2025 ANNUAL REPORT

**Project Title**

Annual fall monitoring of young-of-year Colorado Pikeminnow and small-bodied native fishes

**Bureau of Reclamation Agreement Numbers and Grant Periods:**

UDWR-Moab, R14AP00059 (10/01/2018-09/30/2024)
UDWR-Vernal, R19AP00059 (10/01/2023-9/30/2025)

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**Abstract:**

Monitoring of young-of-year (YOY) Colorado Pikeminnow (*Ptychocheilus lucius*) is an ongoing project initiated in 1986 in the upper Colorado River basin as part of the Interagency Standardized Monitoring Program (USFWS 1987) to evaluate recruitment success of age-0 endangered fishes. In 2025, we encountered 192 YOY Colorado Pikeminnow on the lower Colorado River (Reach 1), 12 on the middle Green River (Reach 4), and 67 on the lower Green River (Reach 3). Additionally, we captured a single YOY Razorback Sucker in Reach 3 and 60 unidentified *Gila spp.* in Reach 1. Mean total lengths of YOY Colorado Pikeminnow in 2025 were generally longer than previous years, likely due to warmer than average water temperatures. We will continue to monitor the annual abundance of post-larval Colorado Pikeminnow in the middle and lower Green River and the lower Colorado River to assess long-term trends in annual fall recruitment.

**Study Schedule:**

1986-Ongoing

**Relationship to RAP:**

- Element: Monitoring
  - Focus Area: Colorado Pikeminnow
    - Objective: Estimate pikeminnow reproductive success with adequate sampling to evaluate these rates over 10 year periods.

## Accomplishment of 2025 Tasks and Deliverables, Discussion of Findings and Shortcomings:

# Task 1. Seine zero to low velocity habitats on the lower Green and Colorado Rivers to collect fish and habitat data.

## Middle Green River (Reach 4):

Annual monitoring for young-of-year (YOY) Colorado Pikeminnow by the Utah Division of Wildlife Resources Vernal began in Reach 4 on September 22, 2025 and concluded on September 30, 2025. Beginning at Split Mountain boat ramp (river mile [RM] 319.3) and concluding at Sand Wash (RM 215.3), crews sampled 104 river miles in accordance with Interagency Standardized Monitoring Program (ISMP; USFWS 1987) protocols. Altogether, we sampled 32 backwater habitats (19 primary, 11 secondary, and one tertiary) that met ISMP criteria, yielding a total sampling area of 5,438.3 $m^2$.

Discharge on the middle Green River is measured at USGS gage #09261000 at Jensen, Utah (Figure 1). At this location, the Green River peaked at 11,000 cubic feet per second (cfs) on May 16, 2025. The river reached base flows (≤ 3,000 cfs; see Bestgen and Hill 2016) on June 22, 2025. During ISMP sampling in 2025, flows averaged 2,053 cfs. Main channel temperatures, measured during sampling, averaged 17.5 °C (range = 14.5 – 20.3 °C), while habitat temperatures averaged 18.1 °C (range = 14.1 – 24.2 °C) in 2025. Mean main channel Secchi depth, measured with a Secchi tube (cm visibility) was 311 mm, while mean habitat Secchi depth was 336 mm.

We encountered 12 Colorado Pikeminnow in Reach 4 during ISMP sampling in 2025. Mean total length (TL) of Colorado Pikeminnow in the middle Green River was 76.3 mm (range = 54 – 96 mm). This represents the longest mean TL of Colorado Pikeminnow caught in the middle Green River over 40 years of sampling since this project's inception in 1985. Colorado Pikeminnow CPUE in 2025 was 0.22 fish/100 $m^2$. This represents an increase from the 5-year and 10-year averages (0.10 fish/$m^2$ and 0.08 fish/$m^2$, respectively) but a decrease from the 40-year average CPUE of 2.44 fish/$m^2$. Native and nonnative fish encounters for 2025 are listed in Tables 1 and 2. Note that Table 1 accounts for all effort in primary and secondary backwaters, whereas Table 2 summarizes nonnative fish collected from first seine hauls conducted in primary backwaters only. Table 3 lists native fish captures over the history of ISMP YOY sampling in the middle Green River, while Table 4 includes a similar record of nonnative captures in the first seine haul of primary backwaters. Other nonnative species encountered in all seine hauls include Gizzard Shad (n=2). Figure 2 summarizes YOY Colorado Pikeminnow catch and seining effort for the middle Green River over time. Figure 3 provides a summary of the total catch of YOY Colorado Pikeminnow for all reaches over time.

## Lower Green River (Reach 3):

Utah Division of Wildlife Resources Moab (UDWR Moab) began ISMP sampling on the lower Green River (Reach 3) on September 16th, 2025 and concluded September 19, 2025. Field crews sampled 120 river miles following ISMP protocol from Green River State Park (RM 120) to the confluence with the Colorado River (RM 0). Altogether, UDWR Moab sampled 25 habitats (16 primary and 9 secondary) on the lower Green River. Total area sampled in 2025 was 2,868 $m^2$.

Discharge on the lower Green River is measured at USGS gage #09315000 at Green River, Utah—the upstream-most location on Reach 3 (RM 120) (Figure 4). At this location, the Green River peaked at 10,600 cfs on May 9, 2025. The Green River remained above 4,000 cfs until dropping precipitously on June 21. Discharge declined to within the recommended base flow range (1,770- 3,800 cfs; see Bestgen and Hill 2016) to benefit YOY Colorado Pikeminnow on June 25, 2025. Discharge remained within this threshold until September 13, averaging 1,913 cfs. Critically, during a four-hour period

between 16:30 and 20:30 on September 13, discharge spiked above the 3,800 cfs threshold to peak at 7,420 cfs. Following this brief event, flows remained below 3,800 cfs through ISMP sampling, averaging 2,091 cfs.

During 2025 sampling, field crews documented that average main channel temperature was 20.9 °C (range = 19 - 23 °C). These temperatures were higher than 2024 (average 19 °C, range = 18 - 21 °C). Average habitat temperature was 21.2 °C (range = 16 – 26 °C). These findings were also higher than the 2024 average backwater temperature (20.3 °C, range = 16.5 - 30 °C). Main channel visibility depth, collected with a Secchi disk as a proxy for turbidity, averaged 45 mm and sampled habitat Secchi depth averaged 94 mm. Both of these turbidity levels were significantly lower than 2024 (main channel 136 mm, backwater 187 mm).

Field crews encountered and recorded 67 YOY Colorado Pikeminnow in Reach 3 during 2025 ISMP sampling (Table 5). Colorado Pikeminnow CPUE was 2.34 fish/100m$^2$ of total habitat seined. This figure is fewer than the 40-year data set average CPUE for the lower Green River (11.44 fish/100m$^2$), and is fewer than the 5-, 10-, and 15- year averages (respectively 2.74, 5.4, and 5.69 fish/100m$^2$) (Figure 5). Field crews encountered Colorado Pikeminnow in just 20% of the 25 habitats sampled in 2025, totaling 5 distinct backwaters. Colorado Pikeminnow average total length for Reach 3 was 60 mm (range 34 – 86 mm), the third largest average TL recorded during ISMP sampling (2003 average TL=64.9; 2004 average TL= 60.1).

Encounters with other native fish species (excluding Colorado Pikeminnow) were higher in 2025 than during most of the previous 40 years of ISMP sampling. Species diversity was also notably high in 2025, with native taxa including unidentified *Gila* spp., Bluehead Sucker, Flannelmouth Sucker, and Speckled Dace. Notably, in 2025 a single YOY Razorback Sucker was encountered at RM 1.4 on Reach 3. Since the initiation of ISMP sampling in 1986, this represents only the third confirmed Razorback Sucker encounter in Reach 3 (Table 6). Confirmed Razorback Sucker encounters during ISMP sampling have also been historically rare on Reaches 1 and 4 (n=3 and n=5, respectively) (Table 7 and Table 3). Additional native and nonnative encounters for 2025 are listed in Table 5 and Table 8. Note that Table 5 displays total numbers for primary and secondary backwaters sampled, whereas Table 8 summarizes non-native fish enumerated in the first seine hauls conducted in primary backwaters only. Table 9 displays nonnative captures over time for the Lower Green River.

## Lower Colorado River (Reach 1):

Utah Division of Wildlife Resources Moab (UDWR Moab) began sampling on the lower Colorado River (Reach 1) on September 16, and then September 23 - 26. Field crews sampled 110.5 river miles in accordance with the ISMP protocol, from Cisco Boat Ramp (RM 110.5) to the Colorado River and Green River confluence (RM 0). In total, field crews sampled 26 habitats (17 primary and 9 secondary) that met ISMP criteria, consisting of 2,458 m$^2$ total area sampled.

Discharge on the lower Colorado River is measured at USGS gage #09180500 near Cisco, UT (Figure 6). At this location the Colorado River peaked at 13,200 cfs on June 5, 2025. On the descending limb of the hydrograph the river reached recommended base flow threshold (6,400 – 3,000 cfs; see Miller 2018) to benefit YOY Colorado Pikeminnow on June 17, 2025. The Colorado River then fell below the 3,000 cfs threshold on July 11 until the beginning of ISMP sampling (July 11 - Sept. 16), with the exception of 6 days > 3,000 cfs (August 28, Sept 12 - 16). The average discharge during this base flow period was 2,894 cfs.

