LTEMP Goal 3: Humpback Chub Metrics

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USGS

Summary

- **Metric 3.1:** Current Tier of Humpback Chub in the LCR Aggregation as Described in the 2016 LTEMP Biological Opinion

- **Metric 3.2:** Grand Canyon-wide Abundance of Adult Humpback Chub

- **Metric 3.3:** Proportion of the Grand Canyon Ecosystem with Evidence of all 3 Life Stages of Humpback Chub

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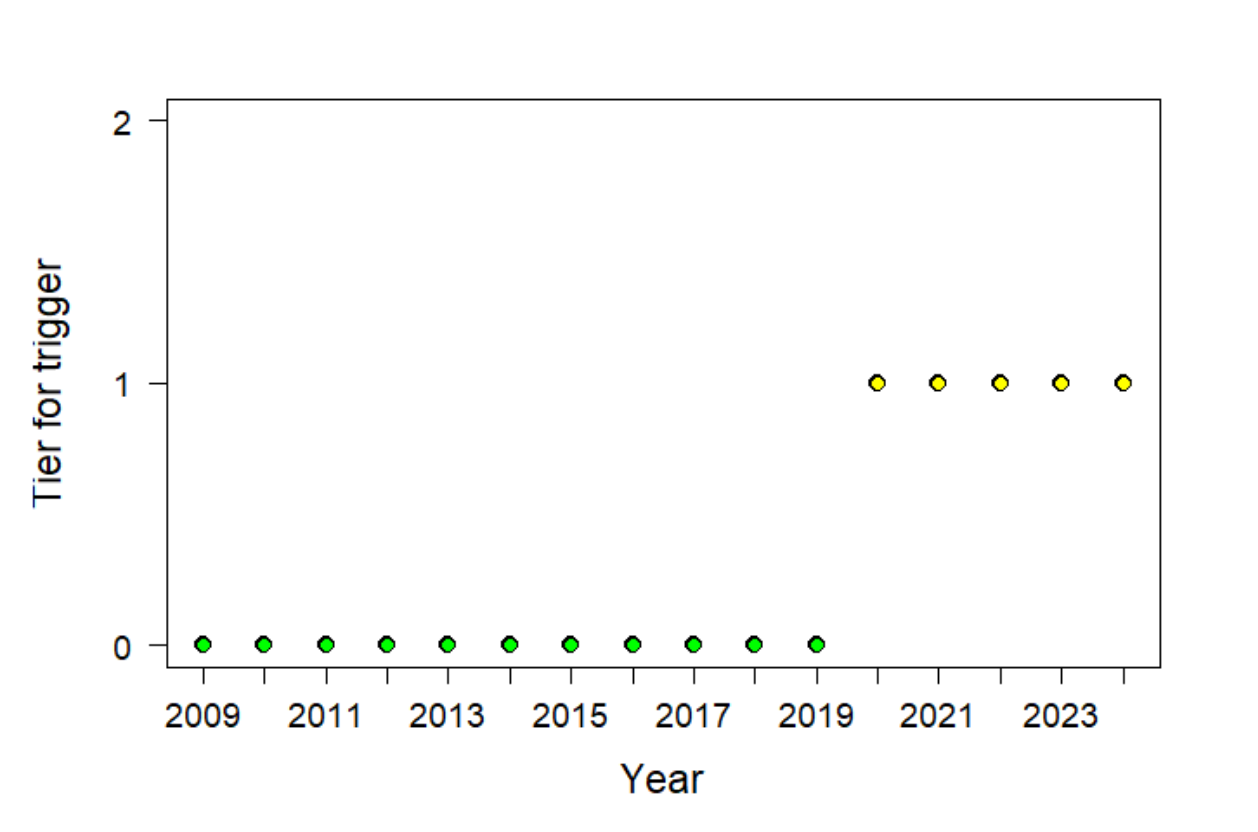
Metric 3.1: Current Tier of Humpback Chub in the LCR Aggregation as Described in the 2016 LTEMP Biological Opinion



