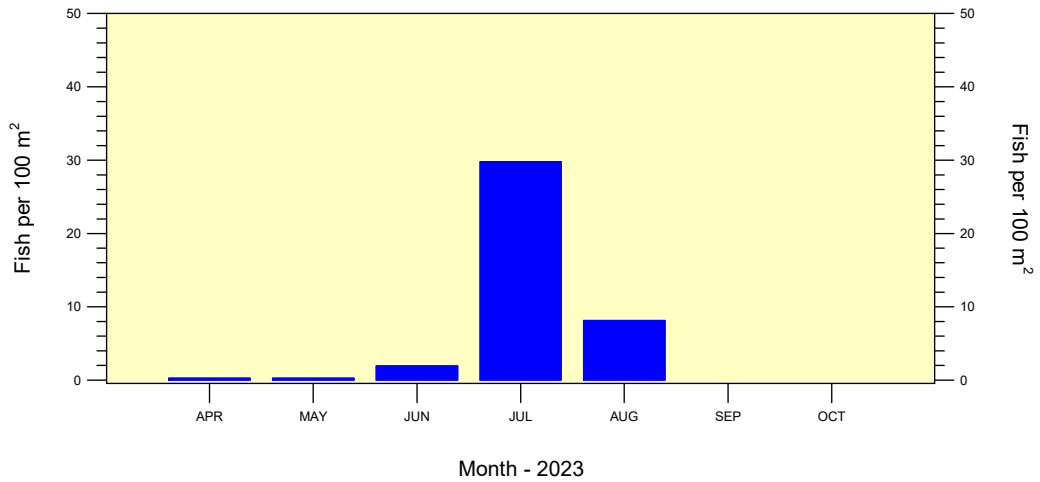
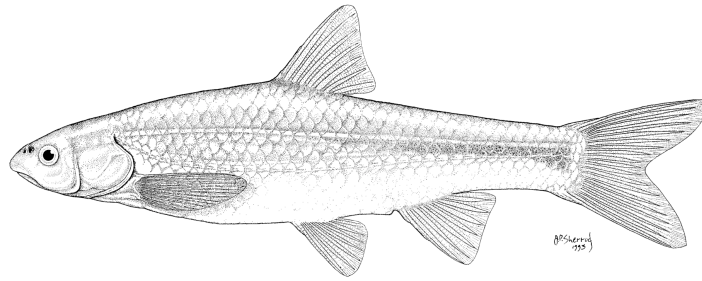


RIO GRANDE SILVERY MINNOW POPULATION MONITORING DURING AUGUST 2023

**A U.S. BUREAU OF RECLAMATION FUNDED
RESEARCH PROGRAM**



15 September 2023

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U.S. Bureau of Reclamation
Albuquerque Area Office
555 Broadway NE, Suite 100
Albuquerque, NM 87102

Submitted to:

U.S. Bureau of Reclamation
Albuquerque Area Office
555 Broadway NE, Suite 100
Albuquerque, NM 87102

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15 September 2023

SUMMARY OF AUGUST 2023 POPULATION MONITORING

The August 2023 population monitoring efforts were conducted at the 20 standard sites and one replacement site. Five sites were in the Angostura Reach, six sites were in the Isleta Reach, and ten sites were in the San Acacia Reach. For the 2023 monthly trends, data were based on all sites (i.e., standard, additional, and replacement sites) to maintain consistency across all monthly reports. A list of all collection localities is appended (Appendix A). Adult and juvenile fish were obtained by rapidly drawing a 3.0 m x 1.8 m small-mesh (ca. 5 mm) seine through discrete mesohabitats. Larval fish were collected with a 1.2 m x 1.2 m fine-mesh (ca. 1 mm) seine. All fishes were identified to species and enumerated. We used length-age relationships to assign ages (i.e., age-0, age-1, and age-2+) to all Rio Grande Silvery Minnow collected. Age-0 individuals are only present, however, after annual spring spawning (ca. April–June). Figures illustrating fish densities (i.e., fish per 100 m²) were prepared for the ten focal species to facilitate comparisons across reaches.

Angostura Reach

From 16 July to 15 August, provisional U.S. Geological Survey (USGS) mean daily discharge in the Angostura Reach (Albuquerque: USGS Gage-08330000) averaged 391 ft³/s and ranged from 215 to 596 ft³/s. Water temperatures ranged from 22.2 to 32.3 °C during the Angostura Reach sampling efforts (ca. 0830–1530 h). Secchi disk measurements of water clarity ranged from 27 to 40 cm.

Sampling for fishes in the Angostura Reach during August yielded 1,534 individuals with a cumulative fish density of 62.2 individuals per 100 m² sampled. The overall sampling effort in the Angostura Reach covered 2,465.3 m² (surface area) of water. Densities of all fish species combined ranged from 15.3 to 102.6 individuals per 100 m² at the different sampling sites. In August, there were 16 fish species collected in the Angostura Reach. Red Shiner was the most abundant taxon (n = 468), followed by Western Mosquitofish (n = 330), and River Carpsucker (n = 233). We collected Rio Grande Silvery Minnow (n = 125) in 34 of the 89 seine hauls that yielded fish, and its overall density was 5.07 (range = 0.00–13.36) individuals per 100 m².

Isleta Reach

Provisional mean daily discharge in the Isleta Reach (Bosque Farms: USGS Gage-08331160), from 16 July to 15 August, averaged 92 ft³/s and ranged from 25 to 391 ft³/s. During the Isleta Reach sampling efforts (ca. 0930–1600 h), water temperatures ranged from 24.9 to 32.7 °C. Secchi disk measurements ranged from 26 to 42 cm during sampling.

Isleta Reach population monitoring efforts produced 2,570 individuals in August with a cumulative fish density of 88.0 individuals per 100 m² sampled. The total sampling effort in the Isleta Reach during August covered 2,920.3 m² (surface area) of water. Fish densities (all species combined) at the sampling sites ranged from 29.8 to 189.3 individuals per 100 m² sampled. There were 14 fish species collected in the Isleta Reach during August. Red Shiner was the most abundant taxon (n = 816), followed by Common Carp (n = 732), and Western Mosquitofish (n = 672). We collected Rio Grande Silvery Minnow (n = 148) in 20 of the 95 seine hauls that yielded fish, and its overall density was 5.07 (range = 0.48–22.07) individuals per 100 m².

San Acacia Reach

From 16 July to 15 August, provisional mean daily discharge at San Acacia (USGS Gage-08354900) was generally higher (average = 60; range = 37–135 ft³/s) than at San Marcial (USGS Gage-08358400) during the same period (average = 2; range = 0–33 ft³/s). Water temperatures in August for the San Acacia Reach ranged from 26.3 to 31.8 °C (ca. 0930–1600 h). Secchi disk measurements ranged from 1 to 48 cm during sampling.

Population monitoring efforts in the San Acacia Reach during August yielded 3,758 individuals with a cumulative fish density of 128.2 individuals per 100 m² sampled. Sampling in the San Acacia Reach covered an area of 2,930.8 m² of water. Fish densities (all species combined) ranged from 0.0 to 3,011.6 individuals per 100 m² at sites sampled in the San Acacia Reach. In August, there were 13 fish species collected in the San Acacia Reach. Western Mosquitofish was the most abundant taxon (n = 1,829), followed by Red Shiner (n = 674), and Common Carp (n = 613). We collected Rio Grande Silvery Minnow (n = 405) in 40 of the 127 seine hauls that yielded fish, and its overall density was 13.82 (range = 0.00–581.82) individuals per 100 m².

Standard Sites

During August, sampling covered 7,824.6 m² (surface area) of water and yielded 7,323 fish. There was one dry sampling site. Cumulative fish density during August was 93.6 individuals per 100 m² sampled. The three most common species were Western Mosquitofish (n = 2,673), Red Shiner (n = 1,699), and Common Carp (n = 1,360). The sampling sites yielded a total of 19 fish species.

Rio Grande Silvery Minnow was present in 92 of the 291 seine hauls that yielded fish and at 16 of the 20 sampling sites. Densities of unmarked and marked individuals were 8.55 (n = 669) and 0.05 (n = 4) individuals per 100 m² sampled, respectively. Densities of age-0, age-1, and age-2+ individuals were 8.47 (n = 663), 0.13 (n = 10), and 0.00 (n = 0) individuals per 100 m² sampled, respectively. Based on all August surveys since 1993, the overall density of Rio Grande Silvery Minnow averaged 8.77 (range = 0.05–41.58) individuals per 100 m² sampled. During August 2023, its overall density was 8.60 (n = 673) individuals per 100 m² sampled.

All Sites

During August, sampling covered 8,316.3 m² (surface area) of water and yielded 7,862 fish. There was one dry sampling site. Cumulative fish density during August was 94.54 individuals per 100 m² sampled. The three most common species were Western Mosquitofish (n = 2,831), Red Shiner (n = 1,958), and Common Carp (n = 1,414). The sampling sites yielded a total of 19 fish species.

Rio Grande Silvery Minnow was present in 94 of the 311 seine hauls that yielded fish and at 17 of the 21 sampling sites. Densities of unmarked and marked individuals were 8.10 (n = 674) and 0.05 (n = 4) individuals per 100 m² sampled, respectively. Densities of age-0, age-1, and age-2+ individuals were 8.03 (n = 668), 0.12 (n = 10), and 0.00 (n = 0) individuals per 100 m² sampled, respectively. Based on all August surveys since 1993, the overall density of Rio Grande Silvery Minnow averaged 8.77 (range = 0.05–41.58) individuals per 100 m² sampled. During August 2023, its overall density was 8.15 (n = 678) individuals per 100 m² sampled.

