Agenda and notes 06/21/2024 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

Trammell, Melissa
Arnold, Jeff L
O'neill, Matthew W
Gibney, Nicole D
Julie Carter (AZGFD)
Hammen, Jeremy J
Ward, David L
John Fennell AZGFD
Scott Rogers AZGFD
Hines, Brian A
Eppehimer, Drew E
Fazio, Buddy B

I. Recent trips and findings

Last meeting/report out was 05/29/2024.

GLCA – June 3-7 summary sent on June 21, also captured 20 SMB. All SMB smaller than 136. Downloaded loggers will share info next time. GSF 90% of catch throughout LF. Two Walleye in May, one in June. Not checked in May, but in June, it was unripe Male. No YOY SMB or WAL yet this year. No YOY carp either yet, carp are ripe. Few YOY GSF. Probably too cool so far. Block net working somewhat, but movement of net tends to roll sandbags off the net, but will ziptie sandbags to net to keep it anchored. Few adult carp above/inside net, few GSF. Few FMS.

Herbicide potential – veg not thick yet, not worth treating yet, was scheduled for first week of July but have delayed to later in July for more effective treatment.

Matt – do you have calendar with personnel needs set up?

Kurt set it up, and GLCA is set for help over the next two weeks.

Will pick up loggers from other locations in a few weeks. Have been training crew for MOCC.

GLCA Electrofishing May 27-29, 2024

Total number of fish removed for during standard monitoring (3 nights) and exploratory sites (1 night). Disposition of fish are: beneficial use (BU); human consumption (DC), future research (DP)

Species	Number of Fish Removed	Size (mm)	Disposition
GSF	1178	40-111	BU
SMB	21	50-160	DP
BGS	44	35-189	BU
WAL	2	414, 500	DC
BLC	1	101	BU
BNT	52	45-450	DC
RBT	7	30-63	BU
TRT sp	2	45	BU
Total	1279		

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 68 sites between Glen Canyon Dam and Lees Ferry with a total electrofishing effort of 16 hours 39 minutes. During standard monitoring

· We caught and processed 982 fish comprised mostly of Green Sunfish (90.12%) (Table 1.)

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Table 1. Summary results of GLCA standard monitoring at Lees Ferry from May 27-29, 2024

Species	CPUE	Count	% of Catch
Green Sunfish	0.8857	885	90.12
Smallmouth Bass	0.015	15	1.53
Bluegill Sunfish	0.038	38	3.87
Walleye	NA	2	0.20
Black Crappie	NA	1	0.10
Brown Trout	0.033	33	3.36
Rainbow Trout	NA	7	0.71
Trout sp.	NA	1	0.10
Total		982	100

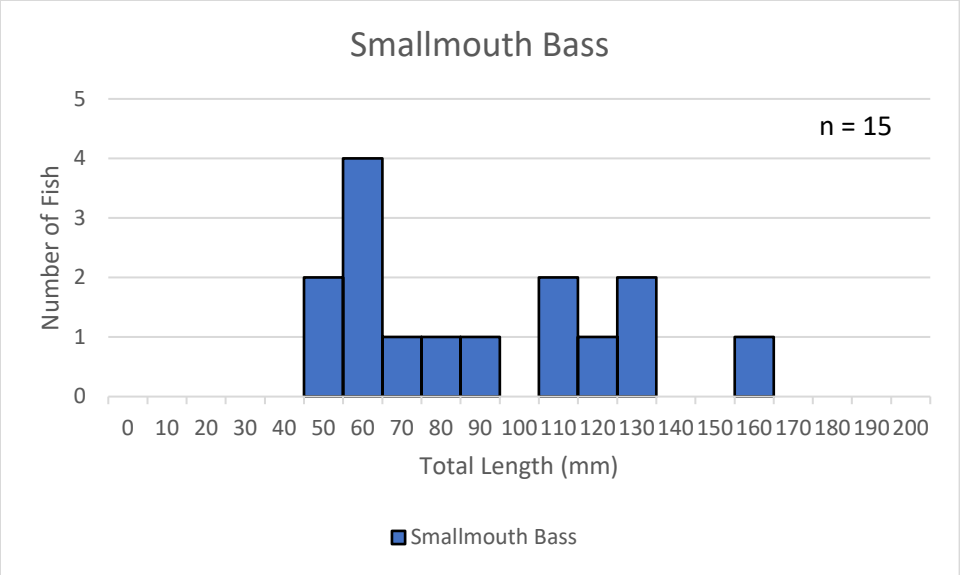
- Most fish (74.2%) were caught in the upstream portions of the Colorado River in reaches A-C (Table 2).

