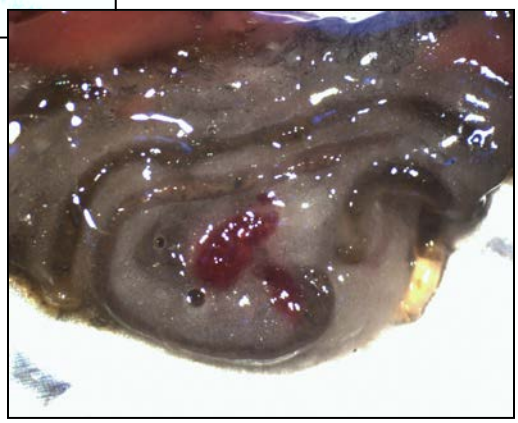
Chapter 2. Rio Grande Silvery Minnow Health Assessment



Report prepared by

Anne P. Davis and Joel D. Lusk

U.S. Fish and Wildlife Service
New Mexico Ecological Services Field Office
2105 Osuna Road NE
Albuquerque, NM 87113

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Cover photography by A.Davis/USFWS: 1) Severely eroded caudal fin; 2) anal fin lesion; and, 3) 50 percent mesenteric fat condition in Rio Grande silvery minnow.

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INTRODUCTION

Fish health assessments are a standard system of observation of fish tissues and organs and measurements during a necropsy that are based methods reported by Goede and Barton (1990), Schmitt et al. (1999), Schmitt and Dethloff (2000), and others. We collected Rio Grande silvery minnow (*Hybognathus amarus*; silvery minnow) at six locations (Table 1) within the Middle Rio Grande (MRG) during July 2006 to April 2007 (Year 1) and October 2007 to July 2008 (Year 2) (Lusk 2012a) for health assessments. We generated a Health Assessment Index (HAI) that was used as a general indicator of fish health (Carlander 1969, 1977; Adams 1990). The HAI utilizes observations of gross external and internal pathological disorders and scoring procedures to rank relative health (Goede 1988, 1989, 1996; Adams et al. 1993). Developed and revised by Goede (1988, 1989, 1996), Adams et al. (1993), and others, this systematic observation and necropsy has been used by scientists in field and hatchery situations (Schmitt et al. 1999; Schmitt and Dethloff 2000) as well as on fish collected from the Rio Grande (Abeyta and Lusk 2004a citing Sykes 2003; Schmitt et al. 2004, 2005, Papoulias et al. 2008). These and similar fish health indices can signify overall health status of the subpopulation sampled. Fish health indices can also be used to reflect the status of organ systems or feeding, which may change due to environmental factors or other stressors (Schmitt et al. 1999).

Review of Fish Health Studies conducted in the Middle Rio Grande

During 1993 to 1995, Carter (1997a, 1997b) used fish health monitoring and assessments to characterize water quality in the Rio Grande. Carter (1997a) reported that the occurrence of anomalies in the fish they collected was less than 2 percent, while fish collected from the Rio Grande near Isleta, New Mexico, had anomaly rates as high as 14 percent. Carter (1997a) concluded that the high percentages of introduced species, the dominance of omnivorous species, and the high incidence of anomalies were indicative of a fish community under chronic stress at the Isleta, New Mexico, location.

During 1997 to 1999, the Service conducted the National Wild Fish Health Survey, which included surveys of pathogens and parasites of silvery minnow and other minnows collected from the Rio Grande. No interpretative report on the pathogen data from Rio Grande fish was published (Knapp and Mueller 2004), however, those fish health observations are available from the National Wild Fish Health Survey Database (available at http://www.fws.gov/wildfishsurvey/database/).

During 1997 and 1998, Schmitt et al. (2004) collected, examined, and analyzed large fish from 10 sites on tributary rivers of the Rio Grande to document temporal and geographic trends in the concentrations of contaminants and to assess contaminant effects on the fish. Schmitt et al. (2004) noted a minimal number of altered biomarkers and few or no elevated contaminant concentrations in fish tissues from their upper Rio Grande sites. However, hepatic activity in some fish was seen as elevated and may have reflected exposure to polycyclic aromatic hydrocarbons (Schmitt et al. 2004).

During 2002 and 2003, Sykes (2003) and Abeyta and Lusk (2004a, 2004b), used fish health assessments of minnows to help characterize the water quality conditions in the MRG. Over 60 percent of the fish observed had shortened opercula and they suggested both environmental and nutritional components to those conditions (Abeyta and Lusk 2004b; Sykes 2003). Minnows that were collected in the winter appeared to be in better condition and feeding more actively than fish collected in the summer or fall (Sykes 2003). However, fish health sampling was too sparse to make definitive conclusions about site or seasonal differences (Sykes 2003). Abeyta and Lusk (2004b) reported a relationship, albeit weak, between whole stream metabolism and several fish health condition indices, suggesting that oxygen dynamics, specifically its overall production and consumption, may have played a role in the health of the minnow community.

In 2005, river intermittency isolated silvery minnows in large pools throughout several miles of the MRG (Caldwell 2005). During this time, silvery minnows were rescued from pools and transported to Dexter Fish Health Unit for examination. Of the fish examined, gill tissues were found to be infested with parasites and kidney tissues were infected with bacteria (P. Hines, Service, written comm. October 13, 2005). The silvery minnows collected from these intermittent pools were considered to be in poor health and moribund. When fish are healthy, both the fish and its protozoan parasites can exist in a symbiotic relationship (Caldwell 2005). However, when fish become stressed, and are in poor health or moribund, this relationship may change quickly to pathogenic (Caldwell 2005). If the environmental conditions change to favor the reproductive potential of protozoan parasites and bacteria (e.g., increased water temperature) or environmental conditions stress fish or compromise their immune system (e.g., low dissolved oxygen, crowding, elevated blood cortisol, elevated ammonia, poor nutritional status, etc.), then the rapid reproduction of these pathogens or increase in the susceptibility of the fish to disease can result in fish mortalities (Caldwell 2005 citing Post 1983).

During 2006, common carp (*Cyprinus carpio*), channel catfish (*Ictalurus punctatus*), and white sucker (*Catostomus commersoni*) samples were taken from the MRG and evaluated for fish health condition (Papoulias et al. 2008). Fish collected near Socorro, New Mexico, had elevated macrophage aggregates (both number and size), elevated vitellogenin concentrations (i.e., egg protein precursors) in male catfish similar to concentrations of vitellogenin levels found in reproductive females, and possibly elevated reproductive hormones. Papoulias et al. (2008) reported that MRG fish had mild to moderate pathological lesions and suggested that the existing environmental conditions may be stressing fish. However, Papoulias et al. (2008) noted that greater numbers of observations would be required to ascertain if elevated vitellogenin levels in MRG fish were related to reproductive stressors or endocrine disrupting chemicals.

During 2006 to 2007, Caldwell et al. (2010) assessed the physiological stress response of rescue practices and river intermittency by measuring changes in blood chemistry and parasite and bacterial burdens in wild silvery minnows and compared those responses to those in silvery minnows collected from a perennial reach (i.e., flowing water) and subjected to similar collection and transport activities. The cumulative effects of intermittency followed by capture and transport resulted in a greater magnitude of

physiological stress response in silvery minnows. The cumulative effects of intermittency as well as exposure within isolated pools elevated the silvery minnow stress response and increased their susceptibility to opportunistic pathogens and mortality.

During Fall 2007, Buhl (2011) exposed silvery minnows in cages at three site treatments in the MRG for 26 days to evaluate their survival, growth, and overall health conditions. Buhl (2011) used a necropsy-based health assessment to characterize and compare the health status of silvery minnows prior to and after in-situ exposures to the site waters. The most common anomalies observed by Buhl (2011) were shortened opercula (96 percent of fish, all rated as slightly shortened) and fin anomalies (attributed to cage artifacts). During the 26-day exposures, the health of the fish deteriorated significantly as evidenced by higher proportions of fish with abnormal fins and the presence of parasites. Tissue collected for histopathological examination revealed numerous macrophage aggregates in ovaries (92 percent), spleen (91 percent), and kidney (74 percent) with a lower prevalence in the testes (20 percent) and liver (15 percent). According to Buhl (2011), fish that are chronically stressed, in poor health, chronically exposed to environmental pollution, or have nutritional deficiencies may tend to have more and larger macrophage aggregates in their tissues. However, the prevalence of macrophage aggregates in silvery minnow tissues exposed to site treatments for 26 days, did not differ statistically among sites, gender, or from those in fish sampled prior to the treatments.

In summary, fish health assessments conducted on fish from the Middle Rio Grande have often observed shortened opercula, and numerous individuals have been reported with health indices that indicated chronic stress, and particularly, the stress of intermittency, which often results in poor health conditions and high parasite loads contributing to the mortality of silvery minnows. Site differences in health conditions were inconclusive or varied by study. Seasonal differences, where observed, suggested fish health conditions declined in summer and improved in winter. Several fish health studies have identified elevated macrophage aggregates in various tissues in fish collected from the Middle Rio Grande. Macrophage aggregates are focal accumulations of immune cells in tissues that, when elevated, are useful for discriminating between fish exposed to degraded water quality conditions. Fish health assessments conducted in the Middle Rio Grande have linked the condition of intermittency and subsequent isolation of fish in pools with degraded water quality and poor silvery minnow health conditions.

METHODS

A maximum of 30 silvery minnows were collected from each of the six sites sampled during two sample years (during July 2006 to April 2007 (Year 1) and October 2007 to July 2008 (Year 2)) for our fish health assessment (Table 1). Lusk (2012a) described the methods of site selection, collection locations, and transport of silvery minnows used in this fish health assessment. Silvery minnows were individually observed, measured, and processed within several hours after capture so that their condition would be representative of site conditions. Silvery minnows were observed using a digital stereomicroscope (Leica Model GZ6 stereomicroscope). Organ conditions and any anomalies were documented photographically using an attached Optronics MagnaFire SP digital camera. A Mettler Toledo balance (Model PR803) was used for mass measurements. The balance was routinely calibrated and checked against known standards. It was accurate to 0.001 g and had a 810 g maximum capacity.

Fish Health Observations and Necropsy Methods

Silvery minnows were subdued and examined using methods described by (Schmitt et al. 1999) as modified below. All observations of external and internal organ condition were recorded on the Fish Health Examination Sheet (Appendix 2A) for each individual silvery minnow observed. All silvery minnows were individually measured for weight (mass in grams [g]) and total length (TL). Total length was determined by laying the succumbed silvery minnow on a ruler marked in millimeters (mm). External examination began with the observation of the head, eyes, and body surface for anomalies. Anomalies in fish tissues and organs are deviations from those normally observed (Schmitt et al. 1999). Anomalies observed may include lesions, tumors, skeletal deformities, gill or fin fraying and erosion, hemorrhagic tissues, parasites, and other grossly observable conditions (Schmitt et al. 1999). Gills were examined for clubbing, fraying, pale coloring, margination, and parasites. Opercula were examined for shortening or deformity (described below). Fins were examined for fraying, erosion, hemorrhaging, and parasites. Fins were observed individually and their overall conditions were analyzed collectively. Examples of several external anomalies we observed in silvery minnows are provided in Figure 1 through Figure 4.

Observation of Silvery Minnow Opercula

We refer to opercula (also opercles, or singular, operculum) as they include the entire morphological structure, or opercular complex, of bone, skin, and collagen. The degree of shortening was noted as slight or severe (Figure 2). Generally, shortened opercula were identified when the skin, cartilage or bone was reduced from its full extent or deformed as viewed in profile. Slight shortening is described as visible shortening with flap obviously not covering entire gill (Figure 2A), and with minimal amount of gill exposed. Severe shortening is described as extreme shortening with much of the gill exposed and visible to the naked eye (Figure 2B). For evaluation, shortened opercula were analyzed as present/absent rather than according to the degree of shortening to reduce the subjective nature of the shortened opercula observations.

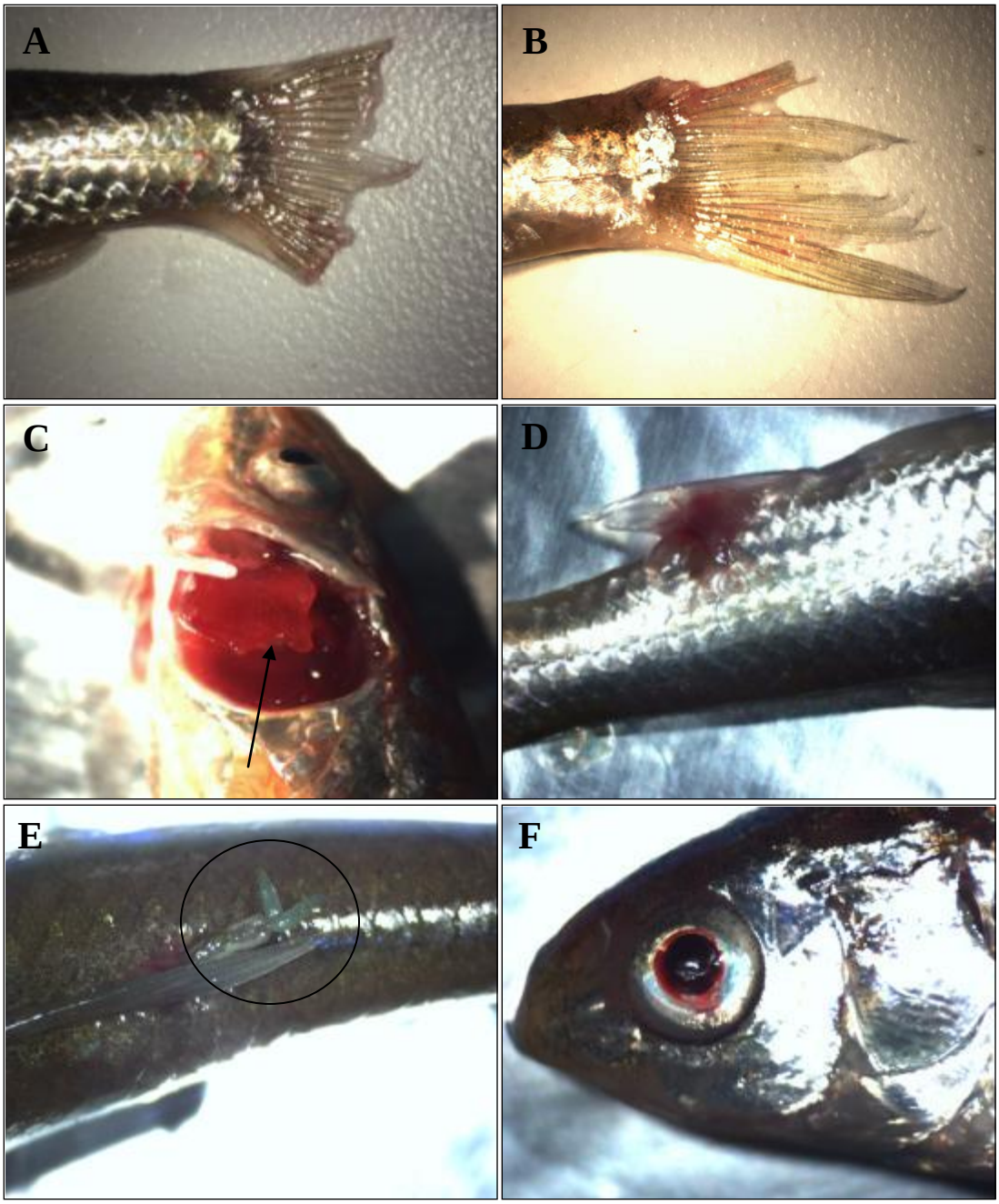

Figure 1. Examples of external anomalies: (A) severe fin erosion; (B) fin erosion and fraying; (C) frayed gill; (D) skin lesion; (E) parasites; and (F) hemorrhagic eye. All photography by A. Davis/USFWS.

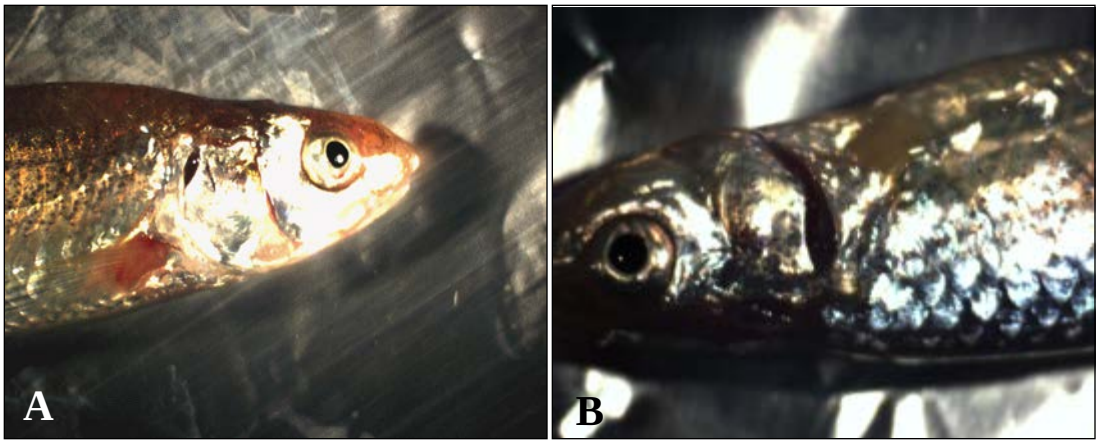

Figure 2. Slight opercula shortening (A); and severe opercula shortening (B).

Once the external examination was complete, silvery minnows were dissected using surgical scalpels, forceps, and other tools, and the viscera were removed onto foil. Forceps, foil, and other instruments used during the necropsy were rinsed with acetone and deionized water between fish to reduce cross contamination. We examined the viscera and internal organs to observe tumors or nodules, inflammation, hemorrhaging, or discoloration. The liver was observed for discoloration and condition. As cyprinid livers tend to be made up of dispersed nodules (Schmitt and Dethloff 2000), silvery minnow livers were not extracted from the viscera and weighed. The gall bladder was observed for fullness and color. The spleen was examined for color, granular texture, nodules, and enlargement. The spleen was removed from the viscera and its weight was measured on a mass balance. The amount of mesenteric fat was qualitatively observed. The kidneys were examined for color, swelling, urolithiasis (i.e., "stones"), or nodules. Gender, to the extent determinable, was verified upon internal examination (Figure 3). Gonads were removed and preserved separately in vials containing 10 percent, neutral buffered formalin, for histopathological verification, as necessary.

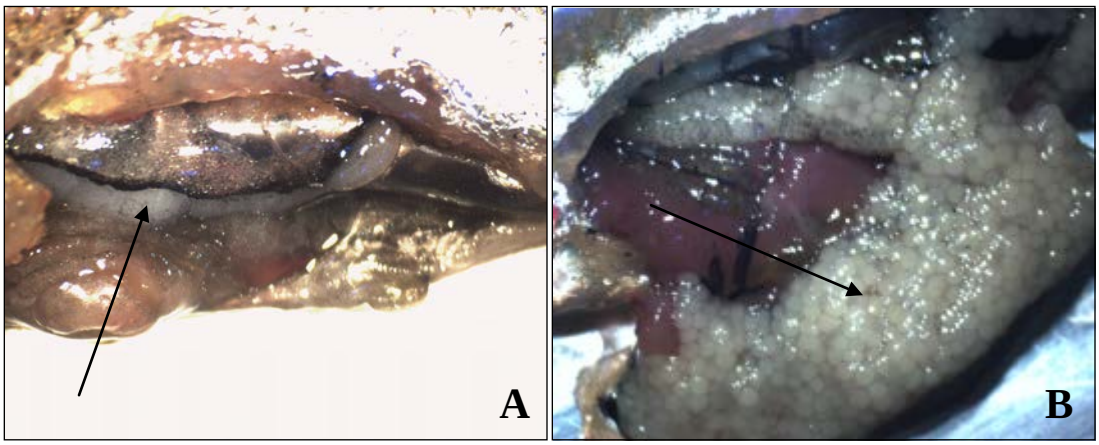

Figure 3. Examples of (A) male gonads; and, (B) female gonads.

Examples of several internal anomalies we observed in silvery minnows are provided in Figure 4. As necessary, grossly abnormal tissues were collected, noted, and stored for further histopathological examination. After examination, viscera, including organs and tissues examined, except gonads, were placed back into the carcass. The carcass was wrapped in foil, frozen (4 °C), and later used for chemical analyses (see Lusk 2012b).

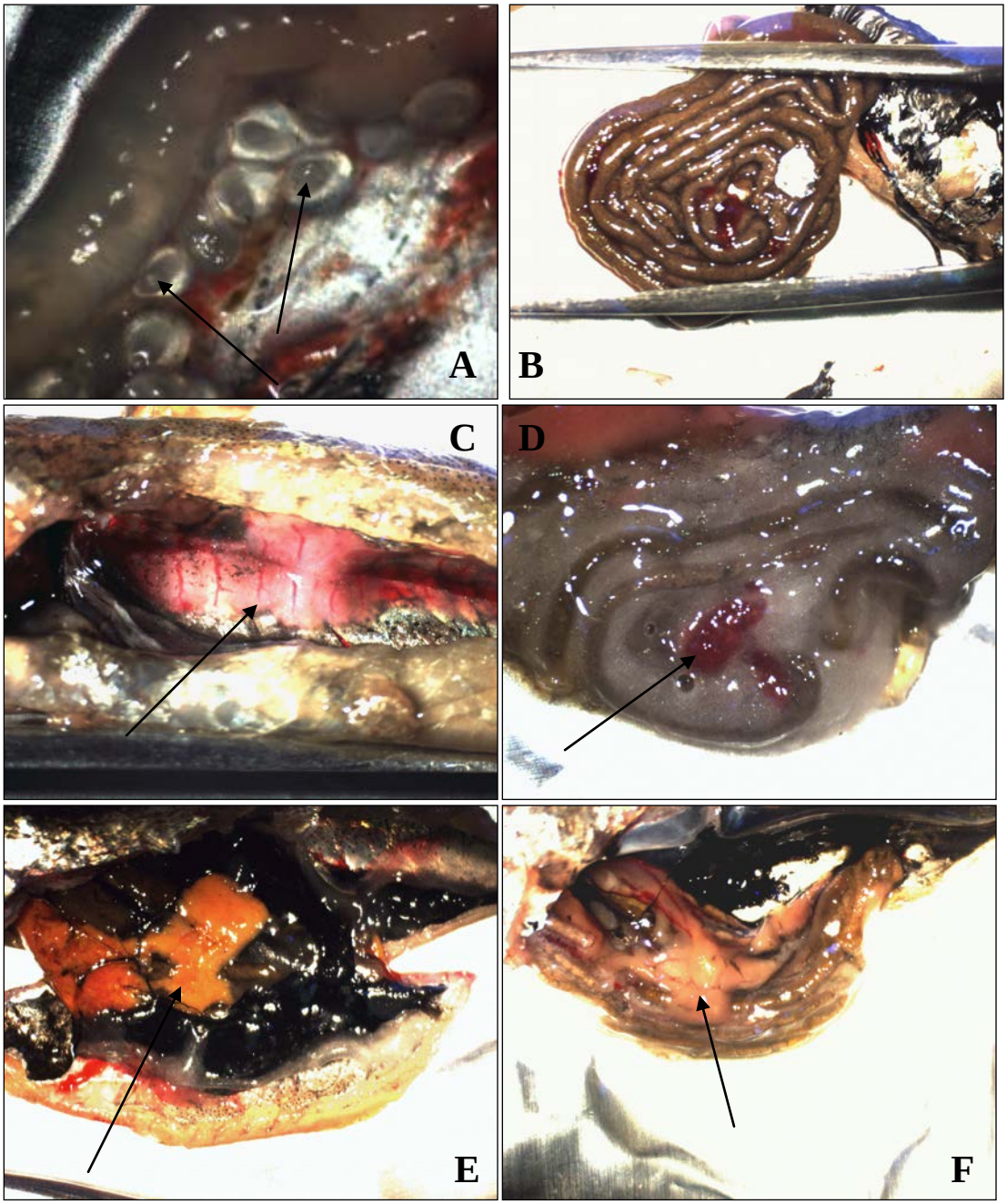

Figure 4. Examples of internal anomalies: (A) parasites in the mesentery; (B) full gut; (C) swollen kidney; (D) nodular spleen; (E) discolored liver; and (F) tan (fatty) liver.

Sampling Silvery Minnow Tissues for Histopathology

From the silvery minnows examined from each site, several individuals were randomly preselected for further histopathological examination by the U.S. Geological Survey's (USGS) Columbia Environmental Research Center (CERC), in Columbia, Missouri (see Papoulias et al. 2009). These silvery minnow tissues were termed Histopath Samples. During external and internal examinations of these preselected silvery minnows, any grossly abnormal tissues, as well as samples of the liver, gonad, spleen, and kidney were removed with forceps and preserved in a labeled, 2-milliliter (mL), polypropylene vial with polyethylene screw caps (e.g., Cryovial) partially filled with 10 percent, neutral buffered formalin.

During Year 1, ten percent of the silvery minnows necropsied were preselected as Histopath Samples. During Year 2, we increased the number of Histopath Samples to 20 percent. Additionally, during Year 2, after necropsy, entire silvery minnow bodies were preserved and shipped for histopathological examination, instead of individual organs and tissues. All Histopath Samples were sent preserved in buffered formalin to the USGS CERC for further observation, histology, histopathology, and analyses. Their analyses included microscopic examination of the tissues for the presence of lesions, observations of macrophage aggregates (MA) in spleen and kidney tissues, and examination of gonads to determine gender and reproductive stage among other measurements and evaluations (see Papoulias et al. 2009).

Calculation of the Health Assessment Index and other Indices

The splenosomatic index (SSI) was calculated as the percentage of the spleen weight to total body weight (Busacker et al. 1990). The HAI was calculated using the observations of gross external and internal anomalies as a general indicator of silvery minnow health during this study. The HAI can be a valuable method for estimating cumulative stress, and documenting lesions or anomalies that have advanced to the point of being grossly visible, those the public are often most concerned about (Adams et al. 1992; Schmitt and Dethloff 2000). Following Adams et al. (1992), we used a numerical value assigned for each condition (Appendix 2B), and the assigned values were summed and summary values were computed for each silvery minnow (Appendix 2I). These values were then used to calculate the mean HAI and were compared by sample year, month (quarterly corresponding to season), and site.

A Feeding Index was also calculated using bile fullness and color according to Goede (1993). The Feeding Index is an indicator of time to last feeding and is based on the fullness and color of bile in the gallbladder. Both fullness of the gallbladder and color of the bile are directly related to movement of digested material into the gut (Goede 1993). The gallbladder remains empty while food is being moved through the gut. In the absence of food, bile is stored in the bladder where oxidation of pigments begins to change bile color over time from yellow to dark green. The four categories for measuring bile color and fullness are 0 (bladder empty or partially full), 1 (bladder full, bile is yellow), 2 (bile is light or grass green), and 3 (bile is dark green). These gallbladder

observations were transformed into a Feeding Index according to Goede (1993). A Feeding Index of 100 indicated active feeding among silvery minnows just prior to their collection. A desirable range for the Feeding Index is greater than 67 (Goede 1993).

Data Analyses

Length, weight, opercula shortening, SSI, and HAI data were summarized by sample year, month, and site. Comparisons were also made by sample year, which refers to all observations conducted in Year 1 or Year 2 as described above. Gender was not used to summarize data as not all silvery minnow genders were verified by histopathogical observation and there were numerous silvery minnow of indeterminate gender collected in July. If the summary data met assumptions of normality and equality of variance, a One Way Analysis of Variance (ANOVA) was conducted to determine if significant differences existed. A Student's t-test or Tukey post-hoc tests were used to determine specific differences in the mean. Where data did not meet these assumptions of normality, data were transformed to ranks and a Kruskal-Wallis and median test was applied to test the ranks using Statistica (Statsoft 2011). Other parametric and nonparametric statistical tests were also employed and are so indicated in the text.

Arithmetic means plus or minus one standard error (± 1 SE), or one standard deviation (SD), ANOVA, Student's t-test, and Tukey's post hoc tests were calculated using the software package SPSS Version 13.0 for Windows (SPSS Inc., 2004). Unless otherwise specified, average values are presented plus or minus ± 1SE. Pearson's product-moment correlation coefficients (r) were used to describe the extent to which measured values (or summary data) varied together. Only significant and robust relationships (indicated by correlation coefficients greater than 0.4) were reported unless otherwise specified. Statistical significance refers to a probability (p) of less than or equal to 0.05 unless otherwise stated. Descriptive statistics and figures were generated using Microsoft Excel 2007, SPSS Version 13.0 for Windows, and Statistica (StatSoft Inc., 2010).

RESULTS

A total of 1,070 silvery minnows were observed and processed during sample years (Year 1 and Year 2) (Appendix 2C). Of the silvery minnows observed, females represented 49 percent (n = 522), males 33 percent (n = 352), and 18 percent genders were indeterminate (n = 196) and indeterminate genders were not further evaluated. Overall, 111 silvery minnows (10 percent) contained a Visible Implant Elastomer (VIE) tag used to identify hatchery-reared silvery minnows (U.S. Fish and Wildlife Service 2010). These VIE tagged silvery minnows were noted and included in all fish health assessments and data analyses. A total of 178 (17 percent) of the silvery minnows collected were further used for histology and histopathology (Papoulias et al. 2009).

Silvery Minnow Total Length

Year 1 silvery minnows were significantly greater in mean TL than those collected during Year 2 ($t = 17.19_{(1,063)}$; $p < 0.001$) (Figure 5; Appendix 2D). During Year 1, the April mean TL was significantly smaller than in all other months sampled (ANOVA; $F = 10.124_{(5, 507)}$, Tukey post-hoc, $p < 0.01$) (Figure 5). Mean TL was similar for all other months sampled during Year 1. Site 5 had the smallest mean TL, significantly different from all other sites except Site1 and Site 2 (ANOVA; $F = 12.603_{(5, 505)}$, Tukey post-hoc, $p < 0.006$) (Figure 6). The April mean TL was significantly smaller than in all other months sampled during Year 2 (ANOVA; $F = 10.124_{(3, 507)}$; Tukey post-hoc, $p < 0.01$) (Figure 6). During Year 2, differences among Sites 1, 2, and 3 mean TL were observed as well as differences among Sites 4, 5, and 6 mean TL (ANOVA; $F = 9.188_{(5, 548)}$; Tukey post-hoc. $p < 0.03$) (Figure 6).

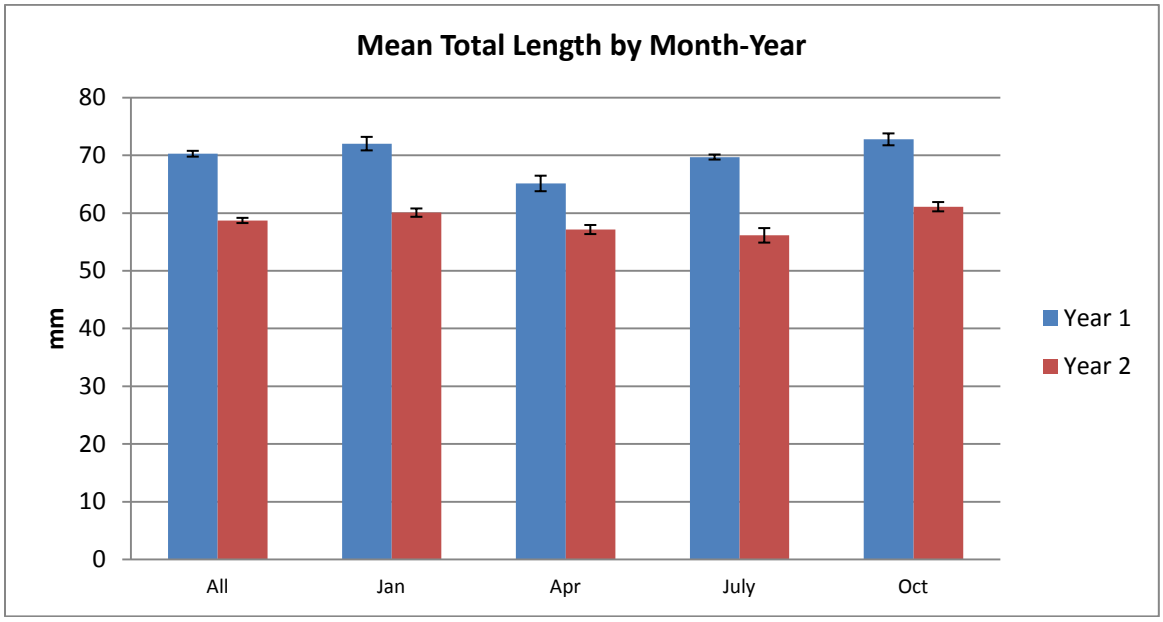

Figure 5. Mean total length of silvery minnows by month and sample year. Error bars represent ± 1 SE.

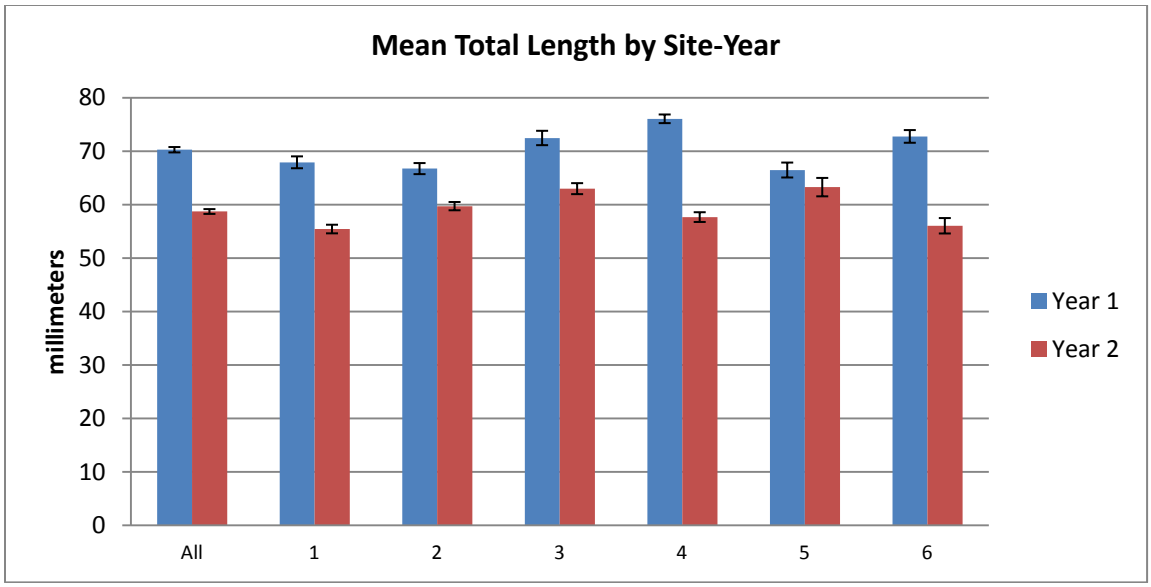

Figure 6. Mean total length of silvery minnows by site and sample year. Site numbers and names are listed in Table 1. Error bars represent ± 1 SE.

Silvery Minnow Weight

Silvery minnows collected ranged in weight from 0.25 to 8.0 g (average 2.8±1.4 g). Silvery minnows collected in Year 1 (3.10±1.5 g) had a significantly greater mean weight ($t = 15.795_{(1067)}$; $p < 0.001$) than found in Year 2 (1.89±1.0 g) (Figure 7; Appendix 2E). In Year 1, the mean weight of silvery minnows collected in October and July differed from one another (ANOVA; $F = 4.426_{(3, 512)}$; Tukey post-hoc, $p = 0.01$). Silvery minnows collected at Site 4 (Rio Grande at Los Lunas) had significantly greater mean weight (3.96±1.3 g) than from all other sites sampled during Year 1 (ANOVA; $F = 14.516_{(5, 510)}$; Tukey post-hoc, $p < 0.05$) (Figure 8). Silvery minnows from all months sampled during Year 2 had similar mean weight (Figure 7). Site 3 mean weight was significantly greater than all other sites except Site 5 during Year 2 (ANOVA; F = 11.877 (5, 547); Tukey post-hoc, $p < 0.003$) (Figure 8).

Splenosomatic Index (SSI)

Year 1 mean SSI did not differ significantly from Year 2 mean SSI (Figure 9; Appendix 2F). During Year 1, July mean SSI differed from all other months sampled (ANOVA; $F = 11.668_{(3, 508)}$; Tukey post-hoc, $p < 0.001$) (Figure 9). Year 1 Sites 1 and 2 mean SSI differed from Sites 4 and 5 (ANOVA; $F = 5.548_{(5, 506)}$; Tukey post-hoc), $p < 0.02$) (Figure 10). All other comparisons among sites were similar during Year 1.

During Year 2, April mean SSI was significantly lower than the mean SSI from all other months sampled (ANOVA; $F = 9.478_{(2, 228)}$; Tukey post-hoc, $p < 0.016$) (Figure 9). There were no differences in mean SSI among sites sampled during Year 2 (Figure 10). Although an individual silvery minnow from Site 3 had an SSI of 2.89, the mean SSI for Site 3 during Year 2 did not significantly differ from other sites sampled (Figure 10).

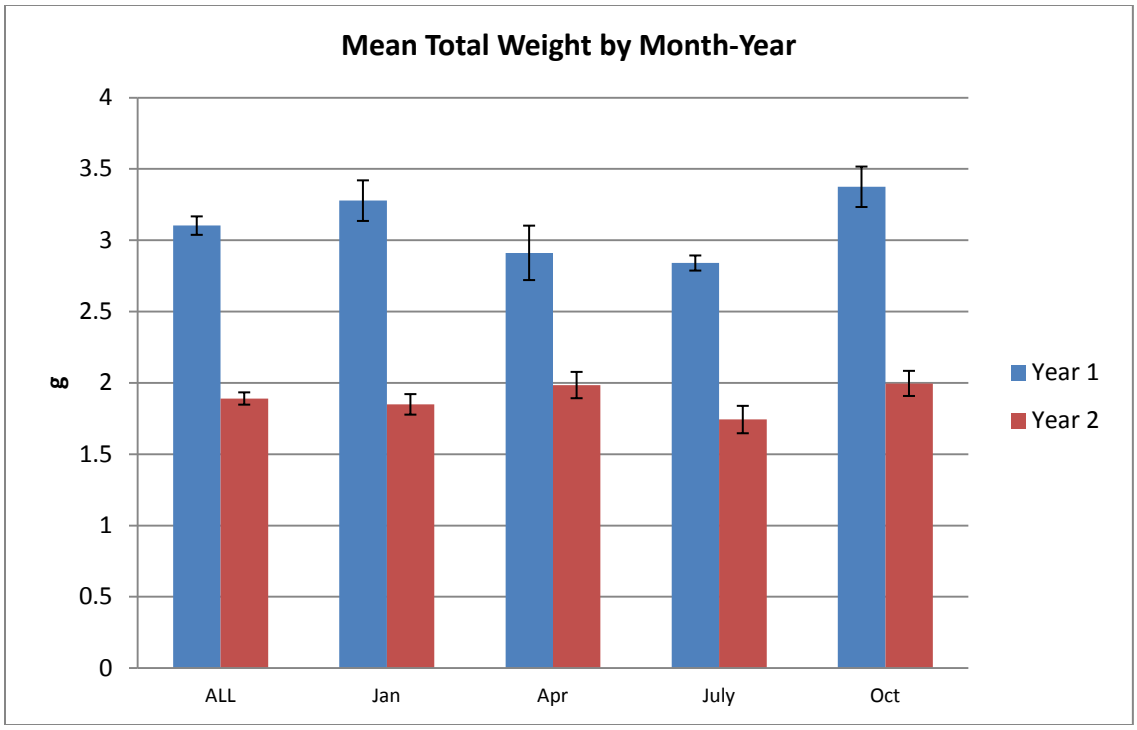

Figure 7. Mean weight of silvery minnows by month and sample year. Error bars represent ± 1 SE.

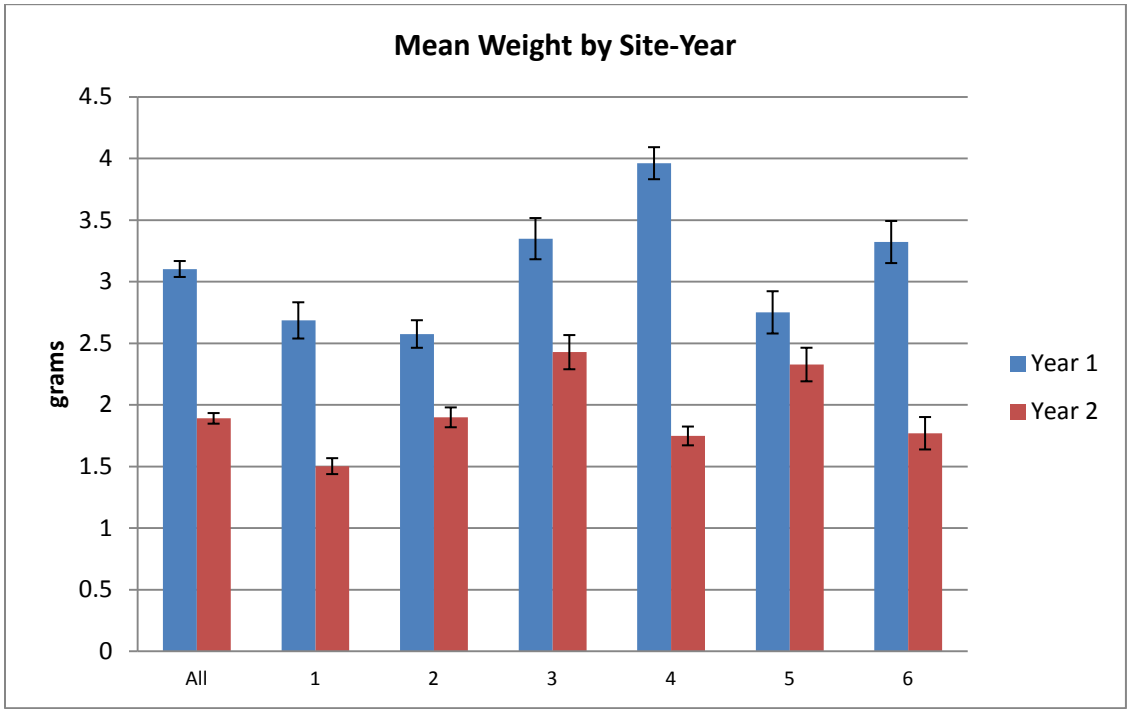

Figure 8. Mean weight of silvery minnows by site and sample year. Site number and names are listed in Table 1. Error bars represent ± 1 SE.

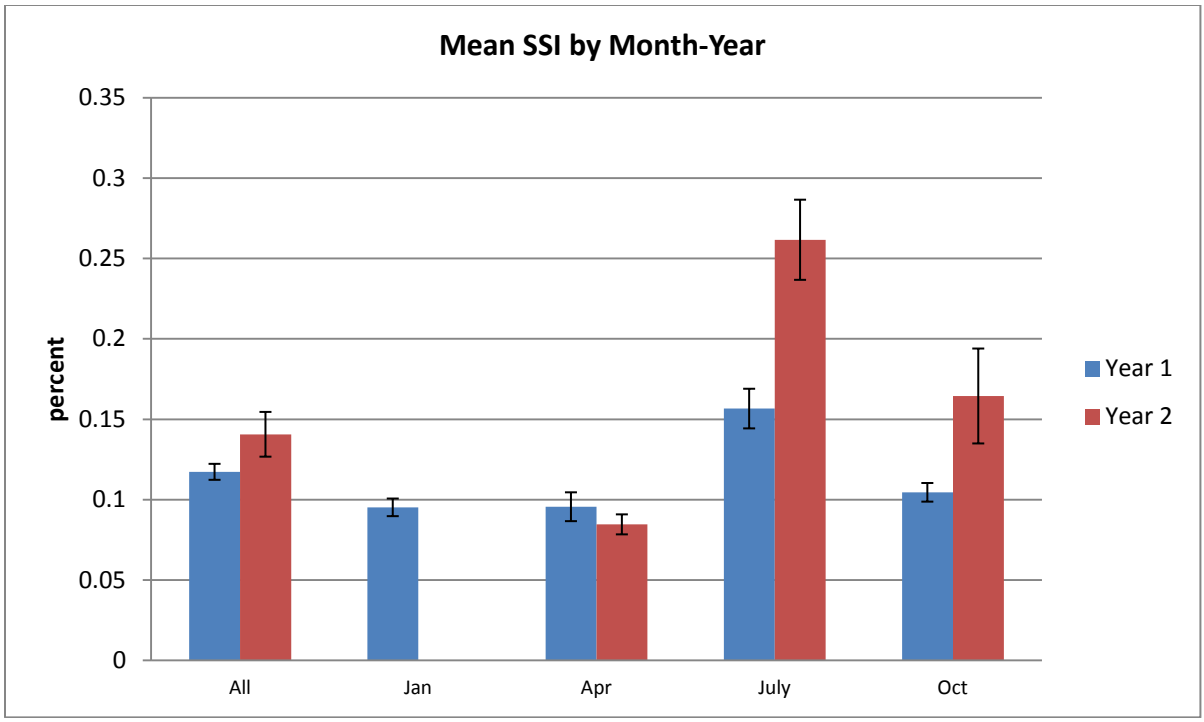

Figure 9. Mean SSI for silvery minnows by month and sample year. Error bars represent ± 1 SE.

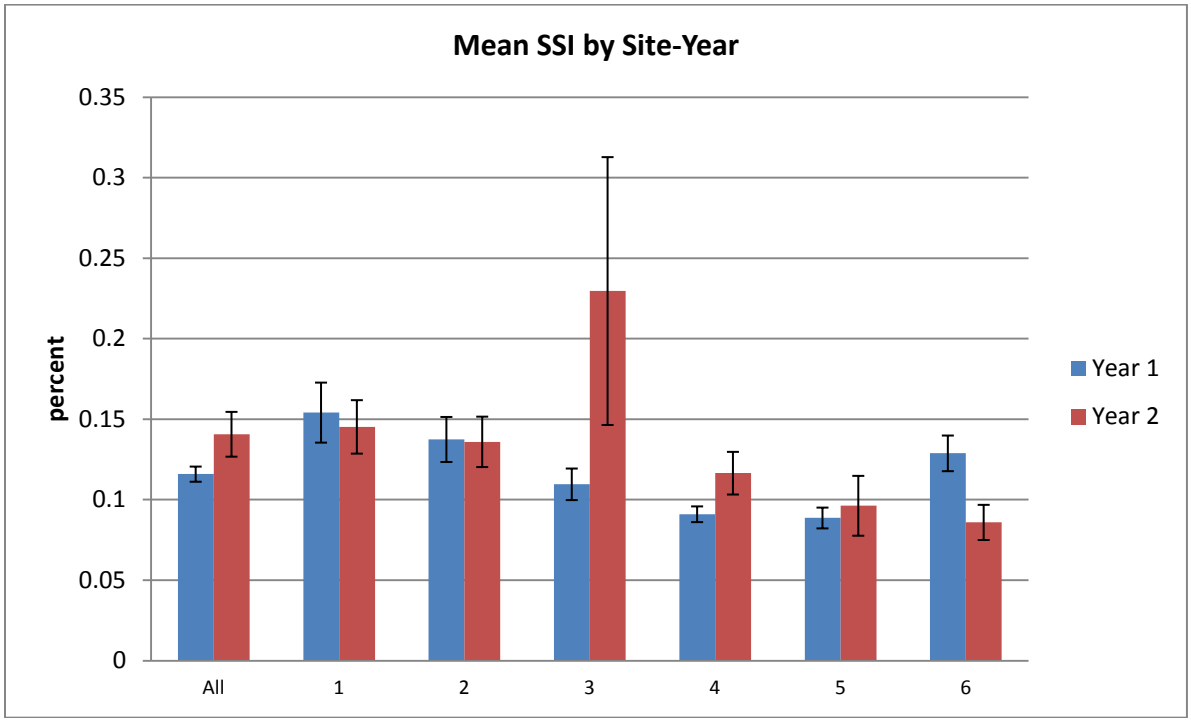

Figure 10. Mean SSI for silvery minnows by site and sample year. Site number and names are listed in Table 1. Error bars represent ± 1 SE.

Health Assessment Index (HAI)

Silvery minnows collected in Year 1 had a significantly lower mean HAI score than from Year 2 ($t = -5.559_{(1068)}$; $p < 0.001$) (Figure 11; Appendix 2G). During Year 1, July HAI scores differed from both April and October mean HAI scores (ANOVA; $F = 6.265_{(3, 512)}$; Tukey post-hoc, $p < 0.005$) (Figure 11). Year 1, Site 1 had significantly lower mean HAI scores than all other sites except Site 2 (ANOVA; $F = 11.061_{(5, 510)}$; Tukey post-hoc, $p < 0.001$) (Figure 12).

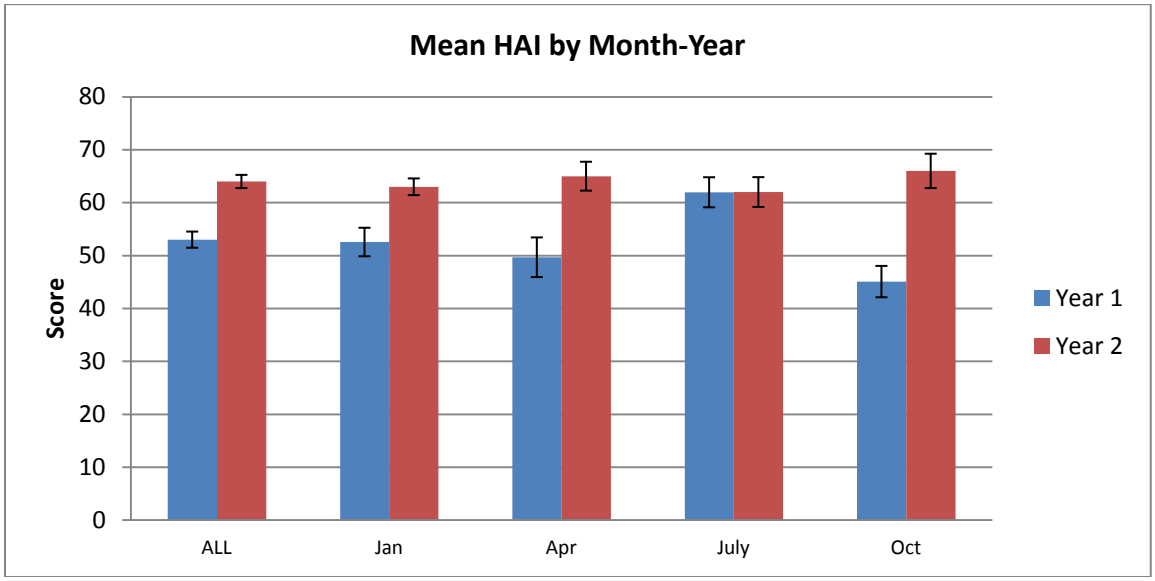

Figure 11. Mean HAI for silvery minnows by month and sample year. Error bars represent ± 1 SE.

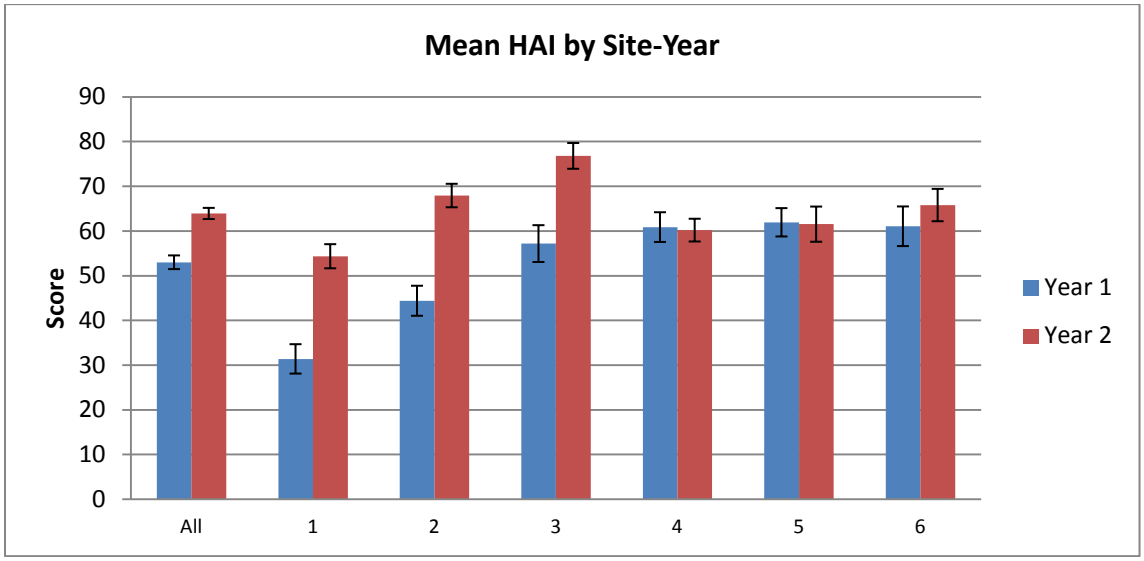

Figure 12. Mean HAI for silvery minnows by site and sample year. Site number and names are listed in Table 1. Error bars represent ± 1 SE.

Silvery minnows collected in Year 2 had similar HAI in all months. There was a significant difference among mean HAI scores from upstream Sites 1, 2, and 3 (ANOVA; $F = 6.767_{(5, 548)}$; Tukey post-hoc, $p < 0.006$) (Figure 12); however, there was no difference among downstream Sites 4, 5, and 6.

Feeding Index

During Year 1, the mean Feeding Index in silvery minnows collected in July was significantly lower than those collected in January or December (Kruskal-Wallis test: $H = 25.51_{(3, 509)}$ $p <.001$) (Figure 13). There were no significant differences in Feeding Index by site in Year 1 (Figure 14). During Year 2, the mean Feeding Index in silvery minnows collected in July was significantly lower than those collected in January or December (Kruskal-Wallis test: $H = 24.93_{(3, 542)}$ $p <.001$) (Figure 13). There were no significant differences in Feeding Index by site in Year 2 (Figure 14). The Year 1 mean Feeding Index was significantly lower than in silvery minnows collected during Year 2 (Kruskal-Wallis test: $H=67.04365_{(1, N= 1051)}$; Chi-Square = 20.89, $p <0.001$).

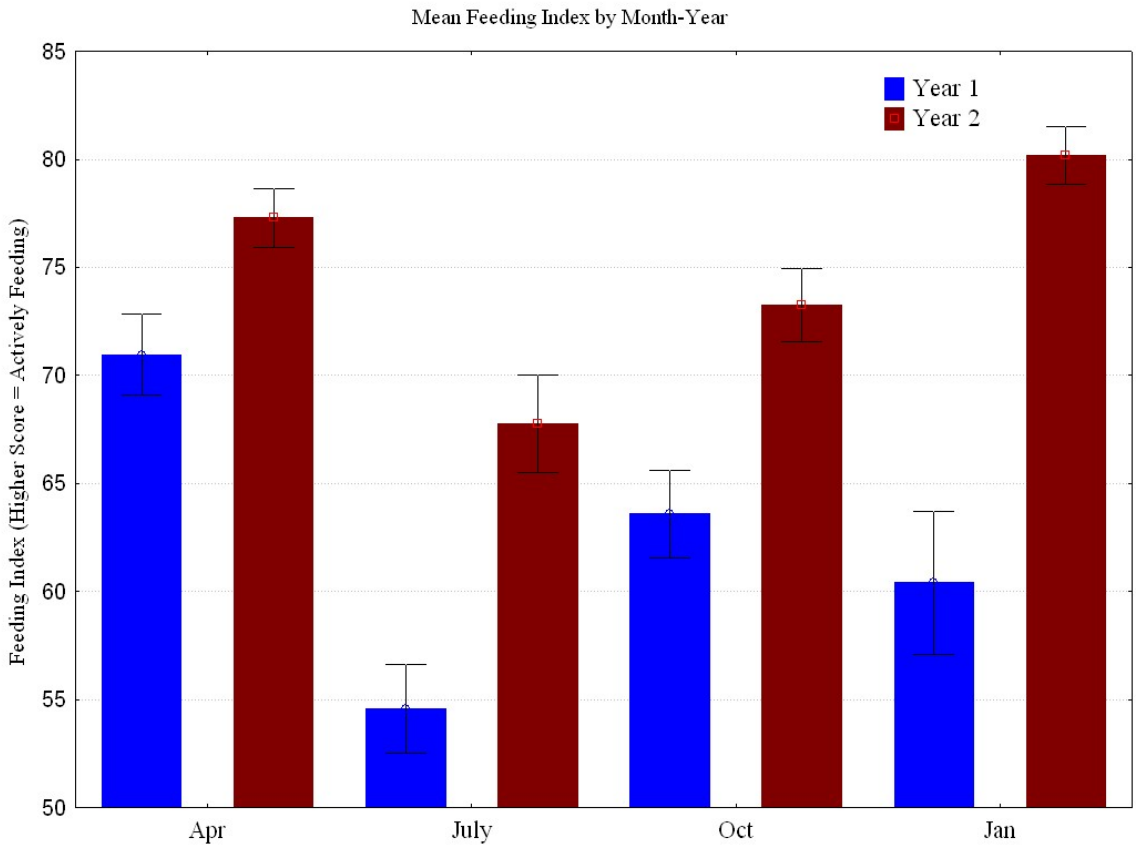

Figure 13. Mean Feeding Index for silvery minnows by month and sample year. Error bars represent ± 1 SE.

