr. Density (no./m ²)	-	-	-	-	-	-		
Mean No./5min (CPUE)	-	-	-	-	-	-	1.3	
Modification								
Existing	-	-	-	-	-	-		
Proposed	Dredge	Dredge	Dredge	Dredge	-	-		
Habitat	Channel	Inside	Inside	Straight	Straight	Oxbow		
Depth (m)	3.0	3.0	3.9	5.7	3.0	2.0		
Substrate								
Bedrock	-	-	-	-	-	-		
Boulder	-	-	-	-	40	-		
Cobble	-	-	-	-	-	-		
Gravel	-	-	-	-	-	-		
Sand	-	-	-	60	-	-		
Silt	30	10	30	40	30	10		
Clay	70	80	70	0	30	90		
Detritus	-	10	-	-	-	-		
Shell	-	-	-	-	-	-		
Zebras/unionid	-	-	-	-	-	-	4.5	
Zeb coverage of substr	-	-	-	-	-	-		

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell
R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-60. Site 51 unionid species and habitat characteristics (page 1 of 2).

Approx. NM Bank Bed/Patch	AB0.9 R	AB0.7 R	AB0.1 R	AB0.0 R	444.9 R	AB0.5 M	AB0.4 M	AB0.4 M	AB0.3 M	AB0.8 M	AB0.6 M	AB0.3 M	AB0.1 M
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	WD	-	-	-	-
<i>Potamilus purpuratus</i>	-	-	-	-	WD	-	-	-	-	-	-	-	-
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
No. species live	0	0	0	0	0	0	0	0	0	0	0	0	0
No. species total	0	0	0	0	1	0	0	0	1	0	0	0	0
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	-	-	-	-	-
Modification													
Existing	-	-	-	-	-	-	-	-	-	-	-	-	-
Proposed	-	-	-	-	-	-	-	-	-	-	-	-	-
Habitat	Straight	Straight	Inside	Outside	Outside	Straight	Straight	Straight	Outside	Channel	Channel	Channel	Channel
Depth (m)	-	-	4.0	4.0	4.0	3.5	4.5	4.5	4.3	-	4.5	4.9	6.4
Substrate													
Bedrock	-	-	-	-	-	-	-	-	-	100	100	-	-
Boulder	-	-	-	50	-	-	-	-	40	-	-	-	30
Cobble	50	-	-	50	-	-	-	-	40	-	-	50	30
Gravel	50	-	50	-	25	-	10	-	10	-	-	50	30
Sand	-	-	50	-	15	40	35	10	10	-	-	-	-
Silt	-	-	-	-	20	10	15	40	-	-	-	-	10
Clay	-	100	-	-	40	50	40	50	-	-	-	-	-
Detritus	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell	-	-	-	-	-	-	-	-	-	-	-	-	-
Zebras/unionid	-	-	-	-	-	-	-	-	-	-	-	-	-
Zeb coverage of substr	-	-	-	-	-	-	-	-	-	-	1	-	-

AB = Distance above navigation (NM 445.0 ends navigable waterway)

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell

R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 3-60. Site 51 unionid species and habitat characteristics (page 2 of 2).

Approx. NM Bank Bed/Patch	AB0.0 M	AB0.9 L	AB0.0 L	AB0.2 L	AB0.3 L	AB0.0 L	445.0 L	444.9 L	Total No.
<i>Leptodea fragilis</i>	-	-	-	-	-	-	-	-	WD
<i>Potamilus purpuratus</i>	-	-	-	1	-	-	-	-	1
Total	0	0	0	1	0	0	0	0	1
No. species live	0	0	0	0	0	0	0	0	
No. species total	0	0	0	1	0	0	0	0	
Appr. Density (no./m ²)	-	-	-	-	-	-	-	-	
Mean No./5min (CPUE)	-	-	-	-	-	-	-	-	0.0
Modification									
Existing	-	-	-	-	-	-	-	-	
Proposed	-	-	-	-	-	-	-	-	
Habitat	Channel	Straight	Straight	Outside	Inside	Inside	Inside	Inside	
Depth (m)	6.4	3.5	2.2	3.7	3.4	4.0	4.5	4.0	
Substrate									
Bedrock	-	-	-	-	-	-	-	-	
Boulder	-	-	10	-	-	50	-	10	
Cobble	50	-	-	-	-	-	-	-	
Gravel	25	-	80	-	-	25	40	-	
Sand	25	-	10	-	25	-	40	20	
Silt	-	-	-	20	25	-	20	70	
Clay	-	100	-	80	-	-	-	-	
Detritus	-	-	-	-	50	25	-	-	
Shell	-	-	-	-	-	-	-	-	
Zebras/unionid	-	-	-	-	-	-	-	-	
Zeb coverage of substr	-	-	-	-	-	-	5	-	

AB = Distance above na

DI=disposal, DF=dike field, DR=dredge, FD=fresh dead shell, NM=navigation mile, TW=tailwaters, WD=weathered dead shell

R=right desc. bank, M=midchannel, L=left desc. bank, B=bed, P=patch

Table 4-1. Number of unionid beds and patches, their occurrence in dredge and disposal areas.

