

STRANDED AQUATIC ORGANISM SURVEY

**RRWC URRWRCP Impoundment Drawdown
EGLE Permit No. WRP038291 v.1
Village of Brooklyn, Jackson County, MI**



 **NISWANDER**
ENVIRONMENTAL

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Brooklyn Impoundment Partial Drawdown Stranded Aquatic Organism Rescue and Relocation Data

I. INTRODUCTION

Dam owner(s) and address: Daniel Ross, 7190 Brooklyn Road, Jackson MI 49201

EGLE Permit: WRP038291 v.1

Dam function: Supplied hydroelectric power though 2006, however since that time the dam has no function.

Regulatory authority: The Brooklyn Dam is regulated by the Department of Environment, Great Lakes, and Energy (EGLE) under Part 315, Dam Safety of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

Name: Impoundment: Brooklyn Impoundment/Millpond

Tributary: River Raisin and Kedron Drain

Size (acres): Approx. 23.33-acre impoundment

Depth: Maximum depth 14 feet (ft)

Substrate: Detritus (peat) and dense mats of aquatic vegetation covering 90-100% of the downstream impoundment behind the Old Irish Mill. Vegetation dominated by submergent invasive Eurasian watermilfoil (*Myriophyllum spicatum*) and curly leaf pondweed (*Potamogeton crispus*). The upstream impoundment consisted largely of emergent white-water lily (*Nymphaea odorata*) and spatterdock (*Nuphar advena*) occupying nearly 100% of the upper limits of the impoundment with dense stands of submergent muskgrass (*Chara* spp.).

Coordinates: 42.10928, -84.24565

River mile: Brooklyn Dam is located 11 river miles from the headwaters near Mercury Lake, Lenawee County, MI along its 149-mile route where the River Raisin terminates in Lake Erie at Monroe, MI.

Project Location: Brooklyn Dam and the associated impoundment are located at 221 Mill Street, in the Village of Brooklyn, Columbia Township, Jackson County, MI. Township 04S, Range 02E, Section 19.

County: Jackson

Drainage area at survey site: The dam is located on the River Raisin River, within the Norvell Lake River Raisin sub watershed (HUC12: 041000020102). The total drainage area for the sub watershed is approximately 33,315 acres with the watershed area upstream of the dam at approximately 19,519 acres. The impoundment is located within the headwater's region of the watershed and drains a large complex of lakes and wetlands located upstream.

Surrounding land use: Agricultural, Developed, Emergent/Scrub Shrub Wetland, Floating Leaf-Aquatic, Open Water Impoundment-Aquatic, Residential, and Riparian Forest.

II. DESCRIPTION OF DRAWDOWN

Purpose – Permanent partial drawdown of the Brooklyn Impoundment of approximately 11 ft. A complete drawdown, additional 7.5 ft., and restoration of approximately 1,500 ft. of the River Raisin utilizing Natural Channel Design through the former impoundment in 2025.

Rate and Duration: EGLE permit conditions required a drawdown rate of no more than 0.5 ft. per day, however, to reduce organism stranding, sediment mobilization and flow to downstream receiving waters the rate of drawdown was conducted over a 39-day period from August 8 through September 18, 2023, for an average drawdown rate of 0.17 ft. per day.

Methods: Daily inspections of the drawdown area were conducted during the entire drawdown period.

Personnel: Stranded aquatic organism survey rescue and relocation efforts were conducted by staff of Niswander Environmental.

Pre-Drawdown Aquatic Organism Survey: SCUBA mussel survey was conducted in the impoundment on June 6, 2023, prior to the drawdown, to locate any mussels in the impoundment to then be relocated. No mussels or mussel habitat was identified during the SCUBA survey. A detailed survey report is currently in prep and will be submitted to agencies when completed.

Date(s) of stranded aquatic organism survey: Daily stranded aquatic organism surveys were initiated on August 8 and concluded on September 18. However, additional surveys were conducted after conclusion of the drawdown through October 13, 2023.

III. DESCRIPTION OF SURVEY

Type of stranded aquatic organism survey completed: Visual inspection of Brooklyn impoundment (Figure 1 below).

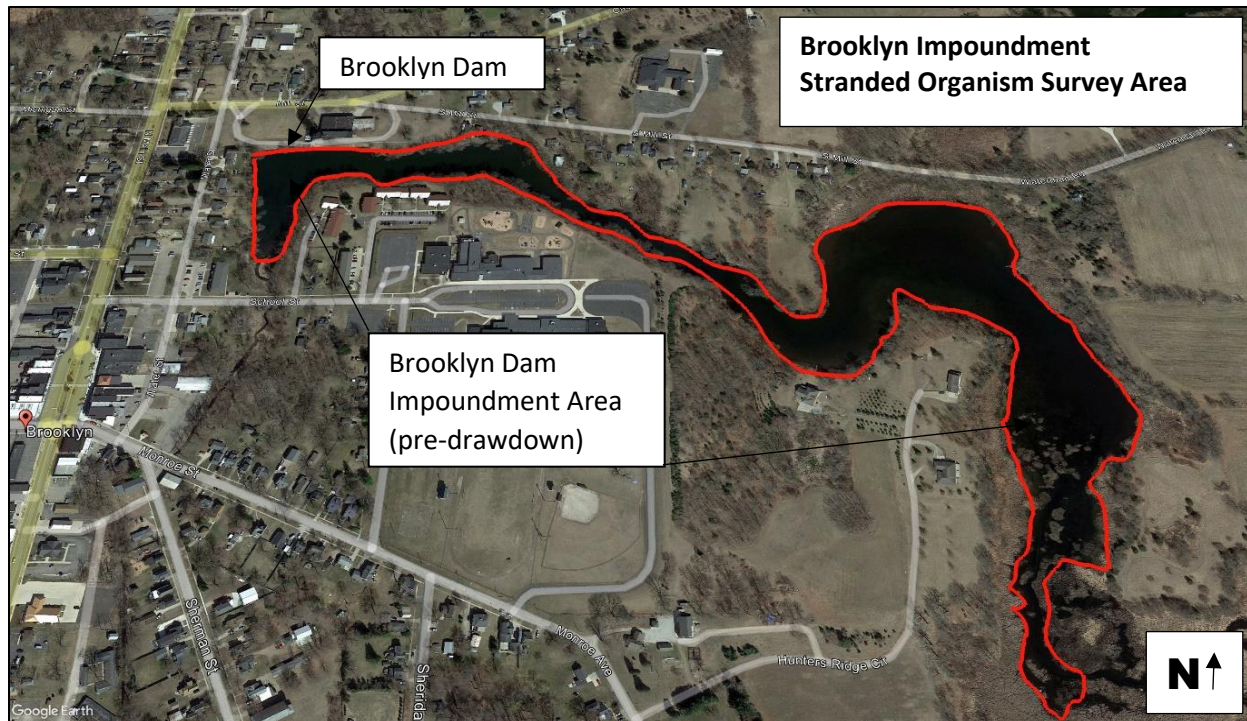


Figure 1: Stranded Aquatic Organism Survey Area Map

Method of detection: Visual inspections utilizing kayaks, walking/wading surveys and view buckets as needed.

Search area for stranded aquatic organisms: Niswander Environmental staff conducted daily stranded organism surveys in the dewatered portion of the impoundment in the early morning to collect stranded organisms to reduce stress from rising air temperatures and mortality due to predators.

Stranded aquatic organism handling and processing procedures:

Stranded aquatic organisms were identified to species, measured (total length, mm) and representative photos taken. Organisms were placed into appropriate travel equipment for relocation. A staff member relocated the organisms to the relocation reach for immediate release (Figure 2).



Figure 2: Relocation Reach Map – Swain Park

All appropriate permits and permissions for this project have been issued per state and federal agency requirements. Additionally, Niswander Environmental and Holland Engineering staff have Scientific Collectors permits through Michigan Department of Natural Resources (MDNR).

Safety and access issues: Nearly the entirety of the Brooklyn impoundment substrate consists of flocculent detritus making it unsafe and impossible to walk on, so the survey was largely conducted by kayak and from the shoreline. Due to numerous private ownership issues around the perimeter of the impoundment this methodology was the most efficient and effective method for conducting the survey.

IV. RESULTS

Niswander staff conducted a thorough daily stranded aquatic organism survey dedicating over 35 hours during and after the drawdown period looking for organisms that were stranded or may have succumb to mortality due to stress induced by the drawdown of the Brooklyn impoundment (Appendix A). A summary of the daily data is shown in Appendix B and more detailed data is documented in Table. 1 depicting species, number, and total length range in mm. In total, 210 fish representing 10 species were collected in the impoundment and relocated downstream of the Brooklyn Dam in the River Raisin at Swain Park. In addition, 3 common carp and 1 northern pike were found dead and largely decomposed downstream of the dam in the River Raisin. The length of these individual fish would have been greater than 250 mm.

No mussels were observed during the drawdown and only one shell from a giant floater that had been dead for some time was observed. See Appendix C for related photos of stranded aquatic organisms.

Species	Number Live	Number Dead	Total Length Range (mm)
Black Crappie (<i>Pomoxis nigromaculatus</i>)	7	0	53-217
Bluegill (<i>Lepomis macrochirus</i>)	71	0	50-153
Brown Bullhead (<i>Ameiurus nebulosus</i>)	2	0	254,308
Common Carp (<i>Cyprinus carpio</i>)	1	3*	163
Common Shiner (<i>Luxilus cornutus</i>)	2	0	70-80
Golden Shiner (<i>Notemigonus crysoleucas</i>)	1	0	162
Green Sunfish (<i>Lepomis cyanellus</i>)	26	0	76-149
Hybrid Sunfish (<i>Lepomis</i> spp.)	19	0	102-156
Northern Pike (<i>Esox lucius</i>)	0	1*	
Pumpkinseed (<i>Lepomis gibbosus</i>)	72	0	76-130
Redear (<i>Lepomis microlophus</i>)	12	0	101-127
Giant Floater (<i>Pyganodon grandis</i>)	0	1	84 length 54 width
Total	213	4	
* Indicates fish not able to be accurately measured due to decomposition, however greater than 250 mm in TL			

Table 1. Fish species, number, and total length collected during the stranded aquatic organism survey.



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Finding solutions in a complex world

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Appendix A

DAILY DRAWDOWN LOG AND STRANDED AQUATIC ORGANISM
SURVEY DATA SHEETS

Brooklyn Dam Drawdown Log

Date: 8.11.23 Drawdown Date Day 1

Arrive Time: 1345 Depart Time: 1500

Staff: Chris Freiburger

Staff Gage Reading N/A Time _____

Optic Viewer 0.11 Time 1330

Weather:

Air Temperature 77°F

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear

Detail Actions Taken (i.e. details on gate adjustment):

- Open gate w/screw From Flat 0.56 - 0.8' raised gate approx. 0.25'
- Water depth over spillway 0.3' at 1335
- measure with rod from SE concrete flat upstream was 7.3'
- WBL above depth of refusal 17.7'
- Flow measurement at Swan Park at Bridge: 6, 7, 10 seconds = $\bar{x} = 7.6$ seconds

Note any Concerns:

none

$$\begin{aligned} 25' \times 0.6' \times 3.28 \text{ Fps} &= 49.2 \text{ cfs} \\ &\times 0.85 \\ \hline &41.8 \text{ cfs} \end{aligned}$$

No stranded fish or mussels (30 minutes)

Communication with Others at Project Site:

Photo Log: screw before + after, locked turnstyle, photo point river raise, bottom of dam looking up, looking down at discharge clear, ~~view~~ Nooney Dam

Recorder: Chris Freiburger

Brooklyn Dam Drawdown Log

Date: ^B 7.12.23

Drawdown Day 2

Arrive Time: 0830

Depart Time: 1100

Staff: Chris Freiburger / Todd hosea

Staff Gage Reading rod 7.4' to W61 Time 0845 + H₂O over spillway 0.2'

Optic Viewer er04 D.03 Time 0838

Weather:

Air Temperature 74°F

Water Temperature —

Water Clarity (i.e. clear, opaque, turbid, muddy) clear

Detail Actions Taken (i.e. details on gate adjustment):

Raised screw gate from 0.85 → 1.00' @ 0845
Sluice gate should be raised approximately 0.5'

Note any Concerns:

N/A

No stranded fish or mussels (30 minutes)

Communication with Others at Project Site:

N/A

Photo taken looking down at sluiceway discharge

Recorder: Chris Freiburger

Brooklyn Dam Drawdown Log

Date: 9.13.23 Drawdown Date 3

Arrive Time: 0850 Depart Time: 0952

Staff: Chris Freiburger

Staff Gage Reading - N/A Time 0907

Stadia rod 7.68 WS

Optic Viewer - 0.26 Time 0823

Weather:

Air Temperature 68°F

Water Temperature _____

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear

Detail Actions Taken (i.e. details on gate adjustment):

Sluice gate sawed at 1.06 moved to ~~1.0~~ 1.12 (0.06) = (turns)
@ 0925

Flow measurement at Swain's Park

Float time: 13.5s
15.0s = $\bar{y} = 14.7$ sec
15.6 sec

25' wide x 0.65 D x 16.25 ft²

25 Ft / 14.7 sec = 1.7 Ft/sec

27.6
x 0.85
23.4 cfs

Note any Concerns:

No concerns all flow thru gate spillway has no flow over the top

No stranded fish or mussels (30 minutes)

Communication with Others at Project Site:

Photo Log: 2 photos of impoundment (river raise + Kedron), water clarity shot down to sluice gate discharge,

Recorder: Chris Freiburger

bottom of dam looking to wing dam

Brooklyn Dam Drawdown Log

Date: 8/14/23 Drawdown Date 4

Arrive Time: 0715 Depart Time: _____

Staff: Chris Freiburger Stadia rod 8.42 to WSL

Staff Gage Reading ~~12.28~~ 12.28 Time 0913

Optic Viewer 0625 = -0.94 Time 0625 reading ~~0625~~

Weather:

Air Temperature 67°F

Water Temperature _____

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear

Detail Actions Taken (i.e. details on gate adjustment):

- Turned screw gate 3 turns to move gate down to 1.1 @ 0715
- 12.6' from WSL to depth of refusal at stadia rod reading location
- install boat barrier upstream of dam
- Staff gage installed 12.28 @ 0913

Other:

8/14/2023 10:46am Cranked down 3 turns
Screw Hgt was at 1.10, now 1.06
Staff Gage @ 12.18

No stranded fish
or
mussels
(30 mins)

8/14/2023 2:26pm
Staff Gage 12.02, cranked 5 times (Screw Hgt WSL 1.04, now 1.00)

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Screw on screw gate after adjustment
Photo of staff gage

Recorder: Chris Freiburger

715 1.04
900 1.10

Brooklyn Dam Drawdown Log

Date: 8/15/2023 Drawdown Date 5

Arrive Time: 9:49 am Depart Time: 11:15 am

Staff: T. Losee

Staff Gage Reading 12.36 Time 9:50 am

Optic Viewer 0.82 Time 9:47 am

Weather:

Air Temperature 62°

Water Temperature _____

Water Clarity (i.e. clear, opaque, turbid, muddy) clear

Detail Actions Taken (i.e. details on gate adjustment):

Turned screw gate 2 turns to move gate up to 1.2 @ 9:55
Screw started at 1.0, move to 1.2 (up 0.2 inches)

No stranded fish or mussels (30 minutes)

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: Screw gate photos of adjustments

Recorder: 

Brooklyn Dam Drawdown Log

Date: 8/16/23 Drawdown Date _____

Arrive Time: 09:10 Depart Time: 11:05

Staff: J. BRIDGLAND

Staff Gage Reading 12.56 Time 09:12

Optic Viewer -0.80 Time 09:10

Weather:

Air Temperature 63°F

Water Temperature _____

Water Clarity (i.e. clear, opaque, turbid, muddy) CLEAR

Detail Actions Taken (i.e. details on gate adjustment):

TURNED SCREW GATE 2 TURNS TO MOVE GATE UP TO $12\frac{5}{16}$ " , or 1.03 FT. @ 09:15. INITIAL HT. WAS $12\frac{2}{16}$ " , or 1.01'

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: SCREW GATE AFTER 2 TURNS @ STAFF GAGE

Recorder: Jeff Bridgland

Brooklyn Dam Drawdown Log

Date: 8-17-2023 Drawdown Date _____

Arrive Time: 9:20 Depart Time: 9:45

Staff: ~~1260~~ LOSEE

Staff Gage Reading 12.60 Time 9:20

Optic Viewer -0.76 Time 9:15

Weather:

Air Temperature 68

Water Temperature _____

Water Clarity (i.e. clear, opaque, turbid, muddy) clear

Detail Actions Taken (i.e. details on gate adjustment):

Turned screw gate 3 turns up
Start 1.05, Ends 1.10

Other:

* @ 7:15 pm on 8-16-2023, turned screw gate 2 turns up.