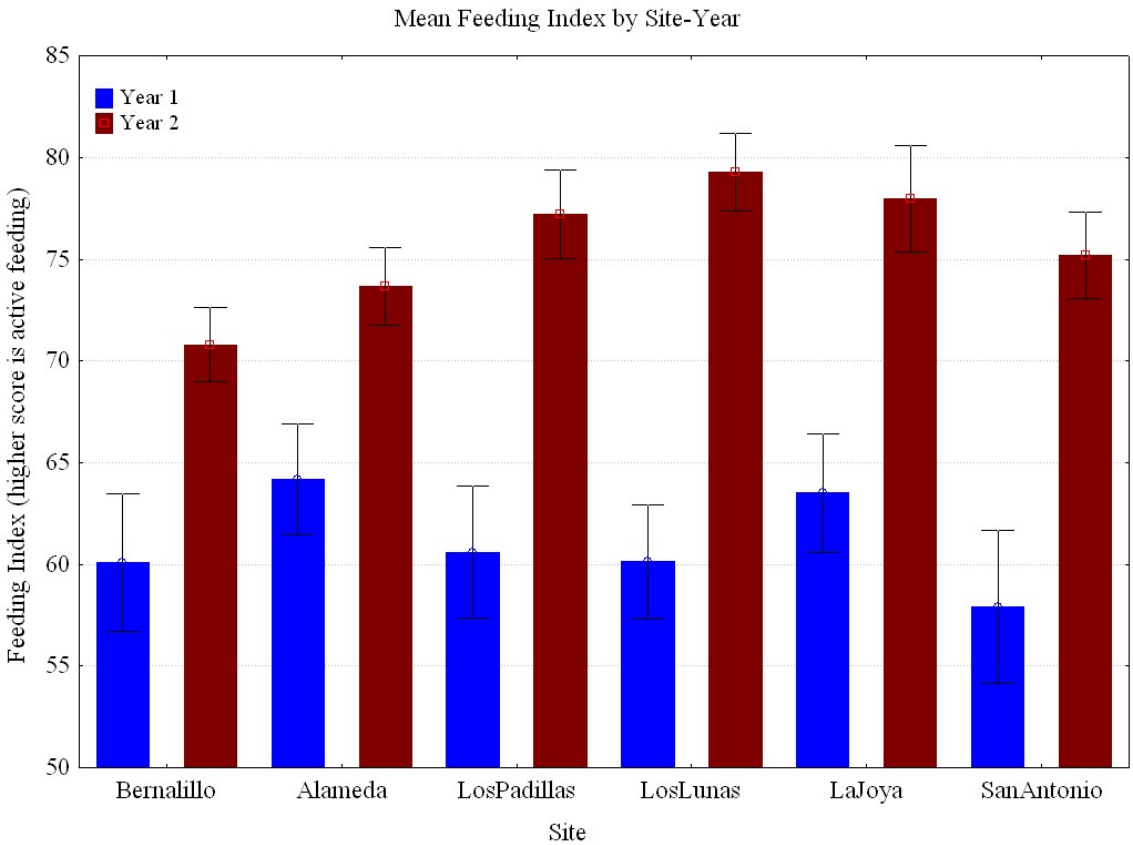

Figure 14. Mean Feeding Index for silvery minnows by site and sample year. Sites are further described in Table 1. Error bars represent ± 1 SE.

Silvery Minnow Opercula

Shortened opercula were the most prevalent gross abnormality observed in both Year 1 and Year 2 silvery minnows sampled (Figure 15; Appendix 2H.). The overall frequency of occurrence was less during Year 1 (50 percent) compared with Year 2 (89 percent). During Year 1, this anomaly was partially bilateral (i.e., 40.9 percent had equally shortened opercula). The unilateral abnormality was observed 3.7 percent just on the right side and 5.8 percent on just the left side. The remaining silvery minnows had varied shortening of both opercula (49.6 percent). During Year 2, this anomaly was largely bilateral (83.2 percent). The unilateral abnormality was observed 2.9 percent on just the right side and 3.1 percent on just the left side, and remaining silvery minnows had varied shortening of both opercula.

In Year 1 the observed frequency of shortened opercula increased during April (68 percent) and July (65 percent) and decreased during January (38 percent) (Figure 15). In Year 2 observations of shortened opercula in silvery minnows were elevated during January (98 percent) (Figure 15), and slightly lower in July (86 percent) and October (79 percent). During Year 1, the highest frequency of opercle shortening was observed in silvery minnows from Site 5 (Figure 16). During Year 2, all six sites had high occurrence (greater than 70 percent) of shortened opercula (Figure 16).

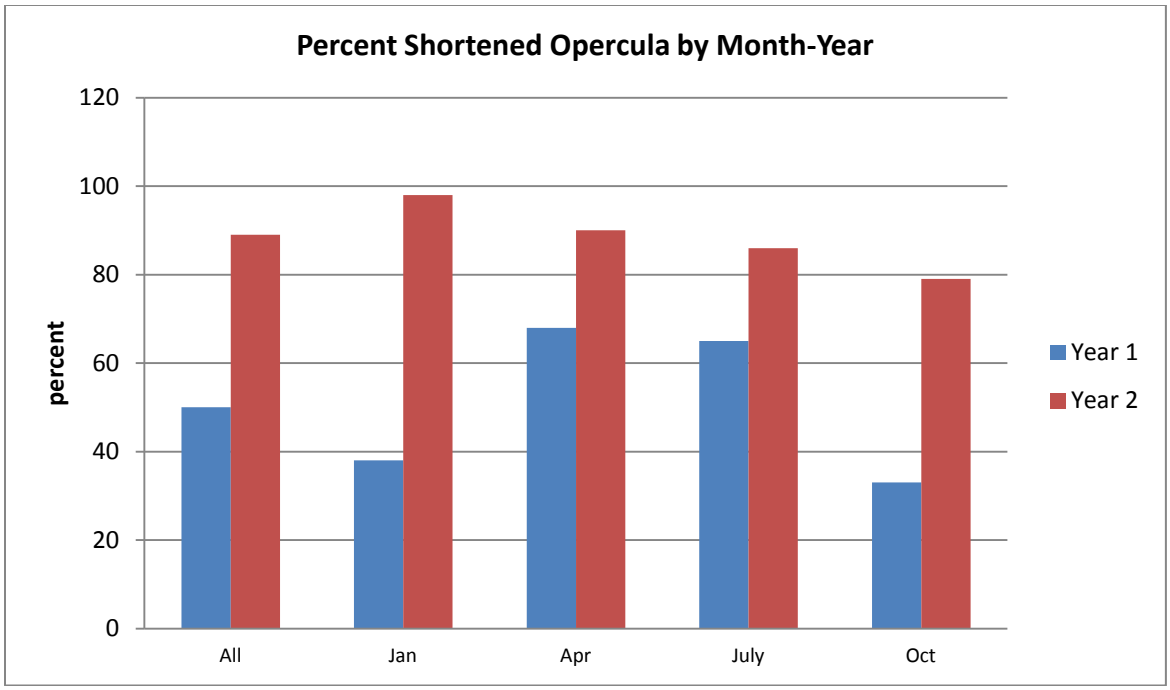

Figure 15. Mean percent of shortened opercula observed in silvery minnows by month and sample year.

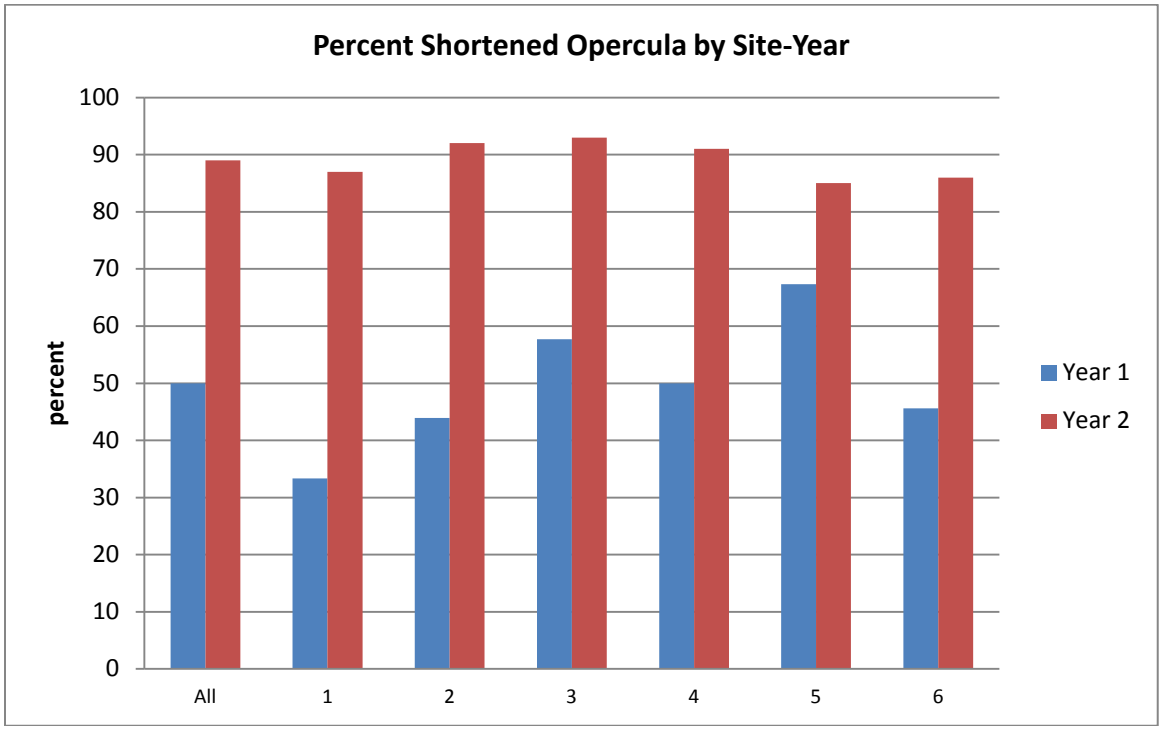

Figure 16. Mean percent shortened opercula observed in silvery minnows by site and sample year. Site number and names are listed in Table 1.

Summary of Silvery Minnow Health Observations

Silvery minnow health observations, measurements, notes, and index scores are summarized in Appendix 2I. We observed a number anomalies including parasites, skin ulcers, fin erosion, tumors, enlarged or reduced organs, organ discoloration, nodules, and other deformities (e.g., Figures 1 and 2). Photographs taken were stored digitally and selected photos were labeled and provided in Appendix 2J (Plates 1-58). In additon to shortened opercula, some of the anomalies seen at a high frequency were clubbing of the gills and liver discoloration. Gill anomalies such as clubbing, may indicate bacterial or parasite exposure or other water quality stressors. Liver discoloration may signify fatty deposits, metabolism or vitamin deficiencies, disease, or exposure to certain contaminants (Schmitt and Dethloff 2000; Hinton at al. 1992; Goodbred et al. 1997).

In this study, the health anomolies seen in silvery minnows at the greatest frequency were shortened opercula (70 percent), liver (52 percent) and gill (50 percent) (Figure 17; Appendix 2H). During Year 1, 50 percent of silvery minnows observed had shortened opercula. InYear 2, that percentage increased to 89 percent. Liver anomalies were high for both years, 45 percent of livers examined during Year 1 had discolored or anomalies. During Year 2, discolored or anomalous livers increased to 59 percent. Gill anomalies were observed in 44 percent examined during Year 1. In Year 2 that percentage increased to 56 percent. Kidney anomalies were observed in 16 percent during Year 1. In Year 2, kidney anomalies increased slightly to 24 percent. External lesions and tumor observations decreased from Year 1 from 25 percent to 13 percent in Year 2. Spleen anomalies appeared to decreased as well, 22 percent in Year 1 to 9 percent in Year 2.

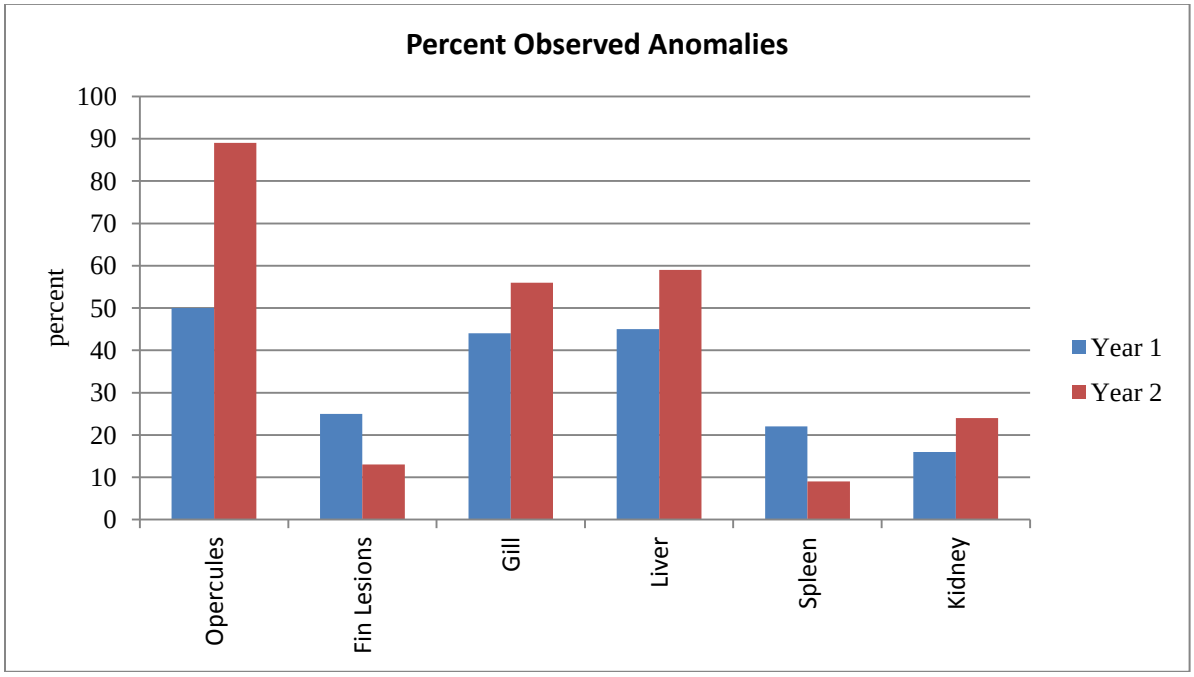

Figure 17. Mean percent of anomalies observed in silvery minnows by type and sample year.

DISCUSSION

Fish may be regarded as representative indicators of environmental health because of their position and function within river ecosystems. Impairments of fish health may indicate contaminants or other stressors within the aquatic ecosystem, some of which could remain undetected by traditional water quality monitoring techniques. In the mid-1990s, the USGS developed and implemented several watershed-based fishery monitoring projects using a standard suite of methods designed to detect changes in the overall condition of large-bodied fish as well as provide information about the status, health and welfare of individual fish and their subpopulations over time (Schmitt et al. 1995; Bartish et al. 1997, Schmitt et al. 1999) including in the Rio Grande. We used and modified these fish health observation methods to accommodate small-bodied species such as silvery minnows. These health observations were implemented as a means to characterize the health of silvery minnows along with other concurrently measured parameters such as water quality in order to maximize the information available about factors contributing to the health condition of silvery minnows in the Rio Grande over time.

Length and Weight

Generally, fish metabolism and growth (as measured by length and weight) increase positively with water temperature (von Bertalanffy 1957). Both mean TL and weight were significantly greater during Year 1. Lusk (2012a) reported that average water temperatures (95 percent confidence intervals) were colder during Year 2 (11.9-12.1°Celsius (C)) than Year 1 (13.9-14.1°C). For both years, Site 1 and Site 6 had the lowest mean TL and weight and the average water temperatures at Site 1 (12.1-12.5°C) and Site 6 (11.6-12.1°C) were generally colder than measured at Site 2 (14.0-14.3°C), Site 3 (12.7-13.0°C), Site 4 (13.5-13.8°C), or Site 5 (13.0-13.2°C) (Lusk 2012a). Also, silvery minnows were feeding more actively in Year 2, (based on their mean Feeding Index, below) yet had lower mesenteric fat reserves in Year 2, and therefore, we suspect water temperature may have had a predominant role in size of silvery minnows measured.

Indices of Fish Health

Indices of fish health have been used extensively in population assessments as indicators of well-being of individual organisms (Adams 1990; Goede and Barton 1990). Fish health assessments were relatively simple and inexpensive to perform. Fish health indices can reflect the status of organ systems, which may change in size due to environmental factors more rapidly than whole body weights change in size. The relative weights of organs such as liver and gonads relative to total weight may signify overall health or reproductive status of a fish (Busacker et al. 1990), but for this study, only SSI, HAI, Feeding Index were evaluated as general indicators of fish health as we were unable to evaluate a hepatosomatic or gonadosomatic index for these cyprinids due to the dispersed nature of their liver and gonads. Additionally, a high degree of size variation was seen in silvery minnow gonads during different life stages observed over each year.

Splenosomatic Index (SSI)

The condition and morphology of the spleen can be useful as a diagnostic tool because it is associated with the storage of red blood cells and may support immune system response in fish species (Anderson 1990; Franklin et al. 1993; Schmitt and Dethloff 2000). However, spleen sizes vary among fish species, and even within the same species. Age, gender and gonad development are also factors that may affect spleen weight (Schmitt and Dethoff 2000). Acute or nonspecific stressors such as temperature changes, hypoxia, extreme exercise, and exposure to chemical contaminants have also affected spleen weight (Franklin et al. 1993; Schmitt and Dethloff 2000). An enlarged spleen may also suggest disease or an immune system disorder due to increased hypertrophy or proliferation of leukocytes and other blood cell types (Anderson 1990; Goede and Barton 1990). The SSI has been incorporated into monitoring protocols evaluating the Mississippi River (Schmitt 2002), Colorado River (Hinck et al. 2006) as well as the Rio Grande Basin (Schmitt et al. 2004, 2005).

In this study, spleen weight was measured and recorded to the nearest 0.001 g. In some instances, the spleen was too small to weigh accurately and thus no weight was recorded. When we compared the SSI data, Year 1 and Year 2 SSI were not significantly different. SSI in silvery minnows were also similar to those in large bodied fish collected from the Rio Grande (Schmitt et al. 2004). In both years the mean SSI was less than 0.2 percent, with the exception of one silvery minnow collected during July 2008 from Site 3 that had a SSI of nearly three percent. However, on average, the SSI did not change over time, although the number of spleen anomalies did appear to decrease between sample years.

Health Assessment Index (HAI)

The greater the mean HAI, the greater the number of lesions or other anomalies observed. Studies have indicated that fish in severely polluted areas exhibit a higher frequency of lesions than those in similar, but less polluted areas (Schmitt and Dethloff 2000). Mean HAI scores of silvery minnows were significantly greater in July compared to those sampled in other months in Year 1. Mean HAI scores were significantly lower in Year 1 than in Year 2. Mean HAI scores at Site 1 were relatively good (less than or equal to 30) during Year 1, but mean HAI scores at Site 1, Site 2, and Site 3 increased during Year 2. Mean HAI scores tended to increase downstream at and below Site 3, and remained elevated downstream to Site 6; suggesting that the cumulative condition of the silvery minnows deteriorated from upstream to downstream.

Although exposure to environmental contaminants alone can induce anomalies detected by the HAI score, it must be recognized that more often the development of gross lesions may be influenced by diet, certain water quality parameters, seasons and weather events, handling stress, or capture methods (Schmitt and Dethloff 2000; Papoulias et al. 2009). The HAI scores in silvery minnows tended to reflect external anomalies as well as their gill and liver conditions, rather than relate to average concentrations of pollutants reported in water, sediment, or fish tissues collected contemporaneously by the New Mexico Environment Department (NMED 2009) or as reported by Lusk (2012b). Certain

water quality parameters such as water temperature, pH, or specific conductivity may play a role in the development of skeletal (see opercula discussion below) or other anomalies and their averages were significantly greater in Year 2 than in Year 1 (Lusk 2012a). Additionally, suspended sediment concentrations measured at nearby USGS gage stations were higher in Year 1 (2,888±7813 mg/L) than in Year 2 (1,104±1436) (Lusk 2011). Increases in some of these water quality parameters (i.e., temperature, specific conductivity) as well as pathogen burdens tended also to be higher in July. Since Feeding Index improved in Year 2 (see below), as did measures of average gross primary productivity (Lusk 2012a), the increased mean HAI scores did not seem to be related to their feeding activity or other measures of productivity. It was difficult to completely assess the observed variations in the HAI to these water quality stressors, and therefore, the HAI may also be related to stressors that we did not measure adequately.

Feeding Index

Silvery minnows were more actively feeding at all sites in Year 2 than in Year 1. Lusk (2012a) reported that average gross primary productivity was significantly higher in Year 2 than in Year 1. This suggested that Feeding Index in silvery minnows could be related to average measures of gross primary productivity . However, average gross primary productivity was highest in July and lowest in April (Lusk 2012a), whereas the Feeding Index was lowest in July and highest in January and April. Therefore, Feeding Index and measures of average gross primary productivity may not be closely related, although it is possible that reduction of feeding may have occurred during July, or possibly, that the relative nutrition content of silvery minnow diets may also change during summer. Suspended sediment concentrations measured at nearby USGS gage stations were generally higher in Year 1 (2,888±7813 mg/L) than in Year 2 (1,104±1436) and may also have played a role in silvery minnow feeding or food availability (Lusk 2011).

<u>Shortened Opercula or Fish Opercula Deformity Syndrome (FODS)</u>

Skeletal deformities have been reported in other fish species and can affect the head, eyes, opercula, as well as vertebra (Al-Harbi 2001). Many studies observe that shortened opercula occurs during fish development as a non inherited congenital defect induced during the embryonic or larval stage, (Tave et al. 1982; Tave and Handwerker 1994; Koumoundouros et al. 1997; Tave et al. 2011), however, Lindesjöö et al. (1994) found shortened opercula in fish by year of exposure based on growth rings that coincided with later-in-life exposure. Skeletal malformations in fish can arise from a number of causes including: nutrient deficiency, particularly vitamin C or amino acid deficiency (Lim and Lowell 1978; Sato et al. 1982; Backiel et al. 1984; Chavez De Martinez 1990; Grady et al. 1992b; Koumoundouros et al. 1997; Dabrowski et al. 1988; Madsen and Dalsgaard 1999; Lall and Lewis-McCrea 2007), environmental contamination including metals (e.g., selenium, zinc, copper, cadmium, mercury and lead) and polychlorinated biphenyl (PCB) compounds (Grady et al. 1992b; Olsson et al. 1999; Antunes et al. 2002; Lemly 2002; Jawad 2004; Koca et al. 2005;), temperature conditions during development (Georgakopoulou et al. 2010), turbulence and elevated gases (Backiel et al. 1984; Al-Harbi 2001; Beraldo et al. 2003), parasites or infectious diseases (Lom et al., 1991),

genetic defects (Piron 1978; Al-Harbi 2001; Verhaegen et al. 2007; Tave et al. 1983; Koumoundouros et al. 1997; Beraldo et al. 2003), and mechano-transduction (the loss of bone density due to reduced activity) (Danos and Staab 2010).

Skeletal anomalies such as shortened opercula can affect fish feeding, respiration, swimming, normal morphology, growth and productivity (Sadler 1990; Lom et al. 1991; Koumoundouros et al. 1997; Al-Harbi, 2001; Lemly 2002; Verhaegen et al. 2007; Eissa et al. 2009). Opercula having normal structure and function are fundamental to fish health because impairment can reduce growth, lower resistance and defense against pathogens, and reduce the mechanical efficiency of feeding and respiration (Beraldo et al. 2003).

Shortened opercula was the anomaly seen at the highest frequency in silvery minnows we collected. The opercula were observed with shortening on one or both opercula. Shortened opercula has been reported in three other fish species collected from the Rio Grande including river carpsucker (*Carpoides carpio*), fathead minnow (*Pimephales promelas*), and red shiner (*Cyprinella lutrensis*) (Sykes 2003, Abeyta and Lusk 2004a). Silvery minnows in hatcheries have also been identified with 40 to 90 percent shortened opercula (Buhl 2011). Additionally, fish collected from the San Juan River Basin have been identified with shortened opercula. As shortened opercula have been observed in several different fish species collected from two large river basins, as well as in hatchery fish, we saw it as a widespread phenomena and termed it “Fish Opercula Deformity Syndrome” (or FODS). After these observations, we sought to evaluate the historical incidence of FODS in silvery minnows collected over time to gain more information.

Separate from this Rio Grande Silvery Minnow Health Study (and hence discussion of methods and results here), we evaluated the incidence of FODS in silvery minnows that have been collected by others at different locations over time. We worked with the University of New Mexico, Museum of Southwestern Biology (Museum), Fishes Division Collection Manager to identify those "lots" (that is, unique catalog numbers) of archived silvery minnows most similar to our own collections. That is, we identified those lots that had over 29 silvery minnows collected and with collection season and sizes that were within the range we collected (i.e., greater than 41 to 92 mm TL). Ultimately, we identified 25 "lots" (catalog collection numbers: 1119, 1120, 1125, 1130, 1151, 1155, 1162, 1171, 3961, 4338, 4384, 5730, 5934, 11589, 13472, 20396, 22671, 30032, 30246, 39103, 45271, 43314, 44627, 48229, and 49969) for FODS observations. Working with volunteers from the University of New Mexico and American Southwest Ichthyological Researchers, L.L.C., we removed, weighed, and measured total length, and observed both opercula from 30 randomly selected silvery minnows from 25 different years (Figure 18). We observed FODS in silvery minnows as early as 1938 from the archival sample lots we selected (Appendix 2K; Figure 18).

Below, we discuss several of these causes and evaluate whether they may or may not provide a potential explanation for the incidence of FODS in silvery minnows.

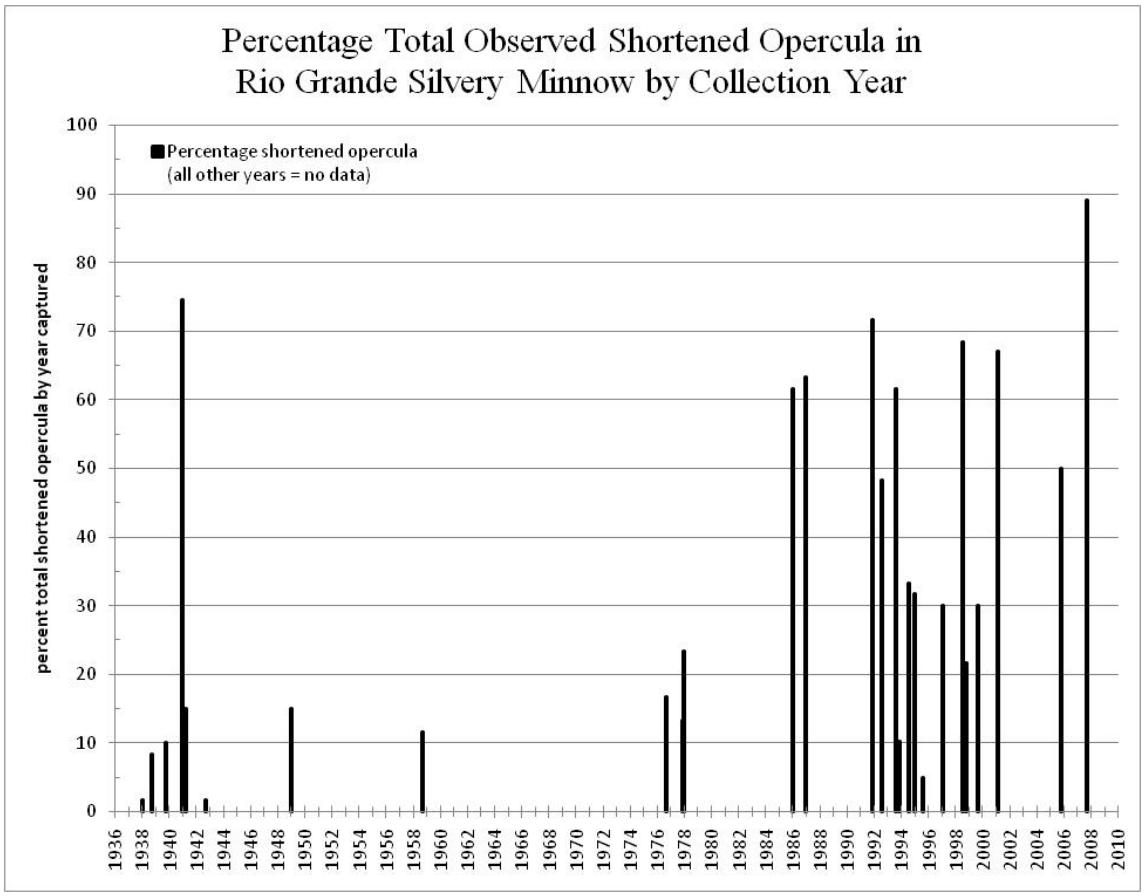

Figure 18. Percent shortened opercula in silvery minnows archived at the University of New Mexico, Museum of Southwestern Biology and in this study by year.

Turbulence and Suspended Sediment: During our study, suspended sediment concentrations averaged 1,936 mg/L at nearby USGS gage station and may provide abrasion to fish tissues including opercula. However, Papoulias et al. (2009) reported that opercula cleared for staining of bone and cartilage did not show signs of abrasion, but rather a reduced bone density as compared with opercula from silvery minnows reared in hatcheries. FODS also occurs in silvery minnows that were reared in hatchery water without suspended sediment. Silvery minnows in hatcheries are also raised in a carefully controlled environment and are protected from normal stress, trauma, and contusions that they would likely encounter in the wild environment. Therefore, we concluded that suspended sediment was not likely a direct factor in the incidence of FODS as it occurred in hatchery fish reared in water without suspended sediment and observations of shortened opercula did not appear to be the result of abrasion.

Genetic defects: Piron (1978) reported that tropical aquarium fish subjected to intensive inbreeding gave rise to a high incidence of spontaneous skeletal deformities which were related to a genetic defect rather than an environmental stimulus. Breeding and augmentation programs address the issue of inbreeding in silvery minnows, so a hereditary defect this does not appear to be an explanatory factor for the incidence of

FODS. Additionally, it is unlikely that the same pattern of genetic instability would occur in five different species of wild fish in two separate river basins.

Environmental Contamination: Lindesjöö et al. (1994) suggested that when fish detoxify pollutants they use their available vitamin C reserves for the detoxification process and thereby reduce the vitamin C available for collagen synthesis resulting in bone density losses and increased deformity rates. Olsson et al. (1999) reported opercula deformities associated with PCB exposure (particularly with PCB Congener 190) that resulted in larvae with craniofacial malformations, particularly opercula shortening that left the gill arches exposed, similar to our observation of FODS. However, their fish were exposed to PCB concentrations that were approximately 360 micrograms per kilogram (µg/kg), on a lipid basis. Lusk (2012b) reported that the maximum PCB concentrations in silvery minnows were less than 36 µg/kg, on a lipid basis. Additionally, PCB concentrations varied with collection location but the incidence of FODS in silvery minnows were generally consistent between sites within collection years (Figure 16). As PCB use was likely low during 1938, it is unlikely that PCB exposure is responsible for the incidence of FODS in the silvery minnows collected during that time. Additionally, hatchery-reared silvery minnows also have been exposed to feeds that contain trace amounts of PCBs, (Maule et al. 2007), we assumed that feed quality has been improved (Tacon and Metian 2008) over time and varied independent of FODS observations in silvery minnows reared in hatcheries.

However, due to their structural similarity with PCBs and their affinity for the same cellular receptors (Luthe et al. 2007), it is possible that some brominated diphenyl ether compounds (BDEs; flame retardant chemicals) may be found with mechanisms of toxicity comparable to PCBs. Lusk (2012b) reported BDE concentrations as high as 50 µg/kg in silvery minnows. Results from the few available laboratory studies indicate that BDEs disrupt thyroid hormones and may have endocrine-disrupting effects on fish (de Wit et al. 2006; Darnerud 2008; Talsness 2008). Thyroid hormones are critical to a developing fish and when they rise transformation begins in larvae and when they drop developmental changes cease. Tomy et al. (2004) reported that fish fed a mixture of BDEs have significantly reduced thyroid hormone concentrations compared with controls not fed BDEs. PCBs, BDEs and other organic compounds have been detected in fishes collected from Rio Grande (NMED 2009) and San Juan River Basins (Hinck et al. 2006), and including in silvery minnows (Lusk 2012b). Therefore, while unlikely, we cannot rule out environmental contamination as a potential cause of FODS in silvery minnows.

Nutrition: Ascorbic acid, or vitamin C, is a water soluble cofactor in many biological processes including collagen synthesis and other cellular and immune functions (Lall and Lewis-McRea 2007). Dietary vitamin C is required for most fish as they are unable to synthesize it to meet their requirements (Halver 2002). Skeletal malformations are common in vitamin C deficient fish and are caused by impaired biosynthesis of collagen (Halver 2002). As fish opercula are primarily made of protein, collagen, and calcium compounds, it is possible that vitamin C or other nutrient deficiency is a factor in the incidence of FODS. Nutritional deficiency could explain the incidence of FODS in silvery minnows (or other native fish species) if the habitat conditions for foods rich in

vitamin C were not readily available for developing fish larvae. Silvery minnows in hatcheries are supplemented with vitamin C (Caldwell 2004), and the incidence of FODS, while elevated (often greater than 50 percent), was not as severe as found in wild silvery minnows (Sykes 2003). Similar to Sykes (2003), we found inconsistent relationships between percent mesenteric fat ($r = -0.43$, $p = 0.004$) or Feeding index ($r = -0.45$, $p = 0.002$) and average percent of FODS in silvery minnows. However, nutritional deficiency remains a potential cause of FODS in silvery minnows. There are number of dietary items, such as diatoms, other plant and algal species, which can contain varying amounts of vitamin C (Brown and Jeffrey 1995), and that may be favored or unavailable in nursery habitats or diets during larval silvery minnow development and growth.

Water Temperature: Georgakopoulou et al. (2010) described and elevated incidence (45-100 percent) of skeletal deformities including FODS in hatchery marine fish due to water temperatures during fish development. They suggested that colder water temperatures had a significant effect on skeletal deformities, especially FODS, and the mechanism was thermally induced alteration of the mechanisms of bone development. We then reviewed available water temperature data and observations of FODS in silvery minnow collected from this study and in historical silvery minnow collections.

In this study, we found the average percent frequency of shortened opercula was negatively correlated with average temperature ($r = -0.42$, $p = 0.007$), suggesting that cold temperatures may play a role in the incidence of FODS. Lusk (2012a) reported that the 95 percent confidence intervals for average water temperatures were colder during Year 2 (11.9-12.1°C) than Year 1 (13.9-14.1°C), and the overall incidence of shortened opercula was 89 and 50 percent, respectively. (While the average percent shortened opercula was also positively correlated with average dissolved oxygen content ($r = 0.50$, $p = 0.001$), we ascribed that correlation to the temperature-dependant solubility of oxygen in water as oxygen saturation was not significantly correlated with incidence of FODS).

We also evaluated the historical incidence of FODS in silvery minnows, with May and June monthly water temperatures (i.e., during larval silvery minnow development), and monthly discharges reported at the Rio Grande at Cochiti, New Mexico (USGS Gage 08314500), and after 1970, below Cochiti Dam, New Mexico (USGS Gage 08317400). We found significant, but not robust correlations, with May ($r = -0.10$) and June water temperatures ($r = 0.25$), as well as a significant correlation ($r = -0.44$) with the mean monthly June discharge. It is likely that monthly water temperature and discharge measurements at USGS gages were inadequate to characterize the quality of nursery habitats for silvery minnows and relate to the observation of FODs in historical silvery minnows.

Also, water temperatures have been found vary by location within the MRG habitat continuum. For example, Abeyta and Lusk (2004a) reported that water temperatures range from 0 to 5.8°C for 37 transects and averaged 1.3±1.3°C across the river widths. Similarly, SWCA Environmental Consultants (2010) described water temperatures in floodplain habitats ranging from 6 to 13°C warmer to 10°C colder than main channel temperatures measured in May and June. Additionally, silvery minnows hatched and

reared at the Dexter National Fish Hatchery and Technology Center have a high incidence but low severity of FODS and their water temperatures range from 22-23°C during early life stages and range from 20-30°C during juvenile development and growth (Sykes 2003; M. Ulibarri, USFWS, written communication, August 2010).

We do not know the thermal optima for proper skeletal development of silvery minnows; however, water temperatures that are either too cold or too warm during fish development may have the potential to cause of FODS in silvery minnows. Dettinger (2005) reported that trends toward earlier snowmelt peak flows in the Rio Grande may be related to observed changes in our climate and these trends may have concomitant changes in water temperatures that may occur during fish development. Additionally, altered water temperatures could also affect the relative availability of different algal species (e.g., Wang and Evans 1969) during larval silvery minnow development. Therefore, while there was some evidence that suggested water temperatures may play a role in the incidence of FODs in silvery minnows, additional research is warranted on this factor.

Mechano-transduction: The vertebrate skeleton responds to mechanical forces and proper mechanical stimulation is required for the maintenance of healthy bones, bone repair, bone density and bone development (Turner et al. 2009; Danos and Staab 2010). The proper formation, density, growth and maintenance of bones depends on the mechanical loads generated by gravity and muscles (Danos and Staab 2010). Mechanical loading by muscle forces affects larval and embryonic bone development when fish are beginning to interact with their environment (Danos and Staab 2010). Annual and peak flows in the Rio Grande Basin has been significantly reduced from historical hydrographs (Julien et al. 2005). However, reduced peak flows due to construction of Cochiti Dam would not likely have affected the incidence of FODS observed in silvery minnows collected before 1978 (Figure 18), although the general frequency of FODS appears to increase thereafter. Additionally, hatchery-reared fish are not commonly subjected to high flood flows during their development and therefore, mechano-transduction may help explain the severity of FODS in silvery minnows reared in hatcheries. As described above, there was a significant negative correlation between the incidence of FODs in historical silvery minnows and discharge measured at USGS gages. It remains unclear whether reduced peak flows or some other discharge-related mechanical forces are involved in the incidence of FODS in silvery minnows.

The incidence of FODS in native fishes of the Rio Grande and in the San Juan River is providing us a signal relaying a complex message in a simplified and useful manner to identify potential environmental stressors that have not been adequately characterized. From our review, it appears that 1) changes in water temperature during fish development, 2) nutritional conditions of the diets of fish early life stages, and 3) changes in discharge-related mechanical forces appear to be the most likely factors affecting the development of FODS in silvery minnows. Gaining a better understanding of their skeletal development in relation to these factors would be important for potentially identifying the causes and management actions needed to reduce the occurrence and effects of FODs in silvery minnows as well as other native fish species.

SUMMARY AND RECOMMENDATIONS

Overall, the anomalies observed at the greatest frequency in silvery minnows included shortened opercula, liver anomalies, and gill anomalies. The level of these anomalies and results on other silvery minnows collected and evaluated contemporaneously (Papoulias et al., 2009; Woodland 2012) suggested that these fish were experiencing chronic stress. Spatially, silvery minnows collected from the upper sites were often healthier than silvery minnows collected from the lower sites, as indicated by the fish health indices and other indicators that tended to increase from upstream to downstream. Particularly, the incidence these anomalies increased during the second year of this study. During Year 2 of this study, water quality conditions were similar except for several pesticides (NMED 2009), water temperature, specific conductivity, and suspended sediment measured at nearby USGS gages (Lusk 2011).

Where appropriate, fish health assessments are recommended for monitoring of silvery minnows over time as it helps quantify their overall condition in relation to various habitat and water quality conditions. We also recommend the expanded use pathogen assessments and histopathology integrated into fish and water quality monitoring programs as they will yield a better understanding of pathogen and tissue trends as they relate to water quality changes in the Rio Grande over time. We also recommend that research be initiated in determining the cause(s) and quantifying the effects of shortened opercula on feeding, swimming, respiration, and growth of Rio Grande silvery minnow.

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Table 1. Site number, site name name, latitude and longitude (in decimal degress) of a central point, and description of the RGSM Health Study sampling sites.

Site Number	Site Name	Latitude and Longitude (central point - decimal degrees)	Site Location Description
1	Rio Grande at Bernalillo, New Mexico	35.3181, -106.5589	approximately 0.1 mi upstream to 0.8 mi downstream of the Highway 550 Bridge crossing
2	Rio Grande at Alameda, New Mexico	35.2101, -106.6172	approximately 0.7 mi upstream and 1.1 mi downstream of AMAFCA North Diversion Channel mouth
3	Rio Grande at Los Padillas, New Mexico	34.9716, -106.6897	Just north of the Interstate 25 Bridge to approximately 5 mi upstream
4	Rio Grande at Los Lunas, New Mexico	34.8228, -106.7149	approximately 0.6 mi to 2.4 mi north of the Main Street (Highway 6) Bridge crossing
5	Rio Grande at La Joya, New Mexico	34.3073, -106.8493	approximately 2.4 mi to 3.8 mi north of the confluence with the Rio Salado
6	Rio Grande near San Antonio, New Mexico	33.8775, -106.8495	approximately 0.5 mi downstream and 1.2 mi upstream of Bosque del Apache National Wildlife Refuge (BdANWR) North Boundary

Appendix 2A. Fish Health Examination Datasheet.

U.S. Fish & Wildlife Service
FISH HEALTH EXAMINATION SHEET

Date: ___/___/___ Fish ID# _____

Capture Time: _____ External Photo ☐

Workup START Time: _____

SPECIES: _____ **Initials:**

RECORDER:_____

Total ***Weight***: _____ (g) Total ***Length***: _____ (mm)

Gender: ☐Male ☐Female DISSECTOR:_____

EXTERNAL EXAM: ***(check all that apply)*** ***Note any condition caused by capture or holding method.**

EYES:

Left:
☐normal ☐opaque ☐OTHER *specify:*
☐exopthalmic ☐missing _____
☐hemorrhagic ☐emboli _____
in fixative _____ _____
of Photos _____

Right:
☐normal ☐opaque ☐OTHER *specify:*
☐exopthalmic ☐missing _____
☐hemorrhagic ☐emboli _____
in fixative _____ _____
of Photos _____

HEAD:
☐normal ☐OTHER *specify:*
☐tumors _____
☐lesions _____
☐parasite _____
in fixative _____
of Photos _____

BODY SURFACE:
☐normal ☐OTHER *specify:*
☐tumors _____
☐lesions _____
☐parasite _____
in fixative _____
of Photos _____

OPERCLES:

Right:
☐normal ☐OTHER *specify:*
☐slight shortening _____
☐severe shortening _____
in fixative _____ _____
of Photos _____

Left:
☐normal ☐OTHER *specify:*
☐slight shortening _____
☐severe shortening _____
in fixative _____ _____
of Photos _____

GILLS:

Left:
☐normal ☐marginate ☐OTHER *specify:*
☐frayed ☐pale _____
☐clubbed ☐parasites _____
VIAL NAME_____ _____
in fixative _____ _____
of Photos _____

Right:
☐normal ☐marginate ☐OTHER *specify:*
☐frayed ☐pale _____
☐clubbed ☐parasites _____
VIAL NAME_____ _____
in fixative _____ _____
of Photos _____

FINS: ***Note any condition caused by capture or holding method.**

Pectoral _____
Pelvic _____
Anal _____
Caudal _____
Dorsal _____
in fixative _____
of Photos _____

Fin Observation Key:
(N) normal
(M) mild erosion
(S) severe erosion
(F) frayed
(H) hemorrhagic
(E) emboli
(OT) Other – *specify*

OTHER *specify*:
_____
_____
_____
_____

NOTE: Any tissues taken during external examination should be described on this datasheet, placed in a histological vial, preserved and labeled appropriately.

REVIEWER'S INITIALS _____

Appendix 2A (continued).

INTERNAL EXAM: ***(check all that apply)***

Fish ID# _____

Internal Photo ☐

LIVER:

☐dark to light red (normal)
☐tan (coffee with cream)
☐general (overall) discoloration
☐focal (mottled) discoloration
☐nodules

☐OTHER *specify:*
_____
_____
_____

Weight _____(0.1g) *without gallbladder*

VIAL NAME_____
in fixative _____
of Photos _____

BILE:

Fullness:
☐empty
☐partly full
☐full

Color:
☐N/A (empty)
☐yellow
☐light-grass green
☐dark green to blue green

☐OTHER *specify:*
_____
_____

SPLEEN:

☐red to black (normal)
☐granular
☐nodular
☐enlarged

☐OTHER *specify:*
_____
_____
_____

Weight _____(0.002g)

VIAL NAME_____
in fixative _____
of Photos _____

GONADS:

Gender:
☐male
☐female
☐juvenile

Development:
☐ripe
☐spent
☐intermediate

☐OTHER *specify:*
_____
_____
_____

Weight _____(0.1g)

VIAL NAME_____
in fixative _____
of Photos _____

MESENTERIC FAT:

☐no fat ☐slight fat ☐50% ☐>50% ☐completely covered ☐parasites ☐OTHER

in fixative _____
of Photos _____

KIDNEY:

☐normal
☐swollen
☐mottled
☐granular
☐urolithiasis

☐OTHER *specify:*
_____
_____
_____

in fixative _____
of Photos _____

Hind:
☐normal
☐swollen
☐mottled
☐granular
☐urolithiasis

☐OTHER *specify:*
_____
_____
_____

in fixative _____
of Photos _____

Sample Summary:

☐None taken ☐Gill ☐Liver ☐Spleen ☐Gonad ☐OTHER:
_____
_____
_____

Workup END Time: _____

RECORDER'S INITIALS: _____ **DISSECTOR' INITIALS:** _____ **REVIEWER'S INITIALS:** _____

NOTES: _____
_____
_____

Appendix 2B. Fish health assessment variables and assigned values. [Field designations as described in Adams et al. 1992; adapted from Schmitt and Dethloff 2000, and described below]

Variable	Variable condition	Field Designation	Value Assigned
Eyes	Normal: no aberration	N	0
	Opaque (one or both)	O	30
	Exopthalmic (one or both)	E	30
	Emboli (one or both)	E	30
	Hemorrhaging (one or both)	H	30
	Missing (one or both)	M	30
	Other: aberration not fitting any above	OT	30
Body Surface (Skin)	Normal: no aberration	N	0
	Mild skin aberrations		10
	Moderate skin aberrations		20
	Severe skin aberrations (tumors, lesions, parasites)	T, L, P	30
Gills	Normal: no aberrations	N	0
	Frayed: ragged appearance (one or both)	F	30
	Clubbed: swelling of tips (one or both)	C	30
	Marginate: light discolored margins (one or both)	M	30
	Pale, very light color (one or both)	P	30
	Parasites (one or both)	P	30
	Other: aberration not fitting any above	OT	30
Fins	No active erosion	N	0
	Mild active erosion	M	10
	Moderate active erosion, some hemorrhage	M, H	20
	Severe active erosion with hemorrhage	S, H	30
Liver	Normal: solid red or light red color	NORMAL	0
	Tan: fatty or coffee w/ cream color	TAN	30
	Nodules or cysts	NOD	30
	Focal discoloration	FOC DIS	30
	General discoloration	GEN DIS	30
Spleen	Normal: Black, dark red to red	RED	0
	Granular: rough appearance	GRAN	0
	Nodular, containing fistulas or nodules	NOD	30
	Enlarged	ENLG	30
	Other: aberration not fitting any above	OT	30
Kidney	Normal: firm, dark, flat	N	0
	Swollen: enlarged or swollen	S	30
	Mottled: gray discoloration	M	30
	Granular in appearance and texture	G	30
	Urolithiasis or nephrocalcinosis: white mineral deposits	U	30
	Other: aberration not fitting any above	OT	30

Appendix 2C. Rio Grande silvery minnow examined during Year 1 and Year 2. [See Table 1 for Site number, name, and location]

Year 1 (2006-2007) Number of Fish used in Fish Health Assessment

Jul-06					
Date	**Site**	***n***	**Female**	**Male**	**Indeterminate**
7/27/2006	1	30	11	3	16
7/26/2006	2	30	3	0	27
7/25/2006	3	11	3	1	7
7/20/2006	4	30	13	0	17
7/19/2006	5	30	15	0	15
7/18/2006	6	27	5	1	21
		158	50	5	103
Oct-06					
Date	**Site**	***n***	**Female**	**Male**	**Indeterminate**
10/11/2006	1	27	12	6	9
10/12/2006	2	30	14	10	6
10/17/2006	3	18	8	10	0
10/16/2006	4	30	16	14	0
10/18/2006	5	27	22	3	2
	6	NO FISH			
		132	72	43	17
Jan-07					
Date	**Site**	***n***	**Female**	**Male**	**Indeterminate**
	1	NO FISH			
1/24/2007	2	17	10	7	0
1/23/2007	3	30	15	14	1
2/1/2007	4	30	15	15	0
1/31/2007	5	26	14	5	7
1/30/2007	6	30	16	14	0
		133	70	55	8
Apr-07					
Date	**Site**	***n***	**Female**	**Male**	**Indeterminate**
4/26/2007	1	15	3	12	0
4/25/2007	2	30	21	9	0
4/24/2007	3	19	12	7	0
4/19/2007	4	14	8	6	0
4/18/2007	5	15	6	8	1
	6	NO FISH			
		93	50	42	1

Total *n*	**Total Female**	**Total Male**	**Total Indeterminate**
516	242	145	129

Appendix 2C (continued).

Year 2 (2007-2008) Number of Fish used in Fish Health Assessment					
Oct-07					
Date	**Site**	***n***	**Female**	**Male**	**Indeterminate**
10/31/2007	1	25	15	4	6
10/30/2007	2	20	9	4	7
10/29/2007	3	15	10	5	0
10/25/2007	4	25	15	5	5
10/24/2007	5	20	11	7	2
10/23/2007	6	13	7	6	0
		118	67	31	20
Jan-08					
Date	**Site**	***n***	**Female**	**Male**	**Indeterminate**
1/30/2008	1	30	13	17	0
1/29/2008	2	30	16	14	0
1/28/2008	3	30	20	8	2
1/24/2008	4	30	16	14	0
1/23/2008	5	30	13	17	0
1/22/2008	6	30	17	13	0
		180	95	83	2
Apr-08					
Date	**Site**	***n***	**Female**	**Male**	**Indeterminate**
4/16/2008	1	30	14	16	0
4/15/2008	2	30	14	16	0
4/14/2008	3	30	17	13	0
4/8/2008	4	30	15	15	0
	5	NO FISH			
4/9/2008	6	15	11	4	0
		135	71	64	0
Jul-08					
Date	**Site**	***n***	**Female**	**Male**	**Indeterminate**
7/16/2008	1	30	18	12	0
7/15/2008	2	26	15	11	0
7/14/2008	3	6	6	0	0
7/10/2008	4	20	8	6	6
7/9/2008	5	9	0	0	9
7/8/2008	6	30	0	0	30
		121	47	29	45

Total *n*	**Total Female**	**Total Male**	**Total Indeterminate**
554	280	207	67

Appendix 2D. Total length (in millimeters) of Rio Grande silvery minnow collected from the Rio Grande during 2006–2007 (Year 1). [See Table 1 for site number, name, and locations. Sites are listed from upstream to downstream. Sample size (*n*), arithmetic mean (Mean), standard deviation (SD), and Range are provided]

	July 2006 (summer)				**October 2006 (fall)**				**January 2007 (winter)**				**April 2007 (spring)**			
Site	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**
1	30	70.6	4.46	57-77	27	60.7	6.2	51-80	--	--	--	--	15	75.4	11.0	46-85
2	30	71.1	4.90	64-81	30	70.2	11.9	49-86	17	67.6	9.57	51-85	30	58.5	9.95	45-83
3	11	74.5	6.80	61-84	18	80.6	9.5	64-98	30	75.0	11.1	53-92	19	59.6	6.29	47-72
4	30	67.7	4.44	57-77	30	78.5	6.5	54-85	30	79.9	7.06	62-90	14	79.6	7.91	98-91
5	30	71.4	4.70	60-78	27	76.4	12.1	57-94	26	53.8	12.1	42-98	15	60.7	12.8	45-90
6	27	65.4	4.77	52-74	--	--	--	--	30	79.3	6.32	65-89	--	--	--	--

Appendix 2D (Continued). Total length (in millimeters) of Rio Grande silvery minnow collected from the Rio Grande during 2007–2008 (Year 2). [See Table 1 for site number, name, and locations. Sites are listed from upstream to downstream. Sample size (*n*), arithmetic mean (Mean), standard deviation (SD), and Range are provided.

	October 2006 (fall)				**January 2007 (winter)**				**April 2007 (spring)**				**July 2008 (summer)**			
Site	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**
1	25	53.2	4.05	45-62	30	52.0	1.62	38-75	30	50.4	6.13	41-62	30	65.7	3.36	59-75
2	20	56.5	5.50	50-76	30	61.4	8.79	51-93	30	56.2	9.16	42-78	26	64.3	3.02	58-71
3	15	70.9	6.39	59-82	30	58.3	8.33	45-76	30	62.8	8.21	50-85	6	67.7	10.6	56-85
4	25	59.9	5.10	50-69	30	58.1	5.36	47-70	30	54.9	6.79	46-75	20	58.5	17.6	32-83
5	20	67.7	4.56	59-75	30	68.6	7.71	36-80	--	--	--	--	9	35.9	2.32	33-40
6	13	64.2	3.52	45-92	30	62.1	10.4	40-81	15	65.6	7.50	54-83	30	41.7	4.21	35-53

Appendix 2E. Weight (grams) of Rio Grande silvery minnow collected from the Rio Grande during 2006–2007 (Year 1). [See Table 1 for site number, name, and locations. Sites are listed from upstream to downstream. Sample size (n), arithmetic mean (Mean), standard deviation (SD), and range are provided]

	July 2006 (summer)				**October 2006 (fall)**				**January 2007 (winter)**				**April 2007 (spring)**			
Site	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**
1	30	2.882	0.56	1.526-4.048	27	1.633	0.57	0.809-3.540	--	--	--	--	15	4.187	1.42	1.007-6.168
2	30	3.083	0.71	1.839-4.598	30	2.869	1.2	0.962-4.852	17	2.241	0.92	0.862-4.333	30	1.963	1.25	0.730-5.943
3	11	3.523	0.85	2.122-4.691	18	4.401	1.5	1.955-7.835	30	3.393	1.49	1.012-6.535	19	2.183	0.73	1.153-3.372
4	30	2.765	0.54	1.617-3.679	30	4.211	0.89	1.519-5.585	30	4.281	1.09	1.802-6.195	14	5.306	1.79	2.812-7.820
5	30	2.917	0.54	2.021-3.945	27	4.066	1.85	1.521-7.121	26	1.498	1.44	0.589-7.981	15	2.222	1.65	0.920-6.890
6	27	2.246	0.45	1.440-3.240	--	--	--	--	30	4.290	0.99	2.361-6.318	--	--	--	--

Appendix 2E (Continued). Weight (grams) of Rio Grande silvery minnow collected from the Rio Grande during 2007–2008 (Year 2). [See Table 1 for site number, name, and locations. Sites are listed from upstream to downstream. Sample size (n), arithmetic mean (Mean), standard deviation (SD), and range are provided]

	October 2007 (fall)				**January 2008 (winter)**				**April 2008 (spring)**				**July 2008 (summer)**			
Site	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**
1	25	1.197	0.31	0.734-1.988	30	1.185	0.74	0.449-3.303	30	1.302	0.48	0.618-2.403	30	2.276	0.43	1.626-3.499
2	20	1.533	0.63	1.058-4.006	29	1.887	1.05	0.945-6.085	30	1.832	0.90	0.671-4.368	26	2.272	0.31	1.783-2.852
3	15	3.245	0.97	1.497-5.390	30	1.551	0.74	0.606-3.389	30	2.766	1.22	1.317-7.304	6	3.080	1.64	1.343-6.037
4	25	1.757	0.37	0.935-2.641	30	1.625	0.47	0.765-3.022	30	1.683	0.75	0.786-4.496	20	2.018	1.36	0.249-4.973
5	20	2.522	0.58	1.403-3.558	30	2.764	0.80	0.585-4.551	--	--	--	--	9	0.438	0.09	0.330-0.560
6	13	2.458	1.32	0.720-5.416	30	2.085	1.06	0.575-4.492	15	2.698	1.12	1.027-5.668	30	0.692	0.21	0.444-1.367

Appendix 2F. Splenosomatic Index (SSI) of Rio Grande silvery minnows collected from the Rio Grande during 2006–2007 (Year 1). [See Table 1 for site number, name, and locations. Sites are listed from upstream to downstream. Sample size (n), arithmetic mean (Mean), standard deviation (SD), and range are provided]

	July 2006 (summer)				October 2006 (fall)				January 2007 (winter)				April 2007 (spring)			
Site	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**	***n***	**Mean**	**SD**	**Range**
1	30	0.21	0.20	0.03-0.68	27	0.13	0.12	0.05-0.68	--	--	--	--	15	0.10	0.06	0.03-0.24
2	30	0.20	0.21	0.03-0.98	30	0.11	0.05	0.05-0.23	17	0.10	0.09	0.02-0.41	30	0.13	0.13	0.02-0.56
3	11	0.23	0.16	0.02-0.52	18	0.12	0.03	0.06-0.19	30	0.09	0.05	0.03-0.22	19	0.07	0.04	0.03-0.15
4	30	0.08	0.05	0.03-0.24	30	0.09	0.03	0.02-0.17	30	0.10	0.06	0.04-0.35	14	0.09	0.05	0.04-0.19
5	30	0.11	0.08	0.03-0.30	27	0.08	0.03	0.04-0.16	26	0.09	0.07	0.04-0.36	15	0.06	0.04	0.02-0.17
6	27	0.16	0.10	0.04-0.43	--	--	--	--	30	0.10	0.05	0.03-0.24	--	--	--	--

Appendix 2F (Continued). Splenosomatic Index (SSI) of Rio Grande silvery minnows collected from the Rio Grande during 2007–2008 (Year 2). [See Table 1 for site number, name, and locations. Sites are listed from upstream to downstream. Sample size (n), arithmetic mean (Mean), standard deviation (SD), and range are provided]

	October 2007 (fall)				January 2008 (winter)				April 2008 (spring)				July 2008 (summer)			
Site	[1]***n***	**Mean**	**SD**	**Range**	[2]***n***	**Mean**	**SD**	**Range**	[1]***n***	**Mean**	**SD**	**Range**	[1]***n***	**Mean**	**SD**	**Range**
1	25	0.13	0.11	0.03-0.44					30	0.09	0.08	0.03-0.37	30	0.31	0.11	0.15-0.55
2	20	0.11	0.09	0.03-0.36					30	0.09	0.06	0.04-0.33	26	0.26	0.14	0.02-0.48
3	15	0.50	0.76	0.10-2.87					30	0.08	0.06	0.03-0.27	--	--	--	--
4	25	0.15	0.10	0.03-0.37					30	0.08	0.06	0.02-0.21	20	0.17	0.12	0.05-0.32
5	20	0.10	0.08	0.02-0.27					--	--	--	--	--	--	--	--
6	13	0.09	0.05	0.03-0.17					15	0.08	0.05	0.04-0.16	--	--	--	--

[1]Spleen weight not recorded for all fish at each site.
[2]No spleen weight recorded during January sampling.

