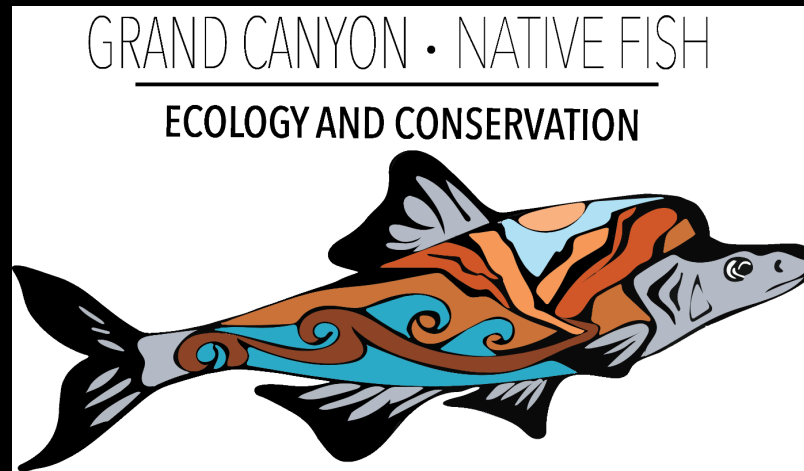


# Early Detection Sampling for High-Risk Invasive Fishes in Grand Canyon National Park



GCDAMP- TWG  
April 13, 2023

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# Monitoring is key to early detection

## Invasive Fish Species Below Glen Canyon Dam: A Strategic Plan to Prevent, Detect and Respond

### Proposed Monitoring Recommendations

Expand existing monitoring efforts and allow flexibility

Conduct additional, targeted monitoring trips

Increase funding of the current interagency agreements

RM/side	Location or habitat type	Priority	Currently monitored	Agencies	Frequency
30/L	30 mile spring	Med	?	FWS	HBC aggregation monitoring?
61/L	LCR and LCR inflow area	Hi	yes	multiple	multiple
85/R	Clear Creek	med	no		
88/R	Bright Angel Creek*	Med	yes	NPS, FWS	Oct-Feb NPS weir and backpack, NPS June hoopnetting, NPS or FWS mainstem hoopnetting in summer
99/R	Crystal Creek*	low	yes	NPS HBC monitoring	Visual, 2/year
108.7/R	Shinumo Creek inflow*	Hi	yes	NPS HBC monitoring	2/year
116.5/L	Elves Chasm*	med	yes	NPS HBC monitoring	Visual, 2/year
143.5/R	Kanab Creek*	Hi	yes	NPS HBC monitoring	2/year
156.7/L	Havasu Creek inflow*	Hi	yes	NPS HBC monitoring	4/year (2 creek trips, 2 mainstem aggregation)
183.5/R	below lava backwater*	med	?	NPS HBC monitoring	once/year
180-277	Western Grand Canyon Random Stratified sites	Hi	yes	NPS/BioWest RZ monitoring	6/yr in spring/summer
204/R	Spring Creek*	low	yes	NPS HBC monitoring	once/year
209/L	209 Slough*	med	yes	NPS HBC monitoring	once/year
212/L	pumpkin springs	low	?	NPS? FWS?	Visual, 2/year
225/L	Diamond Creek*	med	yes	NPS HBC monitoring	once/year
229&231	Travertine and Travertine Falls*	low	?	NPS HBC monitoring	visual occasionally when takeout at PF
243/R	RM243 backwater	Hi	yes	NPS/BioWest RZ monitoring	6/yr in spring/summer
246/L	Spencer*	med	yes	NPS HBC monitoring	occasionally when takeout at PF
249/R	Surprise Canyon*	med	yes	NPS HBC monitoring	occasionally when takeout at PF
275/L	Columbine*	low	?	NPS HBC monitoring	occasionally when takeout at PF

# Grand Canyon Surveillance- new

## Sampling:

- Paria River to above Badger Rapid
- Lees Ferry to Diamond Creek

Objective: Surveillance for new detections of smallmouth bass in Grand Canyon Park

## Compliance:

NPS 2013- Comprehensive fisheries management plan for Grand Canyon National Park and Glen Canyon National Recreation Area Environmental Assessment

NPS 2019- Expanded Non-Native Aquatic Species Management Plan for Glen Canyon National Recreation Area and Grand Canyon National Park below Glen Canyon Dam Environmental Assessment

# Paria to Badger Reach (PBR)

## Questions:

1. Are smallmouth bass present below Lees Ferry?
2. If smallmouth bass are present, how far downstream can they be detected (up to Badger Rapid)?
3. If smallmouth bass are present, what habitat do they occupy?
4. Does mainstem temperature affect capture?

