Agenda and notes 08/07/2024 Rapid Response Tech Team

Purpose- biweekly technical call including management agencies & GCMRC to relay recent findings and discuss future sampling efforts, needs, and potential actions.

Participants (14)
Melissa Trammell, Tom Gushue, Carlos Willis, Kate Behn, Jeff Arnold, David Ward, Dave Rogowski, Ryan Mann, Dan Leavitt, Rob Billerbeck, Nicki Gibney, Jeremy Hammen, Emily Omana, Kurt Shollenberger, Pilar Rinker, Shaula Hedwall

New GCMRC detailee: Carlos Willis, MS in data science, will be working on detail as Database manager. learning fish and tableau. Excited to be here!

I. Recent trips and findings

Last meeting/report out was 07/24/2024.

Special Report – Tom Gushue, and Carlos Willis

a. Tom Gushue, data visualization presentation

1) descriptions of the columns for metadata purposes, 2) best practices for data entry, 3) potential constraints for certain parameters (for QAQC), and 4) feedback from all of us on the most recent iteration of the visualization tool.

Presentation:

Rapid response Nonnative fish database. Separate from master 'big boy' fish database.

Currently 5 worksheet tabs: Notes – read me, Fish Capture Data per fish, lookup tables for disposition codes, Species Codes, Gear Codes.

Data attributes – defined, but need more refined definitions. Text v number, number 'integer'; further refinements, i.e. need to clarify that 'count' is a 'number, integer'.

Workflow concerns – allows for data entry errors. Allows for potential data loss by user (accidental deletions) columns lack constraints, no formal back up procedures outside of sharepoint auto saves. It is a separate (divergent) process from standard fish monitoring. Working towards improving this process to make more consistent with standard data entry protocols.

Brief description of visualization tool. Can really dig deep into data through graphics, sort and filter by clicking boxes. Problem – not enough colors for all the fish species designations, some are repeated. Might have to refresh browser to get out of single species display.

Ability to zoom in using menu zoom tool.

Caveats – if we open up as a tool beyond scientists (this RRTT group), it can be misused or abused. Need much more documentation about how sampling occurs, so 'absence' may be absence of

sampling…if you don't see anything it might be because no sampling occurred. How to record that? The NFC helps…but does not account for areas just not sampled.

Color overlaps maybe unidentified should be shades of gray.

Emily – this will help a lot in our conversations, but share concerns about sharing data. This NNF rapid response database started because of stipulation of need to inform NPS about concerning NNF captures – which used to occur through emails and was difficult to track. We don't want to get to a place where we have to enter data twice – this one quickie, and the master 'big boy' database. Need to track purpose. And we need to determine who it is appropriate to share these data, and visualization tool, with.

Tom – agree, just need to write up quick documentation of that purpose, and the difference between this, and master.

Who is the owner of these data? Resides on USGS servers. Could individual agencies 'own' their data and share separately.

Shaula – fws can 'patent' data and protect it, but it is a process, otherwise foia can extract data from most agencies

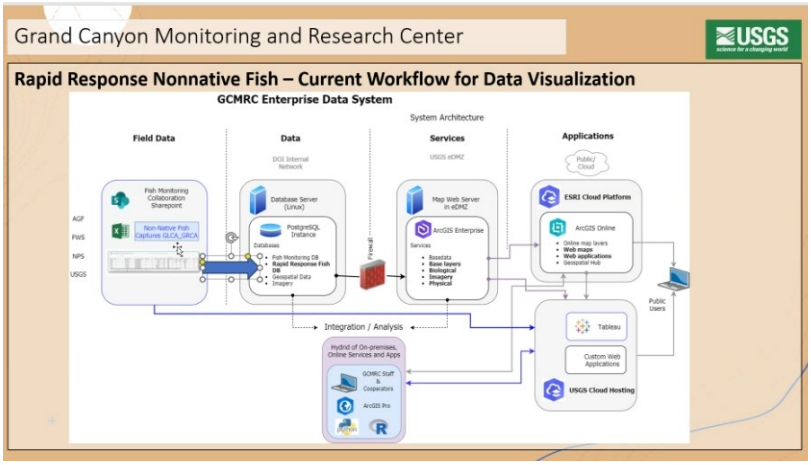
Emily – will have to look into patenting,

Ryan Mann, from chat: I will have to leave soon, so I will leave a comment for the group to discuss...One of the concerns that we have with the catch data being shared external to this group is that sampling effort is not standardized temporally and spatially. I'm not sure how to address that other than to show a disclaimer up top, but it is certainly a concern as the information can be easily misapplied or taken out of context.

