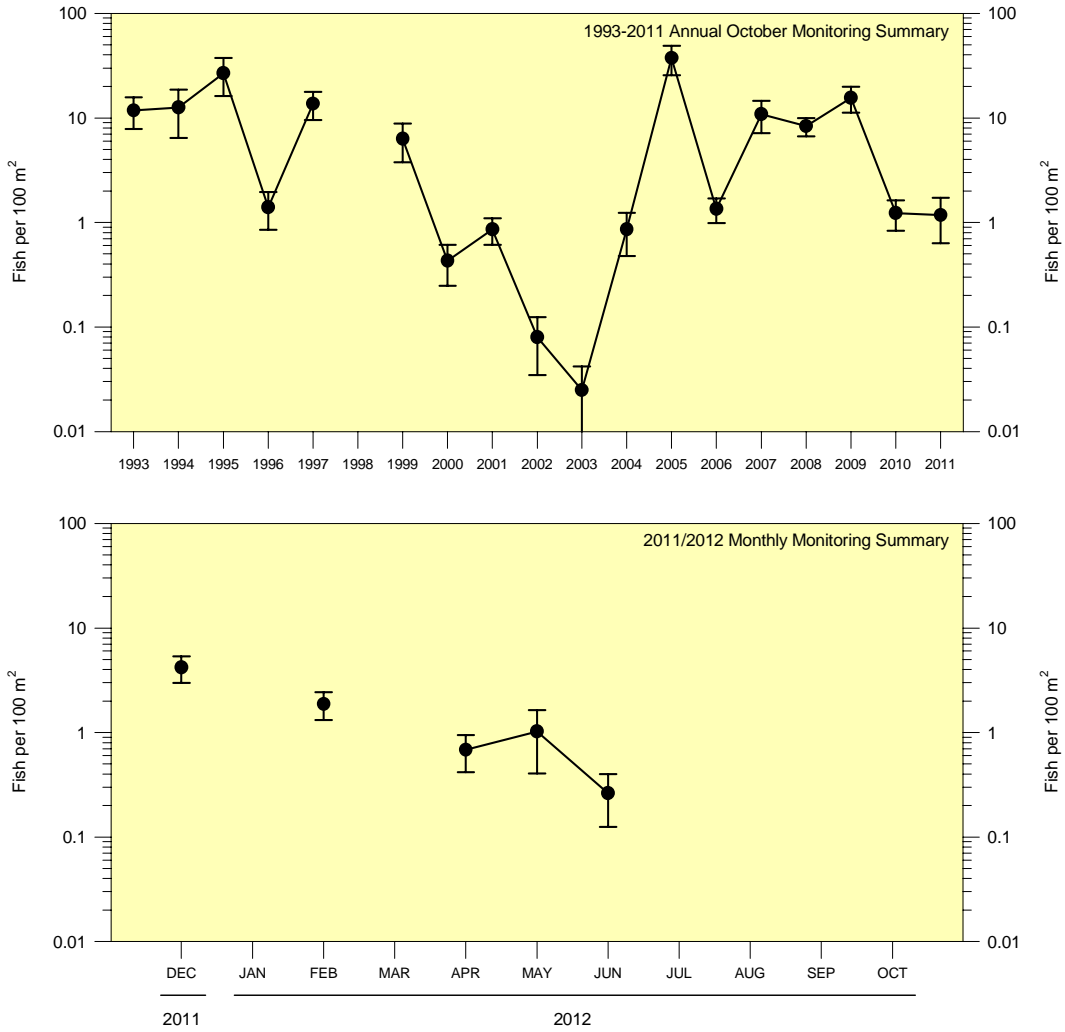


**SUMMARY OF THE RIO GRANDE SILVERY MINNOW
POPULATION MONITORING PROGRAM RESULTS FROM JUNE 2012**

**A MIDDLE RIO GRANDE ENDANGERED SPECIES ACT
COLLABORATIVE PROGRAM FUNDED RESEARCH PROJECT**



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16 July 2012

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POPULATION MONITORING PROGRAM RESULTS FROM JUNE 2012***

prepared for:

MIDDLE RIO GRANDE ENDANGERED SPECIES ACT COLLABORATIVE PROGRAM

under USBR contract:

Number R09PC40006

U.S. Bureau of Reclamation
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16 July 2012

SUMMARY OF OVERALL JUNE 2012 POPULATION MONITORING EFFORTS

The fifth sampling effort of the 2012 Rio Grande silvery minnow population monitoring program was conducted at 20 sites throughout the Middle Rio Grande. Five sites were located in the Angostura Reach, six sites in the Isleta Reach, and nine sites in the San Acacia Reach. A list of collection localities is appended (Table A-1).

Adult and juvenile fish were obtained by rapidly drawing a 3.1 m x 1.8 m small mesh (3/16th inch) seine through discrete mesohabitats. During appropriate times of the year, larval fish were collected with a 1.0 m x 1.0 m fine mesh (1/16th inch) seine. Rio Grande silvery minnow were counted and identified to age-class. Other fishes were identified to species and enumerated, but age-class was not determined. Figures illustrating catch rates (number of fish per 100 m² sampled) were prepared for the ten focal species, including Rio Grande silvery minnow, to facilitate comparisons among reaches.

During June 2012, sampling covered 9,459.2 m² (surface area) of water and yielded 4,520 fish. Cumulative fish density during June was 47.8 individuals/100 m² sampled as compared with 56.6 individuals/100 m² sampled in May 2012. Rio Grande silvery minnow was the eighth-most abundant taxon in June (N = 24; 0.3 individuals/100 m² sampled) and composed 0.5% of the total catch. Other common species included red shiner (N = 2,867), flathead chub (N = 475), and river carpsucker (N = 347). The June cumulative catch of Rio Grande silvery minnow was comprised mostly of individuals from the San Acacia Reach (N = 21), with lesser numbers in the Angostura Reach (N = 2) and Isleta Reach (N = 1). Rio Grande silvery minnow was present in 17 of the 269 seine hauls that yielded fish during June 2012, as compared with 31 of the 286 seine hauls that yielded fish during May 2012.

SUMMARY OF JUNE 2012 POPULATION MONITORING EFFORT BY RIVER REACH

Angostura Reach

Mean daily discharge in the Angostura Reach (Rio Grande at Albuquerque, NM; USGS Gauge 08330000) ranged from 509 cfs to 742 cfs from 16 May to 15 June, and was lower compared with the period from 16 April to 15 May 2012 (range = 624 cfs to 1,150 cfs). Water temperatures were moderate (range = 18.2 to 20.0 °C) during the Angostura Reach sampling efforts (ca. 0830 h to 1430 h); temperatures during June 2012 sampling were warmer than those recorded in May 2012 (range = 14.7 to 17.7 °C). The water clarity was low to moderate throughout the reach; Secchi disk measurements ranged from 22 cm (Site #4) to 35 cm (Site #0).

Sampling for fishes in the Angostura Reach during June 2012 yielded 897 individuals as compared with 541 individuals observed in May 2012. The overall sampling effort in the Angostura Reach covered 2,628.1 m² (surface area) of water. Densities in the Angostura Reach, for all fish species combined, ranged from 22.6 to 60.8 individuals per 100 m². Fourteen fish species were collected during June as compared to eight species in May. White sucker was the most abundant taxon (N = 309), followed by red shiner (N = 234), and river carpsucker (N=134).

In June, Rio Grande silvery minnow density in the Angostura Reach was 0.1 individuals per 100 m² as compared with 0.1 individuals per 100 m² during May 2012. Densities of Rio Grande silvery minnow at sites within the Angostura Reach ranged from 0.0 to 0.2 individuals per 100 m². A single Rio Grande silvery minnow was observed at Site #1 and Site #3. Rio Grande silvery minnow collected in the Angostura Reach appeared to be age-1 individuals, based on their lengths.

Isleta Reach

In the Isleta Reach, mean daily discharge (Rio Grande at Isleta Lakes near Isleta, NM; USGS Gauge 08354900) ranged from 516 to 707 cfs from 16 May to 15 June, which was lower as compared to that recorded during the period from 16 April to 15 May 2012 (range = 650 to 1,270 cfs). Water temperatures ranged from 18.9 to 28.7 °C throughout the sampling localities during the day (0930 h to 1600 h); temperatures in June 2012 were similar as compared to May 2012 (range = 18.7 to 26.1 °C).

The water varied somewhat in turbidity throughout the reach; Secchi disk readings ranged from 14 to 25 cm during sampling.