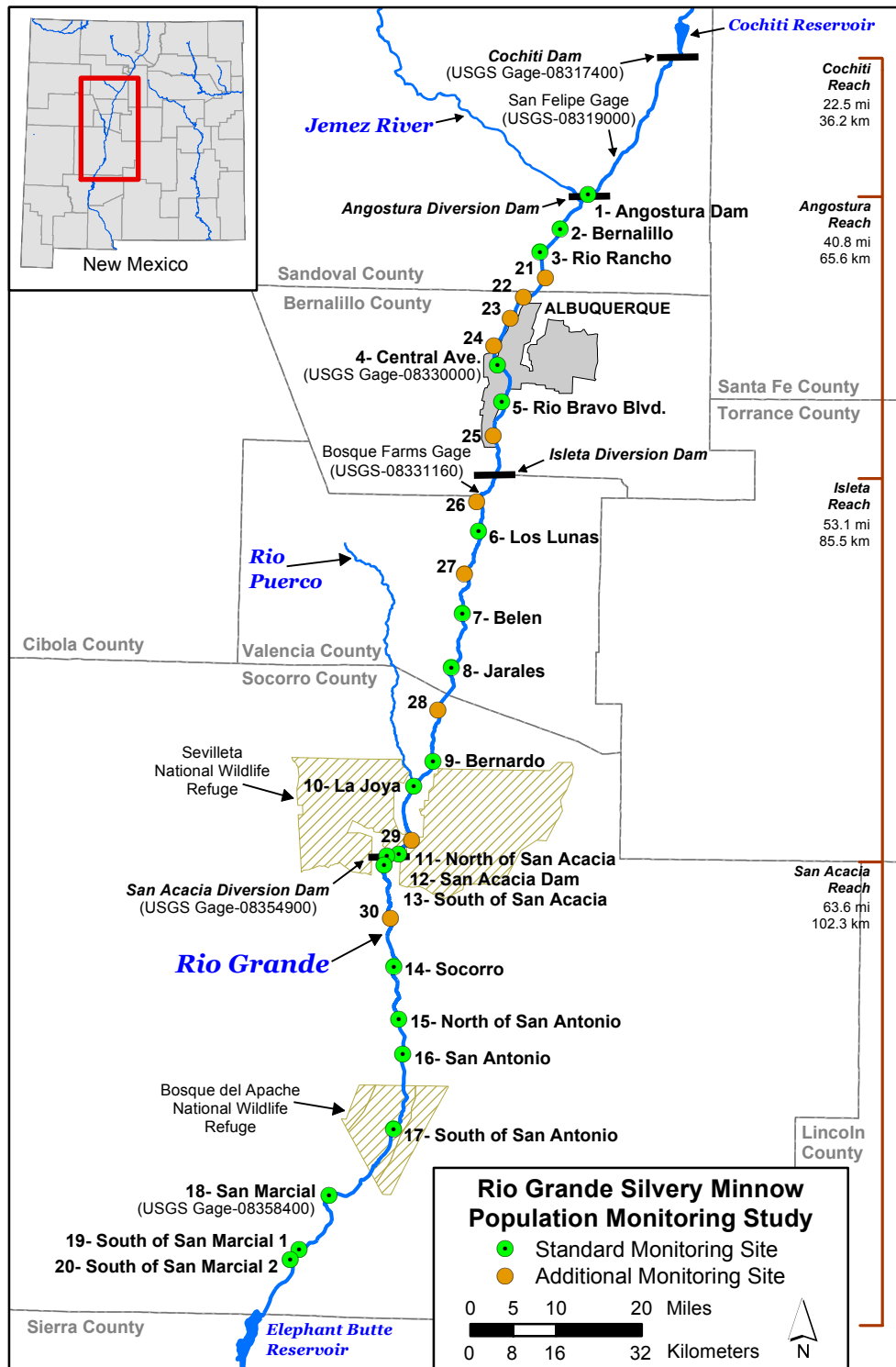


Figure 1. Map of the study area, standard sites, and additional sites for the Rio Grande Silvery Minnow population monitoring study. Sampling site descriptions are provided in Appendix A.

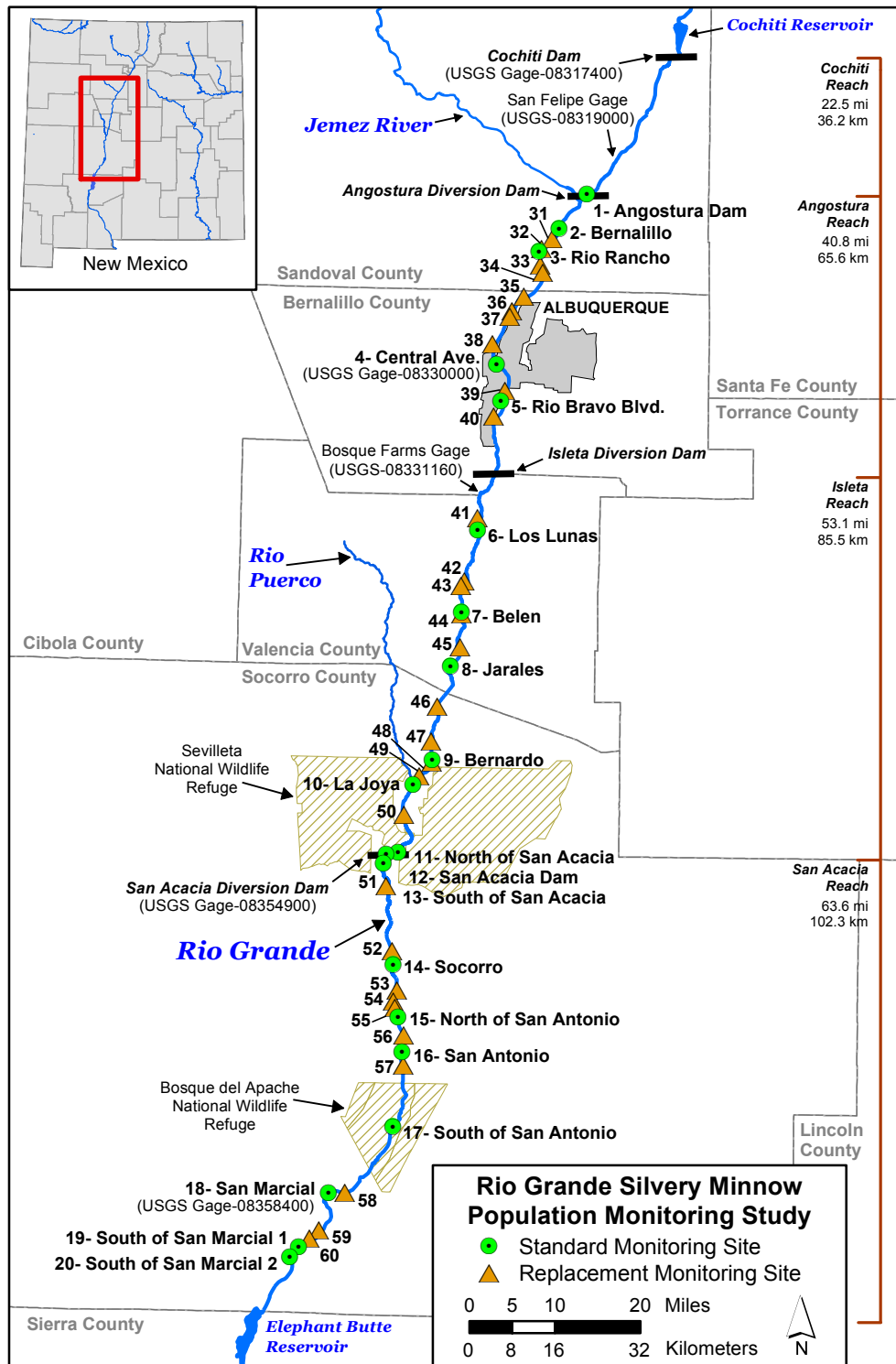


Figure 2. Map of the study area, standard sites, and replacement sites for the Rio Grande Silvery Minnow population monitoring study. Sampling site descriptions are provided in Appendix A.