Field crews recorded 19.4°C as average main channel temperature during sampling (range = 16 - 23 °C). These temperatures were higher than 2024 (average = 18°C; range = 18 - 21 °C). Similarly, the average habitat temperature was recorded at 19.6 °C (range = 16 - 24 °C). These temperatures are lower than 2024 (average = 21°C; range = 14 - 25 °C). Main channel visibility depth, collected with a Secchi disk as a proxy for turbidity, averaged 94.1 mm, significantly lower than 2024 (average = 179 mm). Average sampled habitat Secchi depth was 112.8, also significantly lower than 2024 (average = 215 mm).

On the lower Colorado River, crews encountered and recorded 192 YOY Colorado Pikeminnow in 2025 (Table 10). Colorado Pikeminnow CPUE was 7.81 fish/100m$^2$, a figure which is higher than the 40-year average value of 6.71 fish/100 m² for this reach. CPUE for Reach 1 ranked mixed for the for 5-, 10-, and 15- year medians (respectively 4.56, 4.69, and 10.73 fish/100m$^2$) (Figure 7). Young of year Pikeminnow average TL for 2025 was 44.9 mm (range 27 - 115 mm). This is larger than the 40-year average TL average of 35.3 mm. Crews identified Pikeminnow in 21 out of the 27 habitats sampled in Reach 1.

Additional native and nonnative encounters for 2025 are listed in Tables 10 and 11. Note that Table 10 displays total numbers for primary and secondary backwaters sampled, whereas Table 11 summarizes non-native fish enumerated in the first seine hauls conducted in primary backwaters only. Table 12 provides nonnative fish captures over time for the lower Colorado River.

Encounter rates with other native fish species (excluding Colorado Pikeminnow) were higher in 2025 than during many of the previous 40 years of ISMP sampling (Table 7). Species diversity was also notably high in 2025, with native taxa including unidentified *Gila* spp., Bluehead Sucker, Flannelmouth Sucker, and Speckled Dace. Notably, 60 *Gila* spp. were encountered on Reach 1, with a CPUE of 2.44 fish/100m$^2$. These *Gila* spp. encounters were dispersed throughout Reach 1, occurring as far downstream as RM 44.8 (Table 13, Figure 8). Encounters of *Gila* spp. totaling 60 or more individuals had not been recorded since 2019, and prior to that, 1995.

**Additional observations:**

- Discharge on both the lower Green and Colorado Rivers was low for 2025 sampling. Many potential backwater habitats were not available for sampling—habitats were often completely dry or did not meet ISMP protocol requirements for depth and area. Therefore, crews were limited in habitat availability for sampling.

- On September 13, three days prior to ISMP sampling began on September 16, backwater habitat on Reach 3, lower Green River, was impacted by a rain event and subsequent temporary discharge increase. During the four-hour period between 16:30 and 20:30, discharge spiked above the 3,800 cfs threshold considered beneficial to YOY Pikeminnow to peak at 7,420 cfs. This late-summer discharge spike represented approximately 56% of the magnitude of the 2025 spring runoff peak (13,200 cfs). This flow event temporarily reconnected or expanded backwater and side-channel habitats that had been largely isolated or were smaller under baseflow conditions. A discharge spike of this magnitude likely altered

YOY native fish distributions and influenced YOY Colorado Pikeminnow encounter rates during ISMP sampling.

- In 2025, Utah Department of Wildlife Resources encountered significant numbers of Colorado Pikeminnow during Upper Colorado River Endangered Fish Recovery Program (UCREFRP) Project 160 (Razorback Sucker monitoring). This sampling occurred during the end of July and again during the end of August, finishing up two weeks prior to 138 sampling. Similar to ISMP protocols, crews seined zero-velocity backwaters, but also included low-velocity habitats, on the lower Green River and lower Colorado River.

  During project 160, seining crews encountered 111 Pikeminnow on the lower Green River (CPUE 2.03 fish/100m$^2$) and 2,432 Pikeminnow on the lower Colorado River (CPUE 42.97 fish/100m$^2$) (Cutler & Hansen, 2025). Notably, between both passes, on dates 7/30/2025 and 8/28/2025, crews encountered 1,520 Pikeminnow in 282 m$^2$ of sampling at a backwater located at RM 3.8 on the Colorado River, resulting in a CPUE of 539.0 fish/100m$^2$. In contrast, project 138 sampled the zero- velocity backwater at the same RM 3.8 habitat on 9/18/2025 and encountered six Pikeminnow in 84 m$^2$ of sampling (CPUE 7.14 fish/100m$^2$). It is important to note that projects 160 and 138 follow different sampling protocols, impacting which habitats are allowed to be sampled and may have influenced CPUE results among the sampling events.

## Recommendations:

- Continue to monitor annual relative abundance of post-larval Colorado Pikeminnow in the middle and lower Green River and the lower Colorado River to assess long-term trends in annual fall recruitment.

- Consider initiating a natal origin study for YOY *Gila* spp. encounters on the Colorado River below the known Humpback Chub (*Gila cypha*) populations upstream of Westwater Canyon and Roundtail Chub (*Gila robusta*) in the Dolores River. Elevated encounters in the main stem Colorado River of these fish in 2025, as well as in 2016, 2018, and 2019 warrant further investigation. A natal origin study, genetic sampling to determine species, or visible implant elastomer tag (VIE) mark and recapture study may improve understanding of how those *Gila* spp. use the main stem Colorado as well as tributaries for different stages of their life history.

- Project 138 overlaps spatially with larval and YOY fish monitoring projects 160 and 158, all projects sampling the same backwater and additional low-velocity habitats utilized by native and endangered fish during the first year of life. During each project, native fish that are not the target species are encountered in addition to the target species. Non- target species encounter data can be lost under current reporting formatting or can be reported multiple times in different reports. Consider initiating a comprehensive reporting format that encompasses all YOY and age-0 encounter data.

## Project Status: On track, ongoing.

**Status of Data Submission:** Data will be submitted to the recovery program database coordinator by January 2025.

## Signed:

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11/13/2025

**Table 1.** Native fish captures on the middle Green River during ISMP sampling, fall 2025.

| Species | Number | Density (fish/100 m²) |
|---|---|---|
| Colorado Pikeminnow | 12 | 0.22 |
| Flannelmouth Sucker | 6 | 0.11 |

**Table 2.** Nonnative fish captures on the middle Green River during ISMP sampling, fall 2025. Nonnative fish are enumerated only during the first seine haul within primary habitats.

| Species | Number | Density (fish/100 m²) |
|---|---|---|
| Black Bullhead | 7 | 0.36 |
| Black Crappie | 1 | 0.05 |
| Fathead Minnow | 1116 | 57.76 |
| Green Sunfish | 15 | 0.78 |
| Red Shiner | 2011 | 104.08 |
| Smallmouth Bass | 4 | 0.21 |
| Sand Shiner | 828 | 42.85 |
| unidentified nonnative cyprinid | 2001 | 103.56 |
| White Sucker | 8 | 0.41 |

**Table 3**. The middle Green River (Reach 4), total captures by year for native and endangered fish during young-of-year (YOY) monitoring from 1986-2025. Species listed are: YOY Colorado Pikeminnow (CS YOY; 10-99 mm), juvenile pikeminnow (CS JUV; 100-399 mm), unidentified *Gila* spp. (CH), Razorback Sucker (RZ), Roundtail Chub (RT), Flannelmouth Sucker (FM), Bluehead Sucker (BH), Speckled Dace (SD), and unidentified native sucker (UNS). In most years, species other than CS were only enumerated during the first seine haul within primary backwaters.

| Year | CS YOY | CS JUV | CH | RZ | RT | FM | BH | SD | UNS |
|---|---|---|---|---|---|---|---|---|---|
| 1986 | 492 | 0 | 32 | 0 | 0 | 0 | 0 | 132 | 94 |
| 1987 | 209 | 10 | 19 | 0 | 0 | 67 | 277 | 2 | 0 |
| 1988 | 885 | 36 | 5 | 0 | 0 | 120 | 1 | 6 | 0 |
| 1989 | 62 | 0 | 41 | 0 | 0 | 16 | 80 | 3 | 0 |
| 1990 | 341 | 47 | 22 | 0 | 0 | 0 | 9 | 2 | 0 |
| 1991 | 524 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 183 | 0 | 4 | 0 | 1 | 2 | 115 | 11 | 0 |
| 1993 | 305 | 0 | 40 | 0 | 0 | 54 | 80 | 7 | 0 |
| 1994 | 15 | 0 | 13 | 0 | 0 | 38 | 32 | 10 | 0 |
| 1995 | 75 | 0 | 6 | 0 | 0 | 20 | 62 | 33 | 0 |
| 1996 | 79 | 0 | 6 | 0 | 1 | 31 | 53 | 7 | 0 |
| 1997 | 22 | 0 | 42 | 0 | 0 | 12 | 73 | 8 | 0 |
| 1998 | 73 | 0 | 63 | 1 | 0 | 25 | 49 | 6 | 0 |
| 1999 | 12 | 0 | 43 | 0 | 0 | 18 | 20 | 16 | 0 |
| 2000 | 31 | 0 | 3 | 1 | 0 | 6 | 12 | 2 | 0 |
| 2001 | 8 | 0 | 23 | 0 | 0 | 78 | 0 | 0 | 0 |
| 2002 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 |
| 2003 | 2 | 0 | 2 | 0 | 0 | 4 | 2 | 0 | 0 |
| 2004 | 60 | 0 | 12 | 0 | 0 | 16 | 2 | 1 | 0 |
| 2005 | 8 | 2 | 13 | 0 | 0 | 7 | 3 | 2 | 0 |
| 2006 | 5 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| 2007 | 3 | 1 | 2 | 0 | 0 | 10 | 11 | 0 | 0 |
| 2008 | 18 | 0 | 0 | 0 | 1 | 12 | 6 | 0 | 0 |
| 2009 | 325 | 0 | 0 | 0 | 13 | 57 | 36 | 1 | 0 |
| 2010 | 454 | 1 | 0 | 0 | 0 | 2 | 38 | 1 | 0 |
| 2011 | 0 | 3 | 0 | 0 | 1 | 57 | 35 | 0 | 0 |
| 2012 | 2 | 0 | 0 | 0 | 1 | 11 | 1 | 0 | 0 |
| 2013 | 97 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 2014 | 45 | 0 | 0 | 3 | 0 | 8 | 6 | 0 | 0 |
| 2015 | 202 | 0 | 4 | 0 | 0 | 6 | 25 | 0 | 0 |
| 2016 | 6 | 1 | 3 | 0 | 0 | 7 | 6 | 1 | 0 |
| 2017 | 1 | 1 | 8 | 0 | 0 | 5 | 5 | 0 | 0 |
| 2018 | 5 | 0 | 0 | 0 | 0 | 3 | 19 | 1 | 0 |
| 2019 | 0 | 0 | 3 | 0 | 0 | 4 | 5 | 0 | 1 |
| 2020 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 |
| 2021 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2022 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2023 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 2024 | 12 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| 2025 | 12 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 |