The Isleta Reach produced the highest number of fish in any given reach. There were 2,682 individuals collected in June 2012 as compared with 4,111 individuals collected in May 2012. The total sampling effort in the Isleta Reach during June 2012 covered 2,750.4 m² (surface area) of water. Fish densities (all species combined) at the six sites ranged from 44.2 to 165.4 individuals per 100 m² sampled. Ten fish species were collected in the Isleta Reach during June 2012. Red shiner was the most abundant taxon (N = 2,270), followed by flathead chub (N = 183), and western mosquitofish (N = 155).

In June, Rio Grande silvery minnow density in the Isleta Reach was <0.1 individuals per 100 m² as compared with 0.6 individuals per 100 m² during May 2012. Densities of Rio Grande silvery minnow at sites within the Isleta Reach ranged from 0.0 to 1.5 individuals per 100 m². The highest number of Rio Grande silvery minnow was observed at Site #5 (N = 1). The single Rio Grande silvery minnow collected in the Isleta Reach appeared to be an age-1 individual, based on its length.

San Acacia Reach

Flow at San Acacia (Rio Grande Floodway at San Acacia, NM; USGS Gauge 08354900) from 16 May to 15 June was higher (range = 137 to 462 cfs) as compared to San Marcial (Rio Grande Floodway at San Marcial, NM; USGS Gauge 08358400) during the same period (range = 32 to 227 cfs). Water temperatures in June for the San Acacia Reach ranged from 21.5 to 31.6 °C (ca. 0930 h to 1500 h); which was warmer as compared with May 2012 (range = 19.6 to 22.7 °C). Water turbidity was relatively low throughout the reach (16 to 38 cm Secchi disk readings among all sites).

Population monitoring efforts in the San Acacia Reach during June 2012 yielded 941 individuals as compared with 950 individuals collected during May 2012. Sampling in the San Acacia Reach covered an area of 4,080.8 m² of water during June 2012. Fish densities (all species combined) ranged from 3.6 to 72.3 individuals per 100 m² sampled in the San Acacia Reach. Of the twelve fish species collected in the San Acacia Reach, red shiner was the most abundant taxon (N = 363), followed by flathead chub (N = 253), and river carpsucker (N = 173).

During June 2012, San Acacia Reach density of Rio Grande silvery minnow was 0.5 individuals per 100 m² as compared with 2.0 individuals per 100 m² during May 2012. The highest number of Rio Grande silvery minnow was observed at Site #15 (N = 12). Rio Grande silvery minnow densities at sites within the San Acacia Reach ranged from 0.0 to 2.7 individuals per 100 m². Rio Grande silvery minnow collected in the San Acacia Reach appeared to be primarily age-1 individuals, based on their lengths.

Conclusions

During the June 2012 sampling effort, Rio Grande silvery minnow was present at 9 of the 20 sampling sites in the Middle Rio Grande, New Mexico. Rio Grande silvery minnow was most common in the San Acacia Reach, followed by the Angostura Reach, and the Isleta Reach. Catch rates of Rio Grande silvery minnow were variable among sampling sites but overall densities were generally low (0.0 to 0.9 individuals per 100 m²) with the exception of Site #15 (2.7 individuals per 100 m²). Based on standard length measurements, most Rio Grande silvery minnow collected were age-1 fish. Large numbers of hatchery-reared Rio Grande silvery minnow were released at sites in both the Isleta and San Acacia reaches during November 2011. These stocked fish were collected at four of our sampling sites during June 2012 and composed half (N = 12) of Rio Grande silvery minnow collected. The low number of Rio Grande silvery minnow collected during June appears to indicate that there was poor recruitment following spawning in May. While there may continue to be small episodes of spawning by Rio Grande silvery minnow later in the summer, it is likely that overall densities of this species will remain low in 2012.

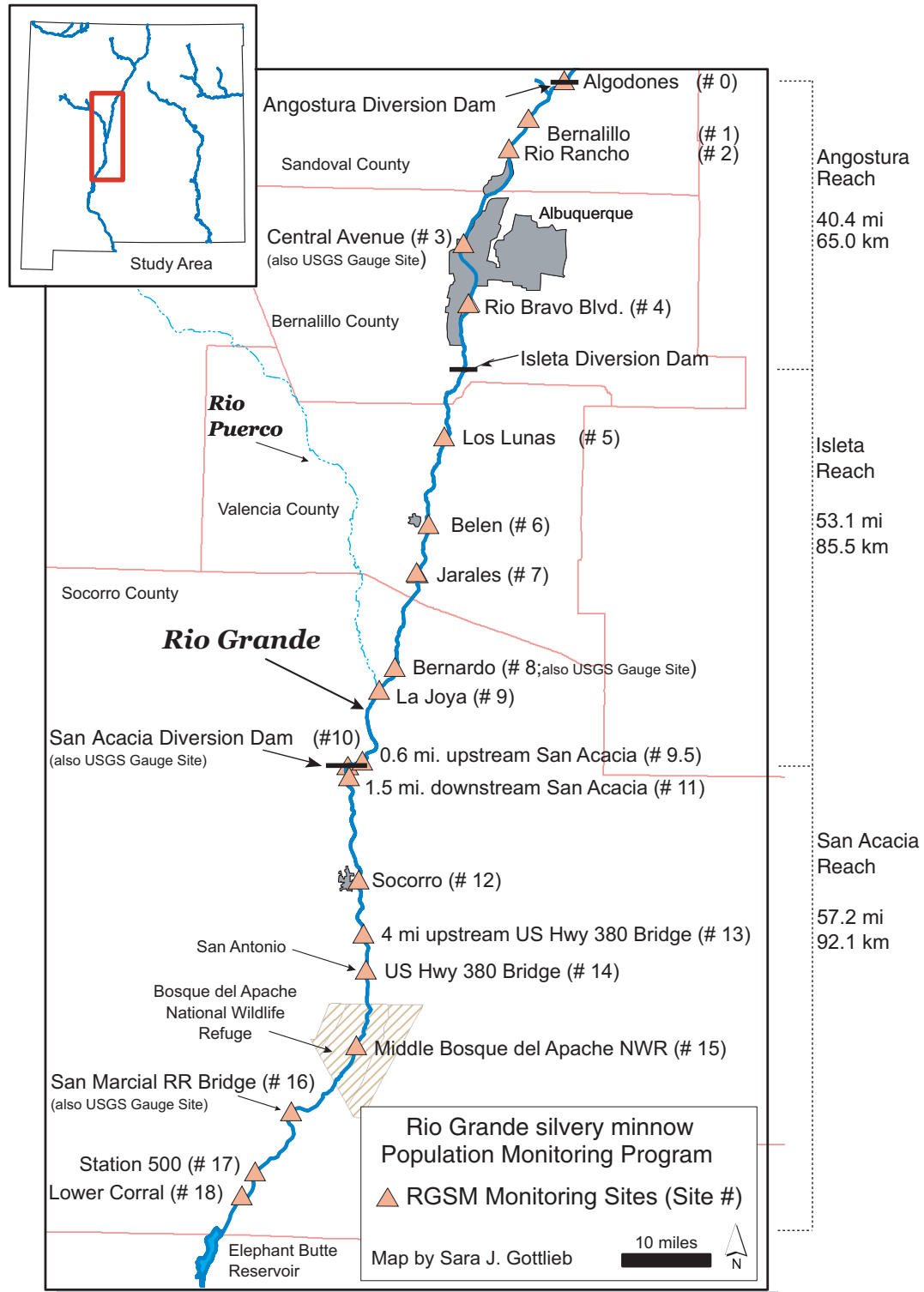


Figure 1. Map of the study area and sampling localities (numbered) for the Rio Grande silvery minnow population monitoring program. Sampling locality information that correspond with the numbered localities are provided in Appendix A (Table A-1).