Table 2. Standard monitoring capture totals from electrofishing efforts in GLCA from May 27-29, 2024 separated by reach.

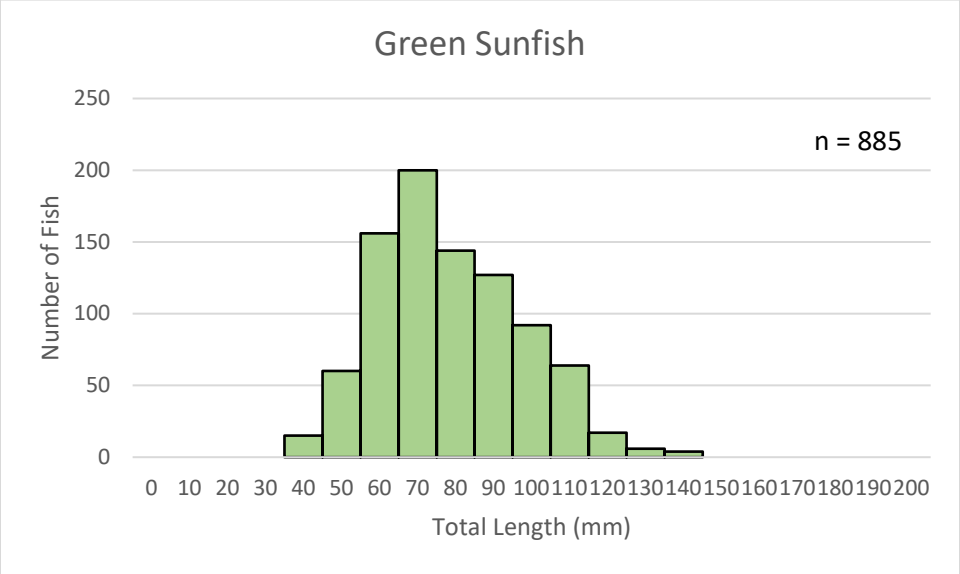
Date	Reach	SMB	GSF	BGS	WAL	BLC	BNT	RBT	Trout sp.
29-May-24	A	1	185	14	1	0	6	0	0
	B	3	320	6	1	0	4	1	1
28-May-24	C	5	159	13	0	1	4	4	0
	D	2	51	2	0	0	3	0	0
27-May-24	E	2	64	2	0	0	9	1	0
	F	0	61	0	0	0	4	1	0
	G	2	45	1	0	0	3	0	0
	H	0	0	0	0	0	0	0	0
Total		15	885	38	2	1	33	7	1

- Two adult Walleye (415 mm TL; 500 mm TL) were caught in reaches A and B respectively.

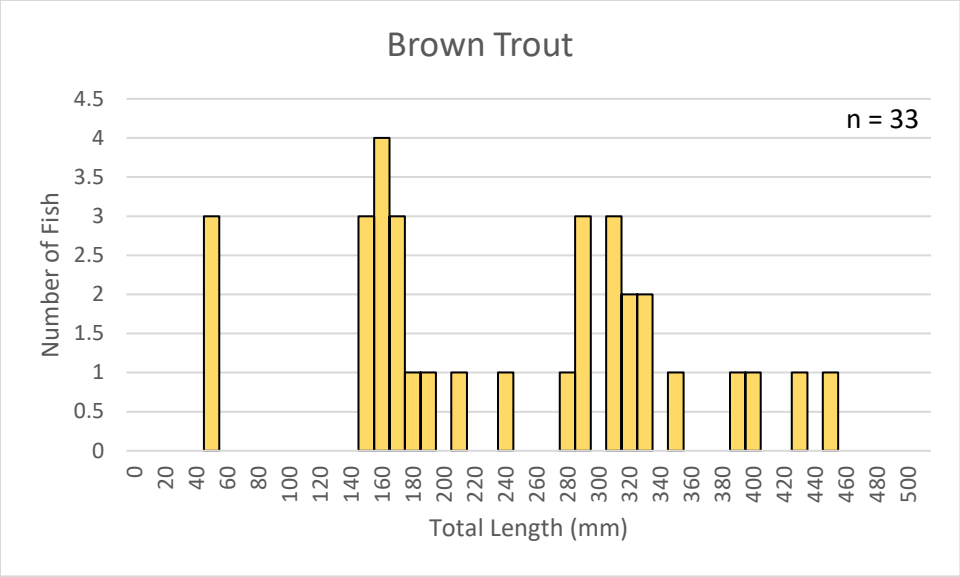
- All Smallmouth Bass were < 200 mm total length.