**Table 4**. Totals of nonnative fish collected during young-of-year monitoring in the middle Green River (Reach 4) from 1987–2025. Only fish enumerated in primary backwater first seine hauls are included. Species collected include Black Bullhead (BB), Black Crappie (BC), Bluegill (BG), Channel Catfish (CC), Common Carp (CP), Fathead Minnow (FH), Green Sunfish (GS), Gizzard Shad (GZ), Northern Pike (NP), Red Shiner (RS), Smallmouth Bass (SM), Sand Shiner (SS), Walleye (WE), and White Sucker (WS).

| YEAR | BB | BC | BG | CC | CP | FH | GS | GZ | NP | RS | SM | SS | WE | WS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1987 | 0 | 0 | 0 | 1 | 3 | 873 | 8 | 0 | 0 | 9,757 | 0 | 462 | 0 | 0 |
| 1988 | 2 | 0 | 0 | 7 | 2 | 620 | 13 | 0 | 0 | 4,072 | 0 | 159 | 0 | 0 |
| 1989 | 0 | 0 | 0 | 7 | 43 | 865 | 22 | 0 | 0 | 4,025 | 0 | 284 | 0 | 0 |
| 1990 | 0 | 0 | 0 | 1 | 4 | 1,386 | 0 | 0 | 0 | 5,395 | 0 | 87 | 0 | 0 |
| 1991 | 0 | 0 | 0 | 14 | 5 | 1 | 1 | 0 | 0 | 64 | 0 | 0 | 0 | 0 |
| 1992 | 1 | 0 | 0 | 3 | 15 | 1,653 | 5 | 0 | 0 | 3,178 | 0 | 440 | 0 | 0 |
| 1993 | 0 | 0 | 0 | 17 | 13 | 1,512 | 3 | 0 | 0 | 4,677 | 0 | 49 | 0 | 0 |
| 1994 | 0 | 1 | 0 | 0 | 0 | 2,757 | 1 | 0 | 0 | 28,903 | 0 | 1,890 | 0 | 0 |
| 1995 | 0 | 0 | 0 | 0 | 6 | 1,304 | 1 | 0 | 0 | 3,229 | 1 | 188 | 0 | 0 |
| 1996 | 0 | 0 | 0 | 0 | 5 | 486 | 8 | 0 | 0 | 2,871 | 0 | 1,265 | 0 | 0 |
| 1997 | 0 | 4 | 0 | 0 | 11 | 1,067 | 3 | 0 | 0 | 1,010 | 1 | 1,152 | 0 | 3 |
| 1998 | 7 | 11 | 0 | 3 | 8 | 1,569 | 17 | 0 | 1 | 2,400 | 0 | 474 | 0 | 1 |
| 1999 | 3 | 3 | 0 | 0 | 23 | 407 | 68 | 0 | 0 | 1,832 | 0 | 533 | 0 | 0 |
| 2000 | 2 | 3 | 0 | 0 | 12 | 1,436 | 15 | 0 | 0 | 10,860 | 0 | 8,072 | 0 | 0 |
| 2001 | 1 | 10 | 0 | 6 | 0 | 371 | 0 | 0 | 0 | 4,512 | 0 | 283 | 0 | 0 |
| 2002 | 0 | 5 | 1 | 0 | 1 | 1,303 | 39 | 0 | 0 | 11,516 | 0 | 1,059 | 0 | 1 |
| 2003 | 0 | 1 | 0 | 0 | 48 | 89 | 0 | 0 | 0 | 3,847 | 0 | 49 | 0 | 0 |
| 2004 | 0 | 1 | 0 | 4 | 1 | 337 | 8 | 0 | 0 | 5,524 | 0 | 1,207 | 0 | 5 |
| 2005 | 0 | 18 | 0 | 1 | 1 | 204 | 0 | 0 | 0 | 3,654 | 0 | 552 | 0 | 0 |
| 2006 | 0 | 7 | 3 | 0 | 98 | 1,431 | 1 | 5 | 0 | 19,365 | 0 | 2,060 | 0 | 3 |
| 2007 | 9 | 0 | 0 | 10 | 16 | 327 | 0 | 3 | 0 | 5,754 | 6 | 3,940 | 0 | 13 |
| 2008 | 1 | 16 | 0 | 3 | 40 | 155 | 102 | 0 | 0 | 1,121 | 5 | 821 | 0 | 7 |
| 2009 | 0 | 4 | 0 | 0 | 17 | 108 | 1 | 2 | 0 | 2,101 | 1 | 417 | 0 | 5 |
| 2010 | 1 | 0 | 0 | 1 | 38 | 231 | 15 | 0 | 0 | 3,596 | 0 | 959 | 0 | 8 |
| 2011 | 5 | 3 | 0 | 0 | 13 | 867 | 14 | 0 | 0 | 1,682 | 2 | 301 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 6 | 1 | 189 | 0 | 22 | 0 | 2,379 | 1 | 583 | 0 | 0 |
| 2013 | 0 | 4 | 0 | 1 | 1 | 323 | 21 | 1 | 0 | 6,102 | 23 | 4,018 | 1 | 55 |
| 2014 | 0 | 0 | 0 | 4 | 31 | 471 | 2 | 6 | 0 | 924 | 3 | 466 | 0 | 36 |
| 2015 | 0 | 0 | 0 | 0 | 12 | 518 | 41 | 0 | 0 | 2,354 | 0 | 966 | 0 | 6 |
| 2016 | 0 | 17 | 0 | 2 | 31 | 348 | 0 | 0 | 0 | 2,293 | 9 | 882 | 0 | 10 |
| 2017 | 0 | 2 | 0 | 0 | 9 | 327 | 4 | 7 | 0 | 3,070 | 2 | 2,495 | 0 | 9 |
| 2018 | 0 | 0 | 0 | 0 | 1 | 440 | 1 | 12 | 0 | 4,123 | 0 | 5,326 | 0 | 50 |
| 2019 | 0 | 1 | 0 | 10 | 0 | 202 | 1 | 0 | 0 | 3287 | 8 | 1568 | 0 | 26 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 5830 | 0 | 1715 | 0 | 1 |
| 2021 | 7 | 5 | 0 | 1 | 0 | 225 | 11 | 0 | 0 | 4480 | 1 | 1540 | 0 | 12 |
| 2022 | 4 | 0 | 0 | 6 | 0 | 423 | 2 | 0 | 0 | 3625 | 1 | 1765 | 0 | 2 |
| 2023* | 2 | 4 | 0 | 2 | 32 | 54 | 27 | 0 | 0 | 835 | 12 | 342 | 0 | 4 |
| 2024* | 0 | 2 | 0 | 0 | 3 | 522 | 6 | 0 | 0 | 1675 | 9 | 1664 | 0 | 18 |
| 2025 | 7 | 1 | 0 | 0 | 0 | 1116 | 15 | 0 | 0 | 2011 | 4 | 828 | 0 | 8 |

*2023, unidentified non-native cyprinid 370. 2024, unidentified non-native cyprinid, 749

**Table 5.** Native fish captures on the lower Green River (Reach 3) during ISMP sampling, fall 2025.

| Species | Number | Density (fish/100m²) |
|---|---|---|
| Bluehead Sucker | 25 | 0.87 |
| Colorado Pikeminnow | 67 | 2.34 |
| Flannelmouth Sucker | 3 | 0.10 |
| Razorback Sucker | 1 | 0.03 |
| Unidentified *Gila* Species | 1 | 0.03 |
| Speckled Dace | 4 | 0.14 |

**Table 6**. The lower Green River (Reach 3), total captures by year for native and endangered fish during young-of-year (YOY) monitoring from 1986-2025. Species listed are: YOY Colorado Pikeminnow (CS YOY; 10-99 mm), juvenile pikeminnow (CS JUV; 100-399 mm), unidentified *Gila* spp. (CH), Bonytail (BT), Humpback Chub (HB), Razorback Sucker (RZ), Flannelmouth Sucker (FM), Bluehead Sucker (BH), Speckled Dace (SD), and unidentified native sucker (UNS). In most years, species other than CS were only enumerated during the first seine haul within primary backwaters.

