Scientific Name: *Catostomus latipinnis*
Common Name: Flannelmouth sucker
BISON No.: 010505

Legal Status:

- Arizona, Species of Special Concern
- ESA, Endangered
- ESA, Proposed Endangered
- ESA, Proposed Threatened
- ESA, Threatened
- New Mexico-WCA, Endangered
- New Mexico-WCA, Threatened
- USFS-Region 3, Sensitive
- None

Distribution:

- Endemic to Arizona
- Endemic to Arizona and New Mexico
- Endemic to New Mexico
- Not Restricted to Arizona or New Mexico
- Northern Limit of Range
- Southern Limit of Range
- Western Limit of Range
- Eastern Limit of Range
- Very Local

Major River Drainages:

- Dry Cimmaron River
- Canadian River
- Southern High Plains
- Pecos River
- Estancia Basin
- Tularosa Basin
- Salt Basin
- Rio Grande
- Rio Mimbres
- Zuni River
- Gila River
- Rio Yaqui Basin
- Wilcox Playa
- Rio Magdalena Basin
- Rio Sonoita Basin
- Little Colorado River
- Mainstream Colorado River
- Virgin River Basin
- Hualapai Lake
- Bill Williams Basin

Status/Trends/Threats (narrative):

Federal: Species of concern, State AZ: Species of concern, State NM: Provides limited protection. Distribution of the flannelmouth sucker in the lower Colorado River Basin has been substantially reduced by habitat alteration resulting from channelization and water development (Minckley 1973).

The reasons for the decline in native fish abundance are numerous, but the most obvious factor is high dams with their resultant reservoirs and cold tail waters since spawning temperatures, especially for rare forms, seldom occur (Holden and Stalnaker 1975). Much of the Colorado system is composed of large reservoirs with cold, clear tail waters, and along with water diversion, has had a pronounced effect on the native fish fauna (Holden and Stalnaker 1975). Cold discharge from Glen Canyon Dam results in lowered temperatures of the Colorado River in Glen, Marble, and Grand Canyons, and combined with little warming from the sun because of high canyon walls

and no large, warm tributaries have made it unfavorable for most native fishes (Holden and Stalnaker 1975).
Hybridization is a problem for flannelmouth suckers during their study, Douglas and Marsh (1992), identified forty-one unique razorbacks (or razorback/flannelmouth hybrids) as well as hybrids between the flannelmouth and humpback sucker, flannelmouth and bluehead sucker, and flannelmouth and white sucker. Flannelmouth and humpback hybrids were collected throughout the range of the humpback sucker (Hubbs et al 1943, Douglas and Marsh 1992).
Another reason for the decline in endemic fish numbers in the upper basin is competition from introduced species, as has been documented in the lower basin. Introduced of now abundant small cyprinids (specifically the red shiner) have created more competition for space and food with juvenile fish (Holden and Stalnaker 1975). By 1979 the introduced red shiner (*Notropis lutrensis*) was a dominant or codominant species in the Nevada segment (Greger and Deacon 1988).
A fish eradication program in September 1962 (Binns et al. 1964) eliminated most native species above and for many kilometers below Flaming Gorge Dam before closure (Vanicek, Kramer, and Franklin 1970).
At the time of their study Holden and Stalnaker (1975) stated that the future does not look bright for the Colorado River and its endemic fishes.

Distribution (narrative)**:**

The flannelmouth sucker is a species of the Colorado basin, known only from the northwestern part of New Mexico (Koster 1957). Large-river fishes are extremely rare, if not extinct, in the lower basin below Lake Mohave (Minckley 1973). The flannelmouth sucker is known only from its native range, the San Juan River and its major tributaries, where populations are stable (Sublette et al 1990). The flannelmouth sucker is widely distributed in its native range, the large and moderately large streams of the upper Colorado River basin; it occurs less frequently in similar habitats of lower basin in Nevada, California, and Arizona (Sublette et al 1990). It also possibly occurred in the Gila River system in New Mexico, but voucher specimens do not exist (Propst et al. 1988).

Key Distribution/Abundance/Management Areas:

Panel key distribution/abundance/management areas:

Breeding (narrative)**:**

Flannelmouth suckers spawn in the spring and early summer on riffles at temperatures near 13º, generally over coarse gravel bottoms (Koster 1957, Lee et al 1981). However, Minckley (1973) reported that spawning occurs in early summer, with young moving along the shoreline adjacent to swift areas, or congregating in shallows along the margins of shallow pools. Fish begin to mature at age IV and most mature by age VI (McAda and Wydoski 1985). Fish from the Yampa and Green rivers produce fewer mature ova than did fish from the Gunnison or Colorado Rivers (McAda and Wydoski 1985). Flannelmouth suckers from the Gunnison River also produced

fewer ova than did those from the Colorado River (McAda and Wydoski 1985). Flannelmouth suckers are reported to reach a length of two feet (Koster 1957).

Habitat (narrative)**:**

Koster (1957) identified flannelmouth sucker habitat as rivers and creeks. Minckley (1973) reported the Flannelmouth sucker as characteristic of larger, strongly flowing streams of the Colorado River basin (Minckley 1973). While Holden and Stalnaker (1975) collected flannelmouth suckers in all habitat types, fast current, riffles, eddies, and stagnant backwaters. Yet Lee et al (1981) reported the flannelmouth sucker as typical of pools and deeper runs and often entering mouths of small tributaries (Lee et al 1981). Preferred temperature of flannelmouth suckers is believed to be 25.9ºC with extremes in modal bounds ranging from 10-27ºC (Sublette et al 1990).

Key Habitat Components: Larger-streams and rivers, riffles to backwater habitats.