- Green Sunfish ranged from 31-140 mm total length.



- Brown trout caught and processed ranged from 45-450 mm total length. Five brown trout were pit tagged. Brown trout > 200 mm were processed for human consumption.



- Seven small rainbow trout died during electrofishing efforts and ranged in size from 30-63 mm total length.
- Two crayfish were caught. One each at RM -15.2R and RM -15.02R

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.
- LOWER SLOUGH (May 30, 2024); sampled with two boats, 1-hour 56 minutes

Table 3. Lower Slough GLCA electrofishing May 30, 2024
* indicates fish that were fin clipped and moved to main channel

Species	CPUE	Count	% of Catch
Green Sunfish	0.0517	6	16.67
Smallmouth Bass	0.0172	2	5.56
Bluegill Sunfish	0.0086	1	2.78
Brown Trout	0.0258	3	8.33
Rainbow Trout*	0.0344	4	11.11
Common Carp*	0.1724	20	55.56
Crayfish		1	
Total # Fish		36	100

- ADDITIONAL SITES (14 total)

Table 4. Summary results of electrofishing 14 additional exploratory sites

Species	CPUE	Count	% of Catch
Green Sunfish	0.85549491	221	89.8374
Smallmouth Bass	0.015484071	4	1.6260
Bluegill Sunfish	0.019355088	5	2.0325
Brown Trout	0.061936283	16	6.5041
Trout sp.	0.003871018	1	0.4065
Total # Fish		246	100

GRCA – SMB summit - will discuss next call.
Tildon – try to sample entire reach/week once temps go over 15.5 – to focus on adult SMB which may be more vulnerable then.
Matt – question for PIs – if you catch any bass between LF and LCR please let us know with sat phone asap – nightly if possible. Matt will contact Sue Wood to pass that to trip on the water now.
Drew – YOY SMB do not grow at temps 14C or below so this year may suppress growth [?and survival?]

GRCA personnel completed electrofishing efforts in the Paria River to Badger Rapids (PBR) reach this week, 6/10 – 6/14. A total of 44 unique, 250-m sites were completed in Reaches J and L. Two additional passes were completed on 10 sites within each reach as part of depletion efforts. Netters were targeting warm-water invasive species. Any observed Brown Trout were also netted and preserved for beneficial use. Non-target fishes, such as Rainbow Trout and native species, were removed from the electric field and not processed. One Smallmouth Bass was captured (Table 1). All Smallmouth Bass captured during these efforts are preserved individually in ethanol and given to GCMRC for diet, genetic, and other analyses.

Reach J (RM 2.77– 4.27) was surveyed on 6/10. Fishes removed include 86 Green Sunfish, 1 Bluegill, 6 Brown Trout, and 2 Common Carp. The majority of sunfish species were captured within, and in close proximity downstream, the RM 3.21 backwater.

Based on the results from night #1, 10 sites in reach J were selected for depletion passes on 6/11. Fishes captured include 73 Green Sunfish, and 4 Brown Trout.

Reach L (RM 6.15 – 7.8) was surveyed on 6/12. Fishes captured include 1 Smallmouth Bass, 37 Green Sunfish, 3 Bluegill, and 8 Brown Trout.

Based on the results from night #3, 10 sites in reach L were selected for depletion passes on 6/13. Fishes captured include 19 Green Sunfish, 1 Black Crappie (163mm), 1 Bluegill, and 1 Brown Trout.

See below for the capture data for each night (Table 2) as well as a breakdown of the results from the depletion sites (Table 3).

The next rapid response electrofishing effort in the PBR reach is scheduled for July 8 – 12. Sampling will be focused within Reaches I and K and 10 depletion sites will once again be selected based on the pass #1 captures of each respective reach.