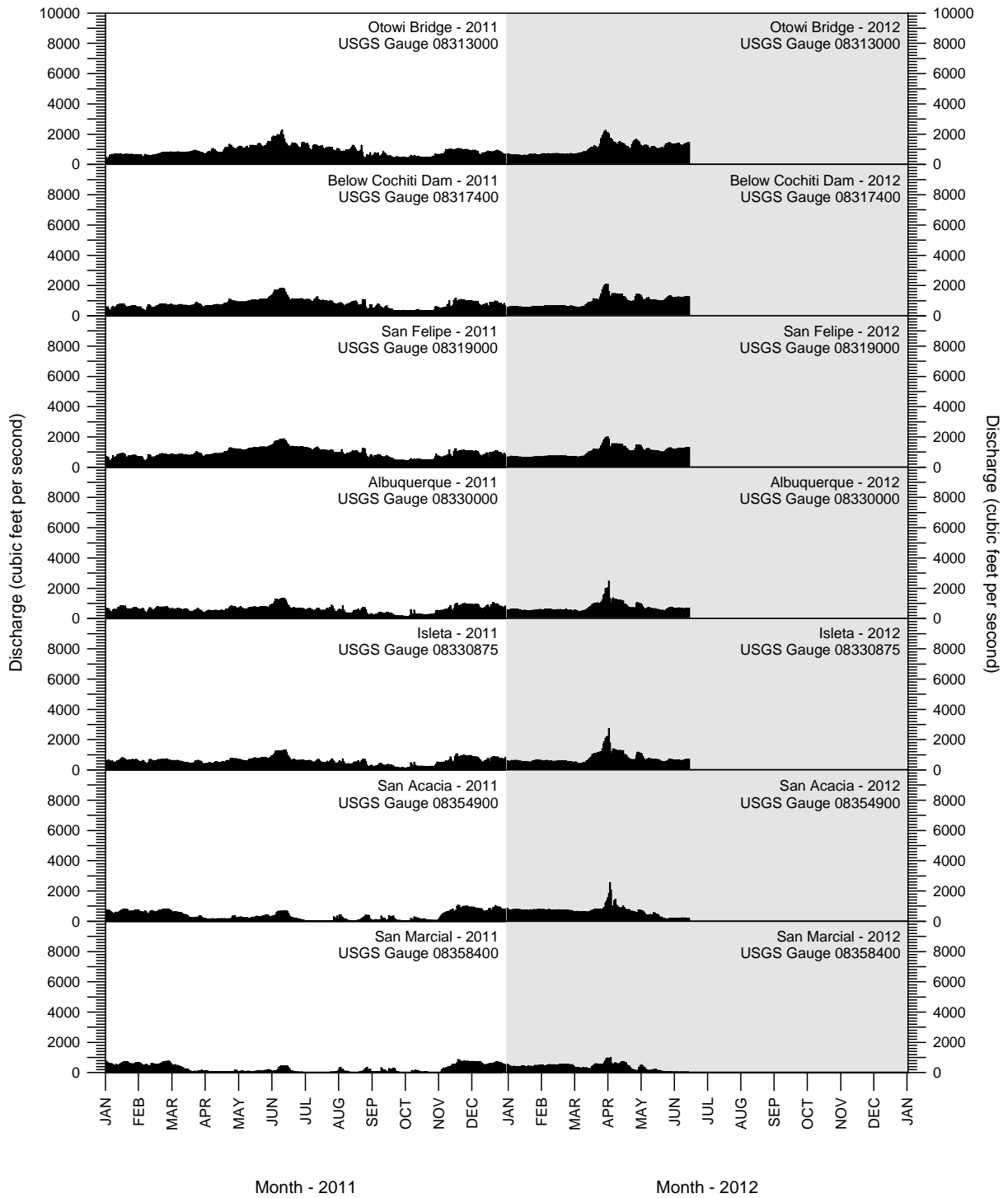


Figure 2. Discharge in the Rio Grande from 1 January 2011 through 15 June 2012 as recorded at seven U. S. Geological Survey (USGS) gauge stations. The Otowi Bridge gauge site is outside of the study area (ca. 25.5 river miles upstream of Cochiti Dam) and provided for reference. **Discharge data are provisional and subject to change.

Table 1. Scientific and common names and species codes of fish collected in the Middle Rio Grande during the Rio Grande silvery minnow population monitoring program (since 1993).

| Scientific Name | Common Name | 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>Carpiodes 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) |
| Order Salmoniformes | | |
| Family Salmonidae | | |
| | trouts and salmons | |
| <i>Oncorhynchus mykiss</i> | rainbow trout | (ONCMYK) |
| <i>Salmo trutta</i> | brown trout | (SALTRU) |

Table 1. Scientific and common names and species codes of fish collected in the Middle Rio Grande during the Rio Grande silvery minnow population monitoring program (since 1993).

| Scientific Name | Common Name | Code |
|-------------------------------------|-----------------------------------|----------|
| 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) |
| Order Perciformes | | |
| 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 | |
| <i>Perca flavescens</i> | yellow perch | (PERFLA) |
| <i>Percina macrolepida</i> | bigscale logperch | (PERMAC) |
| <i>Sander vitreus</i> | walleye | (SANVIT) |

¹ Focal taxa represent the most abundant species present in recent Middle Rio Grande collections; these species are illustrated in monthly plots of data.

Table 2. Summary of the June 2012 Rio Grande silvery minnow population monitoring program results (species list is based on fish collected since 1993).

| FAMILY | SPECIES COMMON NAME | RESIDENCE STATUS ¹ | TOTAL NUMBER OF SPECIMENS | PERCENT (%) OF TOTAL | FREQUENCY OF OCCURRENCE ² | % FREQUENCY OCCURRENCE ² |
|---------------|---------------------------|----------------------------------|------------------------------|-------------------------|-----------------------------------------|----------------------------------------|
| Clupeidae | gizzard shad | N | - | - | - | - |
| Clupeidae | threadfin shad | I | - | - | - | - |
| Cyprinidae | central stoneroller | I | - | - | - | - |
| Cyprinidae | goldfish | I | - | - | - | - |
| Cyprinidae | red shiner | N | 2,867 | 63.43 | 20 | 100 |
| Cyprinidae | common carp | I | 20 | 0.44 | 10 | 50 |
| Cyprinidae | Rio Grande chub | N | - | - | - | - |
| Cyprinidae | Rio Grande silvery minnow | N | 24 | 0.53 | 9 | 45 |
| Cyprinidae | golden shiner | I | - | - | - | - |
| Cyprinidae | fathead minnow | N | 68 | 1.5 | 13 | 65 |
| Cyprinidae | bullhead minnow | I | - | - | - | - |
| Cyprinidae | flathead chub | N | 475 | 10.51 | 15 | 75 |
| Cyprinidae | longnose dace | N | 47 | 1.04 | 4 | 20 |
| Catostomidae | river carpsucker | N | 347 | 7.68 | 17 | 85 |
| Catostomidae | white sucker | I | 334 | 7.39 | 11 | 55 |
| Catostomidae | smallmouth buffalo | N | 5 | 0.11 | 2 | 10 |
| Ictaluridae | black bullhead | I | - | - | - | - |
| Ictaluridae | yellow bullhead | I | 1 | 0.02 | 1 | 5 |
| Ictaluridae | blue catfish | N | 1 | 0.02 | 1 | 5 |
| Ictaluridae | channel catfish | I | 3 | 0.07 | 3 | 15 |
| Ictaluridae | flathead catfish | N | - | - | - | - |
| Salmonidae | rainbow trout | I | - | - | - | - |
| Salmonidae | brown trout | I | - | - | - | - |
| Poeciliidae | western mosquitofish | I | 311 | 6.88 | 15 | 75 |
| Moronidae | white bass | I | - | - | - | - |
| Moronidae | striped bass | I | - | - | - | - |
| Centrarchidae | green sunfish | I | 2 | 0.04 | 1 | 5 |
| Centrarchidae | bluegill | N | - | - | - | - |
| Centrarchidae | longear sunfish | I | - | - | - | - |
| Centrarchidae | smallmouth bass | I | - | - | - | - |
| Centrarchidae | largemouth bass | I | 1 | 0.02 | 1 | 5 |
| Centrarchidae | white crappie | I | 1 | 0.02 | 1 | 5 |
| Centrarchidae | black crappie | I | - | - | - | - |
| Percidae | yellow perch | I | 11 | 0.24 | 1 | 5 |
| Percidae | bigscale logperch | I | - | - | - | - |
| Percidae | walleye | I | 2 | 0.04 | 2 | 10 |
| TOTAL | | | 4,520 | | | |

¹ N = native; I = introduced

² Frequency and % frequency of occurrence are based on n=20 sample sites

Table 3. Summary of the monthly 2011/2012 Rio Grande silvery minnow population monitoring program results (species list is based on fish collected since 1993).