Breeding Season:

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

Panel breeding season comments:

Aquatic Habitats:

Large Scale:

- Rivers
- Streams
- Springs
- Spring runs
- Lakes
- Ponds
- Sinkholes
- Cienegas
- Unknown
- Variable

Small Scale:

- Runs
- Riffles
- Pools
- Open Water
- Shorelines

Panel comments on aquatic habitats:

Important Habitat Features (Water characteristics):

Current
- Fast (> 75 cm/sec)
- Intermediate (10-75 cm/sec)
- Slow (< 10 cm/sec)
- None
- Unknown
- Variable

Gradient
- High gradient (>1%)
- Intermediate Gradient (0.25-1%)
- Low Gradient (<0.25%)
- None
- Unknown
- Variable

Water Depth
- Very Deep (> 1 m)
- Deep (0.25-1 m)
- Intermediate (0.1-0.25 m)
- Shallow (< 0.1 m)
- Unknown
- Variable

Panel comments on water characteristics:

Important Habitat Features (Water Chemistry)

Temperature (general)
- Cold Water (4-15°C)
- Cool Water (10-21°C)
- Warm Water (15-27°C)
- Unknown
- Variable

Turbidity
- High
- Intermediate
- Low
- Unknown
- Variable

Conductivity
- Very High (> 2000 µS/cm)
- High (750-2000 µS/cm)
- Intermediate (250-750 µS/cm)
- Low (< 250 µS/cm)
- Unknown
- Variable

Panel comments on water chemistry:

Important Habitat Features (Structural elements):

Substrate
- Bedrock
- Silt/Clay
- Detritus
- Sand
- Gravel
- Cobble
- Boulders
- Unknown
- Variable

Cover
- Rocks, boulders
- Undercut banks
- Woody debris
- Aquatic vegetation
- Rootwads
- Not important
- Overhanging vegetation
- Unknown
- Variable

Panel comments on structural elements:

Diet (narrative)**:**
Koster (1957) reported that flannelmouth suckers feed largely on vegetation. However, Minckley (1973) reported the flannelmouth sucker as omnivorous with diet ranging from vegetation to bottom invertebrates (Minckley 1973). Greger and Deacon (1988) determined food habits for the flannelmouth sucker by removing the anterior portion of the digestive tract to the first loop because they have poorly defined stomachs. The flannelmouth sucker feeds on filamentous algae, especially *Cladophora*, and macroinvertebrates (Greger and Deacon 1988). Coarse debris and detritus was also found in the gut (Greger and Deacon 1988).

Diet category (list):
- Planktivore
- Herbivore
- Insectivore
- Piscivore (Fish)
- Omnivore
- Detritivore

Grazing Effects (narrative):
Currently, the species occurs only in large, mainstream river habitats in Arizona and New Mexico where livestock grazing has little to no impact.

Panel limiting habitat component relative to grazing and comments:
Panel assessment: Is this species a priority for selecting a grazing strategy? Throughout the species' distribution in New Mexico and Arizona YES NO UNKNOWN In key management area(s) YES NO UNKNOWN

Principle Mechanisms Through Which Grazing Impacts This Species (list):

May be Revised

- Alteration of bank structures
- Alteration of substrate
- Alteration of water regimes
- Altered stream channel characteristics
- Altered aquatic vegetation composition
- Altered bank vegetation structure
- Change in food availability
- Change in water temperature
- Change in water quality
- Habitat fragmentation
- Increased turbidity
- Other biotic factors
- Parasites or pathogens
- Population genetic structure loss
- Range improvements
- Trampling, scratching
- Unknown

Panel causal mechanisms comments:

Authors

- **Draft:** Magaña, H.A. and Rinne, J.N.
- **GP 2001:**
- **GP 2002:**
- **Revision:**

Bibliography:

Douglas, M.E. and Marsh, P.C. 1999. Population estimates for Flannelmouth sucker, (*Castostomus laptipinnis)*, and razorback sucker, (*Xyrauchen texanus*), hybrids within the Little River region of Grand Canyon. Proceedings of the Desert Fishes Council, 1997 Symposium Nov. 20-23 Symposium Nov. 17-20 Death Valley, Ca.

Greger, P.D. and Deacon, J.E. 1988. Food partitioning among fishes of the Virgin River. Copeia 2: 314-323.

Holden, P.B. and Stalnaker, C.B. 1975. Distribution and abundance of mainstream fishes of the middle and upper Colorado River Basins, 1967-1973. Transactions of the American Fisheries Society 104 (2): 217-231.

Koster, W.J. 1957. Guide to the fishes of New Mexico. University of New Mexico Press, Albuquerque, NM.

Lee, D. S., Gilbert C. R., Hocutt C. H., Jenkins R. E., Callister D. E., and Stauffer J. R. 1981. Atlas of North American Freshwater Fishes: North Carolina, North Carolina State Museum of Natural History, 1981, c1980.

McAda, C. W. and R. S. Wydoski. 1985. Growth and reproduction of flannelmouth sucker, *Catostomus Latipinnis*, in the upper Colorado River basin, 1975-76. Great Basin Naturalist 45(22): 281-286.

Minckley, W. L. 1973. Fishes of Arizona. Arizona Game and Fish Department. Phoenix, Arizona. 293 pp.

Minckley, W.L. 1991. Native fishes of arid lands: A dwindling resource of the desert southwest. USDA Forest Service. General Technical Report RM-GTR-206. pp 18.

Sublette, J. E., M. D. Hatch, and M. Sublette. 1990. The fishes of New Mexico. University of New Mexico Press, Albuquerque.