No stranded fish or mussels (30 minutes)

Communication with Others at Project Site:

Dennis from city was onsite. he checks it everyday. he said he also checks water at park. He has not seen any problems

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: STAFF GAGE AND SCREW BEFORE AND AFTER

Recorder: LOSEE

Brooklyn Dam Drawdown Log

Date: 8.18.23 Drawdown Date 8

Arrive Time: 0946 Depart Time: 1042

Staff: Chris Freiburger

Staff Gage Reading 12.52 Time 0946

Optic Viewer -0.84 Time 0920

Weather:

Air Temperature 62°F

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear

Detail Actions Taken (i.e. details on gate adjustment):

Opened sluice gate 3 turns at 0950.

Staff gage dropped from 12.52 → 12.50 in approx 1 hr.

Other:

No strandel Fish or mussels (30 minutes)

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River X Looking Upstream to Kedron X

Other: Photos prior to screw gate opening & after
Staff gage readings on site at 0946

Recorder: Chris Freiburger

Brooklyn Dam Drawdown Log

Date: 8.19.23 Drawdown Date 9

Arrive Time: 0845 Depart Time: 0920

Staff: Chris Freiburger

Staff Gage Reading 11.82 / 11.55 Time 0848 / 1504

Optic Viewer 1.53 / 1.84 Time 0820 / 1415

Weather:

Air Temperature 56°F - Sunny

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear

Detail Actions Taken (i.e. details on gate adjustment):

Closed gate 1 crank @ 0850 - screw 1.12 → ~~1.10~~ 1.11
Closed gate 1 additional crank at 0915 from 1.11 - 1.10
Staff gage reading dropped from 11.82 → 11.79 from 0900 - 0915
Closed gate 3 cranks 150g staff gage readings 11.55
1.10 - 1.07

Other:

NO Stranded Fish or Mussels (30 min)

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Shot of staff gage
Shot of sluice gate screw before + after adjustment

Recorder: Chris Freiburger

Cary Hooper
Ossian Inc

260 413 9732

Brooklyn Dam Drawdown Log

Date: 8.20.23 Drawdown Date 10

Arrive Time: 0730 Depart Time: _____

Staff: Chris Freiburger

Staff Gage Reading 10.98 Time 0733

Optic Viewer ~2.36 Time 0735

Weather: Sunny

Air Temperature 62°F

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear / no smell

Detail Actions Taken (i.e. details on gate adjustment):

4 cranks gate down
screw went from 1.07 → 1.03

Other:

No stranded fish or mussels (30 fish)

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Staff gage at 0733
Slure gate screw prior to movement to close
+ after

Recorder: Chris July

Brooklyn Dam Drawdown Log

Date: 8.21.23 Drawdown Date 11

Arrive Time: 0820 Depart Time: _____

Staff: Chris Freiburger

Staff Gage Reading 10.6 Time 0830

Optic Viewer -2.77 Time 0825

Weather:

Air Temperature 68°F

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) clear / no smell

Detail Actions Taken (i.e. details on gate adjustment):

- no action gate not adjusted

Other:

No stranded fish or mussels (30 minutes)

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Staff gage

Recorder: Chris Freiburger

Brooklyn Dam Drawdown Log

Date: 8-22-2023 Drawdown Date 12

Arrive Time: 8:10 Depart Time: 8:45

Staff: Losee

Staff Gage Reading 10.50 Time 8:10

Optic Viewer -2.89 Time 7:27

Weather:

Air Temperature 60°

Water Temperature _____

Water Clarity (i.e. clear, opaque, turbid, muddy) clear

Detail Actions Taken (i.e. details on gate adjustment):

Cracked screw gate one turn up
From 1.03 to 1.04

Other: Second visit on 8/22/2023 @ 4:45 PM
Cracked screw 2 times (0.02 inches) UP
Staff Gage 10.46
WATER CLEAR

No stranded fish or mussels (30 min)

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other:

Recorder: Losee

Brooklyn Dam Drawdown Log

Date: 8.24.23 Drawdown Date 74

Arrive Time: 1430 Depart Time: 1530

Staff: Freiburger

Staff Gage Reading 1520 Time ~~10.67~~ 9.67

Optic Viewer 1415 Time 3.71

Weather:

Air Temperature 85°F

Water Temperature ~

Water Clarity (i.e. clear, opaque, turbid, muddy) _____

Detail Actions Taken (i.e. details on gate adjustment):

no action

Other:

No stranded fish or mussels (30 min)

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: staff gage

Recorder: Chris Jule

Brooklyn Dam Drawdown Log

Date: 8.25.23 Drawdown Date 15

Arrive Time: 0945 Depart Time: 10.1300

Staff: Chris Freiburger / Todd Loesche

Staff Gage Reading 9.80 / 9.77 Time 0950 / 1150

Optic Viewer -3.56 Time 0910

Weather:

Air Temperature 68°F

Water Temperature →

Water Clarity (i.e. clear, opaque, turbid, muddy) clear / no odor

Detail Actions Taken (i.e. details on gate adjustment):

3 cranks gate open at 0950

Other:

Conducted strandl mussel + fish survey

~~No strandl fish or mussels (30 min)~~

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Staff gage / drone footage + strandl survey.
Footage

Recorder: Chris Freiburger

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Chris Freiburger / Todd Losee

Survey date: 8/25/23

Area surveyed (acres): 25

Time searched (minutes x number of surveyors): $2 \times 90 = 180$ minutes

Water temperature (°F):

Air temperature (°F): 68°F

Visibility (cm): clear - 8' water depth

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Other relevant observations:

Steep slopes around impoundment near dam 2/18.
channel with good velocities from impoundment behind
dam until open lily pad. Flow approx. 8' wide x 3' deep

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

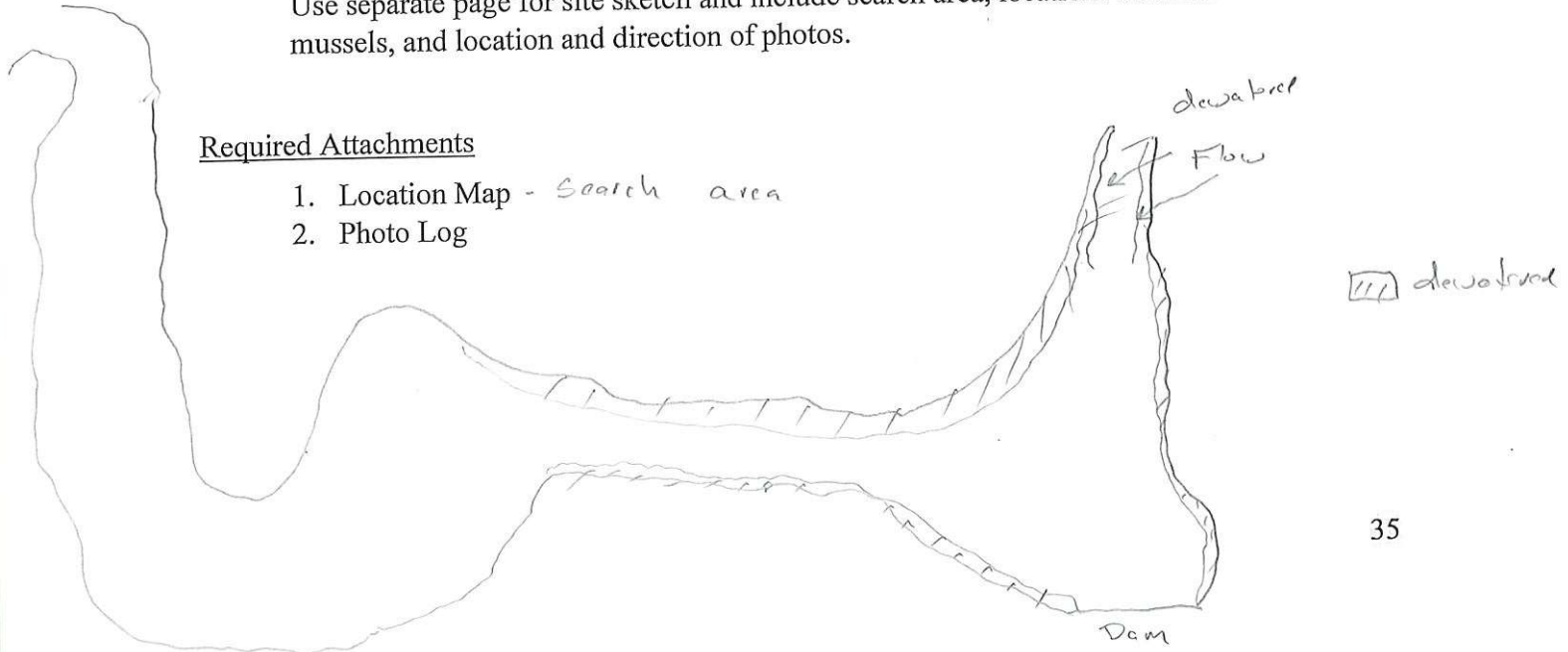
Living Species and Numbers:

No Fish or Mussel species stranded
Notice carp throughout impoundment living

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map - Search area
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 8.26.23 Drawdown Date 16

Arrive Time: 1155 Depart Time: 1230

Staff: Freiburger/Benson

Staff Gage Reading 9.16 Time 1156

Optic Viewer -4.25 Time 1000

Weather:

Air Temperature 73°F

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) clear - no odor

Detail Actions Taken (i.e. details on gate adjustment):

Closed sluice gate screw 2 x's to reduce gate opening from 1.09 → 1.07

Other:

Conducted stranded fish + mussel survey

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: *tape, staff gage*

Recorder: Jawley

Drawdown date 16

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 8.26.23

Area surveyed (acres): 25

Time searched (minutes x number of surveyors): 1 x 90 = 90 minutes

Water temperature (°F): -

Air temperature (°F): 73°F

Visibility (cm): Clear - 8'

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

N/A

Other relevant observations:

see comments from 08/25/23.

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

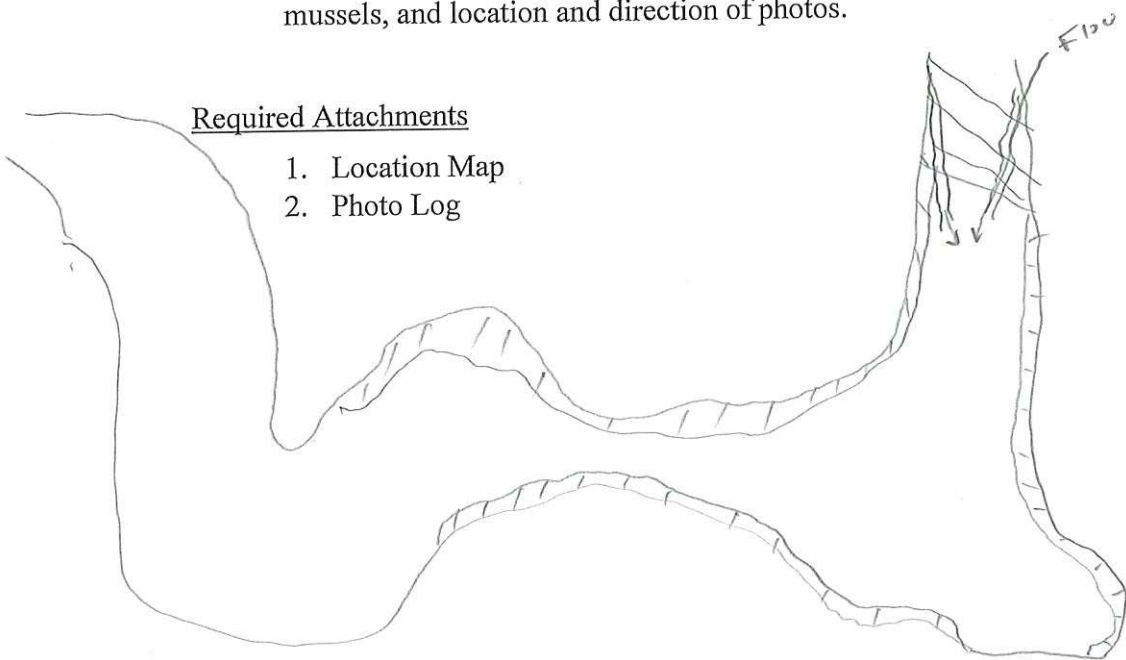
No fish or mussel live or dead shells noted

Carp present in impoundment

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



dew-fern

Brooklyn Dam Drawdown Log

Date: 8.27.23 Drawdown Date 17

Arrive Time: 0845 Depart Time: 1000

Staff: Freiburger

Staff Gage Reading 8.34 / 8.31 Time 0849 / 0940

Optic Viewer -5.01 Time 0823

Weather:

Air Temperature 57°F

Water Temperature _____

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear & no odor thru discharge - slight color in impoundment

Detail Actions Taken (i.e. details on gate adjustment):

Closed gate down from 1.07 → 1.05 @ 0851

Closed gate down from 1.05 → 1.04 @ 0943

Closed gate down 3 cranks @ 1320

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: gage readings at 0849
sluce gate screw prior to adjustment & after

Recorder: Freiburger

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County:

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 8.27.23

Area surveyed (acres): 20 acres

Time searched (minutes x number of surveyors): 1 x 90 = 90 minutes

Water temperature (°F): 57°F

Air temperature (°F): -

Visibility (cm): Slightly turbid - 4'

Substrate composition(s): silt

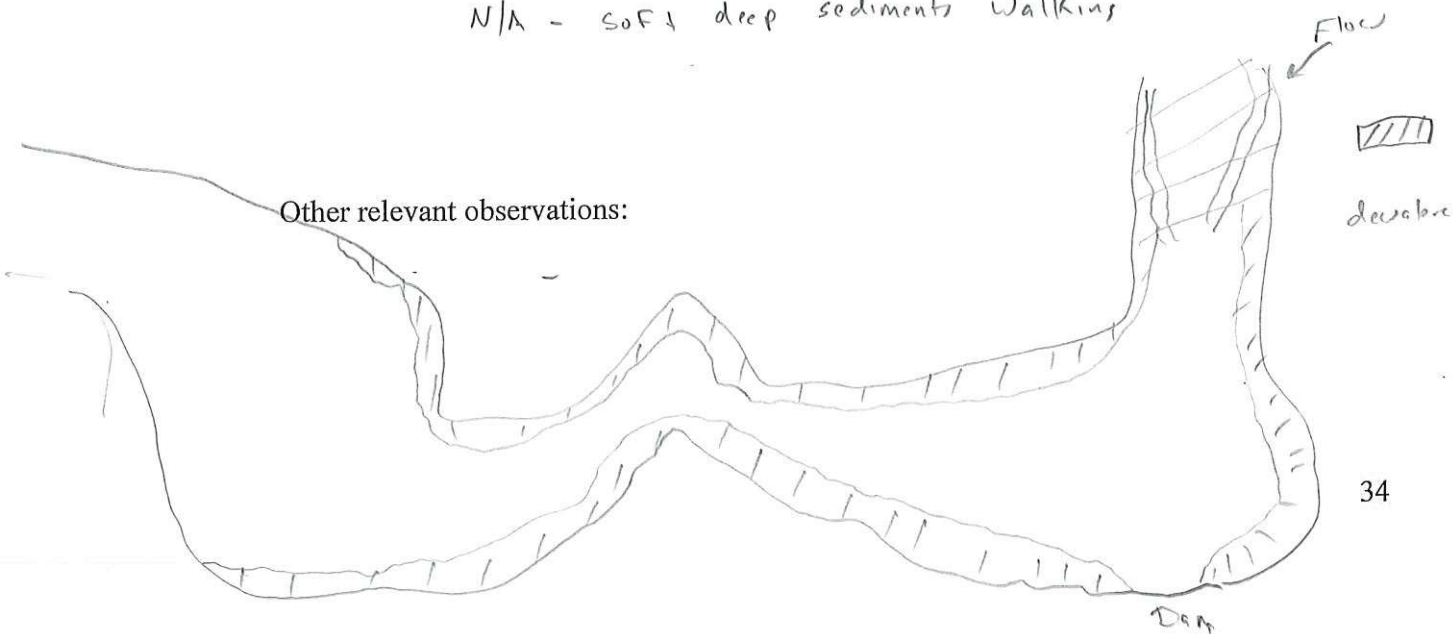
Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

N/A - soft deep sediments walking

Other relevant observations:



Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

Carp present in impoundment

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log

Brooklyn Dam Drawdown Log

Date: 8.28.23 Drawdown Date 18

Arrive Time: 1650 Depart Time: 1800

Staff: Freiburger

Staff Gage Reading 7.72 Time 1654

Optic Viewer 5.69 Time 1616

Weather:

Air Temperature Sunny / 73°F

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) slight turbidity in impoundment - Secch. 4'

Detail Actions Taken (i.e. details on gate adjustment):

none

Other:

N/A

Communication with Others at Project Site:

A.P. spoke w/ Bruce landowner on Water Street backs up to impoundment.