Tom – until data are QA/QC USGS does not share with outside entities. Maybe could password protect, but the visualization was meant to be shared.

Kate Behr – this numbers do not fully include native fish counts, so it makes it look like there are no native fish – another caveat

Tom – thinking of standing up a separate NNF database in same space, once we have that we can have a relational database and that would solve a lot of problems with sampling extent, other fish captures, and that would be the source for the visualization instead of the NNF database…talking about the blue arrow highlighted below. Tom and Carlos will work on this in the background.



Rapid Response Nonnative Fish

Workflow Current Status

- Shared Excel spreadsheet exists in Fish Collaboration sharepoint site
  - Different entities contribute nonnative fish capture data in spreadsheet
  - Data amended to bottom rows of spreadsheet
  - Frequency of data entry depends on staff returning from field efforts (ie, not regularly scheduled).

- Concerns with Current Workflow
  - Process allows for data entry errors
  - Process allows for potential data loss by user
  - Data "columns" lack constraints
  - No acceptable bounds for data values established
  - No formal back up procedures have been instituted
  - Only SharePoint Versioning
  - Separate (divergent?) process from standard fish monitoring

Others: This tool is a way of visualization of what data is recorded, not really meant for sharing outside managers. Keep link safe.

Carlos – needs individual autonumbered data key on excel spreadsheet. Could also change to dark mode, easier to see for some folks.

Don't want to create any more requirements for folks doing the data entry, could add externally, take database offline for a few hours. Auto backup will also do this.

Seeking any and all feedback on the visualization, and other questions. Happy to join meeting any time to further discuss, will send link to melissa, who will share to folks in this group who ask via email.

Recent Capture updates:

GLCA – Buddy Fazio: Thanks to the diligence of the Glen Canyon NRA fisheries crew and park partners, there has been no smallmouth bass spawning in the slough to date this year. We have found no smallmouth bass young of year and no smallmouth bass adults in the slough to date. The cool mix from the dam is also cooling the slough water and helping to prevent smallmouth bass spawning. Therefore, we cancel our plans for a rotenone treatment in the slough that we initially scheduled for the weekend of August 17 and 18, 2024. Glen Canyon NRA will continue to monitor the slough for spawning through netting, electrofishing, and snorkeling. The block net will remain in place to help prevent non-native fish from entering the slough.

Going to continue netting through October, Electrofishing will continue once a month at least through March, current trip list only includes up to November.

Trip Report through July 22. 22 SMB, 4 WE in standardized monitoring. Keep collecting crayfish, a few each time.

Last week, focused EF on area below dam and near slough, did catch the first 3 adult SMB this year, below dam. Including 400 mm mature male.

Pulled nets yesterday in slough, a few YOY carp and GSF, no SMB.

Full July 22-25 Trip Report below:

GLCA Electrofishing July 22-25, 2024

Total number of fish removed during standard monitoring (4 nights). Disposition of fish are: beneficial use (BU); human consumption (DC), future research (DP), returned alive (RA).

Table 1. Standard monitoring capture totals from electrofishing efforts in GLCA from July 22-25, 2024
* indicates fish that were caught in the -12 miles slough and released alive in the main channel

Species	Number of Fish Removed	Size (mm)	Disposition	% of Catch
GSF	950	37-166	BU	82.8
SMB	22	53-166	DP	1.9
BGS	6	64-133	BU	0.5
WAL	4	355-405	DC	0.3
BNT	101	45-504	DC/BU	8.9
RBT	24	41-112	BU	2.2
Trt	9	35-56	BU	0.8
CRP	16	67-96	BU	1.4
CRP*	8	N/A	RA	0.7
BKC	1	147	BU	0.09
FMS*	1	N/A	RA	0.1
CRY	3	N/A	DP	0.3
Total	1145			

STANDARD MONITORING

- Rainbow Trout, Flannelmouth Sucker, and adult Common Carp are not actively targeted during sampling. If they are encountered, they are removed from the electric field. All other fish are actively caught and processed for beneficial use (eagle/wildlife food), human consumption, or current research studies.
- We sampled 89 sites between Glen Canyon Dam and Lees Ferry with a total electrofishing effort of 19 hours 59 minutes.
- We caught and processed 1145 fish comprised mostly of Green Sunfish.
- More than half of fish (52%) were caught in the upstream portions of the Colorado River in reaches A-C (Table 2).