In addition to electrofishing efforts, we conducted our monthly PBR backwater survey last week (6/4 – 6/5). Seining efforts captured two green sunfish, including a large ripe female at RM 1.27R near Paria Beach. Hoop netting efforts within the 3.21 backwater captured 11 Green Sunfish and 1 Bluegill. Hoop nets were also set at RM 2.03 in a pocket behind large boulders which was identified as a potential hotspot during the May electrofishing trip. These efforts captured one Green Sunfish. A hoop net was also set in a backwater downstream from Paria beach and resulted in no fish captured. We also conducted a three-person snorkel survey within the RM 3.21 backwater, however visibility was sub-optimal due to higher turbidity in the backwater compared to the mainstem. We did not observe any smallmouth bass nesting activity. The HOBO temperature loggers within the RM 3.21 backwater and below Paria Beach were downloaded. Temperatures in these locations were ranging from 13-16°C and 12-14°C respectively in the week prior to download. The next PBR backwater trip is scheduled for July 24 – 25.

Table 1. Individual data for Smallmouth Bass captures in PBR reach in 2024.

Date	River Mile	Side	Gear	Species Code	TL (mm)	Weight (g)	Disposition
5/22/2024	1.21	L	EF	SMB	157	50	DP
5/22/2024	1.95	R	EF	SMB	56	2	DP
5/23/2024	5.33	R	EF	SMB	62	2	DP
6/12/2024	6.93	R	EF	SMB	55	1	DP

*New additions in red

GCMRC. Drew - June TRGD trip

GSF	348
SMB	7
WAL	2
Grand Total	**360**

Date	River Mile	River Side	Gear	Species Code	TL (mm)	FL (mm)	Wt (g)	Disposition
6/14/2024	-13.69	R	EF	SMB		90	7.2	DP
6/14/2024	-13.56	R	EF	SMB		54	1.5	DP
6/15/2024	-12.55	L	EF	SMB		115		DP
6/15/2024	-13.56	R	EF	SMB		106	15	DP
6/15/2024	-13.36	L	EF	SMB		88		DP
6/17/2024	-3.75	L	EF	SMB		68	4.3	DP
6/17/2024	-3.2	L	EF	SMB		113	15.9	DP
6/14/2024	-14.17	L	EF	WAL		500	1118	DP
6/14/2024	-12.95	L	EF	WAL		486	1309	DP

Check on whether WAL were ripe.

AGFD – No SMB on trip ending May 31st, downstream trip. Next trip – LF monitoring July 8-11, mostly trout focus, but includes some NN monitoring sites. Will not sample slough this year since it has a lot of sampling already.

FWS – No new data to report. Next trip is seining on July 18-Aug 2. Extra boat on Agg trip also, in later August. However, This trip was cut from TWP – budget cuts. Monitoring will suffer due to loss of backwater seining. Tried to include extra boat on Agg trips, but did not survive budget cuts. TWP being submitted today.
Brian H – almost finished with BioWest with new 5 year contract that will conduct summer seining in standard monitoring (part of razorback monitoring). July and August this year, possibly Sept, future years one trip/month May-Aug.
Last week – treated series of small ponds to remove GSF – public land, through AGFD permit process – with Sodium sulfite to remove DO. Effective in smaller pools. This may lead the way for use in other areas that fit within the federal experimental use requirements – isolated pools of water.

II. DISCUSSION OF NEW FINDINGS

See above. Summary – catch a few dozen SMB per month – temps remain cool, unlikely to spawn in main channel. Matt – water cool enough that SMB still hunkered down – not available to gear. Since we are not likely to hit 15C, so may not be available to gear all summer, which will affect CPE and Pcap – need to caveat results to stakeholders.
Artificial substrates? Not yet deployed. Plan to deploy in sloughs in next couple of weeks – need to have staff check twice a week. In case they do try to spawn, need to be able to remove. Citizen science? Difficult to access slough due to net. Plan to set south east end, it is muddy and deep, difficult to observe from shore or without a boat.
Need photos of substrates, description of plan, for TWG. Drew will work with Conor and Jeff to get that to Melissa for update.

III. Upcoming trips and other future plans –

2024 sampling and monitoring
GRCA – See Table 1
GLCA – See Table 2. – electrofishing main channel next two weeks, and also sampling slough one day a week. Emily Thomas (FWS) is scheduled for the next couple of weeks. Kurts interactive schedule for trips and volunteers is up and running for use.