Photo Log: Shot down to discharge X Looking Upstream to Dam V

Looking East Raisin River X Looking Upstream to Kedron X

Other: staff gage

Recorder: [Signature]

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County:

Rescue Operation Information

Surveyor names: F. Co. bur

Survey date: 8.28.23

Area surveyed (acres): 16 acres

Time searched (minutes x number of surveyors): 1 x 80 = 80 minutes

Water temperature (°F): -

Air temperature (°F): 73°F

Visibility (cm): water slightly turbid in impoundment

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

silt

Other relevant observations:

- N/A

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

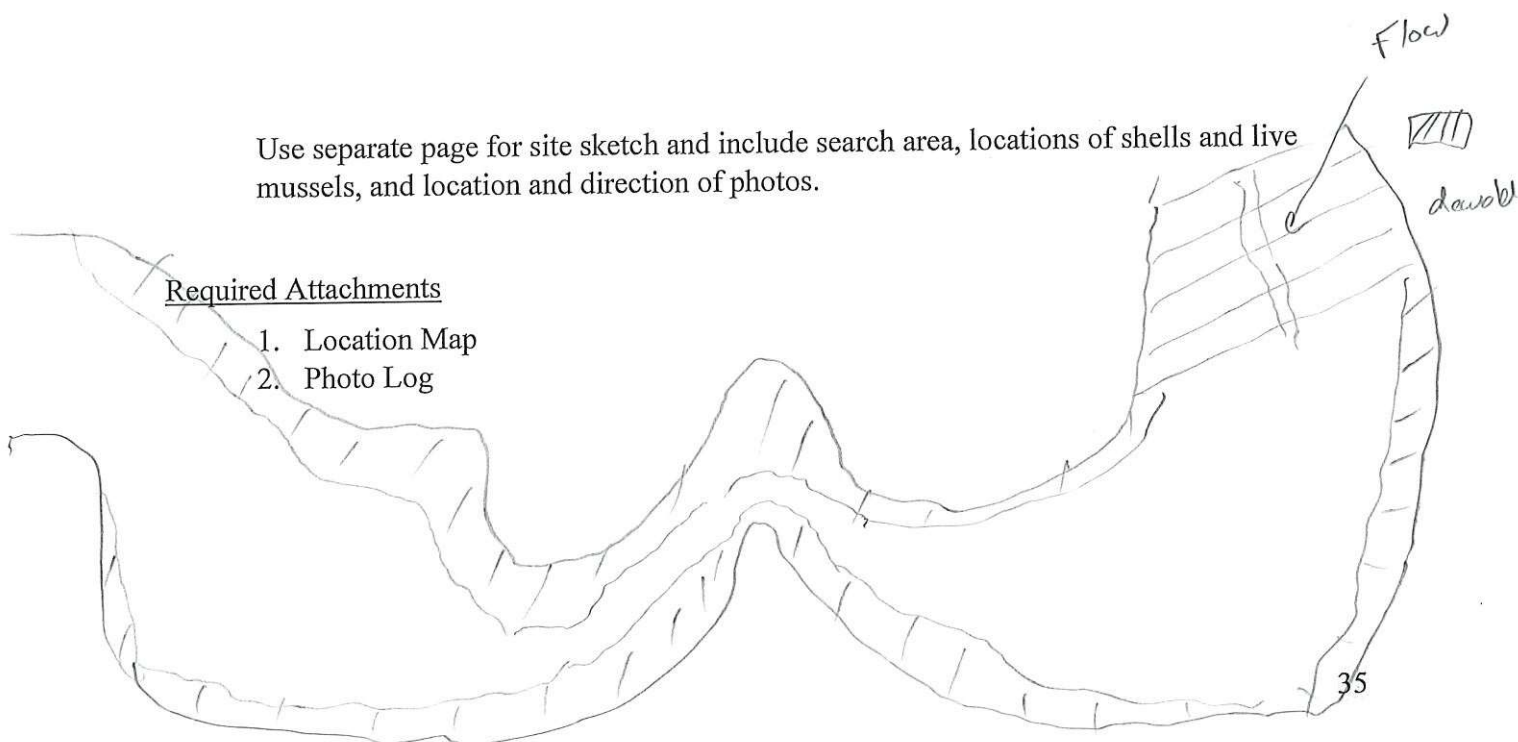
Living Species and Numbers:

Carp present

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 8.29.23 Drawdown Date 19

Arrive Time: 0730 Depart Time: 1005

Staff: Freiburger

Staff Gage Reading 7.31 Time 0742

Optic Viewer -6.09 Time 0723

Weather:

Air Temperature 53°F / Sunny

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) slight turbidity in impoundment discharge clear + no odor

Detail Actions Taken (i.e. details on gate adjustment):

no action to be taken on gate opening

Other:

scum on surface of water around intake

Flow at Swain's Park at 0846
 Depth (0.48, 0.38, 0.48) = $\bar{y} = 0.45$ depth
 19.72s, 25.05 23.58 = 22.78s

Flow at Neoney
 0.5" → .0833 tenths of a foot

Neoney Dam
 50' Weir x 0.75" = 2.41 cfs

Communication with Others at Project Site:

25' x 0.45' x 1.07 = 12.03 cfs x 0.85 = 10.2 cfs

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: staff gage, screw gate, Neoney Dam, stranded survey, Ft photos at

Recorder: July

Swain's Park

8.29.23

Drawdown Date 19

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names:

Survey date: 8.29.30

Area surveyed (acres): 4 acres

Time searched (minutes x number of surveyors): 1 x 60 = 60 minutes

Water temperature (°F): -

Air temperature (°F): 53°F

Visibility (cm): 3' deep in impoundment water clarity

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Flocculent silt

Other relevant observations:

Water confined to impoundment behind dam
approx 2' deep with exception immediate behind dam
at 5+'. silt moving upstream in channel but settles
out impoundment. Channel going upstream to shallow
to kayak & silt is unable to walk on
Mostly water

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

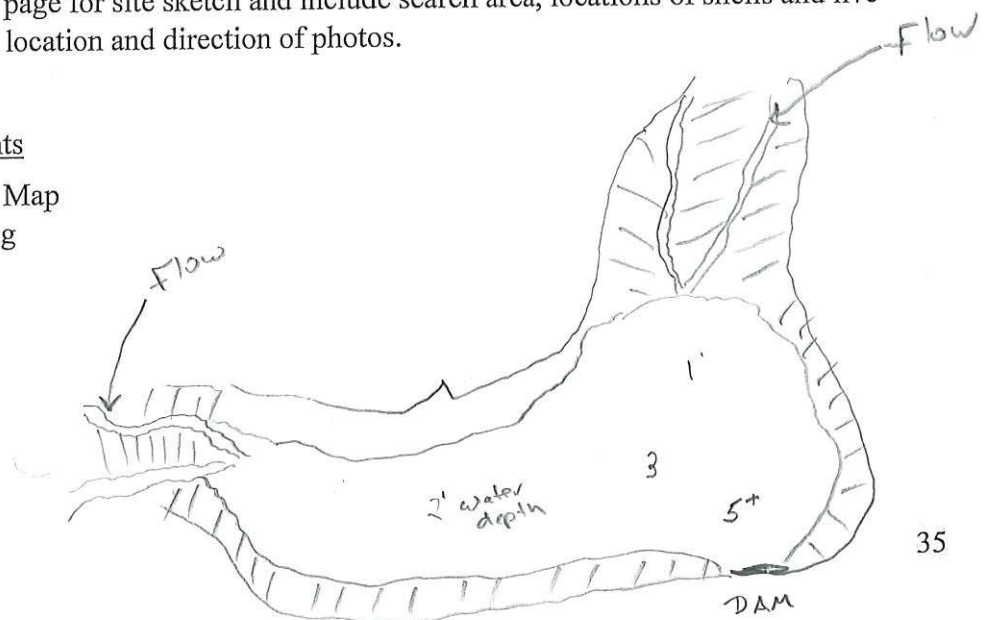
Living Species and Numbers:

Carp present in impoundment + small panfish

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brookly Drawdown Log

Drawdown Date 21

Arrive Time 0703

Depart Time 8.21.23 (Date)

Staff Evelburger

↳ 0803

SG Reading 4.26 / 6.81

Time 0706 / 0321

ptic Viewer -7.14 / 6.40

Time 0422 / 1519

Air Temp 46°F / ~~75°F~~ 71°F

W₂O Temp — / 78°F

Impoundment 1' clarity

Stream Water 1' clarity

No odor

clarity at 1521 water clear in impoundment, ~~str.~~ discharge + Swain's Park

Action Taken:

Closed gate	2 cranks	From	1.0	→	0.98	at	0712
opened gate	1 crank	From	0.98	→	0.99	at	08 1521

Flows taken at Swain's Park

Flow = 19.11 seconds

$$\frac{22.06}{18.04} = 1.22$$

$$\frac{25}{19.7} = 1.27$$

$$\text{Depth } \begin{matrix} 0.5' \\ 0.45' \\ 0.4' \\ \hline 0.45' \end{matrix}$$

$$25' \times 0.45' \times 1.27 = 14.28 \text{ cfs}$$

$$\times 0.85$$

$$\hline 12.14 \text{ cfs}$$

Photo Log

Shot to discharge	<u>X</u>	looking upstream to Dam	<u>X</u>
Looking east	—	looking up Kedron	—

Other: staff gage, screw gate, photo downstream of bridge at Swain's Park

Recorder: Apr

Brooklyn Dam Drawdown Log

Date: 8-30-2023

Drawdown Date _____

Arrive Time: 5:15 pm

Depart Time: 5:45 pm

Staff: LOSEE

Staff Gage Reading 6.67 Time 5:16 pm

Optic Viewer 6.78 Time 5:18 pm

Weather:

Air Temperature 71°

Water Temperature _____

Water Clarity (i.e. clear, opaque, turbid, muddy) mildly turbid

Detail Actions Taken (i.e. details on gate adjustment):

NONE

Other:

- Observed fish in pools
- saw 1 turtle

Communication with Others at Project Site:

none

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other:

Recorder: Losee

8/31/23

Drawdown Date 21

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 8.31.23

Area surveyed (acres): 3 acres in impoundment + Ewain's Park

Time searched (minutes x number of surveyors): 1 x 60 = 60 minutes

Water temperature (°F): - / 78°F @ 1501

Air temperature (°F): 46°F

Visibility (cm): 1' clarity in stream + impoundment

Substrate composition(s): silt, fibrous peat

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

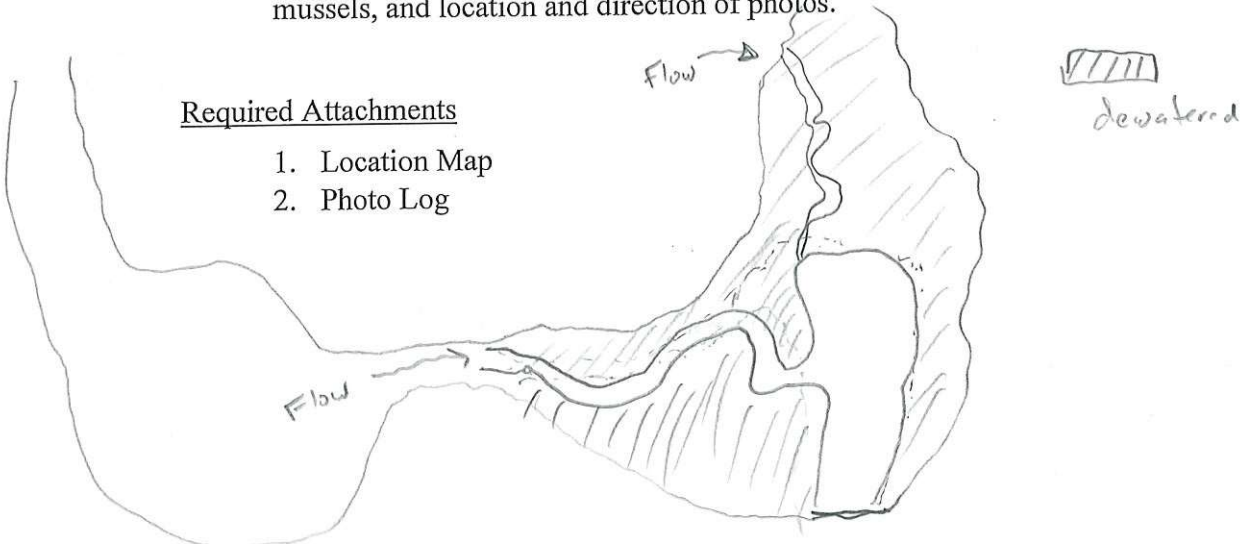
Fish confined to pool near dam

12 carp seen + approx. 100 BLG - 3-7"

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.1.23 Drawdown Date 22

Arrive Time: 0745 Depart Time: 1230

Staff: Freiburger

Staff Gage Reading 6.88 Time 0807

Optic Viewer -6.52 Time 0733

Weather:

Air Temperature 49°F

Water Temperature 61.7°F

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear in impoundment + stream
no odor

Detail Actions Taken (i.e. details on gate adjustment):

Turbidity curtain installed downstream

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: staff gage, photos of stranded fish

Recorder: Freiburger

9.1.23
Drawdown Date 22

Appendix B: Daily Reporting Form

Project Information

Project name:
Waterbody: River Raisin
Dam/Reservoir name: Brooklyn
Stream Group:
County: Jackson