| FAMILY | SPECIES COMMON NAME | D E C | F E B | A P R | M A Y | J U N | J U L | A U G | S E P | O C T | T O C T O B E R |
|-----------------------|---------------------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|--------------------------------------|
| Clupeidae | gizzard shad | 1 | - | 8 | 3 | 0 | - | - | - | - | 12 |
| Clupeidae | threadfin shad | - | - | - | - | - | - | - | - | - | 0 |
| Cyprinidae | central stoneroller | - | - | - | - | - | - | - | - | - | 0 |
| Cyprinidae | goldfish | - | - | - | - | - | - | - | - | - | 0 |
| Cyprinidae | red shiner | 1,876 | 1,339 | 2,073 | 4,890 | 2,867 | - | - | - | - | 13,045 |
| Cyprinidae | common carp | 7 | 1 | 14 | 4 | 20 | - | - | - | - | 46 |
| Cyprinidae | Rio Grande chub | - | - | - | - | - | - | - | - | - | 0 |
| Cyprinidae | Rio Grande silvery minnow | 395 | 201 | 64 | 108 | 24 | - | - | - | - | 792 |
| Cyprinidae | golden shiner | - | - | - | - | - | - | - | - | - | 0 |
| Cyprinidae | fathead minnow | 96 | 4 | 59 | 94 | 68 | - | - | - | - | 321 |
| Cyprinidae | bullhead minnow | 2 | - | 1 | - | - | - | - | - | - | 3 |
| Cyprinidae | flathead chub | 151 | 41 | 83 | 140 | 475 | - | - | - | - | 890 |
| Cyprinidae | longnose dace | 2 | - | 6 | 20 | 47 | - | - | - | - | 75 |
| Catostomidae | river carpsucker | 105 | 10 | 20 | 92 | 347 | - | - | - | - | 574 |
| Catostomidae | white sucker | - | - | 46 | 88 | 334 | - | - | - | - | 468 |
| Catostomidae | smallmouth buffalo | - | - | - | 1 | 5 | - | - | - | - | 6 |
| Ictaluridae | black bullhead | - | - | - | - | - | - | - | - | - | 0 |
| Ictaluridae | yellow bullhead | 1 | - | 1 | - | 1 | - | - | - | - | 3 |
| Ictaluridae | blue catfish | - | - | - | 4 | 1 | - | - | - | - | 5 |
| Ictaluridae | channel catfish | 50 | 26 | 43 | 16 | 3 | - | - | - | - | 138 |
| Ictaluridae | flathead catfish | - | - | - | - | - | - | - | - | - | 0 |
| Salmonidae | rainbow trout | - | - | - | - | - | - | - | - | - | 0 |
| Salmonidae | brown trout | - | - | - | - | - | - | - | - | - | 0 |
| Poeciliidae | western mosquitofish | 126 | 51 | 88 | 140 | 311 | - | - | - | - | 716 |
| Moronidae | white bass | - | - | - | - | - | - | - | - | - | 0 |
| Moronidae | striped bass | - | - | - | - | - | - | - | - | - | 0 |
| Centrarchidae | green sunfish | - | - | - | - | 2 | - | - | - | - | 2 |
| Centrarchidae | bluegill | 1 | - | 3 | - | - | - | - | - | - | 4 |
| Centrarchidae | longear sunfish | - | - | - | - | - | - | - | - | - | 0 |
| Centrarchidae | smallmouth bass | - | - | - | - | - | - | - | - | - | 0 |
| Centrarchidae | largemouth bass | - | - | - | - | 1 | - | - | - | - | 1 |
| Centrarchidae | white crappie | - | 4 | - | 2 | 1 | - | - | - | - | 7 |
| Centrarchidae | black crappie | - | - | - | - | - | - | - | - | - | 0 |
| Percidae | yellow perch | - | - | 1 | - | 11 | - | - | - | - | 12 |
| Percidae | bigscale logperch | - | - | - | - | - | - | - | - | - | 0 |
| Percidae | walleye | - | - | - | - | 2 | - | - | - | - | 2 |
| MONTHLY TOTALS | | 2,813 | 1,677 | 2,510 | 5,602 | 4,520 | 0 | 0 | 0 | 0 | 17,122 |

Table 4. Summary of the monthly catch of Rio Grande silvery minnow, by site and reach, during the 2011/2012 Rio Grande silvery minnow population monitoring program. Numerals in parenthesis are the number of individuals in a site collection that were marked (subset of the total).

| REACH | SITE # | SITE NAME | D E C | F E B | A P R | M A Y | J U N | J U L | A U G | S E P | O C T | T O T A L |
|-----------------------|--------|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------------|
| Angostura | 0 | Angostura Dam | - | - | 1 | - | - | - | - | - | - | 1 |
| Angostura | 1 | Bernalillo | - | - | - | - | 1 | - | - | - | - | 1 |
| Angostura | 2 | Rio Rancho | 2 | - | 3 | 1 | - | - | - | - | - | 6 |
| Angostura | 3 | Central Ave. | 1 | - | 5 | 2 | 1 | - | - | - | - | 9 |
| Angostura | 4 | Rio Bravo Blvd. | 5 | - | 1 | - | - | - | - | - | - | 6 |
| Angostura Totals | | | 8 | 0 | 10 | 3 | 2 | 0 | 0 | 0 | 0 | 23 |
| Isleta | 5 | Los Lunas | 13 | 50 | 11 | 4 | 1 | - | - | - | - | 79 |
| Isleta | 6 | Belen | 19 | 5 | 3 | 7(1) | - | - | - | - | - | 34 |
| Isleta | 7 | Jarales | 46 | 3 | 1 | 2 | - | - | - | - | - | 52 |
| Isleta | 8 | Bernardo | 9(2) | - | - | - | - | - | - | - | - | 9 |
| Isleta | 9 | La Joya | 16(11) | 4(4) | 1 | 3(2) | - | - | - | - | - | 24 |
| Isleta | 9.5 | North of San Acacia | 38(34) | 2(2) | - | - | - | - | - | - | - | 40 |
| Isleta Totals | | | 141 | 64 | 16 | 16 | 1 | 0 | 0 | 0 | 0 | 238 |
| San Acacia | 10 | San Acacia Dam | 35(35) | 7(7) | - | 71(59) | 1(1) | - | - | - | - | 114 |
| San Acacia | 11 | South of San Acacia | 36(36) | 7(7) | 26(16) | 8(7) | 4(1) | - | - | - | - | 81 |
| San Acacia | 12 | Socorro | - | 6(5) | - | 2 | - | - | - | - | - | 8 |
| San Acacia | 13 | North of San Antonio | - | 23(23) | - | 2(2) | - | - | - | - | - | 25 |
| San Acacia | 14 | San Antonio | - | 18(18) | 3(2) | - | 2(1) | - | - | - | - | 23 |
| San Acacia | 15 | South of San Antonio | 5(5) | 20(19) | - | 3(2) | 12(9) | - | - | - | - | 40 |
| San Acacia | 16 | San Marcial | 6 | 7 | - | 3 | 1 | - | - | - | - | 17 |
| San Acacia | 17 | South of San Marcial 1 | 91 | 29(2) | 7(2) | - | - | - | - | - | - | 127 |
| San Acacia | 18 | South of San Marcial 2 | 73(53) | 20(2) | 2(1) | - | 1 | - | - | - | - | 96 |
| San Acacia Totals | | | 246 | 137 | 38 | 89 | 21 | 0 | 0 | 0 | 0 | 531 |
| MONTHLY TOTALS | | | 395 | 201 | 64 | 108 | 24 | 0 | 0 | 0 | 0 | 792 |