Appendix 2G. Distribution of Health Assessment Index (HAI) scores from Rio Grande silvery minnows collected from the Rio Grande during 2006–2007 (Year 1). [Sample size (n), arithmetic mean (Mean), and standard error (SE) are provided]

	Health Assessment Index (HAI) Score																			
Season	**0**	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	***n***	**Mean**	**SE**
July 2006	9	8	3	18	25	6	13	26	6	8	20	4	5	5	0	0	2	158	62	5.61
Oct 2006	23	8	2	37	17	1	18	14	0	11	6	0	2	2	1	0	0	132	45	5.87
Jan 2007	13	5	2	24	14	3	27	21	0	13	8	0	1	1	0	0	1	133	53	5.34
Apr 2007	12	7	0	10	20	12	5	10	3	2	4	3	1	2	0	0	2	93	50	7.45

Appendix 2G (Continued). Distribution of Health Assessment Index (HAI) scores from Rio Grande silvery minnows collected from the Rio Grande during 2007–2008 (Year 2). [Sample size (n), arithmetic mean (Mean), and standard error (SE) are provided]

	Health Assessment Index (HAI) Score																			
Season	**0**	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	***n***	**Mean**	**SE**
Oct 2007	4	6	1	9	21	4	5	33	7	3	10	3	2	7	0	1	2	118	66	3.25
Jan 2008	0	2	1	21	5	1	107	6	7	19	3	1	6	1	0	0	0	180	63	1.58
Apr 2008	2	10	0	3	34	2	4	40	5	7	17	2	3	5	0	0	1	135	65	2.73
July 2008	1	9	2	7	31	1	4	33	3	6	16	4	2	1	0	0	1	121	62	2.82

Appendix 2H**.** Percent abnormalities observed in Rio Grande silvery minnows during Year 1 (2006-2007) and Year 2 (2007-2008) of the Rio Grande Silvery Minnow Health Study.

Anomalies	**Year 1 Percent (n = 516)**	**Year 2 Percent (n = 554)**
Shortened Opercula	50 (n = 260)	89 (n = 494)
External Lesions/Tumors[1]	25 (n = 127)	13 (n = 71)
Gill abnormalities	44 (n = 179)	56 (n = 279)
Liver abnormalities	45 (n = 233)	59 (n = 326)
Spleen abnormalities	22 (n = 125)	9 (n = 59)
Kidney abnormalities	16 (n = 82)	24 (n = 135)

[1]External Lesions/Tumors include all body surface, head, eye and fin anomalies observed.

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
100-(((1/3)*1(	7/27/2006	)0-(((1/3)*1(	2006	)0-(((1/3)*1(	WJR06-468	I	3.277	74	N	N	N	N	.00-(((1/3)*10(	00-(((1/3)*10(	N
7/06/1-71	7/27/2006	1	2006	1	WJR06-468	F	3.164	71	N	N	N	N	2	1	N
7/06/1-72	7/27/2006	1	2006	1	WJR06-468	I	2.822	69	N	N	N	N	2	2	N
7/06/1-73	7/27/2006	1	2006	1	WJR06-468	F	3.384	76	N	N	N	N	0	0	F
7/06/1-74	7/27/2006	1	2006	1	WJR06-468	F	3.233	75	N	N	OT	OT	2	2	N
7/06/1-75	7/27/2006	1	2006	1	WJR06-468	I	3.494	77	N	N	N	N	2	2	N
7/06/1-76	7/27/2006	1	2006	1	WJR06-468	F	2.647	70	N	N	N	N	1	1	N
7/06/1-77	7/27/2006	1	2006	1	WJR06-468	I	1.667	60	N	N	N	N	0	0	N
7/06/1-78	7/27/2006	1	2006	1	WJR06-468	M	3.289	73	N	N	N	N	0	0	N
7/06/1-79	7/27/2006	1	2006	1	WJR06-468	I	3.116	75	N	N	N	N	1	2	F
7/06/1-80	7/27/2006	1	2006	1	WJR06-468	I	2.924	72	N	N	N	N	0	0	FP
7/06/1-81	7/27/2006	1	2006	1	WJR06-468	I	2.818	72	N	N	N	N	0	0	FP
7/06/1-82	7/27/2006	1	2006	1	WJR06-468	F	2.547	70	N	N	N	N	0	0	FP
7/06/1-83	7/27/2006	1	2006	1	WJR06-468	I	3.002	71	N	N	N	N	0	0	N
7/06/1-84	7/27/2006	1	2006	1	WJR06-468	I	2.871	72	N	N	N	N	0	0	N
7/06/1-85	7/27/2006	1	2006	1	WJR06-468	F	2.843	71	N	N	0	L OT	0	0	N
7/06/1-86	7/27/2006	1	2006	1	WJR06-468	F	3.860		N	N	N	N	0	0	N
7/06/1-87	7/27/2006	1	2006	1	WJR06-468	F	3.268	73	N	N	N	N	0	0	N
7/06/1-88	7/27/2006	1	2006	1	WJR06-468	I	3.021	74	N	N	N	N	0	0	N
7/06/1-89	7/27/2006	1	2006	1	WJR06-468	F	2.064		N	N	N	N	0	0	N
7/06/1-90	7/27/2006	1	2006	1	WJR06-468	I	1.526	57	N	N	N	N	1	1	P
7/06/1-91	7/27/2006	1	2006	1	WJR06-468	M	2.972	73	N	N	N	N	0	0	N
7/06/1-92	7/27/2006	1	2006	1	WJR06-468	I	2.643	68	N	N	N	N	0	0	N
7/06/1-93	7/27/2006	1	2006	1	WJR06-468	I	4.048		N	N	N	N	0	0	N
7/06/1-94	7/27/2006	1	2006	1	WJR06-468	F	2.386	67	N	N	N	N	0	0	N
7/06/1-95	7/27/2006	1	2006	1	WJR06-468	F	3.122	72	N	N	N	N	0	0	N
7/06/1-96	7/27/2006	1	2006	1	WJR06-468	I	2.092	65	N	N	N	N	0	0	N
7/06/1-97	7/27/2006	1	2006	1	WJR06-468	I	2.415	68	N	N	N	N	0	0	N
7/06/1-98	7/27/2006	1	2006	1	WJR06-468	I	2.841	71	N	N	N	N	1	2	N
7/06/1-99	7/27/2006	1	2006	1	WJR06-468	M	3.098	71	N	N	N	N	0	2	N
7/06/2-70	7/26/2006	1	2006	2	WJR06-466	I	3.778	77	N	N	N	N	1	1	N
7/06/2-71	7/26/2006	1	2006	2	WJR06-466	I	2.636	68	N	N	L	N	1	1	N
7/06/2-72	7/26/2006	1	2006	2	WJR06-466	I	3.529	73	N	N	N	N	1	1	N
7/06/2-73	7/26/2006	1	2006	2	WJR06-466	I	3.767	76	OT	N	N	N	1	1	F
7/06/2-74	7/26/2006	1	2006	2	WJR06-466	I	3.356	73	N	N	OT	L	0	0	N
7/06/2-75	7/26/2006	1	2006	2	WJR06-466	I	2.684	69	N	N	N	N	0	0	N
7/06/2-76	7/26/2006	1	2006	2	WJR06-466	I	2.967	71	N	N	N	N	0	0	P
7/06/2-77	7/26/2006	1	2006	2	WJR06-466	I	3.554	74	N	N	N	L	1	1	N
7/06/2-78	7/26/2006	1	2006	2	WJR06-466	I	3.609	77	N	H	OT	N	0	0	N
7/06/2-79	7/26/2006	1	2006	2	WJR06-466	I	3.205	76	N	N	N	L	1	1	C P
7/06/2-80	7/26/2006	1	2006	2	WJR06-466	I	2.527	64	N	N	N	L	1	1	N
7/06/2-81	7/26/2006	1	2006	2	WJR06-466	I	2.797	67	N	N	N	N	0	0	P
7/06/2-82	7/26/2006	1	2006	2	WJR06-466	I	3.895	75	N	N	N	L P	0	0	N
7/06/2-83	7/26/2006	1	2006	2	WJR06-466	I	3.185	70	N	N	N	N	0	0	N
7/06/2-84	7/26/2006	1	2006	2	WJR06-466	F	4.494	81	N	N	N	N	1	1	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
7/06/2-85	7/26/2006	1	2006	2	WJR06-466	I	2.514	68	N	N	N	N	1	1	N
7/06/2-86	7/26/2006	1	2006	2	WJR06-466	I	2.504	66	N	N	N	N	1	1	N
7/06/2-87	7/26/2006	1	2006	2	WJR06-466	I	2.530	68	N	N	L	N	1	1	N
7/06/2-88	7/26/2006	1	2006	2	WJR06-466	I	2.833	72	N	N	N	N	1	1	N
7/06/2-89	7/26/2006	1	2006	2	WJR06-466	I	1.983	64	N	N	N	N	2	2	N
7/06/2-90	7/26/2006	1	2006	2	WJR06-466	I	2.379	66	N	N	OT	N	1	1	N
7/06/2-91	7/26/2006	1	2006	2	WJR06-466	I	1.839	64	N	H	N	N	0	0	P
7/06/2-92	7/26/2006	1	2006	2	WJR06-466	F	4.197	80	N	N	N	N	1	1	N
7/06/2-93	7/26/2006	1	2006	2	WJR06-466	I	3.351	74	N	N	N	N	1	1	N
7/06/2-94	7/26/2006	1	2006	2	WJR06-466	I	2.338	67	N	N	N	N	0	0	N
7/06/2-95	7/26/2006	1	2006	2	WJR06-466	I	3.451	71	N	N	N	OT	1	1	N
7/06/2-96	7/26/2006	1	2006	2	WJR06-466	I	2.968	72	N	N	N	N	0	0	N
7/06/2-97	7/26/2006	1	2006	2	WJR06-466	F	4.598	78	N	N	OT	N	0	0	N
7/06/2-98	7/26/2006	1	2006	2	WJR06-466	I	2.330	67	N	N	OT	N	0	0	N
7/06/2-99	7/26/2006	1	2006	2	WJR06-466	I	2.685	66	N	N	N	N	0	0	N
7/06/3-70	7/25/2006	1	2006	3	WJR06-464	I	4.691	76	N	N	N	N	1	1	N
7/06/3-71	7/25/2006	1	2006	3	WJR06-464	I	2.458	67	N	N	N	N	1	2	P
7/06/3-72	7/25/2006	1	2006	3	WJR06-464	F	4.362	84	N	H	N	N	2	2	FPP
7/06/3-73	7/25/2006	1	2006	3	WJR06-464	I	3.816	77	N	N	N	N	1	1	OT
7/06/3-74	7/25/2006	1	2006	3	WJR06-464	I	2.122	61	N	N	N	N	1	1	N
7/06/3-75	7/25/2006	1	2006	3	WJR06-464	I	2.602	68	N	N	N	N	1	1	FP
7/06/3-76	7/25/2006	1	2006	3	WJR06-464	F	3.488	77	N	N	N	N	0	0	F
7/06/3-77	7/25/2006	1	2006	3	WJR06-464	M	3.470	76	N	N	N	L	1	0	N
7/06/3-78	7/25/2006	1	2006	3	WJR06-464	F	4.495	83	N	N	N	N	1	1	N
7/06/3-79	7/25/2006	1	2006	3	WJR06-464	I	3.956	76	N	N	OT	N	1	1	N
7/06/3-80	7/25/2006	1	2006	3	WJR06-464	I	3.296	74	N	N	N	N	1	1	N
7/06/4-70	7/20/2006	1	2006	4	WJR06-462	F	3.013	68	N	N	N	N	1	1	N
7/06/4-71	7/20/2006	1	2006	4	WJR06-462	I	3.017	69	N	N	N	N	0	0	N
7/06/4-72	7/20/2006	1	2006	4	WJR06-462	F	2.310	65	N	N	N	N	0	0	P
7/06/4-73	7/20/2006	1	2006	4	WJR06-462	F	3.613	75	N	N	N	LP	0	0	N
7/06/4-74	7/20/2006	1	2006	4	WJR06-462	F	2.798	66	N	N	N	N	0	1	N
7/06/4-75	7/20/2006	1	2006	4	WJR06-462	I	2.947	69	N	N	N	N	1	1	N
7/06/4-76	7/20/2006	1	2006	4	WJR06-462	F	2.558	64	N	N	N	N	1	0	P OT
7/06/4-77	7/20/2006	1	2006	4	WJR06-462	F	2.358	66	N	N	N	N	1	2	N
7/06/4-78	7/20/2006	1	2006	4	WJR06-462	F	2.781	65	N	N	N	N	0	1	N
7/06/4-79	7/20/2006	1	2006	4	WJR06-462	F	3.508	72	N	N	N	N	0	0	N
7/06/4-80	7/20/2006	1	2006	4	WJR06-462	I	2.809	67	N	N	N	N	0	1	N
7/06/4-81	7/20/2006	1	2006	4	WJR06-462	I	2.745	67	N	N	N	N	1	1	N
7/06/4-82	7/20/2006	1	2006	4	WJR06-462	F	3.136	69	N	N	N	N	0	0	N
7/06/4-83	7/20/2006	1	2006	4	WJR06-462	F	1.928	62	N	N	N	N	1	1	N
7/06/4-84	7/20/2006	1	2006	4	WJR06-462	F	2.829	68	N	N	N	N	1	1	N
7/06/4-85	7/20/2006	1	2006	4	WJR06-462	F	3.221	72	N	N	N	N	0	0	F
7/06/4-86	7/20/2006	1	2006	4	WJR06-462	I	1.884		N	N	N	N	1	1	F
7/06/4-87	7/20/2006	1	2006	4	WJR06-462	F	2.016	64	N	N	N	L	0	1	N
7/06/4-88	7/20/2006	1	2006	4	WJR06-462	I	3.288	77	N	N	N	LP	0	0	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
7/06/4-89	7/20/2006	1	2006	4	WJR06-462	I	2.764	70	N	N	L	N	1	1	N
7/06/4-90	7/20/2006	1	2006	4	WJR06-462	I	2.946	69	N	N	N	N	0	0	N
7/06/4-91	7/20/2006	1	2006	4	WJR06-462	I	2.868	68	N	N	N	N	1	1	F
7/06/4-92	7/20/2006	1	2006	4	WJR06-462	I	1.933	58	N	N	N	N	0	0	N
7/06/4-93	7/20/2006	1	2006	4	WJR06-462	I	1.617	57	N	N	N	N	1	1	N
7/06/4-94	7/20/2006	1	2006	4	WJR06-462	I	3.451	72	N	N	N	N	1	1	N
7/06/4-95	7/20/2006	1	2006	4	WJR06-462	I	2.407	67	N	N	N	N	1	1	N
7/06/4-96	7/20/2006	1	2006	4	WJR06-462	I	2.712	65	N	N	N	N	1	1	N
7/06/4-97	7/20/2006	1	2006	4	WJR06-462	I	3.275	72	N	N	N	N	1	1	FP
7/06/4-98	7/20/2006	1	2006	4	WJR06-462	I	2.534	68	N	N	N	LP	1	1	FP
7/06/4-99	7/20/2006	1	2006	4	WJR06-462	I	3.679	73	N	N	N	N	1	1	CM
7/06/5-70	7/19/2006	1	2006	5	WJR06-461	F	2.499	66	N	N	N	N	1	1	N
7/06/5-71	7/19/2006	1	2006	5	WJR06-461	F	2.712	72	N	N	N	N	1	1	N
7/06/5-72	7/19/2006	1	2006	5	WJR06-461	F	3.669	77	N	N	N	L	0	1	N
7/06/5-73	7/19/2006	1	2006	5	WJR06-461	F	2.061	60	N	N	L	N	1	0	N
7/06/5-74	7/19/2006	1	2006	5	WJR06-461	F	2.522	69	N	N	N	N	1	1	N
7/06/5-75	7/19/2006	1	2006	5	WJR06-461	F	2.675	71	N	N	N	L	1	1	N
7/06/5-76	7/19/2006	1	2006	5	WJR06-461	F	3.362	74	N	N	LP	N	0	0	N
7/06/5-77	7/19/2006	1	2006	5	WJR06-461	F	2.929	72	N	N	N	N	2	1	N
7/06/5-78	7/19/2006	1	2006	5	WJR06-461	I	2.021	63	N	N	N	N	2	2	P
7/06/5-79	7/19/2006	1	2006	5	WJR06-461	I	3.417	74	N	N	N	N	0	1	N
7/06/5-80	7/19/2006	1	2006	5	WJR06-461	I	3.768	76	N	N	N	N	1	1	N
7/06/5-81	7/19/2006	1	2006	5	WJR06-461	F	2.906	73	N	N	N	N	1	1	F
7/06/5-82	7/19/2006	1	2006	5	WJR06-461	F	3.417	78	N	N	N	OT	1	1	N
7/06/5-83	7/19/2006	1	2006	5	WJR06-461	I	2.944	68	N	N	N	N	0	0	F
7/06/5-84	7/19/2006	1	2006	5	WJR06-461	I	3.341	74	N	N	N	L	0	0	N
7/06/5-85	7/19/2006	1	2006	5	WJR06-461	I	3.471	76	N	N	N	P	1	1	N
7/06/5-86	7/19/2006	1	2006	5	WJR06-461	I	3.283	76	N	N	N	N	1	1	N
7/06/5-87	7/19/2006	1	2006	5	WJR06-461	I	2.718	72	N	N	N	N	1	1	N
7/06/5-88	7/19/2006	1	2006	5	WJR06-461	I	2.772	70	N	N	N	N	2	0	N
7/06/5-89	7/19/2006	1	2006	5	WJR06-461	I	2.309	68	N	N	N	N	1	1	F
7/06/5-90	7/19/2006	1	2006	5	WJR06-461	F	3.311	77	N	N	N	L	1	1	N
7/06/5-91	7/19/2006	1	2006	5	WJR06-461	F	2.261	66	N	N	N	P	1	0	N
7/06/5-92	7/19/2006	1	2006	5	WJR06-461	F	3.945	77	N	N	N	L	1	1	N
7/06/5-93	7/19/2006	1	2006	5	WJR06-461	F	3.102	75	N	N	N	N	1	1	F
7/06/5-94	7/19/2006	1	2006	5	WJR06-461	I	2.688	69	N	N	N	N	1	1	N
7/06/5-95	7/19/2006	1	2006	5	WJR06-461	I	3.664	77	N	N	N	N	1	1	CP
7/06/5-96	7/19/2006	1	2006	5	WJR06-461	I	2.599	72	N	N	N	N	1	1	P
7/06/5-97	7/19/2006	1	2006	5	WJR06-461	I	2.191	65	N	N	N	N	2	1	N
7/06/5-98	7/19/2006	1	2006	5	WJR06-461	I	2.410	66	N	N	N	N	2	1	N
7/06/5-99	7/19/2006	1	2006	5	WJR06-461	F	2.540	69	N	N	N	P	0	2	CM
7/06/6-70	7/18/2006	1	2006	6	SRD06-045	I	2.313	65	N	N	N	N	1	1	FP
7/06/6-71	7/18/2006	1	2006	6	SRD06-045	I	2.660	67	N	N	N	N	1	0	C
7/06/6-72	7/18/2006	1	2006	6	SRD06-045	I	3.000	72	N	N	N	N	1	1	N
7/06/6-73	7/18/2006	1	2006	6	SRD06-045	I	3.240	74	N	N	N	N	0	1	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
7/06/6-74	7/18/2006	1	2006	6	SRD06-045	I	2.130	62	N	N	N	N	0	0	N
7/06/6-75	7/18/2006	1	2006	6	SRD06-045	I	2.190	66	N	N	N	N	0	1	N
7/06/6-76	7/18/2006	1	2006	6	SRD06-045	I	2.640	71	N	N	N	N	1	1	N
7/06/6-77	7/18/2006	1	2006	6	SRD06-045	I	1.440	52	N	N	N	N	0	1	N
7/06/6-78	7/18/2006	1	2006	6	SRD06-045	I	2.570	68	N	N	N	N	0	1	F
7/06/6-79	7/18/2006	1	2006	6	SRD06-045	I	2.322	65	N	N	N	N	0	0	N
7/06/6-80	7/18/2006	1	2006	6	SRD06-045	I	2.151	64	H	N	N	N	0	0	N
7/06/6-81	7/18/2006	1	2006	6	SRD06-045	I	2.748	70	N	N	N	N	0	0	N
7/06/6-82	7/18/2006	1	2006	6	SRD06-045	F	2.871	73	N	N	N	N	1	1	N
7/06/6-83	7/18/2006	1	2006	6	SRD06-045	F	2.418	71	N	N	OT	N	1	2	N
7/06/6-84	7/18/2006	1	2006	6	SRD06-045	F	1.976	64	N	N	N	L	0	0	N
7/06/6-85	7/18/2006	1	2006	6	SRD06-045	I	2.082	63	N	N	N	N	0	0	N
7/06/6-86	7/18/2006	1	2006	6	SRD06-045	I	2.090	65	N	N	N	N	0	0	N
7/06/6-87	7/18/2006	1	2006	6	SRD06-045	I	2.331	63	N	N	N	N	0	1	N
7/06/6-88	7/18/2006	1	2006	6	SRD06-045	I	2.306	66	N	N	N	N	0	0	N
7/06/6-89	7/18/2006	1	2006	6	SRD06-045	I	1.550	64	N	N	N	L	1	1	F
7/06/6-90	7/18/2006	1	2006	6	SRD06-045	F	1.820	62	N	N	N	N	0	0	N
7/06/6-91	7/18/2006	1	2006	6	SRD06-045	I	2.430	64	N	N	N	P	0	1	CP
7/06/6-92	7/18/2006	1	2006	6	SRD06-045	F	1.490	58	N	N	N	N	0	1	N
7/06/6-93	7/18/2006	1	2006	6	SRD06-045	I	1.616	60	N	N	N	N	1	1	N
7/06/6-94	7/18/2006	1	2006	6	SRD06-045	I	2.008	67	N	N	N	N	1	1	N
7/06/6-95	7/18/2006	1	2006	6	SRD06-045	I	2.045	68	H	N	N	N	1	2	N
7/06/6-96	7/18/2006	1	2006	6	SRD06-045	M	2.211	63	N	N	N	N	1	1	N
10/06/1-70	10/11/2006	1	2006	1	SRD06-060	I	1.493	61	N	N	N	N	2	1	N
10/06/1-71	10/11/2006	1	2006	1	SRD06-060	M	2.105	65	N	N	N	N	0	0	N
10/06/1-72	10/11/2006	1	2006	1	SRD06-060	F	3.540	80	N	N	N	N	0	0	N
10/06/1-73	10/11/2006	1	2006	1	SRD06-060	I	1.671	63	N	N	N	N	0	1	N
10/06/1-74	10/11/2006	1	2006	1	SRD06-060	F	2.722	71	N	N	N	N	1	0	N
10/06/1-75	10/11/2006	1	2006	1	SRD06-060	I	1.268	55	N	N	N	N	0	0	N
10/06/1-76	10/11/2006	1	2006	1	SRD06-060	M	1.669	61	N	N	N	N	0	0	N
10/06/1-77	10/11/2006	1	2006	1	SRD06-060	F	1.880	63	N	N	N	N	0	0	N
10/06/1-78	10/11/2006	1	2006	1	SRD06-060	F	1.327	57	N	N	N	N	0	0	P
10/06/1-79	10/11/2006	1	2006	1	SRD06-060	F	2.357	69	N	N	N	LP	0	0	N
10/06/1-80	10/11/2006	1	2006	1	SRD06-060	M	1.654	62	N	N	N	N	1	1	N
10/06/1-81	10/11/2006	1	2006	1	SRD06-060	F	1.968	65	OT	N	N	N	0	0	M
10/06/1-82	10/11/2006	1	2006	1	SRD06-060	M	1.417	58	N	N	N	N	0	0	N
10/06/1-83	10/11/2006	1	2006	1	SRD06-060	I	1.210	55	N	N	N	N	0	0	CP
10/06/1-84	10/11/2006	1	2006	1	SRD06-060	M	1.328	56	N	N	N	N	0	0	N
10/06/1-85	10/11/2006	1	2006	1	SRD06-060	I	1.028	55	N	N	N	N	0	1	N
10/06/1-86	10/11/2006	1	2006	1	SRD06-060	F	1.971	67	N	N	N	N	1	0	P
10/06/1-87	10/11/2006	1	2006	1	SRD06-060	F	1.158	56	N	N	N	N	0	0	N
10/06/1-88	10/11/2006	1	2006	1	SRD06-060	F	1.377	58	N	N	N	N	0	0	N
10/06/1-89	10/11/2006	1	2006	1	SRD06-060	M	1.323	57	N	N	N	N	0	0	N
10/06/1-90	10/11/2006	1	2006	1	SRD06-060	F	1.937	65	N	N	N	N	0	0	N
10/06/1-91	10/11/2006	1	2006	1	SRD06-060	I	1.356	58	N	N	N	N	0	0	N

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SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
10/06/1-92	10/11/2006	1	2006	1	SRD06-060	I	1.348	57	N	N	N	N	0	0	N
10/06/1-93	10/11/2006	1	2006	1	SRD06-060	F	1.142	53	N	N	N	N	0	0	CP
10/06/1-94	10/11/2006	1	2006	1	SRD06-060	I	1.489	60	N	N	N	N	0	0	N
10/06/1-95	10/11/2006	1	2006	1	SRD06-060	F	1.552	62	N	N	N	N	0	0	N
10/06/1-96	10/11/2006	1	2006	1	SRD06-060	I	0.809	51	N	N	N	N	0	0	N
10/06/2-70	10/12/2006	1	2006	2	SRD06-061	F	2.761	71	N	N	N	N	0	0	N
10/06/2-71	10/12/2006	1	2006	2	SRD06-061	F	3.573	79	N	N	N	N	0	0	N
10/06/2-72	10/12/2006	1	2006	2	SRD06-061	M	3.805	78	N	N	N	N	0	0	N
10/06/2-73	10/12/2006	1	2006	2	SRD06-061	F	1.442	56	N	N	N	N	1	1	C
10/06/2-74	10/12/2006	1	2006	2	SRD06-061	F	4.574	85	N	N	N	N	0	0	N
10/06/2-75	10/12/2006	1	2006	2	SRD06-061	F	3.239	75	N	N	N	N	1	1	P
10/06/2-76	10/12/2006	1	2006	2	SRD06-061	F	1.153	52	N	N	N	N	0	0	N
10/06/2-77	10/12/2006	1	2006	2	SRD06-061	M	3.174	75	N	N	N	L	1	1	P
10/06/2-78	10/12/2006	1	2006	2	SRD06-061	M	3.472	73	N	N	N	N	1	1	N
10/06/2-79	10/12/2006	1	2006	2	SRD06-061	F	4.559	84	N	N	N	N	1	1	C
10/06/2-80	10/12/2006	1	2006	2	SRD06-061	I	4.585	86	N	N	N	N	1	1	N
10/06/2-81	10/12/2006	1	2006	2	SRD06-061	F	1.224	54	N	N	N	N	0	0	N
10/06/2-82	10/12/2006	1	2006	2	SRD06-061	I	1.972	65	N	N	N	N	0	0	P
10/06/2-83	10/12/2006	1	2006	2	SRD06-061	M	4.011	80	N	N	N	N	0	0	CP
10/06/2-84	10/12/2006	1	2006	2	SRD06-061	M	4.008	82	N	N	N	N	1	0	CP
10/06/2-85	10/12/2006	1	2006	2	SRD06-061	F	1.354	55	N	N	N	N	0	0	N
10/06/2-86	10/12/2006	1	2006	2	SRD06-061	I	3.436	76	N	N	N	N	0	0	N
10/06/2-87	10/12/2006	1	2006	2	SRD06-061	I	3.413	77	O	N	N	N	0	0	CP
10/06/2-88	10/12/2006	1	2006	2	SRD06-061	F	3.755	78	M	N	L	N	0	0	N
10/06/2-89	10/12/2006	1	2006	2	SRD06-061	F	4.852	84	N	N	N	N	0	0	N
10/06/2-90	10/12/2006	1	2006	2	SRD06-061	F	3.626	77	N	N	N	N	0	0	N
10/06/2-91	10/12/2006	1	2006	2	SRD06-061	M	1.565	57	N	N	N	N	0	0	N
10/06/2-92	10/12/2006	1	2006	2	SRD06-061	F	3.721	78	N	N	N	N	0	0	N
10/06/2-93	10/12/2006	1	2006	2	SRD06-061	M	1.332	53	N	N	N	N	0	0	N
10/06/2-94	10/12/2006	1	2006	2	SRD06-061	F	3.274	74	N	N	N	N	0	0	N
10/06/2-95	10/12/2006	1	2006	2	SRD06-061	M	2.836	73	N	N	N	L	0	0	N
10/06/2-96	10/12/2006	1	2006	2	SRD06-061	I	1.134	52	N	N	N	N	0	0	N
10/06/2-97	10/12/2006	1	2006	2	SRD06-061	M	1.599	59	N	N	N	N	1	1	C
10/06/2-98	10/12/2006	1	2006	2	SRD06-061	I	0.962	49	N	N	N	N	1	1	N
10/06/2-99	10/12/2006	1	2006	2	SRD06-061	M	1.663	58	N	N	N	N	1	1	C
10/06/3-70	10/17/2006	1	2006	3	WJR06-495	F	5.881	90	N	N	N	N	0	0	N
10/06/3-71	10/17/2006	1	2006	3	WJR06-495	F	2.400	68	N	N	N	N	0	0	N
10/06/3-72	10/17/2006	1	2006	3	WJR06-495	F	2.622	71	N	N	N	L	1	1	N
10/06/3-73	10/17/2006	1	2006	3	WJR06-495	M	4.922	81	N	N	N	N	0	0	N
10/06/3-74	10/17/2006	1	2006	3	WJR06-495	F	1.955	64	N	N	N	N	0	0	N
10/06/3-75	10/17/2006	1	2006	3	WJR06-495	M	7.835	98	N	N	N	N	1	1	P
10/06/3-76	10/17/2006	1	2006	3	WJR06-495	M	4.748	85	N	N	N	N	1	1	N
10/06/3-77	10/17/2006	1	2006	3	WJR06-495	M	4.787	83	N	N	N	N	0	0	N
10/06/3-78	10/17/2006	1	2006	3	WJR06-495	F	5.306	89	N	N	N	N	1	1	N
10/06/3-79	10/17/2006	1	2006	3	WJR06-495	F	2.481	68	N	N	N	N	0	0	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
10/06/3-80	10/17/2006	1	2006	3	WJR06-495	M	4.241	78	N	N	N	N	0	0	N
10/06/3-81	10/17/2006	1	2006	3	WJR06-495	M	2.971	70	N	N	N	L	1	1	N
10/06/3-82	10/17/2006	1	2006	3	WJR06-495	M	4.669	89	N	N	TL	L	0	0	P
10/06/3-83	10/17/2006	1	2006	3	WJR06-495	F	3.433	76	N	N	N	N	1	1	N
10/06/3-84	10/17/2006	1	2006	3	WJR06-495	M	4.750	82	N	N	N	N	0	0	N
10/06/3-85	10/17/2006	1	2006	3	WJR06-495	M	4.789	83	N	N	N	N	0	0	N
10/06/3-86	10/17/2006	1	2006	3	WJR06-495	M	5.035	83	N	N	N	N	1	1	N
10/06/3-87	10/17/2006	1	2006	3	WJR06-495	F	6.385	92	N	N	N	L	0	0	N
10/06/4-70	10/16/2006	1	2006	4	WJR06-494	M	4.488	81	N	N	N	N	1	1	N
10/06/4-71	10/16/2006	1	2006	4	WJR06-494	M	5.052	83	N	N	N	N	1	0	N
10/06/4-72	10/16/2006	1	2006	4	WJR06-494	M	4.501	79	N	N	N	L	1	1	M
10/06/4-73	10/16/2006	1	2006	4	WJR06-494	M	3.499	76	N	N	N	N	2	2	N
10/06/4-74	10/16/2006	1	2006	4	WJR06-494	F	4.539	82	N	N	N	N	0	0	N
10/06/4-75	10/16/2006	1	2006	4	WJR06-494	F	4.229	79	N	N	OT	N	1	1	N
10/06/4-76	10/16/2006	1	2006	4	WJR06-494	M	4.159	79	N	N	N	N	0	0	P
10/06/4-77	10/16/2006	1	2006	4	WJR06-494	F	4.652	82	N	N	N	N	0	0	N
10/06/4-78	10/16/2006	1	2006	4	WJR06-494	M	4.621	80	N	N	N	N	1	1	CP
10/06/4-79	10/16/2006	1	2006	4	WJR06-494	M	4.171	77	N	N	N	N	0	0	N
10/06/4-80	10/16/2006	1	2006	4	WJR06-494	M	3.775	74	N	N	N	N	0	0	N
10/06/4-81	10/16/2006	1	2006	4	WJR06-494	F	1.519	54	N	N	N	N	0	0	N
10/06/4-82	10/16/2006	1	2006	4	WJR06-494	F	3.475	74	N	N	N	N	0	0	N
10/06/4-83	10/16/2006	1	2006	4	WJR06-494	F	4.872	85	N	N	N	N	0	0	P
10/06/4-84	10/16/2006	1	2006	4	WJR06-494	F	4.754	83	N	N	N	N	0	0	P
10/06/4-85	10/16/2006	1	2006	4	WJR06-494	F	3.876	78	N	N	N	N	1	1	P
10/06/4-86	10/16/2006	1	2006	4	WJR06-494	M	2.321	66	N	N	N	L	1	1	N
10/06/4-87	10/16/2006	1	2006	4	WJR06-494	M	4.455	82	N	N	N	N	0	0	N
10/06/4-88	10/16/2006	1	2006	4	WJR06-494	M	2.295	67	N	N	N	N	0	0	P
10/06/4-89	10/16/2006	1	2006	4	WJR06-494	F	4.466	82	N	N	N	N	0	0	P
10/06/4-90	10/16/2006	1	2006	4	WJR06-494	F	4.081	80	N	N	N	N	1	1	N
10/06/4-91	10/16/2006	1	2006	4	WJR06-494	F	4.670	82	N	N	N	N	0	0	N
10/06/4-92	10/16/2006	1	2006	4	WJR06-494	F	5.361	83	N	N	N	N	0	0	N
10/06/4-93	10/16/2006	1	2006	4	WJR06-494	F	4.860	84	N	N	N	N	0	0	N
10/06/4-94	10/16/2006	1	2006	4	WJR06-494	F	4.746	81	N	N	N	N	1	1	N
10/06/4-95	10/16/2006	1	2006	4	WJR06-494	F	4.610	82	N	N	N	N	0	0	N
10/06/4-96	10/16/2006	1	2006	4	WJR06-494	M	5.585	85	N	N	N	P	0	0	N
10/06/4-97	10/16/2006	1	2006	4	WJR06-494	M	4.946	82	N	N	N	N	0	0	N
10/06/4-98	10/16/2006	1	2006	4	WJR06-494	F	3.752	76	N	N	N	N	0	0	N
10/06/4-99	10/16/2006	1	2006	4	WJR06-494	M	4.013	78	N	N	N	N	0	0	N
10/06/5-70	10/18/2006	1	2006	5	WJR06-496	I	4.538	79	N	N	N	N	0	0	N
10/06/5-71	10/18/2006	1	2006	5	WJR06-496	F	6.499	90	N	N	N	N	0	0	CP
10/06/5-72	10/18/2006	1	2006	5	WJR06-496	M	4.713	80	N	N	N	L	0	0	N
10/06/5-73	10/18/2006	1	2006	5	WJR06-496	F	7.121	94	N	N	N	N	0	0	P
10/06/5-74	10/18/2006	1	2006	5	WJR06-496	F	5.661	88	N	N	N	N	0	0	N
10/06/5-75	10/18/2006	1	2006	5	WJR06-496	F	5.845	86	N	N	N	N	1	1	N
10/06/5-76	10/18/2006	1	2006	5	WJR06-496	F	5.586	87	N	N	N	N	1	1	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
10/06/5-77	10/18/2006	1	2006	5	WJR06-496	F	3.114	72	N	N	N	L	1	1	N
10/06/5-78	10/18/2006	1	2006	5	WJR06-496	F	1.920	63	N	N	N	N	0	0	N
10/06/5-79	10/18/2006	1	2006	5	WJR06-496	F	5.755	89	N	N	N	N	0	0	N
10/06/5-80	10/18/2006	1	2006	5	WJR06-496	M	4.865	82	N	N	N	N	1	1	N
10/06/5-81	10/18/2006	1	2006	5	WJR06-496	F	4.159	77	N	N	N	N	0	0	N
10/06/5-82	10/18/2006	1	2006	5	WJR06-496	F	2.500	66	N	N	N	N	0	0	N
10/06/5-83	10/18/2006	1	2006	5	WJR06-496	F	2.000	64	N	N	N	N	0	0	N
10/06/5-84	10/18/2006	1	2006	5	WJR06-496	F	1.994	64	N	N	N	N	0	0	N
10/06/5-85	10/18/2006	1	2006	5	WJR06-496	F	6.892	93	N	N	N	N	0	0	N
10/06/5-86	10/18/2006	1	2006	5	WJR06-496	M	4.789	85	N	N	N	N	0	0	N
10/06/5-87	10/18/2006	1	2006	5	WJR06-496	F	5.654	84	N	N	N	N	1	1	N
10/06/5-88	10/18/2006	1	2006	5	WJR06-496	F	6.275	91	N	N	N	N	1	1	C
10/06/5-89	10/18/2006	1	2006	5	WJR06-496	F	4.738	85	N	N	N	N	0	0	N
10/06/5-90	10/18/2006	1	2006	5	WJR06-496	F	3.114	70	N	N	N	N	0	0	N
10/06/5-91	10/18/2006	1	2006	5	WJR06-496	I	2.015	65	N	N	N	N	0	0	N
10/06/5-92	10/18/2006	1	2006	5	WJR06-496	F	1.784	60	N	N	N	N	1	1	N
10/06/5-93	10/18/2006	1	2006	5	WJR06-496	F	1.521	57	N	N	N	N	0	0	N
10/06/5-94	10/18/2006	1	2006	5	WJR06-496	F	1.604	58	N	N	N	N	1	1	N
10/06/5-95	10/18/2006	1	2006	5	WJR06-496	F	3.430	75	N	N	N	N	1	1	P
10/06/5-96	10/18/2006	1	2006	5	WJR06-496	F	1.693	59	N	N	N	N	1	1	N
1/07/2-70	1/24/2007	1	2007	2	WJR07-542	M	2.899	73	N	N	N	N	0	0	C
1/07/2-71	1/24/2007	1	2007	2	WJR07-542	F	4.333	85	N	N	OT	N	0	0	N
1/07/2-72	1/24/2007	1	2007	2	WJR07-542	F	3.231	74	N	N	N	N	1	1	C
1/07/2-73	1/24/2007	1	2007	2	WJR07-542	F	2.225	69	N	N	N	N	1	1	N
1/07/2-74	1/24/2007	1	2007	2	WJR07-542	M	1.009	52	N	N	N	N	0	0	C
1/07/2-75	1/24/2007	1	2007	2	WJR07-542	M	2.689	73	N	N	N	N	0	0	N
1/07/2-76	1/24/2007	1	2007	2	WJR07-542	F	2.677	73	N	N	N	N	0	0	N
1/07/2-77	1/24/2007	1	2007	2	WJR07-542	M	2.445	69	N	N	N	N	1	1	CP
1/07/2-78	1/24/2007	1	2007	2	WJR07-542	M	2.917	78	N	N	N	N	0	0	N
1/07/2-79	1/24/2007	1	2007	2	WJR07-542	F	2.423	70	N	N	N	N	0	0	C
1/07/2-80	1/24/2007	1	2007	2	WJR07-542	F	0.862	51	N	N	N	N	0	0	C
1/07/2-81	1/24/2007	1	2007	2	WJR07-542	F	1.915	67	N	N	N	N	0	0	C
1/07/2-82	1/24/2007	1	2007	2	WJR07-542	F	2.220	70	N	N	N	N	0	0	N
1/07/2-83	1/24/2007	1	2007	2	WJR07-542	M	2.634	74	N	N	N	N	0	0	C
1/07/2-84	1/24/2007	1	2007	2	WJR07-542	F	1.135	55	N	N	N	N	0	0	CP
1/07/2-85	1/24/2007	1	2007	2	WJR07-542	M	1.264	60	N	N	N	N	0	0	CP
1/07/2-86	1/24/2007	1	2007	2	WJR07-542	F	1.219	56	N	N	N	N	0	0	N
1/07/3-70	1/23/2007	1	2007	3	WJR07-541	F	2.823	75	N	N	N	N	2	2	N
1/07/3-71	1/23/2007	1	2007	3	WJR07-541	F	6.146	92	N	N	N	N	1	1	N
1/07/3-72	1/23/2007	1	2007	3	WJR07-541	M	4.307	81	N	N	N	N	0	0	N
1/07/3-73	1/23/2007	1	2007	3	WJR07-541	F	1.564	60	N	N	N	N	1	1	N
1/07/3-74	1/23/2007	1	2007	3	WJR07-541	M	3.132	74	N	N	N	N	0	0	P
1/07/3-75	1/23/2007	1	2007	3	WJR07-541	F	3.947	80	N	N	N	N	1	1	C
1/07/3-76	1/23/2007	1	2007	3	WJR07-541	F	5.199	88	N	M	N	N	0	0	C
1/07/3-77	1/23/2007	1	2007	3	WJR07-541	F	5.072	86	N	N	N	N	1	1	C

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
1/07/3-78	1/23/2007	1	2007	3	WJR07-541	F	1.927	63	N	N	N	N	1	1	C
1/07/3-79	1/23/2007	1	2007	3	WJR07-541	M	3.429	77	N	N	N	N	0	0	N
1/07/3-80	1/23/2007	1	2007	3	WJR07-541	F	2.994	75	N	N	N	N	1	1	N
1/07/3-81	1/23/2007	1	2007	3	WJR07-541	M	5.455	89	N	N	N	N	1	1	C
1/07/3-82	1/23/2007	1	2007	3	WJR07-541	M	3.382	76	N	N	N	N	1	1	P
1/07/3-83	1/23/2007	1	2007	3	WJR07-541	M	6.535	92	N	N	N	N	0	0	N
1/07/3-84	1/23/2007	1	2007	3	WJR07-541	M	3.386	76	N	N	N	N	0	0	N
1/07/3-85	1/23/2007	1	2007	3	WJR07-541	F	3.223	76	N	N	N	N	1	1	C
1/07/3-86	1/23/2007	1	2007	3	WJR07-541	M	3.489	75	N	N	N	N	0	0	P
1/07/3-87	1/23/2007	1	2007	3	WJR07-541	M	1.551	63	N	N	N	N	0	1	C
1/07/3-88	1/23/2007	1	2007	3	WJR07-541	M	1.385	57	N	N	N	N	0	0	N
1/07/3-89	1/23/2007	1	2007	3	WJR07-541	F	4.736	85	N	N	N	N	2	1	C
1/07/3-90	1/23/2007	1	2007	3	WJR07-541	M	3.249	79	N	N	N	N	0	0	N
1/07/3-91	1/23/2007	1	2007	3	WJR07-541	F	2.996	75	N	N	N	N	1	1	C
1/07/3-92	1/23/2007	1	2007	3	WJR07-541	M	1.012	53	N	N	N	N	0	0	CP
1/07/3-93	1/23/2007	1	2007	3	WJR07-541	M	5.250	90	N	N	N	N	0	0	N
1/07/3-94	1/23/2007	1	2007	3	WJR07-541	F	1.367	59	N	N	N	N	0	0	N
1/07/3-95	1/23/2007	1	2007	3	WJR07-541	F	3.994	81	N	N	N	N	1	1	C
1/07/3-96	1/23/2007	1	2007	3	WJR07-541	I	2.824	72	N	N	N	N	0	1	N
1/07/3-97	1/23/2007	1	2007	3	WJR07-541	M	4.173	81	N	N	N	T	0	0	C
1/07/3-98	1/23/2007	1	2007	3	WJR07-541	F	1.536	59	N	N	N	N	0	0	C
1/07/3-99	1/23/2007	1	2007	3	WJR07-541	F	1.705	62	N	N	N	N	0	0	N
1/07/4-70	2/1/2007	1	2007	4	WJR07-550	M	4.540	80	N	N	N	P	0	0	C
1/07/4-71	2/1/2007	1	2007	4	WJR07-550	F	4.841	84	N	N	N	N	1	1	N
1/07/4-72	2/1/2007	1	2007	4	WJR07-550	M	3.787	78	N	N	N	N	1	1	N
1/07/4-73	2/1/2007	1	2007	4	WJR07-550	M	3.749	80	N	N	N	N	0	0	C
1/07/4-74	2/1/2007	1	2007	4	WJR07-550	F	5.744	90	N	N	N	N	0	0	N
1/07/4-75	2/1/2007	1	2007	4	WJR07-550	M	2.188	64	N	N	N	N	0	0	C
1/07/4-76	2/1/2007	1	2007	4	WJR07-550	M	3.362	76	N	N	N	N	0	0	N
1/07/4-77	2/1/2007	1	2007	4	WJR07-550	F	4.859	82	N	N	N	N	1	1	N
1/07/4-78	2/1/2007	1	2007	4	WJR07-550	M	5.049	86	N	N	N	N	1	1	C
1/07/4-79	2/1/2007	1	2007	4	WJR07-550	M	4.315	80	N	N	N	N	1	1	CP
1/07/4-80	2/1/2007	1	2007	4	WJR07-550	F	3.064	75	N	N	N	N	1	1	C
1/07/4-81	2/1/2007	1	2007	4	WJR07-550	M	3.764	81	N	N	N	N	0	0	N
1/07/4-82	2/1/2007	1	2007	4	WJR07-550	F	6.195	88	N	N	N	N	0	0	C
1/07/4-83	2/1/2007	1	2007	4	WJR07-550	F	4.820	83	N	N	N	N	0	0	N
1/07/4-84	2/1/2007	1	2007	4	WJR07-550	F	6.172	89	N	N	N	N	0	0	C
1/07/4-85	2/1/2007	1	2007	4	WJR07-550	M	5.078	87	N	N	N	N	0	0	N
1/07/4-86	2/1/2007	1	2007	4	WJR07-550	M	3.953	78	N	N	N	N	0	0	N
1/07/4-87	2/1/2007	1	2007	4	WJR07-550	F	4.085	82	N	N	N	N	0	0	CP
1/07/4-88	2/1/2007	1	2007	4	WJR07-550	M	3.834	79	N	N	N	N	0	0	C
1/07/4-89	2/1/2007	1	2007	4	WJR07-550	M	3.907	80	N	N	N	L	0	0	N
1/07/4-90	2/1/2007	1	2007	4	WJR07-550	M	1.802	62	N	N	N	N	1	1	CP
1/07/4-91	2/1/2007	1	2007	4	WJR07-550	M	4.514	83	N	N	N	N	1	1	C
1/07/4-92	2/1/2007	1	2007	4	WJR07-550	F	4.100	79	N	N	N	N	0	0	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
1/07/4-93	2/1/2007	1	2007	4	WJR07-550	F	5.450	87	N	N	N	N	2	1	N
1/07/4-94	2/1/2007	1	2007	4	WJR07-550	F	4.479	80	N	N	N	N	0	0	C
1/07/4-95	2/1/2007	1	2007	4	WJR07-550	F	1.942	62	N	N	N	N	1	1	C
1/07/4-96	2/1/2007	1	2007	4	WJR07-550	M	3.998	78	N	N	N	N	0	0	N
1/07/4-97	2/1/2007	1	2007	4	WJR07-550	F	5.346	85	N	N	N	N	0	0	N
1/07/4-98	2/1/2007	1	2007	4	WJR07-550	F	5.183	85	N	N	N	N	0	0	C
1/07/4-99	2/1/2007	1	2007	4	WJR07-550	F	4.308	76	N	N	N	N	0	0	N
1/07/5-70	1/31/2007	1	2007	5	WJR07-549	M	2.029	64	N	N	N	N	0	0	C
1/07/5-71	1/31/2007	1	2007	5	WJR07-549	F	1.993	63	N	N	N	N	0	0	C
1/07/5-72	1/31/2007	1	2007	5	WJR07-549	F	2.625	70	N	N	N	N	1	1	N
1/07/5-73	1/31/2007	1	2007	5	WJR07-549	I	0.823	46	N	N	N	N	1	1	C
1/07/5-74	1/31/2007	1	2007	5	WJR07-549	F	0.750	46	N	N	N	N	1	1	CP
1/07/5-75	1/31/2007	1	2007	5	WJR07-549	I	1.379	56	N	N	N	N	1	1	C
1/07/5-76	1/31/2007	1	2007	5	WJR07-549	F	0.961	49	N	N	N	N	1	1	CP
1/07/5-77	1/31/2007	1	2007	5	WJR07-549	M	1.989	63	N	N	N	N	0	0	C
1/07/5-78	1/31/2007	1	2007	5	WJR07-549	I	0.589	43	N	N	N	N	1	1	CP
1/07/5-79	1/31/2007	1	2007	5	WJR07-549	F	0.942	48	N	N	N	N	0	0	N
1/07/5-80	1/31/2007	1	2007	5	WJR07-549	F	0.749	45	N	N	N	N	1	1	C
1/07/5-81	1/31/2007	1	2007	5	WJR07-549	M	0.867	45	N	N	N	N	0	0	C
1/07/5-82	1/31/2007	1	2007	5	WJR07-549	F	1.352	54	N	N	N	N	1	1	CP
1/07/5-83	1/31/2007	1	2007	5	WJR07-549	F	0.878	47	N	N	N	N	1	1	CP
1/07/5-84	1/31/2007	1	2007	5	WJR07-549	I	0.875	48	N	N	N	N	0	0	N
1/07/5-85	1/31/2007	1	2007	5	WJR07-549	M	1.692	60	N	N	N	N	1	1	C
1/07/5-86	1/31/2007	1	2007	5	WJR07-549	F	0.949	46	N	N	N	N	0	0	CP
1/07/5-87	1/31/2007	1	2007	5	WJR07-549	M	1.049	50	N	N	N	N	1	1	FCP
1/07/5-88	1/31/2007	1	2007	5	WJR07-549	I	1.028	50	N	N	N	N	1	1	CP
1/07/5-89	1/31/2007	1	2007	5	WJR07-549	I	0.821	46	N	N	N	N	1	1	CP
1/07/5-90	1/31/2007	1	2007	5	WJR07-549	F	0.790	45	N	N	N	N	0	0	CP
1/07/5-91	1/31/2007	1	2007	5	WJR07-549	I	0.842	47	N	N	N	N	1	1	CP
1/07/5-92	1/31/2007	1	2007	5	WJR07-549	F	0.784	42	N	N	N	N	0	0	C
1/07/5-93	1/31/2007	1	2007	5	WJR07-549	F	2.093	64	N	N	N	N	0	0	C
1/07/5-94	1/31/2007	1	2007	5	WJR07-549	F	2.129	64	N	N	N	N	1	1	C
1/07/5-95	1/31/2007	1	2007	5	WJR07-549	F	7.981	98	N	N	N	P	0	0	N
1/07/6-70	1/30/2007	1	2007	6	WJR07-548	F	5.732	88	N	N	N	L	0	0	N
1/07/6-71	1/30/2007	1	2007	6	WJR07-548	F	2.361	65	N	N	N	L	0	0	P
1/07/6-72	1/30/2007	1	2007	6	WJR07-548	M	3.289	72	N	N	N	L	0	0	C
1/07/6-73	1/30/2007	1	2007	6	WJR07-548	M	3.385	74	N	N	N	N	1	1	C
1/07/6-74	1/30/2007	1	2007	6	WJR07-548	M	2.908	71	N	N	N	N	1	1	N
1/07/6-75	1/30/2007	1	2007	6	WJR07-548	M	4.018	75	N	N	N	N	0	0	N
1/07/6-76	1/30/2007	1	2007	6	WJR07-548	M	4.700	82	N	N	N	N	1	1	N
1/07/6-77	1/30/2007	1	2007	6	WJR07-548	M	6.318	89	N	N	N	P	0	0	N
1/07/6-78	1/30/2007	1	2007	6	WJR07-548	M	3.818	76	N	N	N	L	1	1	N
1/07/6-79	1/30/2007	1	2007	6	WJR07-548	F	5.307	84	N	N	N	N	0	0	C
1/07/6-80	1/30/2007	1	2007	6	WJR07-548	F	4.837	83	N	N	N	N	0	0	CP
1/07/6-81	1/30/2007	1	2007	6	WJR07-548	M	3.843	76	N	N	N	N	0	0	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
1/07/6-82	1/30/2007	1	2007	6	WJR07-548	M	4.251	84	N	N	N	N	1	1	N
1/07/6-83	1/30/2007	1	2007	6	WJR07-548	M	2.468	65	N	N	N	N	0	0	P
1/07/6-84	1/30/2007	1	2007	6	WJR07-548	F	5.363	85	N	N	LP	N	0	0	N
1/07/6-85	1/30/2007	1	2007	6	WJR07-548	F	3.256	75	N	N	N	N	0	0	N
1/07/6-86	1/30/2007	1	2007	6	WJR07-548	F	4.658	82	N	N	N	N	0	0	N
1/07/6-87	1/30/2007	1	2007	6	WJR07-548	M	5.362	86	N	N	N	N	0	0	C
1/07/6-88	1/30/2007	1	2007	6	WJR07-548	F	4.999	84	N	N	N	N	0	0	N
1/07/6-89	1/30/2007	1	2007	6	WJR07-548	M	3.304	73	N	N	N	N	0	0	N
1/07/6-90	1/30/2007	1	2007	6	WJR07-548	F	4.309	85	N	N	N	N	0	0	N
1/07/6-91	1/30/2007	1	2007	6	WJR07-548	F	5.283	85	N	N	N	N	0	0	N
1/07/6-92	1/30/2007	1	2007	6	WJR07-548	M	4.345	80	N	N	N	N	1	1	CP
1/07/6-93	1/30/2007	1	2007	6	WJR07-548	F	4.764	81	N	N	N	N	0	0	N
1/07/6-94	1/30/2007	1	2007	6	WJR07-548	F	3.917	79	N	N	N	N	0	0	FP
1/07/6-95	1/30/2007	1	2007	6	WJR07-548	F	4.946	84	N	N	N	N	0	0	C
1/07/6-96	1/30/2007	1	2007	6	WJR07-548	F	5.614	86	N	N	N	L	1	1	P
1/07/6-97	1/30/2007	1	2007	6	WJR07-548	F	4.142	79	N	N	N	T	1	1	N
1/07/6-98	1/30/2007	1	2007	6	WJR07-548	F	3.426	75	N	N	N	N	0	0	CP
1/07/6-99	1/30/2007	1	2007	6	WJR07-548	M	3.763	77	N	N	N	N	0	0	P
4/07/1-70	4/26/2007	1	2007	1	WJR07-577	F	5.779	82	N	N	N	N	1	1	N
4/07/1-71	4/26/2007	1	2007	1	WJR07-577	M	3.673	75	N	N	N	N	0	0	N
4/07/1-72	4/26/2007	1	2007	1	WJR07-577	M	1.443	55	N	N	N	N	0	0	C
4/07/1-73	4/26/2007	1	2007	1	WJR07-577	M	4.661	81	N	N	N	N	1	0	N
4/07/1-74	4/26/2007	1	2007	1	WJR07-577	M	4.149	76	N	N	N	N	0	0	N
4/07/1-75	4/26/2007	1	2007	1	WJR07-577	F	3.599	74	N	N	N	N	1	1	C
4/07/1-76	4/26/2007	1	2007	1	WJR07-577	M	4.706	81	N	N	N	N	1	1	CM
4/07/1-77	4/26/2007	1	2007	1	WJR07-577	M	4.638	82	N	N	N	N	1	1	C
4/07/1-78	4/26/2007	1	2007	1	WJR07-577	M	6.168	85	N	N	N	N	1	1	C
4/07/1-79	4/26/2007	1	2007	1	WJR07-577	F	1.007	46	N	N	N	N	0	0	N
4/07/1-80	4/26/2007	1	2007	1	WJR07-577	M	4.941	82	N	N	N	N	0	0	N
4/07/1-81	4/26/2007	1	2007	1	WJR07-577	M	4.000	78	N	N	N	N	0	0	N
4/07/1-82	4/26/2007	1	2007	1	WJR07-577	M	3.739	75	N	N	N	N	0	0	C
4/07/1-83	4/26/2007	1	2007	1	WJR07-577	M	5.388	84	N	N	N	N	1	0	CP
4/07/1-84	4/26/2007	1	2007	1	WJR07-577	M	4.918	83	N	N	N	N	1	1	C
4/07/2-70	4/25/2007	1	2007	2	WJR07-576	M	3.661	75	N	N	N	N	1	1	CP
4/07/2-71	4/25/2007	1	2007	2	WJR07-576	F	0.807	45	N	N	N	N	1	1	C
4/07/2-72	4/25/2007	1	2007	2	WJR07-576	M	1.597	57	N	N	N	N	0	1	C
4/07/2-73	4/25/2007	1	2007	2	WJR07-576	F	1.707	58	N	N	N	N	1	1	C
4/07/2-74	4/25/2007	1	2007	2	WJR07-576	F	1.569	55	N	N	N	N	0	2	N
4/07/2-75	4/25/2007	1	2007	2	WJR07-576	F	1.373	52	N	N	N	N	0	0	N
4/07/2-76	4/25/2007	1	2007	2	WJR07-576	M	1.422	57	N	N	N	N	0	0	N
4/07/2-77	4/25/2007	1	2007	2	WJR07-576	M	1.037	51	N	N	N	N	0	0	N
4/07/2-78	4/25/2007	1	2007	2	WJR07-576	M	1.171	51	N	N	N	N	1	0	N
4/07/2-79	4/25/2007	1	2007	2	WJR07-576	F	1.229	53	N	N	N	N	1	0	N
4/07/2-80	4/25/2007	1	2007	2	WJR07-576	M	1.111	`	N	N	N	N	0	0	N
4/07/2-81	4/25/2007	1	2007	2	WJR07-576	F	1.978	55	N	N	N	N	0	0	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
4/07/2-82	4/25/2007	1	2007	2	WJR07-576	F	2.157	58	N	N	N	N	1	1	N
4/07/2-83	4/25/2007	1	2007	2	WJR07-576	F	1.495	56	N	N	N	N	1	1	N
4/07/2-84	4/25/2007	1	2007	2	WJR07-576	F	1.904	60	N	N	N	N	0	0	N
4/07/2-85	4/25/2007	1	2007	2	WJR07-576	F	1.196	50	N	N	N	N	1	1	C
4/07/2-86	4/25/2007	1	2007	2	WJR07-576	F	1.763	58	N	N	N	N	0	0	N
4/07/2-87	4/25/2007	1	2007	2	WJR07-576	F	2.465	62	N	N	N	N	0	0	N
4/07/2-88	4/25/2007	1	2007	2	WJR07-576	F	1.509	56	N	N	N	N	1	1	P
4/07/2-89	4/25/2007	1	2007	2	WJR07-576	F	1.391	51	N	N	N	N	0	1	C
4/07/2-90	4/25/2007	1	2007	2	WJR07-576	F	2.058	60	N	N	N	N	1	1	C
4/07/2-91	4/25/2007	1	2007	2	WJR07-576	M	0.730	49	N	N	N	N	0	0	N
4/07/2-92	4/25/2007	1	2007	2	WJR07-576	F	5.943	83	H	N	N	N	0	0	C
4/07/2-93	4/25/2007	1	2007	2	WJR07-576	F	4.758	80	N	N	N	N	0	1	N
4/07/2-94	4/25/2007	1	2007	2	WJR07-576	F	1.085	49	N	N	N	N	0	0	N
4/07/2-95	4/25/2007	1	2007	2	WJR07-576	M	1.935	60	N	N	N	N	1	0	N
4/07/2-96	4/25/2007	1	2007	2	WJR07-576	F	2.224	64	N	N	N	N	0	0	N
4/07/2-97	4/25/2007	1	2007	2	WJR07-576	F	1.205	50	N	N	N	N	0	0	N
4/07/2-98	4/25/2007	1	2007	2	WJR07-576	F	4.981	83	N	N	N	N	0	1	N
4/07/2-99	4/25/2007	1	2007	2	WJR07-576	M	1.423	58	N	N	N	N	1	1	CP
4/07/3-70	4/24/2007	1	2007	3	WJR07-575	M	2.161	64	N	N	N	N	1	1	C
4/07/3-71	4/24/2007	1	2007	3	WJR07-575	M	2.017	63	N	N	N	N	1	1	CP
4/07/3-72	4/24/2007	1	2007	3	WJR07-575	F	1.161	47	N	N	N	N	1	1	CP
4/07/3-73	4/24/2007	1	2007	3	WJR07-575	F	3.112	65	N	N	N	N	1	0	C
4/07/3-74	4/24/2007	1	2007	3	WJR07-575	F	2.887	66	N	N	N	N	0	0	C
4/07/3-75	4/24/2007	1	2007	3	WJR07-575	F	2.061	59	N	N	N	L	1	1	CP
4/07/3-76	4/24/2007	1	2007	3	WJR07-575	F	3.372	67	N	N	N	N	0	1	C
4/07/3-77	4/24/2007	1	2007	3	WJR07-575	F	2.692	62	N	N	N	N	1	1	CP
4/07/3-78	4/24/2007	1	2007	3	WJR07-575	M	1.699	59	N	N	N	N	2	1	C
4/07/3-79	4/24/2007	1	2007	3	WJR07-575	F	1.941	56	N	N	N	N	1	1	CP
4/07/3-80	4/24/2007	1	2007	3	WJR07-575	M	3.116	72	N	N	N	N	0	0	CP
4/07/3-81	4/24/2007	1	2007	3	WJR07-575	F	3.160	63	N	N	N	N	0	0	C
4/07/3-82	4/24/2007	1	2007	3	WJR07-575	F	1.729	55	N	N	N	N	0	0	N
4/07/3-83	4/24/2007	1	2007	3	WJR07-575	F	2.579	61	N	N	N	N	0	0	C
4/07/3-84	4/24/2007	1	2007	3	WJR07-575	F	2.393	61	N	N	N	N	0	0	C
4/07/3-85	4/24/2007	1	2007	3	WJR07-575	F	1.457	52	N	N	N	N	1	0	CP
4/07/3-86	4/24/2007	1	2007	3	WJR07-575	M	1.477	56	N	N	N	N	1	1	C
4/07/3-87	4/24/2007	1	2007	3	WJR07-575	M	1.153	51	N	N	N	N	2	1	CP
4/07/3-88	4/24/2007	1	2007	3	WJR07-575	M	1.312	53	N	N	N	N	1	2	C
4/07/4-70	4/19/2007	1	2007	4	WJR07-574	F	7.568	91	N	N	N	N	1	1	N
4/07/4-71	4/19/2007	1	2007	4	WJR07-574	F	5.917	78	N	N	N	N	0	0	N
4/07/4-72	4/19/2007	1	2007	4	WJR07-574	M	5.146	81	N	N	N	N	1	0	N
4/07/4-73	4/19/2007	1	2007	4	WJR07-574	F	4.016	73	N	N	N	N	1	1	CP
4/07/4-74	4/19/2007	1	2007	4	WJR07-574	M	2.826	68	N	N	N	N	1	1	N
4/07/4-75	4/19/2007	1	2007	4	WJR07-574	F	7.413	91	N	N	N	N	0	1	C
4/07/4-76	4/19/2007	1	2007	4	WJR07-574	F	7.820	84	N	N	N	N	0	0	C
4/07/4-77	4/19/2007	1	2007	4	WJR07-574	M	2.812	69	N	N	N	N	1	1	C