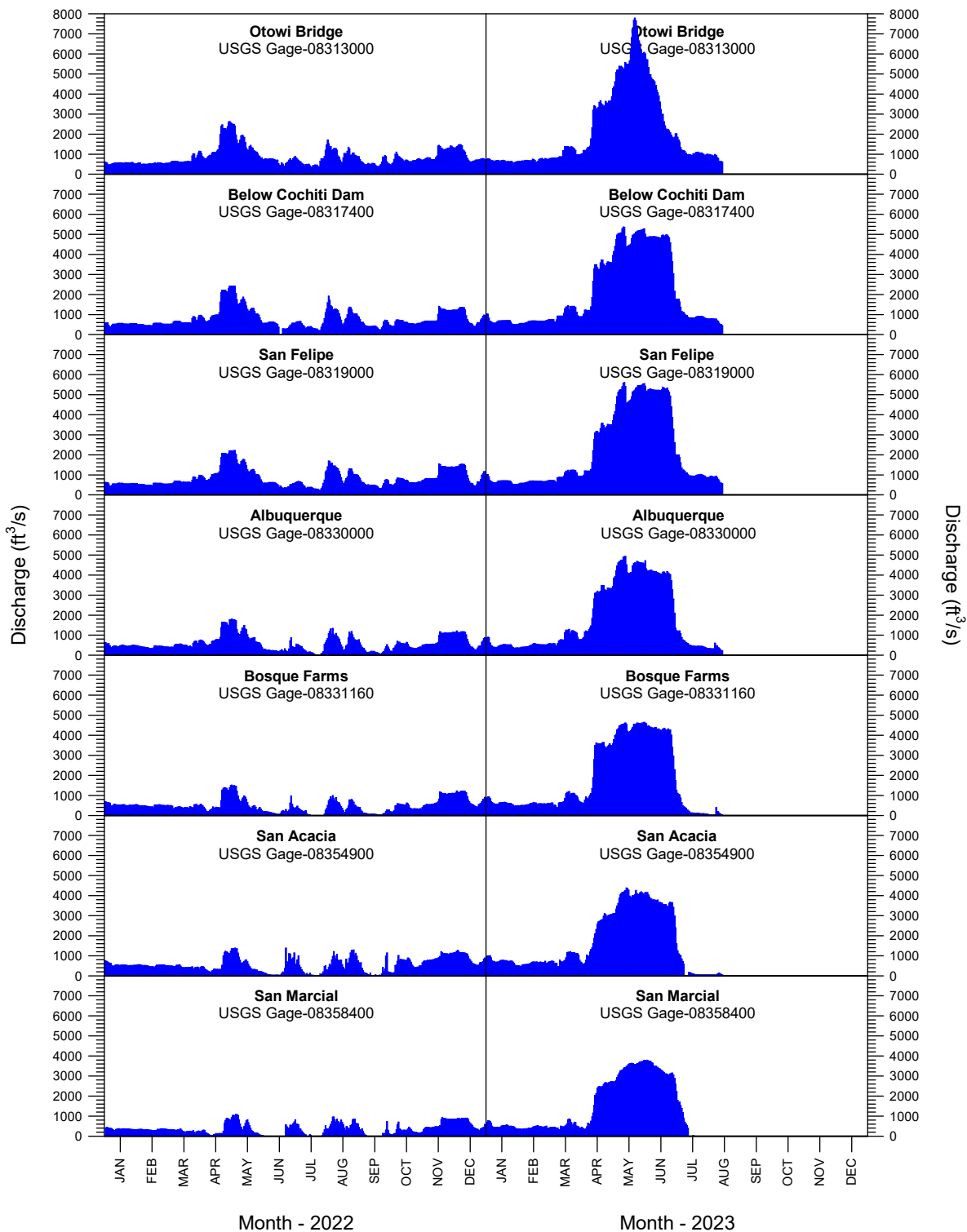


Figure 3. Rio Grande mean-daily discharge, by USGS gaging station, from 1 January 2022 to 15 August 2023. All discharge data are provisional and subject to change.

Table 1. Scientific names, common names, and species codes of fishes collected in the Middle Rio Grande since 1993.

Scientific Name	Common Name	Species Code
Order Clupeiformes		
Family Clupeidae		
	herrings	
<i>Dorosoma cepedianum</i>	Gizzard Shad	(DORCEP)
<i>Dorosoma petenense</i>	Threadfin Shad	(DORPET)
Order Cypriniformes		
Family Cyprinidae		
	carps and minnows	
<i>Campostoma anomalum</i>	Central Stoneroller	(CAMANO)
<i>Carassius auratus</i>	Goldfish	(CARAUR)
<i>Cyprinella lutrensis</i>	Red Shiner ¹	(CYPLUT)
<i>Cyprinus carpio</i>	Common Carp ¹	(CYPCAR)
<i>Gila pandora</i>	Rio Grande Chub	(GILPAN)
<i>Hybognathus amarus</i>	Rio Grande Silvery Minnow ¹	(HYBAMA)
<i>Notemigonus crysoleucas</i>	Golden Shiner	(NOTCRY)
<i>Pimephales promelas</i>	Fathead Minnow ¹	(PIMPRO)
<i>Pimephales vigilax</i>	Bullhead Minnow	(PIMVIG)
<i>Platygobio gracilis</i>	Flathead Chub ¹	(PLAGRA)
<i>Rhinichthys cataractae</i>	Longnose Dace ¹	(RHICAT)
Family Catostomidae		
	suckers	
<i>Carpodes carpio</i>	River Carpsucker ¹	(CARCAR)
<i>Catostomus commersonii</i>	White Sucker ¹	(CATCOM)
<i>Ictiobus bubalus</i>	Smallmouth Buffalo	(ICTBUB)
Order Siluriformes		
Family Ictaluridae		
	North American catfishes	
<i>Ameiurus melas</i>	Black Bullhead	(AMEMEL)
<i>Ameiurus natalis</i>	Yellow Bullhead	(AMENAT)
<i>Ictalurus furcatus</i>	Blue Catfish	(ICTFUR)
<i>Ictalurus punctatus</i>	Channel Catfish ¹	(ICTPUN)
<i>Pylodictis olivaris</i>	Flathead Catfish	(PYLOLI)
Family Loricariidae		
	suckermouth armored catfishes	
<i>Pterygoplichthys disjunctivus</i>	Vermiculated Sailfin Catfish	(PTEDIS)
Order Esociformes		
Family Esocidae		
	pikes and mudminnows	
<i>Esox lucius</i>	Northern Pike	(ESOLUC)

Table 1. Scientific names, common names, and species codes of fishes collected in the Middle Rio Grande since 1993 (continued).

Scientific Name	Common Name	Species Code
Order Salmoniformes		
Family Salmonidae		
	trouts and salmons	
<i>Oncorhynchus mykiss</i>	Rainbow Trout	(ONCMYK)
<i>Salmo trutta</i>	Brown Trout	(SALTRU)
Order Cyprinodontiformes		
Family Poeciliidae		
	livebearers	
<i>Gambusia affinis</i>	Western Mosquitofish ¹	(GAMAFF)
Order Perciformes		
Family Moronidae		
	temperate basses	
<i>Morone chrysops</i>	White Bass	(MORCHR)
<i>Morone saxatilis</i>	Striped Bass	(MORSAX)
Family Centrarchidae		
	sunfishes	
<i>Lepomis cyanellus</i>	Green Sunfish	(LEPCYA)
<i>Lepomis macrochirus</i>	Bluegill	(LEPMAC)
<i>Lepomis megalotis</i>	Longear Sunfish	(LEPMEG)
<i>Micropterus dolomieu</i>	Smallmouth Bass	(MICDOL)
<i>Micropterus salmoides</i>	Largemouth Bass	(MICSAL)
<i>Pomoxis annularis</i>	White Crappie	(POMANN)
<i>Pomoxis nigromaculatus</i>	Black Crappie	(POMNIG)
Family Percidae		
	perches and darters	
<i>Perca flavescens</i>	Yellow Perch	(PERFLA)
<i>Percina macrolepida</i>	Bigscale Logperch	(PERMAC)
<i>Sander vitreus</i>	Walleye	(SANVIT)
Family Sciaenidae		
	drums and croakers	
<i>Aplodinotus grunniens</i>	Freshwater Drum	(APLGRU)

¹ = Focal taxa were typically the 10 most abundant species collected during October.

Table 2. Rio Grande Silvery Minnow abundance, by reach, site, and mesohabitat, during August 2023. Marked and unmarked individuals were included. Blank cells indicate site-specific mesohabitats that were unavailable for sampling.

Reach	Site	Locality	BW	PO	RU	SHPO	SHRU	Total
Angostura	1	Angostura Dam	0	0	0	0	0	0
Angostura	2	Bernalillo		12	13	29	8	62
Angostura	3	Rio Rancho			0	1	18	19
Angostura	4	Central Ave.	0	0	13	0	10	23
Angostura	5	Rio Bravo Blvd.	1	5	5	2	8	21
<i>Angostura Totals</i>			<i>1</i>	<i>17</i>	<i>31</i>	<i>32</i>	<i>44</i>	<i>125</i>
Isleta	6	Los Lunas	0	1	0	3	9	13
Isleta	7	Belen	0		54	36	14	104
Isleta	8	Jarales		0	0	0	12	12
Isleta	9	Bernardo	0	0	0	0	10	10
Isleta	10	La Joya		1	0	0	6	7
Isleta	11	North of San Acacia	0	1	0	1		2
<i>Isleta Totals</i>			<i>0</i>	<i>3</i>	<i>54</i>	<i>40</i>	<i>51</i>	<i>148</i>
San Acacia	12	San Acacia Dam	0	7	37	14	59	117
San Acacia	13	South of San Acacia	3	0	127	9	14	153
San Acacia	14	Socorro	0	0	0	0	0	0
San Acacia	54	Site 54	0	0	3	0	2	5
San Acacia	15	North of San Antonio		1				1
San Acacia	16	San Antonio						0
San Acacia	17	South of San Antonio		32				32
San Acacia	18	San Marcial		1				1
San Acacia	19	South of San Marcial 1	0	0	67	3	26	96
San Acacia	20	South of San Marcial 2	0	0	0	0	0	0
<i>San Acacia Totals</i>			<i>3</i>	<i>41</i>	<i>234</i>	<i>26</i>	<i>101</i>	<i>405</i>
Monthly Totals			4	61	319	98	196	678

Table 3. Rio Grande Silvery Minnow abundance, by reach, site, and month, during 2023. Marked individuals are shown in parentheses, as a subset of the site-specific total. Blank cells indicate months when a site was not visited or will not be visited.

Reach	Site	Locality	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Angostura	1	Angostura Dam	0	0	0	0	0	0	0	0
Angostura	2	Bernalillo	0	0	0	9(0)	62(0)	0	0	71
Angostura	3	Rio Rancho	0	0	0	2(0)	19(0)	0	0	21
Angostura	21	Site 21	0						0	0
Angostura	22	Site 22	2(0)						0	2
Angostura	23	Site 23	0						0	0
Angostura	24	Site 24	0						0	0
Angostura	4	Central Ave.	0	0	57(0)	81(0)	23(0)	0	0	161
Angostura	5	Rio Bravo Blvd.	4(4)	0	8(0)	358(0)	21(0)	0	0	391
Angostura	25	Site 25	0						0	0
<i>Angostura Totals</i>			6	0	65	450	125	0	0	646
Isleta	26	Site 26	1(1)						0	1
Isleta	6	Los Lunas	1(1)	0	8(0)	317(0)	13(0)	0	0	339
Isleta	27	Site 27	0						0	0
Isleta	7	Belen	0	0	1(0)	488(0)	104(0)	0	0	593
Isleta	8	Jarales	0	0	1(0)	159(0)	12(0)	0	0	172
Isleta	28	Site 28	0						0	0
Isleta	9	Bernardo	0	0	4(0)	132(0)	10(0)	0	0	146
Isleta	10	La Joya	0	0	2(0)	278(0)	7(0)	0	0	287
Isleta	29	Site 29	0						0	0
Isleta	11	North of San Acacia	0	0	0	3(0)	2(0)	0	0	5
<i>Isleta Totals</i>			2	0	16	1,377	148	0	0	1,543
San Acacia	12	San Acacia Dam	4(2)	0	0	1(0)	117(3)	0	0	122
San Acacia	13	South of San Acacia	1(1)	1(1)	7(1)	2(0)	153(0)	0	0	164
San Acacia	30	Site 30	3(3)						0	3
San Acacia	14	Socorro	0	0	0	4(0)	0	0	0	4
San Acacia	54	Site 54	0	0	0	0	5(0)	0	0	5
San Acacia	15	North of San Antonio	0	0	0	31(0)	1(1)	0	0	32
San Acacia	16	San Antonio	2(2)	3(2)	13(1)	72(0)	0	0	0	90
San Acacia	17	South of San Antonio	0	0	0	6(0)	32(0)	0	0	38
San Acacia	18	San Marcial	1(1)	0	0	2(0)	1(0)	0	0	4
San Acacia	19	South of San Marcial 1	2(2)	0	29(0)	195(0)	96(0)	0	0	322
San Acacia	20	South of San Marcial 2	0	0	0	0	0	0	0	0
<i>San Acacia Totals</i>			13	4	49	313	405	0	0	784
Monthly Totals			21	4	130	2,140	678	0	0	2,973

