

# Flathead Chub (*Platygobio gracilis*) Conservation Status Rank Summary

April 22, 2024

For details on assessment and ranking methodology, see: [Conservation Status Assessment Definitions, Process, Rank Factors, and Calculation of State Ranks for Montana Species](#)

## Rarity and Trends

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Rarity</b>					
Range Extent	2024-03-05	Y: 229880.0 km <sup>2</sup>	4.710	MTNHP Range Maps	None
Area of Occupancy	2024-04-22	14843   1km <sup>2</sup> cells	4.810	MTNHP Modeling	None
Number of Occurrences	2024-04-22		4.130	MTNHP	>100 Occurrences in MTNHP database
Population Size			-		Factor not used in ranking.
# of Occurrences in Good Condition	2024-04-22		4.400	Expert Opinion	Much of this species occupied habitats are still in good condition, but may be degraded in some areas
% of Area Occupied in Good Condition			-		Factor not used in ranking.
Environmental Specificity			-		Factor not used in ranking.
Rarity is calculated by averaging weighted factor scores: $( (4.71 \times 1) + (4.81 \times 2) + (4.13 \times 1) + (4.40 \times 2) ) / 6 = 4.54$					
<b>Trends</b>					
Short-term Trend	2024-04-22	-10.0%	0.000	FWP and BLM monitoring data	0.38 median from BLM tributary monitoring; 1.42 from FWP monitoring (FWP unpublished data; Stuart unpublished)
Long-term Trend	2024-04-22	-10.0%	0.000		Specific information is not available, but Flathead Chub were found to be slightly decreasing at most scales in a 1990s Wyoming study (Patton et al. 1998) and other parts of the Great Plains, but are still very common in the Yellowstone River, Milk River, and Powder River (Sikina and Clayton 2006; Duncan 2016; Terrazas et al. 2016; Clancy et al. accepted). It is likely less abundant than pre-settlement in the Missouri River below and including Fort Peck Reservoir.
Trends score is calculated by summing weighted short and long-term trend scores: $( (0.00 \times 2) + (0.00 \times 1) ) = 0.00$					

## Threats

Rank Factor	Date Assessed	Value	Score	Data Source	Comments
<b>Threats</b>					
<b>Overall Threat Impact</b>		Medium	3.670		None
<b>Intrinsic Vulnerability</b>			-		Factor not used in ranking.
Threat score is calculated from Overall Threat Impact when available or Intrinsic Vulnerability if not: <b>( 3.67 ) = 3.67</b>					

### Individual Threats Data

Threat Category	Date Assessed	Impact Score	Scope	Severity	Immediacy	Comments
<b>Natural System Modifications</b>	2024-04-22	Medium	Restricted	Extreme	High	Dams can substantially impair habitat for Flathead Chub, restricting spawning movements and downstream larval development...estimates for persistence are connected reaches ~100 miles in length (Perkin and Gido 2011), but this is likely too high an estimate (R. Fitzpatrick pers. comm. CPW). If 50-70 miles is more appropriate, then I roughly estimate that 30% of the range could be affected. This may explain the discrepancy between FWP monitoring data (primarily larger rivers and streams) and BLM monitoring data (smaller streams). Clearer waters downstream from dams also reduce the competitive ability of FHCH (Rahel and Thel 2004). 80% is another rough estimate based on low expected passage at diversion dams (Walters et al. ) and the high likelihood that small reaches will not constitute long-term habitat.
Threat Tally: 0 - Very High, 0 - High, 1 - Medium, 0 - Low Overall Threat Impact* = Medium						

\*See [Conservation Status Assessment Definitions, Process, Rank Factors, and Calculation of State Ranks for Montana Species](#) for calculation of Overall Threat Impact based on the number and impact of individual threats.

## Conservation Status Rank Calculation

### Raw score

Rarity:  $(4.54 \times 70\%)$  + Threats:  $(3.67 \times 30\%)$  + Trends:  $(0.00) = 4.28$

Calculated Rank: S4

<b>Accepted Rank</b>	S4
<b>Date Approved</b>	2025-02-03
<b>Approval Authority</b>	Montana Natural Heritage Program Staff
<b>Rank Justification</b>	Species is common and widespread but faces same threats from altered hydrology of natural systems and may be declining in parts of its range

## Supplementary Information

Montana Natural Heritage Program. 2021. Conservation Status Assessment Definitions, Process, Rank Factors, and Calculation of State Ranks for Montana Species. 18 p.