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SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
4/07/4-78	4/19/2007	1	2007	4	WJR07-574	F	6.996	85	N	N	N	N	0	1	N
4/07/4-79	4/19/2007	1	2007	4	WJR07-574	F	3.902	72	N	N	N	N	1	1	C
4/07/4-80	4/19/2007	1	2007	4	WJR07-574	M	4.195	78	N	N	L	N	0	0	C
4/07/4-81	4/19/2007	1	2007	4	WJR07-574	F	6.939	91	N	N	N	P	1	1	C
4/07/4-82	4/19/2007	1	2007	4	WJR07-574	M	3.760	77	N	N	N	L	1	1	C
4/07/4-83	4/19/2007	1	2007	4	WJR07-574	M	4.975	76	N	N	N	N	1	1	N
4/07/5-70	4/18/2007	1	2007	5	WJR07-573	M	1.561	55	N	N	N	N	1	1	CP
4/07/5-71	4/18/2007	1	2007	5	WJR07-573	I	1.185	51	N	N	N	N	1	1	CP
4/07/5-72	4/18/2007	1	2007	5	WJR07-573	F	1.660	56	N	N	N	N	1	1	P
4/07/5-73	4/18/2007	1	2007	5	WJR07-573	F	0.920	45	N	N	N	N	1	1	CP
4/07/5-74	4/18/2007	1	2007	5	WJR07-573	F	1.501	54	N	N	N	N	1	1	CM
4/07/5-75	4/18/2007	1	2007	5	WJR07-573	M	2.441	83	N	N	N	N	1	1	N
4/07/5-76	4/18/2007	1	2007	5	WJR07-573	M	1.534	55	N	N	N	N	1	1	C
4/07/5-77	4/18/2007	1	2007	5	WJR07-573	F	5.337	79	N	N	N	N	0	0	CP
4/07/5-78	4/18/2007	1	2007	5	WJR07-573	M	1.259	51	N	N	N	N	1	2	CP
4/07/5-79	4/18/2007	1	2007	5	WJR07-573	M	2.056	62	N	N	N	N	0	1	C
4/07/5-80	4/18/2007	1	2007	5	WJR07-573	M	1.632	56	N	N	N	N	2	1	CP
4/07/5-81	4/18/2007	1	2007	5	WJR07-573	F	1.798	58	N	N	N	N	1	1	P
4/07/5-82	4/18/2007	1	2007	5	WJR07-573	M	1.745	57	N	N	N	N	1	0	P
4/07/5-83	4/18/2007	1	2007	5	WJR07-573	M	1.816	58	N	N	N	N	1	1	P
4/07/5-84	4/18/2007	1	2007	5	WJR07-573	F	6.890	90	N	N	N	N	0	1	OT
10/07/1-70	10/31/2007	2	2007	1	WJR07-890	F	1.458	58	N	N	N	N	1	0	C
10/07/1-71	10/31/2007	2	2007	1	WJR07-890	F	1.713	60	N	N	N	N	1	1	C
10/07/1-72	10/31/2007	2	2007	1	WJR07-890	I	0.984	51	N	N	N	N	1	1	C
10/07/1-73	10/31/2007	2	2007	1	WJR07-890	F	1.988	62	N	N	N	N	0	0	N
10/07/1-74	10/31/2007	2	2007	1	WJR07-890	M	1.051	51	N	N	N	N	1	1	N
10/07/1-75	10/31/2007	2	2007	1	WJR07-890	I	1.329	55	N	N	N	N	1	1	N
10/07/1-76	10/31/2007	2	2007	1	WJR07-890	I	1.412	55	N	N	N	N	1	1	C
10/07/1-77	10/31/2007	2	2007	1	WJR07-890	I	1.285	55	N	N	N	N	1	1	C
10/07/1-78	10/31/2007	2	2007	1	WJR07-890	F	1.239	54	N	N	N	N	1	1	N
10/07/1-79	10/31/2007	2	2007	1	WJR07-890	F	0.837	49	N	N	N	N	0	0	N
10/07/1-80	10/31/2007	2	2007	1	WJR07-890	F	1.276	54	N	N	N	N	1	0	N
10/07/1-81	10/31/2007	2	2007	1	WJR07-890	F	1.148	52	N	N	N	N	0	0	N
10/07/1-82	10/31/2007	2	2007	1	WJR07-890	F	0.989	49	N	N	N	N	1	1	N
10/07/1-83	10/31/2007	2	2007	1	WJR07-890	F	0.937	49	N	N	N	N	1	1	CP
10/07/1-84	10/31/2007	2	2007	1	WJR07-890	I	1.249	53	N	N	N	N	1	2	C
10/07/1-85	10/31/2007	2	2007	1	WJR07-890	F	0.734	45	N	N	N	N	0	0	C
10/07/1-86	10/31/2007	2	2007	1	WJR07-890	I	0.890	51	N	N	N	N	0	1	C
10/07/1-87	10/31/2007	2	2007	1	WJR07-890	F	0.763	47	N	N	N	N	1	1	C
10/07/1-88	10/31/2007	2	2007	1	WJR07-890	M	1.530	58	N	N	N	N	1	1	C
10/07/1-89	10/31/2007	2	2007	1	WJR07-890	F	0.964	51	N	N	N	N	0	0	C
10/07/1-90	10/31/2007	2	2007	1	WJR07-890	F	1.147	53	N	N	N	N	1	1	C
10/07/1-91	10/31/2007	2	2007	1	WJR07-890	M	0.950	52	N	N	N	N	0	0	C
10/07/1-92	10/31/2007	2	2007	1	WJR07-890	F	1.040	52	N	N	N	N	1	1	C
10/07/1-93	10/31/2007	2	2007	1	WJR07-890	F	1.580	58	N	N	N	N	1	1	C

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
10/07/1-94	10/31/2007	2	2007	1	WJR07-890	M	1.423	56	N	N	N	N	1	1	C
10/07/2-70	10/30/2007	2	2007	2	SMC07-88	F	1.573	58	N	N	N	N	1	1	C
10/07/2-71	10/30/2007	2	2007	2	SMC07-88	F	1.111	50	N	N	N	N	0	0	C
10/07/2-72	10/30/2007	2	2007	2	SMC07-88	M	4.006	76	N	N	N	N	1	1	C
10/07/2-73	10/30/2007	2	2007	2	SMC07-88	F	1.136	51	N	N	N	N	0	0	N
10/07/2-74	10/30/2007	2	2007	2	SMC07-88	F	1.209	54	N	N	N	N	0	1	C
10/07/2-75	10/30/2007	2	2007	2	SMC07-88	F	1.449	57	N	N	N	N	1	0	C
10/07/2-76	10/30/2007	2	2007	2	SMC07-88	M	1.419	57	N	N	N	N	1	1	C
10/07/2-77	10/30/2007	2	2007	2	SMC07-88	F	1.446	58	N	N	N	N	0	2	C
10/07/2-78	10/30/2007	2	2007	2	SMC07-88	M	1.429	56	N	N	N	N	1	1	C
10/07/2-79	10/30/2007	2	2007	2	SMC07-88	F	1.994	63	N	N	N	N	1	1	C
10/07/2-80	10/30/2007	2	2007	2	SMC07-88	I	1.201	54	N	N	N	N	0	0	N
10/07/2-81	10/30/2007	2	2007	2	SMC07-88	I	1.682	54	N	N	N	N	1	1	C
10/07/2-82	10/30/2007	2	2007	2	SMC07-88	I	1.305	54	N	N	N	N	1	1	C
10/07/2-83	10/30/2007	2	2007	2	SMC07-88	I	1.599	59	N	N	N	N	1	1	C
10/07/2-84	10/30/2007	2	2007	2	SMC07-88	I	1.058	51	N	N	N	N	1	1	C
10/07/2-85	10/30/2007	2	2007	2	SMC07-88	I	1.585	57	N	N	N	N	2	2	C
10/07/2-86	10/30/2007	2	2007	2	SMC07-88	I	1.518	56	N	N	N	N	0	1	C
10/07/2-87	10/30/2007	2	2007	2	SMC07-88	F	1.386	56	N	N	N	N	1	1	CP
10/07/2-88	10/30/2007	2	2007	2	SMC07-88	F	1.132	53	N	N	N	N	1	1	C
10/07/2-89	10/30/2007	2	2007	2	SMC07-88	M	1.415	56	N	N	N	N	1	1	C
10/07/3-70	10/29/2007	2	2007	3	WJR10-29-07	F	5.390	82	N	N	N	N	1	1	C
10/07/3-71	10/29/2007	2	2007	3	WJR10-29-07	F	2.703	68	N	N	N	N	1	1	N
10/07/3-72	10/29/2007	2	2007	3	WJR10-29-07	M	4.023	72	N	N	N	N	1	1	C
10/07/3-73	10/29/2007	2	2007	3	WJR10-29-07	F	2.951	70	N	N	N	N	1	1	C
10/07/3-74	10/29/2007	2	2007	3	WJR10-29-07	F	3.207	72	N	N	N	N	1	1	C
10/07/3-75	10/29/2007	2	2007	3	WJR10-29-07	F	3.890	77	N	N	N	N	2	2	C
10/07/3-76	10/29/2007	2	2007	3	WJR10-29-07	M	1.792	59	N	N	N	N	1	2	CP
10/07/3-77	10/29/2007	2	2007	3	WJR10-29-07	F	1.497	59	N	N	N	N	1	1	C
10/07/3-78	10/29/2007	2	2007	3	WJR10-29-07	M	3.479	74	N	N	N	N	0	0	C
10/07/3-79	10/29/2007	2	2007	3	WJR10-29-07	M	3.179	71	N	N	N	N	1	1	C
10/07/3-80	10/29/2007	2	2007	3	WJR10-29-07	F	2.468	67	N	N	N	N	1	1	FC
10/07/3-81	10/29/2007	2	2007	3	WJR10-29-07	F	3.983	79	N	N	N	N	1	1	C
10/07/3-82	10/29/2007	2	2007	3	WJR10-29-07	F	2.744	68	N	N	N	N	1	1	C
10/07/3-83	10/29/2007	2	2007	3	WJR10-29-07	M	4.013	70	N	N	N	N	1	1	C
10/07/3-84	10/29/2007	2	2007	3	WJR10-29-07	F	3.354	75	N	N	N	N	1	1	C
10/07/4-70	10/25/2007	2	2007	4	SRD07-89	M	2.027	64	N	N	N	N	1	1	C
10/07/4-71	10/25/2007	2	2007	4	SRD07-89	F	1.776	59	N	N	N	N	0	0	N
10/07/4-72	10/25/2007	2	2007	4	SRD07-89	F	2.641	68	N	N	N	N	1	0	C
10/07/4-73	10/25/2007	2	2007	4	SRD07-89	F	2.028	65	N	N	N	N	1	1	C
10/07/4-74	10/25/2007	2	2007	4	SRD07-89	M	2.465	67	N	N	N	N	1	1	C
10/07/4-75	10/25/2007	2	2007	4	SRD07-89	M	1.639	69	N	N	N	N	0	0	N
10/07/4-76	10/25/2007	2	2007	4	SRD07-89	F	1.745	60	N	N	N	N	1	1	C
10/07/4-77	10/25/2007	2	2007	4	SRD07-89	F	1.492	55	N	N	N	N	1	1	C
10/07/4-78	10/25/2007	2	2007	4	SRD07-89	F	1.328	54	N	N	N	N	1	1	C

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
10/07/4-79	10/25/2007	2	2007	4	SRD07-89	F	1.931	61	N	N	N	N	0	0	C
10/07/4-80	10/25/2007	2	2007	4	SRD07-89	F	1.841	61	N	N	N	N	1	1	C
10/07/4-81	10/25/2007	2	2007	4	SRD07-89	F	1.375	54	N	N	L	N	1	1	FCP
10/07/4-82	10/25/2007	2	2007	4	SRD07-89	I	0.935	50	N	N	N	N	2	2	C
10/07/4-83	10/25/2007	2	2007	4	SRD07-89	F	1.601	59	N	N	N	N	2	2	CP
10/07/4-84	10/25/2007	2	2007	4	SRD07-89	F	1.952	62	N	N	N	N	1	1	C
10/07/4-85	10/25/2007	2	2007	4	SRD07-89	F	2.208	65	N	N	N	N	1	1	C
10/07/4-86	10/25/2007	2	2007	4	SRD07-89	I	1.194	50	N	N	N	N	1	1	C
10/07/4-87	10/25/2007	2	2007	4	SRD07-89	I	1.805	62	N	N	N	N	1	1	C
10/07/4-88	10/25/2007	2	2007	4	SRD07-89	M	1.878	61	N	N	N	N	1	1	C
10/07/4-89	10/25/2007	2	2007	4	SRD07-89	I	1.683	59	N	N	N	N	1	1	FCP
10/07/4-90	10/25/2007	2	2007	4	SRD07-89	I	1.637	58	N	N	N	N	1	1	CP
10/07/4-91	10/25/2007	2	2007	4	SRD07-89	F	1.410	54	N	N	N	N	1	1	C
10/07/4-92	10/25/2007	2	2007	4	SRD07-89	F	1.866	63	N	N	N	N	1	1	C
10/07/4-93	10/25/2007	2	2007	4	SRD07-89	M	1.719	58	N	N	N	P	0	0	C
10/07/4-94	10/25/2007	2	2007	4	SRD07-89	F	1.743	60	N	N	OT	N	1	1	C
10/07/5-70	10/24/2007	2	2007	5	SRD07-88	M	2.259	65	N	N	N	N	1	1	CP
10/07/5-71	10/24/2007	2	2007	5	SRD07-88	F	3.140	74	N	N	N	N	1	1	C
10/07/5-72	10/24/2007	2	2007	5	SRD07-88	M	1.871	61	N	N	N	N	1	1	P
10/07/5-73	10/24/2007	2	2007	5	SRD07-88	F	3.205	70	N	N	N	N	1	1	C
10/07/5-74	10/24/2007	2	2007	5	SRD07-88	M	2.721	73	N	N	N	N	1	1	C
10/07/5-75	10/24/2007	2	2007	5	SRD07-88	I	1.906	66	N	N	P	N	0	0	N
10/07/5-76	10/24/2007	2	2007	5	SRD07-88	F	2.585	67	N	N	N	N	2	2	C
10/07/5-77	10/24/2007	2	2007	5	SRD07-88	F	2.242	68	N	N	N	N	1	1	C
10/07/5-78	10/24/2007	2	2007	5	SRD07-88	F	2.494	66	N	N	N	N	2	1	C
10/07/5-79	10/24/2007	2	2007	5	SRD07-88	F	2.487	67	N	N	N	N	1	1	C
10/07/5-80	10/24/2007	2	2007	5	SRD07-88	F	1.751	59	N	N	N	N	0	0	P
10/07/5-81	10/24/2007	2	2007	5	SRD07-88	M	2.863	68	H	H	N	N	1	1	C
10/07/5-82	10/24/2007	2	2007	5	SRD07-88	M	2.644	70	N	N	N	N	0	1	C
10/07/5-83	10/24/2007	2	2007	5	SRD07-88	F	2.066	66	N	N	N	N	1	1	N
10/07/5-84	10/24/2007	2	2007	5	SRD07-88	F	2.732	68	N	N	N	N	1	1	C
10/07/5-85	10/24/2007	2	2007	5	SRD07-88	M	3.558	75	N	N	N	N	0	0	N
10/07/5-86	10/24/2007	2	2007	5	SRD07-88	F	3.120	72	N	N	N	P	0	0	N
10/07/5-87	10/24/2007	2	2007	5	SRD07-88	F	1.403	61	N	N	N	N	2	1	C
10/07/5-88	10/24/2007	2	2007	5	SRD07-88	M	3.362	74	N	N	N	N	0	0	N
10/07/5-89	10/24/2007	2	2007	5	SRD07-88	I	2.035	63	N	N	N	N	0	0	N
10/07/6-70	10/23/2007	2	2007	6	SRD07-87	M	3.220	71	N	N	N	N	1	1	N
10/07/6-71	10/23/2007	2	2007	6	SRD07-87	F	3.918	74	N	N	N	N	0	0	N
10/07/6-72	10/23/2007	2	2007	6	SRD07-87	F	2.104	63	N	N	N	N	1	1	P
10/07/6-73	10/23/2007	2	2007	6	SRD07-87	F	3.035	72	N	N	N	N	0	1	N
10/07/6-74	10/23/2007	2	2007	6	SRD07-87	F	1.152	51	N	N	N	N	0	1	P
10/07/6-75	10/23/2007	2	2007	6	SRD07-87	F	0.842	47	N	N	N	N	0	0	N
10/07/6-76	10/23/2007	2	2007	6	SRD07-87	M	5.416	92	N	N	N	N	0	0	N
10/07/6-77	10/23/2007	2	2007	6	SRD07-87	M	2.899	69	N	N	N	N	0	0	N
10/07/6-78	10/23/2007	2	2007	6	SRD07-87	M	3.067	70	N	N	N	N	1	0	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
10/07/6-79	10/23/2007	2	2007	6	SRD07-87	F	2.057	63	N	N	N	N	0	1	N
10/07/6-80	10/23/2007	2	2007	6	SRD07-87	M	1.814	60	N	N	N	N	2	2	C
10/07/6-81	10/23/2007	2	2007	6	SRD07-87	M	1.707	58	N	N	N	N	0	0	N
10/07/6-82	10/23/2007	2	2007	6	SRD07-87	F	0.720	45	N	N	N	N	1	2	CP
1/08/1-70	1/30/2008	2	2008	1	WJR08-715	M	0.882	49	N	N	N	N	2	2	N
1/08/1-71	1/30/2008	2	2008	1	WJR08-715	F	0.999	51	N	N	N	N	2	2	N
1/08/1-72	1/30/2008	2	2008	1	WJR08-715	M	0.595	47	N	N	N	N	2	2	N
1/08/1-73	1/30/2008	2	2008	1	WJR08-715	F	0.980	49	N	N	N	N	2	2	N
1/08/1-74	1/30/2008	2	2008	1	WJR08-715	M	0.747	50	N	N	N	N	2	2	N
1/08/1-75	1/30/2008	2	2008	1	WJR08-715	F	0.837	50	N	N	N	N	2	2	N
1/08/1-76	1/30/2008	2	2008	1	WJR08-715	F	0.579	44	N	N	N	N	2	2	N
1/08/1-77	1/30/2008	2	2008	1	WJR08-715	F	0.561	42	N	N	N	N	2	2	N
1/08/1-78	1/30/2008	2	2008	1	WJR08-715	F	1.158	54	N	N	N	N	2	2	N
1/08/1-79	1/30/2008	2	2008	1	WJR08-715	M	1.109	54	N	N	N	N	2	2	N
1/08/1-80	1/30/2008	2	2008	1	WJR08-715	F	3.303	75	N	N	N	N	2	2	N
1/08/1-81	1/30/2008	2	2008	1	WJR08-715	F	2.987	70	N	N	N	N	2	2	N
1/08/1-82	1/30/2008	2	2008	1	WJR08-715	M	2.429	67	N	N	N	N	2	2	N
1/08/1-83	1/30/2008	2	2008	1	WJR08-715	M	1.603	57	N	N	N	P	2	2	N
1/08/1-84	1/30/2008	2	2008	1	WJR08-715	F	1.043	50	N	N	N	N	2	2	N
1/08/1-85	1/30/2008	2	2008	1	WJR08-715	M	2.155	65	N	N	N	N	2	2	N
1/08/1-86	1/30/2008	2	2008	1	WJR08-715	M	2.384	66	N	N	N	N	2	2	N
1/08/1-87	1/30/2008	2	2008	1	WJR08-715	M	0.640	43	N	N	N	P	2	2	MP
1/08/1-88	1/30/2008	2	2008	1	WJR08-715	M	0.458	40	N	N	N	N	2	2	N
1/08/1-89	1/30/2008	2	2008	1	WJR08-715	F	0.790	45	N	N	N	N	0	0	N
1/08/1-90	1/30/2008	2	2008	1	WJR08-715	M	0.639	44	N	N	N	N	2	2	P
1/08/1-91	1/30/2008	2	2008	1	WJR08-715	M	1.001	51	N	N	N	N	2	2	N
1/08/1-92	1/30/2008	2	2008	1	WJR08-715	M	1.187	52	N	N	N	N	2	2	N
1/08/1-93	1/30/2008	2	2008	1	WJR08-715	F	0.772	49	N	N	N	N	2	2	MP
1/08/1-94	1/30/2008	2	2008	1	WJR08-715	M	0.780	47	N	N	N	N	2	2	MP
1/08/1-95	1/30/2008	2	2008	1	WJR08-715	F	1.526	55	N	N	N	N	2	2	N
1/08/1-96	1/30/2008	2	2008	1	WJR08-715	M	1.149	55	N	N	N	OT	2	2	N
1/08/1-97	1/30/2008	2	2008	1	WJR08-715	F	0.449	38	N	N	N	N	2	2	MP
1/08/1-98	1/30/2008	2	2008	1	WJR08-715	M	0.925	52	N	N	N	N	2	2	N
1/08/1-99	1/30/2008	2	2008	1	WJR08-715	M	0.891	49	N	N	N	N	2	2	P
1/08/2-70	1/29/2008	2	2008	2	WJR08-714	M	1.413	55	N	N	N	N	2	2	OT
1/08/2-71	1/29/2008	2	2008	2	WJR08-714	M	2.560	67	N	N	N	N	2	2	M OT
1/08/2-72	1/29/2008	2	2008	2	WJR08-714	F	1.173	52	N	N	N	N	2	2	OT
1/08/2-73	1/29/2008	2	2008	2	WJR08-714	M	1.581	60	N	N	N	N	2	2	OT
1/08/2-74	1/29/2008	2	2008	2	WJR08-714	F		62	N	N	N	N	2	2	N
1/08/2-75	1/29/2008	2	2008	2	WJR08-714	M	1.174	55	N	N	N	N	2	2	N
1/08/2-76	1/29/2008	2	2008	2	WJR08-714	M	2.624	70	N	N	N	N	2	2	N
1/08/2-77	1/29/2008	2	2008	2	WJR08-714	M	1.152	55	N	N	N	N	2	2	N
1/08/2-78	1/29/2008	2	2008	2	WJR08-714	M	2.180	66	N	N	N	N	2	2	N
1/08/2-79	1/29/2008	2	2008	2	WJR08-714	M	1.662	62	N	N	N	N	2	2	N
1/08/2-80	1/29/2008	2	2008	2	WJR08-714	M	6.085	93	N	N	N	N	2	2	N

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
1/08/2-81	1/29/2008	2	2008	2	WJR08-714	F	1.528	61	N	N	N	N	2	2	N
1/08/2-82	1/29/2008	2	2008	2	WJR08-714	F	1.886	62	N	N	N	OT	2	2	M
1/08/2-83	1/29/2008	2	2008	2	WJR08-714	M	1.964	66	N	N	N	N	2	2	N
1/08/2-84	1/29/2008	2	2008	2	WJR08-714	M	0.945	51	N	N	N	N	2	2	N
1/08/2-85	1/29/2008	2	2008	2	WJR08-714	M	1.548	60	N	N	N	N	2	2	N
1/08/2-86	1/29/2008	2	2008	2	WJR08-714	F	1.355	57	N	N	N	N	2	2	N
1/08/2-87	1/29/2008	2	2008	2	WJR08-714	F	1.694	60	N	N	N	N	2	2	N
1/08/2-88	1/29/2008	2	2008	2	WJR08-714	F	1.268	55	N	N	N	N	2	2	N
1/08/2-89	1/29/2008	2	2008	2	WJR08-714	M	1.785	62	N	N	N	N	2	2	N
1/08/2-90	1/29/2008	2	2008	2	WJR08-714	F	2.672	69	N	N	N	N	2	2	N
1/08/2-91	1/29/2008	2	2008	2	WJR08-714	M	1.151	55	N	N	N	OT	2	2	P
1/08/2-92	1/29/2008	2	2008	2	WJR08-714	F	1.420	56	N	N	N	N	2	2	N
1/08/2-93	1/29/2008	2	2008	2	WJR08-714	M	2.173	65	N	N	N	N	2	2	N
1/08/2-94	1/29/2008	2	2008	2	WJR08-714	F	4.207	80	N	N	N	N	2	2	N
1/08/2-95	1/29/2008	2	2008	2	WJR08-714	F	1.054	52	N	N	N	N	2	2	N
1/08/2-96	1/29/2008	2	2008	2	WJR08-714	F	1.251	55	N	N	N	N	2	2	N
1/08/2-97	1/29/2008	2	2008	2	WJR08-714	F	1.575	57	N	N	N	N	2	2	N
1/08/2-98	1/29/2008	2	2008	2	WJR08-714	M	2.361	67	N	N	N	N	2	2	N
1/08/2-99	1/29/2008	2	2008	2	WJR08-714	F	1.273	55	N	N	N	N	2	2	N
1/08/3-70	1/28/2008	2	2008	3	WJR08-710	M	1.304	56	N	N	N	N	2	2	N
1/08/3-71	1/28/2008	2	2008	3	WJR08-710	M	1.980	65	N	N	N	N	2	2	N
1/08/3-72	1/28/2008	2	2008	3	WJR08-710	F	1.466	57	N	N	N	N	2	2	N
1/08/3-73	1/28/2008	2	2008	3	WJR08-710	F	0.877	50	N	N	N	N	2	2	N
1/08/3-74	1/28/2008	2	2008	3	WJR08-710	F	1.463	58	N	N	N	N	2	2	N
1/08/3-75	1/28/2008	2	2008	3	WJR08-710	F	1.976	65	N	N	N	N	2	2	N
1/08/3-76	1/28/2008	2	2008	3	WJR08-710	F	3.028	73	N	N	N	N	2	2	N
1/08/3-77	1/28/2008	2	2008	3	WJR08-710	F	0.606	46	N	N	N	N	2	2	N
1/08/3-78	1/28/2008	2	2008	3	WJR08-710	M	0.623	45	N	N	N	N	2	2	N
1/08/3-79	1/28/2008	2	2008	3	WJR08-710	F	1.987	65	N	N	N	N	2	2	N
1/08/3-80	1/28/2008	2	2008	3	WJR08-710	F	1.227	55	N	N	N	N	2	2	N
1/08/3-81	1/28/2008	2	2008	3	WJR08-710	M	1.565	60	N	N	N	N	2	2	N
1/08/3-82	1/28/2008	2	2008	3	WJR08-710	F	1.390	57	N	N	N	N	2	2	N
1/08/3-83	1/28/2008	2	2008	3	WJR08-710	F	3.389	75	N	N	N	N	2	2	N
1/08/3-84	1/28/2008	2	2008	3	WJR08-710	F	0.743	46	N	N	N	N	2	2	N
1/08/3-85	1/28/2008	2	2008	3	WJR08-710	F	2.661	71	N	N	N	N	2	2	N
1/08/3-86	1/28/2008	2	2008	3	WJR08-710	F	1.288	58	N	N	N	N	2	2	N
1/08/3-87	1/28/2008	2	2008	3	WJR08-710	F	1.300	56	N	N	N	N	2	2	N
1/08/3-88	1/28/2008	2	2008	3	WJR08-710	M	0.904	49	N	N	N	N	2	2	N
1/08/3-89	1/28/2008	2	2008	3	WJR08-710	F	1.248	55	N	N	N	N	2	2	N
1/08/3-90	1/28/2008	2	2008	3	WJR08-710	I	0.974	50	N	N	N	N	2	2	N
1/08/3-91	1/28/2008	2	2008	3	WJR08-710	F	1.570	57	N	N	N	L	2	2	N
1/08/3-92	1/28/2008	2	2008	3	WJR08-710	F	0.833	50	N	N	N	L	2	2	N
1/08/3-93	1/28/2008	2	2008	3	WJR08-710	F	1.889	64	N	N	N	N	2	2	N
1/08/3-94	1/28/2008	2	2008	3	WJR08-710	F	1.434	58	N	N	N	N	2	2	C
1/08/3-95	1/28/2008	2	2008	3	WJR08-710	M	3.358	76	N	N	N	N	2	2	MP

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
1/08/3-96	1/28/2008	2	2008	3	WJR08-710	M	1.162	58	N	N	N	N	2	2	P
1/08/3-97	1/28/2008	2	2008	3	WJR08-710	M	2.024	64	N	N	N	N	2	2	N
1/08/3-98	1/28/2008	2	2008	3	WJR08-710	I	1.109	54	N	N	N	N	2	2	MP
1/08/3-99	1/28/2008	2	2008	3	WJR08-710	F	1.156	55	N	N	N	N	2	2	M
1/08/4-70	1/24/2008	2	2008	4	WJR08-705	F	3.022	70	N	N	N	N	2	2	N
1/08/4-71	1/24/2008	2	2008	4	WJR08-705	M	1.376	55	N	N	N	N	2	2	N
1/08/4-72	1/24/2008	2	2008	4	WJR08-705	F	1.063	50	N	N	N	N	2	2	N
1/08/4-73	1/24/2008	2	2008	4	WJR08-705	M	1.486	56	N	N	N	N	2	2	N
1/08/4-74	1/24/2008	2	2008	4	WJR08-705	F	1.402	55	N	N	N	N	2	2	N
1/08/4-75	1/24/2008	2	2008	4	WJR08-705	F	1.571	56	N	N	N	N	0	0	N
1/08/4-76	1/24/2008	2	2008	4	WJR08-705	F	1.793	62	N	N	N	N	2	2	N
1/08/4-77	1/24/2008	2	2008	4	WJR08-705	F	1.297	53	N	N	N	N	2	2	N
1/08/4-78	1/24/2008	2	2008	4	WJR08-705	M	1.193	52	N	N	N	N	2	2	N
1/08/4-79	1/24/2008	2	2008	4	WJR08-705	M	2.451	69	N	N	N	N	0	0	N
1/08/4-80	1/24/2008	2	2008	4	WJR08-705	F	1.084	50	N	N	N	N	2	2	N
1/08/4-81	1/24/2008	2	2008	4	WJR08-705	F	1.915	60	N	N	N	N	2	2	N
1/08/4-82	1/24/2008	2	2008	4	WJR08-705	M	1.388	57	N	N	N	N	2	2	N
1/08/4-83	1/24/2008	2	2008	4	WJR08-705	F	1.288	56	N	N	N	N	2	2	N
1/08/4-84	1/24/2008	2	2008	4	WJR08-705	M	1.555	59	N	N	N	N	2	2	N
1/08/4-85	1/24/2008	2	2008	4	WJR08-705	M	1.549	57	N	N	N	N	2	2	N
1/08/4-86	1/24/2008	2	2008	4	WJR08-705	M	1.326	57	N	N	N	N	2	2	N
1/08/4-87	1/24/2008	2	2008	4	WJR08-705	F	2.437	68	N	N	N	N	2	2	N
1/08/4-88	1/24/2008	2	2008	4	WJR08-705	F	1.204	58	N	N	N	N	2	2	N
1/08/4-89	1/24/2008	2	2008	4	WJR08-705	F	1.666	59	N	N	N	N	2	2	N
1/08/4-90	1/24/2008	2	2008	4	WJR08-705	F	0.765	47	N	N	N	N	2	2	N
1/08/4-91	1/24/2008	2	2008	4	WJR08-705	F	1.287	54	N	N	N	N	2	2	N
1/08/4-92	1/24/2008	2	2008	4	WJR08-705	M	1.936	61	N	N	N	N	2	2	N
1/08/4-93	1/24/2008	2	2008	4	WJR08-705	M	1.566	58	N	N	N	N	0	0	N
1/08/4-94	1/24/2008	2	2008	4	WJR08-705	M	1.684	60	N	N	N	N	2	2	N
1/08/4-95	1/24/2008	2	2008	4	WJR08-705	F	1.911	64	N	N	N	N	2	2	N
1/08/4-96	1/24/2008	2	2008	4	WJR08-705	M	2.250	64	N	N	N	N	2	2	N
1/08/4-97	1/24/2008	2	2008	4	WJR08-705	M	1.657	59	N	N	N	N	2	2	N
1/08/4-98	1/24/2008	2	2008	4	WJR08-705	M	1.565	57	N	N	N	N	2	2	N
1/08/4-99	1/24/2008	2	2008	4	WJR08-705	F	2.056	59	N	N	N	N	2	2	N
1/08/5-70	1/23/2008	2	2008	5	WJR08-704	F	3.426	74	N	N	N	N	2	2	N
1/08/5-71	1/23/2008	2	2008	5	WJR08-704	M	3.383	72	N	N	N	N	2	2	N
1/08/5-72	1/23/2008	2	2008	5	WJR08-704	F	3.480	73	N	N	N	N	2	2	N
1/08/5-73	1/23/2008	2	2008	5	WJR08-704	M	2.323	65	N	N	N	N	2	2	N
1/08/5-74	1/23/2008	2	2008	5	WJR08-704	F	2.817	67	N	N	N	N	2	2	N
1/08/5-75	1/23/2008	2	2008	5	WJR08-704	M	2.158	65	N	N	N	N	2	2	N
1/08/5-76	1/23/2008	2	2008	5	WJR08-704	F	2.573	67	N	N	N	L	2	2	N
1/08/5-77	1/23/2008	2	2008	5	WJR08-704	F	2.295	67	N	N	N	N	2	2	N
1/08/5-78	1/23/2008	2	2008	5	WJR08-704	F	1.793	65	N	N	N	N	2	2	N
1/08/5-79	1/23/2008	2	2008	5	WJR08-704	M	2.915	70	N	N	N	N	2	2	N
1/08/5-80	1/23/2008	2	2008	5	WJR08-704	M	2.480	67	N	N	N	N	2	2	N

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SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
1/08/5-81	1/23/2008	2	2008	5	WJR08-704	F	4.299	80	N	N	N	N	2	2	N
1/08/5-82	1/23/2008	2	2008	5	WJR08-704	F	3.053	73	N	N	N	N	2	1	N
1/08/5-83	1/23/2008	2	2008	5	WJR08-704	M	3.927	76	N	N	N	N	2	2	N
1/08/5-84	1/23/2008	2	2008	5	WJR08-704	M	0.585	36	N	N	N	OT	1	2	N
1/08/5-85	1/23/2008	2	2008	5	WJR08-704	F	2.277	67	N	N	N	N	2	2	N
1/08/5-86	1/23/2008	2	2008	5	WJR08-704	F	3.009	70	N	N	N	N	2	2	N
1/08/5-87	1/23/2008	2	2008	5	WJR08-704	F	3.457	74	N	N	N	N	2	2	N
1/08/5-88	1/23/2008	2	2008	5	WJR08-704	M	2.971	74	N	N	N	N	2	2	N
1/08/5-89	1/23/2008	2	2008	5	WJR08-704	M	1.490	58	N	N	N	N	2	2	N
1/08/5-90	1/23/2008	2	2008	5	WJR08-704	M	2.334	66	N	N	N	N	2	2	N
1/08/5-91	1/23/2008	2	2008	5	WJR08-704	M	2.552	67	N	N	N	N	2	2	N
1/08/5-92	1/23/2008	2	2008	5	WJR08-704	M	2.457	66	N	N	N	N	2	2	N
1/08/5-93	1/23/2008	2	2008	5	WJR08-704	M	3.071	72	N	N	N	N	2	2	N
1/08/5-94	1/23/2008	2	2008	5	WJR08-704	M	2.870	71	N	N	N	N	1	1	N
1/08/5-95	1/23/2008	2	2008	5	WJR08-704	M	2.777	68	N	N	N	N	2	2	N
1/08/5-96	1/23/2008	2	2008	5	WJR08-704	F	2.070	67	N	N	N	LP	2	2	N
1/08/5-97	1/23/2008	2	2008	5	WJR08-704	F	4.551	80	N	N	N	N	2	2	N
1/08/5-98	1/23/2008	2	2008	5	WJR08-704	M	3.071	70	N	N	N	N	2	2	N
1/08/5-99	1/23/2008	2	2008	5	WJR08-704	M	2.463	70	N	N	N	N	2	2	N
1/08/6-70	1/22/2008	2	2008	6	WJR08-703	F	1.997	52	N	N	N	N	2	2	N
1/08/6-71	1/22/2008	2	2008	6	WJR08-703	M	3.357	75	N	N	N	N	2	2	P
1/08/6-72	1/22/2008	2	2008	6	WJR08-703	F	1.345	57	N	N	N	N	1	1	P
1/08/6-73	1/22/2008	2	2008	6	WJR08-703	F	0.575	40	N	N	N	N	1	2	P
1/08/6-74	1/22/2008	2	2008	6	WJR08-703	F	3.348	73	N	N	N	N	1	1	N
1/08/6-75	1/22/2008	2	2008	6	WJR08-703	F	0.764	45	N	N	N	N	2	2	N
1/08/6-76	1/22/2008	2	2008	6	WJR08-703	F	1.548	56	N	N	N	N	2	2	N
1/08/6-77	1/22/2008	2	2008	6	WJR08-703	F	4.492	81	N	N	N	N	1	1	N
1/08/6-78	1/22/2008	2	2008	6	WJR08-703	M	4.041	74	N	N	N	N	1	1	N
1/08/6-79	1/22/2008	2	2008	6	WJR08-703	F	2.150	65	N	N	N	N	2	2	N
1/08/6-80	1/22/2008	2	2008	6	WJR08-703	F	2.104	65	N	N	N	N	2	2	N
1/08/6-81	1/22/2008	2	2008	6	WJR08-703	M	2.182	66	N	N	N	N	1	1	N
1/08/6-82	1/22/2008	2	2008	6	WJR08-703	F	0.866	50	N	N	N	N	1	1	N
1/08/6-83	1/22/2008	2	2008	6	WJR08-703	F	1.313	55	N	N	N	N	2	2	N
1/08/6-84	1/22/2008	2	2008	6	WJR08-703	F	1.061	56	N	N	N	N	2	2	N
1/08/6-85	1/22/2008	2	2008	6	WJR08-703	M	2.819	70	N	N	N	N	2	2	N
1/08/6-86	1/22/2008	2	2008	6	WJR08-703	F	1.244	53	N	N	N	N	1	1	N
1/08/6-87	1/22/2008	2	2008	6	WJR08-703	M	1.502	58	N	N	N	N	2	2	N
1/08/6-88	1/22/2008	2	2008	6	WJR08-703	F	2.153	68	N	N	N	N	2	2	N
1/08/6-89	1/22/2008	2	2008	6	WJR08-703	M	1.311	55	N	N	N	N	2	2	N
1/08/6-90	1/22/2008	2	2008	6	WJR08-703	F	2.832	73	N	N	N	N	2	2	N
1/08/6-91	1/22/2008	2	2008	6	WJR08-703	M	1.293	55	N	N	N	L	2	2	N
1/08/6-92	1/22/2008	2	2008	6	WJR08-703	M	1.383	55	N	N	N	N	2	2	N
1/08/6-93	1/22/2008	2	2008	6	WJR08-703	M	0.986	51	N	N	N	N	2	2	N
1/08/6-94	1/22/2008	2	2008	6	WJR08-703	M	2.463	69	N	N	N	N	2	2	N
1/08/6-95	1/22/2008	2	2008	6	WJR08-703	M	3.105	75	N	N	N	N	2	2	N

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SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
1/08/6-96	1/22/2008	2	2008	6	WJR08-703	M	3.433	74	N	N	N	N	2	2	N
1/08/6-97	1/22/2008	2	2008	6	WJR08-703	M	3.793	75	N	N	N	N	2	2	N
1/08/6-98	1/22/2008	2	2008	6	WJR08-703	F	1.224	60	N	N	N	N	2	2	N
1/08/6-99	1/22/2008	2	2008	6	WJR08-703	F	1.866	62	N	N	N	N	2	2	N
4/08/1-70	4/16/2008	2	2008	1	WJR08-731	F	0.841	45	N	N	N	N	1	1	P
4/08/1-71	4/16/2008	2	2008	1	WJR08-731	F	1.258	52	N	N	N	N	1	1	C
4/08/1-72	4/16/2008	2	2008	1	WJR08-731	M	1.343	53	N	N	N	N	0	0	C
4/08/1-73	4/16/2008	2	2008	1	WJR08-731	M	1.289	50	N	N	N	N	1	1	C
4/08/1-74	4/16/2008	2	2008	1	WJR08-731	F	2.403	62	N	N	N	N	1	1	C
4/08/1-75	4/16/2008	2	2008	1	WJR08-731	F	1.543	52	N	N	N	N	1	1	C
4/08/1-76	4/16/2008	2	2008	1	WJR08-731	M	0.698	41	N	N	N	N	0	0	CP
4/08/1-77	4/16/2008	2	2008	1	WJR08-731	F	1.220	49	N	N	N	N	1	1	CP
4/08/1-78	4/16/2008	2	2008	1	WJR08-731	M	1.605	53	N	N	N	N	1	1	CP
4/08/1-79	4/16/2008	2	2008	1	WJR08-731	F	1.116	48	N	N	N	N	1	1	N
4/08/1-80	4/16/2008	2	2008	1	WJR08-731	M	2.379	62	N	N	N	N	1	1	N
4/08/1-81	4/16/2008	2	2008	1	WJR08-731	F	1.092	48	N	N	N	N	1	1	N
4/08/1-82	4/16/2008	2	2008	1	WJR08-731	F	1.382	52	N	N	N	N	1	1	FCP
4/08/1-83	4/16/2008	2	2008	1	WJR08-731	M	0.947	46	N	N	N	N	1	0	N
4/08/1-84	4/16/2008	2	2008	1	WJR08-731	F	2.048	59	N	N	N	N	1	1	C
4/08/1-85	4/16/2008	2	2008	1	WJR08-731	M	1.264	50	N	N	N	N	1	1	C
4/08/1-86	4/16/2008	2	2008	1	WJR08-731	M	1.358	50	N	N	N	N	1	1	CP
4/08/1-87	4/16/2008	2	2008	1	WJR08-731	M	1.231	50	N	N	N	N	2	1	C
4/08/1-88	4/16/2008	2	2008	1	WJR08-731	M	0.689	42	N	N	N	N	1	1	N
4/08/1-89	4/16/2008	2	2008	1	WJR08-731	F	1.350	52	N	N	N	N	1	1	C
4/08/1-90	4/16/2008	2	2008	1	WJR08-731	F	0.907	46	N	N	N	N	1	1	CP
4/08/1-91	4/16/2008	2	2008	1	WJR08-731	M	2.077	62	N	N	N	N	1	1	C
4/08/1-92	4/16/2008	2	2008	1	WJR08-731	F	1.053	49	N	N	N	N	1	1	N
4/08/1-93	4/16/2008	2	2008	1	WJR08-731	F	1.419	50	N	N	N	N	1	1	CP
4/08/1-94	4/16/2008	2	2008	1	WJR08-731	M	0.720	42	N	N	N	N	1	1	N
4/08/1-95	4/16/2008	2	2008	1	WJR08-731	F	0.950	46	N	N	N	N	0	0	N
4/08/1-96	4/16/2008	2	2008	1	WJR08-731	M	1.622	59	N	N	N	N	0	0	P
4/08/1-97	4/16/2008	2	2008	1	WJR08-731	M	0.764	43	N	N	N	N	1	1	CP
4/08/1-98	4/16/2008	2	2008	1	WJR08-731	M	0.618	42	N	N	N	N	1	0	N
4/08/1-99	4/16/2008	2	2008	1	WJR08-731	M	1.881	58	N	N	N	N	1	1	C
4/08/2-70	4/15/2008	2	2008	2	WJR08-730	M	2.223	59	N	N	N	N	1	1	C
4/08/2-71	4/15/2008	2	2008	2	WJR08-730	M	2.140	62	N	N	N	N	1	1	C
4/08/2-72	4/15/2008	2	2008	2	WJR08-730	M	2.492	65	N	N	N	N	1	1	C
4/08/2-73	4/15/2008	2	2008	2	WJR08-730	M	2.460	64	N	N	N	N	1	1	C
4/08/2-74	4/15/2008	2	2008	2	WJR08-730	F	3.500	69	N	N	N	N	1	1	C
4/08/2-75	4/15/2008	2	2008	2	WJR08-730	F	2.436	63	N	N	N	N	1	1	C
4/08/2-76	4/15/2008	2	2008	2	WJR08-730	M	2.145	58	N	N	N	N	1	1	C
4/08/2-77	4/15/2008	2	2008	2	WJR08-730	F	0.925	46	N	N	N	N	1	1	P
4/08/2-78	4/15/2008	2	2008	2	WJR08-730	F	2.490	61	N	N	N	N	1	1	N
4/08/2-79	4/15/2008	2	2008	2	WJR08-730	M	1.925	60	N	N	N	N	1	1	C
4/08/2-80	4/15/2008	2	2008	2	WJR08-730	F	1.528	51	N	N	N	N	1	1	CP

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
4/08/2-81	4/15/2008	2	2008	2	WJR08-730	M	2.502	61	N	N	N	N	0	0	N
4/08/2-82	4/15/2008	2	2008	2	WJR08-730	M	1.593	55	N	N	N	N	1	1	CP
4/08/2-83	4/15/2008	2	2008	2	WJR08-730	F	2.370	62	N	N	N	N	1	1	P
4/08/2-84	4/15/2008	2	2008	2	WJR08-730	M	0.790	42	N	N	N	N	0	0	P
4/08/2-85	4/15/2008	2	2008	2	WJR08-730	M	2.360	65	N	N	N	N	1	1	C
4/08/2-86	4/15/2008	2	2008	2	WJR08-730	F	0.977	47	N	N	N	N	1	1	CP
4/08/2-87	4/15/2008	2	2008	2	WJR08-730	M	0.942	49	N	N	N	N	1	1	N
4/08/2-88	4/15/2008	2	2008	2	WJR08-730	F	0.843	47	N	N	N	N	1	1	P
4/08/2-89	4/15/2008	2	2008	2	WJR08-730	M	1.783	55	N	N	N	N	1	1	P
4/08/2-90	4/15/2008	2	2008	2	WJR08-730	M	0.713	44	N	N	N	N	0	1	P
4/08/2-91	4/15/2008	2	2008	2	WJR08-730	F	0.693	43	N	N	N	N	1	0	CP
4/08/2-92	4/15/2008	2	2008	2	WJR08-730	F	0.979	47	N	N	N	N	0	0	N
4/08/2-93	4/15/2008	2	2008	2	WJR08-730	F	1.209	57	N	N	N	N	1	1	CP
4/08/2-94	4/15/2008	2	2008	2	WJR08-730	F	2.467	61	N	N	N	N	1	1	C
4/08/2-95	4/15/2008	2	2008	2	WJR08-730	M	2.255	63	N	N	N	N	1	1	C
4/08/2-96	4/15/2008	2	2008	2	WJR08-730	F	0.671	43	N	N	N	N	0	1	CP
4/08/2-97	4/15/2008	2	2008	2	WJR08-730	F	0.849	45	N	N	N	N	1	1	C
4/08/2-98	4/15/2008	2	2008	2	WJR08-730	M	4.368	78	N	N	N	N	1	1	C
4/08/2-99	4/15/2008	2	2008	2	WJR08-730	M	2.320	64	N	N	N	N	1	1	C
4/08/3-70	4/14/2008	2	2008	3	WJR08-729	F	4.597	78	N	N	N	N	1	2	OT
4/08/3-71	4/14/2008	2	2008	3	WJR08-729	M	3.216	69	N	N	N	N	1	1	C
4/08/3-72	4/14/2008	2	2008	3	WJR08-729	M	3.221	70	N	N	N	N	1	1	CP
4/08/3-73	4/14/2008	2	2008	3	WJR08-729	F	1.567	54	N	N	N	N	1	1	CP
4/08/3-74	4/14/2008	2	2008	3	WJR08-729	F	2.821	62	N	N	N	N	1	1	C
4/08/3-75	4/14/2008	2	2008	3	WJR08-729	M	3.732	72	N	N	N	N	1	1	C
4/08/3-76	4/14/2008	2	2008	3	WJR08-729	F	2.237	50	N	N	N	N	0	1	C
4/08/3-77	4/14/2008	2	2008	3	WJR08-729	F	1.410	53	N	N	N	N	0	0	C
4/08/3-78	4/14/2008	2	2008	3	WJR08-729	F	3.178	65	N	N	N	N	1	1	C
4/08/3-79	4/14/2008	2	2008	3	WJR08-729	F	4.486	71	N	N	N	N	1	1	C
4/08/3-80	4/14/2008	2	2008	3	WJR08-729	F	3.056	67	N	N	N	N	1	1	CP
4/08/3-81	4/14/2008	2	2008	3	WJR08-729	F	7.304	85	N	N	N	N	0	0	C
4/08/3-82	4/14/2008	2	2008	3	WJR08-729	M	2.148	59	N	N	N	N	1	1	C
4/08/3-83	4/14/2008	2	2008	3	WJR08-729	F	2.626	64	N	N	N	N	0	1	C
4/08/3-84	4/14/2008	2	2008	3	WJR08-729	M	1.317	52	N	N	N	N	1	1	C
4/08/3-85	4/14/2008	2	2008	3	WJR08-729	F	2.785	66	N	N	N	N	1	1	C
4/08/3-86	4/14/2008	2	2008	3	WJR08-729	M	3.254	69	N	N	N	N	0	1	C
4/08/3-87	4/14/2008	2	2008	3	WJR08-729	F	2.726	62	N	N	N	N	1	1	CP
4/08/3-88	4/14/2008	2	2008	3	WJR08-729	M	1.712	55	N	N	N	OT	2	0	C
4/08/3-89	4/14/2008	2	2008	3	WJR08-729	M	2.637	63	N	N	N	N	1	1	C
4/08/3-90	4/14/2008	2	2008	3	WJR08-729	F	2.251	57	N	N	N	N	0	0	C
4/08/3-91	4/14/2008	2	2008	3	WJR08-729	F	3.814	69	N	N	N	N	1	1	CP
4/08/3-92	4/14/2008	2	2008	3	WJR08-729	M	2.960	67	N	N	N	N	2	2	C
4/08/3-93	4/14/2008	2	2008	3	WJR08-729	M	1.763	57	N	N	N	N	0	0	C
4/08/3-94	4/14/2008	2	2008	3	WJR08-729	M	2.328	64	N	N	N	N	1	1	C
4/08/3-95	4/14/2008	2	2008	3	WJR08-729	F	2.833	65	N	N	N	N	1	1	C