Table 2. Standard capture totals from electrofishing efforts in GLCA from July 22-25, 2024

Reach	SMB	GSF	BGS	FMS	WAL	BNT	RBT	CRY	CRP	Trt	BKC
A	4	157	4	0	3	15	0	3	0	5	0
B	1	229	2	0	0	5	3	0	0	0	0
C	7	153	0	1	1	14	7	0	39	1	0
D	6	195	0	0	0	19	1	0	0	0	0
E	4	132	0	0	0	27	5	0	0	1	0
F	0	37	0	0	0	11	6	0	0	2	0
G	0	32	0	0	0	10	2	0	0	0	1
Total	22	950	6	1	4	101	24	3	39	9	1

- All Smallmouth Bass ranged in total length from 53 mm – 166 mm.

- 24 small rainbow trout died during electrofishing efforts and ranged in size from 41-112mm total length.
- 3 crayfish were caught. One at RM -15.6L, one at -15.04L, and one at -14.89L.

EXPLORATORY SITES

- Exploratory sites are subjectively chosen based on previous SMB catches or other fish management actions such as selectively removing carp, flannelmouth suckers, and rainbow trout from the slough.
- Exploratory sites are sampled once all standard monitoring has been completed for the week.
- In addition, LOWER SLOUGH (July 25th, 2024); sampled with two boats, effort was 1-hour 49 minutes.

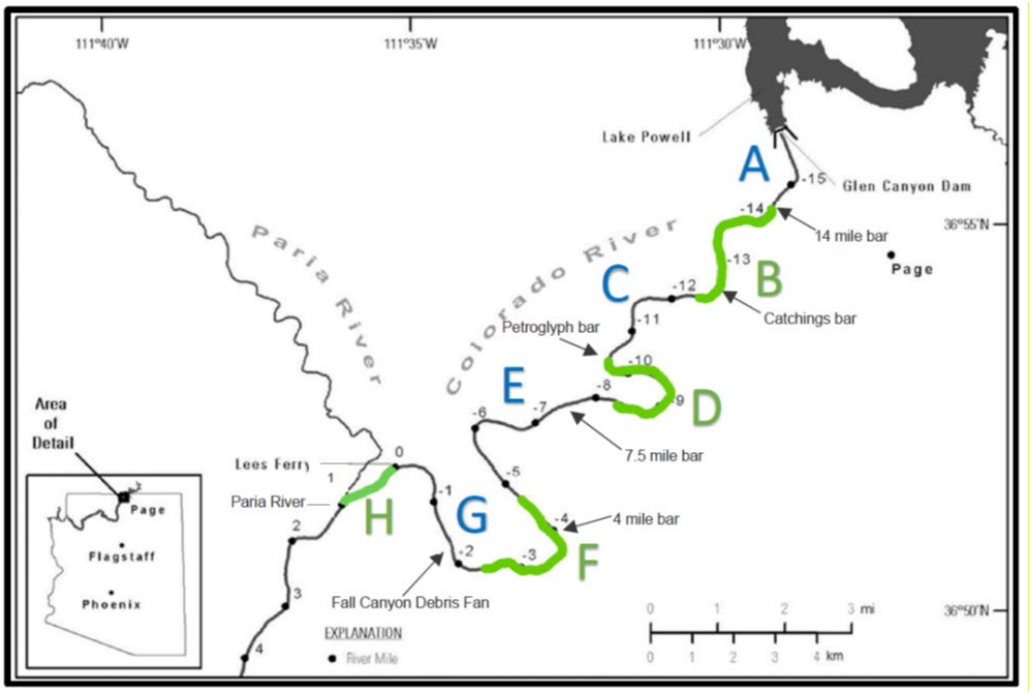
Table 3. Lower Slough GLCA electrofishing July 25th, 2024. Adult Common Carp, Flannelmouth Suckers, and Rainbow Trout were moved to the main channel.