Rescue Operation Information

Surveyor names: Frisburg
Survey date: 9.1.23
Area surveyed (acres): 3
Time searched (minutes x number of surveyors): 1 x 6 = 60 minutes
Water temperature (°F):
Air temperature (°F): 49°
Visibility (cm): Clear impoundment + stream
Substrate composition(s): silt
Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

Carp + panfish present

Removed: 12 redstarts 4-5"
13 pumpkinseed 4-5"
7 BLC 4-5"

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log

Brooklyn Dam Drawdown Log

Date: 9.2.23 Drawdown Date 23

Arrive Time: 0815 Depart Time: 1100

Staff: Freiburger

Staff Gage Reading 6.27/6.35 Time 0819/0935

Optic Viewer 7.13/7.04 Time 0821/0918

Weather:

Air Temperature 60°F

Water Temperature 64.9°F

Water Clarity (i.e. clear, opaque, turbid, muddy) water in impoundment turbid right at dam clear just upstream silt is moving but much do to carp - No odor

Detail Actions Taken (i.e. details on gate adjustment):

Moved sluice gate down 2 ~~to~~ cranks 0.99 → 0.97 @ 0820

moved sluice gate up 1 crank from 0.97 → 0.98 @ 0940

Other:

No odor

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: staff gage, Swains park

Recorder: Freiburger

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn Dam

Stream Group:

County:

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 9.2.23

Area surveyed (acres): 1 acre

Time searched (minutes x number of surveyors): 1 x 30 = 30 minutes

Water temperature (°F): ~~60~~ 64.9°F

Air temperature (°F): 60°F

Visibility (cm): turbid at dam

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

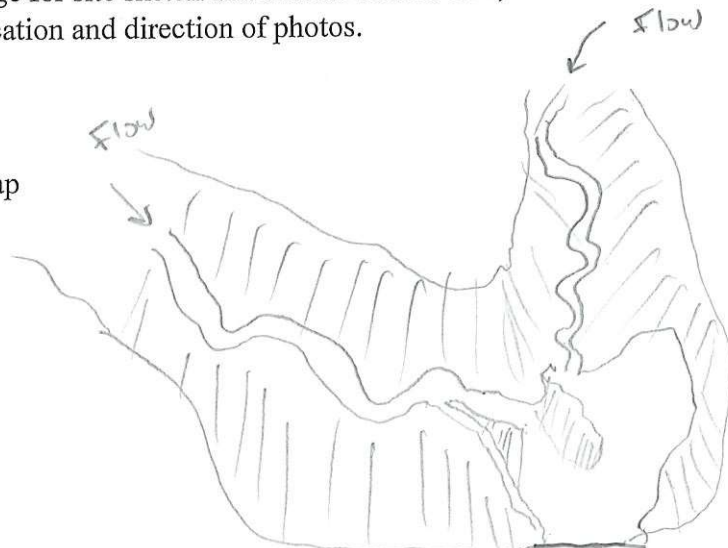
Carp + Panfish present

1 6" BLG collected

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log




dewater

Brooklyn Dam Drawdown Log

Date: 9.3.23 Drawdown Date 24

Arrive Time: 0810 Depart Time: 1105

Staff: Freiburger

Staff Gage Reading 6.2 / 6.19 Time 0815 / 0946

Optic Viewer -7.15 / -7.17 Time 0822 / 0919

Weather:

Air Temperature 66°F

Water Temperature 69.8°F

Water Clarity (i.e. clear, opaque, turbid, muddy)

discolored + turbid in stream at dam
presence of sediment or
cobble.
Stream clear @ Swain's
impoundment moving silt however less
than yesterday at similar gage reading

Detail Actions Taken (i.e. details on gate adjustment):

Moved sluice gate screw down From 0.98 → 0.95 (2 cranks) @ 0823
Moved sluice gate screw down From 0.95 → 0.94 (1 crank) @ 1000

Other:

No odor

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Swain's park, sluice gate screw before + after

Recorder: Julia

Appendix B: Daily Reporting Form

Drawdown Date 24
9.3.23

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn impoundment

Stream Group:

County:

Rescue Operation Information

Surveyor names: Frohberg

Survey date: 9.3.23

Area surveyed (acres): 1 acre

Time searched (minutes x number of surveyors): 1 x 60 = 60 minutes

Water temperature (°F): 69.8°F

Air temperature (°F): 66°F

Visibility (cm):

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

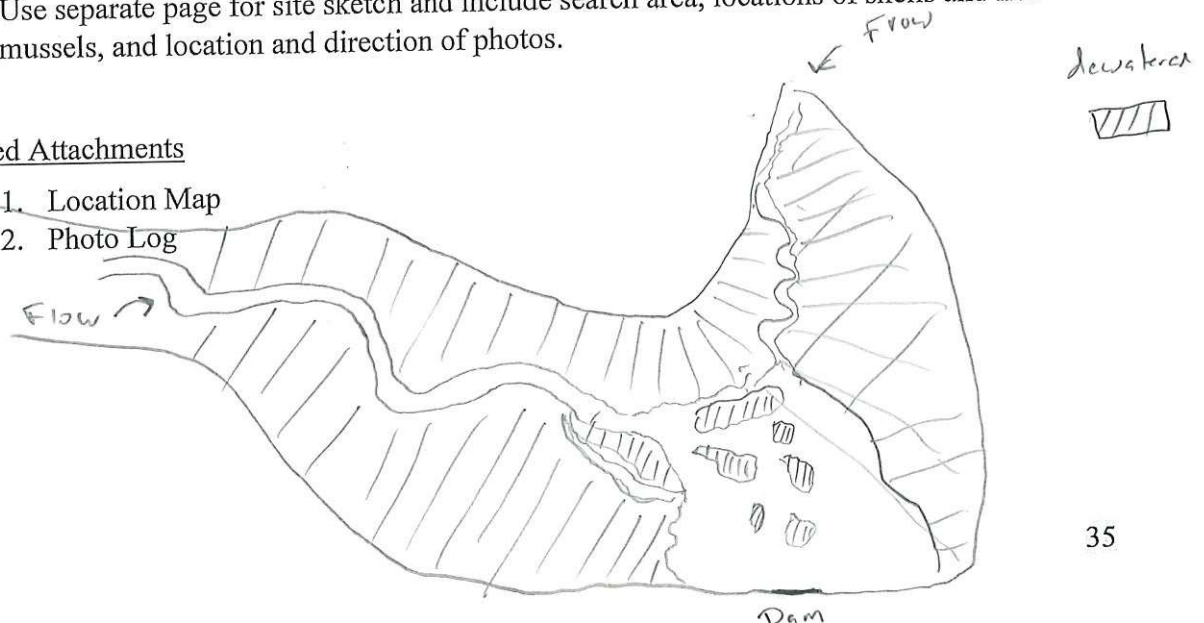
Living Species and Numbers:

Carp + sunfish present (50+)
(12)

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.4.23 Drawdown Date ~~9.4.23~~ 25

Arrive Time: 0920 Depart Time: 1105

Staff: Freiburger

Staff Gage Reading 6.48 / 6.48 Time 0923 / 11023

Optic Viewer 6.91 / Time 0920 /

Weather:

Air Temperature 74°F

Water Temperature 73.9°F

Water Clarity (i.e. clear, opaque, turbid, muddy) - some sediment moving in channel in impoundment otherwise all clear

Detail Actions Taken (i.e. details on gate adjustment): - discharge clear

- No action taken on gate

- No odor

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Staff gage

Recorder: Freiburger

Appendix B: Daily Reporting Form

Drawdown Date 25
9.4.23

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn Impoundment

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 9.4.23

Area surveyed (acres): 1 acre

Time searched (minutes x number of surveyors): 1 x 30 = 30 minutes

Water temperature (°F): 73.9°F

Air temperature (°F): 74°F

Visibility (cm): Clear

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

Fish appear to be confined to forebay area

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

Bludgeon Panfish 70+ Small 2-4"

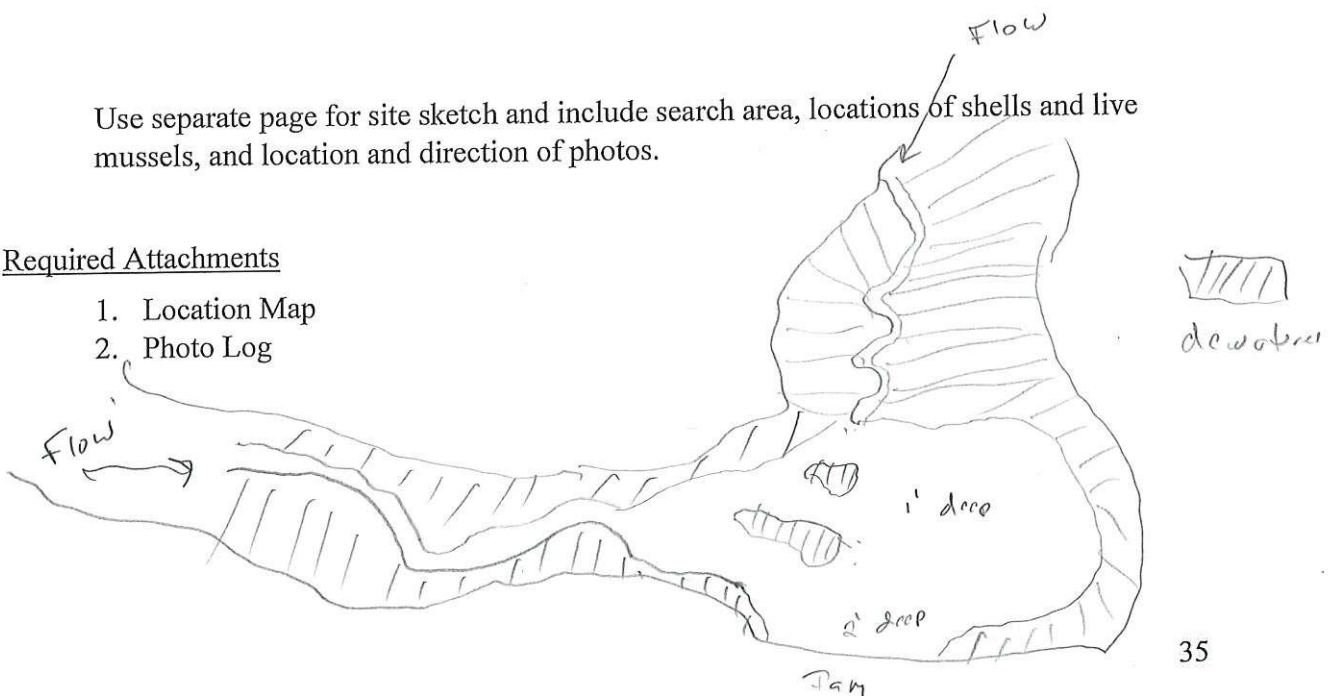
2 - pumpkinseeds collected 4-5"

1 - bluegill collected 4-5"

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.5.23 Drawdown Date 26

Arrive Time: 0700 Depart Time: 0930

Staff: 6.20 Freiburg

Staff Gage Reading 6.20 Time 0706

Optic Viewer 7.20 Time 0621

Weather:

Air Temperature 68°F

Water Temperature 73.5°F

Water Clarity (i.e. clear, opaque, turbid, muddy) clear at Swains, turbid at dam in river

Detail Actions Taken (i.e. details on gate adjustment):

Cranked down gate 1 crank From 0.94 → 0.93 @ 0710
Cranked down gate 1 crank From 0.93 → 0.92 @ 0735

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Staff gage, Swains park

Recorder: Freiburg

Drawdown Date 26
9.5.23

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn Impoundment

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 9.5.23

Area surveyed (acres): 1 acre

Time searched (minutes x number of surveyors): 1 x 30 = 30 minutes

Water temperature (°F): 73.5°F

Air temperature (°F): 68°F

Visibility (cm): Water carrying silt in river above dam, turbid below dam, clear

Substrate composition(s): silt at Swain's Park

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

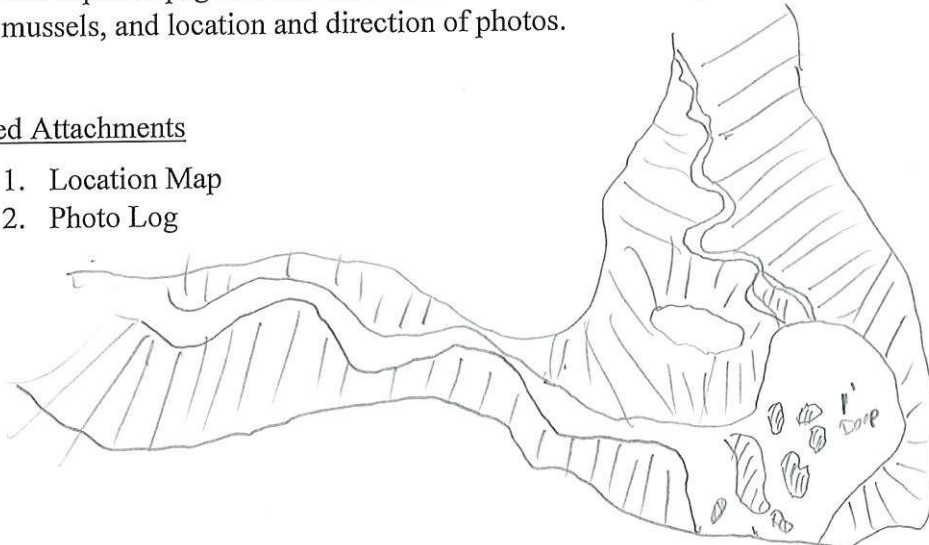
Small Fish (minnow spp.)