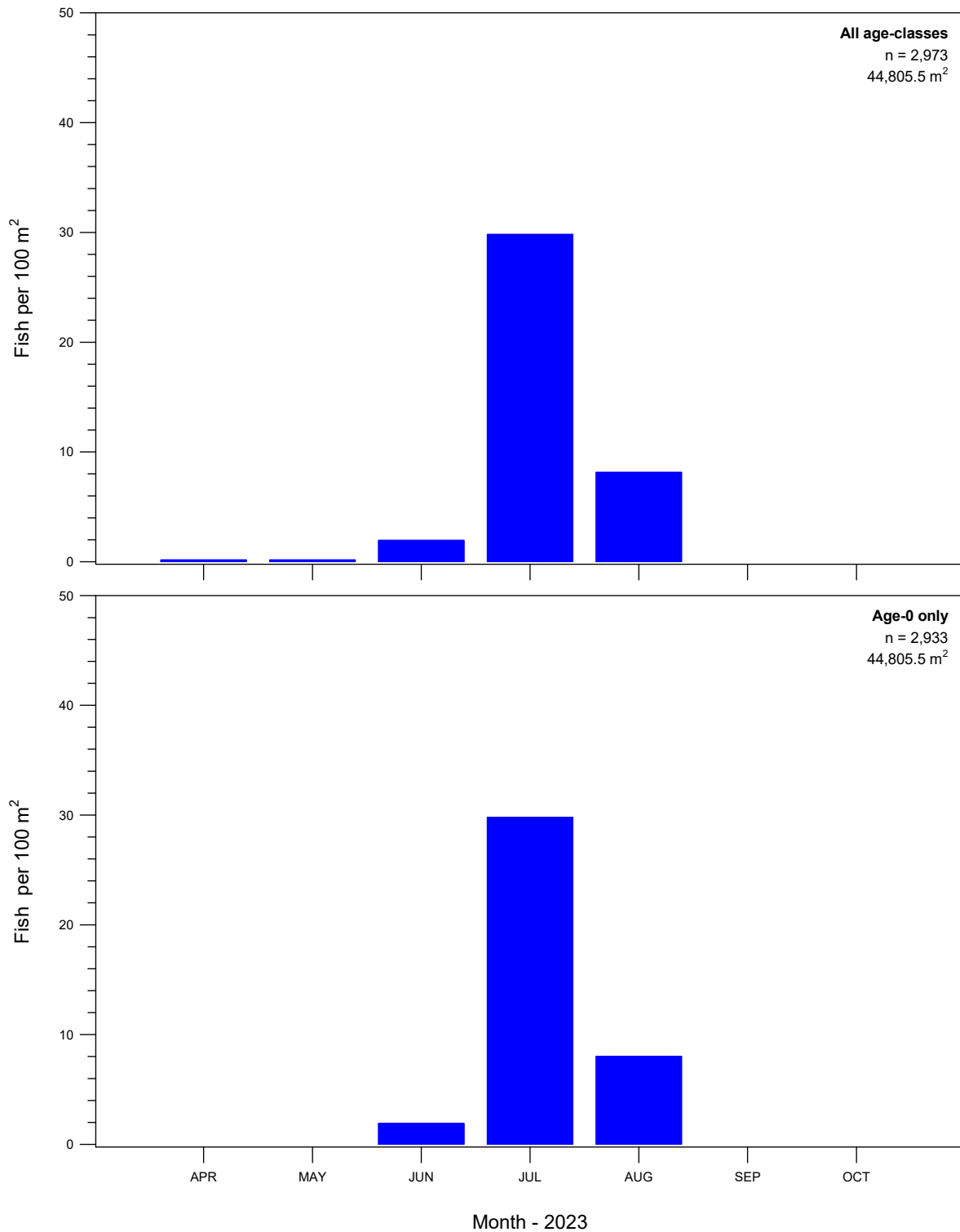


Figure 4. Rio Grande Silvery Minnow densities based on all sites, by age-class and month, during 2023. Marked and unmarked individuals were included.

Table 4. Ichthyofaunal summary based on standard sites, by species, during August 2023. Marked and unmarked Rio Grande Silvery Minnow were included. Dashes (-) indicate species that were absent during sampling.

Family	Common Name	Residence Status ¹	Total Number of Individuals	Percent (%) of Total	Frequency of Occurrence ²	% Frequency of Occurrence ²
Clupeidae	Gizzard Shad	N	31	0.42	4	20.00
Clupeidae	Threadfin Shad	I	-	-	-	-
Cyprinidae	Central Stoneroller	I	-	-	-	-
Cyprinidae	Goldfish	I	-	-	-	-
Cyprinidae	Red Shiner	N	1,699	23.20	19	95.00
Cyprinidae	Common Carp	I	1,360	18.57	19	95.00
Cyprinidae	Rio Grande Chub	N	-	-	-	-
Cyprinidae	Rio Grande Silvery Minnow	N	673	9.19	16	80.00
Cyprinidae	Golden Shiner	I	-	-	-	-
Cyprinidae	Fathead Minnow	N	100	1.37	10	50.00
Cyprinidae	Bullhead Minnow	I	-	-	-	-
Cyprinidae	Flathead Chub	N	134	1.83	10	50.00
Cyprinidae	Longnose Dace	N	69	0.94	4	20.00
Catostomidae	River Carpsucker	N	278	3.80	9	45.00
Catostomidae	White Sucker	I	123	1.68	7	35.00
Catostomidae	Smallmouth Buffalo	N	-	-	-	-
Ictaluridae	Black Bullhead	I	2	0.03	2	10.00
Ictaluridae	Yellow Bullhead	I	4	0.05	2	10.00
Ictaluridae	Blue Catfish	N	-	-	-	-
Ictaluridae	Channel Catfish	I	150	2.05	13	65.00
Ictaluridae	Flathead Catfish	N	-	-	-	-
Loricariidae	Vermiculated Sailfin Catfish	I	-	-	-	-
Esocidae	Northern Pike	I	1	0.01	1	5.00
Salmonidae	Rainbow Trout	I	-	-	-	-
Salmonidae	Brown Trout	I	-	-	-	-
Poeciliidae	Western Mosquitofish	I	2,673	36.50	19	95.00
Moronidae	White Bass	I	1	0.01	1	5.00
Moronidae	Striped Bass	I	-	-	-	-
Centrarchidae	Green Sunfish	I	1	0.01	1	5.00
Centrarchidae	Bluegill	N	-	-	-	-
Centrarchidae	Longear Sunfish	I	-	-	-	-
Centrarchidae	Smallmouth Bass	I	-	-	-	-
Centrarchidae	Largemouth Bass	I	12	0.16	7	35.00
Centrarchidae	White Crappie	I	11	0.15	6	30.00
Centrarchidae	Black Crappie	I	-	-	-	-
Percidae	Yellow Perch	I	-	-	-	-
Percidae	Bigscale Logperch	I	-	-	-	-
Percidae	Walleye	I	-	-	-	-
Sciaenidae	Freshwater Drum	N	1	0	1	5
Monthly Total			7,323	100.00		