Species	Count
Green Sunfish	15
Flannelmouth Sucker	1
Common Carp	39
Total # Fish	55

- ADDITIONAL SITES (13 total)

Table 4. Summary results of electrofishing 13 additional exploratory sites

Species	Count
Green Sunfish	141
Smallmouth Bass	4
Brown Trout	13
Rainbow Trout	2
Trout sp.	3
Total # Fish	163



GRCA – Kurt – last field week, July 23-24, seined 6 BW, caught 10 GSF. Set hoop nets in hot spots for GSF. Was Turbid, so seining was more productive. Was not able to electrofish last week, so that work was transferred to Lees Ferry, reported above.

GCMRC –

Kim provided info: Our most recent trip on the water was the July JCM trip (July 2-23, 2024). Kate – lot of trout at House Rock, most NNF were FHM at JCM east. A lot of HBC caught at JCM West. Flannelmouth – bluehead hybrid JCM East.

This is a brief summary of native and nonnative fish captures. The data is still going through QA/QC. Good news is…no smallmouth bass!

House Rock:

Species	Count
BGS	1
BHS	4
BKC	1
BNT	14
CCF	1
FMS	198

GSF	8
RBT	258
Grand Total	**485**

JCM-East (IVb):

Species	7/6/24	7/7/24	7/8/24	7/9/24	7/10/24	7/11/24	Total
BBH	1	2	4	4		1	12
BGS			1				1
BHS	14	9	16	17	52	46	154
CCF			2	3	1	1	7
CRP	1	5	3	1	1	4	15
FBH		1					1
FHM	53	125	84	186	123	229	800
FMS	311	227	294	276	337	291	1736
GSF	2		1		1	5	9
HBC	203	153	206	171	279	344	1356
NFC	37	27	36	34	20	17	171
PKF	2	2	1			1	6
RBT	9	11	8	9	12	10	59
RSH	1	12	3	9	7	6	38
SPD	4	7	7	6	3	12	39
SUC	1	1	2	3	1	6	14
WAL	2				1	1	4
YBH	1	1					2
Grand Total	**642**	**583**	**668**	**719**	**838**	**974**	**4424**

JCM-West (FAL):

Species	7/16/24	7/17/24	7/18/24	7/19/24	7/20/24	7/21/24	Total
BGS	1						1
BHS	90	65	107	64	99	60	485
CCF		1					1
CRP	1	1	1				3
FHM	20	38	16	24	15	23	136
FMS	294	243	222	209	189	183	1340
GSF	1	7		3	1	5	17
HBC	706	506	313	420	315	415	2675

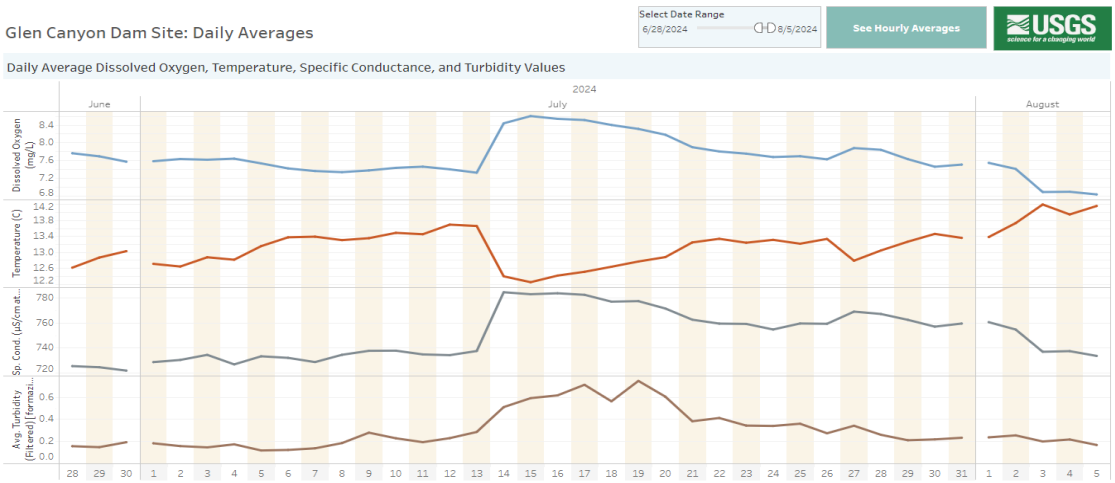
NFC	9	24	36	29	39	38	175
RBT	1					1	2
SPD	376	205	238	161	309	146	1435
SUC	1	4		1		1	7
Grand Total	**1500**	**1094**	**933**	**911**	**967**	**872**	**6277**