No Fish Stranded

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.6.23

Drawdown Date 27

Arrive Time: 0650 / 1610

Depart Time: 0900 / 1720

Staff: Freiburger

Staff Gage Reading 6.54 / 6.68 Time 0700 / 1621

Optic Viewer 6.86 / 6.70 Time 0624 / 1622

Weather: cloudy + breezy

Air Temperature 70°F / 82°F

Water Temperature 74.4°F

Water Clarity (i.e. clear, opaque, turbid, muddy) Water clear in impoundment + discharge
no sediment moving in channel

Detail Actions Taken (i.e. details on gate adjustment):

Turned crank up (opened) 1 time From 0.92 → 0.93

Turned crank up (opened) 1 time From 0.93 → 0.95 @ 1623
No odor

Other:

N/A

Communication with Others at Project Site: N/A

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: Staff gage, sluice gate screw, stranded fish

Recorder: Freiburger

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn Impoundment

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 9.6.23

Area surveyed (acres): 1 acre

Time searched (minutes x number of surveyors): 1 x 60 = 60 minutes

Water temperature (°F): 74.9°F

Air temperature (°F): 70°F

Visibility (cm): Clear, no sediment moving

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

N/A

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

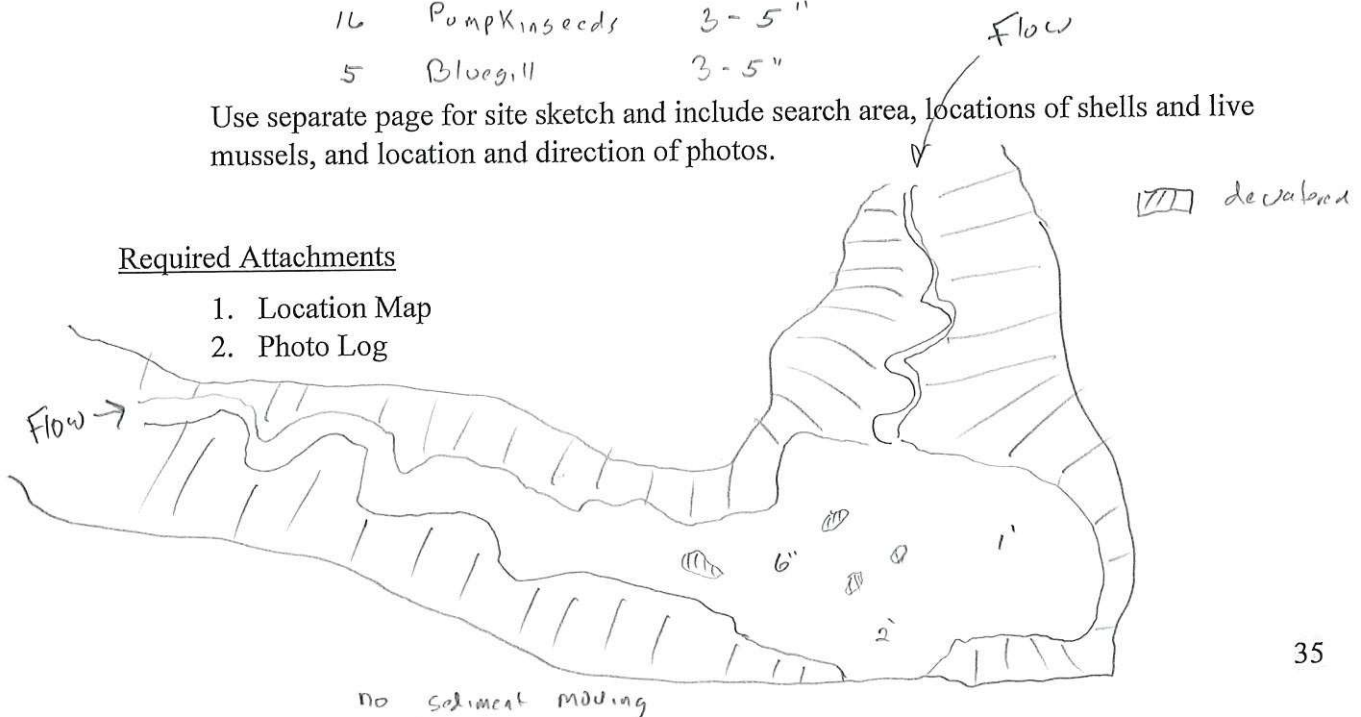
- 1 carp alive swimming
- 23 Greensunfish - 3-5"
- 7 Hybrid sunfish - 4-6"
- 16 Pumpkinseeds 3-5"
- 5 Bluegill 3-5"

Total stranded
& removed to
Swain's Park = 5

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.7.23

Drawdown Date 28

Arrive Time: 0635

Depart Time: 0830

Staff: Freiburger

Staff Gage Reading 6.84 / 7.13 Time ~~6.5~~ 0708 / 1942

Optic Viewer 6.43 / 6.24 Time 0623 / 1927

Weather:

Air Temperature 66°F

Water Temperature 71.4

Water Clarity (i.e. clear, opaque, turbid, muddy) clear

Detail Actions Taken (i.e. details on gate adjustment):

2 cranks gate up From 0.95 → 0.97 @ 0700
3 cranks gate up. No tape measure @ 1945

Other:

Removed weeds on trash rack

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: sluice gate screw

Recorder: Freiburger

Drawdown Date 28
9.7.23

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn Dam

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names:

Survey date: 9.7.23

Area surveyed (acres): 1 acre

Time searched (minutes x number of surveyors): 1 x ~~15~~ 60 = 60 minutes

Water temperature (°F): 71.40°F

Air temperature (°F): 66°F

Visibility (cm): Clear in impoundment + stream

Substrate composition(s): Silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

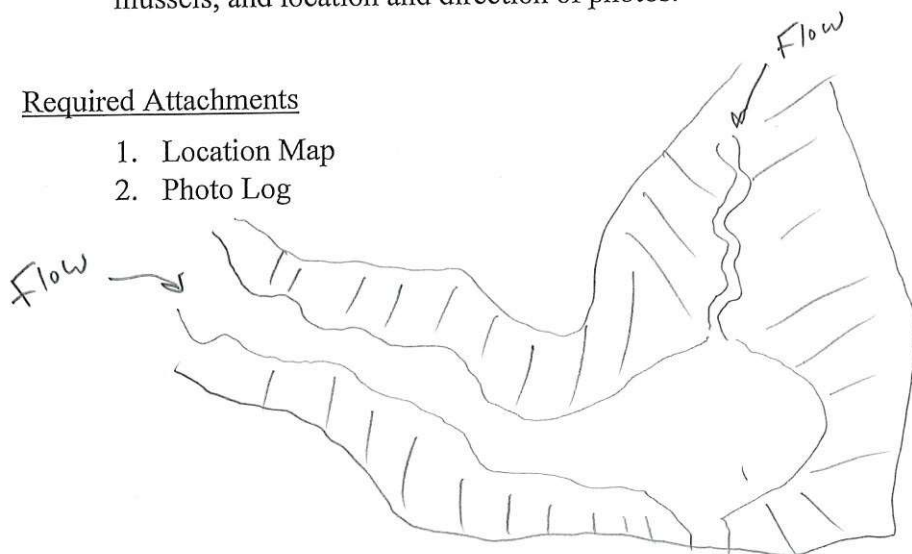
Living Species and Numbers:

Few panfish + carp alive swimming
No stranded

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



dewatered

Brooklyn Dam Drawdown Log

Date: 9.8.23 Drawdown Date 29

Arrive Time: 0930 Depart Time: _____

Staff: Freiburger / Ferguson

Staff Gage Reading 6.52 Time 0953

Optic Viewer 6.85 Time 0924

Weather:

Air Temperature 60°F / cloudy

Water Temperature 69.4°F

Water Clarity (i.e. clear, opaque, turbid, muddy) silt moving in impoundment, stream at discharge turbid

Detail Actions Taken (i.e. details on gate adjustment):

adjusted crank down 1 to close gate from 1.0 → 0.99 @ 0956

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: staff gage, Swain's Park

Recorder: Freiburger

Drawdown Date 29
9.9.23

Appendix B: Daily Reporting Form

Project Information

Project name:
Waterbody: River Raisin
Dam/Reservoir name: Brooklyn
Stream Group:
County: Jackson

Rescue Operation Information

Surveyor names: Freiburger
Survey date: 9.8.23
Area surveyed (acres): 1 acre
Time searched (minutes x number of surveyors): 1 x 60 minutes = 60 minutes
Water temperature (°F): 69.4°F
Air temperature (°F): 60°F
Visibility (cm): turbid in impoundment + stream below dam
Substrate composition(s): silt
Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep flocculent silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

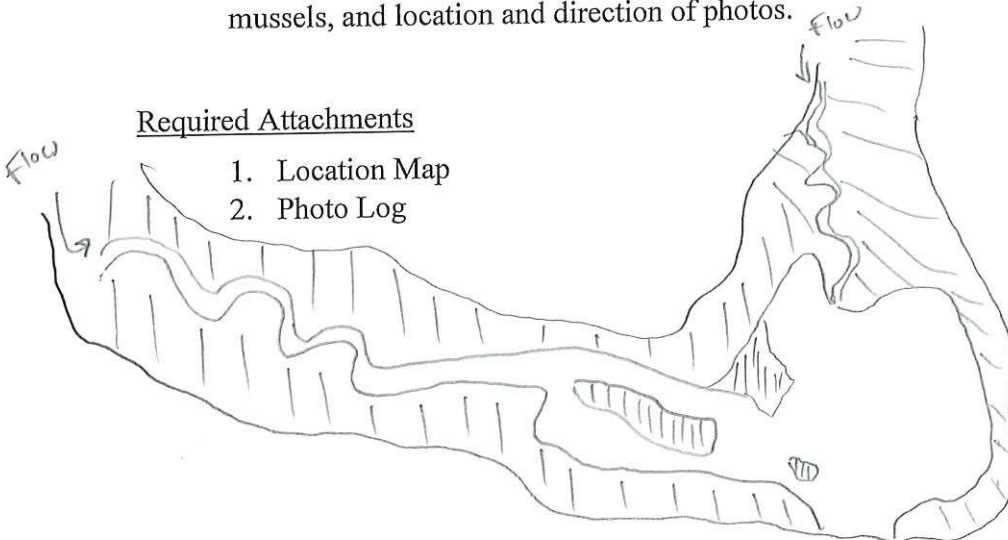
Living Species and Numbers:

2 Carp swimming

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.9.23 Drawdown Date 30

Arrive Time: 1425 Depart Time: _____

Staff: Freiburger

Staff Gage Reading 6.53 / 6.49 Time 1424 / 1508

Optic Viewer 6.89 Time 1422

Weather:

Air Temperature 68°F

Water Temperature 72.3°F

Water Clarity (i.e. clear, opaque, turbid, muddy) impoundment clear, discharge turbid 1' secchi,

Detail Actions Taken (i.e. details on gate adjustment):

Opened sluice gate screw 1 crank From 1.0 → 1.01
at 1429
2 additional cranks open @ 1447 closed 2 cranks at 1516 (1.01)
Swain's park slightly turbid can see bottom well

Other:

No odor

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Swain's park, sluice gate screw

Recorder: Freiburger

Drawdown Date 30

9.9.23

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 9.9.23

Area surveyed (acres): 1 ac

Time searched (minutes x number of surveyors): 60 x 1 = 60 minute

Water temperature (°F): 72.3°F

Air temperature (°F): 68°F

Visibility (cm): clear impoundment

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

deep flocculent silt

Other relevant observations:

no

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

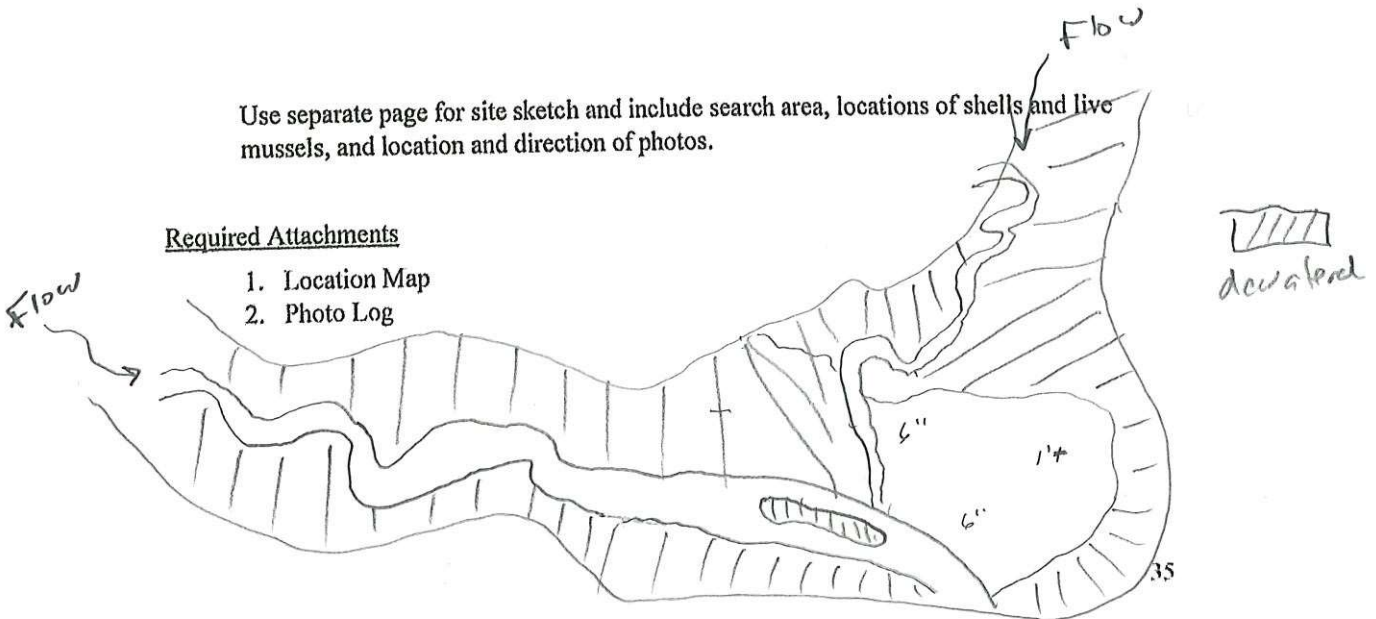
Living Species and Numbers:

No Fish observed

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.10.23 Drawdown Date 21

Arrive Time: 0950 Depart Time: 1030

Staff: Freiburger ~~staff gage out of water~~

Staff Gage Reading 5.21 / 6.0? Time 0950 / 1815

Optic Viewer 7.20 Time 0924 - reading mud flat
below gage

Weather:

Air Temperature 58°F

Water Temperature ~~58°F~~ 66.7°F

Water Clarity (i.e. clear, opaque, turbid, muddy) turbid silt moving in channel
in impoundment

Detail Actions Taken (i.e. details on gate adjustment):

turned sluice gate screw 1 turn
to open gate at 0952

- turbid at discharge
- very slightly turbid at Swain's Park

~~1.00~~ ~~1.01~~ ~~1.02~~
1.01 → 1.02
6 turns to open at
1615

Other:

No odor

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: sluice gate screw, Swain's Park

Recorder: Freiburger

Drawdown Date 31

9.10.23

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 9.10.23

Area surveyed (acres): 1 acre

Time searched (minutes x number of surveyors): 60 minutes 1 person in morning

Water temperature (°F): 66.7

Air temperature (°F): 58°

Visibility (cm): impossible to see flowing stream

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

U/K

Todd + I removed

Fish at night

1900 - 2100

Describe any access/safety issues:

Deep silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only -- Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only -- Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only -- Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

Few small fish feeding on surface in the impounded area to the west along dike

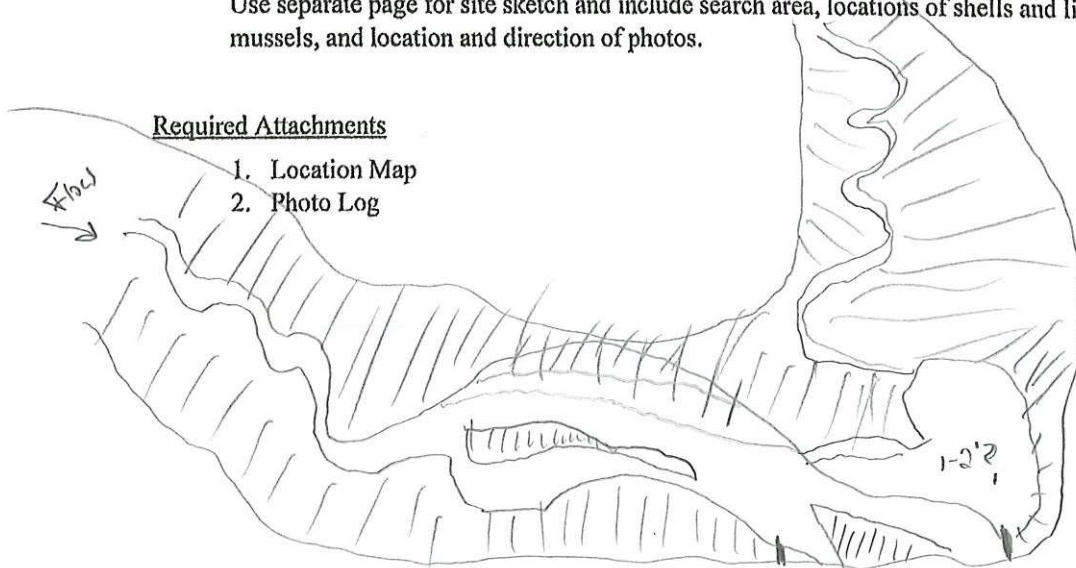
Loose & Freiburge netted fish

	93	20 (1-2")	
		15 (4-5)	6"
2-3"	35 20 BLC	1 Golden Shiner	
4"	4 2 BLC	12 hybrid sunfish	
6"	1 Carp	(4-5")	
3-4"	29 Pumpkin		
	1 Common Shiner - 3"		