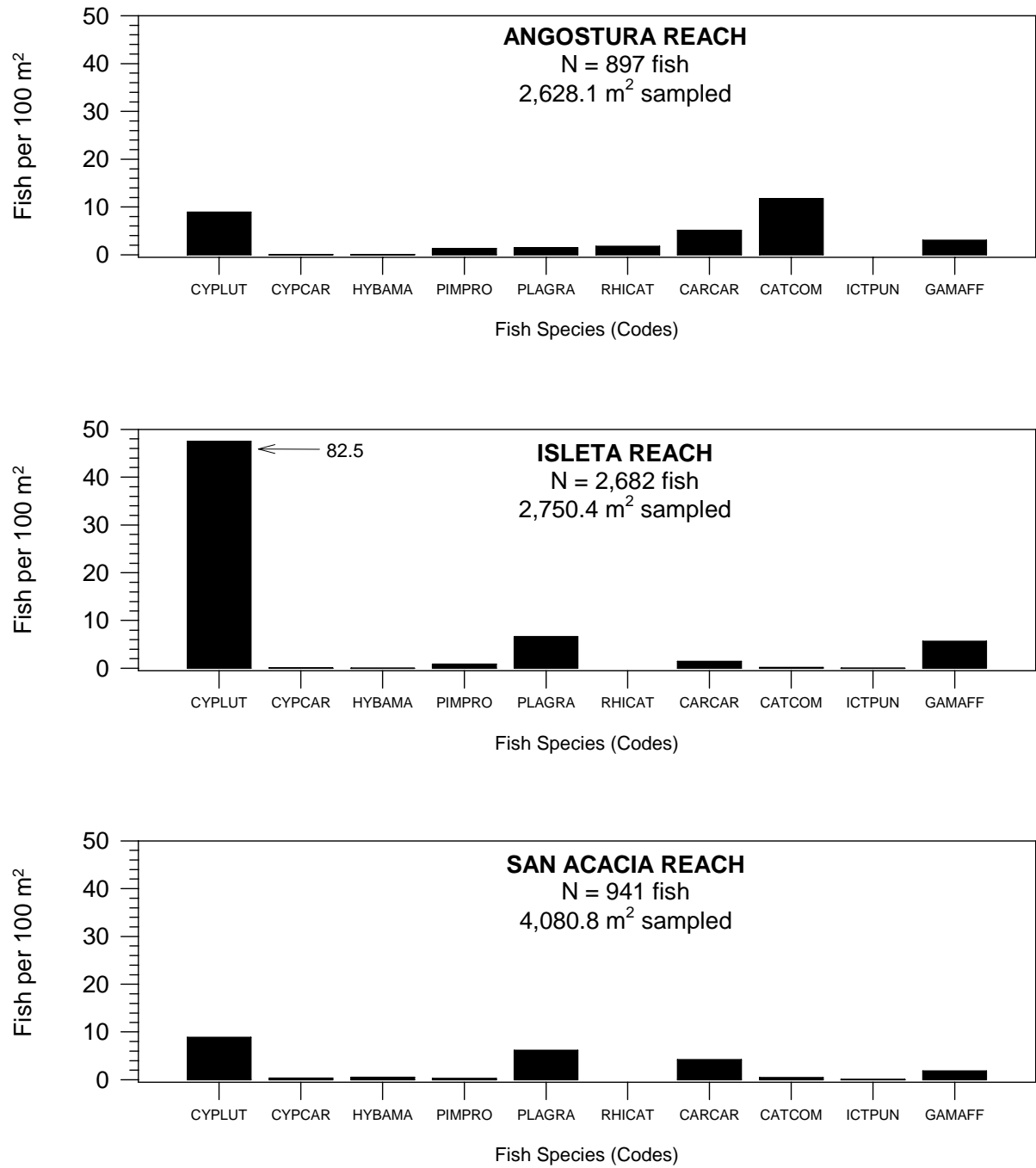


Figure 3. Catch rates, for the 10 focal species, by river reach during June 2012 at Rio Grande silvery minnow population monitoring program collection sites (see Table 1 for fish species codes).

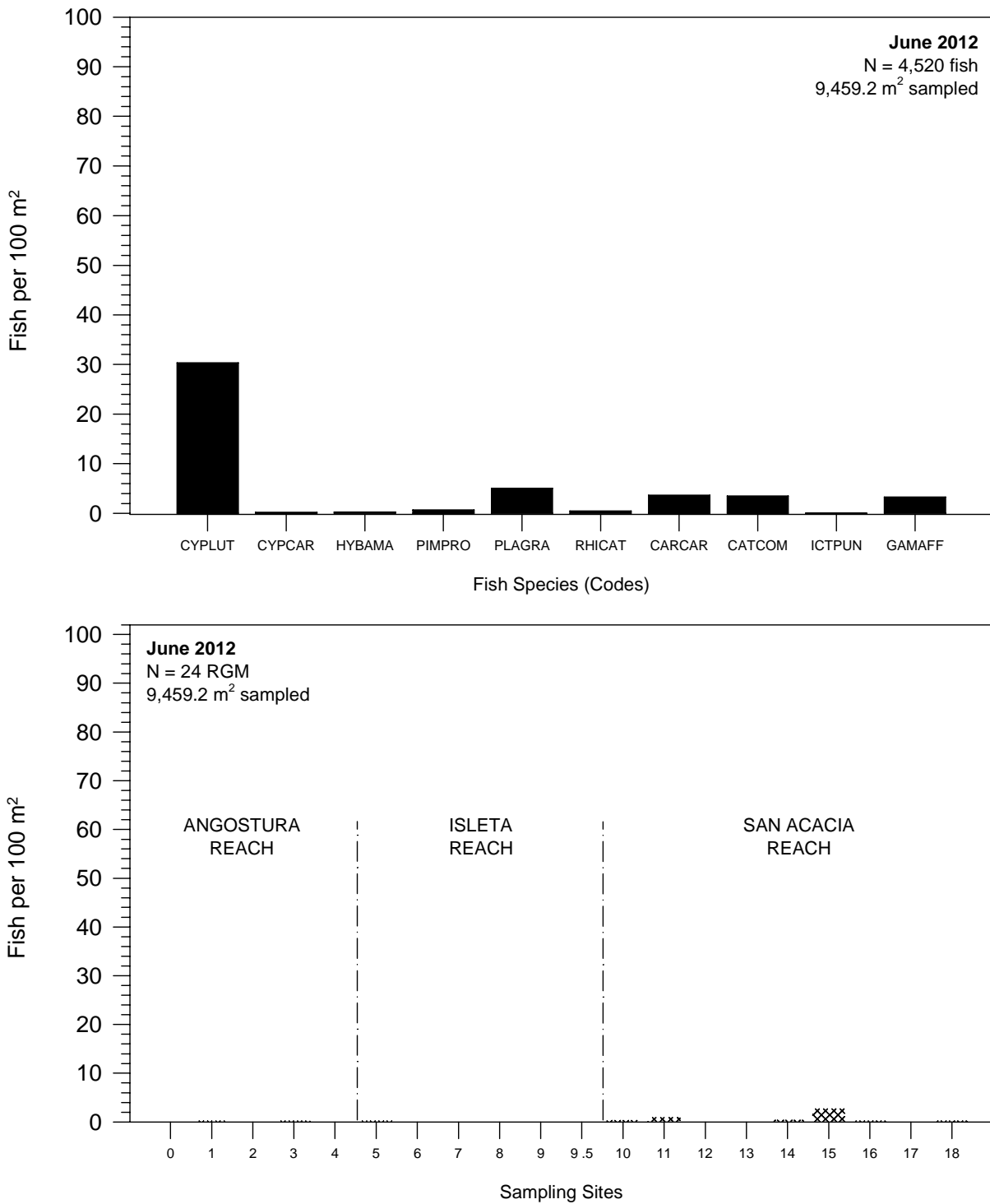


Figure 4. Catch rates for ten focal species (upper graph*), including Rio Grande silvery minnow, (RGM; lower graph*) during June 2012 at Rio Grande silvery minnow population monitoring program collection sites (see Table 1 for fish species codes).