GCMRC – see Table 3 of GCMRC and cooperator trips

AGFD – see Table 3

FWS – see Table 3

Reclamation –
Loaned a boat to GLCA for netting in forebay mostly – plan to net in forebay when get more people lined up (Barrett, ACE, volunteers, new staff)

Temperature projections provided by Bryce Mihalevich (Figures 2 and 3, below)

IV. Old Business –
   a. Concerns from anglers – trout fishery in GLCA.
      i. dates and locations of electrofishing – Jeff will work with Scott
      ii. need for more outreach
      iii. Melissa sent response to angler concerns to Scott and to Dave Foster
   b. GLCA, Jeff needs help Probably in June update? Need any additional help?
   c. Report out on slough channelization discussion. – NPS and Reclamation are proceeding with EA.
      i. On track. Park will lead compliance with Reclamation. Intent is to have it done this calendar year. Anticipate entire project complete before next summer.
      ii. Bud – we have a draft schedule for EA and Project. Working with NPS DSC – plan for EA about to be finalized. Still on track to complete before next summer.
   d. Jen Pelz from Grand Canyon Trust asking for data to create their own graphs/prepare background materials to educate people on smallmouth bass
      i. Matt and Melissa met with Jen, and Matt created some graphs on the spot. We met June 4th call to discuss.
      ii. Showed Jen Tom Gushue's interactive public facing data graphics with recent data, based on NNF spreadsheet. She was impressed
      iii. Need to correct inconsistencies in spp codes when final code list complete. Individual PIs or GCMRC – better to be the PIs. Or at least tell GCMRC which codes need to be changed.
      iv. Tom G has a new hire that will focus on the visual interface and database. Species codes have been rectified by Kurt –
      v. May develop some drop down menus to force use of correct codes.

   e. Coordinated effort between NPS and GCMRC regarding sampling protocols for both GLCA and GRCA – effort ongoing
      i. Kurt, Jeff, Drew working on standardizing – no updates 5/29/24
      ii. In PBR hoping to include some depletion passes.

1. Brian and Maria provided some guidance on the depletion passes. *Check to see if resolved.*

iii. Emily Young (TWG Member from Arizona) is the chair of our Smallmouth Bass Ad Hoc Group for the TWG, she discussed the upcoming Smallmouth Bass Ad Hoc Group meetings and discussions.

1. June 3, 11 am first meeting. Based on Strategic Plan.
2. June 17 week for 2nd meeting (Tues the 18th). discussed SMB panel report. Presentation given by Bill Pine and Josh Korman. Also, researchers from Upper Basin. Can also submit written comments to agency rep, or to Brian Hines or Emily Y.
3. TWG meeting in July – would like another RRTT update, with more info on artificial spawning substrates. SBAHG is here to help, please feel free to reach out with concerns.

f. New Business –

i. Rescheduling several future meetings. *Thanks for being flexible and confirming changes.*

Old date	New Date
12-Jun	June 21, combine June 12 and 26 into one mtg on 21st
26-Jun	June 21 - confirmed
10-Jul (TWG)	2-Jul - confirmed
24-Jul	keep date but get alternate call leader
Aug 7	keep
Aug 21 (AMWG)	Cancel
Sept 4	keep

V. Anything else?

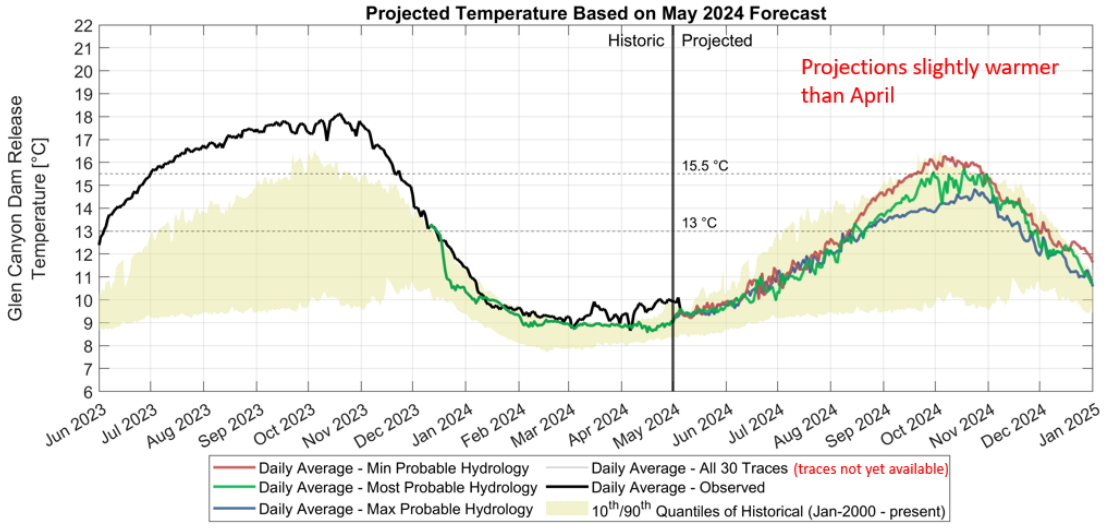
a. June is when SMB spawned in 2022 and 2023, with first YOY detected in sloughs in early July. So everyone be on the alert for SMB reproductive activity, particularly in hot spots.