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.11.23 Drawdown Date ~~9.11.23~~ 32

Arrive Time: 1000 Depart Time: 1410

Staff: Freiburger / Cory Walterhouse

Staff Gage Reading ~~5.80~~ 5.98 / 5.66 Time 1114 / ~~5:46~~ 1346

Optic Viewer 2.80 - gage numbers adjusted on g axis Time 1100

Weather:

Air Temperature 68°F

Water Temperature 69.2

Water Clarity (i.e. clear, opaque, turbid, muddy) turbid silt moving in impounded discharge less turbid than last night

Detail Actions Taken (i.e. details on gate adjustment):

Moved staff gage from ~~west~~ east rail to west rail on substrate

opened sluice gate screw at 1119 From 1.02 → 1.04 - 1.05 @ 1230

Seeded exposed banks w/rye on Dan's property

Other:

No odor

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: photo at Swain's Park & Sluice gate

Recorder: Freiburger

Drawdown Date 32
9.11.23

Appendix B: Daily Reporting Form

Project Information

Project name:
Waterbody: River Raisin
Dam/Reservoir name: Brooklyn
Stream Group:
County: Jackson

Rescue Operation Information

Surveyor names: Freiburger, Cory Walterhouse
Survey date: 9.11.23
Area surveyed (acres): $\frac{1}{2}$ acre \rightarrow 2×60 minutes = 120 minutes
Time searched (minutes x number of surveyors):
Water temperature (°F): 68°F
Air temperature (°F): 69.2°F
Visibility (cm): 1' in impoundment
Substrate composition(s): peat/silt
Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep silt

Other relevant observations:

90% grass bed spread on North side of impoundment
on Dan's property

Results

Evidence of Mussels:

~~None~~

- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

1 shell
Giant Floater

Living Species and Numbers:

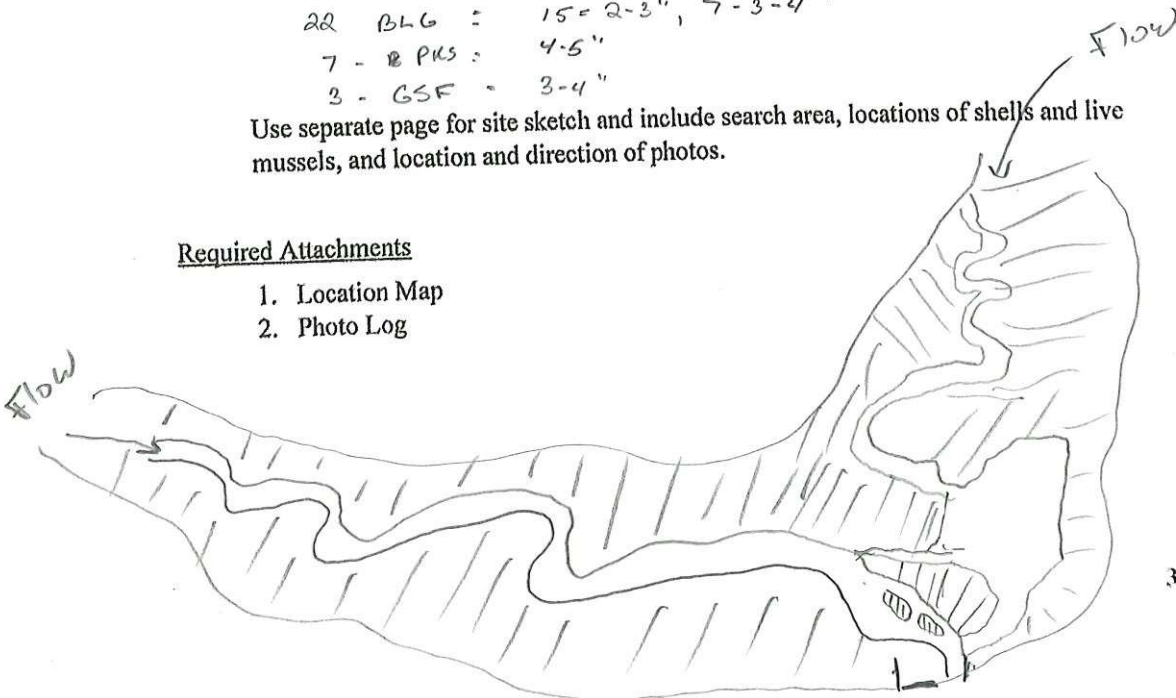
37 Total Fish

2 Brown Bullheads 10 + 12"
3 BLC = 1 = 8" + 2 = 2-3"
22 BLG = 15 = 2-3", 7 = 3-4"
7 - 8 PKS = 4-5"
3 - GSF = 3-4"

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.12.23 Drawdown Date 33

Arrive Time: 0630 Depart Time: ~~0705~~ 0815

Staff: Freiberg

Staff Gage Reading 6.82 Time 0702

Optic Viewer 4.48 Time 0625

Weather:

Air Temperature 60°F

Water Temperature 69.2°F

Water Clarity (i.e. clear, opaque, turbid, muddy) clear at impoundment, discharge
+ Swain's

Detail Actions Taken (i.e. details on gate adjustment):

opened gate from 1.05 → 1.08 @ 0705

Other:

No odor or stranded fish

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River V Looking Upstream to Kedron X

Other: Sluice gate screw

Recorder: Freiberg

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburger

Survey date: 9.12.23

Area surveyed (acres): 0.25 acre

Time searched (minutes x number of surveyors): 1 x 30 = 30 minutes

Water temperature (°F):

Air temperature (°F):

Visibility (cm):

Substrate composition(s): peat/silt

Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep peat + silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

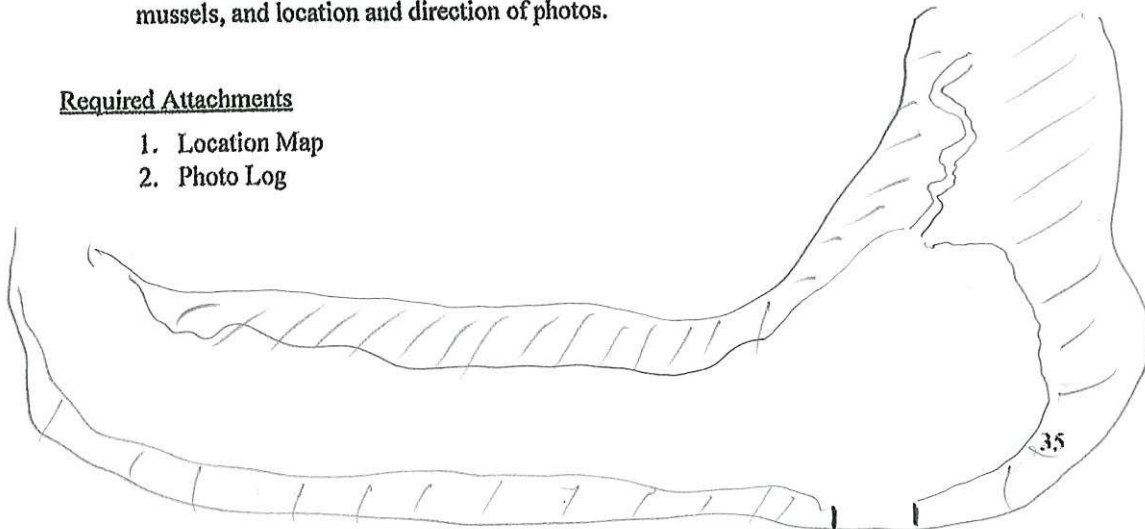
Shell Only Species and Numbers:

Living Species and Numbers:

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.13 '23 Drawdown Date 3/

Arrive Time: 1016 Depart Time: 1045

Staff: Freiburger

Staff Gage Reading 7.4 Time 1015

Optic Viewer 4.23 Time 921

Weather:

Air Temperature 58°F

Water Temperature 63.5°F

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear impoundment, discharge + Swain's

Detail Actions Taken (i.e. details on gate adjustment):

opened gate from 1.08 → 1.14 → 5 cracks
into ~~some~~ rack plugged w/ debris

Other: - debris removed from trash rack + under optic viewer
Fine sand covering bottom of river between
discharge + sediment curtain - some small sand
present behind individual big cobble at Swain's
however bottom fully exposed

Communication with Others at Project Site:

Photo Log: Shot down to discharge ✓ Looking Upstream to Dam ✓

Looking East Raisin River ✓ Looking Upstream to Kedron ✓

Other: Sluice gate screw, Swain's Park

Recorder: Freiburger

9.13.23

Appendix B: Daily Reporting Form

Project Information

Project name:

Waterbody: River Raisin

Dam/Reservoir name: Brooklyn

Stream Group:

County: Jackson

Rescue Operation Information

Surveyor names: Freiburg

Survey date: 9.13.23

Area surveyed (acres): 1.5 acres

Time searched (minutes x number of surveyors): 60 minutes

Water temperature (°F): 63.5

Air temperature (°F): 58°F

Visibility (cm): clear

Substrate composition(s): silt

Describe any deviations from Drawdown Protocol (if applicable):

n/a

Describe any access/safety issues:

deep silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

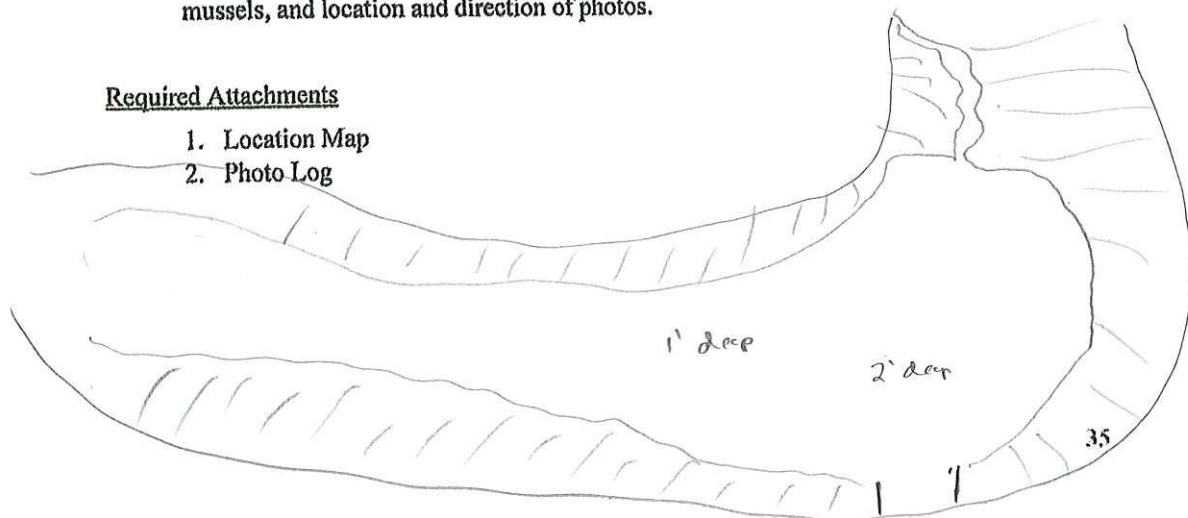
Shell Only Species and Numbers:

Living Species and Numbers:

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.14.83 Drawdown Date 35

Arrive Time: 1500 Depart Time: 0425

Staff: Freiburger

Staff Gage Reading 6.25 Time 1500

Optic Viewer 3.05 Time 1427

Weather:

Air Temperature 69°F / cloudy

Water Temperature 75.3°F

Water Clarity (i.e. clear, opaque, turbid, muddy) clear in impoundment, slightly turbid at discharge & Swain's Park

Detail Actions Taken (i.e. details on gate adjustment):

~~to~~ 1.14 → 1.24 - 10 cranks up at 1335

optic viewer reading mud flat one logs + debris removed below it

Other:

debris removed from under optic viewer

Communication with Others at Project Site:

Photo Log: Shot down to discharge Y Looking Upstream to Dam X

Looking East Raisin River Y Looking Upstream to Kedron Y

Other: Stove gate screw, Swain's Park

Recorder: Freiburger

Drawdown date 35
9.14.23

Appendix B: Daily Reporting Form

Project Information

Project name:
Waterbody: River Raisin
Dam/Reservoir name: Brooklyn
Stream Group:
County: Jackson

Rescue Operation Information

Surveyor names: Freiburger
Survey date: 9.14.23
Area surveyed (acres): $\frac{1}{2}$ acre - 1 man x 60 minutes / 60 minutes
Time searched (minutes x number of surveyors):
Water temperature (°F): ~~69°F~~ 75.30°F
Air temperature (°F): 69°F
Visibility (cm):
Substrate composition(s): peat silt
Describe any deviations from Drawdown Protocol (if applicable):

N/A

Describe any access/safety issues:

Deep peat/silt uncon solidated

Other relevant observations:

Results

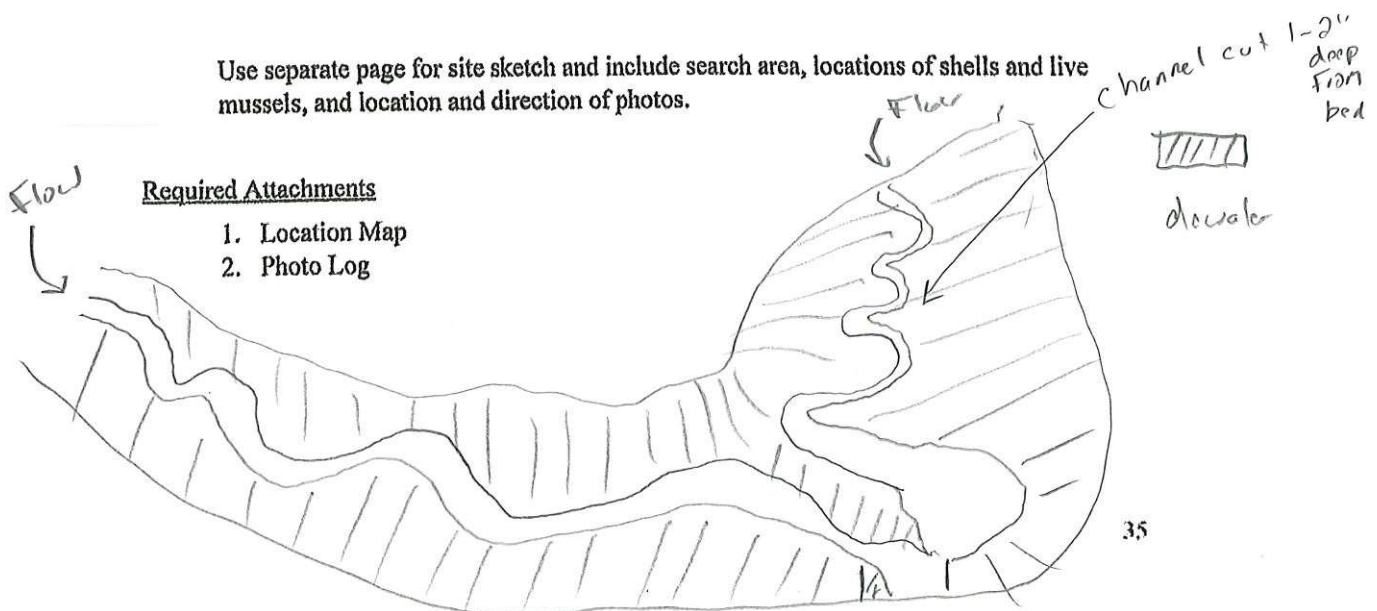
Evidence of Mussels:

- None
- Mussel Shell Only – Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only – Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only – Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

Living Species and Numbers:

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.