## Sampling:

Backwater & tributary: April- December

- Seining
- Backpack electrofishing

Mainstem: May- December

- Boat electrofishing

→ If SMB are detected, Rapid Response will be triggered.

→ This is all funding dependent- no funds currently

# Lees Ferry to Diamond Creek

## Questions:

1. Are smallmouth bass present/ detectable?

## Sampling- June:

Backwaters and potential “hotspots” - Seining and/or backpack electrofishing

Mainstem near Bright Angel Creek, Shinumo Creek, and Havasu Creek inflows –  
Mini-hoop netting

→ If SMB are detected, Rapid Response will be triggered,  
funding-dependent.

→ Funded by the Grand Canyon Conservancy



Also funded by GCC



2 sport boats fully  
outfitted for  
electrofishing



GRAND CANYON  
CONSERVANCY

# Other Ongoing Grand Canyon Sampling

- Project: Humpback Chub translocation monitoring- augment surveillance sampling
- Sampling: mini-hoop netting in Havasu Creek (May) and Bright Angel Creek (June)
- Funding: Bureau of Reclamation & NPS



— BUREAU OF —  
RECLAMATION



# Potential NPS Rapid Response

Location and habitat are important!

- Mainstem- boat electrofishing
- Isolated backwater, tributary- helicopter- or boat- supported backpack electrofishing, seining, netting, chemical renovation

Funding-dependent- no funds currently identified

Logistical details remain- support boats, operators, sampling plan, etc.



# Beneficial Use

- Scientific studies- otoliths, diet studies
- Tribal aviaries
- Human consumption

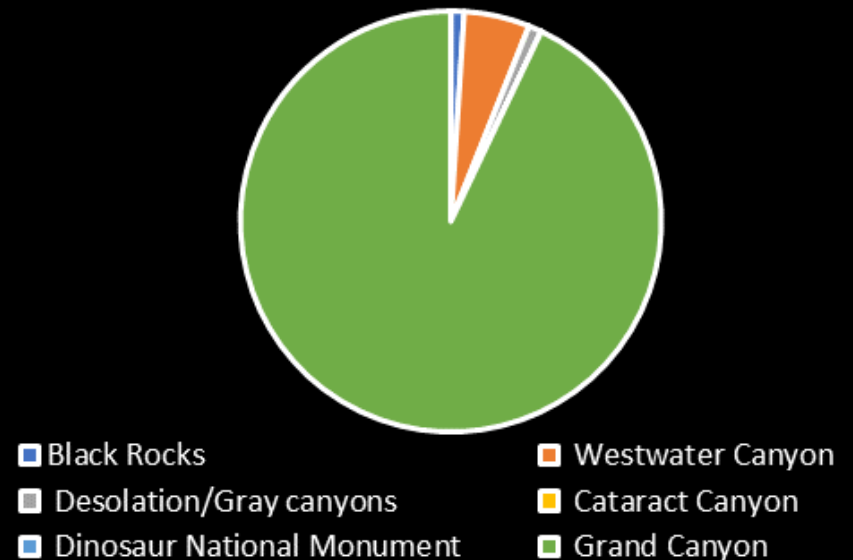
# Other Actions

- Funding- NPS has submitted requests for funding to Reclamation, several DOI & NPS sources (IRA, BIL), Grand Canyon Conservancy
- Reporting- Laura Tennant (NPS) & Caitlin Andrews (USGS) set up a SharePoint to track rare nonnative fish species observations/captures by all agencies and cooperators. These reports are requested within 1 week of trip return to facilitate rapid response, if necessary.
- Outreach- flyer developed for posting at NPS sites and for distribution to commercial river outfitters and recreationalists



More than 90% of all  
Humpback Chub  
live in Grand Canyon!

Percent of Known Humpback Chub Population



2023  
Nonnative  
Detections

Project	Month	Species			
		BGS	BKC	GSF	SMB
GCMRC-TRGD	February	37	1	287	12
		37-70	46	23-134	73-105
AZGFD - LF Trout Monitoring	March	1		3	1
		46		50-61	85
GCMRC-TRGD	April				
		38	1	290	13
					Total

\* Data downloaded 4/13/2023

\*\*All in Glen Canyon stretch to date