Reach	Beds	Patches	Dredge Sites No. sampled	Unionids in dredge sites		Disposal sites No. sampled	Unionids in dredge sites	
				No. beds	No. patches		No. beds	No. patches
1	8	10	10	3	0	19	2	4
2	1	0	1	0	0	1	0	0
3	3	8	24	2	0	15	1	1
4	2	2	9	0	0	4	0	0
5	1	14	21	0	1	2	0	2
6	0	3	15	0	1	0	0	0
Total	15	37	80	5	2	41	3	7
% with beds or patches			8.8			24.4		

Table 4-2. Summary of impacts to unionids and mitigation suggestions.

Reach	Site	dredge/disposal	Impact			Mitigation suggestions
			Major impact	Moderate	Minor impact	
1	1	dredge		x		delineate bed and protect from future dredging if necessary, monitor for impacts of impoundment relocate # unionids to other areas, possibly placing a subset in a refugia to be reintroduced at a later date protect B4-1 from disposal activity if possible protect B6-1 from disposal activities if possible protect B7-1 and P7-1 from disposal activities if possible
	2	dredge	x			
	4	disposal		x		
	6	disposal		x		
	7	disposal		x		
2	8	disposal			x	none, will only affect scattered unionids recommend sampling disposal area NM95-96 before disposal activities occur
	9	disposal		?		
3	11	disposal		x		delineate bed and protect from future disposal activities if possible protect P13-1 & P13-2 from future disposal activities if possible monitor B22-1 & B22-2 & establish 150m buffer zone between bed and dredge area
	13	disposal		x		
	22	dredge		x		
5	31	dredge			x	none, will only affect a few scattered unionids avoid B33-1 if possible none, will only affect a few scattered unionids avoid P35-1 if possible avoid all areas within 20m of banks if possible
	33	dredge		x		
	34	dredge			x	
	35	disposal		x		
	39	dredge			x	
6	50	dredge			x	Avoid P50-1 if possible This area seemed suitable for unionids, possible mitigation site
	51	no activity				

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Table 5-1. Arkansas Mussel Mitigation

Arkansas Post Canal-NM 10.5 to 19.0 (Beds 2-1, 2-2, 2-3)

Location	Description	Year	Cost
Relocation sites	Survey Lake for relocation site potential, 5-min qualitative dives to delineate areas and 1m2 quantitative samples to determine density. If additional area is needed survey Moore Bayou and Post Lake.	2006	\$40,000
Post Canal	Quantitative survey to determine actual density in Beds 2-1, 2-2, 2-3	2006	\$20,000
Post Canal	Relocate 60,000 unionids from Post Canal to Sites selected during above survey	2006	\$200,000
Post Canal	Relocate 30,000 unionids from Post Canal to Piney Bay	2006	\$140,000
Relocation Areas	Monitor relocated unionids in Merrisach, Moore Bayou, Post Lake, Piney Bay, and Beds 2-1, 2-2, 2-3 for once a year for three years, then every other year till year 2015 (6 monitoring events) or until habitat in Post Canal is suitable for recolonization	2007-2015	\$44,000/yr (w/2% incr/yr) = \$285,000
Post Canal	Relocate 60,000 animals back into suitable habitat areas within the canal.	2016	\$255,000
Post Canal	Monitor relocated unionids in Canal once for 3 years, then every other year until 2025	2017-2025	\$205,000
Post Canal	Propagate and release 3,000,000 juvenile unionids into Post Canal (cost based on \$2,250,000-other mitigation)	2016-2018	\$725,000
TOTALS			\$1,870,000

Arkansas Post Canal to L&D 3-NM 19.0 to NM 75.2

Location	Description	Year	Cost
B4-1 (NM 23-24)	Protect from future disposal		
P4-1 & P4-2 (NM 23.5) (P5-1 (NM32.2)	Protect from future disposal		
B6-1 (NM 38.6)	Protect from future disposal; Baseline (2007) and monitoring following three high water events of bed near a disposal site	2006-2009	\$125,000
P6-3 (NM 36.3)	Protect from future disposal		
P6-2 (NM 37.6)	Protect from future disposal		
P6-1 (NM 38.6)	Protect from future disposal		
P7-2 (NM 48.0)	Protect from future disposal		
P7-1 (NM 48.5)	Protect from future disposal		
Mud Lake (NM 48.5)	Survey to determine unionid distribution prior to dredging for channel to boat ramp (travel included in Post Canal surveys)	2006	\$5,000
TOTALS			\$130,000

Reach 3 NM 119.5 to 220.3

River Mile	Description	Acres	Cost
B11-1 (NM 126.5)	Keep dredge material at least 100m riverward of bed; Baseline (2007) and monitoring following three high water events of bed near a disposal site	2006-2009	\$125,000
P13-1 (NM 146.5)	Keep dredge material out of tributary		
P13-2 (NM 146.5)	Keep dredge material out of tributary; Baseline (2007) and monitoring following three high water events of bed near a disposal site	2006-2009	\$125,000
TOTALS			\$250,000