Brooklyn Dam Drawdown Log

Date: 9.15.23 Drawdown Date 36

Arrive Time: 1840 Depart Time: _____

Staff: Freiburger

Staff Gage Reading 5.62 Time 1835

Optic Viewer 2.44 (mud flat) Time 1529

Weather:

Air Temperature 69°F / Sunny

Water Temperature 68.1°F

Water Clarity (i.e. clear, opaque, turbid, muddy) Silt in Impoundment + Stream at dam + SWair

Detail Actions Taken (i.e. details on gate adjustment):

60 cracks from 1.24 → 2.05

No odor

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River ✓ Looking Upstream to Kedron ✓

Other: Slove gate south Swain's Park

Recorder: Freib

Appendix B: Daily Reporting Form

Project Information

Project name:
Waterbody: River Raisin
Dam/Reservoir name: Brooklyn
Stream Group:
County:

Rescue Operation Information

Surveyor names: Freiburg
Survey date: 9.15.23
Area surveyed (acres): 1/4 acre
Time searched (minutes x number of surveyors): 30 minutes
Water temperature (°F): 68.1°F
Air temperature (°F): 69°F
Visibility (cm): Silt
Substrate composition(s): silt / peat
Describe any deviations from Drawdown Protocol (if applicable):

Describe any access/safety issues:

ND acc silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only -- Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only -- Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only -- Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

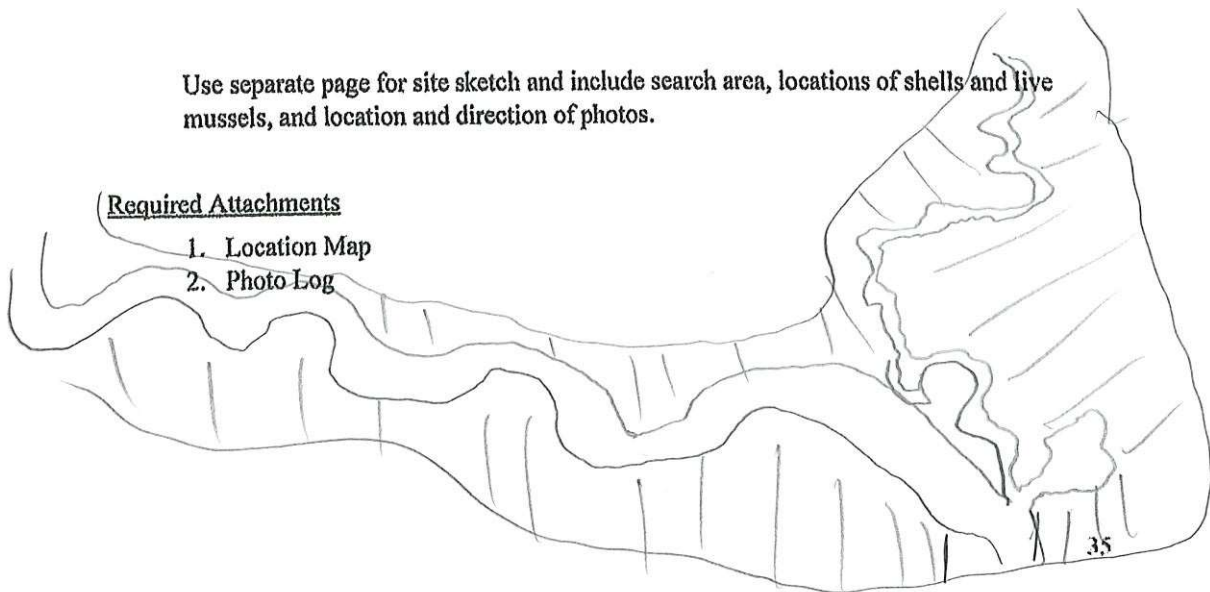
Shell Only Species and Numbers:

Living Species and Numbers:

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.16.23 Drawdown Date 37

Arrive Time: 0830 Depart Time: 1100

Staff: Freiburger

Staff Gage Reading 5.77 Time 0903

Optic Viewer 2.55 (on mud) Time 0826

Weather:

Air Temperature 60°F

Water Temperature 58.8°F

Water Clarity (i.e. clear, opaque, turbid, muddy) sediment moving in impoundment,

Detail Actions Taken (i.e. details on gate adjustment):

Cleaned debris off intake rack

10 cranks from 2.05 → 2.16

Stream discharge turbid
lesser amount at
Swain's

Other:

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Swain's Park

Recorder: Freiburger

Drawdown Date 37
9.16.23

Appendix B: Daily Reporting Form

Project Information

Project name:
Waterbody: River Raisin
Dam/Reservoir name: Brooklyn
Stream Group:
County: Jackson

Rescue Operation Information

Surveyor names: Freiburger
Survey date: 9.16.23
Area surveyed (acres): 1/4 acre
Time searched (minutes x number of surveyors): 60 minutes x 1 = 60
Water temperature (°F): 58.8°F
Air temperature (°F): 60°F
Visibility (cm): turbid - few inches
Substrate composition(s): peat.
Describe any deviations from Drawdown Protocol (if applicable):

~~No adjustment in gate~~ removed
debris from trash rack

Describe any access/safety issues:

deep peat/silt

Other relevant observations:

Results

Evidence of Mussels:

- None
- Mussel Shell Only -- Subfossil (nacre chalky; periostracum largely missing; shell edges chipped or cracked)
- Mussel Shell Only -- Weathered Dead (nacre not glossy; periostracum starting to flake off; algae and/or marl on inside of shell if shell is exposed to water)
- Mussel Shell Only -- Fresh Dead (nacre intact and glossy; periostracum intact; perhaps soft tissue present; shell halves often joined by hinge ligament)
- Living Mussels

Shell Only Species and Numbers:

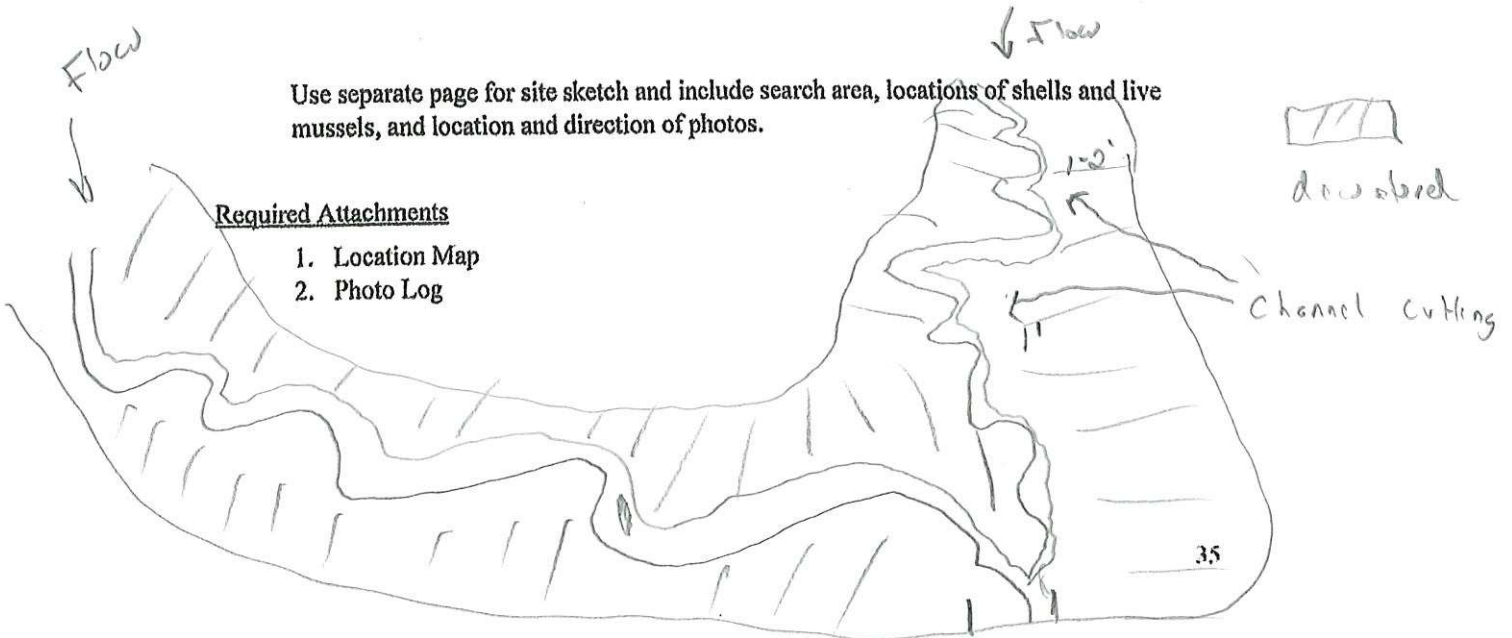
Living Species and Numbers:

No fish observed in pockets of water
or on exposed bottomlands

Use separate page for site sketch and include search area, locations of shells and live mussels, and location and direction of photos.

Required Attachments

1. Location Map
2. Photo Log



Brooklyn Dam Drawdown Log

Date: 9.17.23 Drawdown Date 38

Arrive Time: 0840 Depart Time: 1645

Staff: Freiburger

Staff Gage Reading 5.60 / 5.48 Time 0848 / 1030

Optic Viewer 2.51 Time 0822

Weather: ↳ maybe veneer of water over sediment

Air Temperature 56°F

Water Temperature 61.3°F

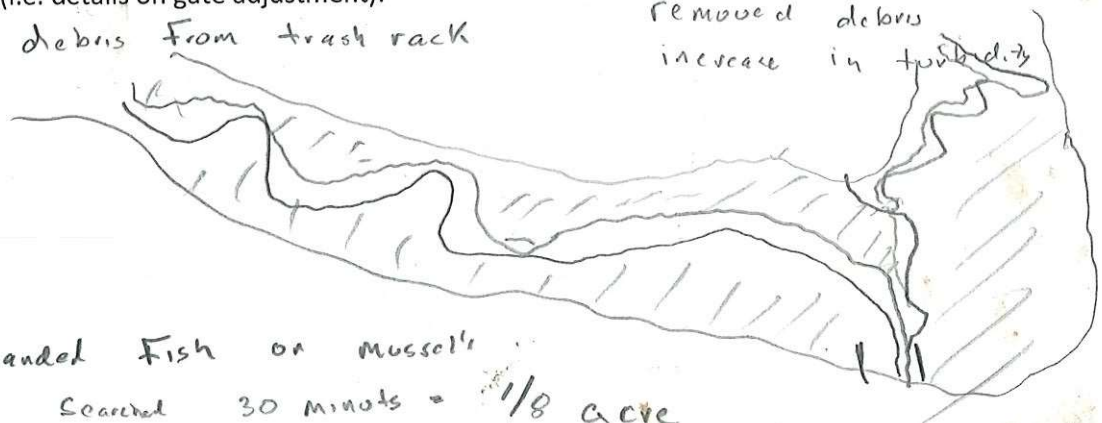
Water Clarity (i.e. clear, opaque, turbid, muddy) ↳ slightly turbid in impoundment,

Detail Actions Taken (i.e. details on gate adjustment):

clear debris from trash rack

discharge & Swain's removed debris increase in turbidity

* Completely opened gate



Other:

No stranded fish or mussels
Searched 30 minutes = 1/8 acre

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: Swain's park - sluice screw

Recorder: Finley

Brooklyn Dam Drawdown Log

Date: 9.18.23 Drawdown Date 39

Arrive Time: 1330 Depart Time: _____

Staff: Freiburger / Losee

Staff Gage Reading 5.26 Time 1336

Optic Viewer 2.11 Time 1325

Weather:

Air Temperature 64°F / Cloudy

Water Temperature 62°F

Water Clarity (i.e. clear, opaque, turbid, muddy) silt / moving

Detail Actions Taken (i.e. details on gate adjustment):

Cleaned trash rack

No stranded organisms

* Opened trash rack to the west - 30 minute search

Other:

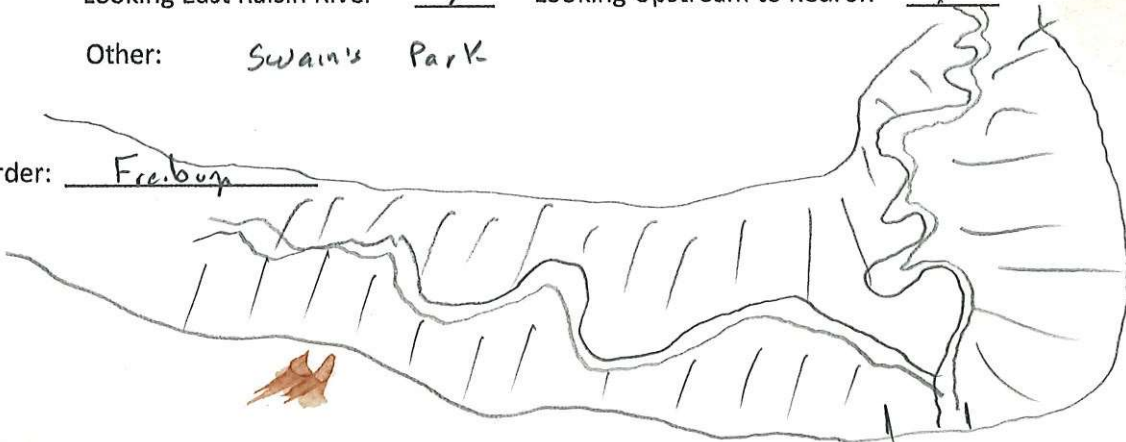
Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: Swain's Park

Recorder: Freiburger



Brooklyn Dam Drawdown Log

Date: 9.19.23 Drawdown Date 46

Arrive Time: 0900 Depart Time: 1100

Staff: Freiburger

Staff Gage Reading 2.95 Time 1009

Optic Viewer 0.23 Time 0923

Weather:

Air Temperature 55°F

Water Temperature 57°F

Water Clarity (i.e. clear, opaque, turbid, muddy) Silt at impoundment, discharge + SWains
peat - 1.2" visibility

Detail Actions Taken (i.e. details on gate adjustment):

No action on gate on screen

No stranded organisms - fish allowed to pass
with gate being completely open - 30 minute search

Notice rye beginning to sprout 2-3" tall on impoundment toe

Other:

Slight musty organic odor at discharge

Water below optic viewer now - was sediment yesterday

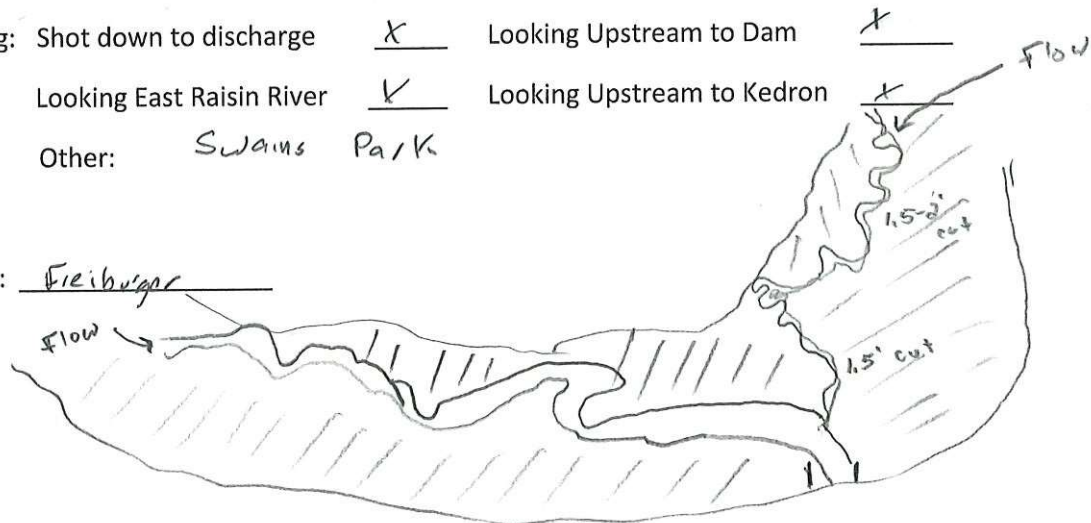
Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River V Looking Upstream to Kedron X