| Year | CS YOY | CS JUV | CH | BT | HB | RZ | FM | BH | SD | UNS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1986 | 813 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 24 | n/a |
| 1987 | 849 | 9 | 1 | 0 | 0 | 0 | 5 | 1 | 0 | n/a |
| 1988 | 2,892 | 109 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | n/a |
| 1989 | 1,494 | 59 | 1 | 0 | 0 | 0 | 17 | 0 | 0 | n/a |
| 1990 | 418 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | n/a |
| 1991 | 186 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | n/a |
| 1992 | 122 | 12 | 18 | 0 | 0 | 0 | 3 | 7 | 4 | n/a |
| 1993 | 1,616 | 2 | 0 | 0 | 0 | 0 | 12 | 33 | 43 | n/a |
| 1994 | 354 | 0 | 7 | 0 | 1 | 0 | 0 | 1 | 6 | n/a |
| 1995 | 56 | 1 | 5 | 0 | 0 | 0 | 12 | 17 | 35 | n/a |
| 1996 | 410 | 1 | 0 | 0 | 0 | 0 | 1 | 21 | 20 | n/a |
| 1997 | 39 | 8 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | n/a |
| 1998 | 252 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 30 | n/a |
| 1999 | 384 | 0 | 2 | 0 | 0 | 0 | 90 | 5 | 24 | n/a |
| 2000 | 705 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | n/a |
| 2001 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | n/a |
| 2002 | 22 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 4 | n/a |
| 2003 | 124 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | n/a |
| 2004 | 80 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | n/a |
| 2005 | 63 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | n/a |
| 2006 | 331 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | n/a |
| 2007 | 686 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | n/a |
| 2008 | 60 | 1 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | n/a |
| 2009 | 423 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | n/a |
| 2010 | 131 | 3 | 0 | 0 | 0 | 0 | 7 | 3 | 12 | n/a |
| 2011 | 17 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | n/a |
| 2012 | 293 | 0 | 2 | 0 | 0 | 2 | 9 | 0 | 0 | n/a |
| 2013 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | n/a |
| 2014 | 5 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | n/a |
| 2015 | 461 | 0 | 6 | 0 | 0 | 0 | 9 | 0 | 9 | n/a |
| 2016 | 426 | 0 | 0 | 0 | 0 | 0 | 4 | 9 | 0 | n/a |
| 2017 | 25 | 0 | 0 | 1 | 0 | 0 | 10 | 0 | 1 | n/a |
| 2018 | 57 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | n/a |
| 2019 | 113 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 11 | 1 |
| 2020 | 115 | 0 | 2 | n/a | 0 | 0 | 2 | 5 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2022 | 28 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2023 | 153 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 |
| 2024 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2025 | 67 | 0 | 1 | 0 | 0 | 1 | 3 | 25 | 4 | 0 |

**Table 7.** The lower Colorado River (Reach 1), total captures by year for native and endangered fish during young-of-year (YOY) monitoring from 1986-2017. Species listed are: YOY Colorado pikeminnow (CS YOY; 10-99 mm), juvenile pikeminnow (CS JUV; 100-399 mm), unidentified *Gila* spp. (CH), Razorback Sucker (RZ), Flannelmouth Sucker (FM), Bluehead Sucker (BH), Speckled Dace (SD), and unidentified native sucker (UNS). In most years species other than CS were only enumerated during the first haul within primary backwaters.

| Year | CS YOY | CS JUV | CH | RZ | FM | BH | SD | UNS |
|---|---|---|---|---|---|---|---|---|
| 1986 | 192 | 0 | 194 | 0 | 0 | 0 | 41 | n/a |
| 1987 | 176 | 2 | 27 | 0 | 2 | 7 | 2 | n/a |
| 1988 | 172 | 37 | 11 | 0 | 4 | 0 | 0 | n/a |
| 1989 | 132 | 7 | 130 | 0 | 2 | 3 | 2 | n/a |
| 1990 | 179 | 11 | 6 | 0 | 4 | 2 | 0 | n/a |
| 1991 | 150 | 0 | 8 | 0 | 1 | 0 | 5 | n/a |
| 1992 | 151 | 1 | 45 | 0 | 2 | 25 | 9 | n/a |
| 1993 | 206 | 3 | 216 | 0 | 69 | 198 | 23 | n/a |
| 1994 | 142 | 0 | 15 | 0 | 0 | 11 | 1 | n/a |
| 1995 | 85 | 0 | 119 | 0 | 2 | 176 | 28 | n/a |
| 1996 | 866 | 0 | 30 | 0 | 3 | 87 | 29 | n/a |
| 1997 | 12 | 0 | 4 | 0 | 1 | 12 | 4 | n/a |
| 1998 | 88 | 0 | 11 | 0 | 1 | 8 | 9 | n/a |
| 1999 | 13 | 2 | 1 | 0 | 0 | 1 | 0 | n/a |
| 2000 | 398 | 9 | 21 | 0 | 1 | 58 | 0 | n/a |
| 2001 | 17 | 0 | 1 | 0 | 0 | 0 | 1 | n/a |
| 2002 | 25 | 0 | 35 | 0 | 0 | 1 | 0 | n/a |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | n/a |
| 2004 | 16 | 0 | 4 | 0 | 9 | 5 | 0 | n/a |
| 2005 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | n/a |
| 2006 | 4 | 0 | 0 | 0 | 9 | 1 | 3 | n/a |
| 2007 | 24 | 0 | 0 | 0 | 2 | 0 | 0 | n/a |
| 2008 | 0 | 0 | 0 | 0 | 4 | 8 | 0 | n/a |
| 2009 | 243 | 0 | 0 | 0 | 5 | 3 | 1 | n/a |
| 2010 | 27 | 3 | 2 | 0 | 15 | 0 | 0 | n/a |
| 2011 | 59 | 0 | 3 | 0 | 31 | 0 | 2 | n/a |
| 2012 | 54 | 0 | 0 | 3 | 39 | 4 | 0 | n/a |
| 2013 | 1 | 0 | 5 | 0 | 0 | 1 | 0 | n/a |
| 2014 | 8 | 0 | 0 | 0 | 3 | 0 | 0 | n/a |
| 2015 | 1331 | 3 | 3 | 0 | 120 | 0 | 0 | n/a |
| 2016 | 150 | 3 | 19 | 0 | 5 | 4 | 0 | n/a |
| 2017 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | n/a |
| 2018 | 78 | 0 | 29 | 0 | 5 | 2 | 0 | n/a |
| 2019 | 5 | 0 | 65 | 0 | 6 | 1 | 7 | 54 |
| 2020 | 153 | 0 | 1 | 0 | 10 | 49 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2022 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 | 187 | 0 | 1 | 0 | 0 | 16 | 0 | 0 |
| 2024 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2025 | 190 | 2 | 60 | 0 | 2 | 68 | 0 | 0 |

**Table 8.** Nonnative fish captures on the lower Green River (Reach 3) during ISMP sampling, fall 2025. Nonnative fish are enumerated only during the first seine haul within primary habitats.

| Species | Number | Density (fish/100m²) |
|---|---|---|
| Black Bullhead | 10 | 0.35 |
| Channel Catfish | 3 | 0.10 |
| Common Carp | 1 | 0.03 |
| Fathead Minnow | 2735 | 95.36 |
| Green Sunfish | 10 | 0.35 |
| Gizzard Shad | 1 | 0.03 |
| Red Shiner | 4917 | 171.44 |
| Sand Shiner | 4730 | 164.92 |
| Largemouth Bass | 2 | 0.35 |

**Table 9**. The lower Green River (Reach 3), total captures by year for nonnative fish during young-of-year monitoring from 1986-2025. Only fish enumerated in primary backwater first seine hauls are included to maintain consistency among years and reaches. Species listed: Black Bullhead (BB), Black Crappie (BC), Channel Catfish (CC), Common Carp (CP), Fathead Minnow (FH), unidentified Gambusia spp. (GA), Green Sunfish (GS), Gizzard Shad (GZ), Largemouth Bass (LG), Red Shiner (RS), Sand Shiner (SS), White Sucker (WS), and Yellow Bullhead (YB).