FWS – Pilar – returned from trip Friday Aug 2. Seining and Hoop netting. **No SMB captured.** Last year, all BW above LCR held at least 1 GSF, but not this year. BW are cold and clear (cool mix). Not many below LCR either. Lots of FHM.
Seined Shinumo, nothing much. Seined Kanab, saw catfish, carp, GSF, FHM. No SMB captured. Seined down to RM171, then started hoop netting. Very few maybe none, rare exotics down in Western GC. Need to fix some antenna issues on next trip so may skip some sites above 30 mile to make time, but GRCA will be seining that reach sept 23-29. Next trip Aug 28 – Sep 16. Seining and hoopnetting the whole way.

AZGF – no update *(call went long, they had to leave meeting and could not provide an update for their salmonid population monitoring July 8-12 in Lees Ferry)*

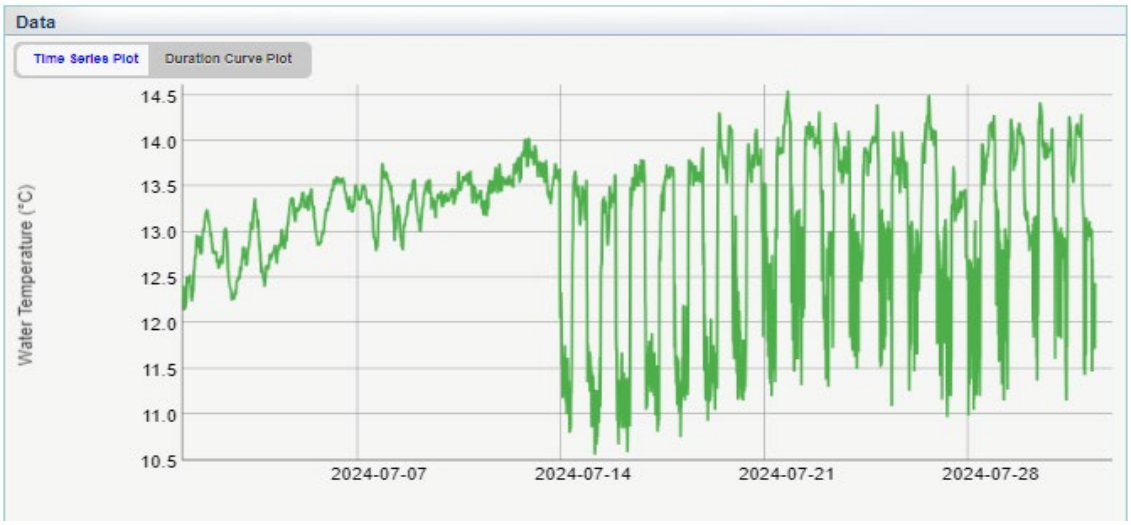
Reclamation – *Cool mix updates?* call went long, Reclamation had to leave meeting before giving updates, but see temperature graphs below to see how coolmix is affecting temperatures at LF and at LCR (RM61). David Ward – comment – temp ranges are very wide (see below). The Average at LCR is below 15.5 as targeted, but still getting at least 4 hours over 16 every day. Fish could spawn under those conditions.

Late update from Brian Hines: finalized the Biowest contract to continue small bodied seining work in Grand Canyon. They are going to do 3 seining trips this year. The first launches Aug 13 and they will sample from Phantom Ranch to Pearce Ferry (original sampling schedule.) The second trip launches on Aug 27 and this trip will focus on seining all back/slackwater habitats from Lees Ferry to at least Phantom Ranch focusing on NNF specifically. The third trip launches on Sept 10 and will be occurring from Phantom Ranch to Pearce Ferry. This trip supplements the planned NN surveillance with seining and DNA collection, conducted by Grand Canyon NP from Lees Ferry to Phantom Ranch, launching Sept 23.