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
4/08/3-96	4/14/2008	2	2008	3	WJR08-729	M	2.236	58	N	N	N	N	1	1	C
4/08/3-97	4/14/2008	2	2008	3	WJR08-729	M	1.567	54	N	N	N	N	0	1	C
4/08/3-98	4/14/2008	2	2008	3	WJR08-729	F	1.496	53	N	N	N	N	1	1	C
4/08/3-99	4/14/2008	2	2008	3	WJR08-729	F	1.691	55	N	N	N	N	1	1	C
4/08/4-70	4/8/2008	2	2008	4	WJR08-726	M	1.189	51	N	N	N	N	2	2	C
4/08/4-71	4/8/2008	2	2008	4	WJR08-726	F	1.330	54	N	N	N	N	1	1	C
4/08/4-72	4/8/2008	2	2008	4	WJR08-726	M	1.243	52	N	N	N	N	1	1	N
4/08/4-73	4/8/2008	2	2008	4	WJR08-726	M	4.496	75	N	N	N	N	1	1	C
4/08/4-74	4/8/2008	2	2008	4	WJR08-726	M	2.119	59	N	N	N	N	0	0	C
4/08/4-75	4/8/2008	2	2008	4	WJR08-726	F	1.556	53	N	N	N	N	1	0	CP
4/08/4-76	4/8/2008	2	2008	4	WJR08-726	M	1.641	55	N	N	N	N	1	1	CP
4/08/4-77	4/8/2008	2	2008	4	WJR08-726	F	2.332	60	N	N	N	N	1	1	CP
4/08/4-78	4/8/2008	2	2008	4	WJR08-726	F	2.326	56	N	N	N	N	1	1	CP
4/08/4-79	4/8/2008	2	2008	4	WJR08-726	M	1.440	55	N	N	N	N	2	2	C
4/08/4-80	4/8/2008	2	2008	4	WJR08-726	M	2.026	60	N	N	N	N	1	1	C
4/08/4-81	4/8/2008	2	2008	4	WJR08-726	M	1.818	58	N	N	N	N	0	0	CP
4/08/4-82	4/8/2008	2	2008	4	WJR08-726	M	1.002	46	N	N	N	N	1	1	C
4/08/4-83	4/8/2008	2	2008	4	WJR08-726	F	1.478	54	N	N	N	N	1	1	C
4/08/4-84	4/8/2008	2	2008	4	WJR08-726	F	1.174	51	N	N	N	N	1	1	C
4/08/4-85	4/8/2008	2	2008	4	WJR08-726	F	2.744	64	N	N	N	N	1	1	CP
4/08/4-86	4/8/2008	2	2008	4	WJR08-726	M	1.497	55	N	N	N	N	1	1	CP
4/08/4-87	4/8/2008	2	2008	4	WJR08-726	F	1.252	48	N	N	N	N	1	1	C
4/08/4-88	4/8/2008	2	2008	4	WJR08-726	F	1.137	49	N	N	N	N	1	0	N
4/08/4-89	4/8/2008	2	2008	4	WJR08-726	F	1.918	60	N	N	N	N	1	1	N
4/08/4-90	4/8/2008	2	2008	4	WJR08-726	M	1.650	56	N	N	N	N	1	1	C
4/08/4-91	4/8/2008	2	2008	4	WJR08-726	M	1.123	49	N	N	N	N	1	1	P
4/08/4-92	4/8/2008	2	2008	4	WJR08-726	M	2.080	60	N	N	N	N	1	1	N
4/08/4-93	4/8/2008	2	2008	4	WJR08-726	F	1.286	49	N	N	N	N	1	1	P
4/08/4-94	4/8/2008	2	2008	4	WJR08-726	M	3.023	71	N	N	N	N	1	1	N
4/08/4-95	4/8/2008	2	2008	4	WJR08-726	F	1.431	51	N	N	N	N	1	1	CP
4/08/4-96	4/8/2008	2	2008	4	WJR08-726	M	1.073	50	N	N	N	N	1	1	C
4/08/4-97	4/8/2008	2	2008	4	WJR08-726	F	1.398	51	N	N	N	N	1	1	N
4/08/4-98	4/8/2008	2	2008	4	WJR08-726	F	0.922	46	N	N	N	N	1	1	CP
4/08/4-99	4/8/2008	2	2008	4	WJR08-726	F	0.786	48	N	N	N	N	1	1	N
4/08/6-70	4/9/2008	2	2008	6	WJR08-727	M	1.230	58	N	N	N	N	1	1	C
4/08/6-71	4/9/2008	2	2008	6	WJR08-727	F	2.471	63	N	N	N	N	1	1	N
4/08/6-72	4/9/2008	2	2008	6	WJR08-727	F	2.573	75	N	N	N	N	1	1	N
4/08/6-73	4/9/2008	2	2008	6	WJR08-727	F	2.496	65	N	N	N	N	0	0	N
4/08/6-74	4/9/2008	2	2008	6	WJR08-727	F	1.027	54	N	N	N	N	1	1	N
4/08/6-75	4/9/2008	2	2008	6	WJR08-727	F	2.091	59	N	N	N	N	1	1	N
4/08/6-76	4/9/2008	2	2008	6	WJR08-727	F	1.938	64	N	N	N	N	1	1	N
4/08/6-77	4/9/2008	2	2008	6	WJR08-727	F	2.271	60	N	N	N	N	1	1	C
4/08/6-78	4/9/2008	2	2008	6	WJR08-727	F	4.995	73	N	N	N	N	1	0	N
4/08/6-79	4/9/2008	2	2008	6	WJR08-727	F	5.668	83	N	N	N	N	1	1	N
4/08/6-80	4/9/2008	2	2008	6	WJR08-727	M	2.633	64	N	N	N	N	1	1	C

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
4/08/6-81	4/9/2008	2	2008	6	WJR08-727	F	2.478	73	N	N	N	N	1	1	C
4/08/6-82	4/9/2008	2	2008	6	WJR08-727	F	2.785	63	N	N	N	N	1	1	C
4/08/6-83	4/9/2008	2	2008	6	WJR08-727	M	3.327	65	N	N	L	T	1	1	O
4/08/6-84	4/9/2008	2	2008	6	WJR08-727	M	2.485	65	N	N	N	N	1	1	N
7/08/1-70	7/16/2008	2	2008	1	WJR08-818	M	1.972	64	N	N	N	N	1	1	C
7/08/1-71	7/16/2008	2	2008	1	WJR08-818	M	1.983	63	N	N	N	N	1	1	N
7/08/1-72	7/16/2008	2	2008	1	WJR08-818	F	2.342	65	N	N	N	N	0	0	N
7/08/1-73	7/16/2008	2	2008	1	WJR08-818	M	2.088	62	N	N	N	N	2	1	C
7/08/1-74	7/16/2008	2	2008	1	WJR08-818	F	2.484	69	N	N	N	N	1	0	N
7/08/1-75	7/16/2008	2	2008	1	WJR08-818	F	2.085	65	N	N	N	N	0	1	CP
7/08/1-76	7/16/2008	2	2008	1	WJR08-818	M	2.164	64	N	N	N	N	1	1	C
7/08/1-77	7/16/2008	2	2008	1	WJR08-818	F	2.480	66	N	N	N	N	1	1	N
7/08/1-78	7/16/2008	2	2008	1	WJR08-818	F	3.345	75	N	N	N	N	1	0	N
7/08/1-79	7/16/2008	2	2008	1	WJR08-818	M	1.883	64	N	N	N	N	1	1	N
7/08/1-80	7/16/2008	2	2008	1	WJR08-818	F	2.147	67	N	N	N	N	1	1	N
7/08/1-81	7/16/2008	2	2008	1	WJR08-818	F	1.869	62	N	N	N	N	0	0	N
7/08/1-82	7/16/2008	2	2008	1	WJR08-818	M	3.499	72	N	N	N	N	1	1	C
7/08/1-83	7/16/2008	2	2008	1	WJR08-818	F	3.051	71	N	N	N	N	1	1	CP
7/08/1-84	7/16/2008	2	2008	1	WJR08-818	F	2.011	68	N	N	N	N	1	1	N
7/08/1-85	7/16/2008	2	2008	1	WJR08-818	F	2.553	69	N	N	N	N	1	1	N
7/08/1-86	7/16/2008	2	2008	1	WJR08-818	F	1.904	63	N	N	N	N	1	1	N
7/08/1-87	7/16/2008	2	2008	1	WJR08-818	F	1.626	59	N	N	N	N	1	1	C
7/08/1-88	7/16/2008	2	2008	1	WJR08-818	F	2.634	69	N	N	N	N	1	1	CP
7/08/1-89	7/16/2008	2	2008	1	WJR08-818	M	1.873	64	N	N	N	N	1	1	P
7/08/1-90	7/16/2008	2	2008	1	WJR08-818	F	2.399	64	N	N	N	N	0	0	C
7/08/1-91	7/16/2008	2	2008	1	WJR08-818	M	2.280	66	N	N	N	N	1	1	N
7/08/1-92	7/16/2008	2	2008	1	WJR08-818	F	2.364	67	N	N	N	N	0	0	N
7/08/1-93	7/16/2008	2	2008	1	WJR08-818	M	1.989	62	N	N	N	N	1	1	C
7/08/1-94	7/16/2008	2	2008	1	WJR08-818	F	2.231	65	N	N	N	N	1	1	F
7/08/1-95	7/16/2008	2	2008	1	WJR08-818	F	2.449	64	N	N	N	N	1	1	N
7/08/1-96	7/16/2008	2	2008	1	WJR08-818	M	2.297	66	N	N	N	N	1	1	N
7/08/1-97	7/16/2008	2	2008	1	WJR08-818	F	1.852	68	N	N	N	N	1	1	N
7/08/1-98	7/16/2008	2	2008	1	WJR08-818	M	1.999	63	N	N	N	N	1	1	N
7/08/1-99	7/16/2008	2	2008	1	WJR08-818	M	2.420	66	N	N	N	N	2	1	N
7/08/2-70	7/15/2008	2	2008	2	WJR08-817	F	2.330	67	N	N	N	N	1	1	FCP
7/08/2-71	7/15/2008	2	2008	2	WJR08-817	F	2.243	65	N	N	N	N	1	1	C
7/08/2-72	7/15/2008	2	2008	2	WJR08-817	M	1.994	62	N	N	N	N	1	1	C
7/08/2-73	7/15/2008	2	2008	2	WJR08-817	F	2.069	65	N	N	N	N	1	1	C
7/08/2-74	7/15/2008	2	2008	2	WJR08-817	M	2.256	65	N	N	N	N	1	1	N
7/08/2-75	7/15/2008	2	2008	2	WJR08-817	F	2.815	70	N	N	N	N	1	1	C
7/08/2-76	7/15/2008	2	2008	2	WJR08-817	M	2.762	65	N	N	N	N	1	1	C
7/08/2-77	7/15/2008	2	2008	2	WJR08-817	F	2.589	65	N	N	N	N	0	0	N
7/08/2-78	7/15/2008	2	2008	2	WJR08-817	F	2.119	63	N	N	N	N	0	1	C
7/08/2-79	7/15/2008	2	2008	2	WJR08-817	F	2.054	62	N	N	N	N	1	1	FP
7/08/2-80	7/15/2008	2	2008	2	WJR08-817	M	2.231	66	N	N	N	N	1	1	C

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SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
7/08/2-81	7/15/2008	2	2008	2	WJR08-817	F	2.346	65	N	N	N	N	1	1	C
7/08/2-82	7/15/2008	2	2008	2	WJR08-817	M	2.311	63	N	N	N	N	1	1	C
7/08/2-83	7/15/2008	2	2008	2	WJR08-817	M	1.873	62	N	N	N	N	1	1	CP
7/08/2-84	7/15/2008	2	2008	2	WJR08-817	M	1.946	59	N	N	N	N	1	1	CP
7/08/2-85	7/15/2008	2	2008	2	WJR08-817	F	1.783	58	N	N	N	N	1	1	C
7/08/2-86	7/15/2008	2	2008	2	WJR08-817	M	2.823	68	N	N	N	N	1	1	C
7/08/2-87	7/15/2008	2	2008	2	WJR08-817	M	2.404	64	N	N	N	N	1	1	CP
7/08/2-88	7/15/2008	2	2008	2	WJR08-817	F	2.175	62	N	N	N	N	1	1	C
7/08/2-89	7/15/2008	2	2008	2	WJR08-817	F	2.375	64	N	N	N	N	1	1	CP
7/08/2-90	7/15/2008	2	2008	2	WJR08-817	F	2.852	71	N	N	N	N	0	0	C
7/08/2-91	7/15/2008	2	2008	2	WJR08-817	M	1.880	63	N	N	N	N	1	1	FC
7/08/2-92	7/15/2008	2	2008	2	WJR08-817	F	2.391	66	N	N	N	N	0	0	C
7/08/2-93	7/15/2008	2	2008	2	WJR08-817	F	2.504	68	N	N	N	N	1	1	C
7/08/2-94	7/15/2008	2	2008	2	WJR08-817	M	2.049	63	N	N	N	N	2	1	C
7/08/2-95	7/15/2008	2	2008	2	WJR08-817	F	1.889	61	N	N	N	N	1	0	C
7/08/3-70	7/14/2008	2	2008	3	WJR08-816	F	3.385	71	N	N	N	N	0	0	C
7/08/3-71	7/14/2008	2	2008	3	WJR08-816	F	3.077	68	N	N	N	N	1	1	C
7/08/3-72	7/14/2008	2	2008	3	WJR08-816	F	2.737	69	N	N	N	N	1	1	C
7/08/3-73	7/14/2008	2	2008	3	WJR08-816	F	6.037	85	N	N	N	N	1	1	N
7/08/3-74	7/14/2008	2	2008	3	WJR08-816	F	1.343	56	N	N	N	N	1	1	CP
7/08/3-75	7/14/2008	2	2008	3	WJR08-816	F	1.898	57	N	N	N	N	1	1	CP
7/08/4-70	7/10/2008	2	2008	4	WJR08-815	F	2.579	69	N	N	N	OT	1	1	C
7/08/4-71	7/10/2008	2	2008	4	WJR08-815	F	2.021	62	N	N	N	N	0	1	C
7/08/4-72	7/10/2008	2	2008	4	WJR08-815	M	2.634	71	N	N	N	N	1	1	N
7/08/4-73	7/10/2008	2	2008	4	WJR08-815	F	3.093	72	N	N	N	N	1	1	C
7/08/4-74	7/10/2008	2	2008	4	WJR08-815	M	1.860	65	N	N	N	P	1	1	N
7/08/4-75	7/10/2008	2	2008	4	WJR08-815	M	2.629	69	N	N	N	N	1	1	CP
7/08/4-76	7/10/2008	2	2008	4	WJR08-815	F	2.114	66	N	N	N	N	1	1	C
7/08/4-77	7/10/2008	2	2008	4	WJR08-815	F	4.284	79	N	N	N	N	1	1	C
7/08/4-78	7/10/2008	2	2008	4	WJR08-815	I	0.417	35	N	N	N	N	1	1	CP
7/08/4-79	7/10/2008	2	2008	4	WJR08-815	M	2.411	66	N	N	N	N	1	1	C
7/08/4-80	7/10/2008	2	2008	4	WJR08-815	I	0.288	33	N	N	N	N	1	1	C
7/08/4-81	7/10/2008	2	2008	4	WJR08-815	F	4.973	83	N	N	N	N	1	1	CM
7/08/4-82	7/10/2008	2	2008	4	WJR08-815	F	2.153	67	N	N	N	N	1	1	C
7/08/4-83	7/10/2008	2	2008	4	WJR08-815	F	2.534	68	N	N	N	N	1	1	C

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Date Collected	Sample Year	Year	Site Number	Collector ID	GENDER	Weight (g)	Total Length (mm)	Left Eye	Right Eye	Head	Body Surface	Right Opercule	Left Opercule	Left Gill
7/08/4-84	7/10/2008	2	2008	4	WJR08-815	M	3.036	68	N	N	N	N	1	1	C
7/08/4-85	7/10/2008	2	2008	4	WJR08-815	M	2.169	65	N	N	N	N	1	1	C
7/08/4-86	7/10/2008	2	2008	4	WJR08-815	I	0.322	33	N	N	N	N	1	1	C
7/08/4-87	7/10/2008	2	2008	4	WJR08-815	I	0.249	32	N	N	N	N	1	1	C
7/08/4-88	7/10/2008	2	2008	4	WJR08-815	I	0.326	34	N	N	N	N	1	1	CP
7/08/4-89	7/10/2008	2	2008	4	WJR08-815	I	0.271	32	N	N	N	N	1	1	CP
7/08/5-70	7/9/2008	2	2008	5	WJR08-814	I	0.560	40	N	N	N	N	0	0	P
7/08/5-71	7/9/2008	2	2008	5	WJR08-814	I	0.556	38	N	N	N	N	0	0	N
7/08/5-72	7/9/2008	2	2008	5	WJR08-814	I	0.381	35	N	N	N	N	1	1	C
7/08/5-73	7/9/2008	2	2008	5	WJR08-814	I	0.364	34	N	N	N	N	0	0	N
7/08/5-74	7/9/2008	2	2008	5	WJR08-814	I	0.497	38	N	N	N	N	1	1	C
7/08/5-75	7/9/2008	2	2008	5	WJR08-814	I	0.468	36	N	N	N	N	1	1	CP
7/08/5-76	7/9/2008	2	2008	5	WJR08-814	I	0.362	33	N	N	N	N	1	1	CP
7/08/5-77	7/9/2008	2	2008	5	WJR08-814	I	0.428	35	N	N	N	N	1	1	C
7/08/5-78	7/9/2008	2	2008	5	WJR08-814	I	0.330	34	N	N	N	N	1	1	C
7/08/6-70	7/8/2008	2	2008	6	WJR08-813	I	0.782	41	N	N	N	N	1	1	P
7/08/6-71	7/8/2008	2	2008	6	WJR08-813	I	0.470	35	N	N	N	N	0	0	N
7/08/6-72	7/8/2008	2	2008	6	WJR08-813	I	1.024	50	N	N	N	N	1	1	N
7/08/6-73	7/8/2008	2	2008	6	WJR08-813	I	0.859	44	N	N	N	N	1	1	CP
7/08/6-74	7/8/2008	2	2008	6	WJR08-813	I	0.605	43	N	N	N	N	1	1	C
7/08/6-75	7/8/2008	2	2008	6	WJR08-813	I	0.488	37	N	N	N	N	0	0	N
7/08/6-76	7/8/2008	2	2008	6	WJR08-813	I	0.726	45	N	N	N	L	0	0	P
7/08/6-77	7/8/2008	2	2008	6	WJR08-813	I	0.599	41	N	N	N	N	1	1	P
7/08/6-78	7/8/2008	2	2008	6	WJR08-813	I	0.688	40	N	N	N	N	1	1	C
7/08/6-79	7/8/2008	2	2008	6	WJR08-813	I	0.502	38	N	N	N	N	1	1	CP
7/08/6-80	7/8/2008	2	2008	6	WJR08-813	I	0.701	42	N	N	N	N	1	1	C
7/08/6-81	7/8/2008	2	2008	6	WJR08-813	I	0.556	39	N	N	N	N	0	0	C
7/08/6-82	7/8/2008	2	2008	6	WJR08-813	I	0.510	40	N	N	N	N	2	2	CP
7/08/6-83	7/8/2008	2	2008	6	WJR08-813	I	0.627	40	N	N	N	N	1	1	CM
7/08/6-84	7/8/2008	2	2008	6	WJR08-813	I	0.550	37	N	N	N	N	1	1	C
7/08/6-85	7/8/2008	2	2008	6	WJR08-813	I	0.733	43	N	N	N	N	1	1	C
7/08/6-86	7/8/2008	2	2008	6	WJR08-813	I	0.785	44	N	N	N	N	1	1	C
7/08/6-87	7/8/2008	2	2008	6	WJR08-813	I	0.617	40	N	N	N	N	1	1	CP
7/08/6-88	7/8/2008	2	2008	6	WJR08-813	I	0.574	39	N	N	N	N	0	0	N
7/08/6-89	7/8/2008	2	2008	6	WJR08-813	I	0.742	44	N	N	N	N	1	1	C
7/08/6-90	7/8/2008	2	2008	6	WJR08-813	I	0.827	45	N	N	N	N	1	1	C
7/08/6-91	7/8/2008	2	2008	6	WJR08-813	I	0.636	41	N	N	N	N	1	1	C
7/08/6-92	7/8/2008	2	2008	6	WJR08-813	I	0.507	37	N	N	N	N	1	1	CP
7/08/6-93	7/8/2008	2	2008	6	WJR08-813	I	0.604	41	N	N	N	N	1	1	CP
7/08/6-94	7/8/2008	2	2008	6	WJR08-813	I	0.444	35	N	N	N	N	1	1	C
7/08/6-95	7/8/2008	2	2008	6	WJR08-813	I	1.133	49	N	N	N	N	1	1	C
7/08/6-96	7/8/2008	2	2008	6	WJR08-813	I	1.367	53	N	N	N	N	1	1	N
7/08/6-97	7/8/2008	2	2008	6	WJR08-813	I	0.850	46	N	N	N	N	1	1	P
7/08/6-98	7/8/2008	2	2008	6	WJR08-813	I	0.550	39	N	N	N	N	1	1	C
7/08/6-99	7/8/2008	2	2008	6	WJR08-813	I	0.705	42	N	N	N	N	0	0	C

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
100-(((1/3)*1(	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/06/1-71	N	N	N	N	N	N	NORMAL	FULL	OTHER	RED ENLG
7/06/1-72	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED GRAN
7/06/1-73	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/06/1-74	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED ENLG
7/06/1-75	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED ENLG
7/06/1-76	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED ENLG
7/06/1-77	N	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
7/06/1-78	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED ENLG
7/06/1-79	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED ENLG
7/06/1-80	FP	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED ENLG
7/06/1-81	FMP	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/06/1-82	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED ENLG
7/06/1-83	N	N	N	N	N	N	NORMAL	FULL	OTHER	RED
7/06/1-84	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED ENLG
7/06/1-85	N	H	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/1-86	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/1-87	N	N	N	N	N	N	NORMAL	FULL	YELLOW	OTHER
7/06/1-88	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED ENLG
7/06/1-89	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/06/1-90	P	N	N	N	N	N	NORMAL	PART FULL	YELLOW	OTHER
7/06/1-91	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/06/1-92	N	N	N	N	N	N	NORMAL	PART FULL	DARK GREEN	ENLG
7/06/1-93	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/06/1-94	N	N	N	N	N	N	TAN	FULL	DARK GREEN	RED
7/06/1-95	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/06/1-96	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/06/1-97	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/06/1-98	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/06/1-99	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/06/2-70	N	N	N	N	N	N	GEN DIS	EMPTY	NA	RED
7/06/2-71	N	N	N	N	N	N	TAN	EMPTY	NA	RED ENLG
7/06/2-72	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/2-73	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/06/2-74	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/2-75	N	H	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/06/2-76	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/2-77	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/2-78	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/06/2-79	C P	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/2-80	N	N	N	N	N	OT	TAN	PART FULL	LIGHT GREEN	RED ENLG
7/06/2-81	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/06/2-82	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/2-83	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/06/2-84	P	N	N	N	N	N	TAN	PART FULL	DARK GREEN	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
7/06/2-85	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED ENLG
7/06/2-86	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED GRAN
7/06/2-87	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
7/06/2-88	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/06/2-89	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED ENLG
7/06/2-90	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/2-91	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED ENLG
7/06/2-92	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/06/2-93	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED ENLG
7/06/2-94	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/2-95	N	N	N	N	OT	N	NORMAL	EMPTY	NA	RED ENLG
7/06/2-96	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	GRAN OT
7/06/2-97	N	N	N	H	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/2-98	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED ENLG
7/06/2-99	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/3-70	N	N	N	N	F	N	TAN	PART FULL	YELLOW	RED
7/06/3-71	N	N	N	N	N	N	TAN	EMPTY	NA	ENLG
7/06/3-72	FPP	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/06/3-73	OT	N	F	N	F	N	TAN	NA	NA	RED
7/06/3-74	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED ENLG
7/06/3-75	FP	N	N	N	F OT	F	TAN	PART FULL	YELLOW	RED GRAN
7/06/3-76	N	HF OT	N	N	N	N	TAN	PART FULL	YELLOW	R G E
7/06/3-77	N	N	N	N	N	S H OT	NORMAL	EMPTY	NA	RED ENLG
7/06/3-78	P	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/3-79	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED OT
7/06/3-80	N	N	N	N	N	OT	TAN	FULL	LIGHT GREEN	RED ENLG
7/06/4-70	F OT	N	N	N	N	N	TAN	PART FULL	YELLOW	GRAN OT
7/06/4-71	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/4-72	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/4-73	N	N	N	H OT	N	H OT	TAN	FULL	YELLOW	RED
7/06/4-74	N	N	N	N	N	N	TAN	NA	NA	RED
7/06/4-75	N	N	N	N	H OT	H OT	TAN	EMPTY	NA	RED
7/06/4-76	P OT	N	N	N	N	F	TAN	FULL	YELLOW	RED
7/06/4-77	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/06/4-78	N	N	N	N	F	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/4-79	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/06/4-80	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/4-81	F	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/06/4-82	N	N	N	N	N	N	TAN	NA	NA	RED
7/06/4-83	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/4-84	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/4-85	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/4-86	F	N	N	N	OT	N	TAN	FULL	LIGHT GREEN	RED
7/06/4-87	FP	N	N	N	N	N	TAN	FULL	YELLOW	RED GRAN
7/06/4-88	N	N	N	H OT	F	N	TAN	FULL	DARK GREEN	RED OT

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
7/06/4-89	P	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/4-90	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	GRAN
7/06/4-91	F OT	N	N	N	N	N	TAN	FULL	LIGHT GREEN	OTHER
7/06/4-92	N	N	N	N	F	F	NORMAL	EMPTY	NA	RED
7/06/4-93	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/4-94	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED GRAN
7/06/4-95	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/4-96	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/4-97	FP	N	N	N	N	N		PART FULL	LIGHT GREEN	RED GRAN
7/06/4-98	FP	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED ENLG
7/06/4-99	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/5-70	N	N	N	N	H OT	N	TAN	PART FULL	YELLOW	RED
7/06/5-71	N	N	N	N	S	N	TAN	FULL	LIGHT GREEN	RED
7/06/5-72	N	N	N	N	N	N	TAN	EMPTY	NA	RED
7/06/5-73	N	N	N	N	N	N	TAN	EMPTY	NA	RED
7/06/5-74	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/06/5-75	N	N	N	N	N	N	TAN	NA	NA	RED
7/06/5-76	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/06/5-77	N	N	N	N	N	F	TAN	FULL	YELLOW	RED
7/06/5-78	P	N	N	N	N	H	GEN DIS	EMPTY	NA	ENLG
7/06/5-79	M	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED ENLG
7/06/5-80	N	H	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/06/5-81	FP	N	OT	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/06/5-82	N	N	N	N	N	OT	NORMAL	FULL	LIGHT GREEN	RED OT
7/06/5-83	N	N	N	H	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/5-84	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/5-85	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/06/5-86	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/06/5-87	N	N	N	N	OT	N	NORMAL	NA	NA	RED
7/06/5-88	N	N	N	N	N	N	GEN DIS	FULL	LIGHT GREEN	RED
7/06/5-89	FM	N	N	N	N	N	NORMAL	FULL	YELLOW	ENLG
7/06/5-90	P	N	N	N	OT	N	TAN	FULL	LIGHT GREEN	RED
7/06/5-91	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/5-92	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/06/5-93	N	N	N	N	OT	N	GEN DIS	FULL	LIGHT GREEN	RED ENLG
7/06/5-94	F	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/5-95	F	N	N	OT	N	N	TAN	PART FULL	YELLOW	RED
7/06/5-96	P	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/06/5-97	OT	N	N	N	F	N	NORMAL	FULL	YELLOW	RED ENLG
7/06/5-98	OT	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
7/06/5-99	N	N	N	N	N	H	NORMAL	NA	NA	RED ENLG
7/06/6-70	F	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/06/6-71	C	N	N	N	H OT	N	TAN	FULL	YELLOW	RED
7/06/6-72	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/06/6-73	N	N	N	N	N	N	TAN	EMPTY	NA	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
7/06/6-74	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	
7/06/6-75	N	N	N	N	N	N	TAN	EMPTY	NA	RED
7/06/6-76	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/6-77	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/06/6-78	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED ENLG
7/06/6-79	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/06/6-80	N	N	N	N	F	N	TAN	FULL	YELLOW	RED
7/06/6-81	N	N	N	N	N	OT	NORMAL	PART FULL	YELLOW	RED
7/06/6-82	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/06/6-83	FP	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/6-84	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/06/6-85	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/6-86	N	N	N	N	N	N	TAN	FULL	YELLOW	OTHER
7/06/6-87	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/06/6-88	N	N	N	F	N	N	NORMAL	PART FULL	YELLOW	RED
7/06/6-89	F	N	N	N	F	N	TAN	FULL	YELLOW	RED
7/06/6-90	F	N	N	N	N	N	FOC DIS	FULL	YELLOW	RED
7/06/6-91	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/06/6-92	N	N	OT	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/06/6-93	N	F	N	N	N	N	TAN	EMPTY	NA	RED
7/06/6-94	N	N	N	N	N	N	TAN	PART FULL	YELLOW	ENLG
7/06/6-95	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/06/6-96	OT	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/1-70	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/1-71	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
10/06/1-72	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/1-73	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
10/06/1-74	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/1-75	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/06/1-76	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
10/06/1-77	P	N	N	N	N	N	TAN	EMPTY	NA	RED
10/06/1-78	P	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/1-79	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/1-80	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/1-81	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/1-82	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
10/06/1-83	CP	N	N	N	F	N	NORMAL	PART FULL	YELLOW	RED
10/06/1-84	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
10/06/1-85	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
10/06/1-86	P	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
10/06/1-87	N	N	N	N	S OT	N	NORMAL	PART FULL	LIGHT GREEN	RED
10/06/1-88	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
10/06/1-89	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
10/06/1-90	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/06/1-91	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
10/06/1-92	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/1-93	CP	N	N	N	OT	N	NORMAL	FULL	YELLOW	RED
10/06/1-94	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/1-95	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/1-96	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/2-70	N	N	N	N	F	N	GEN DIS	FULL	YELLOW	RED
10/06/2-71	C	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
10/06/2-72	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/2-73	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/2-74	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/06/2-75	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/2-76	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/2-77	P	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
10/06/2-78	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/2-79	C	N	N	N	M	N	NORMAL	FULL	YELLOW	RED OT
10/06/2-80	N	N	N	N	H	N	NORMAL	FULL	LIGHT GREEN	RED
10/06/2-81	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/2-82	P	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
10/06/2-83	CP	N	N	N	HF	H	NORMAL	FULL	YELLOW	RED
10/06/2-84	CP	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED OT
10/06/2-85	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/2-86	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED OT
10/06/2-87	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/2-88	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
10/06/2-89	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/2-90	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/2-91	N	N	N	N	H	N	NORMAL	EMPTY	NA	RED ENLG
10/06/2-92	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/2-93	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
10/06/2-94	N	N	N	N	N	H	NORMAL	EMPTY	NA	RED
10/06/2-95	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
10/06/2-96	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/2-97	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
10/06/2-98	C	N	N	N	N	N	TAN	FULL	YELLOW	N/A
10/06/2-99	C	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
10/06/3-70	N	N	N	N	OT	N	NORMAL	FULL	YELLOW	RED
10/06/3-71	N	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
10/06/3-72	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
10/06/3-73	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED NOD
10/06/3-74	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/3-75	P	N	N	N	N	N	GEN DIS	EMPTY	NA	RED
10/06/3-76	N	N	H	N	OT	N	FOC DIS	PART FULL	LIGHT GREEN	RED ENLG
10/06/3-77	N	N	N	N	F	N	FOC DIS	FULL	YELLOW	RED
10/06/3-78	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED NOD
10/06/3-79	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
10/06/3-80	N	N	N	N	N	N	GEN DIS	PART FULL	YELLOW	RED NOD
10/06/3-81	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
10/06/3-82	P	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/3-83	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/06/3-84	N	N	N	N	OT	N	TAN	FULL	LIGHT GREEN	RED
10/06/3-85	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
10/06/3-86	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
10/06/3-87	N	N	N	N	S	N	NORMAL	FULL	YELLOW	RED
10/06/4-70	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/4-71	P	N	N	N	N	N	TAN	EMPTY	NA	RED
10/06/4-72	M	N	N	N	N	H	TAN	PART FULL	LIGHT GREEN	RED ENLG
10/06/4-73	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/4-74	N	N	N	N	N	N	TAN	EMPTY	NA	RED NOD
10/06/4-75	N	H	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
10/06/4-76	P	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED NOD
10/06/4-77	N	N	N	N	H	N	TAN	FULL	LIGHT GREEN	RED
10/06/4-78	CP	N	HM	N	N	N	TAN	FULL	YELLOW	RED
10/06/4-79	N	N	N	N	N	N	TAN	FULL	YELLOW	RED ENLG
10/06/4-80	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
10/06/4-81	N	N	N	N	N	M	NORMAL	EMPTY	NA	RED
10/06/4-82	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
10/06/4-83	P	N	N	N	N	N	TAN	FULL	YELLOW	RED NOD
10/06/4-84	P	N	N	N	N	H OT	GEN DIS	FULL	LIGHT GREEN	RED
10/06/4-85	P	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
10/06/4-86	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
10/06/4-87	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/4-88	P	N	N	N	H	N	NORMAL	EMPTY	NA	RED
10/06/4-89	P	N	N	F	F	N	TAN	PART FULL	YELLOW	RED NOD
10/06/4-90	N	N	N	N	OT	N	NORMAL	PART FULL	LIGHT GREEN	RED
10/06/4-91	M	N	N	N	H	N	TAN	FULL	LIGHT GREEN	RED
10/06/4-92	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/06/4-93	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/4-94	N	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
10/06/4-95	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
10/06/4-96	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
10/06/4-97	N	N	N	N	F	F	TAN	FULL	LIGHT GREEN	RED
10/06/4-98	N	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
10/06/4-99	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/5-70	N	N	N	N	N	N	TAN	FULL	YELLOW	NOD
10/06/5-71	P	N	N	N	N	N	TAN	FULL	YELLOW	NOD
10/06/5-72	N	N	N	N	N	N	TAN OT	FULL	YELLOW	RED OT
10/06/5-73	P	N	N	N	F	OT	TAN	FULL	YELLOW	RED
10/06/5-74	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/5-75	N	N	N	N	OT	N	TAN	FULL	YELLOW	RED OT
10/06/5-76	N	N	N	N	OT	N	TAN	FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
10/06/5-77	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/5-78	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/06/5-79	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/5-80	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/5-81	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/5-82	N	N	N	N	N	N	NORMAL	FULL	YELLOW	NOD ENLG
10/06/5-83	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/06/5-84	N	N	N	N	N	N	TAN	FULL	YELLOW	RED NOD
10/06/5-85	N	N	N	N	N	OT	TAN	FULL	YELLOW	RED NOD
10/06/5-86	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
10/06/5-87	P	N	N	N	N	N	TAN	EMPTY	NA	RED
10/06/5-88	C	N	N	N	OT	OT	TAN	FULL	LIGHT GREEN	RED
10/06/5-89	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/5-90	N	N	N	N	N	N	TAN	EMPTY	NA	GRAN
10/06/5-91	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/06/5-92	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/06/5-93	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/06/5-94	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/06/5-95	P	N	N	N	N	N	NORMAL	FULL	YELLOW	RED NOD
10/06/5-96	P	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
1/07/2-70	C	N	N	N	N	N	NORMAL	FULL	OTHER	RED ENLG
1/07/2-71	N	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
1/07/2-72	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/2-73	N	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
1/07/2-74	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/2-75	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/2-76	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/2-77	CP	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/2-78	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/2-79	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/2-80	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/2-81	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/2-82	N	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
1/07/2-83	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/2-84	P	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/2-85	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/2-86	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/3-70	N	N	N	N	F	N	NORMAL	EMPTY	NA	NOD
1/07/3-71	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/3-72	N	N	N	N	N	N	NORMAL	FULL	OTHER	RED ENLG
1/07/3-73	N	N	N	N	H	N	TAN	EMPTY	NA	RED
1/07/3-74	P	N	N	N	N	N	NORMAL	FULL	OTHER	RED
1/07/3-75	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
1/07/3-76	C	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
1/07/3-77	C	N	N	N	N	N	TAN	FULL	OTHER	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
1/07/3-78	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
1/07/3-79	N	N	N	N	F	F	TAN	EMPTY	NA	RED
1/07/3-80	N	F	N	N	F	N	NORMAL	EMPTY	NA	RED
1/07/3-81	C	N	N	N	N	OT	TAN	EMPTY	NA	RED
1/07/3-82	P	N	N	N	N	N	TAN	EMPTY	NA	RED
1/07/3-83	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/07/3-84	N	N	N	N	S	N	NORMAL	EMPTY	NA	RED ENLG
1/07/3-85	N	N	N	N	M	N	NORMAL	FULL	OTHER	RED NOD
1/07/3-86	P	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
1/07/3-87	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/3-88	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/3-89	N	N	N	N	N	F	NORMAL	FULL	OTHER	RED
1/07/3-90	N	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
1/07/3-91	N	N	N	H	N	N	NORMAL	PART FULL	OTHER	RED
1/07/3-92	P	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/3-93	N	N	N	N	N	N	NORMAL	FULL	OTHER	RED
1/07/3-94	N	N	N	N	N	N	NORMAL	FULL	OTHER	RED
1/07/3-95	N	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
1/07/3-96	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/3-97	C	N	N	N	N	N	NORMAL	FULL	OTHER	RED
1/07/3-98	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/3-99	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/4-70	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-71	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED NOD
1/07/4-72	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED NOD
1/07/4-73	C	N	N	N	N	F	NORMAL	FULL	OTHER	RED
1/07/4-74	N	N	N	N	OT	N	NORMAL	EMPTY	NA	RED NOD
1/07/4-75	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED NOD
1/07/4-76	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED GRAN
1/07/4-77	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-78	C	N	N	N	M	N	NORMAL	FULL	YELLOW	RED NOD
1/07/4-79	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-80	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED NOD
1/07/4-81	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED NOD
1/07/4-82	C	N	N	N	N	N	NORMAL	FULL	OTHER	RED NOD
1/07/4-83	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED NOD
1/07/4-84	C	N	N	N	F	N	NORMAL	EMPTY	NA	RED
1/07/4-85	N	OT	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-86	N	OT	N	N	N	N	TAN	EMPTY	NA	RED
1/07/4-87	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-88	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-89	N	N	N	N	N	H	NORMAL	PART FULL	YELLOW	RED
1/07/4-90	CP	N	N	N	F	N	NORMAL	EMPTY	NA	RED
1/07/4-91	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/4-92	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
1/07/4-93	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-94	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/4-95	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-96	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/4-97	N	N	N	N	OT	N	NORMAL	FULL	YELLOW	RED ENLG
1/07/4-98	C	N	N	N	S	N	NORMAL	FULL	YELLOW	RED ENLG
1/07/4-99	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/5-70	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/5-71	C	N	OT	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/5-72	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/5-73	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
1/07/5-74	CP	N	N	N	N	N	TAN	PART FULL	OTHER	RED
1/07/5-75	C	N	N	N	N	N	NORMAL	FULL	OTHER	RED
1/07/5-76	CP	N	N	N	H OT	N	TAN	EMPTY	NA	RED
1/07/5-77	C	N	N	N	N	N	NORMAL	EMPTY	NA	NOD ENLG
1/07/5-78	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/5-79	N	N	N	N	N	N	TAN	FULL	OTHER	RED
1/07/5-80	C	N	N	N	N	N	TAN	EMPTY	NA	RED
1/07/5-81	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/07/5-82	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/07/5-83	CP	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/5-84	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/07/5-85	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/5-86	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/5-87	FCP	N	N	N	N	N	TAN	FULL	OTHER	RED
1/07/5-88	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/5-89	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/5-90	CP	N	N	N	F	N	TAN	EMPTY	NA	RED
1/07/5-91	CP	N	N	N	N	N	TAN	EMPTY	NA	RED
1/07/5-92	C	N	N	N	S	N	NORMAL	EMPTY	NA	RED
1/07/5-93	C	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
1/07/5-94	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/5-95	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/6-70	N	N	N	N	N	OT	TAN	FULL	YELLOW	RED
1/07/6-71	P	N	N	N	N	N	TAN	PART FULL	OTHER	RED
1/07/6-72	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/6-73	C	N	N	N	N	N	TAN	FULL	OTHER	RED
1/07/6-74	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/07/6-75	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/6-76	N	N	N	N	N	N	TAN	PART FULL	OTHER	RED
1/07/6-77	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/6-78	C	N	N	N	N	OT	TAN	FULL	OTHER	RED
1/07/6-79	C	N	N	N	N	H	TAN	FULL	YELLOW	RED
1/07/6-80	CP	N	N	N	N	H OT	TAN	FULL	YELLOW	RED
1/07/6-81	N	N	N	N	N	N	TAN	FULL	OTHER	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
1/07/6-82	N	N	N	N	N	N	TAN	EMPTY	NA	RED NOD
1/07/6-83	CP	OT	N	N	N	N	TAN	EMPTY	NA	RED
1/07/6-84	N	N	N	N	N	N	TAN	FULL	OTHER	RED
1/07/6-85	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/6-86	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED NOD
1/07/6-87	C	N	N	N	N	N	TAN	FULL	OTHER	RED NOD
1/07/6-88	N	N	OT	N	N	N	TAN	FULL	YELLOW	RED
1/07/6-89	N	N	N	N	N	N	TAN	FULL	OTHER	RED NOD
1/07/6-90	N	N	N	N	N	N	NORMAL	PART FULL	OTHER	RED
1/07/6-91	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED NOD
1/07/6-92	P	N	N	N	N	N	TAN	FULL	OTHER	RED
1/07/6-93	N	N	N	N	N	N	TAN	FULL	YELLOW	RED NOD
1/07/6-94	FP	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/6-95	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/07/6-96	P	N	N	OT	N	N	TAN	FULL	YELLOW	RED NOD
1/07/6-97	P	N	N	N	N	OT	NORMAL	PART FULL	YELLOW	RED
1/07/6-98	CP	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/07/6-99	P	N	N	N	N	N	NORMAL	FULL	OTHER	RED
4/07/1-70	N	N	N	N	N	N	GEN DIS	EMPTY	NA	RED
4/07/1-71	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/1-72	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/07/1-73	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/1-74	N	N	N	N	N	N	TAN	EMPTY	NA	RED
4/07/1-75	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/1-76	CM	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/1-77	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/1-78	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/1-79	N	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
4/07/1-80	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/1-81	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/1-82	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/07/1-83	CP	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
4/07/1-84	CM	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/2-70	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
4/07/2-71	C	N	N	N	F	F	NORMAL	PART FULL	YELLOW	RED
4/07/2-72	C	N	N	F	N	N	GEN DIS	EMPTY	NA	RED ENLG
4/07/2-73	C	N	N	N	F	N	NORMAL	PART FULL	YELLOW	RED
4/07/2-74	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/07/2-75	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/07/2-76	N	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
4/07/2-77	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/2-78	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/2-79	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/2-80	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
4/07/2-81	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
4/07/2-82	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/2-83	N	N	N	N	N	F	GEN DIS	EMPTY	NA	RED
4/07/2-84	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/07/2-85	C	N	N	N	M	N	NORMAL	EMPTY	NA	RED
4/07/2-86	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/2-87	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/2-88	P	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/2-89	CP	N	N	N	F	N	NORMAL	PART FULL	YELLOW	RED
4/07/2-90	C	N	N	N	F	N	GEN DIS	EMPTY	NA	RED
4/07/2-91	N	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
4/07/2-92	C	N	N	N	N	N	NORMAL	FULL	YELLOW	NOD
4/07/2-93	C	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
4/07/2-94	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/2-95	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/2-96	N	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED ENLG
4/07/2-97	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/2-98	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/2-99	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
4/07/3-70	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/3-71	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/3-72	CP	N	N	OT	N	N	TAN	PART FULL	YELLOW	RED
4/07/3-73	C	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
4/07/3-74	C	N	N	N	MF	N	NORMAL	PART FULL	YELLOW	RED
4/07/3-75	CP	N	N	N	N	F OT	TAN	PART FULL	YELLOW	RED NOD
4/07/3-76	C	N	N	N	N	N	GEN DIS	FULL	OTHER	RED NOD
4/07/3-77	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/3-78	C	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
4/07/3-79	CP	N	N	N	F	N	NORMAL	EMPTY	NA	RED
4/07/3-80	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/3-81	C	N	N	N	F	N	NORMAL	EMPTY	NA	RED
4/07/3-82	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/3-83	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/3-84	N	N	N	F	F	F	GEN DIS	PART FULL	YELLOW	RED
4/07/3-85	CP	N	N	N	N	N	GEN DIS	EMPTY	NA	RED
4/07/3-86	C	N	N	N	F	N	GEN DIS	FULL	YELLOW	RED
4/07/3-87	CP	OT	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/3-88	C	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
4/07/4-70	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/4-71	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED NOD
4/07/4-72	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/07/4-73	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/4-74	MP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/4-75	C	N	N	N	N	OT	NORMAL	FULL	YELLOW	RED
4/07/4-76	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/07/4-77	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED NOD

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
4/07/4-78	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED NOD
4/07/4-79	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	NOD
4/07/4-80	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED ENLG
4/07/4-81	C	N	N	N	N	OT	NORMAL	FULL	YELLOW	RED
4/07/4-82	C	N	N	N	N	OT	NORMAL	FULL	YELLOW	NOD ENLG
4/07/4-83	N	N	N	N	S	N	GEN DIS	FULL	YELLOW	RED NOD
4/07/5-70	CP	N	N	N	N	N	GEN DIS	PART FULL	YELLOW	OTHER
4/07/5-71	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-72	P	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-73	P	N	N	N	F	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-74	CM	N	N	N	F	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-75	N	N	N	N	N	N	GEN DIS	FULL	DARK GREEN	RED NOD
4/07/5-76	C	N	N	N	F	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-77	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-78	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-79	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-80	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-81	P	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/07/5-82	P	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
4/07/5-83	P	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/07/5-84	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/07/1-70	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/07/1-71	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/1-72	C	N	N	N	F	N	TAN	FULL	YELLOW	RED
10/07/1-73	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-74	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-75	N	N	N	N	N	F	NORMAL	PART FULL	YELLOW	RED
10/07/1-76	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-77	C	N	N	N	N	N	NORMAL	FULL	OTHER	RED
10/07/1-78	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/07/1-79	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/07/1-80	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-81	N	N	N	N	N	N	TAN	NA	NA	RED
10/07/1-82	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
10/07/1-83	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/07/1-84	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/1-85	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-86	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-87	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-88	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/1-89	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-90	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/1-91	C	N	N	N	N	N	NORMAL	NA	NA	RED
10/07/1-92	C	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
10/07/1-93	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
10/07/1-94	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/2-70	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/2-71	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/2-72	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/2-73	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
10/07/2-74	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/07/2-75	C	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/2-76	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/2-77	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/2-78	C	N	N	N	F	N	TAN	PART FULL	YELLOW	RED
10/07/2-79	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/2-80	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/2-81	C	N	N	N	S	N	TAN	FULL	YELLOW	NOD ENLG
10/07/2-82	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/2-83	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/2-84	N	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
10/07/2-85	C	N	N	N	M	F	TAN	FULL	YELLOW	RED
10/07/2-86	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/2-87	CP	N	N	F	F	N	NORMAL	FULL	YELLOW	RED
10/07/2-88	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/2-89	C	N	N	N	N	N	TAN	NA	NA	RED
10/07/3-70	C	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/3-71	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/3-72	C	N	N	N	F	N	NORMAL	NA	NA	N/A
10/07/3-73	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/07/3-74	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
10/07/3-75	C	N	N	OT	N	N	NORMAL	EMPTY	NA	RED ENLG
10/07/3-76	CP	N	N	N	F	F	NORMAL	FULL	YELLOW	NOD ENLG
10/07/3-77	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED NOD
10/07/3-78	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	NOD ENLG
10/07/3-79	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	N/A
10/07/3-80	FC	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
10/07/3-81	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/3-82	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
10/07/3-83	C	N	N	N	S	N	NORMAL	FULL	YELLOW	RED
10/07/3-84	C	N	N	N	N	N	NORMAL	NA	NA	RED
10/07/4-70	C	N	N	N	N	N	GEN DIS	PART FULL	YELLOW	RED
10/07/4-71	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/4-72	C	N	N	N	N	OT	TAN	FULL	YELLOW	RED NOD
10/07/4-73	C	N	N	N	N	N	TAN	PART FULL	YELLOW	NOD ENLG
10/07/4-74	C	N	N	N	N	N	TAN	NA	NA	RED
10/07/4-75	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/4-76	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/4-77	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
10/07/4-78	CM	N	N	N	N	N	NORMAL	FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
10/07/4-79	C	N	N	N	N	OT	TAN	FULL	YELLOW	RED NOD
10/07/4-80	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/4-81	C	N	N	F	F	N	NORMAL	PART FULL	YELLOW	RED
10/07/4-82	C	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
10/07/4-83	CP	N	N	F	F	F	NORMAL	PART FULL	YELLOW	RED ENLG
10/07/4-84	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/4-85	C	N	N	N	N	N	TAN	FULL	YELLOW	RED ENLG
10/07/4-86	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
10/07/4-87	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/4-88	C	N	N	N	N	N	GEN DIS	PART FULL	YELLOW	RED
10/07/4-89	FCP	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/07/4-90	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	NOD ENLG
10/07/4-91	C	N	N	N	N	N	TAN	FULL	YELLOW	RED ENLG
10/07/4-92	C	N	N	N	N	N	TAN	FULL	YELLOW	NOD ENLG
10/07/4-93	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
10/07/4-94	C	N	N	N	N	N	NORMAL	NA	NA	RED
10/07/5-70	CP	N	N	N	N	N	TAN	EMPTY	NA	RED ENLG
10/07/5-71	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/5-72	FP	OT	N	N	N	N	TAN	EMPTY	NA	RED ENLG
10/07/5-73	C	N	N	N	N	N	NORMAL	NA	NA	RED
10/07/5-74	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/5-75	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
10/07/5-76	C	N	N	N	N	N	NORMAL	NA	NA	RED
10/07/5-77	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/5-78	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
10/07/5-79	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
10/07/5-80	P	N	H	H	HF	H	TAN	EMPTY	NA	RED
10/07/5-81	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
10/07/5-82	N	N	N	N	S OT	N	NORMAL	PART FULL	YELLOW	RED
10/07/5-83	N	N	N	N	OT	N	GEN DIS	EMPTY	NA	RED
10/07/5-84	C	N	OT	N	N	N	TAN	PART FULL	YELLOW	RED
10/07/5-85	N	N	N	N	N	N	NORMAL	NA	NA	RED
10/07/5-86	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
10/07/5-87	C	N	N	N	N	N	GEN DIS	EMPTY	NA	RED
10/07/5-88	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/5-89	N	N	N	N	F	N	TAN	PART FULL	YELLOW	RED
10/07/6-70	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
10/07/6-71	N	N	N	N	N	N	TAN	NA	NA	RED
10/07/6-72	P	N	N	N	N	N	TAN	FULL	OTHER	RED
10/07/6-73	FP	F	N	N	N	OT	TAN	EMPTY	NA	RED
10/07/6-74	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/6-75	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/6-76	N	N	N	N	N	F	NORMAL	FULL	YELLOW	GRAN
10/07/6-77	N	N	N	N	N	N	TAN	NA	NA	RED
10/07/6-78	N	N	N	N	N	N	NORMAL	EMPTY	NA	NOD ENLG