Other: SWains Park

Recorder: Freiburger



Brooklyn Dam Drawdown Log

Date: 9.21.23 Drawdown Date 42

Arrive Time: 0911 Depart Time: 1030

Staff: Freiburger

Staff Gage Reading 63°F / 2.76 Time 0920

Optic Viewer 0.37 Time 0723

Weather:

Air Temperature 63°F / Sunny

Water Temperature 65°F

Water Clarity (i.e. clear, opaque, turbid, muddy) turbid however clearer water thru discharge, turbidity in impoundment

Detail Actions Taken (i.e. details on gate adjustment):

No action taken to clear debris

No odor

allows 3-4", turbid at Swain's but not able to see large particles now

Other:

No stranded fish or mussels - 20 minute search

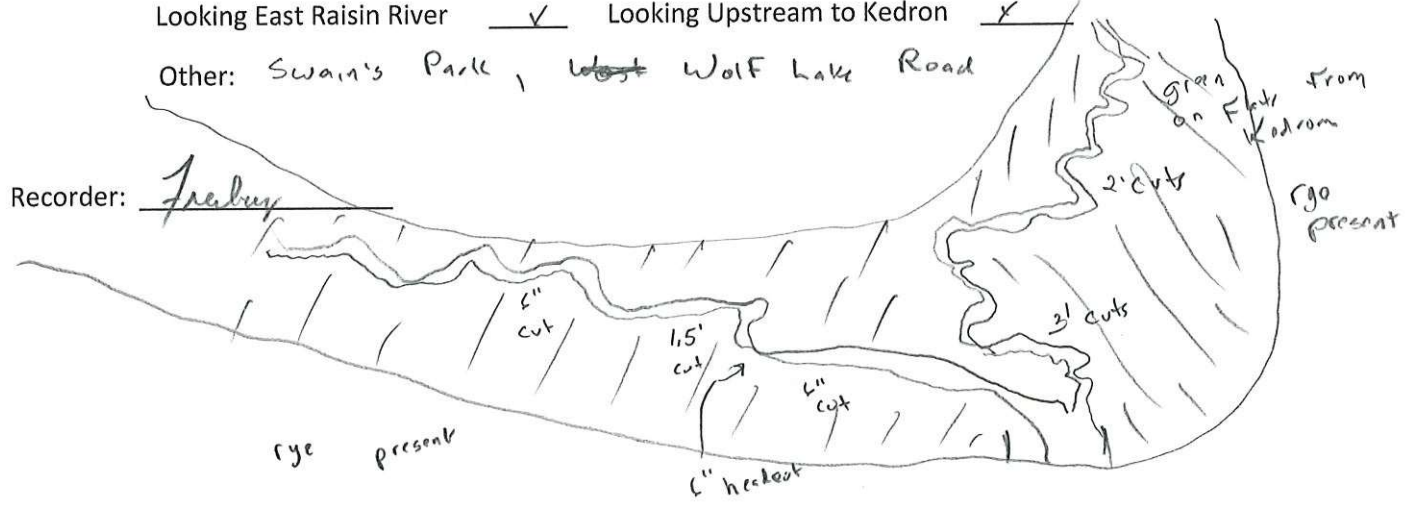
Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: Swain's Park, ~~Wolf~~ Wolf Lake Road

Recorder: Freiburger



Brooklyn Dam Drawdown Log

Date: 9.24.23 Drawdown Date 45

Arrive Time: 0850 Depart Time: 0945

Staff: Freiburger

Staff Gage Reading 2.58 Time 0907

Optic Viewer - 0.53 Time 0834

Weather:

Air Temperature 54°F / Sunny

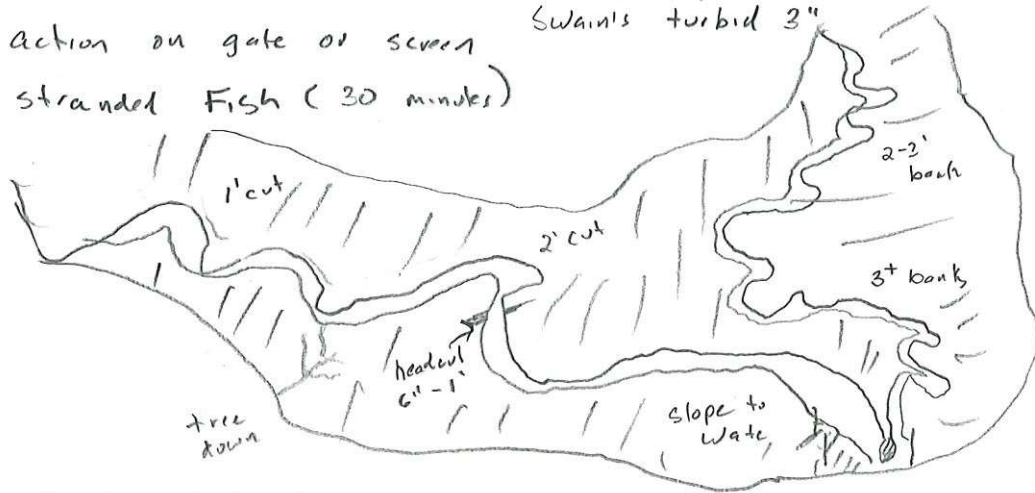
Water Temperature 59°F

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear on river main
high turbidity block on Kedron
discharge slight turbidity
Swain's turbid 3"

Detail Actions Taken (i.e. details on gate adjustment):

No action on gate or screen
No stranded Fish (30 minutes)

Other:



Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: Swain's meander in reservoir

Recorder: Freiburger

Brooklyn Dam Drawdown Log

Date: 9.25.23 Drawdown Date 46

Arrive Time: 1510 Depart Time: 1609

Staff: Freiburger

Staff Gage Reading 2.56 Time 1532

Optic Viewer -0.65 Time 1532

Weather:

Air Temperature 67°F / Cloudy

Water Temperature 64°F

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear impoundment river raising
Kedron less turbid still black

Detail Actions Taken (i.e. details on gate adjustment):

Lifted right trash rack
+ set back down

Discharge gray however slight turbid.
Swains 3" urea - sediment
deposited behind rocks (boulders)
+ along channel margin

Other:

No stranded fish or mussels - 20 minutes

Communication with Others at Project Site:

Spoke with Melody neighbor across
Bridge Street

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Swains Park

Recorder: Freiburger

Brooklyn Dam Drawdown Log

Date: 9.26.23 Drawdown Date 47

Arrive Time: 1011 Depart Time: 1130

Staff: Freiburger

Staff Gage Reading 2.54 Time 1022

Optic Viewer -0.73 Time 1024

Weather:

Air Temperature 65°F / cloudy

Water Temperature 65°F

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear river raise

Detail Actions Taken (i.e. details on gate adjustment):

Kedron black organic fine 2" visib. l.
discharge slightly turbid
Swain's 4" visib. l. still turbid

* Chained trash racks on South
Side up & locked. 2 trash racks

Other:

No stranded fish or mussels - 20 mins

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Swain's park

Recorder: Julia

Brooklyn Dam Drawdown Log

Date: 9.27.23 Drawdown Date 48

Arrive Time: 1645 Depart Time: 1230

Staff: Freiburger / Losee

Staff Gage Reading 2.54 (in mud) Time 1100

Optic Viewer -1.08 (on mud) Time 1130

Weather:

Air Temperature 63°F / cloudy

Water Temperature 63°F

Water Clarity (i.e. clear, opaque, turbid, muddy) clear river raising

Detail Actions Taken (i.e. details on gate adjustment):

black Kedron
clear discharge w/ slight turbidity

No action take

No odor
No stranded fish or mussels - 20 minutes

Other:

Communication with Others at Project Site: Mike Coenen, Greg Dearnass, Riley

Photo Log: Shot down to discharge Y Looking Upstream to Dam X

Looking East Raisin River Y Looking Upstream to Kedron Y

Other:

Recorder: 

Brooklyn Dam Drawdown Log

Date: 10.2.23 Drawdown Date 53

Arrive Time: 1230 Depart Time: 1330

Staff: Freiburger

Staff Gage Reading 2.40 Time: 1256

Optic Viewer -1.09 Time: 1320

Weather:

Air Temperature 81°F / Sunny

Water Temperature 72°F

Water Clarity (i.e. clear, opaque, turbid, muddy) clear - River Raisin & discharge
Kedron - slightly turbid
4" clarity at Swain's

Detail Actions Taken (i.e. details on gate adjustment):

No action

Other:

No stranded fish or mussels - 20 minute

Communication with Others at Project Site:

Photo Log: Shot down to discharge Looking Upstream to Dam

Looking East Raisin River Looking Upstream to Kedron

Other: Swain's Park

Recorder: Jub

Brooklyn Dam Drawdown Log

Date: 10.9.23 Drawdown Date 60

Arrive Time: 1110 Depart Time: 1300

Staff: Freiburger

Staff Gage Reading 2.52 Time 1130

Optic Viewer Viewer not working Time _____

Weather:

Air Temperature 51°F / cloudy

Water Temperature —

Water Clarity (i.e. clear, opaque, turbid, muddy) Clear discharge + river raise + Kedron

Detail Actions Taken (i.e. details on gate adjustment):

Slight turbidity at Swains.
Can see gravel on
bottom on patches

pulled out debris in front of
sluice gate

Other:

No stranded fish or mussels - 20 minute

Communication with Others at Project Site:

Photo Log: Shot down to discharge X Looking Upstream to Dam X

Looking East Raisin River X Looking Upstream to Kedron X

Other: Swain's Park

Recorder: Freiburger

Brooklyn Dam Drawdown Log

Date: 10-13-23

Drawdown Date 64

Arrive Time: 1258

Depart Time: _____

Staff: Freiburger

Staff Gage Reading 2.42

Time 1300 - mud around gage water level slightly lower

Optic Viewer viewer not working

Time _____

Weather:

Air Temperature 52° F / cloudy

Water Temperature -

Water Clarity (i.e. clear, opaque, turbid, muddy) Kedron + river raise in clear

Detail Actions Taken (i.e. details on gate adjustment):

discharge clear

Swain's park clear

pulled out debris in front of
sluice gate

walked from dam to downstream of Swain's Park

Other:

No stranded fish or mosses - 180 minutes

Communication with Others at Project Site:

Photo Log: Shot down to discharge Y

Looking Upstream to Dam X

Looking East Raisin River Y

Looking Upstream to Kedron X

Other:

Recorder: Freiburger



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Appendix B

DAILY SUMMARY OF STRANDED AQUATIC ORGANISMS

Stranded Fish Log

Surveyor Names: See Individual daily data sheets

Project Name: Upper River Raisin Stream Restoration and Connectivity Project

Water Body: River Raisin

Dam/Reservoir Name: Brooklyn Impoundment

Stream Group: 1

County: Jackson

Date	Number	Species	Live (L) and Dead (D)	Length (mm)	Relocated (Y/N)	Time
8.11.23	0	Drawdown Initiated				30
8.12.23	0					30
8.13.23	0					30
8.14.23	0					30
8.15.23	0					30
8.16.23	0					30
8.17.23	0					30
8.18.23	0					30
8.19.23	0					30
8.20.23	0					30
8.21.23	0					30
8.22.23	0					30
8.23.23	0					30
8.24.23	0					30
8.25.23	0					180
8.26.23	0					90
8.27.23	0					90
8.28.23	0					80
8.29.23	0					60
8.31.23	0					60
9.1.23	12	Rehear	L	101 - 127	Y	60
9.1.23	13	Pumpkinseed	L	97 - 129	Y	
9.1.23	7	Bluegill	L	90 - 133	Y	
9.2.23	1	Bluegill	L	153	Y	30
9.3.23	0					60
9.4.23	8	Pumpkinseed	L	95 - 127	Y	30
	1	Bluegill	L	107	Y	
9.5.23	0					30

Stranded Fish Log

Surveyor Names: *See Individual daily data sheets*

Project Name: Upper River Raisin Stream Restoration and Connectivity Project

Water Body: River Raisin

Dam/Reservoir Name: Brooklyn Impoundment

Stream Group: 1

County: Jackson

Date	Number	Species	Live (L) and Dead (D)	Length (mm)	Relocated (Y/N)
9.11.23	2	Brown bullhead	L	254, 308	Y
"	1	Black Crappie	L	58	Y
"	1	Black Crappie	L	66	Y
"	1	Black Crappie	L	217	Y
"	15	Bluegill	L	50-60	Y
"	7	Bluegill	L	75-104	Y
"	7	Pumpkinseed	L	100-130	Y
"	3	Green sunfish	L	100-135	Y
"	1	Giant Floater	D	84mm length	N
		- 5 species -		54mm width	-37-
9.10.23	4	Black Crappie	L	53-76	Y
"	20	Bluegill	L	52-65	Y
"	15	Bluegill	L	104-132	Y
"	29	Pumpkinseed	L	78-108	Y
"	12	Hybrid Sunfish	L	102-132	Y
"	1	Golden shiner	L	162	Y
"	2	Common shiner	L	70-80	Y
"	1	Common carp	L	163	Y
		- 7 species -			
9.9.23	0				
9.8.23	0				
9.7.23	0				

Time
120

60

60

60

60

Stranded Fish Log

Surveyor Names: See Individual Daily Data Sheets

Project Name: Upper River Raisin Stream Restoration and Connectivity Project

Water Body: River Raisin

Dam/Reservoir Name: Brooklyn Impoundment

Stream Group: 1

County: Jackson

Date	Number	Species	Live (L) and Dead (D)	Length (mm)	Relocated (Y/N)	Time
9.12.23	0					30
9.13.23	0					60
9.14.23	0					60
9.15.23	0					30
9.16.23	0					60
9.17.23	0					30
9.18.23	0					30
9.19.23	0					30
9.20.23	-					
9.21.23	0					20
9.22.23	-					
9.23.23	-					
9.24.23	0					30
9.25.23	0					20
9.26.23	0					20
9.27.23	0					20
9.28.23	-					
9.29.23	-					
9.30.23	-					
10.1.23	-					
10.2.23	0					20
10.9.23	0					20
10.13.23	0					180
10.13.23		Carp	D	> 250 mm	N	
10.13.23		Carp	D	> 250 mm	N	
10.13.23		Carp	D	> 250 mm	N	
10.13.23		Northern Pike	D	> 250 mm	N	
		all these fish have been dead for some time probably several weeks				

* opened gate completely impoundment
 ↓ de-watered

opened west trash rack on 09/18/23

* opened trash rack to the west



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Appendix C

PHOTOS OF STRANDED AQUATIC ORGANISMS



**URRWRCPC Stranded Aquatic Organism Survey
Site Photographs**



Photo 1

Niswander Staff collecting fish at upstream Brooklyn Dam abutment.



Photo 2

Pumpkinseed (*Lepomis gibbosus*).

Site Photographs



Photo 3
Green sunfish (*Lepomis cyanellus*).



Photo 4
Bluegill (*Lepomis macrochirus*).



Site Photographs



Photo 5
Hybrid sunfish (*Lepomis* spp.).



Photo 6
Black crappie (*Pomoxis nigromaculatus*).

Site Photographs



Photo 7
Golden shiner (*Notemigonus crysoleucas*).



Photo 8
Brown bullhead (*Ameiurus nebulosus*).

Site Photographs



Photo 9
Common carp (*Cyprinus carpio*).



Photo 10
Giant floater (*Pyganodon grandis*).



Site Photographs



Photo 11

Giant floater (*Pyganodon grandis*).