¹ = Native (N) or introduced (I) species

² = Based on standard sites

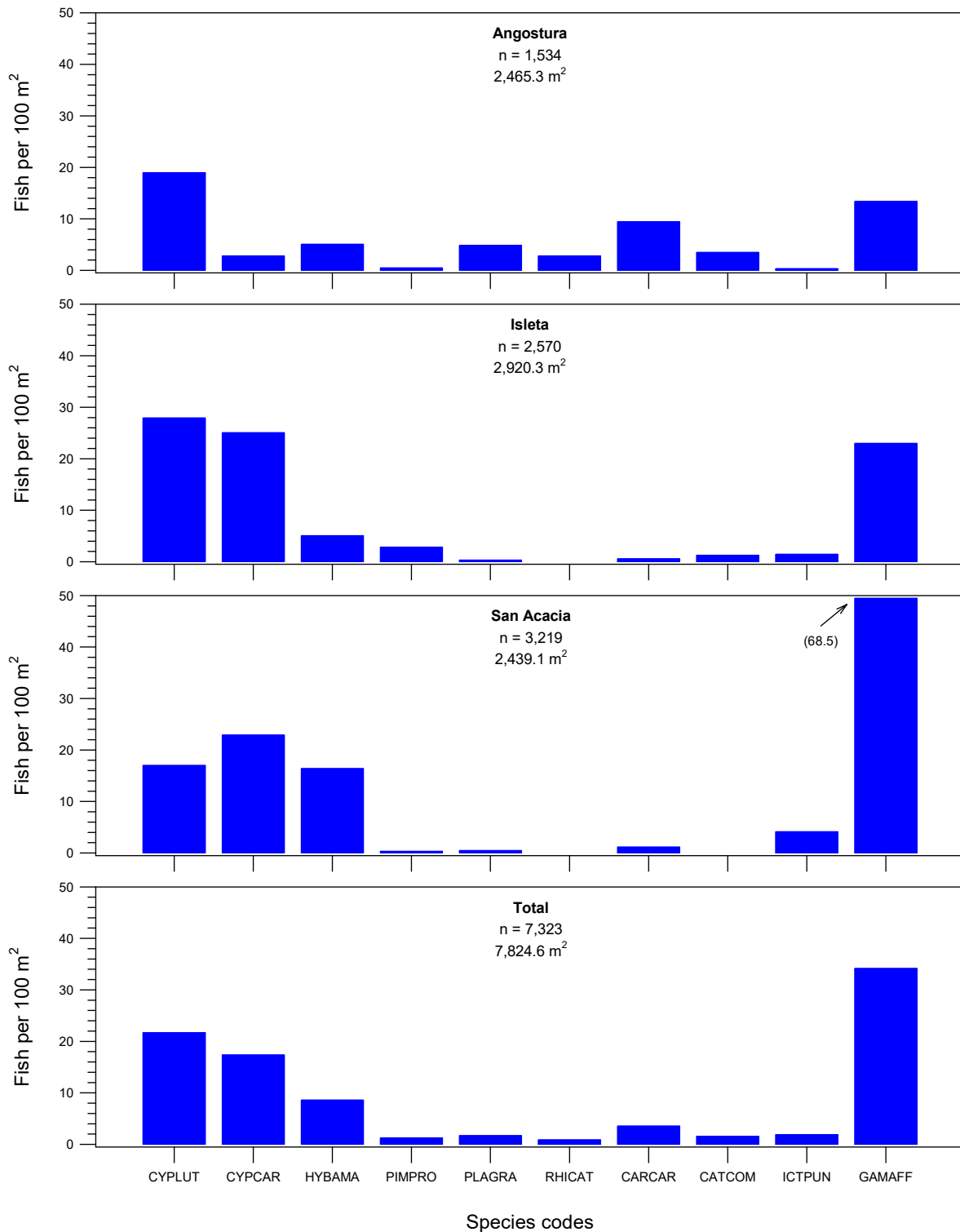


Figure 5. Fish densities based on standard sites, by reach and focal taxa, during August 2023. Marked and unmarked Rio Grande Silvery Minnow were included.

Table 5. Ichthyofaunal summary based on all sites, by species, during August 2023. Marked and unmarked Rio Grande Silvery Minnow were included. Dashes (-) indicate species that were absent during sampling.

Family	Common Name	Residence Status ¹	Total Number of Individuals	Percent (%) of Total	Frequency of Occurrence ²	% Frequency of Occurrence ²
Clupeidae	Gizzard Shad	N	35	0.45	5	23.81
Clupeidae	Threadfin Shad	I	-	-	-	-
Cyprinidae	Central Stoneroller	I	-	-	-	-
Cyprinidae	Goldfish	I	-	-	-	-
Cyprinidae	Red Shiner	N	1,958	24.90	20	95.24
Cyprinidae	Common Carp	I	1,414	17.99	20	95.24
Cyprinidae	Rio Grande Chub	N	-	-	-	-
Cyprinidae	Rio Grande Silvery Minnow	N	678	8.62	17	80.95
Cyprinidae	Golden Shiner	I	-	-	-	-
Cyprinidae	Fathead Minnow	N	100	1.27	10	47.62
Cyprinidae	Bullhead Minnow	I	-	-	-	-
Cyprinidae	Flathead Chub	N	139	1.77	11	52.38
Cyprinidae	Longnose Dace	N	69	0.88	4	19.05
Catostomidae	River Carpsucker	N	282	3.59	10	47.62
Catostomidae	White Sucker	I	123	1.56	7	33.33
Catostomidae	Smallmouth Buffalo	N	-	-	-	-
Ictaluridae	Black Bullhead	I	2	0.03	2	9.52
Ictaluridae	Yellow Bullhead	I	4	0.05	2	9.52
Ictaluridae	Blue Catfish	N	-	-	-	-
Ictaluridae	Channel Catfish	I	199	2.53	14	66.67
Ictaluridae	Flathead Catfish	N	-	-	-	-
Loricariidae	Vermiculated Sailfin Catfish	I	-	-	-	-
Esocidae	Northern Pike	I	1	0.01	1	4.76
Salmonidae	Rainbow Trout	I	-	-	-	-
Salmonidae	Brown Trout	I	-	-	-	-
Poeciliidae	Western Mosquitofish	I	2,831	36.01	20	95.24
Moronidae	White Bass	I	1	0.01	1	4.76
Moronidae	Striped Bass	I	-	-	-	-
Centrarchidae	Green Sunfish	I	1	0.01	1	4.76
Centrarchidae	Bluegill	N	-	-	-	-
Centrarchidae	Longear Sunfish	I	-	-	-	-
Centrarchidae	Smallmouth Bass	I	-	-	-	-
Centrarchidae	Largemouth Bass	I	13	0.17	8	38.10
Centrarchidae	White Crappie	I	11	0.14	6	28.57
Centrarchidae	Black Crappie	I	-	-	-	-
Percidae	Yellow Perch	I	-	-	-	-
Percidae	Bigscale Logperch	I	-	-	-	-
Percidae	Walleye	I	-	-	-	-
Sciaenidae	Freshwater Drum	N	1	0	1	5
Monthly Total			7,862	100.00		

¹ = Native (N) or introduced (I) species

² = Based on all sites

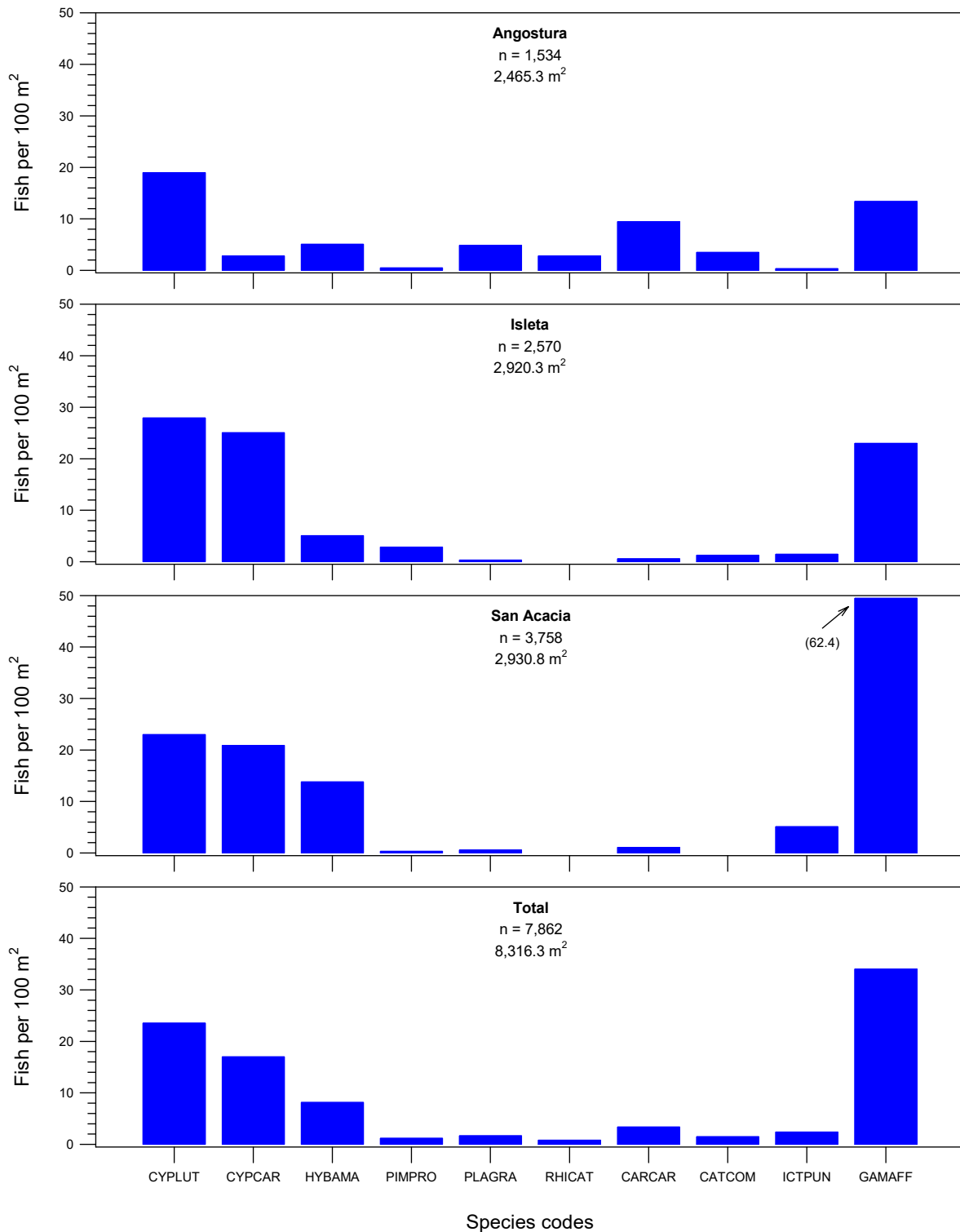


Figure 6. Fish densities based on all sites, by reach and focal taxa, during August 2023. Marked and unmarked Rio Grande Silvery Minnow were included.

Table 6. Ichthyofaunal summary based on all sites, by species and month, during 2023. Marked and unmarked Rio Grande Silvery Minnow were included.