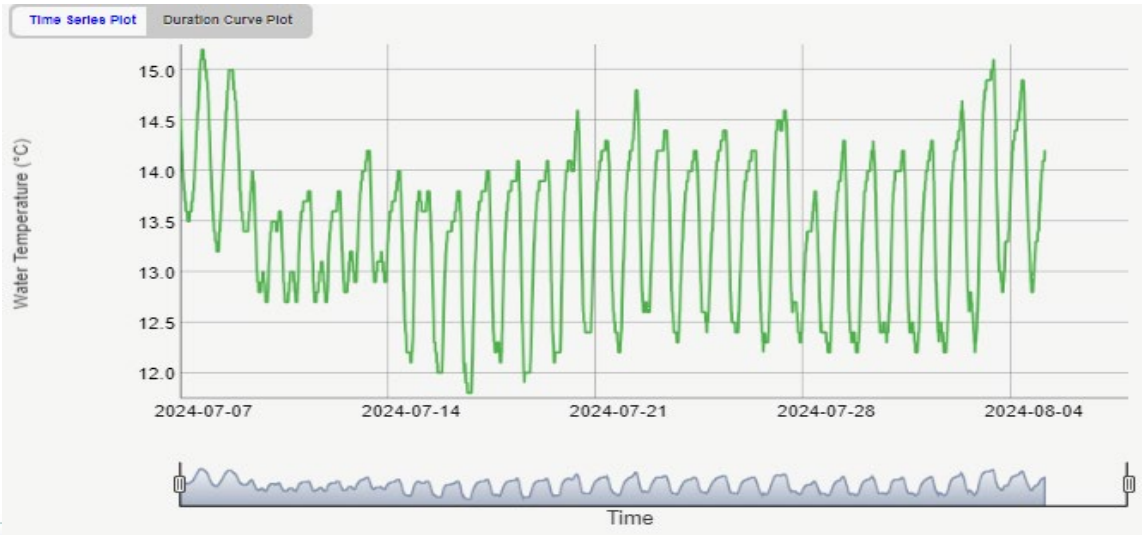


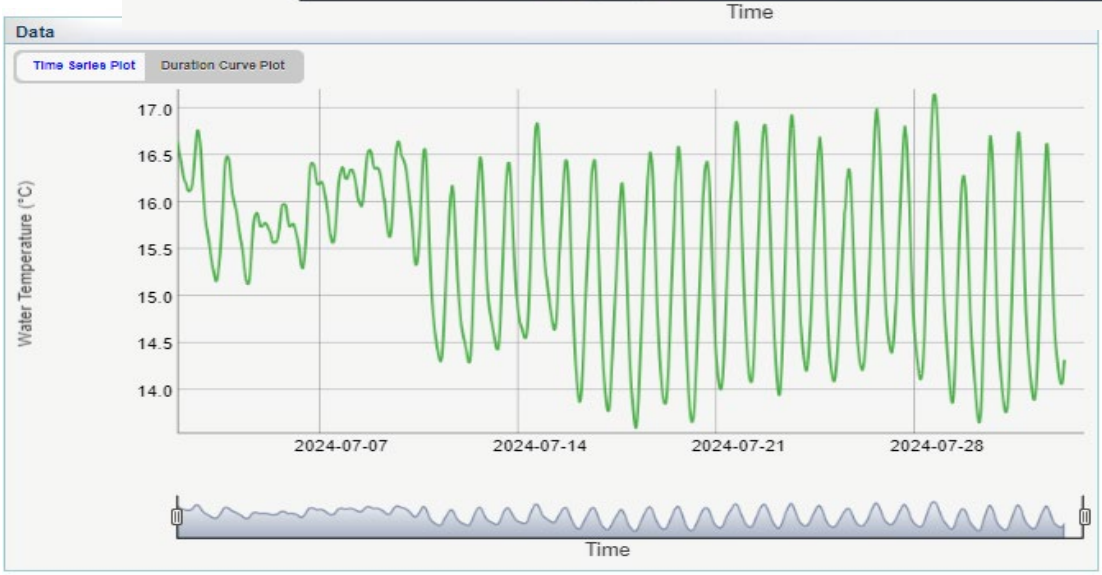
The water quality data shown here are filtered raw values and are subject to revision through quality control / quality assurance procedures. These data are being provided to meet the need for timely best science. The data have not received final approval by the U.S. Geological Survey (USGS) and are provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the data. ***Please visit GCMRC's Discharge, Sediment and Water Quality web site to plot or download the processed measurements from this station:*** *https://www.gcmrc.gov/discharge_qw_sediment/station/GCDAMP/09379901*