| YEAR | BB | BC | BG | CC | CP | FH | GA | GS | GZ | LG | RS | SM | SS | WS | YB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 | 7 | 0 | n/a | 4 | 12 | 87 | 0 | 9 | 0 | 0 | 663 | n/a | 4 | 0 | 0 |
| 1987 | 0 | 0 | n/a | 1 | 0 | 34 | 0 | 5 | 0 | 0 | 1,303 | n/a | 4 | 0 | 0 |
| 1988 | 1 | 0 | n/a | 110 | 2 | 1,790 | 7 | 1 | 0 | 0 | 4,317 | n/a | 38 | 0 | 0 |
| 1989 | 1 | 0 | n/a | 73 | 1 | 170 | 0 | 3 | 0 | 0 | 5,826 | n/a | 113 | 0 | 0 |
| 1990 | 1 | 0 | n/a | 37 | 4 | 228 | 0 | 0 | 0 | 0 | 9,599 | n/a | 129 | 0 | 0 |
| 1991 | 0 | 0 | n/a | 8 | 3 | 314 | 0 | 2 | 0 | 0 | 7,746 | n/a | 1,123 | 0 | 0 |
| 1992 | 1 | 0 | n/a | 24 | 1 | 500 | 0 | 0 | 0 | 0 | 2,737 | n/a | 180 | 0 | 0 |
| 1993 | 1 | 0 | n/a | 11 | 1 | 249 | 0 | 0 | 0 | 0 | 3,443 | n/a | 1,362 | 0 | 0 |
| 1994 | 0 | 0 | n/a | 6 | 8 | 500 | 1 | 8 | 0 | 0 | 8,007 | n/a | 1,196 | 0 | 0 |
| 1995 | 7 | 0 | n/a | 4 | 16 | 363 | 0 | 6 | 0 | 0 | 3,478 | n/a | 969 | 0 | 0 |
| 1996 | 0 | 0 | n/a | 0 | 0 | 1,097 | 2 | 2 | 0 | 0 | 11,858 | n/a | 3,751 | 0 | 0 |
| 1997 | 0 | 0 | n/a | 17 | 1 | 79 | 4 | 3 | 0 | 0 | 855 | n/a | 320 | 1 | 0 |
| 1998 | 0 | 6 | n/a | 0 | 1 | 120 | 17 | 0 | 0 | 0 | 1,709 | n/a | 178 | 0 | 0 |
| 1999 | 0 | 1 | n/a | 2 | 37 | 340 | 1 | 0 | 0 | 0 | 845 | n/a | 156 | 0 | 0 |
| 2000 | 3 | 0 | n/a | 12 | 3 | 234 | 0 | 1 | 0 | 0 | 3,591 | n/a | 574 | 4 | 0 |
| 2001 | 0 | 0 | n/a | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | n/a | 0 | 0 | 0 |
| 2002 | 0 | 0 | n/a | 122 | 2 | 14,721 | 0 | 1 | 0 | 0 | 26,710 | n/a | 2,135 | 0 | 0 |
| 2003 | 5 | 0 | n/a | 11 | 1 | 201 | 0 | 12 | 0 | 0 | 4,707 | n/a | 43 | 0 | 0 |
| 2004 | 3 | 0 | n/a | 7 | 0 | 215 | 0 | 1 | 0 | 0 | 297 | n/a | 190 | 0 | 0 |
| 2005 | 0 | 0 | n/a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | n/a | 0 | 0 | 0 |
| 2006 | 2 | 1 | n/a | 6 | 3 | 1,187 | 1 | 4 | 0 | 1 | 8,623 | n/a | 0 | 0 | 0 |
| 2007 | 0 | 0 | n/a | 23 | 0 | 2,183 | 0 | 0 | 1 | 2 | 8,807 | n/a | 35 | 0 | 0 |
| 2008 | 0 | 2 | n/a | 13 | 116 | 1,074 | 0 | 0 | 1 | 1 | 4,458 | n/a | 250 | 0 | 6 |
| 2009 | 0 | 0 | n/a | 3 | 0 | 1,044 | 0 | 0 | 1 | 0 | 2,766 | n/a | 15 | 0 | 0 |
| 2010 | 0 | 0 | n/a | 0 | 0 | 150 | 0 | 5 | 4 | 0 | 1,028 | n/a | 1,025 | 0 | 0 |
| 2011 | 0 | 8 | n/a | 6 | 15 | 314 | 0 | 0 | 0 | 0 | 1,842 | n/a | 1,096 | 0 | 0 |
| 2012 | 8 | 0 | n/a | 5 | 5 | 3,085 | 0 | 4 | 15 | 0 | 2,043 | n/a | 8,620 | 0 | 3 |
| 2013 | 0 | 0 | n/a | 19 | 6 | 1,025 | 0 | 6 | 6 | 0 | 2,550 | n/a | 9,975 | 0 | 0 |
| 2014 | 1 | 0 | n/a | 3 | 11 | 47 | 0 | 0 | 0 | 0 | 658 | n/a | 866 | 0 | 0 |
| 2015 | 2 | 0 | n/a | 26 | 0 | 570 | 0 | 5 | 2 | 0 | 1969 | n/a | 466 | 0 | 0 |
| 2016 | 3 | 0 | n/a | 1 | 1 | 1055 | 0 | 0 | 0 | 0 | 3730 | n/a | 2790 | 0 | 0 |
| 2017 | 0 | 0 | n/a | 1 | 3 | 692 | 0 | 1 | 3 | 0 | 5467 | n/a | 1028 | 4 | 0 |
| 2018 | 0 | 0 | n/a | 6 | 0 | 431 | 0 | 1 | 1 | 0 | 1185 | n/a | 648 | 0 | 0 |
| 2019 | 0 | 1 | n/a | 9 | 13 | 375 | 0 | 0 | 0 | 0 | 1454 | n/a | 805 | 0 | 1 |
| 2020 | 0 | 0 | n/a | 1 | 0 | 945 | 0 | 45 | 15 | 0 | 1850 | n/a | 1395 | 0 | 0 |
| 2021 | 0 | 0 | n/a | 0 | 0 | 119 | 0 | 2 | 5 | 0 | 1021 | n/a | 678 | 0 | 0 |
| 2022 | 7 | 0 | 4 | 3 | 0 | 74 | 0 | 0 | 0 | 0 | 789 | n/a | 371 | 0 | 0 |
| 2023 | 0 | 1 | 1 | 0 | 7 | 211 | 0 | 4 | 1 | 0 | 2066 | n/a | 570 | 1 | 0 |
| 2024 | 11 | 0 | 34 | 6 | 3 | 287 | 0 | 3 | 0 | 0 | 2256 | 1 | 1127 | 0 | 0 |
| 2025 | 10 | 0 | 0 | 3 | 1 | 2735 | 0 | 10 | 1 | 2 | 4917 | 0 | 4730 | 0 | 0 |

**Table 10.** Native fish captures on the lower Colorado River (Reach 1) during ISMP sampling, fall 2025.

| Species | Number | Density (fish/100m²) |
|---|---|---|
| Bluehead Sucker | 68 | 2.77 |
| Colorado Pikeminnow | 192 | 7.81 |
| Flannelmouth Sucker | 2 | 0.08 |
| Unidentified *Gila* Species | 60 | 2.44 |

**Table 11.** Nonnative fish captures on the lower Colorado River (Reach 1) during ISMP sampling, fall 2025. Nonnative fish are enumerated only during the first seine haul within primary habitats.

| Species | Number | Density (fish/100m²) |
|---|---|---|
| Black Bullhead | 56 | 2.28 |
| Bluegill | 2 | 0.08 |
| Channel Catfish | 6 | 0.24 |
| Fathead | 3765 | 153.17 |
| Gizzard Shad | 87 | 3.54 |
| Green Sunfish | 1 | 0.04 |
| Red Shiner | 4205 | 171.07 |
| Sand Shiner | 3060 | 124.49 |
| Largemouth Bass | 4 | 0.16 |
| Smallmouth Bass | 2 | 0.08 |
| Western Mosquito Fish | 88 | 3.58 |

**Table 12**. The lower Colorado River (Reach 1), total captures by year for nonnative fish during young-of-year monitoring from 1986-2025. Only fish enumerated in primary backwater first seine hauls are included to maintain consistency among years and reaches. Species listed: Black Bullhead (BB), Black Crappie (BC), Bluegill (BG), Channel Catfish (CC), Common Carp (CP), Fathead Minnow (FH), unidentified Gambusia spp. (GA), Green Sunfish (GS), Gizzard Shad (GZ), Largemouth Bass (LG), Plains Killifish (PK), Red Shiner (RS), Smallmouth Bass (SM), Sand Shiner (SS), Walleye (WE), White Sucker (WS), and Yellow Bullhead (YB).