[https://mtnhp.mt.gov/docs/Montana\\_State\\_Rank\\_Criteria\\_20211201.pdf](https://mtnhp.mt.gov/docs/Montana_State_Rank_Criteria_20211201.pdf)

Montana Field Guide Species Account:

<https://fieldguide.mt.gov/speciesDetail.aspx?elcode=AFCJB57010>

Predicted Suitable Habitat Model:

<https://mtnhp.mt.gov/resources/models/?elcode=AFCJB57010>

## Information Needs

Information needs are assessed by considering the availability of factors used to assess species status as well as the quality of these assessments. Current information availability and quality to inform Conservation Status Rank for this species are highlighted.

Rank Factor	Assessment Category	Value	Criteria
<b>General Status</b>	Status Quality	Adequate	Calculated rank has low uncertainty and is represented by a single rank (e.g. S3); accepted rank may be adjusted to a range rank (e.g. S2S3)
		Poor	Rank assessed as SU or calculated rank has notable uncertainty and corresponds to a range rank with 2 or more values (e.g. S2?, S1S3, or S4S5)
<b>Rarity</b>	Range Quality	Adequate	Range polygon adequately represents area of probable occupancy and does not include substantial unoccupied areas; range may be adequately defined and still include areas of unsuitable habitat (e.g. mountain ranges for plains species)
		Marginal	Range polygon defined, but may include or exclude notable areas where the species may or may not occur on the landscape
		Poor	Range polygon not defined
	Habitat Quality	Adequate	Species-habitat relationship is well-defined (e.g. relevant literature or robust habitat model available)
		Marginal	Understanding of species-habitat relationship is adequate among some but not all habitats (e.g. literature covers similar habitats outside of Montana or habitat model performance is only somewhat adequate)
		Poor	Species-habitat relationship is not well understood
<b>Threats</b>	Threat Quality	Adequate	Threat Impact is a single value (including "Unthreatened")
		Marginal	Threat Impact assessed at more than one value (e.g. "High - Medium")
		Poor	Threat Impact is Unknown but Intrinsic Vulnerability is assessed
		Unknown	Threat Impact is Unknown and Intrinsic Vulnerability is not assessed
<b>Trends</b>	Recency	Current	Short-term Trend assessment date less than 10 years old
		Out of Date but Adequate	Short-term Trend assessment date is more than 10 years old or Unknown, but species is Unthreatened
		Out of Date	Short-term Trend assessment date more than 10 years old
		Not Available	Short-term Trend data are not available
	Trend Quality	Sufficient	Short-term Trend assessed at a single value or multiple values with a minimum trend greater than -10% (stable or increasing)
		Unknown but Sufficient	Short-term Trend is Unknown, but species is Unthreatened
		Poor	Short-term Trend is less than -10% (in decline) with two or more values selected
		Unknown	Short-term Trend is Unknown

### Summary of Information Availability

None

### Summary of Information Needs

None

## Additional Threat Details

The table below contains the complete threats assessment for this species. While the Conservation Status Rank Calculation is based on cumulative, broadly categorized (Level 1) threats data, threats are assessed and tracked for more specifically categorized (Level 2) threats when available.

Threat Category	Date Assessed	Assessed By	Data Source	Scope	Severity	Immediacy	Comments
<b>Agriculture &amp; Aquaculture - 2.3 - Livestock Farming &amp; Ranching</b>	2024-04-22	Niall Clancy	Rahel and Thel 2004	Unknown	Unknown	High	Overgrazing of adjacent terrestrial systems by cattle and use of groundwater leading to hydrologic impacts
<b>Natural System Modifications - 7.2 - Dams &amp; Water Management/Use</b>	2024-04-22	Niall Clancy	None	Restricted	Extreme	High	Dams can substantially impair habitat for Flathead Chub, restricting spawning movements and downstream larval development...estimates for persistence are connected reaches ~100 miles in length (Perkin and Gido 2011), but this is likely too high an estimate (R. Fitzpatrick pers. comm. CPW). If 50-70 miles is more appropriate, then I roughly estimate that 30% of the range could be affected. This may explain the discrepancy between FWP monitoring data (primarily larger rivers and streams) and BLM monitoring data (smaller streams). Clearer waters downstream from dams also reduce the competitive ability of FHCH (Rahel and Thel 2004). 80% is another rough estimate based on low expected passage at diversion dams (Walters et al. ) and the high likelihood that small reaches will not constitute long-term habitat.
<b>Climate Change &amp; Severe Weather - 11.2 - Droughts</b>	0024-04-22	Niall Clancy	Expert Opinion	Pervasive	Unknown	High	Loss of habitat due to low water in streams