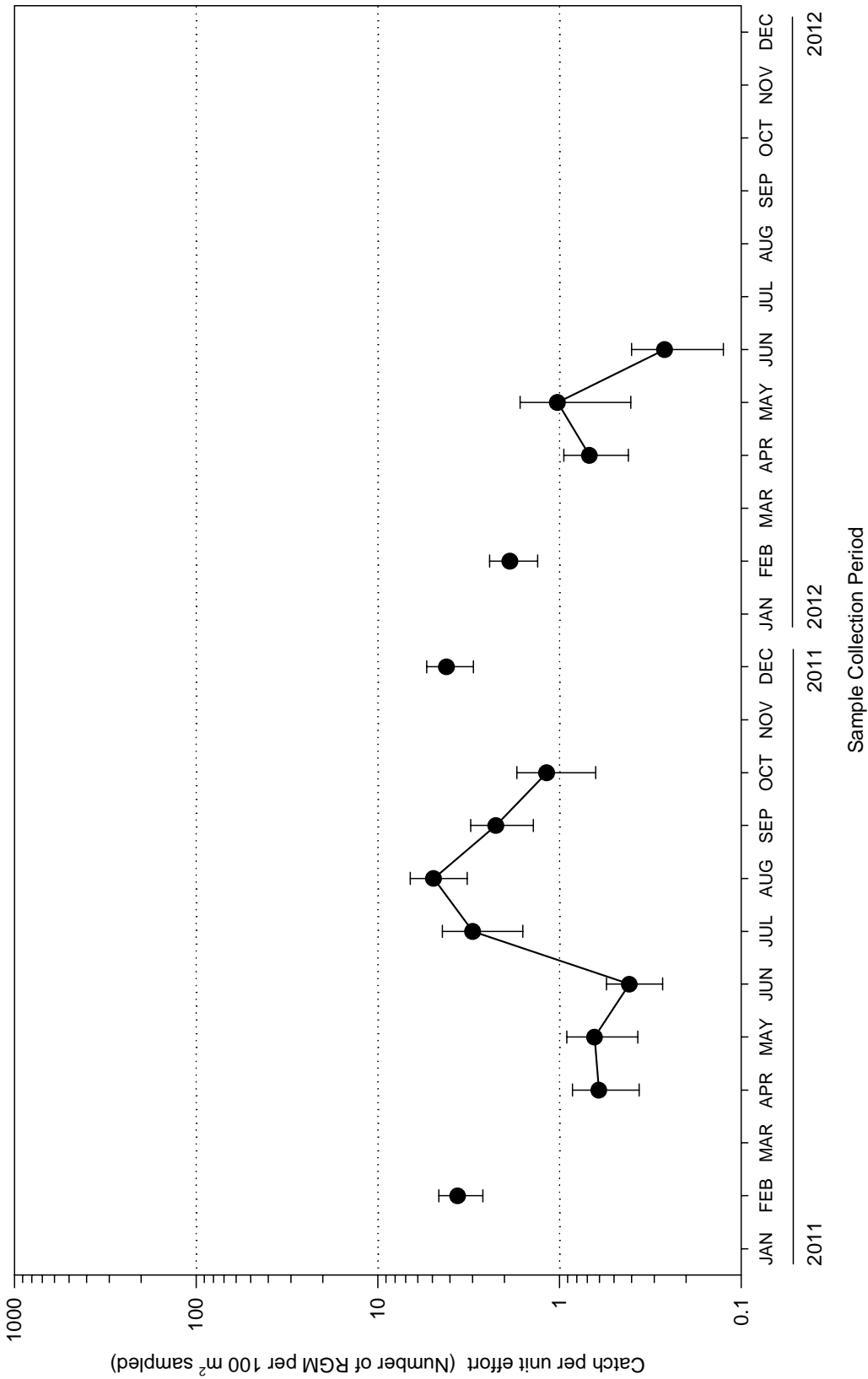


Figure 5. Monthly catch rates of Rio Grande silvery minnow during 2011 and 2012 at Rio Grande silvery minnow population monitoring program collection sites. Solid circles indicate monthly means (n=20 site per month) and capped-bars represent the standard error of the mean.

APPENDIX A.

Collection localities of the Rio Grande silvery minnow population monitoring program.

Table A-1. Collection localities of the Rio Grande silvery minnow population monitoring program.

| Site # | Site Locality |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANGOSTURA REACH SITES | |
| SITE # | |
| 0 | New Mexico, Sandoval County, Rio Grande, below Angostura Diversion Dam, Algodones. River Mile 209.7 3916006 N SAN FELIPE PUEBLO QUADRANGLE 363811 E |
| 1 | New Mexico, Sandoval County, Rio Grande, at US Highway 550 bridge crossing, (formerly NM State Highway 44 bridge crossing), Bernalillo. River Mile 203.8 3909722 N BERNALILLO QUADRANGLE 358543 E |
| 2 | New Mexico, Sandoval County, Rio Grande, ca. 4 miles downstream of US Highway 550 bridge crossing, at Rio Rancho Wastewater Treatment Plant, Rio Rancho. River Mile 200.0 3905355 N BERNALILLO QUADRANGLE 354772 E |
| 3 | New Mexico, Bernalillo County, Rio Grande, at Central Avenue (US Highway 66) bridge crossing, Albuquerque. River Mile 183.4 3884094 N ALBUQUERQUE WEST QUADRANGLE 346840 E |
| 4 | New Mexico, Bernalillo County, Rio Grande, at Rio Bravo Boulevard bridge crossing, Albuquerque. River Mile 178.3 3877163 N ALBUQUERQUE WEST QUADRANGLE 347554 E |
| ISLETA REACH SITES | |
| SITE # | |
| 5 | New Mexico, Valencia County, Rio Grande, at Los Lunas (NM State Highway 49) bridge crossing, Los Lunas. River Mile 161.4 3852531 N LOS LUNAS QUADRANGLE 342898 E |
| 6 | New Mexico, Valencia County, Rio Grande, ca. 1.0 miles upstream of NM State Highway 309/6 bridge crossing, Belen. River Mile 151.5 3837061 N TOME QUADRANGLE 339972 E |
| 7 | New Mexico, Valencia County, Rio Grande, ca. 2.2 miles upstream of NM State Highway 346 bridge crossing (near Transwestern Natural Gas Pipeline crossing), Jarales. River Mile 143.2 3827329 N VEGUITA QUADRANGLE 338136 E |

Table A-1. Collection localities of the Rio Grande silvery minnow population monitoring program (continued).

| Site # | Site Locality |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISLETA REACH SITES (continued) | |
| SITE # | |
| 8 | New Mexico, Socorro County, Rio Grande, at US Highway 60 bridge crossing, Bernardo. River Mile 130.6 3809726 N ABEYTAS QUADRANGLE 334604 E |
| 9 | New Mexico, Socorro County, Rio Grande, ca. 3.5 miles downstream of US Highway 60 bridge crossing, La Joya. River Mile 127.0 3805229 N ABEYTAS QUADRANGLE 331094 E |
| 9.5 | New Mexico, Socorro County, Rio Grande, ca. 0.6 miles upstream of San Acacia Diversion Dam, San Acacia. River Mile 116.8 3792603 N LA JOYA QUADRANGLE 327902 E |
| SAN ACACIA REACH SITES | |
| SITE # | |
| 10 | New Mexico, Socorro County, Rio Grande, directly below San Acacia Diversion Dam, San Acacia. River Mile 116.2 3791977 N SAN ACACIA QUADRANGLE 326162 E |
| 11 | New Mexico, Socorro County, Rio Grande, ca. 1.5 miles downstream of San Acacia Diversion Dam, San Acacia. River Mile 114.6 3790442 N LEMITAR QUADRANGLE 325263 E |
| 12 | New Mexico, Socorro County, Rio Grande, 0.5 miles upstream of the Low Flow Conveyance Channel bridge, east and upstream of Socorro Wastewater Treatment Plant, Socorro. River Mile 99.5 3771043 N LOMA DE LAS CANAS QUADRANGLE 327097 E |
| 13 | New Mexico, Socorro County, Rio Grande, ca. 4.0 miles upstream of US Highway 380 bridge crossing, San Antonio. River Mile 91.7 3761283 N SAN ANTONIO QUADRANGLE 328140 E |
| 14 | New Mexico, Socorro County, Rio Grande, at US Highway 380 bridge crossing, San Antonio. River Mile 87.1 3754471 N SAN ANTONIO QUADRANGLE 328914 E |

Table A-1. Collection localities of the Rio Grande silvery minnow population monitoring program (continued).

| Site # | Site Locality |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SAN ACACIA REACH SITES (continued) | |
| SITE # | |
| 15 | New Mexico, Socorro County, Rio Grande, directly east of Bosque del Apache National Wildlife Refuge headquarters, San Antonio. River Mile 79.1 SAN ANTONIO, SE QUADRANGLE 3740839 N 327055 E |
| 16 | New Mexico, Socorro County, Rio Grande, at the San Marcial railroad crossing, San Marcial. River Mile 68.6 SAN MARCIAL QUADRANGLE 3728347 N 315284 E |
| 17 | New Mexico, Socorro County, Rio Grande, at its former confluence with the Low Flow Conveyance Channel and 16 miles downstream of the southern end of the Bosque del Apache National Wildlife Refuge, San Marcial. River Mile 60.5 PARAJE WELL QUADRANGLE 3718178 N 309487 E |
| 18 | New Mexico, Socorro County, Rio Grande, ca. 10 miles downstream of the San Marcial Railroad Bridge crossing, San Marcial. River Mile 58.8 PARAJE WELL QUADRANGLE 3716150 N 307846 E |

APPENDIX B.