| YEAR | BB | BC | BG | CC | CP | FH | GA | GS | GZ | LG | PK | RS | SM | SS | WE | WS | YB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1986 | 0 | 0 | 0 | 4 | 0 | 456 | 2 | 0 | 0 | 1 | 6 | 1,077 | 0 | 240 | 0 | 0 | 0 |
| 1987 | 1 | 0 | 0 | 10 | 1 | 233 | 1 | 0 | 0 | 0 | 0 | 2,159 | 0 | 428 | 0 | 0 | 0 |
| 1988 | 0 | 0 | 0 | 0 | 4 | 10,650 | 0 | 1 | 0 | 0 | 36 | 1,786 | 0 | 2,161 | 0 | 0 | 0 |
| 1989 | 11 | 0 | 0 | 8 | 12 | 3,613 | 0 | 2 | 0 | 0 | 9 | 6,973 | 0 | 951 | 0 | 1 | 0 |
| 1990 | 2 | 0 | 2 | 11 | 4 | 5,698 | 1 | 1 | 0 | 1 | 10 | 6,593 | 0 | 889 | 0 | 0 | 0 |
| 1991 | 1 | 0 | 0 | 8 | 1 | 2,632 | 0 | 0 | 0 | 0 | 6 | 4,368 | 0 | 1,652 | 0 | 1 | 0 |
| 1992 | 1 | 0 | 0 | 0 | 1 | 2,809 | 2 | 7 | 0 | 0 | 7 | 6,470 | 0 | 3,991 | 0 | 1 | 0 |
| 1993 | 3 | 0 | 0 | 1 | 8 | 2,091 | 4 | 1 | 0 | 0 | 0 | 3,870 | 0 | 1,449 | 0 | 2 | 0 |
| 1994 | 1 | 0 | 0 | 1 | 2 | 4,795 | 14 | 34 | 0 | 0 | 0 | 4,393 | 0 | 2,520 | 0 | 2 | 0 |
| 1995 | 2 | 0 | 0 | 17 | 3 | 1,105 | 71 | 2 | 0 | 1 | 0 | 1,079 | 0 | 926 | 0 | 0 | 0 |
| 1996 | 0 | 0 | 2 | 1 | 0 | 2,591 | 3 | 15 | 0 | 1 | 8 | 3,851 | 0 | 5,998 | 0 | 0 | 0 |
| 1997 | 0 | 0 | 0 | 12 | 2 | 37 | 3 | 0 | 0 | 2 | 0 | 1,244 | 0 | 224 | 0 | 0 | 0 |
| 1998 | 0 | 0 | 0 | 1 | 0 | 265 | 1 | 6 | 0 | 0 | 2 | 6,297 | 0 | 8,751 | 0 | 0 | 0 |
| 1999 | 0 | 1 | 1 | 21 | 3 | 137 | 1 | 1 | 0 | 0 | 2 | 1,891 | 0 | 2,303 | 0 | 0 | 0 |
| 2000 | 4 | 0 | 0 | 0 | 1 | 1,265 | 24 | 2 | 0 | 1 | 0 | 15,099 | 0 | 22,343 | 0 | 1 | 0 |
| 2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 1 | 0 | 0 | 4 | 3 | 4,963 | 1 | 0 | 0 | 0 | 1 | 11,691 | 0 | 2,920 | 0 | 0 | 0 |
| 2003 | 2 | 0 | 0 | 0 | 1 | 2,192 | 4 | 0 | 0 | 0 | 7 | 788 | 0 | 1,162 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 1 | 352 | 0 | 0 | 0 | 0 | 0 | 625 | 0 | 535 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 1 | 2 | 0 | 4 | 1 | 159 | 94 | 10 | 0 | 2 | 1 | 3,030 | 0 | 103 | 0 | 0 | 1 |
| 2007 | 1 | 0 | 0 | 1 | 5 | 597 | 52 | 0 | 15 | 0 | 0 | 1,063 | 1 | 0 | 0 | 6 | 0 |
| 2008 | 0 | 0 | 0 | 1 | 5 | 280 | 1 | 0 | 17 | 1 | 0 | 536 | 0 | 5 | 0 | 1 | 1 |
| 2009 | 3 | 7 | 0 | 0 | 6 | 260 | 36 | 0 | 57 | 0 | 0 | 3,124 | 0 | 12 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 2 | 0 | 377 | 3 | 0 | 174 | 5 | 0 | 657 | 0 | 622 | 1 | 0 | 0 |
| 2011 | 0 | 6 | 0 | 0 | 2 | 24 | 12 | 0 | 20 | 3 | 0 | 1345 | 0 | 58 | 0 | 0 | 0 |
| 2012 | 36 | 0 | 0 | 15 | 14 | 3,182* | 2 | 6 | 70 | 2 | 0 | 471* | 0 | 5,204* | 0 | 0 | 0 |
| 2013 | 5 | 0 | 0 | 24 | 1 | 666 | 0 | 1 | 116 | 1 | 2 | 1,566 | 2 | 4,640 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 23 | 1 | 55 | 0 | 4 | 23 | 0 | 3 | 974 | 0 | 399 | 0 | 0 | 0 |
| 2015 | 617 | 0 | 0 | 1 | 0 | 556 | 87 | 1 | 261 | 5 | 1 | 1696 | 0 | 1089 | 0 | 1 | 0 |
| 2016 | 1 | 0 | 1 | 0 | 2 | 426 | 10 | 0 | 7 | 4 | 0 | 1828 | 0 | 825 | 0 | 0 | 0 |
| 2017 | 2 | 5 | 0 | 0 | 5 | 408 | 25 | 2 | 74 | 0 | 0 | 968 | 3 | 692 | 0 | 0 | 0 |
| 2018 | 1 | 0 | 0 | 8 | 0 | 528 | 37 | 0 | 126 | 0 | 0 | 1348 | 1 | 1270 | 0 | 0 | 0 |
| 2019 | 3 | 0 | 1 | 33 | 1 | 325 | 1 | 0 | 3 | 0 | 0 | 1198 | 2 | 889 | 0 | 0 | 1 |
| 2020 | 2 | 0 | 0 | 0 | 4 | 2780 | 14 | 11 | 450 | 0 | 0 | 2530 | 1 | 4920 | 0 | 1 | 0 |
| 2021 | 11 | 0 | 0 | 1 | 0 | 216 | 68 | 3 | 79 | 0 | 2 | 1290 | 4 | 830 | 0 | 0 | 0 |
| 2022 | 3 | 0 | 0 | 17 | 1 | 336 | 25 | 10 | 12 | 0 | 11 | 848 | 1 | 510 | 0 | 0 | 0 |
| 2023 | 0 | 0 | 0 | 3 | 0 | 817 | 8 | 1 | 92 | 3 | 0 | 646 | 10 | 783 | 0 | 0 | 0 |
| 2024 | 0 | 0 | 13 | 3 | 0 | 1653 | 24 | 0 | 7 | 0 | 0 | 2160 | 3 | 2210 | 0 | 0 | 0 |
| 2025 | 56 | 0 | 2 | 6 | 0 | 3765 | 88 | 1 | 87 | 1 | 0 | 4205 | 5 | 3060 | 0 | 0 | 0 |

*1,990 nonnative cyprinids were not identified to species. Based on the percentage of Sand Shiner (58.8%), Fathead Minnow (35.9%), and Red Shiner (5.3%) positively identified in this reach, these fish were applied proportionately to Sand Shiner (n = 1,117), Fathead Minnow (n = 682), and Red Shiner (n = 101)

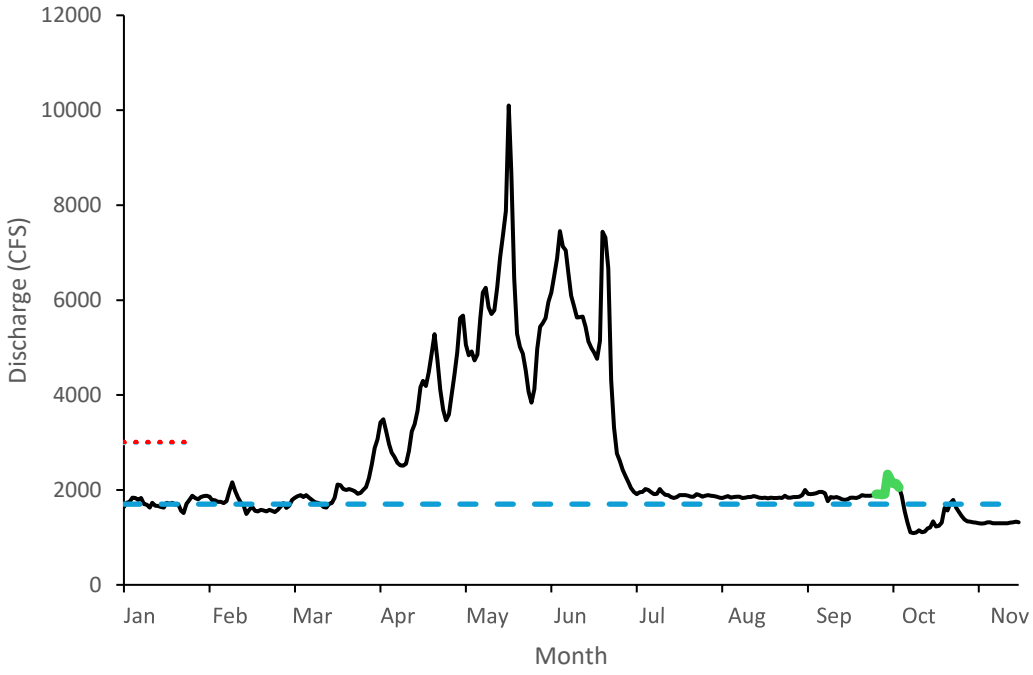


**Figure 1.** Discharge recorded in 2025 at USGS gage #09261000 at Jensen, UT. Red (dotted) and blue (dashed) lines represent recommended base flow ranges for the middle Green River (1,700-3,000 cfs) identified in Bestgen and Hill (2016). Green highlight denotes sampling period.