[Workbook: colorado-river-water-quality-gcd]



Below GCD. Max temperatures are a good indicator of normal penstock release temperatures, low temperatures include cold bypass releases.





Top graphs – Top graphs, previous page, gages below GCD ending 8/4 and 8/1; Middle, Lees Ferry ending 8/7; Bottom – RM61 ending 8/2

II. DISCUSSION OF NEW FINDINGS

a. General – See above, otherwise *none; ran out of time.*

III. Upcoming trips and other future plans –

2024 sampling and monitoring
GRCA – See Table 1.

GLCA – See Table 2. – Jeff sent out volunteers needed table – what help still needed?

GLCA Help need Aug to Nov 2024.xlsx

GCMRC – see Table 3 of GCMRC and cooperator trips

(question for next meeting, is Sept 5th TRGD still cancelled since temp and DO are likely fine for trout?)

AGFD – see Table 3 –

FWS – see Table 3 –

Reclamation – Conducted seining/snorkeling/side scan sonar week of Aug. 5th**. Brian Hines** finalized the Biowest contract to continue small bodied seining work in Grand Canyon. They are going to do 3 seining trips this year. The first launches Aug 13 and they will sample from Phantom Ranch to Pearce Ferry (original sampling schedule.) The second trip launches on Aug 27 and this trip will focus on seining all back/slackwater habitats from Lees Ferry to at least Phantom Ranch focusing on NNF specifically. The third trip launches on Sept 10 and will be occurring from Phantom Ranch to Pearce Ferry. This trip supplements the planned NN surveillance with seining and DNA collection, conducted by Grand Canyon NP from Lees Ferry to Phantom Ranch, launching Sept 23.

IV. Old Business –
   a. Help needed by GLCA or anyone? Jeff has a few people signed up to help but needs more, see link to 'help need' sign up sheet. Non Fed partners contact Jeff or Melissa if you can't access the sharepoint site.
      i. GLCA Help need Aug to Nov 2024.xlsx (sharepoint.com)

   b. Report out on slough channelization discussion. – NPS and Reclamation are proceeding with EA.
      i. On track. 8/7/2024
   c. Coordinated effort between NPS and GCMRC regarding sampling protocols for both GLCA and GRCA – *no update*

V. Anything else?
   a. Let Melissa know if there is anything you'd like to see on next agenda.

Adjourn 16:47 MDT

Table 1. Grand Canyon NP Sampling Schedule 2024

Dates	Trip	Location
April 9-10	PBR-BW	Paria to Badger
~~April 15-19~~	~~PBR-EF~~	Paria to Badger
May 7-8	PBR-BW	Paria to Badger
May 20-24	PBR-EF	Paria to Badger
June 4-5	PBR-BW	Paria to Badger
June 10-13	PBR-EF	Paria to Badger
June 19-30	HBC AGG/NN Surveillance Downstream	Lees Ferry to Diamond Creek
July 8-12	PBR-EF	Paria to Badger
July 23-24	PBR-BW	Paria to Badger
July 29- Aug 2	~~PBR-EF~~ effort transferred to LF	Paria to Badger
Aug 13-14	PBR-BW	Paria to Badger
Aug 19-23	PBR-EF	Paria to Badger
Sept 9-12	PBR-EF	Paria to Badger
Sept 23-30	NN Surveillance SN/eDNA Downstream	Lees Ferry to LCR
Oct 7-10	PBR-EF	Paria to Badger
Oct 21-Nov 1	NN Surveillance EF Downstream	Lees Ferry to LCR
Nov 11-15	PBR-EF	Paria to Badger
Nov 25-29	PBR-EF	Paria to Badger

Occurred, Canceled due to low water temperature

Table 2. Glen Canyon NRA Sampling Schedule 2024. Electrofishing occurs mostly at night. Dates and locations may change in response to monitoring results to focus on high density areas. Trip length is 3 to 4 days/nights. Netting trips focus on the sloughs. Nets are set overnight. Undesired warmwater fishes are removed for beneficial use (except for carp). Rainbow trout are not captured or handled during electrofishing. Brown trout are removed for beneficial use.