Ichthyofaunal composition of the June 2012
Rio Grande silvery minnow population monitoring efforts

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

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: SANDOVAL Co., RIO GRANDE Drainage
Rio Grande, directly below Angostura Diversion Dam, Algodones.
05 June 2012
UTM Easting: 363811 UTM Northing: 3916006 Zone: 13
R.K.Dudley, W.H.Brandenburg, J.L.Hester

Site Number: 0
River Mile: 209.7
Effort: 519.6 sq. m

RKD12-078

Quad: San Felipe Pueblo

| FAMILY | | N |
|---------------|-------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 74 |
| 76 | <i>Pimephales promelas</i> | 1 |
| 76 | <i>Rhinichthys cataractae</i> | 42 |
| 81 | <i>Catostomus commersoni</i> | 196 |
| 212 | <i>Gambusia affinis</i> | 1 |
| 294 | <i>Lepomis cyanellus</i> | 2 |

NEW MEXICO: SANDOVAL Co., RIO GRANDE Drainage
Rio Grande, at US HWY 550 (formerly NM State HWY 44) bridge crossing, Bernalillo.
05 June 2012
UTM Easting: 358543 UTM Northing: 3909722 Zone: 13
R.K.Dudley, W.H.Brandenburg, J.L.Hester

Site Number: 1
River Mile: 203.8
Effort: 554.1 sq. m

RKD12-079

Quad: Bernalillo

| FAMILY | | N |
|---------------|-------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 64 |
| 76 | <i>Hybognathus amarus*</i> | 1 |
| 76 | <i>Platygobio gracilis</i> | 15 |
| 76 | <i>Rhinichthys cataractae</i> | 3 |
| 81 | <i>Catostomus commersoni</i> | 42 |

*** *Hybognathus amarus* by age class:**

age-0:
age-1: 1
age-2:

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: SANDOVAL Co., RIO GRANDE Drainage

Rio Grande, ca. 4.0 miles downstream of US HWY 550 (formerly NM State HWY 44)
bridge crossing, at Rio Rancho Wastewater Treatment Plant, Rio Rancho.

Site Number: 2

River Mile: 200.0

05 June 2012

RKD12-080

UTM Easting: 354772 UTM Northing: 3905355 Zone: 13 Quad: Bernalillo

R.K.Dudley, W.H.Brandenburg, J.L.Hester

Effort: 463.7 sq. m

| FAMILY | | N |
|---------------|-------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 52 |
| 76 | <i>Pimephales promelas</i> | 6 |
| 76 | <i>Platygobio gracilis</i> | 2 |
| 76 | <i>Rhinichthys cataractae</i> | 1 |
| 81 | <i>Carpiodes carpio</i> | 16 |
| 81 | <i>Catostomus commersoni</i> | 62 |
| 93 | <i>Ameiurus natalis</i> | 1 |
| 212 | <i>Gambusia affinis</i> | 2 |
| 294 | <i>Pomoxis annularis</i> | 1 |
| 295 | <i>Perca flavescens</i> | 11 |

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: BERNALILLO Co., RIO GRANDE Drainage

Rio Grande, at Central Avenue bridge crossing (US HWY 66), Albuquerque.

Site Number: 3

05 June 2012

RKD12-077

River Mile: 183.4

UTM Easting: 346840 UTM Northing: 3884094 Zone: 13 Quad: Albuquerque West

R.K.Dudley, W.H.Brandenburg, J.L.Hester

Effort: 517.8 sq. m

| FAMILY | | N |
|---------------|------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 23 |
| 76 | <i>Cyprinus carpio</i> | 1 |
| 76 | <i>Hybognathus amarus*</i> | 1 |
| 76 | <i>Pimephales promelas</i> | 2 |
| 76 | <i>Platygobio gracilis</i> | 22 |
| 81 | <i>Carpionodes carpio</i> | 99 |
| 81 | <i>Catostomus commersoni</i> | 6 |
| 212 | <i>Gambusia affinis</i> | 3 |
| 295 | <i>Sander vitreus</i> | 1 |

*** Hybognathus amarus by age class:**

age-0:

age-1: 1

age-2:

NEW MEXICO: BERNALILLO Co., RIO GRANDE Drainage

Rio Grande, at Rio Bravo Blvd. Bridge crossing (NM State HWY 500) crossing,
Albuquerque.

Site Number: 4

River Mile: 178.3

05 June 2012

RKD12-076

UTM Easting: 347554 UTM Northing: 3877163 Zone: 13 Quad: Albuquerque West

R.K.Dudley, W.H.Brandenburg, J.L.Hester

Effort: 572.9 sq. m

| FAMILY | | N |
|---------------|-------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 21 |
| 76 | <i>Cyprinus carpio</i> | 1 |
| 76 | <i>Pimephales promelas</i> | 25 |
| 76 | <i>Rhinichthys cataractae</i> | 1 |
| 81 | <i>Carpionodes carpio</i> | 19 |
| 81 | <i>Catostomus commersoni</i> | 3 |
| 212 | <i>Gambusia affinis</i> | 74 |

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: VALENCIA Co., RIO GRANDE Drainage

Rio Grande, at Los Lunas Bridge crossing (NM State HWY 49), Los Lunas.

05 June 2012

RKD12-075

UTM Easting: 342898 UTM Northing: 3852531 Zone: 13 Quad: Los Lunas

M.A.Farrington, S.A.Zipper, S.J.Sasek

Site Number: 5

River Mile: 161.4

Effort: 499.3 sq. m

| FAMILY | | N |
|---------------|-----------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 246 |
| 76 | <i>Cyprinus carpio</i> | 1 |
| 76 | <i>Hybognathus amarus*</i> | 1 |
| 81 | <i>Carpoides carpio</i> | 14 |
| 212 | <i>Gambusia affinis</i> | 11 |

*** *Hybognathus amarus* by age class:**

age-0:

age-1: 1

age-2:

NEW MEXICO: VALENCIA Co., RIO GRANDE Drainage

Rio Grande, ca. 1.0 miles upstream of NM State HWY 309/6 bridge crossing, Belen.

05 June 2012

RKD12-074

UTM Easting: 339972 UTM Northing: 3837061 Zone: 13 Quad: Tome

M.A.Farrington, S.A.Zipper, S.J.Sasek

Site Number: 6

River Mile: 151.5

Effort: 536.5 sq. m

| FAMILY | | N |
|---------------|-----------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 224 |
| 76 | <i>Pimephales promelas</i> | 2 |
| 81 | <i>Carpoides carpio</i> | 9 |
| 212 | <i>Gambusia affinis</i> | 2 |

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: VALENCIA Co., RIO GRANDE Drainage

Rio Grande, ca. 2.2 miles upstream of NM State HWY 346 bridge crossing, Jarales.

Site Number: 7

05 June 2012

RKD12-073

River Mile: 143.2

UTM Easting: 338136 UTM Northing: 3827329 Zone: 13 Quad: Veguita

M.A.Farrington, S.A.Zipper, S.J.Sasek

Effort: 427.4 sq. m

| FAMILY | | N |
|---------------|-----------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 631 |
| 76 | <i>Pimephales promelas</i> | 11 |
| 76 | <i>Platygobio gracilis</i> | 1 |
| 81 | <i>Carpoides carpio</i> | 5 |
| 212 | <i>Gambusia affinis</i> | 7 |

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, at US HWY 60 bridge crossing, Bernardo.

Site Number: 8

05 June 2012

RKD12-072

River Mile: 130.6

UTM Easting: 334604 UTM Northing: 3809726 Zone: 13 Quad: Abeytas

M.A.Farrington, S.A.Zipper, S.J.Sasek

Effort: 428.2 sq. m

| FAMILY | | N |
|---------------|-----------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 683 |
| 76 | <i>Cyprinus carpio</i> | 1 |
| 81 | <i>Carpoides carpio</i> | 1 |
| 212 | <i>Gambusia affinis</i> | 23 |

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, ca. 3.5 miles downstream of the US HWY 60 bridge crossing, Bernardo.

Site Number: 9

05 June 2012

RKD12-071

River Mile: 127.0

UTM Easting: 331094 UTM Northing: 3805229 Zone: 13 Quad: Abeytas

M.A.Farrington, S.A.Zipper, S.J.Sasek

Effort: 511.4 sq. m

| FAMILY | | N |
|---------------|-----------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 438 |
| 76 | <i>Pimephales promelas</i> | 7 |
| 76 | <i>Platygobio gracilis</i> | 1 |
| 81 | <i>Carpiodes carpio</i> | 5 |
| 212 | <i>Gambusia affinis</i> | 106 |

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, ca. 0.6 miles upstream of San Acacia Diversion Dam, San Acacia

Site Number: 9.5

04 June 2012

RKD12-070

River Mile: 116.8

UTM Easting: 327902 UTM Northing: 3792603 Zone: 13 Quad: La Joya

M.A.Farrington, S.A.Zipper, J.L.Hester

Effort: 347.7 sq. m

| FAMILY | | N |
|---------------|------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 48 |
| 76 | <i>Cyprinus carpio</i> | 1 |
| 76 | <i>Pimephales promelas</i> | 3 |
| 76 | <i>Platygobio gracilis</i> | 181 |
| 81 | <i>Carpiodes carpio</i> | 6 |
| 81 | <i>Catostomus commersoni</i> | 5 |
| 93 | <i>Ictalurus punctatus</i> | 1 |
| 212 | <i>Gambusia affinis</i> | 6 |
| 295 | <i>Sander vitreus</i> | 1 |

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, directly below San Acacia Diversion Dam, San Acacia.