Family	Common Name	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Clupeidae	Gizzard Shad	0	5	0	0	35	0	0	40
Clupeidae	Threadfin Shad	0	0	0	0	0	0	0	0
Cyprinidae	Central Stoneroller	0	0	0	0	0	0	0	0
Cyprinidae	Goldfish	0	0	0	0	0	0	0	0
Cyprinidae	Red Shiner	981	169	101	719	1,958	0	0	3,928
Cyprinidae	Common Carp	3	155	258	1,487	1,414	0	0	3,317
Cyprinidae	Rio Grande Chub	0	0	0	0	0	0	0	0
Cyprinidae	Rio Grande Silvery Minnow	21	4	130	2,140	678	0	0	2,973
Cyprinidae	Golden Shiner	0	0	0	0	0	0	0	0
Cyprinidae	Fathead Minnow	6	0	6	87	100	0	0	199
Cyprinidae	Bullhead Minnow	0	0	0	0	0	0	0	0
Cyprinidae	Flathead Chub	239	39	66	97	139	0	0	580
Cyprinidae	Longnose Dace	27	24	14	40	69	0	0	174
Catostomidae	River Carpsucker	0	0	1	26	282	0	0	309
Catostomidae	White Sucker	3	2	57	121	123	0	0	306
Catostomidae	Smallmouth Buffalo	0	0	14	2	0	0	0	16
Ictaluridae	Black Bullhead	0	0	0	9	2	0	0	11
Ictaluridae	Yellow Bullhead	0	0	1	0	4	0	0	5
Ictaluridae	Blue Catfish	0	0	13	10	0	0	0	23
Ictaluridae	Channel Catfish	130	10	4	1	199	0	0	344
Ictaluridae	Flathead Catfish	0	0	0	0	0	0	0	0
Loricariidae	Vermiculated Sailfin Catfish	0	0	0	0	0	0	0	0
Esocidae	Northern Pike	0	0	0	0	1	0	0	1
Salmonidae	Rainbow Trout	0	0	1	0	0	0	0	1
Salmonidae	Brown Trout	16	9	7	0	0	0	0	32
Poeciliidae	Western Mosquitofish	0	0	0	191	2,831	0	0	3,022
Moronidae	White Bass	0	0	0	15	1	0	0	16
Moronidae	Striped Bass	1	6	0	0	0	0	0	7
Centrarchidae	Green Sunfish	0	0	0	1	1	0	0	2
Centrarchidae	Bluegill	0	0	0	2	0	0	0	2
Centrarchidae	Longear Sunfish	0	0	0	0	0	0	0	0
Centrarchidae	Smallmouth Bass	0	0	0	1	0	0	0	1
Centrarchidae	Largemouth Bass	0	0	0	6	13	0	0	19
Centrarchidae	White Crappie	0	0	0	4	11	0	0	15
Centrarchidae	Black Crappie	0	0	0	0	0	0	0	0
Percidae	Yellow Perch	0	0	0	0	0	0	0	0
Percidae	Bigscale Logperch	0	0	0	0	0	0	0	0
Percidae	Walleye	0	0	0	0	0	0	0	0
Sciaenidae	Freshwater Drum	0	0	0	0	1	0	0	1
Monthly Totals		1,427	423	673	4,959	7,862	0	0	15,344

APPENDIX A (Sampling Sites)

Middle Rio Grande Fish Sampling Sites

Table A1. Sampling reaches and standard sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande.

Reach and Site	Locality
Angostura Reach	
1	New Mexico, Sandoval County, Rio Grande, just downstream of Angostura Diversion Dam, Algodones. River Mile: 209.9; UTM Easting: 363665; UTM Northing: 3916331; Zone: 13; Datum: NAD83
2	New Mexico, Sandoval County, Rio Grande, at US HWY 550 bridge crossing, Bernalillo. River Mile: 203.9; UTM Easting: 358457; UTM Northing: 3909887; Zone: 13; Datum: NAD83
3	New Mexico, Sandoval County, Rio Grande, ca. 4.0 mi downstream of US HWY 550 bridge crossing, Rio Rancho. River Mile: 199.9; UTM Easting: 354728; UTM Northing: 3905587; Zone: 13; Datum: NAD83
4	New Mexico, Bernalillo County, Rio Grande, at Central Ave. bridge crossing (US HWY 66), Albuquerque. River Mile: 183.4; UTM Easting: 346719; UTM Northing: 3884331; Zone: 13; Datum: NAD83
5	New Mexico, Bernalillo County, Rio Grande, at Rio Bravo Blvd. bridge crossing (NM State HWY 500), Albuquerque. River Mile: 178.4; UTM Easting: 347468; UTM Northing: 3877400; Zone: 13; Datum: NAD83
Isleta Reach	
6	New Mexico, Valencia County, Rio Grande, just upstream of NM State HWY 6 bridge crossing, Los Lunas. River Mile: 161.7; UTM Easting: 343149; UTM Northing: 3853187; Zone: 13; Datum: NAD83
7	New Mexico, Valencia County, Rio Grande, ca. 1.0 mi upstream of NM State HWY 309 bridge crossing, Belen. River Mile: 150.8; UTM Easting: 340105; UTM Northing: 3837722; Zone: 13; Datum: NAD83
8	New Mexico, Valencia County, Rio Grande, ca. 2.2 mi upstream of NM State HWY 346 bridge crossing, Jarales. River Mile: 143.2; UTM Easting: 338020; UTM Northing: 3827545; Zone: 13; Datum: NAD83
9	New Mexico, Socorro County, Rio Grande, at US HWY 60 bridge crossing, Bernardo. River Mile: 130.6; UTM Easting: 334578; UTM Northing: 3809921; Zone: 13; Datum: NAD83
10	New Mexico, Socorro County, Rio Grande, ca. 3.7 mi downstream of US HWY 60 bridge crossing, Bernardo. River Mile: 126.8; UTM Easting: 330946; UTM Northing: 3805307; Zone: 13; Datum: NAD83
11	New Mexico, Socorro County, Rio Grande, ca. 1.2 mi upstream of San Acacia Diversion Dam, San Acacia. River Mile: 117.3; UTM Easting: 328152; UTM Northing: 3792564; Zone: 13; Datum: NAD83

Table A1. Sampling reaches and standard sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande (continued).

Reach and Site	Locality
San Acacia Reach	
12	New Mexico, Socorro County, Rio Grande, just downstream of San Acacia Diversion Dam, San Acacia. River Mile: 115.6; UTM Easting: 325960; UTM Northing: 3792182; Zone: 13; Datum: NAD83
13	New Mexico, Socorro County, Rio Grande, ca. 1.5 mi downstream of San Acacia Diversion Dam, San Acacia. River Mile: 114.1; UTM Easting: 325390; UTM Northing: 3790397; Zone: 13; Datum: NAD83
14	New Mexico, Socorro County, Rio Grande, ca. 0.5 mi upstream of Socorro Low Flow Conveyance Channel bridge crossing, Socorro. River Mile: 99.6; UTM Easting: 327231; UTM Northing: 3771432; Zone: 13; Datum: NAD83
15	New Mexico, Socorro County, Rio Grande, ca. 4.5 mi upstream of US HWY 380 bridge crossing, San Antonio. River Mile: 92.0; UTM Easting: 328151; UTM Northing: 3761487; Zone: 13; Datum: NAD83
16	New Mexico, Socorro County, Rio Grande, at US HWY 380 bridge crossing, San Antonio. River Mile: 87.8; UTM Easting: 328907; UTM Northing: 3754926; Zone: 13; Datum: NAD83
17	New Mexico, Socorro County, Rio Grande, east of Bosque del Apache NWR headquarters, San Antonio. River Mile: 79.0; UTM Easting: 327219; UTM Northing: 3740906; Zone: 13; Datum: NAD83
18	New Mexico, Socorro County, Rio Grande, at San Marcial Railroad bridge crossing, San Marcial. River Mile: 68.3; UTM Easting: 315091; UTM Northing: 3728487; Zone: 13; Datum: NAD83
19	New Mexico, Socorro County, Rio Grande, ca. 8.0 mi downstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 60.1; UTM Easting: 309441; UTM Northing: 3718309; Zone: 13; Datum: NAD83
20	New Mexico, Socorro County, Rio Grande, ca. 10.0 mi downstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 58.5; UTM Easting: 307767; UTM Northing: 3716360; Zone: 13; Datum: NAD83

Table A2. Sampling reaches and additional sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande.

Reach and Site	Locality
Angostura Reach	
21	New Mexico, Sandoval County, Rio Grande, ca. 4.4 miles upstream of Alameda Blvd. (NM State Hwy. 528) bridge crossing, Corrales. River Mile: 196.6; UTM Easting: 355531; UTM Northing: 3900626; Zone: 13; Datum: NAD83
22	New Mexico, Sandoval County, Rio Grande, ca. 1.1 miles upstream of Alameda Blvd. (NM State Hwy. 528) bridge crossing, Corrales. River Mile: 193.1; UTM Easting: 351562; UTM Northing: 3897190; Zone: 13; Datum: NAD83
23	New Mexico, Bernalillo County, Rio Grande, ca. 1.0 miles downstream of Paseo del Norte Blvd. (NM State Hwy. 423) bridge crossing Albuquerque. River Mile: 190.0; UTM Easting: 349214; UTM Northing: 3893063; Zone: 13; Datum: NAD83
24	New Mexico, Bernalillo County, Rio Grande, ca. 1.1 miles upstream of I-40 bridge crossing, Albuquerque. River Mile: 186.1; UTM Easting: 346011; UTM Northing: 3887973; Zone: 13; Datum: NAD83
25	New Mexico, Bernalillo County, Rio Grande, ca. 1.5 miles upstream of I-25 bridge crossing, Isleta. River Mile: 174.0; UTM Easting: 345900; UTM Northing: 3870990; Zone: 13; Datum: NAD83
Isleta Reach	
26	New Mexico, Valencia County, Rio Grande, ca. 4.1 miles upstream of NM State Hwy. 6 bridge crossing, Los Lunas. River Mile: 165.2; UTM Easting: 342799; UTM Northing: 3858637; Zone: 13; Datum: NAD83
27	New Mexico, Valencia County, Rio Grande, ca. 6.2 miles upstream of NM State Hwy. 309 bridge crossing, Belen. River Mile: 156.0; UTM Easting: 340647; UTM Northing: 3845146; Zone: 13; Datum: NAD83
28	New Mexico, Socorro County, Rio Grande, ca. 6.3 miles upstream of U.S. Hwy. 60 bridge crossing, Bernardo. River Mile: 137.1; UTM Easting: 335554; UTM Northing: 3819543; Zone: 13; Datum: NAD83
29	New Mexico, Socorro County, Rio Grande, ca. 1.5 miles upstream of confluence with the Rio Salado, San Acacia. River Mile: 120.1; UTM Easting: 330498; UTM Northing: 3795053; Zone: 13; Datum: NAD83
San Acacia Reach	
30	New Mexico, Socorro County, Rio Grande, ca. 2.6 miles upstream of Pueblitos Rd. bridge crossing, Escondida. River Mile: 107.1; UTM Easting: 326303; UTM Northing: 3781123; Zone: 13; Datum: NAD83

Table A3. Sampling reaches and replacement sites for population monitoring of Rio Grande Silvery Minnow in the Middle Rio Grande.