*For more info on triggers, see U.S. Bureau of Reclamation. 2016. Record of decision, Glen Canyon Dam long-term experimental and management plan, final environmental impact statement. U.S. Department of the Interior, Bureau of Reclamation, Salt lake City, Utah, National Park Service, Lakewood Colorado, Dec. Available at: https://ltempeis.anl.gov/documents/docs/LTEMP_ROD.pdf

Metric 3.2: Grand Canyon-wide Abundance of Adult Humpback Chub

- **Sum of abundances across all sites within CRe**
  - **LCR-spawning**
  - **Western Grand Canyon**
  - **Other tributaries (e.g., Havasu Creek)**
- **Reported every 5 years**
- **Preliminary analyses suggest abundance is highly influenced by western Grand Canyon**
- **Estimation methods need to get peer-reviewed**

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Metric 3.3: Proportion of the Grand Canyon Ecosystem with Evidence of all 3 Life Stages of Humpback Chub

Metric 3.3: Proportion of the Grand Canyon Ecosystem with Evidence of all 3 Life Stages of Humpback Chub				
Species	River	Habitat Segment (rkm from dam)	Life Stages Detected	Score
HBC	mainstem	0-13	0	0
HBC	mainstem	13-25	0	0
HBC	mainstem	25-37	0	0
HBC	mainstem	37-49	0	0
HBC	mainstem	49-61	1	0
HBC	mainstem	61-73	0	0
HBC	mainstem	73-85	2	0
HBC	mainstem	85-97	3	1
HBC	mainstem	97-109	1	0
HBC	mainstem	109-121	1	0
HBC	mainstem	121-133	3	1
HBC	mainstem	133-145	3	1
HBC	mainstem	145-157	3	1
HBC	mainstem	157-169	2	0
HBC	mainstem	169-181	3	1
HBC	mainstem	181-193	1	0
HBC	mainstem	193-205	2	0
HBC	mainstem	205-217	3	1
HBC	mainstem	217-229	3	1
HBC	mainstem	229-241	3	1
HBC	mainstem	241-252	3	1
HBC	mainstem	252-265	2	0
HBC	mainstem	265-277	3	1
HBC	mainstem	277-289	3	1
HBC	mainstem	289-301	3	1
HBC	mainstem	301-313	3	1
HBC	mainstem	313-325	3	1
HBC	mainstem	325-337	3	1
HBC	mainstem	337-349	3	1
HBC	mainstem	349-361	3	1
HBC	mainstem	361-385	3	1
HBC	mainstem	385-397	3	1
HBC	mainstem	397-409	3	1
HBC	mainstem	409-421	3	1
HBC	mainstem	421-433	3	1
HBC	mainstem	433-445	2	0
HBC	mainstem	445-457	3	1
HBC	mainstem	457-469	2	0
HBC	mainstem	469-481	3	1
Final Score: Proportion of Habitat Segments with all 3 Life Stages in Mainstem				0.62

Credit: Kim Dibble, USGS

Species	River	Habitat Segment (rkm from confluence)	Life Stages Detected	Score	Final Score
HBC	Little Colorado River	0-6.9	3	1	
HBC	Little Colorado River	7-13.6	3	1	
HBC	Little Colorado River	13.7-17.8	3	1	1.0
HBC	Kanab Creek	0-1	1	0	0.0
HBC	Shinumo Creek	0-1	0	0	0.0
HBC	Havasu Creek	0-1	3	1	1.0
HBC	Bright Angel Creek	0-2.9	0	0	
HBC	Bright Angel Creek	3-7.3	1	0	
HBC	Bright Angel Creek	7.4-10.3	0	0	0.0

Credit: Kim Dibble, USGS

Scores

Mainstem	0.62
LCR	1.00
Kanab	0.00
Havasu Creek	1.00
Bright Angel Creek	0.00

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