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Angostura Diversion Dam
Isleta Diversion Dam
San Acacia Diversion Dam
Peak discharge in the Rio Grande (1895-2004) at the Otowi Bridge USGS gauging station
Discharge in the Rio Grande in 2003 (white) and 2004 (grey) at USGS gauging stations

(Red line indicates long-term mean)
Discharge in the Rio Grande in 2004 (white) and 2005 (grey) at USGS gauging stations

(Red line indicates long-term mean)
Catch rates of RGSM (blue) vs. all fishes (green) during October at all sampling sites (1993-1997, 1999-2003)
Catch rates of RGSM (blue) vs. all fishes (green) during October at all sampling sites (1993-1997, 1999-2004)
Catch rates of RGSM (blue) vs. all fishes (green) during October at all sampling sites (1993-1997, 1999-2005)
Quarterly catch rates of RGSM (blue) at all sampling sites compared to discharge (red) in the Rio Grande at Albuquerque (USGS #08330000) from 1999-2005.
Regression analysis of RGSM mean log October catch rates (1993-1997, 1999-2005) and hydraulic variables (Rio Grande at Albuquerque; USGS #08330000)

A
\[ r^2 = 0.82 \]
\[ p < 0.001 \]

B
\[ r^2 = 0.70 \]
\[ p < 0.005 \]

C
\[ r^2 = 0.86 \]
\[ p < 0.001 \]

D
\[ r^2 = 0.92 \]
\[ p < 0.001 \]
Regression analysis of RGSM mean log October catch rates (1993-1997, 1999-2005) and hydraulic variables (Rio Grande at San Marcial; USGS #08358400)

- **Hybama**: $r^2 = 0.85$, $p < 0.001$
- **B**: $r^2 = 0.93$, $p < 0.001$
- **Pimpro**: $r^2 = 0.74$, $p < 0.001$
- **D**: $r^2 = 0.78$, $p < 0.001$
Summary and Conclusions

• Rio Grande silvery minnow populations have fluctuated dramatically over the past decade with the lowest levels occurring after periods of low mean annual discharge, low peak magnitude of spring runoff, and river drying.

• While the abundance of Rio Grande silvery minnow has increased markedly since 2003, current levels of abundance are similar to what they were when this species was listed as endangered in 1994. While the primary threats that resulted in the endangered listing of this species still exist, progress has been made toward the recovery of this species.

• Primary threats to RGSM include:
  • Lack of populations outside Middle Rio Grande
  • River dewatering
  • River fragmentation and regulation
  • River channelization and degradation

• Management objectives should focus on ameliorating these overriding problems that threaten the continued existence of Rio Grande silvery minnow.