04 June 2012

RKD12-069

UTM Easting: 326162 UTM Northing: 3791977 Zone: 13 Quad: San Acacia

M.A.Farrington, S.A.Zipper, J.L.Hester

Site Number: 10

River Mile: 116.2

Effort: 339.0 sq. m

| FAMILY | | N |
|---------------|------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 88 |
| 76 | <i>Cyprinus carpio</i> | 3 |
| 76 | <i>Hybognathus amarus*</i> | 1 |
| 76 | <i>Platygobio gracilis</i> | 131 |
| 81 | <i>Catostomus commersoni</i> | 11 |
| 212 | <i>Gambusia affinis</i> | 11 |

*** *Hybognathus amarus* by age class:**

age-0:

age-1: 1

age-2:

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, ca. 1.5 miles downstream of San Acacia Diversion Dam, San Acacia.

04 June 2012

RKD12-068

UTM Easting: 325263 UTM Northing: 3790442 Zone: 13 Quad: Lemitar

M.A.Farrington, S.A.Zipper, J.L.Hester

Site Number: 11

River Mile: 114.6

Effort: 450.5 sq. m

| FAMILY | | N |
|---------------|-----------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 46 |
| 76 | <i>Cyprinus carpio</i> | 2 |
| 76 | <i>Hybognathus amarus*</i> | 4 |
| 76 | <i>Pimephales promelas</i> | 1 |
| 76 | <i>Platygobio gracilis</i> | 79 |
| 81 | <i>Carpionodes carpio</i> | 43 |
| 212 | <i>Gambusia affinis</i> | 6 |

*** *Hybognathus amarus* by age class:**

age-0:

age-1: 4

age-2:

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, east of Socorro, 0.5 miles upstream of Socorro Low Flow Conveyance
Channel bridge and east just upstream of Socorro Wastewater Treatment Plant,
Socorro.

Site Number: 12

River Mile: 99.5

04 June 2012

RKD12-067

UTM Easting: 327097 UTM Northing: 3771043 Zone: 13 Quad: Loma de las Canas

M.A.Farrington, S.A.Zipper, J.L.Hester

Effort: 436.7 sq. m

| FAMILY | | N |
|---------------|------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 89 |
| 76 | <i>Cyprinus carpio</i> | 3 |
| 76 | <i>Platygobio gracilis</i> | 2 |
| 81 | <i>Carpoides carpio</i> | 10 |
| 81 | <i>Catostomus commersoni</i> | 4 |
| 93 | <i>Ictalurus punctatus</i> | 1 |
| 212 | <i>Gambusia affinis</i> | 3 |

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, ca. 4.0 miles upstream of U.S. 380 bridge crossing.

Site Number: 13

04 June 2012

RKD12-066

River Mile: 91.7

UTM Easting: 328140 UTM Northing: 3761283 Zone: 13 Quad: San Antonio

M.A.Farrington, S.A.Zipper, J.L.Hester

Effort: 431.4 sq. m

| FAMILY | | N |
|---------------|------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 50 |
| 76 | <i>Platygobio gracilis</i> | 8 |
| 81 | <i>Carpoides carpio</i> | 34 |
| 81 | <i>Catostomus commersoni</i> | 3 |
| 212 | <i>Gambusia affinis</i> | 52 |

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, at US HWY 380 bridge crossing, San Antonio.
04 June 2012

RKD12-065

Site Number: 14
River Mile: 87.1

UTM Easting: 328914 UTM Northing: 3754471 Zone: 13 Quad: San Antonio
R.K.Dudley, W.H.Brandenburg, S.J.Sasek

Effort: 549.5 sq. m

| FAMILY | | N |
|---------------|------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 6 |
| 76 | <i>Hybognathus amarus*</i> | 2 |
| 76 | <i>Pimephales promelas</i> | 1 |
| 76 | <i>Platygobio gracilis</i> | 2 |
| 81 | <i>Carpiodes carpio</i> | 61 |
| 81 | <i>Catostomus commersoni</i> | 1 |
| 81 | <i>Ictiobus bubalus</i> | 1 |

***Hybognathus amarus by age class:**

age-0: 1
age-1: 1
age-2:

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage
Rio Grande, directly east of Bosque del Apache National Wildlife Refuge
Headquarters.

Site Number: 15
River Mile: 79.1

04 June 2012

RKD12-064

UTM Easting: 327055 UTM Northing: 3740839 Zone: 13 Quad: San Antonio SE
R.K.Dudley, W.H.Brandenburg, S.J.Sasek

Effort: 442.6 sq. m

| FAMILY | | N |
|---------------|-----------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 2 |
| 76 | <i>Hybognathus amarus*</i> | 12 |
| 76 | <i>Pimephales promelas</i> | 7 |
| 76 | <i>Platygobio gracilis</i> | 14 |
| 81 | <i>Carpiodes carpio</i> | 14 |

***Hybognathus amarus by age class:**

age-0: 6
age-1: 6
age-2:

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, at San Marcial Railroad Bridge, San Marcial.

04 June 2012

RKD12-063

Site Number: 16

River Mile: 68.6

UTM Easting: 315284 UTM Northing: 3728347 Zone: 13 Quad: San Marcial

R.K.Dudley, W.H.Brandenburg, S.J.Sasek

Effort: 477.3 sq. m

| FAMILY | | N |
|---------------|------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 13 |
| 76 | <i>Cyprinus carpio</i> | 6 |
| 76 | <i>Hybognathus amarus*</i> | 1 |
| 76 | <i>Pimephales promelas</i> | 1 |
| 76 | <i>Platygobio gracilis</i> | 7 |
| 81 | <i>Carpiodes carpio</i> | 8 |
| 81 | <i>Ictiobus bubalus</i> | 4 |
| 294 | <i>Micropterus salmoides</i> | 1 |

***Hybognathus amarus by age class:**

age-0: 1

age-1:

age-2:

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, ca. 8 miles downstream of the San Marcial railroad bridge crossing

04 June 2012

RKD12-062

Site Number: 17

River Mile: 60.5

UTM Easting: 309487 UTM Northing: 3718178 Zone: 13 Quad: Paraje Well

R.K.Dudley, W.H.Brandenburg, S.J.Sasek

Effort: 480.7 sq. m

| FAMILY | | N |
|---------------|------------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 56 |
| 76 | <i>Cyprinus carpio</i> | 1 |
| 76 | <i>Pimephales promelas</i> | 1 |
| 76 | <i>Platygobio gracilis</i> | 9 |
| 81 | <i>Carpiodes carpio</i> | 1 |
| 81 | <i>Catostomus commersoni</i> | 1 |
| 93 | <i>Ictalurus furcatus</i> | 1 |
| 93 | <i>Ictalurus punctatus</i> | 1 |
| 212 | <i>Gambusia affinis</i> | 4 |

**Rio Grande silvery minnow Population Monitoring
June 2012**

NEW MEXICO: SOCORRO Co., RIO GRANDE Drainage

Rio Grande, ca. 10 mi downstream of the San Marcial railroad bridge crossing

Site Number: 18

04 June 2012

RKD12-061

River Mile: 58.8

UTM Easting: 307846 UTM Northing: 3716150 Zone: 13 Quad: Paraje Well

R.K.Dudley, W.H.Brandenburg, S.J.Sasek

Effort: 473.4 sq. m

| FAMILY | | N |
|---------------|-----------------------------|----------|
| 76 | <i>Cyprinella lutrensis</i> | 13 |
| 76 | <i>Hybognathus amarus*</i> | 1 |
| 76 | <i>Platygobio gracilis</i> | 1 |
| 81 | <i>Carpoides carpio</i> | 2 |

*** *Hybognathus amarus* by age class:**

age-0:

age-1: 1

age-2: