Rio Grande silvery minnow Augmentation Program

April 13, 2006
Topics

1. Marking Techniques
2. Releases to the Rio Grande
3. Propagation facilities
4. Ongoing field studies
Releases to the Rio Grande

- **2005** – 253,253
  - Spring – 71,170
  - Fall – 182,083
    - ABQ – 81,019
    - Bernardo – 54,422
    - Lemitar – 46,642
Releases to the Rio Grande

2002-2005 = 562,885
Propagation and Rearing Status

- **Dexter NFH&TC**
  - 75,000 FY05 (2006)
  - FY04-05 Broodstock
  - 60,000 Fall 2006
Propagation and Rearing Status

- Albuquerque Biological Park
  - 30,000 FY05 (2006)
  - 50,000 Refuge
  - 60,000 Fall 2006
Ongoing field studies

- Augmentation Monitoring
- Protocol Design
- Growth
- Survival
- Movement
Protocol Design

- **Time of year**
  - Fall(Age 0) / Spring(Age 1)

- **Time of day**
  - Night / Day

- **Technique**
  - Single / multiple

- **Hatchery**
  - Biopark / Dexter
Survival

- Tag retention
- 30-d Survival
Survival

Groups

Instream Cage Aquarium

Survival Rate

ABQ
DEX

Groups

Instream Cage Aquarium
Survival

- Maximum = 3 y
- Monthly = 0.72
- Annual = 0.02

P<.05
$R^2 = .26$
Growth

Year Class

Month
1st June
1st July
1st August
1st September
1st October
1st November
1st December

Mean Standard Length mm
0
20
40
60
80
100
120

YC_00
YC_01
YC_02
YC_03
YC_04
YC_05
Movement

- 97.5% Retention in Reach (160/164)

- Maximum downstream = 37.2 miles
  - 15.6 miles (Platania 2003)
Movement
Movement

- Combined on an annual basis
- 2005 = 1
Accomplishments

- Optimal tagging survival and retention w/ VIE
- Stabilize and Increase density in ABQ reach
- Release Protocol Design
Needed Research

- Evaluate Soft Release Technique
  - 24 hour holding pen at release site

- Evaluate hauling stress
  - Augmentation and Salvage

- Density Dependant Growth/Survival?
  - Augmentation and Salvage
Stocking Protocol
(Preliminary)

- Time of Year
  - Fall (Post-Irrigation) Age 0 and 1

- Time of Day
  - Daytime Releases Only

- Technique
  - Single Point (Low-Velocity w/Cover)

- Hatchery
  - Increase tempering at stocking site
Reintroductions