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
10/07/6-79	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
10/07/6-80	P	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/6-81	N	N	N	N	N	N	TAN	EMPTY	NA	RED
10/07/6-82	CP	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-70	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-71	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-72	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/1-73	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-74	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-75	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-76	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-77	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-78	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-79	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-80	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-81	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-82	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-83	N	N	N	N	F	N	TAN	EMPTY	NA	RED
1/08/1-84	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/1-85	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/1-86	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-87	MP	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-88	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-89	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-90	P	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-91	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-92	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-93	MP	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-94	MP	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-95	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/1-96	N	N	N	N	F	N	TAN	EMPTY	NA	RED
1/08/1-97	MP	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-98	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/1-99	P	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-70	OT	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/2-71	OT	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/2-72	OT	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/2-73	OT	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/2-74	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
1/08/2-75	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/2-76	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-77	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/2-78	N	H	H	N	H	N	NORMAL	FULL	YELLOW	RED
1/08/2-79	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/2-80	N	N	N	N	N	N	TAN	FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
1/08/2-81	N	N	N	N	H	N	TAN	FULL	YELLOW	RED
1/08/2-82	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-83	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/2-84	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-85	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-86	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-87	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/2-88	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-89	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/2-90	N	N	N	H	N	H	TAN	EMPTY	NA	RED
1/08/2-91	P	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-92	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/2-93	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/2-94	N	N	N	N	H	N	TAN	FULL	YELLOW	RED
1/08/2-95	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-96	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-97	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/2-98	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/2-99	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-70	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/3-71	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/3-72	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/3-73	N	N	N	N	F	N	TAN	FULL	YELLOW	RED
1/08/3-74	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/3-75	N	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
1/08/3-76	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/3-77	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-78	N	N	N	N	N	N	TAN	EMPTY	NA	RED GRAN
1/08/3-79	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/3-80	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-81	N	N	N	N	F	N	TAN	EMPTY	NA	RED
1/08/3-82	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/3-83	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/3-84	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-85	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/3-86	N	N	N	N	F	N	TAN	PART FULL	YELLOW	RED
1/08/3-87	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/3-88	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-89	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-90	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-91	N	N	F	N	N	N	TAN	EMPTY	NA	GRAN
1/08/3-92	N	N	N	OT	N	N	TAN	EMPTY	NA	RED
1/08/3-93	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/3-94	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-95	MP	N	N	N	N	N	TAN	PART FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
1/08/3-96	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-97	MP	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/3-98	MP	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/3-99	MP	N	N	N	N	N	TAN	FULL	YELLOW	GRAN
1/08/4-70	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-71	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-72	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-73	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-74	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/4-75	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/4-76	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-77	N	N	N	N	F	N	TAN	PART FULL	YELLOW	RED
1/08/4-78	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-79	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-80	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-81	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-82	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/4-83	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/4-84	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-85	N	N	N	N	N	N	GEN DIS	FULL	YELLOW	RED
1/08/4-86	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/4-87	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/4-88	N	N	N	N	M	N	TAN	FULL	YELLOW	RED
1/08/4-89	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/4-90	N	N	N	N	N	N	TAN	EMPTY	NA	GRAN
1/08/4-91	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/4-92	N	N	N	N	N	N	GEN DIS	FULL	YELLOW	GRAN
1/08/4-93	N	N	OT	N	N	N	TAN	FULL	YELLOW	GRAN
1/08/4-94	N	N	N	N	N	N	TAN	FULL	YELLOW	GRAN
1/08/4-95	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/4-96	N	N	N	N	S	N	TAN	PART FULL	YELLOW	RED
1/08/4-97	N	N	N	N	N	N	TAN	EMPTY	NA	RED GRAN
1/08/4-98	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/4-99	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-70	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-71	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-72	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-73	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/5-74	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-75	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-76	N	H	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-77	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-78	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/5-79	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/5-80	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
1/08/5-81	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/5-82	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
1/08/5-83	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/5-84	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-85	N	N	OT	N	N	N	TAN	EMPTY	NA	RED
1/08/5-86	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-87	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-88	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/5-89	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/5-90	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
1/08/5-91	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-92	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-93	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-94	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/5-95	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/5-96	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/5-97	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/5-98	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/5-99	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/6-70	N	N	N	N	F	N	NORMAL	FULL	LIGHT GREEN	RED
1/08/6-71	P	N	N	N	F	N	TAN	FULL	YELLOW	RED
1/08/6-72	P	N	N	N	F	N	TAN	EMPTY	NA	RED
1/08/6-73	N	N	N	N	F	N	TAN	EMPTY	NA	RED
1/08/6-74	N	N	N	N	N	OT	TAN	FULL	YELLOW	RED
1/08/6-75	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/6-76	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/6-77	P	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
1/08/6-78	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/6-79	N	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
1/08/6-80	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/6-81	N	OT	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/6-82	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/6-83	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/6-84	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
1/08/6-85	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
1/08/6-86	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/6-87	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/6-88	N	N	S	N	N	N	TAN	EMPTY	NA	OTHER
1/08/6-89	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/6-90	N	S	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/6-91	N	OT	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
1/08/6-92	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
1/08/6-93	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/6-94	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/6-95	N	OT	OT	OT	N	N	TAN	FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
1/08/6-96	N	N	N	N	N	N	TAN	EMPTY	NA	RED
1/08/6-97	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/6-98	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
1/08/6-99	N	N	N	N	N	OT	TAN	EMPTY	NA	RED
4/08/1-70	P	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/1-71	C	N	N	N	F	N	NORMAL	PART FULL	YELLOW	RED
4/08/1-72	C	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/1-73	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-74	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/1-75	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-76	CP	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/1-77	CP	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-78	CP	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/1-79	N	F	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-80	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/1-81	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/1-82	FCP	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-83	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-84	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-85	C	N	N	N	F	N	TAN	PART FULL	YELLOW	RED
4/08/1-86	CP	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-87	C	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/1-88	N	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/1-89	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-90	CP	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-91	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
4/08/1-92	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-93	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/1-94	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/1-95	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/1-96	P	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-97	CP	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-98	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/1-99	C	N	N	N	N	N	TAN	FULL	YELLOW	RED ENLG
4/08/2-70	C	N	N	N	N	S	NORMAL	EMPTY	NA	RED
4/08/2-71	C	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/2-72	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/2-73	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/2-74	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/2-75	C	N	N	N	FM	N	TAN	EMPTY	NA	RED
4/08/2-76	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/2-77	P	N	N	N	F	N	TAN	PART FULL	YELLOW	RED
4/08/2-78	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/2-79	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/2-80	CP	N	N	N	F	N	TAN	FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
4/08/2-81	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/2-82	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/2-83	P	N	N	N	F	N	TAN	PART FULL	YELLOW	RED
4/08/2-84	P	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/2-85	C	N	N	N	N	N	TAN	FULL	YELLOW	RED ENLG
4/08/2-86	CP	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/2-87	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/2-88	P	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/2-89	P	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/2-90	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/2-91	CP	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/2-92	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/2-93	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED ENLG
4/08/2-94	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/2-95	C	N	N	N	F	N	TAN	FULL	YELLOW	RED
4/08/2-96	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/2-97	C	N	N	N	M	N	TAN	PART FULL	YELLOW	RED
4/08/2-98	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/2-99	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/3-70	P	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/3-71	C	H	H	H	N	N	TAN	PART FULL	YELLOW	RED
4/08/3-72	CP	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/3-73	CP	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/3-74	C	N	N	N	S	N	TAN	EMPTY	NA	RED
4/08/3-75	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/3-76	C	N	N	N	S	N	TAN	FULL	YELLOW	RED
4/08/3-77	C	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/3-78	C	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/3-79	C	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/3-80	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/3-81	C	N	N	N	N	N	TAN	EMPTY	NA	N/A
4/08/3-82	C	H	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/3-83	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/3-84	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/3-85	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/3-86	C	H	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/3-87	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/3-88	C	H	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/3-89	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
4/08/3-90	C	N	N	N	F	N	TAN	FULL	YELLOW	RED
4/08/3-91	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/3-92	C	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/3-93	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/3-94	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/3-95	C	N	N	N	N	N	TAN	PART FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
4/08/3-96	C	N	N	N	N	N	TAN	FULL	YELLOW	RED ENLG
4/08/3-97	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/3-98	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/3-99	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/4-70	C	N	N	N	F	N	NORMAL	EMPTY	NA	RED
4/08/4-71	C	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/4-72	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-73	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/4-74	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-75	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-76	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-77	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-78	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-79	C	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
4/08/4-80	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-81	CP	N	N	N	OT	N	NORMAL	FULL	YELLOW	RED
4/08/4-82	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/4-83	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/4-84	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-85	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-86	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-87	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-88	N	N	N	N	OT	N	TAN	FULL	YELLOW	RED
4/08/4-89	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-90	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-91	P	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/4-92	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/4-93	P	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-94	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-95	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/4-96	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/4-97	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/4-98	CP	N	N	N	N	N	TAN	EMPTY	NA	RED
4/08/4-99	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/6-70	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
4/08/6-71	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/6-72	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/6-73	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/6-74	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/6-75	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
4/08/6-76	N	N	N	N	N	OT	NORMAL	EMPTY	NA	RED
4/08/6-77	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/6-78	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
4/08/6-79	F	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/6-80	C	N	N	N	N	N	TAN	FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
4/08/6-81	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/6-82	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
4/08/6-83	PP	N	N	N	N	N	GEN DIS	EMPTY	NA	GRAN NOD
4/08/6-84	N	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/08/1-70	C	N	N	N	M	N	NORMAL	FULL	YELLOW	RED
7/08/1-71	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/1-72	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/1-73	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED NOD
7/08/1-74	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED NOD
7/08/1-75	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED ENLG
7/08/1-76	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/1-77	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/1-78	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED NOD
7/08/1-79	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/1-80	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/1-81	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/1-82	C	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/1-83	CP	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/08/1-84	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/1-85	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/1-86	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/1-87	C	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/1-88	CP	N	N	N	F	N	TAN	FULL	YELLOW	RED
7/08/1-89	P	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/1-90	C	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/1-91	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/1-92	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/1-93	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
7/08/1-94	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/1-95	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/1-96	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/1-97	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/1-98	N	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/1-99	N	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/2-70	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/2-71	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/2-72	C	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/2-73	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/2-74	N	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/2-75	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/2-76	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/2-77	N	N	N	N	N	N	TAN	FULL	YELLOW	NOD
7/08/2-78	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/2-79	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/2-80	C	N	N	N	N	N	TAN	FULL	YELLOW	RED NOD

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
7/08/2-81	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED ENLG
7/08/2-82	C	N	N	N	N	N	TAN	EMPTY	NA	RED
7/08/2-83	CP	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/08/2-84	CP	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/2-85	C	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/08/2-86	C	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/2-87	CP	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
7/08/2-88	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/2-89	CP	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED ENLG
7/08/2-90	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/2-91	FC	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
7/08/2-92	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
7/08/2-93	C	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/2-94	C	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/08/2-95	C	N	N	N	N	N	NORMAL	FULL	LIGHT GREEN	RED
7/08/3-70	C	N	N	N	F	N	NORMAL	FULL	YELLOW	RED
7/08/3-71	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/3-72	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/3-73	N	N	N	N	F	N	NORMAL	PART FULL	YELLOW	RED
7/08/3-74	CP	N	N	N	N	N	TAN	EMPTY	NA	NOD GRAN
7/08/3-75	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/4-70	C	N	N	N	F	N	NORMAL	EMPTY	NA	RED
7/08/4-71	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-72	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-73	C	N	N	N	H	N	NORMAL	EMPTY	NA	RED
7/08/4-74	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-75	CP	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
7/08/4-76	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-77	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-78	CP	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-79	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-80	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-81	CM	N	N	N	N	N	NORMAL	EMPTY	NA	RED ENLG
7/08/4-82	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED
7/08/4-83	C	N	N	N	N	N	NORMAL	PART FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Right Gill	Pectoral Fin	Pelvic Fin	Anal Fin	Caudal Fin	Dorsal Fin	Liver	Bile FULL	Bile COLOR	SPLEEN
7/08/4-84	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-85	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-86	C	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/4-87	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/4-88	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/4-89	CP	N	N	N	N	N	NORMAL	PART FULL	LIGHT GREEN	RED
7/08/5-70	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/5-71	N	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/5-72	C	N	N	N	N	N	TAN	FULL	YELLOW	RED ENLG
7/08/5-73	N	N	N	N	N	N	TAN	EMPTY	NA	RED
7/08/5-74	C	N	N	N	N	N	TAN	EMPTY	NA	RED
7/08/5-75	CP	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/5-76	CP	N	N	N	N	N	NORMAL	FULL	YELLOW	RED
7/08/5-77	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/5-78	C	N	N	N	N	N	NORMAL	EMPTY	NA	RED
7/08/6-70	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-71	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-72	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-73	CP	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-74	C	N	N	OT	F	N	NORMAL	FULL	YELLOW	RED
7/08/6-75	N	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-76	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-77	P	N	N	N	F	N	TAN	EMPTY	NA	RED
7/08/6-78	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-79	CP	N	N	N	F	N	TAN	EMPTY	NA	RED
7/08/6-80	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-81	C	N	N	N	F	N	TAN	FULL	YELLOW	RED
7/08/6-82	CP	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/08/6-83	CM	N	N	N	N	N	TAN	EMPTY	NA	RED
7/08/6-84	FP	H	N	N	F	N	TAN	FULL	YELLOW	RED
7/08/6-85	C	N	N	H OT	N	N	TAN	EMPTY	NA	RED
7/08/6-86	C	N	N	N	N	N	TAN	EMPTY	NA	RED
7/08/6-87	CP	N	N	N	N	N	TAN	EMPTY	NA	RED
7/08/6-88	N	N	N	N	N	N	TAN	PART FULL	YELLOW	RED
7/08/6-89	C	N	N	N	N	N	TAN	PART FULL	LIGHT GREEN	RED
7/08/6-90	C	N	N	OT	N	N	TAN	PART FULL	LIGHT GREEN	RED ENLG
7/08/6-91	C	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED ENLG
7/08/6-92	CP	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/08/6-93	CP	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED ENLG
7/08/6-94	C	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/08/6-95	C	N	N	N	N	N	TAN	FULL	LIGHT GREEN	RED
7/08/6-96	N	N	N	N	FH	N	TAN	FULL	YELLOW	RED
7/08/6-97	P	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-98	C	N	N	N	N	N	TAN	FULL	YELLOW	RED
7/08/6-99	C	N	N	N	N	N	TAN	FULL	YELLOW	RED

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
100-(((1/3)*1(	0.004	I	SLIGHT	N	0	0	0	0	0	30	0	0	0.12	67	40
7/06/1-71	0.017	F	SLIGHT	S	0	0	20	0	0	0	30	30	0.54	0	80
7/06/1-72	0.001	I	50	N	0	0	30	0	0	0	0	0	0.04	67	30
7/06/1-73	0.002	F	SLIGHT	N	0	0	0	30	0	0	0	0	0.06	67	30
7/06/1-74	0.011	F	SLIGHT	N	0	30	30	0	0	0	30	0	0.34	67	90
7/06/1-75	0.009	I	50	N	0	0	30	0	0	0	30	0	0.26	67	60
7/06/1-76	0.007	F	NO	N	0	0	10	30	0	0	30	0	0.26	67	70
7/06/1-77	0.001	I	NO	N	0	0	0	0	0	0	0	0	0.06	0	0
7/06/1-78	0.015	M	SLIGHT	N	0	0	0	0	0	30	30	0	0.46	67	60
7/06/1-79	0.013	I	SLIGHT	N	0	0	20	30	0	30	30	0	0.42	67	110
7/06/1-80	0.015	I	50	N	0	0	0	30	0	0	30	0	0.51	33	60
7/06/1-81	0.002	I	SLIGHT	N	0	0	0	30	0	0	0	0	0.07	100	30
7/06/1-82	0.009	F	SLIGHT	N	0	0	0	30	0	0	30	0	0.35	33	60
7/06/1-83	0.001	I	50	N	0	0	0	0	0	0	0	0	0.03	0	0
7/06/1-84	0.013	I	SLIGHT	S	0	0	0	0	0	0	30	30	0.45	33	60
7/06/1-85	0.001	F	>50	N	0	30	0	0	10	30	0	0	0.04	67	70
7/06/1-86	0.008	F	50	N	0	0	0	0	0	30	0	0	0.21	33	30
7/06/1-87	0.002	F	>50	N	0	0	0	0	0	0	30	0	0.06	67	30
7/06/1-88	0.016	I	SLIGHT	N	0	0	0	0	0	0	30	0	0.53	33	30
7/06/1-89	0.002	F	SLIGHT	N	0	0	0	0	0	0	0	0	0.10	33	0
7/06/1-90		I	NO	N	0	0	10	30	0	0	30	0	0.00	67	70
7/06/1-91	0.001	M	NO	S	0	0	0	0	0	0	0	30	0.03	33	30
7/06/1-92	0.018	I	>50	N	0	0	0	0	0	0	30	0	0.68	0	30
7/06/1-93	0.002	I	>50	N	0	0	0	0	0	0	0	0	0.05	67	0
7/06/1-94	0.002	F	SLIGHT	N	0	0	0	0	0	30	0	0	0.08	0	30
7/06/1-95	0.002	F	NO	N	0	0	0	0	0	0	0	0	0.06	33	0
7/06/1-96	0.001	I	NO	N	0	0	0	0	0	0	0	0	0.05	67	0
7/06/1-97	0.002	I	NO	N	0	0	0	0	0	0	0	0	0.08	33	0
7/06/1-98	0.002	I	NO	N	0	0	20	0	0	0	0	0	0.07	100	20
7/06/1-99	0.001	M	NO	N	0	0	20	0	0	0	0	0	0.03	33	20
7/06/2-70	0.002	I	SLIGHT	N	0	0	10	0	0	30	0	0	0.05	100	40
7/06/2-71	0.006	I	SLIGHT	N	0	30	10	0	0	30	30	0	0.23	100	100
7/06/2-72	0.003	I	>50	N	0	0	10	0	0	30	0	0	0.09	33	40
7/06/2-73	0.002	I	>50	N	30	0	10	30	0	0	0	0	0.05	100	70
7/06/2-74	0.005	I	>50	N	0	30	0	0	0	30	0	0	0.15	33	60
7/06/2-75	0.002	I	50	S	0	0	0	0	10	30	0	30	0.07	67	70
7/06/2-76	0.002	I	>50	N	0	0	0	0	0	30	0	0	0.07	33	30
7/06/2-77	0.001	I	>50	N	0	30	10	0	0	30	0	0	0.03	33	70
7/06/2-78	0.002	I	SLIGHT	N	30	30	0	0	0	0	0	0	0.06	33	60
7/06/2-79	0.003	I	50	N	0	30	10	30	0	30	0	0	0.09	33	100
7/06/2-80	0.005	I	50	N	0	30	10	0	30	30	30	0	0.20	33	130
7/06/2-81	0.003	I	NO	S	0	0	0	30	0	30	0	30	0.11	67	90
7/06/2-82	0.004	I	NO	OT	0	30	0	0	0	30	0	30	0.10	33	90
7/06/2-83	0.002	I	SLIGHT	N	0	0	0	0	0	0	0	0	0.06	33	0
7/06/2-84	0.003	F	50	N	0	0	10	30	0	30	0	0	0.07	0	70

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
7/06/2-85	0.011	I	50	N	0	0	10	0	0	0	30	0	0.44	67	40
7/06/2-86	0.004	I	NO	N	0	0	10	0	0	30	0	0	0.16	67	40
7/06/2-87	0.01	I	NO	N	0	30	10	0	0	0	30	0	0.40	100	70
7/06/2-88	0.002	I	NO	N	0	0	10	0	0	0	0	0	0.07	67	10
7/06/2-89	0.003	I	NO	N	0	0	30	0	0	30	30	0	0.15	33	90
7/06/2-90	0.001	I	NO	N	0	30	10	0	0	30	0	0	0.04	67	70
7/06/2-91	0.018	I	NO	N	30	0	0	30	0	0	30	0	0.98	33	90
7/06/2-92	0.004	F	NO	N	0	0	10	0	0	0	0	0	0.10	33	10
7/06/2-93	0.012	I	50	N	0	0	10	0	0	0	30	0	0.36	33	40
7/06/2-94	0.002	I	SLIGHT	N	0	0	0	0	0	30	0	0	0.09	33	30
7/06/2-95	0.011	I	SLIGHT	N	0	30	10	0	30	0	30	0	0.32	100	100
7/06/2-96	0.004	I	>50	N	0	0	0	0	0	30	30	0	0.13	33	60
7/06/2-97	0.031	F	>50	N	0	30	0	0	10	30	0	0	0.67	33	70
7/06/2-98	0.011	I	NO	N	0	30	0	0	0	30	30	0	0.47	33	90
7/06/2-99	0.002	I	50	N	0	0	0	0	0	30	0	0	0.07	33	30
7/06/3-70	0.001	I	SLIGHT	N	0	0	10	0	10	30	0	0	0.02	67	50
7/06/3-71	0.007	I	50	N	0	0	20	30	0	30	30	0	0.28	100	110
7/06/3-72	0.007	F	NO	N	30	0	30	30	0	0	0	0	0.16	100	90
7/06/3-73	0.006	I	SLIGHT	N	0	0	10	30	10	30	0	0	0.16		80
7/06/3-74	0.009	I	SLIGHT	OT	0	0	10	0	0	30	30	30	0.42	67	100
7/06/3-75	0.006	I	50	N	0	0	10	30	30	30	0	0	0.23	67	100
7/06/3-76	0.018	F	SLIGHT	N	0	0	0	30	30	30	30	0	0.52	67	120
7/06/3-77	0.012	M	NO	N	0	30	10	0	30	0	30	0	0.35	100	100
7/06/3-78	0.003	F	NO	S	0	0	10	30	0	30	0	30	0.07	33	100
7/06/3-79	0.001	I	>50	N	0	30	10	0	0	30	30	0	0.03	33	100
7/06/3-80	0.009	I	SLIGHT	N	0	0	10	0	30	30	30	0	0.27	33	100
7/06/4-70	0.004	F	50	N	0	0	10	30	0	30	30	0	0.13	67	100
7/06/4-71	0.004	I	>50	N	0	0	0	0	0	30	0	0	0.13	67	30
7/06/4-72	0.002	F	50	N	0	0	0	30	0	30	0	0	0.09	67	60
7/06/4-73	0.002	F	50	N	0	30	0	0	30	30	0	0	0.06	67	90
7/06/4-74	0.002	F	>50	N	0	0	10	0	0	30	0	0	0.07		40
7/06/4-75	0.001	I	50	N	0	0	10	0	30	30	0	0	0.03	100	70
7/06/4-76	0.001	F	50	N	0	0	10	30	10	30	0	0	0.04	67	80
7/06/4-77	0.003	F	50	S	0	0	20	0	0	0	0	30	0.13	33	50
7/06/4-78	0.002	F	>50	N	0	0	10	0	10	30	0	0	0.07	33	50
7/06/4-79	0.003	F	SLIGHT	N	0	0	0	0	0	30	0	0	0.09	67	30
7/06/4-80	0.002	I	50	N	0	0	10	0	0	30	0	0	0.07	33	40
7/06/4-81	0.003	I	50	N	0	0	10	30	0	0	0	0	0.11	67	40
7/06/4-82	0.001	F	50	N	0	0	0	0	0	30	0	0	0.03		30
7/06/4-83	0.003	F	NO	OT	0	0	10	0	0	30	0	30	0.16	33	70
7/06/4-84	0.003	F	SLIGHT	N	0	0	10	0	0	30	0	0	0.11	67	40
7/06/4-85	0.002	F	>50	S	0	0	0	30	0	30	0	30	0.06	33	90
7/06/4-86	0.002	I	50	S	0	0	10	30	30	30	0	30	0.11	33	130
7/06/4-87	0.003	F	SLIGHT	N	0	30	10	30	0	30	0	0	0.15	67	100
7/06/4-88	0.001	I	NO	N	0	30	0	0	30	30	30	0	0.03	0	120

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
7/06/4-89	0.002	I	50	N	0	30	10	30	0	30	0	0	0.07	33	100
7/06/4-90	0.002	I	>50	N	0	0	0	0	0	30	0	0	0.07	33	30
7/06/4-91	0.002	I	50	S	0	0	10	30	0	30	30	30	0.07	33	130
7/06/4-92	<0.001	I	50	N	0	0	0	0	10	0	0	0		100	10
7/06/4-93	0.001	I	SLIGHT	N	0	0	10	0	0	30	0	0	0.06	33	40
7/06/4-94	0.001	I	SLIGHT	N	0	0	10	0	0	30	0	0	0.03	33	40
7/06/4-95	0.002	I	>50	S	0	0	10	0	0	30	0	30	0.08	33	70
7/06/4-96	0.001	I	50	N	0	0	10	0	0	30	0	0	0.04	33	40
7/06/4-97	0.002	I	50	N	0	0	10	30	0		0	0	0.06	33	40
7/06/4-98	0.006	I	>50	OT	0	30	10	30	0	30	30	30	0.24	33	160
7/06/4-99	0.003	I	>50	N	0	0	10	30	0	30	0	0	0.08	33	70
7/06/5-70	0.001	F	SLIGHT	N	0	0	10	0	30	30	0	0	0.04	67	70
7/06/5-71	0.001	F	50	N	0	0	10	0	30	30	0	0	0.04	33	70
7/06/5-72		F	NO	N	0	30	10	0	0	30	0	0	0.00	100	70
7/06/5-73	0.001	F	50	N	0	30	10	0	0	30	0	0	0.05	100	70
7/06/5-74	0.002	F	NO	N	0	0	10	0	0	0	0	0	0.08	67	10
7/06/5-75	0.003	F	NO	S	0	30	10	0	0	30	0	30	0.11		100
7/06/5-76	0.003	F	50	N	0	30	0	0	0	30	0	0	0.09	67	60
7/06/5-77	0.001	F	50	N	0	0	20	0	10	30	0	0	0.03	67	60
7/06/5-78	0.004	I	50	S	0	0	30	30	10	30	30	30	0.20	100	160
7/06/5-79	0.01	I	50	N	0	0	10	30	0	30	30	0	0.29	33	100
7/06/5-80	0.005	I	SLIGHT	N	0	0	10	0	10	0	0	0	0.13	33	20
7/06/5-81	0.001	F	NO	N	0	0	10	30	30	30	0	0	0.03	33	100
7/06/5-82	0.002	F	SLIGHT	N	0	30	10	0	30	0	30	0	0.06	33	100
7/06/5-83	0.003	I	SLIGHT	N	0	0	0	30	10	30	0	0	0.10	33	70
7/06/5-84	0.002	I	NO	N	0	30	0	0	0	30	0	0	0.06	67	60
7/06/5-85	0.002	I	NO	N	0	30	10	0	0	0	0	0	0.06	33	40
7/06/5-86	0.002	I	NO	N	0	0	10	0	0	0	0	0	0.06	67	10
7/06/5-87	0.002	I	NO	S	0	0	10	0	30	0	0	30	0.07		70
7/06/5-88	0.003	I	SLIGHT	S	0	0	20	0	0	30	0	30	0.11	33	80
7/06/5-89	0.007	I	NO	N	0	0	10	30	0	0	30	0	0.30	67	70
7/06/5-90	0.002	F	50	N	0	30	10	30	30	30	0	0	0.06	33	130
7/06/5-91	0.003	F	NO	N	0	30	10	0	0	30	0	0	0.13	67	70
7/06/5-92	0.002	F	SLIGHT	SM	0	30	10	0	0	0	0	30	0.05	33	70
7/06/5-93	0.009	F	50	N	0	0	10	30	30	30	30	0	0.29	33	130
7/06/5-94	0.002	I	50	N	0	0	10	30	0	30	0	0	0.07	33	70
7/06/5-95	0.002	I	50	N	0	0	10	30	30	30	0	0	0.05	67	100
7/06/5-96	0.004	I	SLIGHT	N	0	0	10	30	0	0	0	0	0.15	67	40
7/06/5-97	0.005	I	50	S	0	0	20	30	10	0	30	30	0.23	67	120
7/06/5-98	0.002	I	50	N	0	0	20	30	0	30	0	0	0.08	67	80
7/06/5-99	0.005	F	NO	N	0	30	20	30	10	0	30	0	0.20		120
7/06/6-70	0.006	I	SLIGHT	N	0	0	10	30	0	0	0	0	0.26	67	40
7/06/6-71	0.002	I	SLIGHT	N	0	0	10	30	30	30	0	0	0.08	67	100
7/06/6-72	0.004	I	SLIGHT	N	0	0	10	0	0	0	0	0	0.13	67	10
7/06/6-73	0.003	I	SLIGHT	N	0	0	10	0	0	30	0	0	0.09	100	40

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
7/06/6-74		I	SLIGHT	N	0	0	0	0	0	0		0	0.00	67	0
7/06/6-75	0.005	I	SLIGHT	N	0	0	10	0	0	30	0	0	0.23	100	40
7/06/6-76	0.004	I	SLIGHT	N	0	0	10	0	0	30	0	0	0.15	67	40
7/06/6-77	0.005	I	50	N	0	0	10	0	0	0	0	0	0.35	67	10
7/06/6-78	0.011	I	50	N	0	0	10	30	0	30	30	0	0.43	67	100
7/06/6-79	0.003	I	50	N	0	0	10	0	0	30	0	0	0.13	67	40
7/06/6-80	0.001	I	SLIGHT	N	30	0	10	0	10	30	0	0	0.05	67	80
7/06/6-81	0.001	I	SLIGHT	N	0	0	10	0	30	0	0	0	0.04	67	40
7/06/6-82	0.003	F	SLIGHT	N	0	0	10	0	0	30	0	0	0.10	67	40
7/06/6-83	0.003	F	50	N	0	30	20	30	0	30	0	0	0.12	67	110
7/06/6-84	0.004	F	NO	N	0	30	0	0	0	0	0	0	0.20	67	30
7/06/6-85	0.005	I	50	N	0	0	0	0	0	30	0	0	0.24	67	30
7/06/6-86	0.001	I	SLIGHT	N	0	0	0	0	0	30	30	0	0.05	67	60
7/06/6-87	0.002	I	>50	N	0	0	10	0	0	30	0	0	0.09	67	40
7/06/6-88	0.003	I	50	N	0	0	0	0	10	0	0	0	0.13	67	10
7/06/6-89	0.002	I	SLIGHT	N	0	30	10	30	10	30	0	0	0.13	67	110
7/06/6-90	0.004	F	SLIGHT	S	0	0	0	30	0	30	0	30	0.22	67	90
7/06/6-91	0.002	I	NO	N	0	30	10	30	0	30	0	0	0.08	67	100
7/06/6-92	0.001	F	50	N	0	0	10	0	30	30	0	0	0.07	33	70
7/06/6-93	0.003	I	SLIGHT	N	0	0	10	0	10	30	0	0	0.19	100	50
7/06/6-94	0.007	I	NO	N	0	0	10	0	0	30	30	0	0.35	67	70
7/06/6-95	0.001	I	SLIGHT	N	30	0	20	0	0	0	0	0	0.05	67	50
7/06/6-96	0.004	M	50	N	0	0	10	30	0	0	0	0	0.18	100	40
10/06/1-70	0.001	I	NO	N	0	0	20	0	0	0	0	0	0.07	100	20
10/06/1-71	0.003	M	COMP	N	0	0	0	0	0	0	0	0	0.14	33	0
10/06/1-72	0.003	F	NO	N	0	0	0	0	0	0	0	0	0.08		0
10/06/1-73	<0.001	I	NO	N	0	0	10	0	0	0	0	0		33	10
10/06/1-74	0.002	F	50	N	0	0	10	0	0	0	0	0	0.07	100	10
10/06/1-75	<0.001	I	SLIGHT	N	0	0	0	0	0	0	0	0		67	0
10/06/1-76	0.003	M	SLIGHT	N	0	0	0	0	0	0	30	0	0.18	67	30
10/06/1-77	<0.001	F	SLIGHT	N	0	0	0	30	0	30	0	0		100	60
10/06/1-78	0.003	F	NO	N	0	0	0	30	0	0	0	0	0.23	100	30
10/06/1-79	0.002	F	NO	N	0	30	0	0	0	0	0	0	0.08	67	30
10/06/1-80	0.002	M	COMP	N	0	0	10	0	0	0	0	0	0.12	100	10
10/06/1-81	0.002	F	NO	S	30	0	0	30	0	30	0	30	0.10	67	120
10/06/1-82	0.001	M	NO	N	0	0	0	0	0	0	0	0	0.07	33	0
10/06/1-83	<0.001	I	NO	N	0	0	0	30	10	0	0	0		67	40
10/06/1-84	<0.001	M	SLIGHT	N	0	0	0	0	0	0	0	0		33	0
10/06/1-85	0.002	I	NO	N	0	0	10	0	0	0	0	0	0.19	33	10
10/06/1-86	0.001	F	NO	N	0	0	10	30	0	0	0	0	0.05	33	40
10/06/1-87	0.003	F	NO	N	0	0	0	0	30	0	0	0	0.26	33	30
10/06/1-88	0.001	F	COMP	N	0	0	0	0	0	30	0	0	0.07	33	30
10/06/1-89	0.009	M	SLIGHT	N	0	0	0	0	0	0	30	0	0.68	67	30
10/06/1-90	0.002	F	NO	S	0	0	0	0	0	30	0	30	0.10	100	60
10/06/1-91	0.002	I	>50	N	0	0	0	0	0	0	0	0	0.15	100	0

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
10/06/1-92	0.001	I	NO	N	0	0	0	0	0	0	0	0	0.07	67	0
10/06/1-93	0.002	F	COMP	N	0	0	0	30	30	0	0	0	0.18	67	60
10/06/1-94	0.002	I	COMP	N	0	0	0	0	0	0	0	0	0.13	67	0
10/06/1-95	0.001	F	SLIGHT	N	0	0	0	0	0	0	0	0	0.06	67	0
10/06/1-96	0.001	I	NO	N	0	0	0	0	0	0	0	0	0.12	67	0
10/06/2-70	0.004	F	COMP	N	0	0	0	0	10	30	0	0	0.14	67	40
10/06/2-71	0.004	F	>50	N	0	0	0	30	0	30	0	0	0.11	67	60
10/06/2-72	0.004	M	NO	N	0	0	0	0	0	0	0	0	0.11	100	0
10/06/2-73	0.002	F	COMP	N	0	0	10	30	0	0	0	0	0.14	100	40
10/06/2-74	0.004	F	50	N	0	0	0	0	0	0	0	0	0.09	67	0
10/06/2-75	0.002	F	50	N	0	0	10	30	0	30	0	0	0.06	67	70
10/06/2-76	0.002	F	SLIGHT	N	0	0	0	0	0	0	0	0	0.17	67	0
10/06/2-77	0.005	M	>50 P	N	0	30	10	30	0	0	30	0	0.16	67	100
10/06/2-78	0.004	M	50	M	0	0	10	0	0	0	0	30	0.12	67	40
10/06/2-79	0.003	F	>50	N	0	0	10	30	20	0	30	0	0.07	67	90
10/06/2-80	0.003		NO P	N	0	0	10	0	10	0	0	0	0.07	33	20
10/06/2-81	0.001	F	NO	N	0	0	0	0	0	0	0	0	0.08	67	0
10/06/2-82	0.004	I	NO P	S	0	0	0	30	0	0	30	30	0.20	100	90
10/06/2-83	0.005	M	NO	N	0	0	0	30	20	0	0	0	0.12	67	50
10/06/2-84	0.002	M	SLIGHT	N	0	0	10	30	0	0	30	0	0.05	33	70
10/06/2-85	0.002	F	SLIGHT	N	0	0	0	0	0	0	0	0	0.15	67	0
10/06/2-86	0.002	I	NO	N	0	0	0	0	0	0	30	0	0.06	67	30
10/06/2-87	0.003	I	50 P	N	30	0	0	30	0	0	0	0	0.09	67	60
10/06/2-88	0.004	F	NO	N	30	30	0	0	0	30	0	0	0.11	33	90
10/06/2-89	0.005	F	50	N	0	0	0	0	0	0	0	0	0.10	67	0
10/06/2-90	0.002	F	SLIGHT	N	0	0	0	0	0	30	0	0	0.06	67	30
10/06/2-91	0.003	M	NO P	N	0	0	0	0	10	0	30	0	0.19	100	40
10/06/2-92	0.004	F	>50	N	0	0	0	0	0	0	0	0	0.11	100	0
10/06/2-93	0.003	M	NO	N	0	0	0	0	0	0	30	0	0.23	67	30
10/06/2-94	0.003	F	NO	N	0	0	0	0	10	0	0	0	0.09	100	10
10/06/2-95	0.002	M	NO P	N	0	30	0	0	0	0	0	0	0.07	33	30
10/06/2-96	0.001	I	NO	N	0	0	0	0	0	0	0	0	0.09	100	0
10/06/2-97	0.002	M	SLIGHT	N	0	0	10	30	0	0	0	0	0.13	33	40
10/06/2-98	N/A	I	NO	N	0	0	10	30	0	30		0		67	70
10/06/2-99	<0.001	M	NO P	N	0	0	10	30	0	30	0	0		33	70
10/06/3-70	0.005	F	SLIGHT	N	0	0	0	0	30	0	0	0	0.09	67	30
10/06/3-71	0.003	F	50	N	0	0	0	0	10	0	0	0	0.13	67	10
10/06/3-72	0.005	F	NO	SM	0	30	10	0	0	0	30	30	0.19	67	100
10/06/3-73	0.006	M	NO	N	0	0	0	0	0	0	30	0	0.12	33	30
10/06/3-74	0.002	F	NO	N	0	0	0	0	0	0	0	0	0.10	100	0
10/06/3-75	0.007	M	COMP	M	0	0	10	30	0	30	0	30	0.09	100	100
10/06/3-76	0.008	M	SLIGHT	N	0	0	10	0	30	30	30	0	0.17	33	100
10/06/3-77	0.003	M	SLIGHT	N	0	0	0	0	10	30	0	0	0.06	67	40
10/06/3-78	0.008	F	NO	N	0	0	10	0	0	0	30	0	0.15	33	40
10/06/3-79	0.003	F	SLIGHT P	N	0	0	0	0	0	0	0	0	0.12	67	0

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
10/06/3-80	0.005	M	50	N	0	0	0	0	0	30	30	0	0.12	67	60
10/06/3-81	0.003	M	COMP	N	0	30	10	0	0	30	0	0	0.10	33	70
10/06/3-82	0.005	M	NO P	N	0	30	0	30	0	0	0	0	0.11	67	60
10/06/3-83	0.005	F	SLIGHT	N	0	0	10	0	0	0	0	0	0.15	67	10
10/06/3-84	0.006	M	SLIGHT P	N	0	0	0	0	30	30	0	0	0.13	33	60
10/06/3-85	0.003	M	50 P	M	0	0	0	0	0	0	0	30	0.06	33	30
10/06/3-86	0.005	M	>50	S	0	0	10	0	0	0	0	30	0.10	33	40
10/06/3-87	0.006	F	SLIGHT	N	0	30	0	0	30	0	0	0	0.09	67	60
10/06/4-70	0.004	M	COMP P	OT	0	0	10	0	0	30	0	30	0.09	67	70
10/06/4-71	0.006	M	50 P	N	0	0	10	30	0	30	0	0	0.12	100	70
10/06/4-72	0.007	M	COMP	S	0	30	10	0	10	30	30	30	0.16	33	140
10/06/4-73	0.004	M	COMP	N	0	0	30	0	0	30	0	0	0.11	67	60
10/06/4-74	0.005	F	50 P	S	0	0	0	0	0	30	30	30	0.11	100	90
10/06/4-75	0.004	F	SLIGHT	N	0	30	10	0	10	0	0	0	0.09	33	50
10/06/4-76	0.004	M	50	N	0	0	0	30	0	30	30	0	0.10	33	90
10/06/4-77	0.005	F	50	N	0	0	0	0	10	30	0	0	0.11	33	40
10/06/4-78	0.002	M	>50 P	N	0	0	10	30	20	30	0	0	0.04	67	90
10/06/4-79	0.007	M	COMP	N	0	0	0	0	0	30	30	0	0.17	67	60
10/06/4-80	0.003	M	SLIGHT	N	0	0	0	0	0	30	0	0	0.08	33	30
10/06/4-81	0.002	F	NO	N	0	0	0	0	20	0	0	0	0.13	100	20
10/06/4-82	0.003	F	SLIGHT P	S	0	0	0	0	0	30	0	30	0.09	33	60
10/06/4-83	0.003	F	>50 P	N	0	0	0	30	0	30	30	0	0.06	67	90
10/06/4-84	0.005	F	>50	N	0	0	0	30	30	30	0	0	0.11	33	90
10/06/4-85	0.002	F	>50 P	N	0	0	10	30	0	30	0	0	0.05	67	70
10/06/4-86	0.003	M	NO	N	0	30	10	0	0	30	0	0	0.13	33	70
10/06/4-87	0.004	M	50 P	N	0	0	0	0	0	30	0	0	0.09	67	30
10/06/4-88	0.002	M	NO P	N	0	0	0	30	10	0	0	0	0.09	100	40
10/06/4-89	0.001	F	COMP P	N	0	0	0	30	10	30	30	0	0.02	67	100
10/06/4-90	0.004	F	NO P	N	0	0	10	0	30	0	0	0	0.10	33	40
10/06/4-91	0.003	F	SLIGHT P	N	0	0	0	30	10	30	0	0	0.06	33	70
10/06/4-92	0.003	F	>50	N	0	0	0	0	0	30	0	0	0.06	100	30
10/06/4-93	0.003	F	>50 P	SG	0	0	0	0	0	30	0	30	0.06	67	60
10/06/4-94	0.004	F	NO P	N	0	0	10	0	0	30	0	0	0.08	33	40
10/06/4-95	0.002	F	COMP	N	0	0	0	0	0	30	0	0	0.04	33	30
10/06/4-96	0.007	M	COMP P	N	0	30	0	0	0	30	0	0	0.13	33	60
10/06/4-97	0.005	M	50 P	M	0	0	0	0	10	30	0	30	0.10	33	70
10/06/4-98	0.005	F	COMP P	N	0	0	0	0	0	30	0	0	0.13	67	30
10/06/4-99	0.002	M	SLIGHT P	SG	0	0	0	0	0	30	0	30	0.05	67	60
10/06/5-70	0.004	I	COMP P	N	0	0	0	0	0	30	30	0	0.09	67	60
10/06/5-71	0.004	F	50	M	0	0	0	30	0	30	30	30	0.06	67	120
10/06/5-72	0.005	M	COMP P	N	0	30	0	0	0	30	30	0	0.11	67	90
10/06/5-73	0.003	F	>50 P	N	0	0	0	30	30	30	0	0	0.04	67	90
10/06/5-74	0.003	F	50	M	0	0	0	0	0	30	0	30	0.05	67	60
10/06/5-75	0.006	F	COMP	SM	0	0	10	0	30	30	30	30	0.10	67	130
10/06/5-76	0.003	F	SLIGHT P	S	0	0	10	0	30	30	0	30	0.05	67	100

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
10/06/5-77	0.003	F	COMP	N	0	30	10	0	0	30	0	0	0.10	67	70
10/06/5-78	0.002	F	>50 P	N	0	0	0	0	0	0	0	0	0.10	67	0
10/06/5-79	0.005	F	COMP P	N	0	0	0	0	0	30	0	0	0.09	67	30
10/06/5-80	0.003	M	COMP P	N	0	0	10	0	0	30	0	0	0.06	67	40
10/06/5-81	0.004	F	COMP	N	0	0	0	0	0	30	0	0	0.10	67	30
10/06/5-82	0.004	F	>50 P	N	0	0	0	0	0	0	30	0	0.16	67	30
10/06/5-83	0.001	F	NO P	S	0	0	0	0	0	30	0	30	0.05	100	60
10/06/5-84	0.002	F	50	N	0	0	0	0	0	30	30	0	0.10	67	60
10/06/5-85	0.006	F	50 P	OT	0	0	0	0	30	30	30	30	0.09	67	120
10/06/5-86	0.003	M	COMP P	SM	0	0	0	0	0	0	0	30	0.06	33	30
10/06/5-87	0.004	F	>50 P	N	0	0	10	30	0	30	0	0	0.07	100	70
10/06/5-88	0.005	F	COMP	M	0	0	10	30	30	30	0	30	0.08	33	130
10/06/5-89	0.005	F	50 P	N	0	0	0	0	0	30	0	0	0.11	67	30
10/06/5-90	0.002	F	NO P	S	0	0	0	0	0	0	0	30	0.06	100	30
10/06/5-91	0.001	I	NO	N	0	0	0	0	0	0	0	0	0.05	67	0
10/06/5-92	0.001	F	50 P	N	0	0	10	0	0	0	0	0	0.06	100	10
10/06/5-93	0.001	F	50	N	0	0	0	0	0	30	0	0	0.07	100	30
10/06/5-94	0.001	F	50	N	0	0	10	0	0	30	0	0	0.06	67	40
10/06/5-95	0.002	F	SLIGHT P	N	0	0	10	30	0	0	30	0	0.06	67	70
10/06/5-96	0.001	F	SLIGHT	N	0	0	10	30	0	30	0	0	0.06	33	70
1/07/2-70	0.012	M	NO	N	0	0	0	30	0	0	30	0	0.41	0	60
1/07/2-71	0.005	F	NO	N	0	30	0	0	10	0	0	0	0.12	67	40
1/07/2-72	0.004	F	NO	S	0	0	10	30	0	30	0	30	0.12	67	100
1/07/2-73	0.001	F	NO	N	0	0	10	0	0	0	0	0	0.04	0	10
1/07/2-74	0.001	M	NO	N	0	0	0	30	0	0	0	0	0.10	100	30
1/07/2-75	0.002	M	NO	N	0	0	0	0	0	0	0	0	0.07	67	0
1/07/2-76	0.003	F	NO	N	0	0	0	0	0	0	0	0	0.11	67	0
1/07/2-77	<0.001	M	NO	N	0	0	10	30	0	0	0	0		100	40
1/07/2-78	0.001	M	NO	N	0	0	0	0	0	0	0	0	0.03	100	0
1/07/2-79	0.001	F	50 P	N	0	0	0	30	0	0	0	0	0.04	67	30
1/07/2-80	<0.001	F	NO	N	0	0	0	30	0	0	0	0		100	30
1/07/2-81	<0.001	F	NO P	SG	0	0	0	30	0	0	0	30		67	60
1/07/2-82	0.002	F	NO	N	0	0	0	0	0	0	0	0	0.09	0	0
1/07/2-83	0.003	M	NO P	N	0	0	0	30	0	0	0	0	0.11	67	30
1/07/2-84	0.001	F	NO P	N	0	0	0	30	0	0	0	0	0.09	67	30
1/07/2-85	<0.001	M	NO	S	0	0	0	30	0	0	0	30		67	60
1/07/2-86	0.002	F	NO P	N	0	0	0	0	0	0	0	0	0.16	100	0
1/07/3-70	0.002	F	NO P	N	0	0	30	0	10	0	30	0	0.07	100	70
1/07/3-71	0.008	F	SLIGHT P	N	0	0	10	0	0	0	0	0	0.13	100	10
1/07/3-72	0.007	M	NO P	N	0	0	0	0	0	0	30	0	0.16	0	30
1/07/3-73	<0.001	F	NO	N	0	0	10	0	10	30	0	0		100	50
1/07/3-74	0.002	M	NO	N	0	0	0	30	0	0	0	0	0.06	0	30
1/07/3-75	0.007	F	NO	N	0	0	10	30	0	0	30	0	0.18	100	70
1/07/3-76	0.003	F	NO	S	30	0	0	30	0	0	0	30	0.06	0	90
1/07/3-77	0.005	F	NO	N	0	0	10	30	0	30	0	0	0.10	0	70

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
1/07/3-78	0.001	F	NO	N	0	0	10	30	0	0	0	0	0.05	67	40
1/07/3-79	0.002	M	NO	N	0	0	0	0	10	30	0	0	0.06	100	40
1/07/3-80	0.001	F	NO	N	0	0	10	0	10	0	0	0	0.03	100	20
1/07/3-81	0.005	M	NO P	N	0	0	10	30	30	30	0	0	0.09	100	100
1/07/3-82	0.003	M	NO	S	0	0	10	30	0	30	0	30	0.09	100	100
1/07/3-83	0.006	M	SLIGHT P	N	0	0	0	0	0	30	0	0	0.09	100	30
1/07/3-84	0.006	M	NO P	N	0	0	0	0	30	0	30	0	0.18	100	60
1/07/3-85	0.004	F	NO	N	0	0	10	30	20	0	30	0	0.12	0	90
1/07/3-86	0.003	M	NO	S	0	0	0	30	0	0	0	30	0.09	0	60
1/07/3-87	0.001	M	NO	N	0	0	10	30	0	0	0	0	0.06	100	40
1/07/3-88	0.003	M	NO	N	0	0	0	0	0	0	0	0	0.22	100	0
1/07/3-89	0.004	F	SLIGHT P	N	0	0	20	30	10	0	0	0	0.08	0	60
1/07/3-90	0.001	M	NO	N	0	0	0	0	0	0	0	0	0.03	0	0
1/07/3-91	0.003	F	NO	N	0	0	10	30	10	0	0	0	0.10	0	50
1/07/3-92	<0.001	M	NO	N	0	0	0	30	0	0	0	0		100	30
1/07/3-93	0.003	M	NO	N	0	0	0	0	0	0	0	0	0.06	0	0
1/07/3-94	<0.001	F	NO	N	0	0	0	0	0	0	0	0		0	0
1/07/3-95	0.001	F	NO	S	0	0	10	30	0	0	0	30	0.03	0	70
1/07/3-96	0.001	I	SLIGHT	N	0	0	10	0	0	0	0	0	0.04	100	10
1/07/3-97	0.002	M	NO P	N	0	30	0	30	0	0	0	0	0.05	0	60
1/07/3-98	0.002	F	NO	N	0	0	0	30	0	0	0	0	0.13	100	30
1/07/3-99	0.002	F	SLIGHT	N	0	0	0	0	0	0	0	0	0.12	100	0
1/07/4-70	0.003	M	50	N	0	30	0	30	0	0	0	0	0.07	67	60
1/07/4-71	0.005	F	SLIGHT P	N	0	0	10	0	0	0	30	0	0.10	67	40
1/07/4-72	0.003	M	SLIGHT P	SM	0	0	10	0	0	30	30	30	0.08	67	100
1/07/4-73	0.003	M	NO P	S	0	0	0	30	10	0	0	30	0.08	0	70
1/07/4-74	0.006	F	NO P	N	0	0	0	0	30	0	30	0	0.10	100	60
1/07/4-75	0.002	M	SLIGHT	S	0	0	0	30	0	0	30	30	0.09	100	90
1/07/4-76	0.002	M	NO	SM	0	0	0	0	0	0	0	30	0.06	67	30
1/07/4-77	0.005	F	COMP	S	0	0	10	0	0	0	0	30	0.10	67	40
1/07/4-78	0.004	M	SLIGHT P	SM	0	0	10	30	20	0	30	30	0.08	67	120
1/07/4-79	0.005	M	NO P	SM	0	0	10	30	0	0	0	30	0.12	67	70
1/07/4-80	0.004	F	COMP	SM	0	0	10	30	0	0	30	30	0.13	67	100
1/07/4-81	0.003	M	NO P	N	0	0	0	30	0	0	30	0	0.08	100	60
1/07/4-82	0.003	F	50 P	S	0	0	0	30	0	0	30	30	0.05	0	90
1/07/4-83	0.006	F	NO	N	0	0	0	0	0	0	30	0	0.12	67	30
1/07/4-84	0.005	F	NO	S	0	0	0	30	10	0	0	30	0.08	100	70
1/07/4-85	0.002	M	SLIGHT	N	0	0	0	0	30	0	0	0	0.04	67	30
1/07/4-86	0.005	M	NO P	S	0	0	0	0	30	30	0	30	0.13	100	90
1/07/4-87	0.002	F	NO	N	0	0	0	30	0	0	0	0	0.05	67	30
1/07/4-88	0.002	M	SLIGHT	N	0	0	0	30	0	0	0	0	0.05	67	30
1/07/4-89	0.005	M	NO	N	0	30	0	0	10	0	0	0	0.13	67	40
1/07/4-90	0.004	M	NO	N	0	0	10	30	10	0	0	0	0.22	100	50
1/07/4-91	0.003	M	50	N	0	0	10	30	0	30	0	0	0.07	67	70
1/07/4-92	0.002	F	NO	N	0	0	0	0	0	0	0	0	0.05	100	0

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
1/07/4-93	0.003	F	SLIGHT	N	0	0	20	0	0	0	0	0	0.06	67	20
1/07/4-94	0.003	F	NO	S	0	0	0	30	0	0	0	30	0.07	100	60
1/07/4-95	0.002	F	50	N	0	0	10	30	0	0	0	0	0.10	67	40
1/07/4-96	0.002	M	NO	N	0	0	0	0	0	0	0	0	0.05	67	0
1/07/4-97	0.011	F	50	N	0	0	0	0	30	0	30	0	0.21	67	60
1/07/4-98	0.018	F	50	N	0	0	0	30	30	0	30	0	0.35	67	90
1/07/4-99	0.002	F	50	N	0	0	0	0	0	30	0	0	0.05	67	30
1/07/5-70	0.002	M	COMP	N	0	0	0	30	0	0	0	0	0.10	67	30
1/07/5-71	0.002	F	SLIGHT	N	0	0	0	30	30	0	0	0	0.10	67	60
1/07/5-72	0.002	F	COMP	N	0	0	10	0	0	0	0	0	0.08	67	10
1/07/5-73	0.003	I	50	N	0	0	10	30	0	0	30	0	0.36	100	70
1/07/5-74	<0.001	F	COMP	N	0	0	10	30	0	30	0	0		0	70
1/07/5-75	<0.001	I	NO	N	0	0	10	30	0	0	0	0		0	40
1/07/5-76	<0.001	F	COMP	N	0	0	10	30	30	30	0	0		100	100
1/07/5-77	0.004	M	COMP	N	0	0	0	30	0	0	30	0	0.20	100	60
1/07/5-78	<0.001	I	COMP	N	0	0	10	30	0	30	0	0		67	70
1/07/5-79	<0.001	F	SLIGHT	N	0	0	0	0	0	30	0	0		0	30
1/07/5-80	<0.001	F	COMP	N	0	0	10	30	0	30	0	0		100	70
1/07/5-81	0.002	M	NO	N	0	0	0	30	0	30	0	0	0.23	67	60
1/07/5-82	0.001	F	COMP	N	0	0	10	30	0	0	0	0	0.07	67	40
1/07/5-83	<0.001	F	SLIGHT	N	0	0	10	30	0	0	0	0		100	40
1/07/5-84	<0.001	I	50	N	0	0	0	0	0	30	0	0		100	30
1/07/5-85	0.002	M	NO	N	0	0	10	30	0	0	0	0	0.12	100	40
1/07/5-86	<0.001	F	COMP	N	0	0	0	30	0	30	0	0		67	60
1/07/5-87	<0.001	M	50	N	0	0	10	30	0	30	0	0		0	70
1/07/5-88	<0.001	I	COMP	N	0	0	10	30	0	30	0	0		67	70
1/07/5-89	<0.001	I	COMP	N	0	0	10	30	0	30	0	0		67	70
1/07/5-90	<0.001	F	COMP	N	0	0	0	30	10	30	0	0		100	70
1/07/5-91	<0.001	I	NO	N	0	0	10	30	0	30	0	0		100	70
1/07/5-92	<0.001	F	NO	N	0	0	0	30	30	0	0	0		100	60
1/07/5-93	0.002	F	SLIGHT P	N	0	0	0	30	0	0	0	0	0.10	0	30
1/07/5-94	0.002	F	SLIGHT	N	0	0	10	30	0	30	0	0	0.09	67	70
1/07/5-95	0.004	F	COMP P	N	0	30	0	0	0	30	0	0	0.05	67	60
1/07/6-70	0.005	F	COMP	N	0	30	0	0	30	30	0	0	0.09	67	90
1/07/6-71	0.002	F	SLIGHT	N	0	30	0	30	0	30	0	0	0.08	0	90
1/07/6-72	0.002	M	SLIGHT P	N	0	30	0	30	0	30	0	0	0.06	67	90
1/07/6-73	0.005	M	SLIGHT P	N	0	0	10	30	0	30	0	0	0.15	0	70
1/07/6-74	0.006	M	COMP P	N	0	0	10	0	0	0	0	0	0.21	100	10
1/07/6-75	0.005	M	COMP	N	0	0	0	0	0	30	0	0	0.12	67	30
1/07/6-76	0.002	M	SLIGHT	N	0	0	10	0	0	30	0	0	0.04	0	40
1/07/6-77	0.004	M	COMP	N	0	30	0	0	0	30	0	0	0.06	67	60
1/07/6-78	0.002	M	COMP	N	0	30	10	30	30	30	0	0	0.05	0	130
1/07/6-79	0.007	F	50	N	0	0	0	30	10	30	0	0	0.13	67	70
1/07/6-80	0.004	F	50	N	0	0	0	30	30	30	0	0	0.08	67	90
1/07/6-81	0.003	M	50	N	0	0	0	0	0	30	0	0	0.08	0	30

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
1/07/6-82	0.007	M	SLIGHT	SM	0	0	10	0	0	30	30	30	0.16	100	100
1/07/6-83	0.001	M	SLIGHT	N	0	0	0	30	30	30	0	0	0.04	100	90
1/07/6-84	0.006	F	COMP	N	0	30	0	0	0	30	0	0	0.11	0	60
1/07/6-85	0.003	F	SLIGHT	N	0	0	0	0	0	30	0	0	0.09	67	30
1/07/6-86	0.007	F	COMP	N	0	0	0	0	0	30	30	0	0.15	67	60
1/07/6-87	0.004	M	50 P	N	0	0	0	30	0	30	30	0	0.07	0	90
1/07/6-88	0.006	F	COMP P	N	0	0	0	0	30	30	0	0	0.12	67	60
1/07/6-89	0.008	M	COMP	N	0	0	0	0	0	30	30	0	0.24	0	60
1/07/6-90	0.003	F	SLIGHT	N	0	0	0	0	0	0	0	0	0.07	0	0
1/07/6-91	0.007	F	SLIGHT P	S	0	0	0	0	0	0	30	30	0.13	100	60
1/07/6-92	0.003	M	COMP	N	0	0	10	30	0	30	0	0	0.07	0	70
1/07/6-93	0.007	F	50	S	0	0	0	0	0	30	30	30	0.15	67	90
1/07/6-94	0.005	F	50 P	N	0	0	0	30	0	30	0	0	0.13	67	60
1/07/6-95	0.003	F	SLIGHT P	N	0	0	0	30	0	30	0	0	0.06	67	60
1/07/6-96	0.008	F	50	N	0	30	10	30	30	30	30	0	0.14	67	160
1/07/6-97	0.003	F	SLIGHT	N	0	30	10	30	30	0	0	0	0.07	67	100
1/07/6-98	0.001	F	SLIGHT P	N	0	0	0	30	0	30	0	0	0.03	67	60
1/07/6-99	0.003	M	SLIGHT	N	0	0	0	30	0	0	0	0	0.08	0	30
4/07/1-70	0.002	F	NO P	N	0	0	10	0	0	30	0	0	0.03	100	40
4/07/1-71	0.003	M	SLIGHT	N	0	0	0	0	0	0	0	0	0.08	67	0
4/07/1-72	0.002	M	NO	N	0	0	0	30	0	0	0	0	0.14	100	30
4/07/1-73	0.003	M	NO	N	0	0	10	0	0	0	0	0	0.06	67	10
4/07/1-74	0.003	M	>50	N	0	0	0	0	0	30	0	0	0.07	100	30
4/07/1-75	0.004	F	NO	N	0	0	10	30	0	0	0	0	0.11	67	40
4/07/1-76	0.007	M	SLIGHT P	N	0	0	10	30	0	0	0	0	0.15	67	40
4/07/1-77	0.007	M	NO	N	0	0	10	30	0	0	0	0	0.15	67	40
4/07/1-78	0.003	M	NO	N	0	0	10	30	0	0	0	0	0.05	67	40
4/07/1-79	<0.001	F	NO	N	0	0	0	0	0	30	0	0		67	30
4/07/1-80	0.005	M	NO P	SM	0	0	0	0	0	0	0	30	0.10	67	30
4/07/1-81	0.002	M	NO	N	0	0	0	0	0	0	0	0	0.05	67	0
4/07/1-82	0.005	M	50 P	SM	0	0	0	30	0	0	0	30	0.13	100	60
4/07/1-83	0.013	M	SLIGHT	N	0	0	10	30	0	0	30	0	0.24	100	70
4/07/1-84	0.003	M	NO	N	0	0	10	30	0	0	0	0	0.06	67	40
4/07/2-70	0.005	M	NO	N	0	0	10	30	0	0	30	0	0.14	100	70
4/07/2-71	0.003	F	NO	S	0	0	10	30	10	0	0	30	0.37	67	80
4/07/2-72	0.006	M	NO	N	0	0	10	30	10	30	30	0	0.38	100	110
4/07/2-73	0.001	F	NO	N	0	0	10	30	10	0	0	0	0.06	67	50
4/07/2-74	0.003	F	NO P	N	0	0	20	30	0	0	0	0	0.19	100	50
4/07/2-75	<0.001	F	NO	N	0	0	0	0	0	0	0	0		100	0
4/07/2-76	0.002	M	NO	SM	0	0	0	0	0	30	0	30	0.14	67	60
4/07/2-77	<0.001	M	NO	N	0	0	0	0	0	0	0	0		67	0
4/07/2-78	0.002	M	NO	N	0	0	10	0	0	0	0	0	0.17	67	10
4/07/2-79	0.002	F	NO	N	0	0	10	0	0	0	0	0	0.16	67	10
4/07/2-80	<0.001	M	NO	N	0	0	0	0	0	0	0	0		33	0
4/07/2-81	0.001	F	NO	N	0	0	0	0	0	0	0	0	0.05	67	0