WEEK OF:	Description
March 5	GLCA electrofishing
April 1	GLCA electrofishing
April 8	GLCA Netting
April 15	GLCA electrofishing
April 22	GLCA Netting
April 29	GLCA electrofishing
May 6	GLCA Netting
May 13	GLCA electrofishing
May 20	GLCA Netting and Slough Block Net Installation
May 27	GLCA electrofishing
June 3	GLCA Electrofishing
June 10	GLCA Netting
June 17	GLCA Netting
June 24	GLCA electrofishing/Maybe only one boat
July 1	GLCA Electrofishing
July 8	GLCA Netting
July 15	GLCA Electrofishing
July 22	GLCA electrofishing/Maybe only one boat
July 29	GLCA Netting
Aug 5	GLCA electrofishing
Aug 12	GLCA Electrofishing/maybe only one boat
Aug 16-19	Potential chemical treatment of slough if needed
Aug 19	GLCA Netting
Aug 26	GLCA Netting
Sept 3	GLCA electrofishing
Sept 9	GLCA Netting
Sept 16	GLCA electrofishing
Sept 23	GLCA Netting
Sept 30	GLCA electrofishing
Oct 15	GLCA electrofishing
Oct 28	GLCA electrofishing
Nov 18	GLCA electrofishing

Table 3. GCMRC, Cooperator, and Tribal River Trips and Field Activities

VI. Occurred or Planned 2024

Launch	Take out	Description
25-Jan	30-Jan	Lees Ferry trout population monitoring
14-Feb	1-Mar	Quality of Water/fine sediment monitoring
11-Mar	14-Mar	Lees Ferry fish population monitoring
3-Apr	17-Apr	Mainstem Fish, non-native (electro shocking)-AZGFD
4-Apr	9-Apr	Lees Ferry trout population monitoring
9-Apr	26-Apr	Aquatic Foodbase monitoring (drift)
16-Apr	26-Apr	LCR HBC, camps at three locations on Little Colorado River
20-Apr	29-Apr	Hopi Cultural Monitoring
23-Apr	12-May	Juvenile HBC monitoring-April 27 Launch downstream Lees Ferry
27-Apr	6-May	Navajo Cultural Monitoring
2-May	21-May	Survey Control Network
13-May	30-May	Cultural Resource Monitoring
17-May	31-May	Mainstem Fish, non-native (electro shocking)-AZGFD
21-May	31-May	LCR HBC, camps at 4 locations on Little Colorado River
25-May	3-Jun	Zuni of Pueblo Cultural Monitoring
6-Jun	20-Jun	Grand Canyon Youth-"Partners in Science"
8-Jun	17-Jun	Southern Paiute Consortium Cultural Monitoring
12-Jun	21-Jun	Hualapai Cultural Monitoring
26-Jun	5-Jul	Grand Canyon Youth-"Partners in Science"
13-Jun	17-Jun	TRGD – note dates changed from July 4th
27-Jun	8-Jul	LCR Juvenile HBC monitoring (3 camps)
3-Jul	18-Jul	Grand Canyon Youth-"Partners in Science"
5-Jul	24-Jul	Juvenile HBC monitoring
8-Jul	12-Jul	Lees Ferry trout population monitoring
18-Jul	30-Jul	Mainstem Fish, HBC-Seining
13-Aug	16-Aug	Lees Ferry-Terrestrial Vegetation Monitoring
14-Aug	30-Aug	Fine Grain sediment monitoring
24-Aug	9-Sep	Terrestrial Vegetation Monitoring
9-Sep	11-Sep	Terrestrial Vegetation Monitoring
28-Aug	16-Sep	Mainstem Fish, HBC-aggregations (netting)
5-Sep	10-Sep	TRGD (Cancelled due to likely high water temps and low DO)