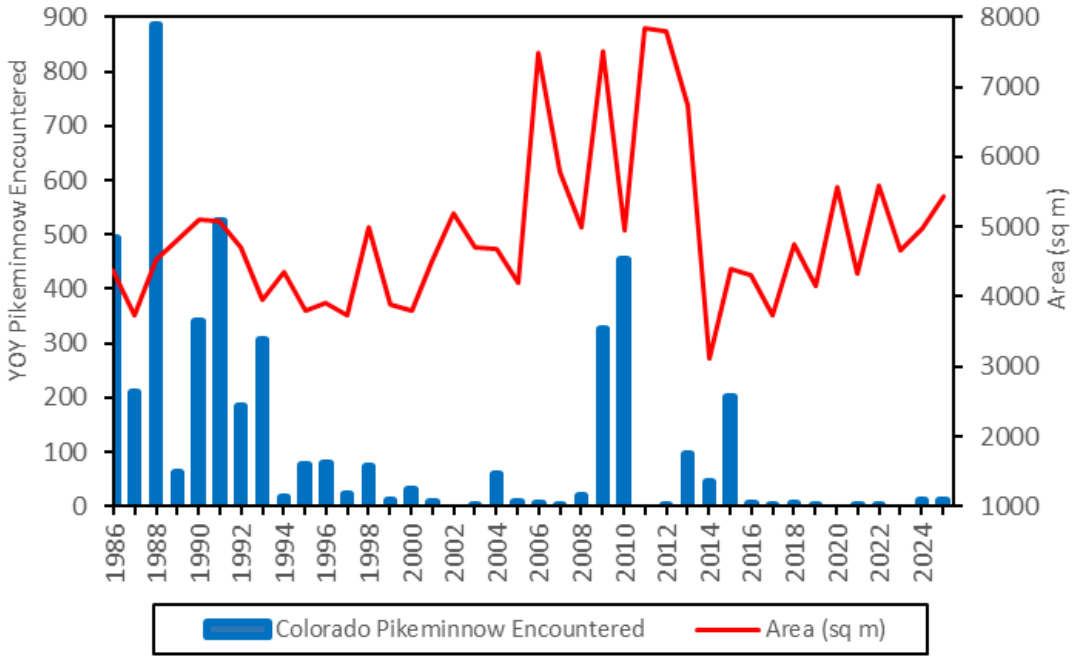


**Figure 2.** Annual ISMP sampling total captures and effort for the Middle Green River from 1986-2025.

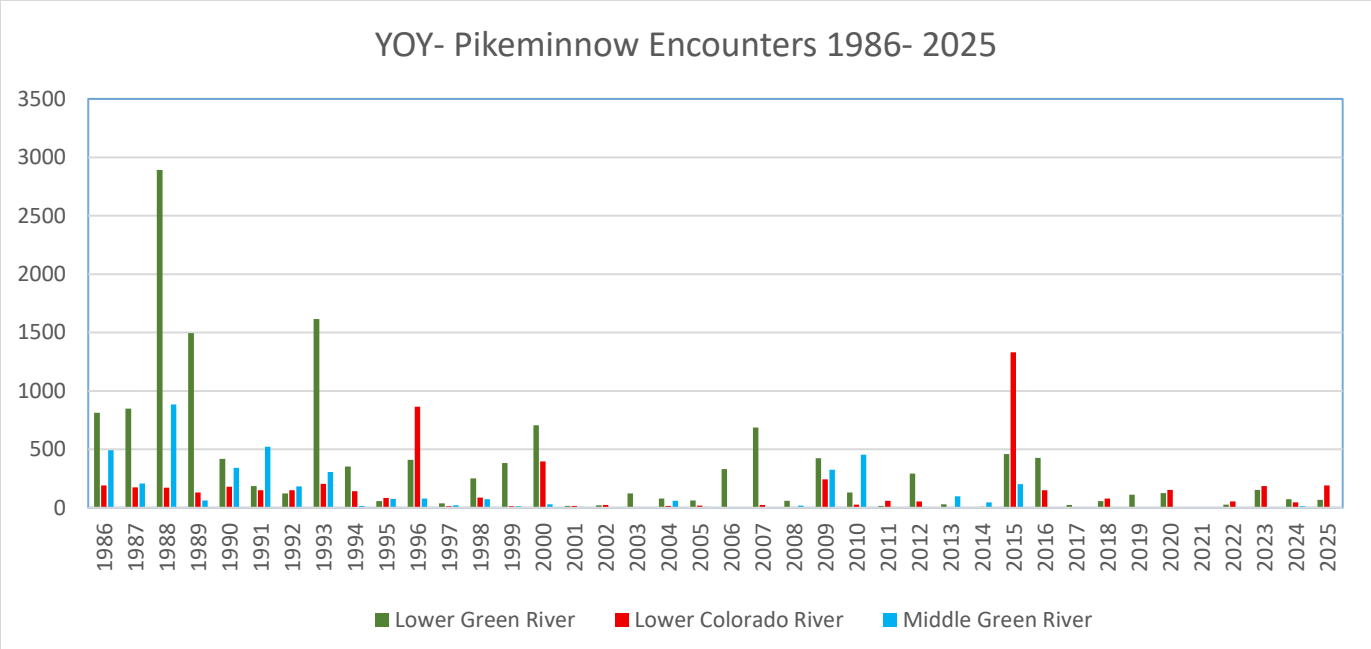


**Figure 3**. Total encounters for the middle Green River, lower Green River, and lower Colorado River during ISMP sampling 1986- 2025.

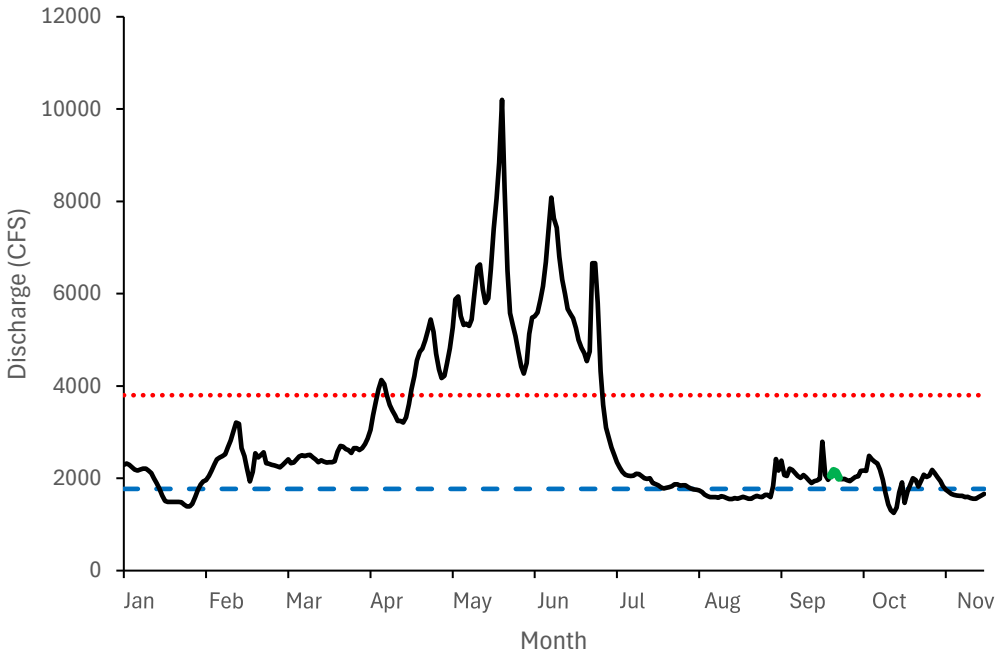


**Figure 4.** Discharge recorded in 2025 at USGS gage #09315000, Green River, UT. Red (dotted) and blue (dashed) lines represent recommended base flow ranges for the lower Green River (1,770-3,800 cfs) identified in Bestgen and Hill (2016). Green highlighted area denotes sampling events.