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
4/07/2-82	<0.001	F	NO	N	0	0	10	0	0	0	0	0		67	10
4/07/2-83	0.001	F	SLIGHT	S	0	0	10	0	10	30	0	30	0.07	100	80
4/07/2-84	0.002	F	SLIGHT	N	0	0	0	0	0	0	0	0	0.11	100	0
4/07/2-85	<0.001	F	NO	N	0	0	10	30	20	0	0	0		100	60
4/07/2-86	0.002	F	NO	N	0	0	0	0	0	0	0	0	0.11	67	0
4/07/2-87	0.001	F	SLIGHT	N	0	0	0	0	0	0	0	0	0.04	67	0
4/07/2-88	0.003	F	NO	N	0	0	10	30	0	0	0	0	0.20	67	40
4/07/2-89	<0.001	F	NO	N	0	0	10	30	10	0	0	0		67	50
4/07/2-90	<0.001	F	NO P	S	0	0	10	30	10	30	0	30		100	110
4/07/2-91	<0.001	M	NO	N	0	0	0	0	0	30	0	0		67	30
4/07/2-92	0.002	F	NO	N	30	0	0	30	0	0	30	0	0.03	67	90
4/07/2-93	0.007	F	NO	N	0	0	10	30	10	0	0	0	0.15	67	50
4/07/2-94	<0.001	F	NO	N	0	0	0	0	0	0	0	0		67	0
4/07/2-95	0.002	M	NO	N	0	0	10	30	0	0	0	0	0.10	67	40
4/07/2-96	0.008	F	NO	S	0	0	0	0	0	30	30	30	0.36	67	90
4/07/2-97	<0.001	F	NO	N	0	0	0	0	0	0	0	0		67	0
4/07/2-98	0.003	F	NO	N	0	0	10	0	0	0	0	0	0.06	67	10
4/07/2-99	0.008	M	NO	N	0	0	10	30	0	0	30	0	0.56	67	70
4/07/3-70	0.002	M	NO	N	0	0	10	30	0	0	0	0	0.09	67	40
4/07/3-71	0.003	M	NO	N	0	0	10	30	0	0	0	0	0.15	67	40
4/07/3-72	<0.001	F	NO	N	0	0	10	30	30	30	0	0		67	100
4/07/3-73	0.001	F	SLIGHT	M	0	0	10	30	0	30	0	30	0.03	67	100
4/07/3-74	0.002	F	NO	N	0	0	0	30	20	0	0	0	0.07	67	50
4/07/3-75	0.001	F	SLIGHT	N	0	30	10	30	30	30	30	0	0.05	67	160
4/07/3-76	0.003	F	SLIGHT	M	0	0	10	30	0	30	30	30	0.09	0	130
4/07/3-77	0.001	F	SLIGHT	N	0	0	10	30	0	0	0	0	0.04	67	40
4/07/3-78	0.001	M	NO	N	0	0	20	30	10	0	0	0	0.06	67	60
4/07/3-79	0.001	F	NO	N	0	0	10	30	10	0	0	0	0.05	100	50
4/07/3-80	0.001	M	NO	N	0	0	0	30	0	0	0	0	0.03	67	30
4/07/3-81	0.001	F	SLIGHT	N	0	0	0	30	10	0	0	0	0.03	100	40
4/07/3-82	0.002	F	NO	N	0	0	0	0	0	0	0	0	0.12	67	0
4/07/3-83	0.002	F	NO	N	0	0	0	30	0	0	0	0	0.08	67	30
4/07/3-84	0.001	F	NO	N	0	0	0	30	10	30	0	0	0.04	67	70
4/07/3-85	0.002	F	NO	N	0	0	10	30	0	30	0	0	0.14	100	70
4/07/3-86	<0.001	M	NO	SM	0	0	10	30	10	30	0	30		67	110
4/07/3-87	0.001	M	NO	N	0	0	20	30	30	0	0	0	0.09	67	80
4/07/3-88	0.002	M	NO	N	0	0	20	30	10	0	0	0	0.15	67	60
4/07/4-70	0.003	F	NO	N	0	0	10	0	0	0	0	0	0.04	67	10
4/07/4-71	0.006	F	SLIGHT	N	0	0	0	0	0	0	30	0	0.10	67	30
4/07/4-72	0.002	M	NO	N	0	0	10	0	0	0	0	0	0.04	100	10
4/07/4-73	0.003	F	SLIGHT	N	0	0	10	30	0	0	0	0	0.07	67	40
4/07/4-74	0.005	M	SLIGHT	N	0	0	10	30	0	0	0	0	0.18	67	40
4/07/4-75	0.003	F	SLIGHT	N	0	0	10	30	30	0	0	0	0.04	67	70
4/07/4-76	0.004	F	NO	N	0	0	0	30	0	0	0	0	0.05	67	30
4/07/4-77	0.004	M	NO	N	0	0	10	30	0	0	30	0	0.14	67	70

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
4/07/4-78	0.004	F	NO	N	0	0	10	0	0	0	30	0	0.06	67	40
4/07/4-79	0.003	F	50	N	0	0	10	30	0	0	30	0	0.08	67	70
4/07/4-80	0.008	M	NO	S	0	30	0	30	0	0	30	30	0.19	67	120
4/07/4-81	0.003	F	NO	N	0	30	10	30	30	0	0	0	0.04	67	100
4/07/4-82	0.005	M	NO	S	0	30	10	30	30	0	30	30	0.13	67	160
4/07/4-83	0.005	M	50	SM	0	0	10	0	30	30	30	30	0.10	67	130
4/07/5-70	<0.001	M	>50	N	0	0	10	30	0	30	30	0		67	100
4/07/5-71	<0.001	I	NO	OT	0	0	10	30	0	0	0	30		67	70
4/07/5-72	0.001	F	NO	N	0	0	10	30	0	0	0	0	0.06	67	40
4/07/5-73	<0.001	F	NO	N	0	0	10	30	10	0	0	0		67	50
4/07/5-74	0.002	F	SLIGHT	N	0	0	10	30	10	0	0	0	0.13	67	50
4/07/5-75	<0.001	M	SLIGHT	N	0	0	10	0	0	30	30	0		0	70
4/07/5-76	0.001	M	SLIGHT	N	0	0	10	30	10	0	0	0	0.07	67	50
4/07/5-77	0.009	F	50	N	0	0	0	30	0	0	0	0	0.17	67	30
4/07/5-78	0.001	M	SLIGHT	N	0	0	20	30	0	0	0	0	0.08	67	50
4/07/5-79	0.002	M	SLIGHT	N	0	0	10	30	0	0	0	0	0.10	67	40
4/07/5-80	<0.001	M	NO	N	0	0	20	30	0	0	0	0		67	50
4/07/5-81	<0.001	F	NO	N	0	0	10	30	0	0	0	0		100	40
4/07/5-82	<0.001	M	SLIGHT	N	0	0	10	30	0	0	0	0		33	40
4/07/5-83	<0.001	M	50	N	0	0	10	30	0	0	0	0		67	40
4/07/5-84	0.002	F	NO	N	0	0	10	30	0	0	0	0	0.03	67	40
10/07/1-70	<0.001	F	NO	N	0	0	10	30	0	0	0	0		67	40
10/07/1-71	N/A	F	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
10/07/1-72	<0.001	I	NO	N	0	0	10	30	10	30	0	0		67	80
10/07/1-73	0.003	F	SLIGHT P	N	0	0	0	0	0	0	0	0	0.15	67	0
10/07/1-74	0.002	M	NO	N	0	0	10	0	0	0	0	0	0.19	67	10
10/07/1-75	0.003	I	SLIGHT	N	0	0	10	0	10	0	0	0	0.23	67	20
10/07/1-76	0.003	I	SLIGHT	N	0	0	10	30	0	0	0	0	0.21	67	40
10/07/1-77	0.002	I	SLIGHT	N	0	0	10	30	0	0	0	0	0.16	0	40
10/07/1-78	0.001	F	NO	N	0	0	10	0	0	0	0	0	0.08	100	10
10/07/1-79	<0.001	F	NO	N	0	0	0	0	0	0	0	0		67	0
10/07/1-80	0.001	F	NO	N	0	0	10	0	0	0	0	0	0.08	67	10
10/07/1-81	N/A	F	50	N	0	0	0	0	0	30	0	0			30
10/07/1-82	0.003	F	>50	N	0	0	10	0	0	0	30	0	0.30	67	40
10/07/1-83	0.002	F	NO	N	0	0	10	30	0	0	0	0	0.21	67	40
10/07/1-84	<0.001	I	>50	N	0	0	20	30	0	30	0	0		67	80
10/07/1-85	0.002	F	NO	N	0	0	0	30	0	0	0	0	0.27	67	30
10/07/1-86	<0.001	I	SLIGHT	N	0	0	10	30	0	0	0	0		67	40
10/07/1-87	<0.001	F	NO	N	0	0	10	30	0	0	0	0		67	40
10/07/1-88	0.001	M	COMP P	N	0	0	10	30	0	30	0	0	0.07	67	70
10/07/1-89	<0.001	F	NO	N	0	0	0	30	0	0	0	0		67	30
10/07/1-90	<0.001	F	SLIGHT P	N	0	0	10	30	0	0	0	0		67	40
10/07/1-91	N/A	M	NO	N	0	0	0	30	0	0	0	0			30
10/07/1-92	<0.001	F	SLIGHT	N	0	0	10	30	10	0	0	0		67	50
10/07/1-93	0.007	F	NO	N	0	0	10	30	0	0	30	0	0.44	67	70

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
10/07/1-94	0.001	M	>50	SM	0	0	10	30	0	30	0	30	0.07	67	100
10/07/2-70	<0.001	F	50	S	0	0	10	30	0	30	0	30		67	100
10/07/2-71	0.002	F	50	N	0	0	0	30	0	0	0	0	0.18	67	30
10/07/2-72	N/A	M	50	N	0	0	10	30	0	0	0	0		67	40
10/07/2-73	<0.001	F	50	N	0	0	0	0	0	30	0	0		67	30
10/07/2-74	0.001	F	50 P	M	0	0	10	30	0	0	0	30	0.08	100	70
10/07/2-75	0.003	F	50 P	N	0	0	10	30	0	30	0	0	0.21	100	70
10/07/2-76	0.002	M	SLIGHT	N	0	0	10	30	0	0	0	0	0.14	67	40
10/07/2-77	0.001	F	SLIGHT P	SM	0	0	20	30	0	30	0	30	0.07	67	110
10/07/2-78	0.003	M	50	N	0	0	10	30	10	30	0	0	0.21	67	80
10/07/2-79	0.001	F	SLIGHT	N	0	0	10	30	0	30	0	0	0.05	67	70
10/07/2-80	<0.001	I	SLIGHT	N	0	0	0	0	0	0	0	0		67	0
10/07/2-81	0.006	I	SLIGHT	M	0	0	10	30	30	30	30	30	0.36	67	160
10/07/2-82	N/A	I	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
10/07/2-83	0.001	I	SLIGHT	N	0	0	10	30	0	30	0	0	0.06	67	70
10/07/2-84	<0.001	I	NO	N	0	0	10	30	10	0	0	0		67	50
10/07/2-85	0.002	I	NO	N	0	0	30	30	20	30	0	0	0.13	67	110
10/07/2-86	0.001	I	SLIGHT	N	0	0	10	30	0	30	0	0	0.07	67	70
10/07/2-87	0.001	F	NO	N	0	0	10	30	10	0	0	0	0.07	67	50
10/07/2-88	0.001	F	NO	N	0	0	10	30	0	0	0	0	0.09	67	40
10/07/2-89	N/A	M	SLIGHT	N	0	0	10	30	0	30	0	0			70
10/07/3-70	0.006	F	COMP	N	0	0	10	30	0	30	0	0	0.11	100	70
10/07/3-71	0.005	F	NO	S	0	0	10	0	0	30	0	30	0.18	67	70
10/07/3-72	N/A	M	NO	N	0	0	10	30	10	0		0			50
10/07/3-73	0.004	F	50	N	0	0	10	30	0	0	0	0	0.14	67	40
10/07/3-74	0.008	F	50	N	0	0	10	30	0	0	30	0	0.25	67	70
10/07/3-75	0.012	F	50	S	0	0	30	30	30	0	30	30	0.31	100	150
10/07/3-76	0.009	M	50	S	0	0	20	30	10	0	30	30	0.50	67	120
10/07/3-77	0.007	F	SLIGHT	N	0	0	10	30	0	0	30	0	0.47	67	70
10/07/3-78	0.1	M	SLIGHT	N	0	0	0	30	0	0	30	0	2.87	67	60
10/07/3-79	N/A	M	NO	N	0	0	10	30	0	0		0		67	40
10/07/3-80	0.01	F	NO	N	0	0	10	30	0	0	30	0	0.41	100	70
10/07/3-81	0.01	F	COMP P	N	0	0	10	30	0	30	0	0	0.25	67	70
10/07/3-82	0.01	F	SLIGHT	S	0	0	10	30	0	0	30	30	0.36	100	100
10/07/3-83	0.004	M	SLIGHT	N	0	0	10	30	30	0	0	0	0.10	67	70
10/07/3-84	N/A	F	50	S	0	0	10	30	0	0	0	30			70
10/07/4-70	0.001	M	COMP	N	0	0	10	30	0	30	0	0	0.05	67	70
10/07/4-71	<0.001	F	COMP P	N	0	0	0	0	0	30	0	0		100	30
10/07/4-72	0.002	F	50	N	0	0	10	30	30	30	30	0	0.08	67	130
10/07/4-73	0.005	F	50 P	S	0	0	10	30	0	30	30	30	0.25	67	130
10/07/4-74	N/A	M	COMP	N	0	0	10	30	0	30	0	0			70
10/07/4-75	0.002	M	SLIGHT	S	0	0	0	0	0	30	0	30	0.12	100	60
10/07/4-76	0.003	F	SLIGHT	S	0	0	10	30	0	30	0	30	0.17	67	100
10/07/4-77	0.003	F	SLIGHT P	N	0	0	10	30	0	30	0	0	0.20	67	70
10/07/4-78	<0.001	F	SLIGHT P	S	0	0	10	30	0	0	0	30		67	70

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
10/07/4-79	0.003	F	SLIGHT P	N	0	0	0	30	30	30	30	0	0.16	67	120
10/07/4-80	0.002	F	SLIGHT P	N	0	0	10	30	0	0	0	0	0.11	67	40
10/07/4-81	<0.001	F	SLIGHT	N	0	30	10	30	10	0	0	0		67	80
10/07/4-82	<0.001	I	NO	N	0	0	30	30	0	30	0	0		67	90
10/07/4-83	0.006	F	SLIGHT	S	0	0	30	30	10	0	30	30	0.37	67	130
10/07/4-84	N/A	F	SLIGHT	N	0	0	10	30	0	0	0	0		67	40
10/07/4-85	0.006	F	COMP	S	0	0	10	30	0	30	30	30	0.27	67	130
10/07/4-86	<0.001	I	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
10/07/4-87	0.001	I	SLIGHT	N	0	0	10	30	0	0	0	0	0.06	67	40
10/07/4-88	0.002	M	50	N	0	0	10	30	0	30	0	0	0.11	67	70
10/07/4-89	<0.001	I	SLIGHT	N	0	0	10	30	0	0	0	0		100	40
10/07/4-90	0.004	I	NO	S	0	0	10	30	0	0	30	30	0.24	67	100
10/07/4-91	0.004	F	50	N	0	0	10	30	0	30	30	0	0.28	67	100
10/07/4-92	0.005	F	SLIGHT	N	0	0	10	30	0	30	30	0	0.27	67	100
10/07/4-93	0.004	M	NO	N	0	30	0	30	0	0	30	0	0.23	100	90
10/07/4-94	N/A	F	SLIGHT	N	0	30	10	30	0	0	0	0			70
10/07/5-70	0.006	M	SLIGHT	S	0	0	10	30	0	30	30	30	0.27	100	130
10/07/5-71	0.004	F	SLIGHT	S	0	0	10	30	0	0	0	30	0.13	67	70
10/07/5-72	0.005	M	SLIGHT P	S	0	0	10	30	30	30	30	30	0.27	100	160
10/07/5-73	N/A	F	SLIGHT	S	0	0	10	30	0	0	0	30			70
10/07/5-74	0.003	M	SLIGHT	N	0	0	10	30	0	0	0	0	0.11	67	40
10/07/5-75	<0.001	I	SLIGHT	N	0	30	0	0	0	0	0	0		67	30
10/07/5-76	N/A	F	SLIGHT	S	0	0	30	30	0	0	0	30			90
10/07/5-77	0.002	F	SLIGHT	S	0	0	10	30	0	30	0	30	0.09	67	100
10/07/5-78	0.002	F	COMP	N	0	0	20	30	0	30	0	0	0.08	67	80
10/07/5-79	0.001	F	SLIGHT	N	0	0	10	30	0	30	0	0	0.04	67	70
10/07/5-80	<0.001	F	NO P	N	0	0	0	30	20	30	0	0		100	80
10/07/5-81	0.003	M	>50	N	30	0	10	30	0	30	0	0	0.10	67	100
10/07/5-82	0.004	M	50 P	N	0	0	10	30	30	0	0	0	0.15	67	70
10/07/5-83	<0.001	F	NO P	N	0	0	10	0	30	30	0	0		100	70
10/07/5-84	0.003	F	COMP	S	0	0	10	30	30	30	0	30	0.11	67	130
10/07/5-85	N/A	M	50	N	0	0	0	0	0	0	0	0			0
10/07/5-86	0.001	F	SLIGHT	N	0	30	0	30	0	0	0	0	0.03	67	60
10/07/5-87	<0.001	F	NO	N	0	0	20	30	0	30	0	0		100	80
10/07/5-88	0.004	M	COMP	M	0	0	0	0	0	30	0	30	0.12	100	60
10/07/5-89	<0.001	I	50 P	N	0	0	0	0	10	30	0	0		67	40
10/07/6-70	0.003	M	NO	N	0	0	10	0	0	0	0	0	0.09	100	10
10/07/6-71	N/A	F	SLIGHT	N	0	0	0	0	0	30	0	0			30
10/07/6-72	0.002	F	NO	S	0	0	10	30	0	30	0	30	0.10	0	100
10/07/6-73	N/A	F	NO	S	0	0	10	30	30	30	0	30		100	130
10/07/6-74	0.002	F	NO	N	0	0	10	30	0	30	0	0	0.17	100	70
10/07/6-75	0.001	F	NO	OT	0	0	0	0	0	30	0	30	0.12	100	60
10/07/6-76	0.003	M	NO	N	0	0	0	0	10	0	0	0	0.06	67	10
10/07/6-77	N/A	M	50	OT	0	0	0	0	0	30	0	30			60
10/07/6-78	0.005	M	COMP	N	0	0	10	0	0	0	30	0	0.16	100	40

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
10/07/6-79	0.001	F	>50 P	S OT	0	0	10	0	0	30	0	30	0.05	67	70
10/07/6-80	<0.001	M	50	N	0	0	30	30	0	30	0	0		100	90
10/07/6-81	<0.001	M	50	N	0	0	0	0	0	30	0	0		100	30
10/07/6-82	<0.001	F	SLIGHT	S	0	0	20	30	0	30	0	30		100	110
1/08/1-70	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/1-71	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/1-72	N/A	M	NO	N	0	0	30	0	0	0	0	0		67	30
1/08/1-73	N/A	F	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/1-74	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/1-75	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/1-76	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/1-77	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/1-78	N/A	F	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/1-79	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/1-80	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/1-81	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/1-82	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/1-83	N/A	M	SLIGHT	N	0	30	30	0	10	30	0	0		100	100
1/08/1-84	N/A	F	SLIGHT	N	0	0	30	0	0	0	0	0		100	30
1/08/1-85	N/A	M	SLIGHT	N	0	0	30	0	0	0	0	0		67	30
1/08/1-86	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/1-87	N/A	M	NO	N	0	30	30	30	0	30	0	0		67	120
1/08/1-88	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/1-89	N/A	F	NO	N	0	0	0	0	0	30	0	0		100	30
1/08/1-90	N/A	M	NO	N	0	0	30	30	0	30	0	0		100	90
1/08/1-91	N/A	M	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/1-92	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/1-93	N/A	F	NO	N	0	0	30	30	0	30	0	0		100	90
1/08/1-94	N/A	M	NO	N	0	0	30	30	0	30	0	0		100	90
1/08/1-95	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/1-96	N/A	M	NO	N	0	30	30	0	10	30	0	0		100	100
1/08/1-97	N/A	F	NO	N	0	0	30	30	0	30	0	0		100	90
1/08/1-98	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/1-99	N/A	M	NO	OT	0	0	30	30	0	30	0	30		100	120
1/08/2-70	N/A	M	SLIGHT	N	0	0	30	30	0	0	0	0		67	60
1/08/2-71	N/A	M	SLIGHT	N	0	0	30	30	0	0	0	0		100	60
1/08/2-72	N/A	F	SLIGHT	N	0	0	30	30	0	0	0	0		67	60
1/08/2-73	N/A	M	NO	N	0	0	30	30	0	0	0	0		67	60
1/08/2-74	N/A	F	SLIGHT	N	0	0	30	0	0	0	0	0		67	30
1/08/2-75	N/A	M	NO	N	0	0	30	0	0	0	0	0		100	30
1/08/2-76	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/2-77	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/2-78	N/A	M	SLIGHT	N	0	0	30	0	10	0	0	0		67	40
1/08/2-79	N/A	M	SLIGHT	N	0	0	30	0	0	0	0	0		100	30
1/08/2-80	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
1/08/2-81	N/A	F	SLIGHT	N	0	0	30	0	10	30	0	0		67	70
1/08/2-82	N/A	F	SLIGHT	N	0	30	30	30	0	30	0	0		100	120
1/08/2-83	N/A	M	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/2-84	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/2-85	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/2-86	N/A	F	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/2-87	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/2-88	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/2-89	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/2-90	N/A	F	SLIGHT	N	0	0	30	0	10	30	0	0		100	70
1/08/2-91	N/A	M	50	N	0	30	30	30	0	30	0	0		100	120
1/08/2-92	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/2-93	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/2-94	N/A	F	50	N	0	0	30	0	10	30	0	0		67	70
1/08/2-95	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/2-96	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/2-97	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/2-98	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/2-99	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/3-70	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/3-71	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/3-72	N/A	F	SLIGHT	N	0	0	30	0	0	0	0	0		100	30
1/08/3-73	N/A	F	SLIGHT	N	0	0	30	0	10	30	0	0		67	70
1/08/3-74	N/A	F	SLIGHT	N	0	0	30	0	0	0	0	0		67	30
1/08/3-75	N/A	F	SLIGHT	N	0	0	30	0	10	0	0	0		67	40
1/08/3-76	N/A	F	50	N	0	0	30	0	0	30	0	0		67	60
1/08/3-77	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/3-78	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/3-79	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/3-80	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/3-81	N/A	M	50	N	0	0	30	0	10	30	0	0		100	70
1/08/3-82	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/3-83	N/A	F	50	N	0	0	30	0	0	30	0	0		100	60
1/08/3-84	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/3-85	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/3-86	N/A	F	NO	N	0	0	30	0	10	30	0	0		67	70
1/08/3-87	N/A	F	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/3-88	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/3-89	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/3-90	N/A	I	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/3-91	N/A	F	NO	N	0	30	30	0	10	30	0	0		100	100
1/08/3-92	N/A	F	SLIGHT	N	0	30	30	0	30	30	0	0		100	120
1/08/3-93	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/3-94	N/A	F	SLIGHT	N	0	0	30	30	0	30	0	0		67	90
1/08/3-95	N/A	M	SLIGHT	N	0	0	30	30	0	30	0	0		67	90

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
1/08/3-96	N/A	M	NO	N	0	0	30	30	0	30	0	0		67	90
1/08/3-97	N/A	M	SLIGHT	N	0	0	30	30	0	30	0	0		100	90
1/08/3-98	N/A		SLIGHT	N	0	0	30	30	0	30	0	0		67	90
1/08/3-99	N/A	F	SLIGHT	N	0	0	30	30	0	30	0	0		67	90
1/08/4-70	N/A	F	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/4-71	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/4-72	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/4-73	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/4-74	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/4-75	N/A	F	SLIGHT	N	0	0	0	0	0	30	0	0		67	30
1/08/4-76	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/4-77	N/A	F	SLIGHT	N	0	0	30	0	10	30	0	0		67	70
1/08/4-78	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/4-79	N/A	M	SLIGHT	N	0	0	0	0	0	30	0	0		100	30
1/08/4-80	N/A	F	50	N	0	0	30	0	0	30	0	0		100	60
1/08/4-81	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/4-82	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/4-83	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/4-84	N/A	M	50	N	0	0	30	0	0	30	0	0		100	60
1/08/4-85	N/A	M	50	N	0	0	30	0	0	30	0	0		67	60
1/08/4-86	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/4-87	N/A	F	50	N	0	0	30	0	0	30	0	0		67	60
1/08/4-88	N/A	F	SLIGHT	N	0	0	30	0	20	30	0	0		67	80
1/08/4-89	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/4-90	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/4-91	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/4-92	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/4-93	N/A	M	SLIGHT	N	0	0	0	0	30	30	0	0		67	60
1/08/4-94	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/4-95	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/4-96	N/A	M	SLIGHT	N	0	0	30	0	30	30	0	0		67	90
1/08/4-97	N/A	M	50	N	0	0	30	0	0	30	0	0		100	60
1/08/4-98	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/4-99	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-70	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-71	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-72	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-73	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/5-74	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-75	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-76	N/A	F	50	N	0	30	30	0	10	30	0	0		67	100
1/08/5-77	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-78	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/5-79	N/A	M	SLIGHT	N	0	0	30	0	0	0	0	0		100	30
1/08/5-80	N/A	M	SLIGHT	N	0	0	30	0	0	0	0	0		67	30

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
1/08/5-81	N/A	F	SLIGHT	N	0	0	30	0	0	0	0	0		67	30
1/08/5-82	N/A	F	SLIGHT	N	0	0	20	0	0	0	0	0		67	20
1/08/5-83	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-84	N/A	M	NO	N	0	30	20	0	0	30	0	0		67	80
1/08/5-85	N/A	F	NO	N	0	0	30	0	30	30	0	0		100	90
1/08/5-86	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-87	N/A	F	50	N	0	0	30	0	0	30	0	0		67	60
1/08/5-88	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-89	N/A	M	NO	N	0	0	30	0	0	30	0	0		100	60
1/08/5-90	N/A	M	SLIGHT	N	0	0	30	0	0	0	0	0		67	30
1/08/5-91	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-92	N/A	M	50	N	0	0	30	0	0	30	0	0		67	60
1/08/5-93	N/A	M	50	N	0	0	30	0	0	30	0	0		67	60
1/08/5-94	N/A	M	50	N	0	0	10	0	0	0	0	0		100	10
1/08/5-95	N/A	M	SLIGHT	N	0	0	30	0	0	0	0	0		67	30
1/08/5-96	N/A	F	SLIGHT	N	0	30	30	0	0	30	0	0		100	90
1/08/5-97	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/5-98	N/A	M	SLIGHT	N	0	0	30	0	0	0	0	0		67	30
1/08/5-99	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/6-70	N/A	F	SLIGHT	N	0	0	30	0	10	0	0	0		33	40
1/08/6-71	N/A	M	50	S	0	0	30	30	10	30	0	30		67	130
1/08/6-72	N/A	F	SLIGHT	N	0	0	10	30	10	30	0	0		100	80
1/08/6-73	N/A	F	NO	N	0	0	20	30	10	30	0	0		100	90
1/08/6-74	N/A	F	SLIGHT	N	0	0	10	0	30	30	0	0		67	70
1/08/6-75	N/A	F	NO	N	0	0	30	0	0	30	0	0		67	60
1/08/6-76	N/A	F	SLIGHT	N	0	0	30	0	0	0	0	0		100	30
1/08/6-77	N/A	F	SLIGHT	N	0	0	10	30	0	30	0	0		33	70
1/08/6-78	N/A	M	50	N	0	0	10	0	0	30	0	0		67	40
1/08/6-79	N/A	F	50	N	0	0	30	0	0	30	0	0		33	60
1/08/6-80	N/A	F	SLIGHT	N	0	0	30	0	0	0	0	0		100	30
1/08/6-81	N/A	M	SLIGHT	N	0	0	10	0	30	0	0	0		100	40
1/08/6-82	N/A	F	NO	N	0	0	10	0	0	0	0	0		100	10
1/08/6-83	N/A	F	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/6-84	N/A	F	SLIGHT	N	0	0	30	0	0	0	0	0		67	30
1/08/6-85	N/A	M	SLIGHT	N	0	0	30	0	0	0	0	0		100	30
1/08/6-86	N/A	F	SLIGHT	N	0	0	10	0	0	30	0	0		100	40
1/08/6-87	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/6-88	N/A	F	SLIGHT	N	0	0	30	0	30	30	30	0		100	120
1/08/6-89	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/6-90	N/A	F	SLIGHT	N	0	0	30	0	30	30	0	0		67	90
1/08/6-91	N/A	M	SLIGHT	N	0	30	30	0	30	30	0	0		33	120
1/08/6-92	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		67	60
1/08/6-93	N/A	M	SLIGHT	S	0	0	30	0	0	30	0	30		67	90
1/08/6-94	N/A	M	SLIGHT	N	0	0	30	0	0	30	0	0		100	60
1/08/6-95	N/A	M	SLIGHT	N	0	0	30	0	30	30	0	0		67	90

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
1/08/6-96	N/A	M	50	N	0	0	30	0	0	30	0	0		100	60
1/08/6-97	N/A	M	50	N	0	0	30	0	0	30	0	0		67	60
1/08/6-98	N/A	F	SLIGHT	S	0	0	30	0	0	30	0	30		67	90
1/08/6-99	N/A	F	SLIGHT	N	0	0	30	0	30	30	0	0		100	90
4/08/1-70	N/A	F	SLIGHT	N	0	0	10	30	0	30	0	0		100	70
4/08/1-71	<0.001	F	SLIGHT	S	0	0	10	30	10	0	0	30		67	80
4/08/1-72	N/A	M	SLIGHT	S	0	0	0	30	0	30	0	30		100	90
4/08/1-73	0.001	M	COMP	N	0	0	10	30	0	30	0	0	0.08	67	70
4/08/1-74	N/A	F	50	S	0	0	10	30	0	0	0	30		100	70
4/08/1-75	0.001	F	50	N	0	0	10	30	0	30	0	0	0.06	67	70
4/08/1-76	<0.001	M	NO	S	0	0	0	30	0	30	0	30		100	90
4/08/1-77	0.001	F	SLIGHT	N	0	0	10	30	0	30	0	0	0.08	67	70
4/08/1-78	<0.001	M	SLIGHT	N	0	0	10	30	0	30	0	0		100	70
4/08/1-79	<0.001	F	NO	N	0	0	10	0	10	30	0	0		67	50
4/08/1-80	N/A	M	SLIGHT	S	0	0	10	0	0	0	0	30		100	40
4/08/1-81	0.001	F	SLIGHT	N	0	0	10	0	0	0	0	0	0.09	67	10
4/08/1-82	N/A	F	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
4/08/1-83	<0.001	M	SLIGHT	N	0	0	10	0	0	30	0	0		67	40
4/08/1-84	N/A	F	SLIGHT	S	0	0	10	30	0	30	0	30		67	100
4/08/1-85	0.001	M	COMP	N	0	0	10	30	10	30	0	0	0.08	67	80
4/08/1-86	<0.001	M	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
4/08/1-87	<0.001	M	NO	N	0	0	20	30	0	30	0	0		100	80
4/08/1-88	<0.001	M	SLIGHT	N	0	0	10	0	0	30	0	0		100	40
4/08/1-89	<0.001	F	NO	S	0	0	10	30	0	30	0	30		67	100
4/08/1-90	<0.001	F	NO	N	0	0	10	30	0	30	0	0		67	70
4/08/1-91	0.004	M	NO	N	0	0	10	30	0	0	30	0	0.19	67	70
4/08/1-92	0.002	F	50	S	0	0	10	0	0	30	0	30	0.19	67	70
4/08/1-93	<0.001	F	50	N	0	0	10	30	0	30	0	0		67	70
4/08/1-94	<0.001	M	SLIGHT	N	0	0	10	0	0	30	0	0		67	40
4/08/1-95	<0.001	F	NO	N	0	0	0	0	0	0	0	0		67	0
4/08/1-96	0.003	M	COMP	N	0	0	0	30	0	30	0	0	0.18	67	60
4/08/1-97	<0.001	M	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
4/08/1-98	<0.001	M	NO	N	0	0	10	0	0	30	0	0		67	40
4/08/1-99	0.007	M	SLIGHT	S	0	0	10	30	0	30	30	30	0.37	67	130
4/08/2-70	0.002	M	NO	S	0	0	10	30	30	0	0	30	0.09	100	100
4/08/2-71	0.001	M	NO	N	0	0	10	30	0	30	0	0	0.05	100	70
4/08/2-72	N/A	M	NO	N	0	0	10	30	0	0	0	0		100	40
4/08/2-73	0.001	M	NO	N	0	0	10	30	0	0	0	0	0.04	100	40
4/08/2-74	N/A	F	SLIGHT	N	0	0	10	30	0	0	0	0		100	40
4/08/2-75	0.003	F	SLIGHT	S	0	0	10	30	20	30	0	30	0.12	100	120
4/08/2-76	0.003	M	SLIGHT	S	0	0	10	30	0	0	0	30	0.14	67	70
4/08/2-77	<0.001	F	NO	S	0	0	10	30	10	30	0	30		67	110
4/08/2-78	0.001	F	SLIGHT	N	0	0	10	0	0	30	0	0	0.04	67	40
4/08/2-79	0.001	M	50	N	0	0	10	30	0	0	0	0	0.05	67	40
4/08/2-80	0.002	F	SLIGHT	S	0	0	10	30	10	30	0	30	0.13	67	110

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
4/08/2-81	0.002	M	NO	S	0	0	0	0	0	0	0	30	0.08	67	30
4/08/2-82	0.002	F	COMP	S	0	0	10	30	0	0	0	30	0.13	67	70
4/08/2-83	0.001	F	COMP	N	0	0	10	30	10	30	0	0	0.04	67	80
4/08/2-84	<0.001	M	NO	N	0	0	0	30	0	0	0	0		100	30
4/08/2-85	0.003	M	SLIGHT	S	0	0	10	30	0	30	30	30	0.13	67	130
4/08/2-86	N/A	F	SLIGHT	N	0	0	10	30	0	0	0	0		100	40
4/08/2-87	<0.001	M	NO	N	0	0	10	0	0	30	0	0		67	40
4/08/2-88	<0.001	F	NO	N	0	0	10	30	0	30	0	0		67	70
4/08/2-89	N/A	M	NO	S	0	0	10	30	0	0	0	30		100	70
4/08/2-90	N/A	M	NO	N	0	0	10	30	0	30	0	0		67	70
4/08/2-91	<0.001	F	SLIGHT	N	0	0	10	30	0	30	0	0		100	70
4/08/2-92	<0.001	F	NO	S	0	0	0	0	0	30	0	30		67	60
4/08/2-93	0.004	F	NO	S	0	0	10	30	0	30	30	30	0.33	67	130
4/08/2-94	N/A	F	NO	S	0	0	10	30	0	30	0	30		67	100
4/08/2-95	0.001	M	COMP	N	0	0	10	30	10	30	0	0	0.04	67	80
4/08/2-96	<0.001	F	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
4/08/2-97	<0.001	F	NO	S	0	0	10	30	20	30	0	30		67	120
4/08/2-98	0.003	M	50	N	0	0	10	30	0	30	0	0	0.07	67	70
4/08/2-99	0.003	M	NO	N	0	0	10	30	0	0	0	0	0.13	67	40
4/08/3-70	N/A	F	NO	N	0	0	20	30	0	0	0	0		100	50
4/08/3-71	0.005	M	NO	S	0	0	10	30	10	30	0	30	0.16	67	110
4/08/3-72	.0.001	M	SLIGHT	S	0	0	10	30	0	30	0	30		67	100
4/08/3-73	N/A	F	NO	N	0	0	10	30	0	30	0	0		100	70
4/08/3-74	0.003	F	50	N	0	0	10	30	30	30	0	0	0.11	100	100
4/08/3-75	0.002	M	NO	S	0	0	10	30	0	30	0	30	0.05	67	100
4/08/3-76	0.002	F	50	S	0	0	10	30	30	30	0	30	0.09	67	130
4/08/3-77	0.002	F	50	S	0	0	0	30	0	30	0	30	0.14	100	90
4/08/3-78	N/A	F	50	N	0	0	10	30	0	30	0	0		100	70
4/08/3-79	0.002	F	NO	N	0	0	10	30	0	30	0	0	0.04	100	70
4/08/3-80	0.002	F	SLIGHT	N	0	0	10	30	0	0	0	0	0.07	67	40
4/08/3-81	N/A	F	50	S	0	0	0	30	0	30		30		100	90
4/08/3-82	0.001	M	SLIGHT	S	0	0	10	30	10	0	0	30	0.05	67	80
4/08/3-83	0.001	F	NO	N	0	0	10	30	0	0	0	0	0.04	100	40
4/08/3-84	<0.001	M	SLIGHT	S	0	0	10	30	0	30	0	30		67	100
4/08/3-85	N/A	F	50	S	0	0	10	30	0	30	0	30		67	100
4/08/3-86	0.002	M	COMP	N	0	0	10	30	10	30	0	0	0.06	67	80
4/08/3-87	0.002	F	COMP	S	0	0	10	30	0	30	0	30	0.07	67	100
4/08/3-88	0.001	M	SLIGHT	S	0	30	20	30	10	0	0	30	0.06	67	120
4/08/3-89	0.002	M	COMP	S	0	0	10	30	0	30	0	30	0.08	67	100
4/08/3-90	N/A	F	50	N	0	0	0	30	10	30	0	0		67	70
4/08/3-91	N/A	F	SLIGHT	S	0	0	10	30	0	0	0	30		67	70
4/08/3-92	0.004	M	50	N	0	0	30	30	0	30	0	0	0.14	100	90
4/08/3-93	<0.001	M	50	N	0	0	0	30	0	0	0	0		67	30
4/08/3-94	0.004	M	NO	N	0	0	10	30	0	0	0	0	0.17	67	40
4/08/3-95	0.003	F	50	S	0	0	10	30	0	30	0	30	0.11	67	100

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
4/08/3-96	0.006	M	SLIGHT	N	0	0	10	30	0	30	30	0	0.27	67	100
4/08/3-97	<0.001	M	SLIGHT	N	0	0	10	30	0	0	0	0		67	40
4/08/3-98	<0.001	F	SLIGHT	S	0	0	10	30	0	30	0	30		67	100
4/08/3-99	<0.001	F	SLIGHT	S	0	0	10	30	0	30	0	30		67	100
4/08/4-70	<0.001	M	SLIGHT	N	0	0	30	30	10	0	0	0		100	70
4/08/4-71	N/A	M	50	N	0	0	10	30	0	30	0	0		100	70
4/08/4-72	0.002	M	50	N	0	0	10	0	0	0	0	0	0.16	67	10
4/08/4-73	N/A	M	SLIGHT	S	0	0	10	30	0	0	0	30		100	70
4/08/4-74	0.004	M	50	S	0	0	0	30	0	0	0	30	0.19	67	60
4/08/4-75	<0.001	F	50	S	0	0	10	30	0	0	0	30		67	70
4/08/4-76	<0.001	M	50	N	0	0	10	30	0	0	0	0		67	40
4/08/4-77	<0.001	F	NO	S	0	0	10	30	0	0	0	30		67	70
4/08/4-78	N/A	F	SLIGHT	S	0	0	10	30	0	0	0	30		67	70
4/08/4-79	0.003	M	NO	S	0	0	30	30	10	0	0	30	0.21	67	100
4/08/4-80	0.001	M	SLIGHT	N	0	0	10	30	0	0	0	0	0.05	67	40
4/08/4-81	0.003	M	NO	N	0	0	0	30	30	0	0	0	0.17	67	60
4/08/4-82	<0.001	M	NO	N	0	0	10	30	0	0	0	0		100	40
4/08/4-83	<0.001	F	COMP	N	0	0	10	30	0	0	0	0		100	40
4/08/4-84	<0.001	F	SLIGHT	S	0	0	10	30	0	0	0	30		67	70
4/08/4-85	N/A	F	SLIGHT	N	0	0	10	30	0	0	0	0		67	40
4/08/4-86	0.003	M	NO	S	0	0	10	30	0	0	0	30	0.20	67	70
4/08/4-87	0.002	F	SLIGHT	N	0	0	10	30	0	0	0	0	0.16	67	40
4/08/4-88	<0.001	F	50	S	0	0	10	0	30	30	0	30		67	100
4/08/4-89	<0.001	F	SLIGHT	N	0	0	10	0	0	0	0	0		67	10
4/08/4-90	0.001	M	50	N	0	0	10	30	0	0	0	0	0.06	67	40
4/08/4-91	N/A	M	SLIGHT	N	0	0	10	30	0	30	0	0		100	70
4/08/4-92	N/A	M	NO	S	0	0	10	0	0	30	0	30		67	70
4/08/4-93	<0.001	F	SLIGHT	N	0	0	10	30	0	0	0	0		67	40
4/08/4-94	0.003	M	SLIGHT	N	0	0	10	0	0	0	0	0	0.10	67	10
4/08/4-95	<0.001	F	SLIGHT	N	0	0	10	30	0	0	0	0		67	40
4/08/4-96	<0.001	M	SLIGHT	N	0	0	10	30	0	0	0	0		67	40
4/08/4-97	<0.001	F	SLIGHT	N	0	0	10	0	0	0	0	0		67	10
4/08/4-98	<0.001	F	NO	N	0	0	10	30	0	30	0	0		100	70
4/08/4-99	<0.001	F	NO	N	0	0	10	0	0	0	0	0		100	10
4/08/6-70	<0.001	M	NO	S	0	0	10	30	0	0	0	30		67	70
4/08/6-71	0.004	F	NO	N	0	0	10	0	0	0	0	0	0.16	100	10
4/08/6-72	N/A	F	NO	OT	0	0	10	0	0	0	0	30		67	40
4/08/6-73	N/A	F	NO	N	0	0	0	0	0	0	0	0		67	0
4/08/6-74	N/A	F	NO	N	0	0	10	0	0	0	0	0		100	10
4/08/6-75	0.003	F	NO	N	0	0	10	0	0	0	0	0	0.14	67	10
4/08/6-76	0.001	F	NO P	N	0	0	10	0	30	0	0	0	0.05	100	40
4/08/6-77	0.001	F	SLIGHT	N	0	0	10	30	0	0	0	0	0.04	100	40
4/08/6-78	0.003	F	COMP	N	0	0	10	0	0	30	0	0	0.06	67	40
4/08/6-79	N/A	F	NO	N	0	0	10	30	0	0	0	0		100	40
4/08/6-80	0.002	M	50	N	0	0	10	30	0	30	0	0	0.08	67	70

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
4/08/6-81	N/A	F	NO	N	0	0	10	30	0	0	0	0		100	40
4/08/6-82	N/A	F	NO	N	0	0	10	30	0	0	0	0		100	40
4/08/6-83	0.002	M	NO	S	0	30	10	30	0	30	30	30	0.06	100	160
4/08/6-84	0.003	M	NO	N	0	0	10	0	0	0	0	0	0.12	67	10
7/08/1-70	N/A	M	SLIGHT	S	0	0	10	30	20	0	0	30		67	90
7/08/1-71	N/A	M	SLIGHT	S	0	0	10	0	0	0	0	30		67	40
7/08/1-72	N/A	F	SLIGHT	S	0	0	0	0	0	0	0	30		67	30
7/08/1-73	N/A	M	SLIGHT	S	0	0	20	30	0	0	30	30		67	110
7/08/1-74	N/A	F	50	S	0	0	10	0	0	0	30	30		100	70
7/08/1-75	N/A	F	SLIGHT	S	0	0	10	30	0	0	30	30		67	100
7/08/1-76	N/A	M	SLIGHT	N	0	0	10	30	0	0	0	0		100	40
7/08/1-77	0.005	F	SLIGHT	S	0	0	10	0	0	0	0	30	0.20	67	40
7/08/1-78	0.005	F	NO	N	0	0	10	0	0	0	30	0	0.15	67	40
7/08/1-79	N/A	M	NO	N	0	0	10	0	0	0	0	0		67	10
7/08/1-80	N/A	F	NO	N	0	0	10	0	0	0	0	0		67	10
7/08/1-81	N/A	F	NO	S	0	0	0	0	0	0	0	30		67	30
7/08/1-82	0.008	M	COMP	S	0	0	10	30	0	0	0	30	0.23	33	70
7/08/1-83	N/A	F	SLIGHT	S	0	0	10	30	0	0	0	30		67	70
7/08/1-84	N/A	F	NO	N	0	0	10	0	0	0	0	0		33	10
7/08/1-85	0.008	F	50	N	0	0	10	0	0	0	0	0	0.31	33	10
7/08/1-86	0.005	F	NO	N	0	0	10	0	0	0	0	0	0.26	33	10
7/08/1-87	0.005	F	50	N	0	0	10	30	0	0	0	0	0.31	33	40
7/08/1-88	N/A	F	SLIGHT	S	0	0	10	30	10	30	0	30		67	110
7/08/1-89	N/A	M	SLIGHT	N	0	0	10	30	0	0	0	0		33	40
7/08/1-90	N/A	F	SLIGHT	S	0	0	0	30	0	0	0	30		33	60
7/08/1-91	N/A	M	NO	S	0	0	10	0	0	0	0	30		33	40
7/08/1-92	N/A	F	NO	N	0	0	0	0	0	0	0	0		33	0
7/08/1-93	0.011	M	SLIGHT	N	0	0	10	30	0	0	30	0	0.55	100	70
7/08/1-94	0.008	F	NO	S	0	0	10	30	0	0	0	30	0.36	33	70
7/08/1-95	N/A	F	SLIGHT	N	0	0	10	0	0	0	0	0		67	10
7/08/1-96	0.008	M	SLIGHT	N	0	0	10	0	0	0	0	0	0.35	33	10
7/08/1-97	0.007	F	SLIGHT	N	0	0	10	0	0	0	0	0	0.38	33	10
7/08/1-98	N/A	M	NO	S	0	0	10	0	0	0	0	30		33	40
7/08/1-99	N/A	M	NO	N	0	0	20	0	0	0	0	0		33	20
7/08/2-70	N/A	F	SLIGHT	S	0	0	10	30	0	0	0	30		67	70
7/08/2-71	N/A	F	SLIGHT	S	0	0	10	30	0	30	0	30		67	100
7/08/2-72	N/A	M	50	S	0	0	10	30	0	0	0	30		33	70
7/08/2-73	N/A	F	SLIGHT	S	0	0	10	30	0	0	0	30		67	70
7/08/2-74	N/A	M	SLIGHT	S	0	0	10	0	0	0	0	30		67	40
7/08/2-75	N/A	F	COMP	S	0	0	10	30	0	30	0	30		67	100
7/08/2-76	N/A	M	50	S	0	0	10	30	0	0	0	30		67	70
7/08/2-77	0.008	F	50	S	0	0	0	0	0	30	30	30	0.31	67	90
7/08/2-78	0.007	F	50	S	0	0	10	30	0	0	0	30	0.33	67	70
7/08/2-79	0.001	F	50	S	0	0	10	30	0	0	0	30	0.05	67	70
7/08/2-80	0.008	M	NO	N	0	0	10	30	0	30	30	0	0.36	67	100

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
7/08/2-81	0.009	F	COMP	N	0	0	10	30	0	0	30	0	0.38	67	70
7/08/2-82	N/A	M	SLIGHT	N	0	0	10	30	0	30	0	0		100	70
7/08/2-83	0.004	M	SLIGHT	S	0	0	10	30	0	30	0	30	0.21	33	100
7/08/2-84	N/A	M	NO	N	0	0	10	30	0	0	0	0		33	40
7/08/2-85	N/A	F	SLIGHT	S	0	0	10	30	0	30	0	30		33	100
7/08/2-86	0.005	M	COMP	N	0	0	10	30	0	0	0	0	0.18	33	40
7/08/2-87	N/A	M	SLIGHT	S	0	0	10	30	10	0	0	30		67	80
7/08/2-88	<0.001	F	50	N	0	0	10	30	0	0	0	0		100	40
7/08/2-89	0.008	F	NO	N	0	0	10	30	0	0	30	0	0.34	33	70
7/08/2-90	N/A	F	NO	N	0	0	0	30	0	0	0	0		100	30
7/08/2-91	0.009	M	50	N	0	0	10	30	0	0	30	0	0.48	100	70
7/08/2-92	0.009	F	SLIGHT	N	0	0	0	30	0	0	30	0	0.38	100	60
7/08/2-93	0.003	F	SLIGHT	S	0	0	10	30	0	0	0	30	0.12	33	70
7/08/2-94	N/A	M	COMP	S	0	0	20	30	0	30	0	30		33	110
7/08/2-95	0.004	F	NO	N	0	0	10	30	0	0	0	0	0.21	33	40
7/08/3-70	N/A	F	SLIGHT	S	0	0	0	30	10	0	0	30		67	70
7/08/3-71	N/A	F	50	S	0	0	10	30	0	30	0	30		67	100
7/08/3-72	N/A	F	50	S	0	0	10	30	0	30	0	30		67	100
7/08/3-73	N/A	F	COMP	S	0	0	10	0	10	0	0	30		67	50
7/08/3-74	N/A	F	50	S	0	0	10	30	0	30	30	30		100	130
7/08/3-75	N/A	F	COMP	S	0	0	10	30	0	30	0	30		67	100
7/08/4-70	N/A	F	SLIGHT	N	0	30	10	30	10	0	0	0		100	80
7/08/4-71	N/A	F	50	N	0	0	10	30	0	0	0	0		100	40
7/08/4-72	N/A	M	SLIGHT	N	0	0	10	0	0	0	0	0		100	10
7/08/4-73	N/A	F	NO	S	0	0	10	30	10	0	0	30		100	80
7/08/4-74	N/A	M	NO	N	0	30	10	0	0	0	0	0		100	40
7/08/4-75	N/A	M	SLIGHT	S	0	0	10	30	0	0	30	30		100	100
7/08/4-76	N/A	F	NO	N	0	0	10	30	0	0	0	0		100	40
7/08/4-77	N/A	F	50	N	0	0	10	30	0	0	0	0		100	40
7/08/4-78	N/A	I	NO	N	0	0	10	30	0	0	0	0		100	40
7/08/4-79	N/A	M	SLIGHT	N	0	0	10	30	0	0	0	0		100	40
7/08/4-80	N/A	I	NO	N	0	0	10	30	0	0	0	0		100	40
7/08/4-81	0.016	F	NO	N	0	0	10	30	0	0	30	0	0.32	100	70
7/08/4-82	0.006	F	NO	N	0	0	10	30	0	0	0	0	0.28	67	40
7/08/4-83	0.002	F	NO	N	0	0	10	30	0	0	0	0	0.08	67	40

Appendix 2I. Fish Health Assessment Observations for the Rio Grande Silvery Minnow Health Study 2006-2008. [See Table 1 for site information and Appendix 2B for acronyms]

SampleID	Spleen Weight (g)	Gonads	Meserteric Fat (%)	Kidney	Eye Score	Skin Score	Opercle Score	Gill Score	Fin Score	Liver Score	Spleen Score	Kidney Score	Splenosomatic Index	Feeding Index	HAI Score
7/08/4-84	0.004	M	SLIGHT	N	0	0	10	30	0	0	0	0	0.13	100	40
7/08/4-85	0.001	M	NO	S	0	0	10	30	0	0	0	30	0.05	100	70
7/08/4-86	N/A	I	NO	N	0	0	10	30	0	0	0	0		67	40
7/08/4-87	N/A	I	NO	N	0	0	10	30	0	0	0	0		100	40
7/08/4-88	N/A	I	NO	N	0	0	10	30	0	0	0	0		67	40
7/08/4-89	N/A	I	NO	N	0	0	10	30	0	0	0	0		33	40
7/08/5-70	N/A	I	SLIGHT	S	0	0	0	30	0	30	0	30		67	90
7/08/5-71	N/A	I	NO	S	0	0	0	0	0	0	0	30		100	30
7/08/5-72	N/A	I	NO	N	0	0	10	30	0	30	30	0		67	100
7/08/5-73	N/A	I	NO	N	0	0	0	0	0	30	0	0		100	30
7/08/5-74	N/A	I	NO	N	0	0	10	30	0	30	0	0		100	70
7/08/5-75	N/A	I	NO	N	0	0	10	30	0	0	0	0		100	40
7/08/5-76	N/A	I	NO	N	0	0	10	30	0	0	0	0		67	40
7/08/5-77	N/A	I	NO	N	0	0	10	30	0	0	0	0		100	40
7/08/5-78	N/A	I	NO	N	0	0	10	30	0	0	0	0		100	40
7/08/6-70	N/A	I	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
7/08/6-71	N/A	I	SLIGHT	N	0	0	0	0	0	30	0	0		67	30
7/08/6-72	N/A	I	SLIGHT	N	0	0	10	0	0	30	0	0		67	40
7/08/6-73	N/A	I	COMP	N	0	0	10	30	0	30	0	0		67	70
7/08/6-74	N/A	I	COMP	N	0	0	10	30	30	0	0	0		67	70
7/08/6-75	N/A	I	50	N	0	0	0	0	0	30	0	0		67	30
7/08/6-76	N/A	I	50	S	0	30	0	30	0	30	0	30		67	120
7/08/6-77	N/A	I	COMP	S	0	0	10	30	10	30	0	30		100	110
7/08/6-78	N/A	I	50	N	0	0	10	30	0	30	0	0		67	70
7/08/6-79	N/A	I	50	N	0	0	10	30	10	30	0	0		100	80
7/08/6-80	N/A	I	SLIGHT	N	0	0	10	30	0	30	0	0		67	70
7/08/6-81	N/A	I	SLIGHT	S	0	0	0	30	10	30	0	30		67	100
7/08/6-82	N/A	I	50	S	0	0	30	30	0	30	0	30		33	120
7/08/6-83	N/A	I	50	N	0	0	10	30	0	30	0	0		100	70
7/08/6-84	N/A	I	SLIGHT	N	0	0	10	30	10	30	0	0		67	80
7/08/6-85	N/A	I	COMP	N	0	0	10	30	30	30	0	0		100	100
7/08/6-86	N/A	I	SLIGHT	N	0	0	10	30	0	30	0	0		100	70
7/08/6-87	N/A	I	SLIGHT	N	0	0	10	30	0	30	0	0		100	70
7/08/6-88	N/A	I	COMP	S	0	0	0	0	0	30	0	30		67	60
7/08/6-89	N/A	I	SLIGHT	N	0	0	10	30	0	30	0	0		33	70
7/08/6-90	N/A	I	50	S	0	0	10	30	30	30	30	30		33	160
7/08/6-91	N/A	I	50	N	0	0	10	30	0	30	30	0		33	100
7/08/6-92	N/A	I	SLIGHT	N	0	0	10	30	0	30	0	0		33	70
7/08/6-93	N/A	I	SLIGHT	N	0	0	10	30	0	30	30	0		33	100
7/08/6-94	N/A	I	NO	N	0	0	10	30	0	30	0	0		33	70
7/08/6-95	N/A	I	NO	N	0	0	10	30	0	30	0	0		33	70
7/08/6-96	N/A	I	50	N	0	0	10	0	20	30	0	0		67	60
7/08/6-97	N/A	I	NO	N	0	0	10	30	0	30	0	0		67	70
7/08/6-98	N/A	I	NO	S	0	0	10	30	0	30	0	30		67	100
7/08/6-99	N/A	I	SLIGHT	S	0	0	0	30	0	30	0	30		67	90

Plates 1-58. Rio Grande Silvery Minnow during Fish Health Assessments for the Rio Grande Silvery Minnow Health Study. All photography by Anne P. Davis/ USFWS.

July 2006:

Plate 1. Fish 07/06/2-91. Hemorrhagic eye.

Plate 2. Fish 07/06/1-74. Swollen lip with lesion.