Reach and Site	Locality
Isleta Reach	
44	New Mexico, Valencia County, Rio Grande, ca. 1.0 mi upstream of NM State HWY 309 bridge crossing, Belen. River Mile: 150.5; UTM Easting: 340084; UTM Northing: 3837308; Zone: 13; Datum: NAD83
San Acacia Reach	
51	New Mexico, Socorro County, Rio Grande, ca. 5.0 mi downstream of San Acacia Diversion Dam, San Acacia. River Mile: 110.8; UTM Easting: 325855; UTM Northing: 3786216; Zone: 13; Datum: NAD83
52	New Mexico, Socorro County, Rio Grande, ca. 2.2 mi. downstream of Pueblitos Rd. bridge crossing, Escondida. River Mile: 101.7; UTM Easting: 327091; UTM Northing: 3773950; Zone: 13; Datum: NAD83
53	New Mexico, Socorro County, Rio Grande, ca. 3.1 mi downstream of the Socorro Low Flow Conveyance Channel bridge crossing, Socorro. River Mile: 96.0; UTM Easting: 327933; UTM Northing: 3766570; Zone: 13; Datum: NAD83
54	New Mexico, Socorro County, Rio Grande, ca. 4.7 mi. downstream of Socorro LFCC bridge crossing, Socorro. River Mile: 94.2; UTM Easting: 327288; UTM Northing: 3764453; Zone: 13; Datum: NAD83
56	New Mexico, Socorro County, Rio Grande, ca. 2.1 miles upstream of San Antonio bridge crossing, San Antonio. River Mile: 89.3; UTM Easting: 329188; UTM Northing: 3758027; Zone: 13; Datum: NAD83
58	New Mexico, Socorro County, Rio Grande, ca. 1.8 mi. upstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 70.1; UTM Easting: 318083; UTM Northing: 3728535; Zone: 13; Datum: NAD83
59	New Mexico, Socorro County, Rio Grande, ca. 5.1 mi. downstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 63.3; UTM Easting: 313269; UTM Northing: 3721434; Zone: 13; Datum: NAD83
60	New Mexico, Socorro County, Rio Grande, ca. 6.4 mi. downstream of San Marcial Railroad bridge crossing, San Marcial. River Mile: 61.8; UTM Easting: 311422; UTM Northing: 3719873; Zone: 13; Datum: NAD83

APPENDIX B (Site-Specific Population Monitoring Data)

Site-specific data, collected in August 2023, as part of the
Rio Grande Silvery Minnow Population Monitoring Program
(Any blanks in this database output indicate null data)

** Data are provisional and should be verified by direct inspection of field data **

**Rio Grande Silvery Minnow Population Monitoring
 August 2023**

NEW MEXICO: SANDOVAL County, RIO GRANDE Drainage
 Rio Grande, just downstream of Angostura Diversion Dam, Algodones.
 Site Number: 1 River Mile: 209.9
 UTM Easting: 363665 UTM Northing: 3916331 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Camak, D.T.

RKD23-108

04 August 2023
 USGS Quad: San Felipe Pueblo
 Effort: 446.3 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	26
76	<i>Cyprinus carpio</i>	1
76	<i>Platygobio gracilis</i>	20
76	<i>Rhinichthys cataractae</i>	57
81	<i>Catostomus commersonii</i>	36
129	<i>Esox lucius</i>	1
212	<i>Gambusia affinis</i>	35
294	<i>Lepomis cyanellus</i>	1
294	<i>Micropterus salmoides</i>	3
294	<i>Pomoxis annularis</i>	4

NEW MEXICO: SANDOVAL County, RIO GRANDE Drainage
 Rio Grande, at US HWY 550 bridge crossing, Bernalillo.
 Site Number: 2 River Mile: 203.9
 UTM Easting: 358457 UTM Northing: 3909887 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Camak, D.T.

RKD23-109

04 August 2023
 USGS Quad: Bernalillo
 Effort: 464.0 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	110
76	<i>Cyprinus carpio</i>	15
76	<i>Hybognathus amarus*</i>	62
76	<i>Pimephales promelas</i>	1
76	<i>Platygobio gracilis</i>	25
76	<i>Rhinichthys cataractae</i>	8
81	<i>Carpionodes carpio</i>	7
81	<i>Catostomus commersonii</i>	24
93	<i>Ameiurus melas</i>	1
93	<i>Ameiurus natalis</i>	1
212	<i>Gambusia affinis</i>	73
294	<i>Micropterus salmoides</i>	1
294	<i>Pomoxis annularis</i>	1

***Hybognathus amarus (age-classes):**

age-0	56
age-1	6
age-2+	

**Rio Grande Silvery Minnow Population Monitoring
 August 2023**

NEW MEXICO: SANDOVAL County, RIO GRANDE Drainage
 Rio Grande, ca. 4.0 mi downstream of US HWY 550 bridge crossing, Rio Rancho.
 Site Number: 3 River Mile: 199.9
 UTM Easting: 354728 UTM Northing: 3905587 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Camak, D.T.

RKD23-110
 04 August 2023
 USGS Quad: Bernalillo
 Effort: 535.7 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	6
76	<i>Cyprinus carpio</i>	16
76	<i>Hybognathus amarus*</i>	19
76	<i>Pimephales promelas</i>	1
76	<i>Platygobio gracilis</i>	6
76	<i>Rhinichthys cataractae</i>	3
81	<i>Catostomus commersonii</i>	16
93	<i>Ictalurus punctatus</i>	3
212	<i>Gambusia affinis</i>	10
294	<i>Pomoxis annularis</i>	2

***Hybognathus amarus (age-classes):**
 age-0 19
 age-1
 age-2+

NEW MEXICO: BERNALILLO County, RIO GRANDE Drainage
 Rio Grande, at Central Ave. bridge crossing (US HWY 66), Albuquerque.
 Site Number: 4 River Mile: 183.4
 UTM Easting: 346719 UTM Northing: 3884331 Zone: 13
 Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S.

RKD23-107
 03 August 2023
 USGS Quad: Albuquerque West
 Effort: 530.1 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	207
76	<i>Cyprinus carpio</i>	20
76	<i>Hybognathus amarus*</i>	23
76	<i>Pimephales promelas</i>	6
76	<i>Platygobio gracilis</i>	65
76	<i>Rhinichthys cataractae</i>	1
81	<i>Carpionodes carpio</i>	200
81	<i>Catostomus commersonii</i>	9
93	<i>Ictalurus punctatus</i>	3
212	<i>Gambusia affinis</i>	10

***Hybognathus amarus (age-classes):**
 age-0 23
 age-1
 age-2+

**Rio Grande Silvery Minnow Population Monitoring
 August 2023**

NEW MEXICO: BERNALILLO County, RIO GRANDE Drainage
 Rio Grande, at Rio Bravo Blvd. bridge crossing (NM State HWY 500), Albuquerque.
 Site Number: 5 River Mile: 178.4
 UTM Easting: 347468 UTM Northing: 3877400 Zone: 13
 Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S.

RKD23-106
 03 August 2023
 USGS Quad: Albuquerque West
 Effort: 489.4 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	119
76	<i>Cyprinus carpio</i>	17
76	<i>Hybognathus amarus*</i>	21
76	<i>Pimephales promelas</i>	4
76	<i>Platygobio gracilis</i>	4
81	<i>Carpiodes carpio</i>	26
81	<i>Catostomus commersonii</i>	1
212	<i>Gambusia affinis</i>	202
294	<i>Pomoxis annularis</i>	1

***Hybognathus amarus (age-classes):**
 age-0 21
 age-1
 age-2+

NEW MEXICO: VALENCIA County, RIO GRANDE Drainage
 Rio Grande, just upstream of NM State HWY 6 bridge crossing, Los Lunas.
 Site Number: 6 River Mile: 161.7
 UTM Easting: 343149 UTM Northing: 3853187 Zone: 13
 Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S.

RKD23-105
 03 August 2023
 USGS Quad: Los Lunas
 Effort: 526.6 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	207
76	<i>Cyprinus carpio</i>	215
76	<i>Hybognathus amarus*</i>	13
76	<i>Pimephales promelas</i>	19
76	<i>Platygobio gracilis</i>	1
93	<i>Ictalurus punctatus</i>	4
212	<i>Gambusia affinis</i>	134

***Hybognathus amarus (age-classes):**
 age-0 13
 age-1
 age-2+

**Rio Grande Silvery Minnow Population Monitoring
 August 2023**

NEW MEXICO: VALENCIA County, RIO GRANDE Drainage
 Rio Grande, ca. 1.0 mi upstream of NM State HWY 309 bridge crossing, Belen.
 Site Number: 7 River Mile: 150.8
 UTM Easting: 340105 UTM Northing: 3837722 Zone: 13 USGS Quad: Tome
 Collector(s): Dudley, R.K.; Keller, R.C.; Winter, S.