b. Let Melissa know if there is anything you'd like to see on next agenda.

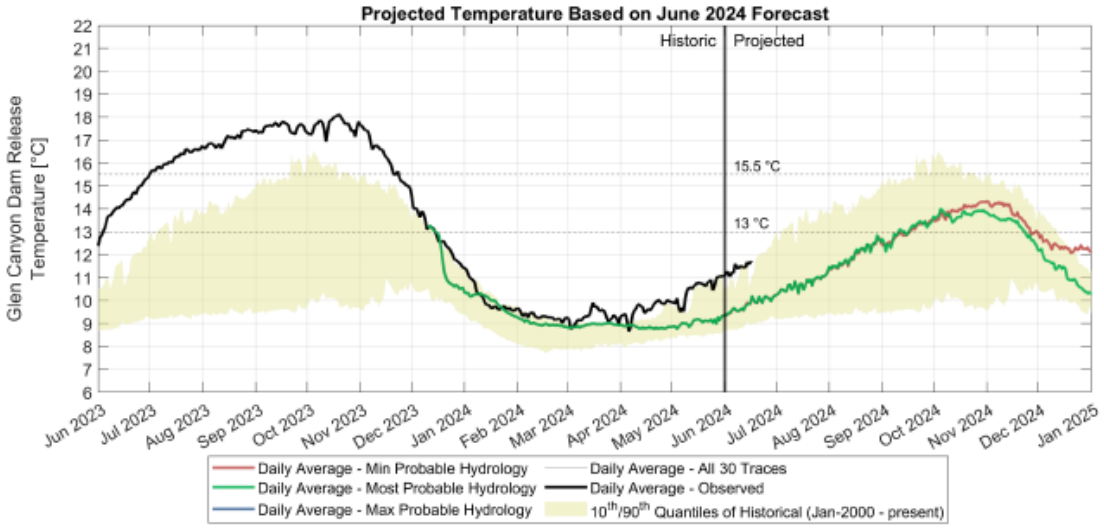
Adjourn

May 28 outflow temp 11.1
Lees Ferry avg 11.5

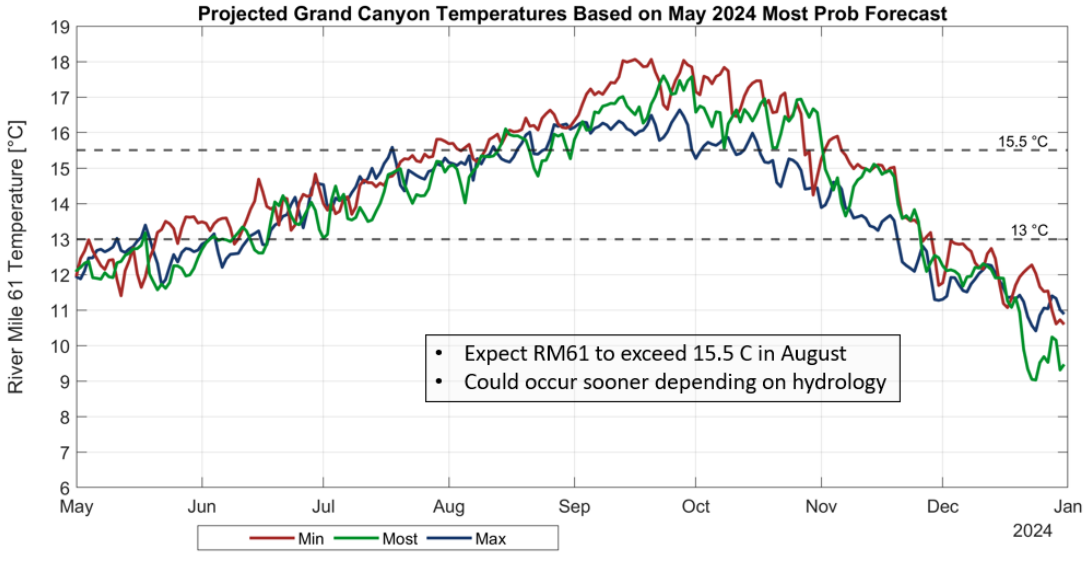
CE-QUAL-W2 Modeled Temperature

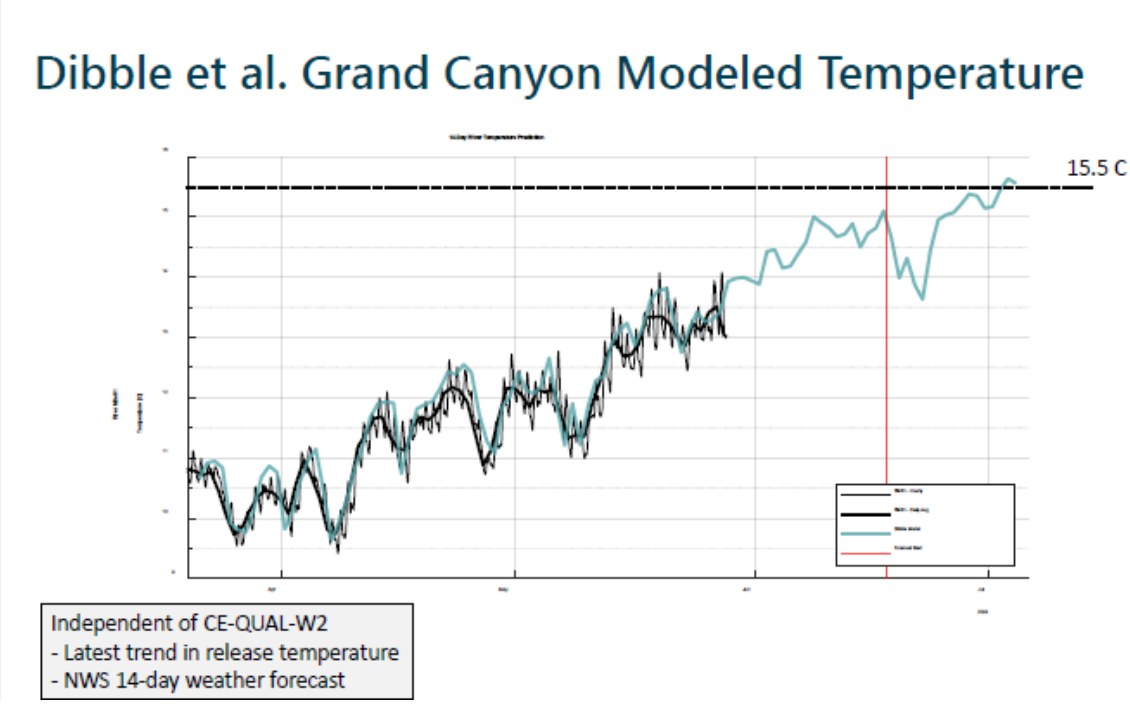


CE-QUAL-W2 Modeled Temperature



Dibble et al. Grand Canyon Modeled Temperature





Figures 2 and 3. Provided by Bryce Mihalevich, Reclamation, presentation to AMWG May 15.

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	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"
27-Jun	8-Jul	LCR Juvenile HBC monitoring (3 camps)
3-Jul	18-Jul	Grand Canyon Youth-"Partners in Science"
3-Jul	4-Jul	TRGD
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)

Yackulic, C.B., Bair, L.S., Eppehimer, D.E., Salter, G.L., Butterfield, B.J., Caster, J.J., Deemer, B.R., Fairley, H., Grams, P.E., Kasprak, A., Palmquist, E.C., and Sankey, J.B., 2024, Modeling the impacts of Glen Canyon Dam operations on Colorado River resources [presentation], LTEMP SEIS meeting (virtual), January 31, 2024: Flagstaff, Ariz., US Geological Survey, Southwest Biological Science Center, Grand Canyon Monitoring and Research Center, https://www.usgs.gov/centers/southwest-biological-science-center/science/modeling-impacts-glen-canyon-dam-operations