Table 5-2. Oklahoma Mussel Mitigation

Reach 5 (NM 308.5 to 394.8

Pool 13 NM 308.5 to 319.5

River Mile	Description	Year	Cost
309.8 – 310.3	Sample proposed dike modification area for mussels	2006	\$3500
310.4	Sample proposed dike modification area for mussels	2006	\$3500
311.5 – 313.7	Sample proposed dike modification area for mussels	2006	\$3500
311.5 – 312.5	Sample dredge site	2006	\$3500
314.8 – 315.8	Sample proposed dike modification area for mussels	2006	\$3500
TOTALS			\$17,500

Pool 14 NM 319.5 to 336.5

River Mile	Description	Year	Cost
320-321	Sample proposed dike modification area for mussels	2006	\$3500
321-323	Sample proposed dike modification area for mussels	2006	\$3500
323.7 – 323.9	Sample proposed dike modification area for mussels	2006	\$3500
323 – 324	Sample proposed dike modification area for mussels	2006	\$3500
326.7- 328.1	Sample proposed dike modification area for mussels	2006	\$3500
334.2 (P32-1)	Stop dredging 300m upstream of this patch		
TOTALS			\$17,500

Pool 15 NM 336.5 to 366.6

River Mile	Description	Year	Cost
336.4 (P33-1)	Avoid Disposal Right Descending Bank to protect Mussel Bed. Sample for possible relocation site, if selected, monitor at least three years following relocation then yr 5, 7, and 9	2006-2015	\$115,000
SBC 4.8 (P35-1)	Mussel patch will be delineated and the disposal area will be designed to avoid impacts to mussel patch. Mussel patch will be protected during in-water disposal by silt curtain. Disposal will not occur within 100 meters of mussel patch. Patch will be monitored before disposal, within 6mo. of disposal, and 1 yr of disposal.	2006-2007	\$15,000
SBC 6.6 (P35-2)	Mussel patch will be protected by a silt curtain prior to dredging. Patch will be sampled before dredging, and within 6mo. and 1 yr. after dredging.	2006-2007	\$15,000
SBC 8.0 (P35.4)	Mussel patch will be protected by silt curtains prior to dredging. Patch will be sampled before dredging, and within 6mo. and 1 yr. after dredging.	2006-2007	\$15,000
341.5–344.5 (DR-1)	Relocate mussels in dredge location to mussel patch 36-1 in Sallisaw Creek or mussel bed 33-1 right descending bank above Kerr L&D	2006	\$53,500
343 (P36-1)	Sample for possible relocation site, if selected, monitor at least three years following relocation then yr 5, 7, and 9	2006-2015	\$115,000
345 (DR-2)	Relocate mussels in dredge location to mussel patch 36-1 or mussel bed 33-1	2006	\$20,000
353.5 – 354.3	Sample dredge disposal/riprap area	2006	\$3500
360.6	Sample proposed dike modification area	2006	\$3500
361 – 363	Sample dredge, overdredge area	2006	\$3500

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365.6–365.6 (P39-3, P39-4)	Mussel patches will be protected by silt curtains prior to dredging. Patches will be sampled before dredging, and within 6mo. and 1 yr. after dredging.	2006- 2007	\$30,000
TOTAL			\$274,000

Pool 16 NM 366.6 to 394.0

River Mile	Description	Year	Cost
367 (Site 40)	More intensive search of Site 40 (least tern mitigation)	2006	\$3500
380.5 – 381.8	Sample dredge area and disposal site	2006	\$3500
382.5 – 384.5	Sample dredge sites, including mouth of Hopewell Creek	2006	\$3500
TOTAL			\$10,500

Reach 6 NM 394.0 to above navigation

Pool 16 NM 394.0 to 401.5

River Mile	Description	Year	Cost
392.1 – 392.0	Sample dike modification area	2006	\$3500
393.2 – 394.1	Sample dike modification area	2006	\$3500
393.8 – 394.0	Sample dike modification area	2006	\$3500
398.8	Sample oxbow mouth; investigate for possible mussel rehabilitation site	2006	\$3500
TOTAL			\$14,000

Pool 17 NM 401.5 to 421.5

River Mile	Description	Year	Cost
407	Sample upstream and downstream mouths of loop; investigate for possible mussel rehabilitation site	2006	\$3500
407.5	Sample dredge area	2006	\$3500
408.8	Sample mouth of Strawberry Creek	2006	\$3500
408.9	Sample mouth of Billy Creek cutoff	2006	\$3500
418.8	Sample mouth of oxbow	2006	\$3500
TOTAL			\$17,500

Pool 18 NM 421.5 to above navigation

River Mile	Description	Mussel ID	Cost
421.5 – 422.0	Sample dredge area	2006	\$3500
426.7	Sample mouth of Commodore Creek	2006	\$3500
429 –430	Sample dredge area	2006	\$3500
437 (P49-2)	Investigate for mussel relocation site; monitor yr 1, 2, 3, 5, 7, 9	2006- 2015	\$40,000
442.8 (P50-1)	Relocate mussel patch at dredge to mussel patch P49-2 at RM437.0	2006	\$10,000
450 – 455	Investigate for possible mussel rehabilitation site	2006	\$3500
TOTAL			\$64,000