RKD23-104
 03 August 2023
 Effort: 471.3 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	108
76	<i>Cyprinus carpio</i>	221
76	<i>Hybognathus amarus*</i>	104
76	<i>Pimephales promelas</i>	42
81	<i>Carpiodes carpio</i>	13
93	<i>Ameiurus natalis</i>	3
212	<i>Gambusia affinis</i>	401

***Hybognathus amarus (age-classes):**
 age-0 104
 age-1
 age-2+

NEW MEXICO: VALENCIA County, RIO GRANDE Drainage
 Rio Grande, ca. 2.2 mi upstream of NM State HWY 346 bridge crossing, Jarales.
 Site Number: 8 River Mile: 143.2
 UTM Easting: 338020 UTM Northing: 3827545 Zone: 13 USGS Quad: Veguita
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-103
 02 August 2023
 Effort: 493.0 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	29
76	<i>Cyprinus carpio</i>	52
76	<i>Hybognathus amarus*</i>	12
76	<i>Pimephales promelas</i>	21
81	<i>Carpiodes carpio</i>	2
93	<i>Ictalurus punctatus</i>	8
212	<i>Gambusia affinis</i>	20
294	<i>Micropterus salmoides</i>	3

***Hybognathus amarus (age-classes):**
 age-0 12
 age-1
 age-2+

**Rio Grande Silvery Minnow Population Monitoring
 August 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage
 Rio Grande, at US HWY 60 bridge crossing, Bernardo.
 Site Number: 9 River Mile: 130.6
 UTM Easting: 334578 UTM Northing: 3809921 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-102

02 August 2023
 USGS Quad: Abeytas
 Effort: 504.2 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	34
76	<i>Cyprinus carpio</i>	80
76	<i>Hybognathus amarus*</i>	10
76	<i>Pimephales promelas</i>	2
81	<i>Catostomus commersonii</i>	36
93	<i>Ictalurus punctatus</i>	25
212	<i>Gambusia affinis</i>	36
283	<i>Morone chrysops</i>	1
294	<i>Micropterus salmoides</i>	1

***Hybognathus amarus (age-classes):**

age-0 10
 age-1
 age-2+

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage
 Rio Grande, ca. 3.7 mi downstream of US HWY 60 bridge crossing, Bernardo.
 Site Number: 10 River Mile: 126.8
 UTM Easting: 330946 UTM Northing: 3805307 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-101

02 August 2023
 USGS Quad: Abeytas
 Effort: 512.9 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	7
76	<i>Cyprinella lutrensis</i>	26
76	<i>Cyprinus carpio</i>	145
76	<i>Hybognathus amarus*</i>	7
81	<i>Carpoides carpio</i>	2
81	<i>Catostomus commersonii</i>	1
212	<i>Gambusia affinis</i>	38
294	<i>Micropterus salmoides</i>	2

***Hybognathus amarus (age-classes):**

age-0 7
 age-1
 age-2+

**Rio Grande Silvery Minnow Population Monitoring
 August 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage
 Rio Grande, ca. 1.2 mi upstream of San Acacia Diversion Dam, San Acacia.
 Site Number: 11 River Mile: 117.3
 UTM Easting: 328152 UTM Northing: 3792564 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-100
 02 August 2023
 USGS Quad: La Joya
 Effort: 412.4 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	412
76	<i>Cyprinus carpio</i>	19
76	<i>Hybognathus amarus*</i>	2
76	<i>Platygobio gracilis</i>	1
93	<i>Ictalurus punctatus</i>	6
212	<i>Gambusia affinis</i>	43
294	<i>Pomoxis annularis</i>	2

***Hybognathus amarus (age-classes):**
 age-0 2
 age-1
 age-2+

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage
 Rio Grande, just downstream of San Acacia Diversion Dam, San Acacia.
 Site Number: 12 River Mile: 115.6
 UTM Easting: 325960 UTM Northing: 3792183 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-099
 02 August 2023
 USGS Quad: San Acacia
 Effort: 418.6 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	2
76	<i>Cyprinella lutrensis</i>	9
76	<i>Cyprinus carpio</i>	49
76	<i>Hybognathus amarus*</i>	117
76	<i>Pimephales promelas</i>	1
76	<i>Platygobio gracilis</i>	8
93	<i>Ictalurus punctatus</i>	6
212	<i>Gambusia affinis</i>	25
326	<i>Aplodinotus grunniens</i>	1

***Hybognathus amarus (age-classes):**
 age-0 114
 age-1 3
 age-2+

**Rio Grande Silvery Minnow Population Monitoring
 August 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage
 Rio Grande, ca. 1.5 mi downstream of San Acacia Diversion Dam, San Acacia.
 Site Number: 13 River Mile: 114.1
 UTM Easting: 325390 UTM Northing: 3790397 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-098
 01 August 2023
 USGS Quad: Lemitar
 Effort: 466.3 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	3
76	<i>Cyprinus carpio</i>	47
76	<i>Hybognathus amarus*</i>	153
93	<i>Ameiurus melas</i>	1
93	<i>Ictalurus punctatus</i>	14
212	<i>Gambusia affinis</i>	26
294	<i>Micropterus salmoides</i>	1
294	<i>Pomoxis annularis</i>	1

***Hybognathus amarus (age-classes):**
 age-0 153
 age-1
 age-2+

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage
 Rio Grande, ca. 0.5 mi upstream of Socorro Low Flow Conveyance Channel bridge crossing, Socorro.
 Site Number: 14 River Mile: 99.6
 UTM Easting: 327231 UTM Northing: 3771432 Zone: 13
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-097
 01 August 2023
 USGS Quad: Loma de las Canas
 Effort: 500.7 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	66
76	<i>Cyprinus carpio</i>	56
76	<i>Platygobio gracilis</i>	3
81	<i>Carpoides carpio</i>	1
93	<i>Ictalurus punctatus</i>	35
212	<i>Gambusia affinis</i>	44

**Rio Grande Silvery Minnow Population Monitoring
 August 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-111**
 Rio Grande, ca. 4.7 mi downstream of the Socorro Low Flow Conveyance Channel bridge crossing, Socorro.
 Site Number: 54 River Mile: 94.2 01 August 2023
 UTM Easting: 327241 UTM Northing: 3764475 Zone: 13 USGS Quad: Loma de las Canas
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C. Effort: 491.8 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	4
76	<i>Cyprinella lutrensis</i>	259
76	<i>Cyprinus carpio</i>	54
76	<i>Hybognathus amarus*</i>	5
76	<i>Platygobio gracilis</i>	5
81	<i>Carpiodes carpio</i>	4
93	<i>Ictalurus punctatus</i>	49
212	<i>Gambusia affinis</i>	158
294	<i>Micropterus salmoides</i>	1

***Hybognathus amarus (age-classes):**

age-0	5
age-1	
age-2+	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-096**
 Rio Grande, ca. 4.5 mi upstream of US HWY 380 bridge crossing, San Antonio.
 Site Number: 15 River Mile: 92.0 01 August 2023
 UTM Easting: 328151 UTM Northing: 3761487 Zone: 13 USGS Quad: San Antonio
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C. Effort: 34.6 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	13
76	<i>Cyprinella lutrensis</i>	283
76	<i>Cyprinus carpio</i>	186
76	<i>Hybognathus amarus*</i>	1
81	<i>Carpiodes carpio</i>	26
93	<i>Ictalurus punctatus</i>	2
212	<i>Gambusia affinis</i>	530
294	<i>Micropterus salmoides</i>	1

***Hybognathus amarus (age-classes):**

age-0	
age-1	1
age-2+	

**Rio Grande Silvery Minnow Population Monitoring
 July 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage

Rio Grande, at US HWY 380 bridge crossing, San Antonio.

Site Number: 16 River Mile: 87.8

UTM Easting: 328907 UTM Northing: 3754926 Zone: 13

Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-095

31 July 2023

USGS Quad: San Antonio

Effort: sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
	<i>Site Dry</i>	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage

Rio Grande, east of Bosque del Apache NWR headquarters, San Antonio.

Site Number: 17 River Mile: 79.0

UTM Easting: 327219 UTM Northing: 3740906 Zone: 13

Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-094

31 July 2023

USGS Quad: San Antonio SE

Effort: 5.5 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	1
76	<i>Cyprinus carpio</i>	35
76	<i>Hybognathus amarus*</i>	32
93	<i>Ictalurus punctatus</i>	1
212	<i>Gambusia affinis</i>	55

***Hybognathus amarus (age-classes):**

age-0	32
age-1	
age-2+	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage

Rio Grande, at San Marcial Railroad bridge crossing, San Marcial.

Site Number: 18 River Mile: 68.3

UTM Easting: 315091 UTM Northing: 3728487 Zone: 13

Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C.

RKD23-093

31 July 2023

USGS Quad: San Marcial

Effort: 22.7 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	2
76	<i>Cyprinus carpio</i>	16
76	<i>Hybognathus amarus*</i>	1
212	<i>Gambusia affinis</i>	377

***Hybognathus amarus (age-classes):**

age-0	1
age-1	
age-2+	

**Rio Grande Silvery Minnow Population Monitoring
 July 2023**

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-092**
 Rio Grande, ca. 8.0 mi downstream of San Marcial Railroad bridge crossing, San Marcial.
 Site Number: 19 River Mile: 60.1 31 July 2023
 UTM Easting: 309441 UTM Northing: 3718309 Zone: 13 USGS Quad: Paraje Well
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C. Effort: 476.6 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
69	<i>Dorosoma cepedianum</i>	9
76	<i>Cyprinella lutrensis</i>	11
76	<i>Cyprinus carpio</i>	121
76	<i>Hybognathus amarus*</i>	96
93	<i>Ictalurus punctatus</i>	1
212	<i>Gambusia affinis</i>	303

***Hybognathus amarus (age-classes):**

age-0	96
age-1	
age-2+	

NEW MEXICO: SOCORRO County, RIO GRANDE Drainage **RKD23-091**
 Rio Grande, ca. 10.0 mi downstream of San Marcial Railroad bridge crossing, San Marcial.
 Site Number: 20 River Mile: 58.5 31 July 2023
 UTM Easting: 307767 UTM Northing: 3716360 Zone: 13 USGS Quad: Paraje Well
 Collector(s): Dudley, R.K.; Urioste, A.D.; Keller, R.C. Effort: 514.1 sq. m

<u>Family</u>	<u>Species</u>	<u>Total</u>
76	<i>Cyprinella lutrensis</i>	40
76	<i>Cyprinus carpio</i>	49
76	<i>Pimephales promelas</i>	3
76	<i>Platygobio gracilis</i>	1
81	<i>Carpionodes carpio</i>	1
93	<i>Ictalurus punctatus</i>	42
212	<i>Gambusia affinis</i>	311