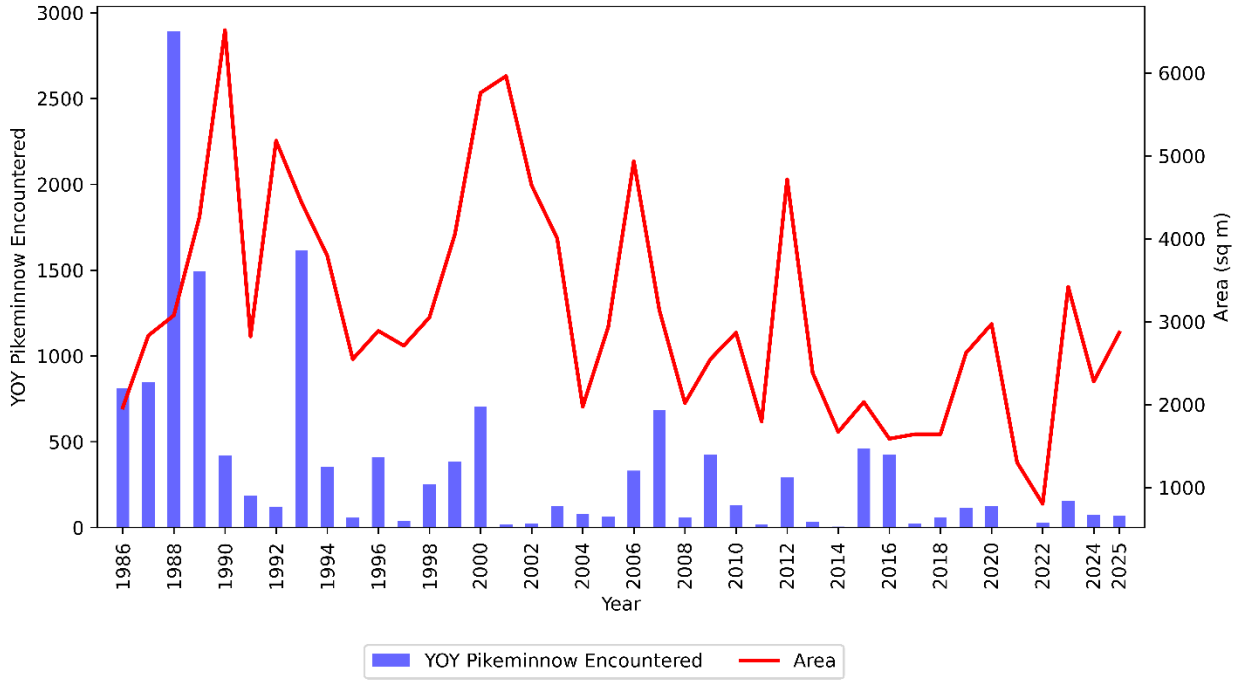


**Figure 5.** Annual ISMP sampling total captures and effort for the lower Green River from 1986-2025.

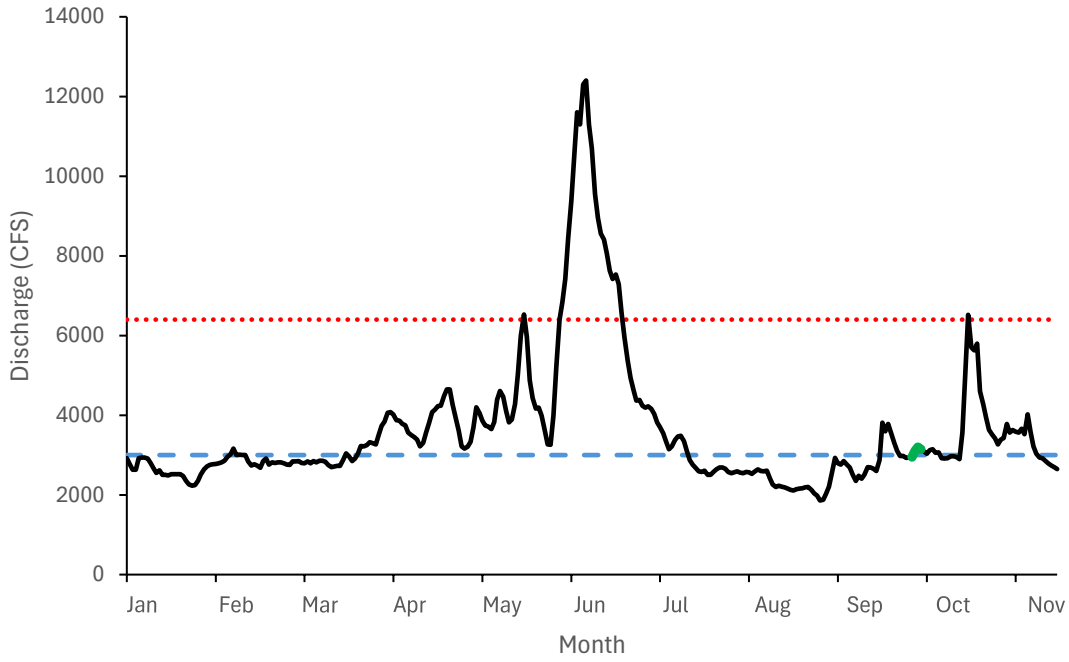


**Figure 6.** Discharge recorded in 2025 at USGS gage #09180500, near Cisco, UT. Red (dotted) and blue (dashed) lines represent recommended base flow ranges for the lower Colorado River (3,000-6,400 cfs) identified in Miller (2018). Green highlight denotes sampling events.

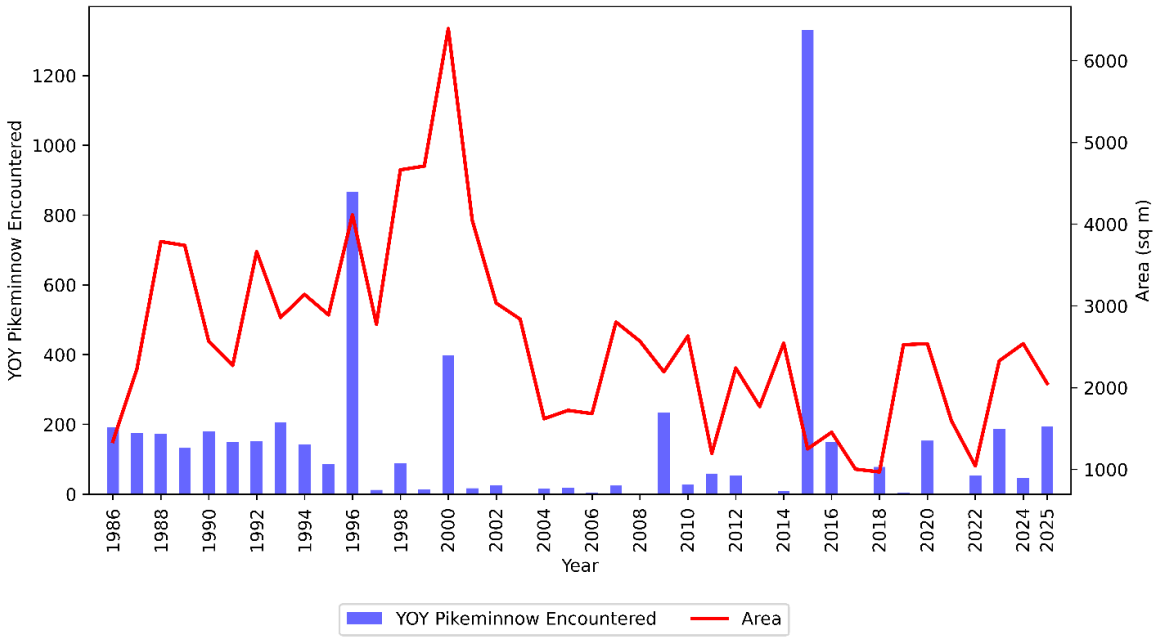


**Figure 7.** Annual ISMP sampling total captures and effort for the lower Colorado River from 1986- 2025.

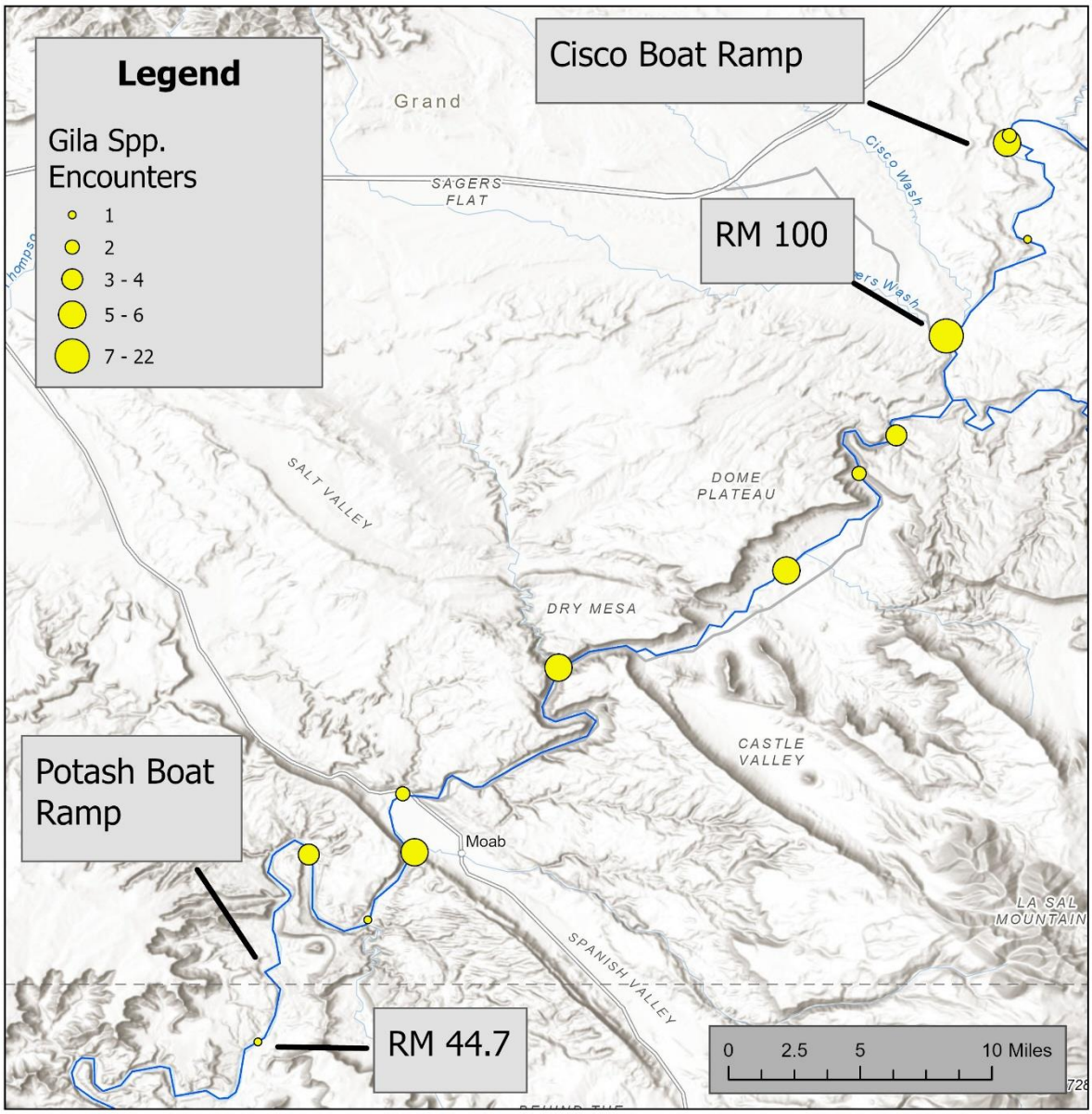


**Figure 8**. Map showing *Gila* spp. encounters in 2025 on the lower Colorado River, Reach 1. Upstream sampling began at RM 110, and *Gila* spp. were encountered as far downstream at RM 44.7.

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