Plate 3. Fish 07/06/1-79. Shortened opercula.

Plate 4. Fish 07/06/5-88. Shortened opercula.

Plate 5. Fish 07/06/4-70. Frayed and deformed gills; reduced size.

Plate 6. Fish 07/06/2-76. Spots on gills.

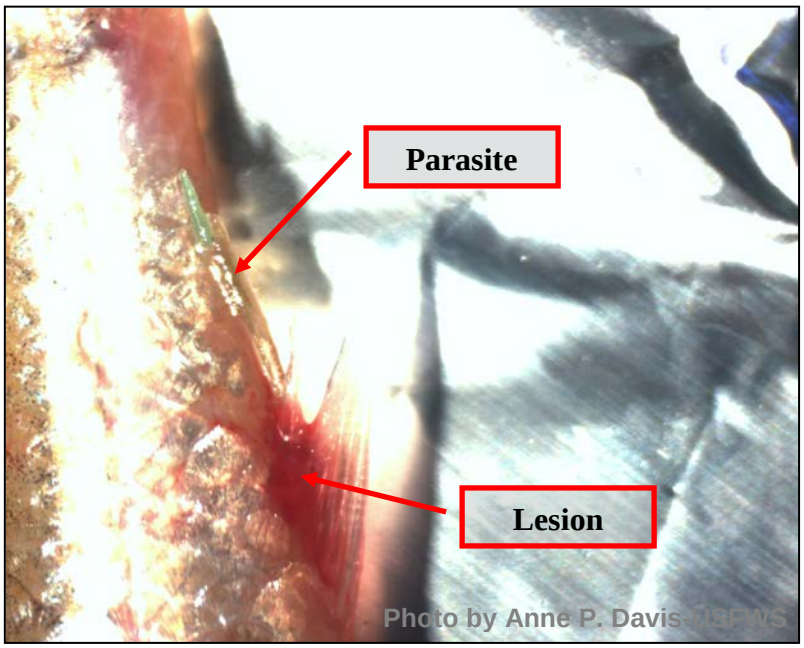

Plate 7. Fish 07/06/4-88. Parasite on dorsal fin; lesion at base of dorsal fin.

Plate 8. Fish 07/06/3-80. Dorsal fin lesion; VIE tag.

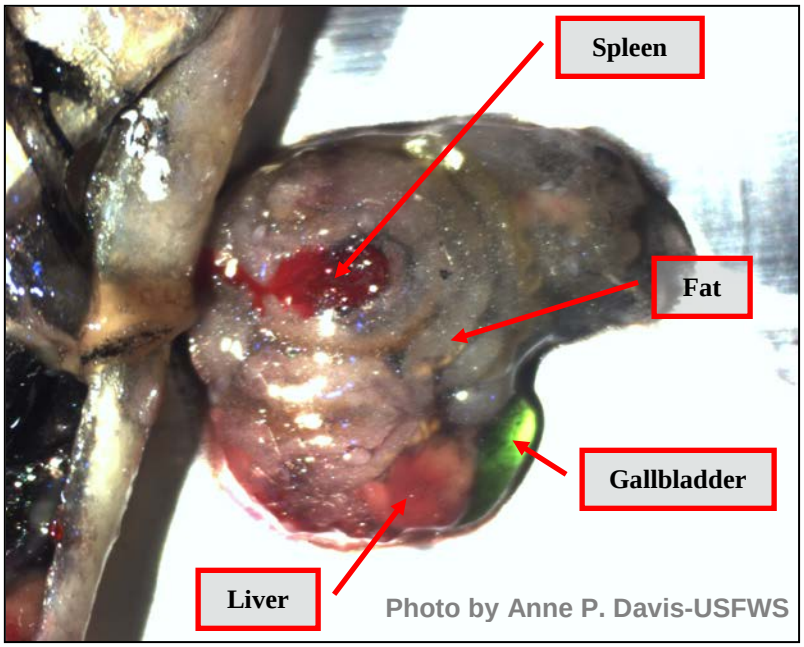

Plate 9. Fish 07/06/5-71. Viscera.

Plate 10. Fish 07/06/5-88. Viscera.

Plate 11. Fish 07/06/5-73. Female gonads.

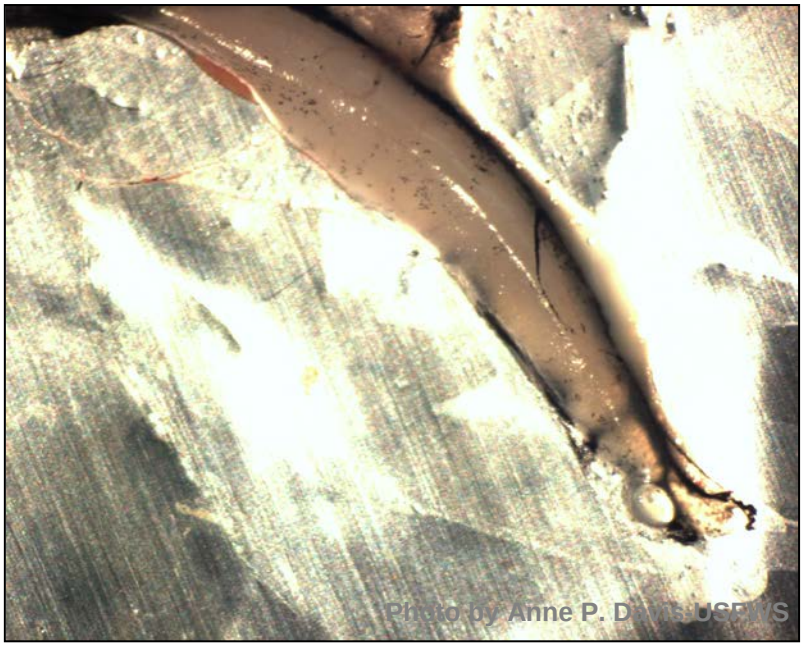

Plate 12. Fish 07/06/3-77. Male gonads.

October 2006:

Plate 13. Fish 10/06/1-87. Severely eroded caudal fin.

Plate 14. Fish 10/06/3-87. Severely eroded caudal fin.

Plate 15. Fish 10/06/4-73. Shortened opercula.

Plate 16. Fish 10/06/4-75. Shortened opercula.

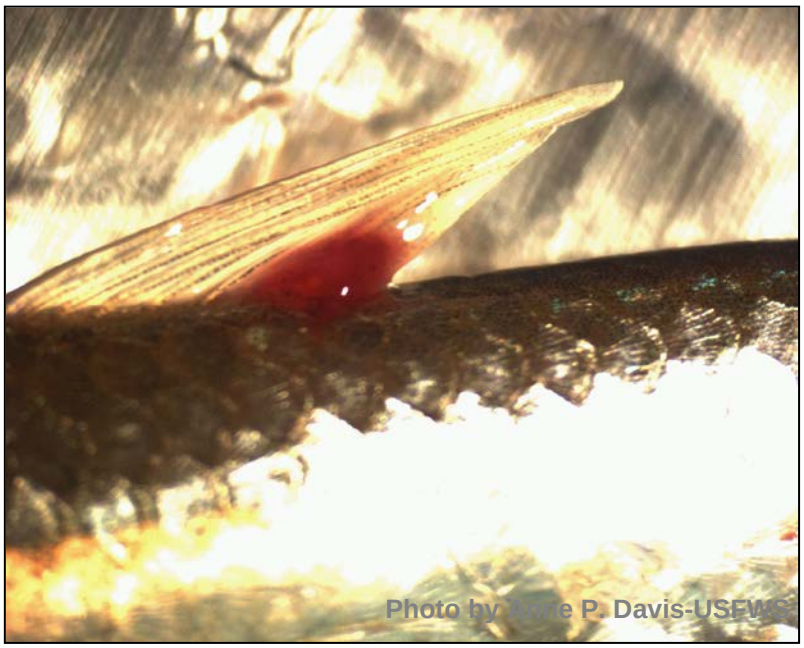

Plate 17. Fish 10/06/4-84. Dorsal fin lesion.

Plate 18. Fish 10/06/5-88. Caudal fin lesion.

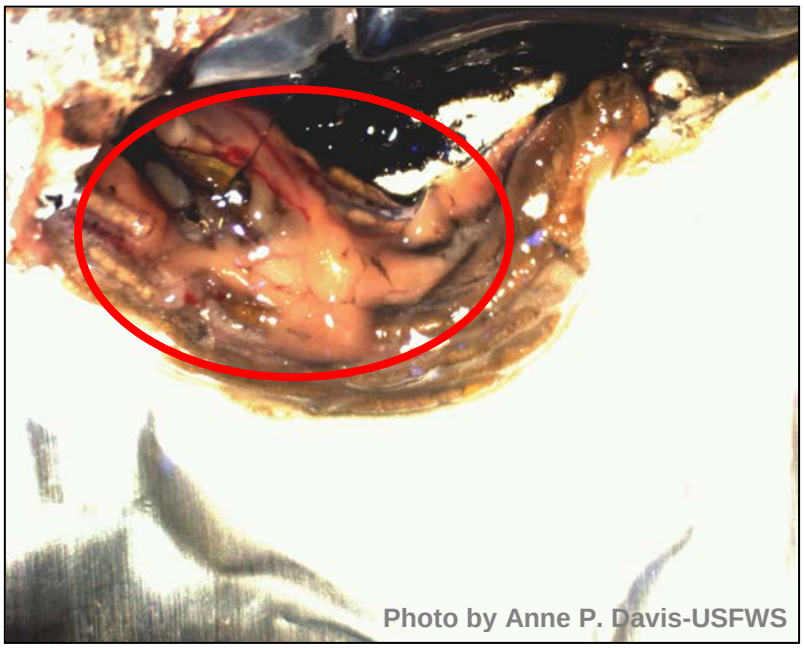

Plate 19. Fish 10/06/2-75. Tan (fatty) liver.

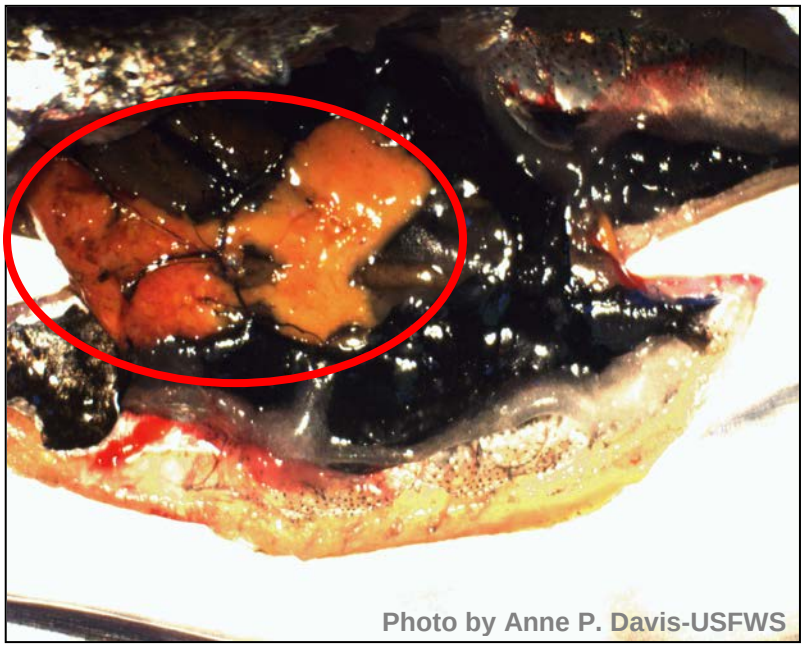

Plate 20. Fish 10/06/4-84. Discolored liver.

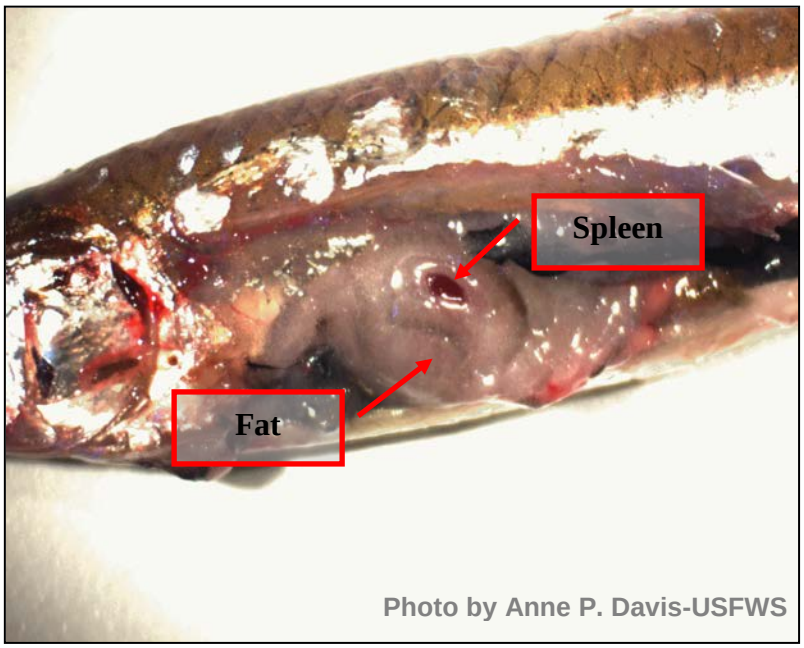

Plate 21. Fish 10/06/3-81. Mesenteric fat content; organs completely encased in fat.

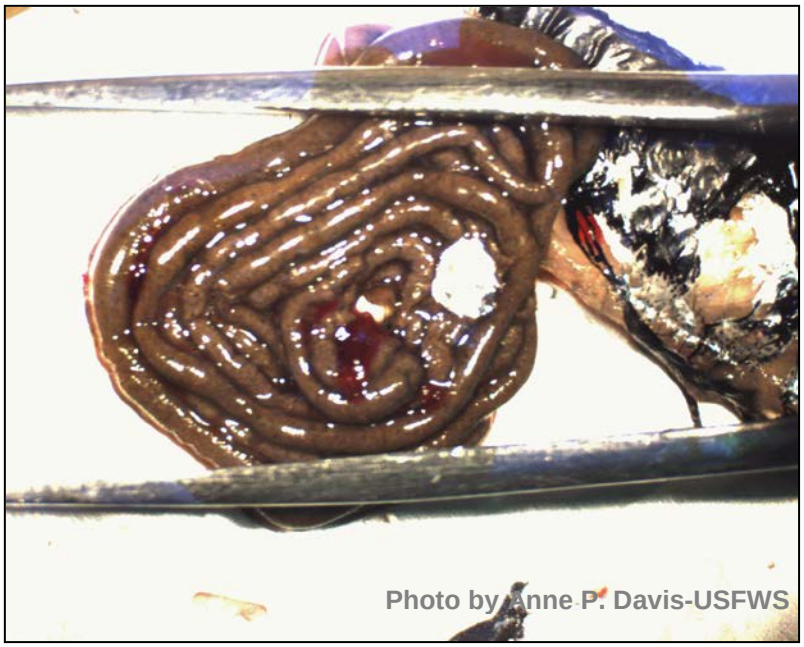

Plate 22. Fish 10/06/1-72. Full gut; no fat content.

Plate 23. Fish 10/06/5-70. Nodular spleen.

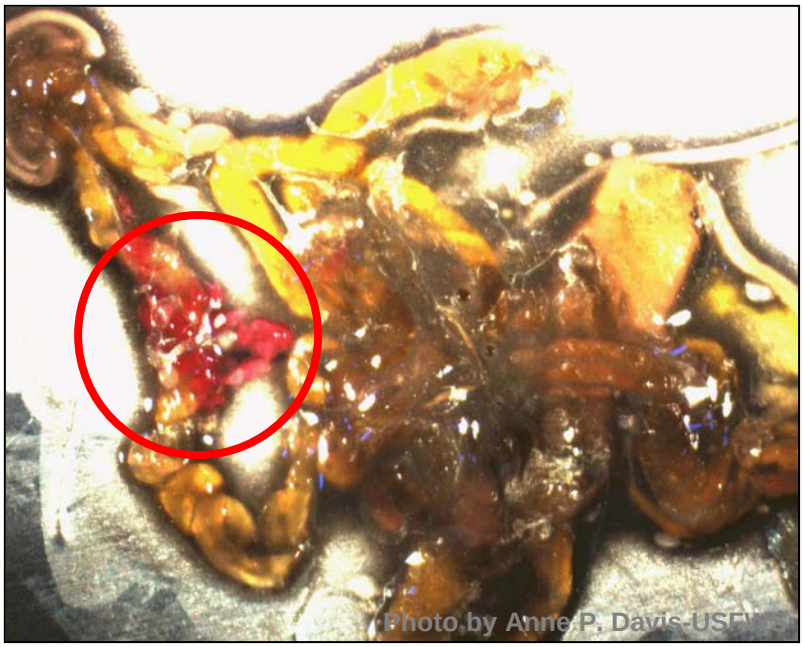

Plate 24. Fish 10/06/4-74. Nodular spleen.

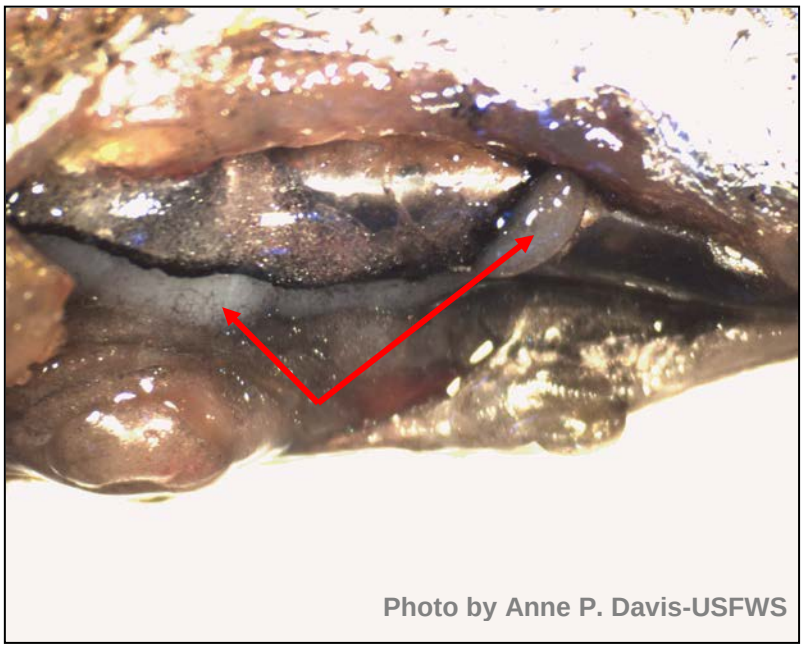

Plate 25. Fish 10/06/1-76. Male gonad tissue.

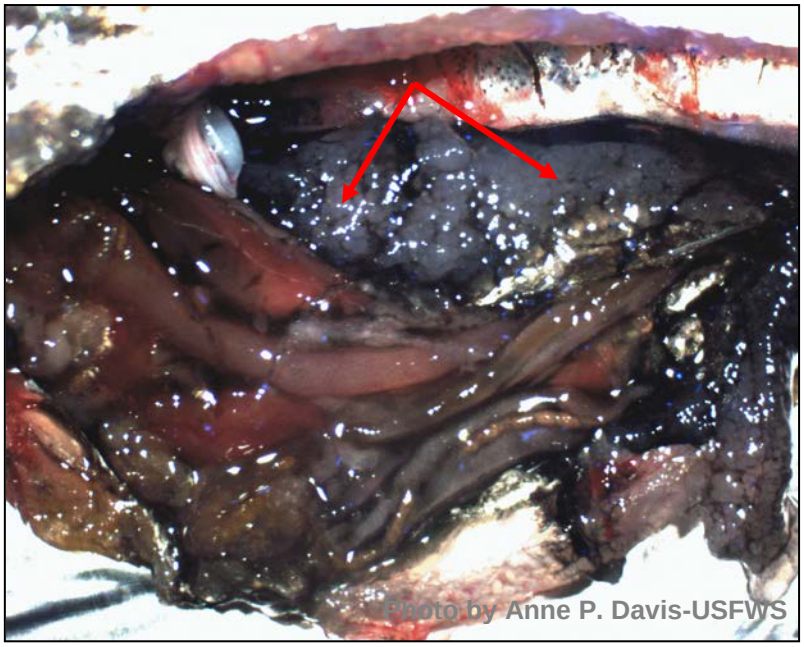

Plate 26. Fish 10/06/3-70. Female gonad tissue.

Plate 27. Fish 10/06/4-74. Swollen kidney.

Plate 28. Fish 10/06/5-76. Swollen kidney.

January 2007:

Plate 29. Fish 1/07/5-92. Severely eroded caudal fin with secondary infection.

Plate 30. Fish 1/07/3-84. Severely eroded caudal fin with secondary infection.

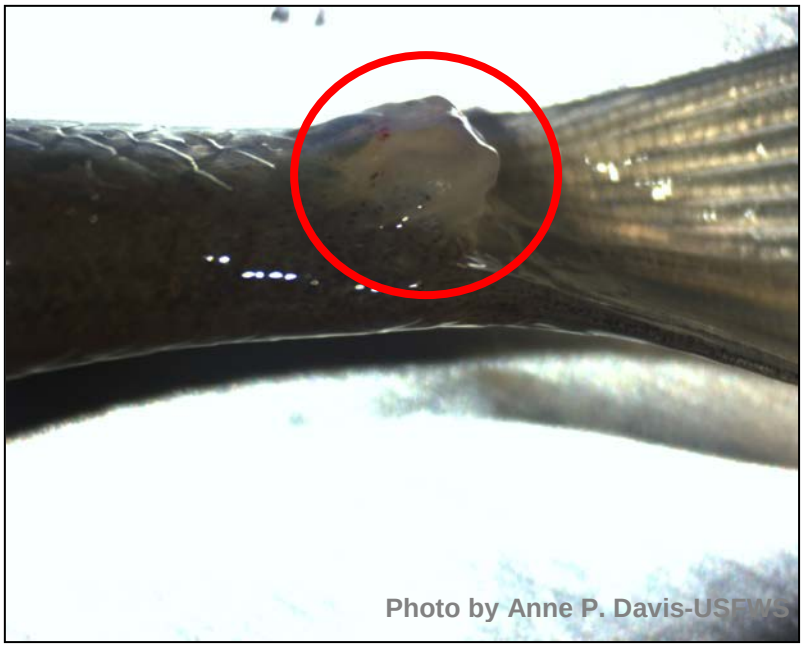

Plate 31. Fish 1/07/3-97. Tumor.

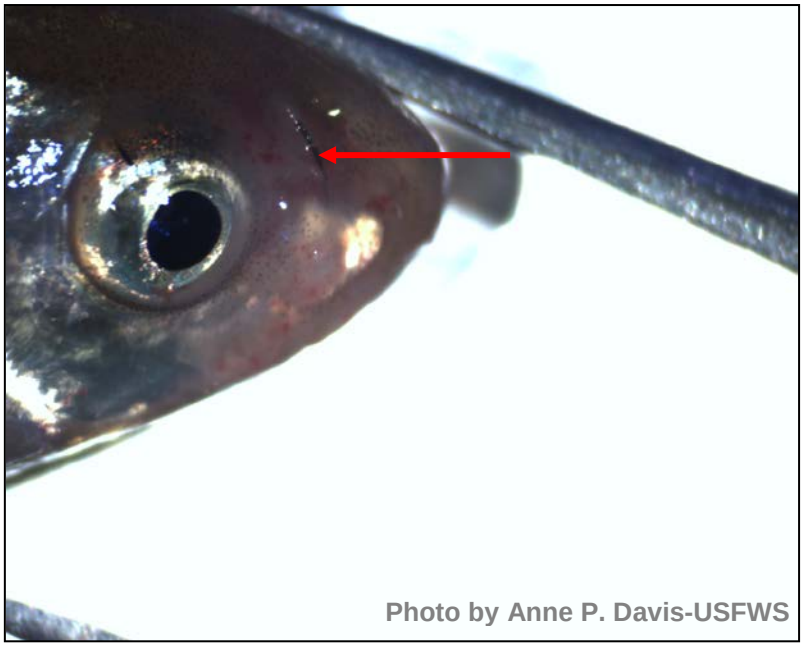

Plate 32. Fish 1/07/6-84. Parasite.

Plate 33. Fish 1/07/6-83. Pectoral fin lesion.

Plate 34. Fish 1/07/6-96. Anal fin lesion.

Plate 35. Fish 1/07/3-70. Shortened opercula.

Plate 36. Fish 1/07/5-73. Clubbed gills.

Plate 37. Fish 1/07/5-95. Cysts (parasites) throughout mesentery.

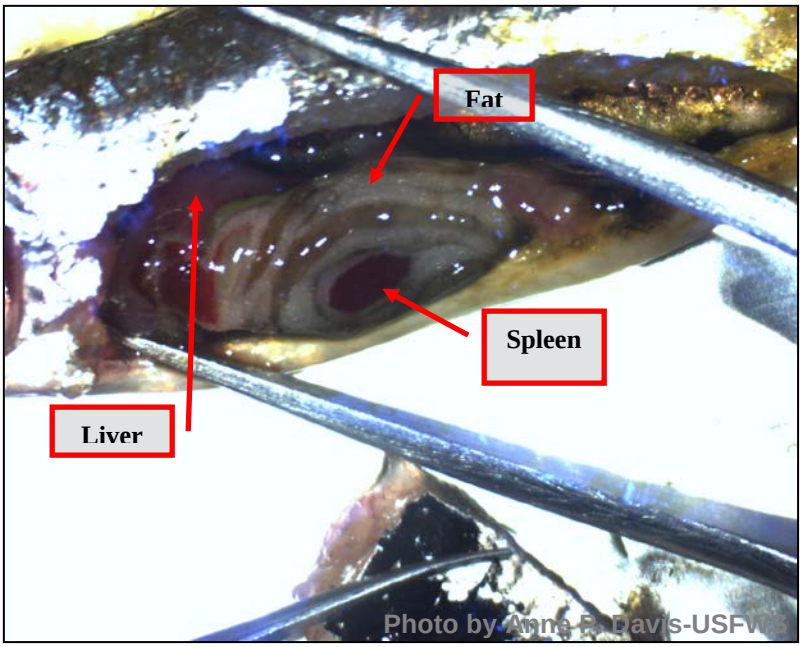

Plate 38. Fish 1/07/6-73. Viscera.

Plate 39. Fish 1/07/5-72. Eggs.

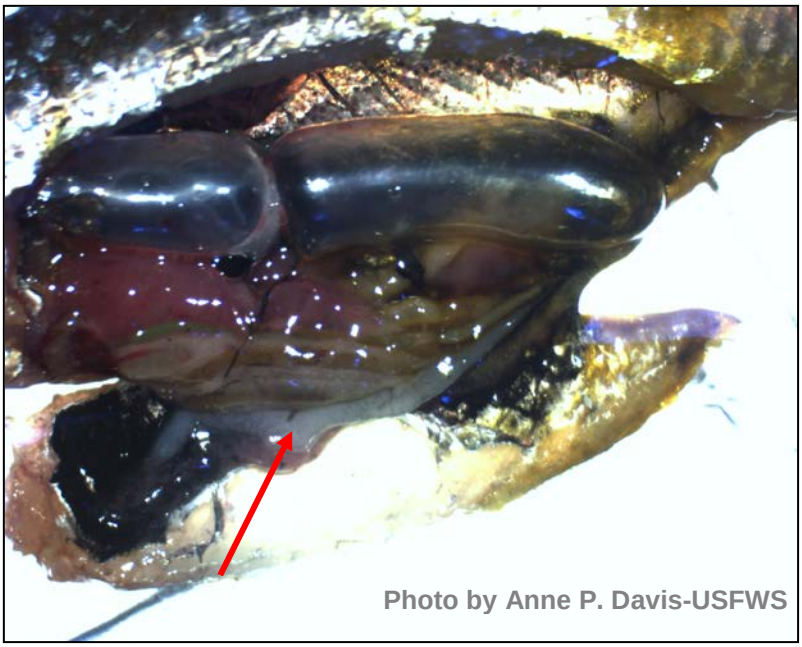

Plate 40. Fish 1/07/6-76. Male gonads.

April 2007:

Plate 41. Fish 4/07/4-83. Severely eroded caudal fin.

Plate 42. Fish 4/07/2-92. Hemorrhagic eye.

Plate 43. Fish 4/07/4-80. Lesion on upper lip.

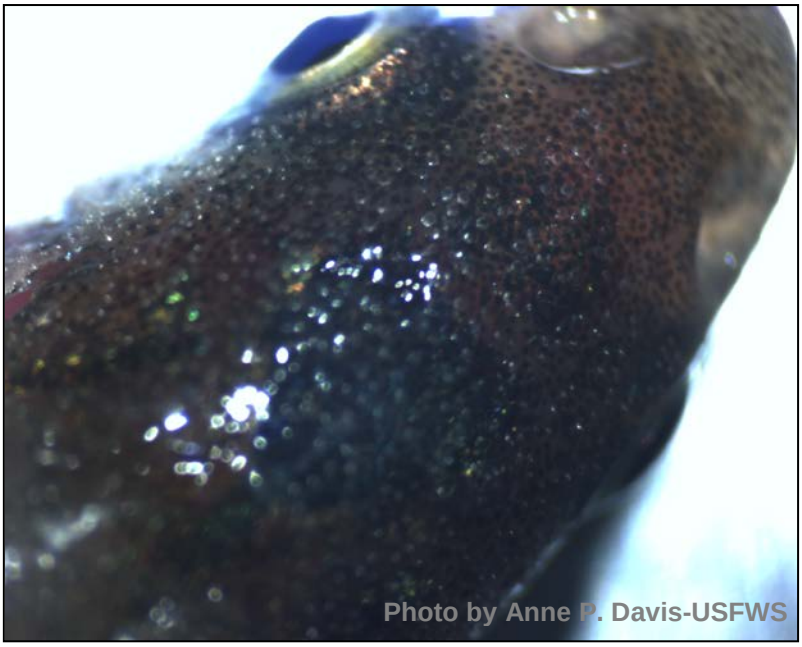

Plate 44. Fish 4/07/3-78. Tubercles.

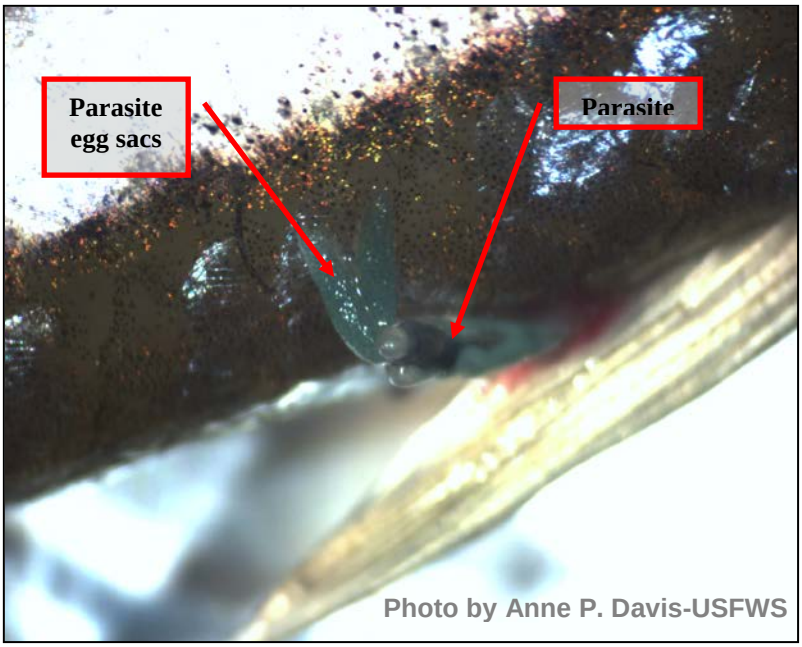

Plate 45. Fish 4/07/4-75. Parasite (with lesion at base of dorsal fin).

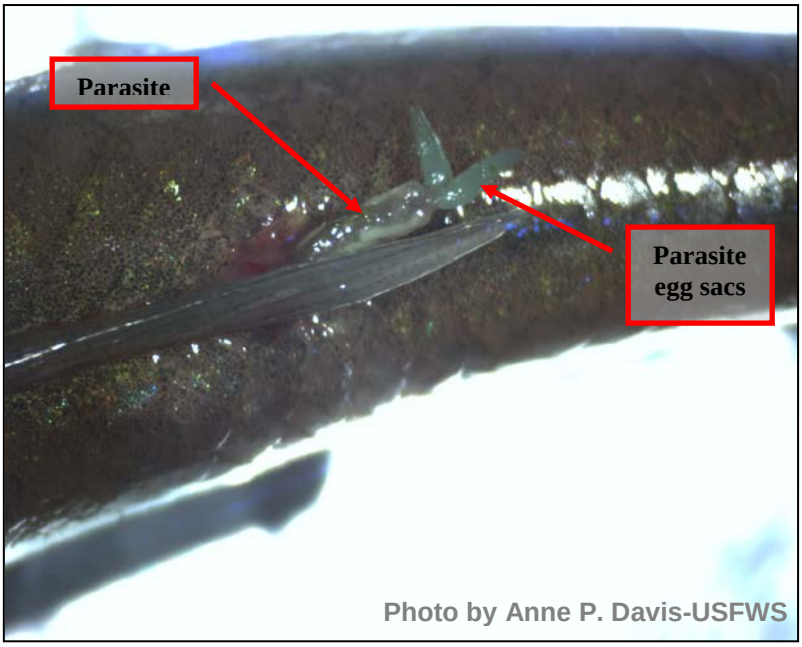

Plate 46. Fish 4/07/4-81. Parasite (with lesion at base of dorsal fin).

Plate 47. Fish 4/07/1-77. Shortened opercula.

Plate 48. Fish 4/07/5-75. Shortened opercula.

Plate 49. Fish 4/07/5-76. Shortened opercula.

Plate 50. Fish 4/07/5-84. Shortened opercula with lesion.

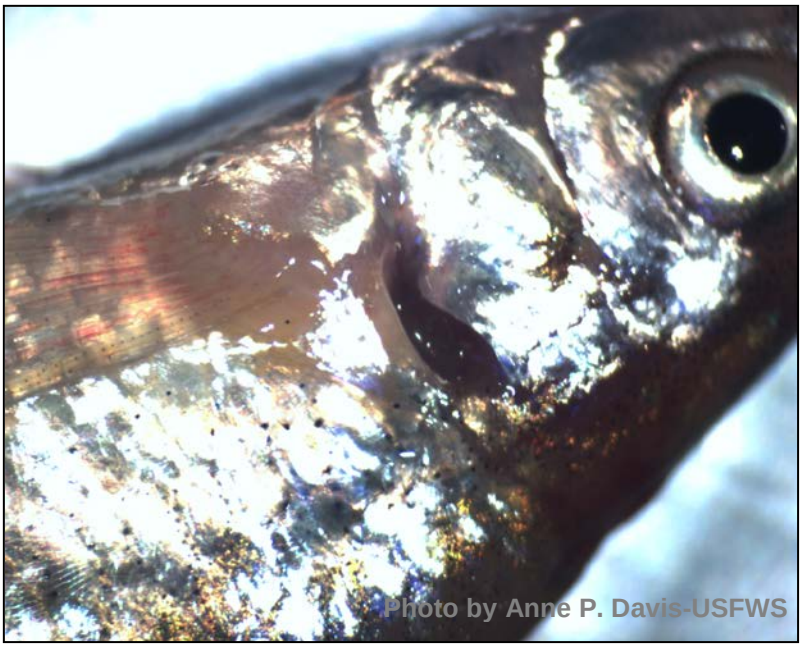

Plate 51. Fish 4/07/5-78. Shortened and deformed opercula.

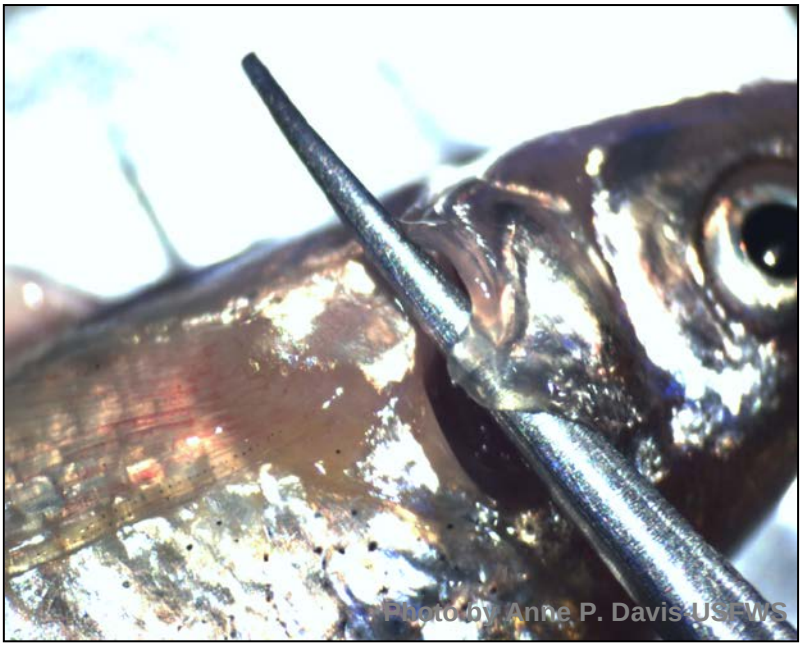

Plate 52. Fish 4/07/5-78. Shortened and deformed opercula detail.

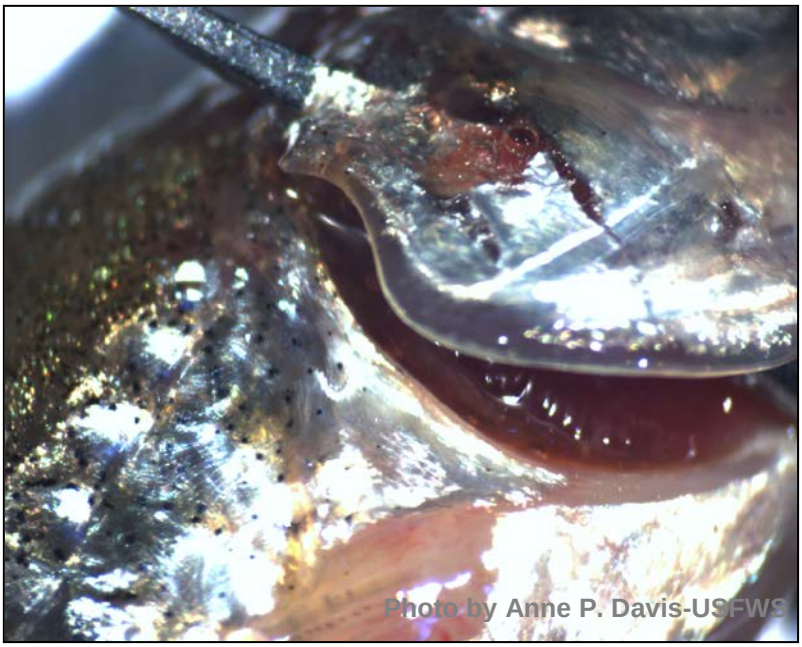

Plate 53. Fish 4/07/5-70. Shortened opercula.

Plate 54. Fish 4/07/5-70. Clubbed gills.

Plate 55. Fish 4/07/3-73. Eggs.

Plate 56. Fish 4/07/5-72. Eggs.

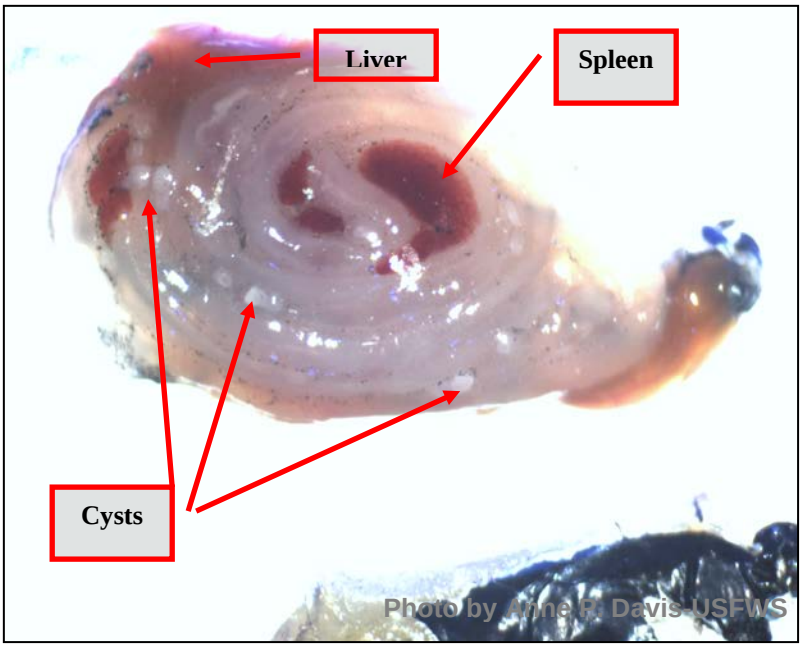

Plate 57. Fish 4/07/5-75. Viscera with cysts (parasites).

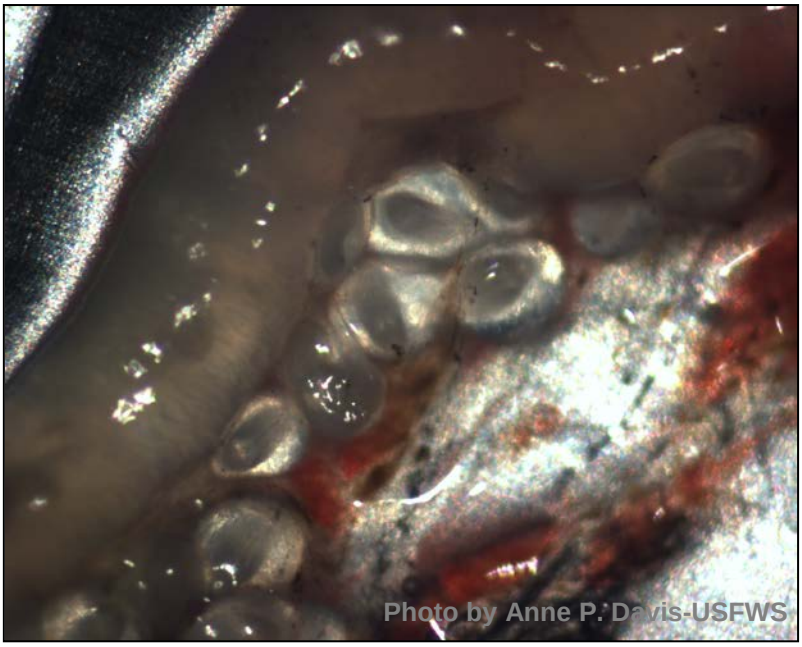

Plate 58. Fish 4/07/5-75. Cysts (parasites) detail.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
1	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
2	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
3	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
4	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
5	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
6	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
7	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
8	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
9	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
10	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
11	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
12	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
13	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
14	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
15	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
16	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
17	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
18	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
19	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
20	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
21	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
22	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
23	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
24	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
25	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
26	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
27	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
28	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
29	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
30	1171	19-Oct-1938	Palmer's Slough, Albuquerque.
1	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
2	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
3	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
4	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
5	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
6	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
7	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
8	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
9	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
10	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
11	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
12	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
13	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
14	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
15	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
16	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
17	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
18	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
19	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
20	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
21	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
22	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
23	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
24	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
25	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
26	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
27	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
28	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
29	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
30	1151	19-Jun-1939	Rio Grande at bridge, Bernardo.
1	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
2	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
3	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
4	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
5	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
6	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
7	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
8	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
9	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
10	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
11	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
12	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
13	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
14	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
15	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
16	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
17	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
18	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
19	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
20	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
21	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
22	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
23	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
24	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
25	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
26	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
27	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
28	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
29	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
30	1120	30-Jul-1940	Rio Felix at Highway 285 near Hagerman.
1	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
2	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
3	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
4	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
5	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
6	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
7	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
8	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
9	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
10	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
11	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
12	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
13	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
14	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
15	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
16	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
17	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
18	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
19	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
20	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
21	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
22	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
23	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
24	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
25	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
26	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
27	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
28	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
29	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
30	1162	14-Sep-1941	Rio Grande below Diversion dam, Albuquerque.
1	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
2	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
3	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
4	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
5	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
6	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
7	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
8	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
9	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
10	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
11	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
12	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
13	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
14	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
15	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
16	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
17	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
18	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
19	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
20	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
21	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
22	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
23	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
24	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
25	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
26	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
27	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
28	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
29	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.
30	1119	24-Jan-1942	Rio Grande on east side, 3 miles above Belen.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
1	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
2	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
3	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
4	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
5	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
6	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
7	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
8	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
9	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
10	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
11	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
12	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
13	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
14	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
15	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
16	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
17	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
18	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
19	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
20	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
21	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
22	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
23	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
24	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
25	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
26	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
27	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
28	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
29	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
30	1155	23-Jun-1943	Rio Grande at bridge, Bernalillo.
1	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
2	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
3	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
4	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
5	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
6	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
7	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
8	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
9	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
10	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
11	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
12	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
13	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
14	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
15	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
16	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
17	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
18	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
19	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
20	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
21	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
22	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
23	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
24	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
25	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
26	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
27	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
28	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
29	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
30	1130	29-Oct-1949	Rio Grande 3 miles below Isleta.
1	1125	30-Jun-1959	Just below Cochiti diversion dam.
2	1125	30-Jun-1959	Just below Cochiti diversion dam.
3	1125	30-Jun-1959	Just below Cochiti diversion dam.
4	1125	30-Jun-1959	Just below Cochiti diversion dam.
5	1125	30-Jun-1959	Just below Cochiti diversion dam.
6	1125	30-Jun-1959	Just below Cochiti diversion dam.
7	1125	30-Jun-1959	Just below Cochiti diversion dam.
8	1125	30-Jun-1959	Just below Cochiti diversion dam.
9	1125	30-Jun-1959	Just below Cochiti diversion dam.
10	1125	30-Jun-1959	Just below Cochiti diversion dam.
11	1125	30-Jun-1959	Just below Cochiti diversion dam.
12	1125	30-Jun-1959	Just below Cochiti diversion dam.
13	1125	30-Jun-1959	Just below Cochiti diversion dam.
14	1125	30-Jun-1959	Just below Cochiti diversion dam.
15	1125	30-Jun-1959	Just below Cochiti diversion dam.
16	1125	30-Jun-1959	Just below Cochiti diversion dam.
17	1125	30-Jun-1959	Just below Cochiti diversion dam.
18	1125	30-Jun-1959	Just below Cochiti diversion dam.
19	1125	30-Jun-1959	Just below Cochiti diversion dam.
20	1125	30-Jun-1959	Just below Cochiti diversion dam.
21	1125	30-Jun-1959	Just below Cochiti diversion dam.
22	1125	30-Jun-1959	Just below Cochiti diversion dam.
23	1125	30-Jun-1959	Just below Cochiti diversion dam.
24	1125	30-Jun-1959	Just below Cochiti diversion dam.
25	1125	30-Jun-1959	Just below Cochiti diversion dam.
26	1125	30-Jun-1959	Just below Cochiti diversion dam.
27	1125	30-Jun-1959	Just below Cochiti diversion dam.
28	1125	30-Jun-1959	Just below Cochiti diversion dam.
29	1125	30-Jun-1959	Just below Cochiti diversion dam.
30	1125	30-Jun-1959	Just below Cochiti diversion dam.
1	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
2	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
3	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
4	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
5	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
6	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
7	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
8	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
9	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
10	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
11	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
12	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
13	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
14	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
15	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
16	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
17	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
18	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
19	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
20	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
21	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
22	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
23	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
24	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
25	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
26	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
27	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
28	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
29	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
30	3961	6-Jun-1977	Rio Grande, approx. 2 mi NNE Corrales.
1	4338	10-Aug-1978	Rio Grande at Hwy 60.
2	4338	10-Aug-1978	Rio Grande at Hwy 60.
3	4338	10-Aug-1978	Rio Grande at Hwy 60.
4	4338	10-Aug-1978	Rio Grande at Hwy 60.
5	4338	10-Aug-1978	Rio Grande at Hwy 60.
6	4338	10-Aug-1978	Rio Grande at Hwy 60.
7	4338	10-Aug-1978	Rio Grande at Hwy 60.
8	4338	10-Aug-1978	Rio Grande at Hwy 60.
9	4338	10-Aug-1978	Rio Grande at Hwy 60.
10	4338	10-Aug-1978	Rio Grande at Hwy 60.
11	4338	10-Aug-1978	Rio Grande at Hwy 60.
12	4338	10-Aug-1978	Rio Grande at Hwy 60.
13	4338	10-Aug-1978	Rio Grande at Hwy 60.
14	4338	10-Aug-1978	Rio Grande at Hwy 60.
15	4338	10-Aug-1978	Rio Grande at Hwy 60.
16	4338	10-Aug-1978	Rio Grande at Hwy 60.
17	4338	10-Aug-1978	Rio Grande at Hwy 60.
18	4338	10-Aug-1978	Rio Grande at Hwy 60.
19	4338	10-Aug-1978	Rio Grande at Hwy 60.
20	4338	10-Aug-1978	Rio Grande at Hwy 60.
21	4338	10-Aug-1978	Rio Grande at Hwy 60.
22	4338	10-Aug-1978	Rio Grande at Hwy 60.
23	4338	10-Aug-1978	Rio Grande at Hwy 60.
24	4338	10-Aug-1978	Rio Grande at Hwy 60.
25	4338	10-Aug-1978	Rio Grande at Hwy 60.
26	4338	10-Aug-1978	Rio Grande at Hwy 60.
27	4338	10-Aug-1978	Rio Grande at Hwy 60.
28	4338	10-Aug-1978	Rio Grande at Hwy 60.
29	4338	10-Aug-1978	Rio Grande at Hwy 60.
30	4338	10-Aug-1978	Rio Grande at Hwy 60.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
1	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
2	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
3	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
4	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
5	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
6	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
7	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
8	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
9	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
10	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
11	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
12	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
13	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
14	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
15	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
16	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
17	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
18	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
19	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
20	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
21	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
22	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
23	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
24	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
25	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
26	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
27	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
28	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
29	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
30	4384	23-Sep-1978	Rio Grande, at Isleta Diversion Dam.
1	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
2	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
3	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
4	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
5	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
6	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
7	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
8	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
9	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
10	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
11	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
12	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
13	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
14	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
15	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
16	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
17	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
18	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
19	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
20	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
21	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
22	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
23	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
24	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
25	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
26	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
27	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
28	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
29	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
30	5730	8-Oct-1986	Rio Grande, at NM State HWY 6/49 bridge, Los Lunas.
1	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
2	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
3	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
4	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
5	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
6	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
7	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
8	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
9	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
10	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
11	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
12	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
13	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
14	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
15	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
16	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
17	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
18	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
19	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
20	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
21	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
22	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
23	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
24	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
25	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
26	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
27	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
28	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
29	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
30	5934	16-Sep-1987	Rio Grande, directly below San Acacia Diversion Dam, San Acacia.
1	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
2	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
3	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
4	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
5	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
6	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
7	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
8	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
9	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
10	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
11	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
12	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
13	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
14	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
15	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
16	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
17	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
18	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
19	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
20	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
21	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
22	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
23	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
24	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
25	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
26	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
27	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
28	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
29	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
30	11589	14-Aug-1992	Rio Grande, ca. 4.0 miles upstream of the U.S. HWY 380 bridge.
1	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
2	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
3	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
4	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
5	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
6	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
7	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
8	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
9	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
10	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
11	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
12	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
13	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
14	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
15	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
16	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
17	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
18	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
19	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
20	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
21	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
22	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
23	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
24	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
25	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
26	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
27	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
28	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
29	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.
30	13472	14-May-1993	Rio Grande, ca. 4.2 miles upstream of the U.S. HWY 380 bridge.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
1	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
2	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
3	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
4	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
5	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
6	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
7	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
8	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
9	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
10	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
11	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
12	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
13	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
14	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
15	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
16	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
17	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
18	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
19	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
20	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
21	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
22	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
23	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
24	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
25	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
26	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
27	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
28	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
29	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
30	49969	1-May-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
1	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
2	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
3	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
4	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
5	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
6	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
7	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
8	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
9	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
10	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
11	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
12	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
13	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
14	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
15	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
16	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
17	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
18	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
19	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
20	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
21	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
22	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
23	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
24	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
25	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
26	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
27	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
28	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
29	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
30	20396	11-Aug-1994	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
1	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
2	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
3	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
4	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
5	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
6	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
7	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
8	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
9	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
10	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
11	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
12	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
13	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
14	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
15	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
16	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
17	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
18	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
19	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
20	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
21	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
22	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
23	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
24	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
25	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
26	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
27	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
28	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
29	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
30	22671	14-Apr-1995	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
1	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
2	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
3	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
4	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
5	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
6	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
7	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
8	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
9	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
10	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
11	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
12	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
13	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
14	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
15	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
16	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
17	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
18	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
19	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
20	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
21	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
22	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
23	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
24	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
25	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
26	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
27	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
28	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
29	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
30	30032	24-Oct-1995	Rio Grande, at Montano Bridge crossing, Montano Road, Albuquerque.
1	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
2	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
3	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
4	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
5	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
6	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
7	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
8	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
9	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
10	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
11	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
12	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
13	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
14	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
15	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
16	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
17	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
18	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
19	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
20	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
21	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
22	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
23	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
24	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
25	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
26	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
27	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
28	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
29	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.
30	30246	15-May-1996	Rio Grande, directly below Isleta Diversion Dam, Isleta Pueblo.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
1	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
2	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
3	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
4	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
5	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
6	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
7	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
8	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
9	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
10	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
11	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
12	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
13	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
14	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
15	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
16	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
17	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
18	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
19	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
20	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
21	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
22	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
23	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
24	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
25	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
26	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
27	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
28	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
29	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
30	39103	15-Oct-1997	Rio Grande, ca. 4.0 miles downstream of NM State HWY 550 bridge, at Rio Rancho Wastewater Treatment Plant.
1	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
2	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
3	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
4	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
5	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
6	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
7	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
8	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
9	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
10	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
11	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
12	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
13	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
14	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
15	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
16	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
17	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
18	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
19	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
20	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
21	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
22	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
23	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
24	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
25	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
26	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
27	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
28	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
29	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
30	44627	22-Apr-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
1	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
2	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
3	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
4	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
5	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
6	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
7	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
8	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
9	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
10	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
11	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
12	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
13	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
14	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
15	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
16	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
17	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
18	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
19	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
20	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
21	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
22	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
23	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
24	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
25	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
26	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
27	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
28	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
29	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
30	43314	19-Jul-1999	Rio Grande, at U.S. HWY 380 bridge, San Antonio.
1	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
2	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
3	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
4	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
5	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
6	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
7	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
8	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
9	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
10	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Fish Collection Date	Fish Collection Locale Narrative as Described
11	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
12	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
13	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
14	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
15	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
16	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
17	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
18	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
19	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
20	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
21	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
22	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
23	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
24	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
25	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
26	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
27	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
28	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
29	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
30	45271	21-Jun-2000	Rio Grande, east of Socorro, 0.5 mile upstream of low flow conveyance canal bridge at Socorro, east and upstream of Socorro wastewater treatment plant.
1	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
2	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
3	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
4	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
5	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
6	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
7	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
8	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
9	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
10	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
11	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
12	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
13	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
14	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
15	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
16	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
17	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
18	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
19	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
20	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
21	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
22	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
23	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
24	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
25	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
26	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
27	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
28	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
29	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.
30	48229	8-Nov-2001	USFWS Dexter National Fish Hatchery, Dexter.

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
1	1171	1	62	50	2.4	0	0
2	1171	3	66		2.2	0	0
3	1171	5	71	59	3.2	0	0
4	1171	6	96		7.7	0	0
5	1171	7	73	59	3	0	0
6	1171	8	66		1.8	0	0
7	1171	9	75		2.9	0	0
8	1171	10	78		3.1	0	0
9	1171	11	95		7.6	0	0
10	1171	12	33	27	0.3	0	0
11	1171	13	66		2.3	0	0
12	1171	14	36		0.3	0	1
13	1171	15	62		2	0	0
14	1171	16	70		2.6	0	0
15	1171	17	77	67	5.2	0	0
16	1171	18	76	63	3.5	0	0
17	1171	19	93		6	0	0
18	1171	20	60		1.8	0	0
19	1171	21	32	26	0.3	0	0
20	1171	23	62		1.8	0	0
21	1171	24	68	57	3	0	0
22	1171	25	75		3.7	0	0
23	1171	27	74	60	3.3	0	0
24	1171	28	82	67	5.6	0	0
25	1171	29	64	52	2.3	0	0
26	1171	30	61		1.5	0	0
27	1171	31	79		3.6	0	0
28	1171	32	60		1.5	0	0
29	1171	33	76		3.2	0	0
30	1171	34	67		2.5	0	0
1	1151	2	58		1.6	0	0
2	1151	5	58		1.5	1	0
3	1151	7	60		1.6	0	0
4	1151	8	75		2.7	0	0
5	1151	9	70	55	3.2	0	0
6	1151	13	65		2.2	0	0
7	1151	14	63		1.8	0	0
8	1151	17	65		2.3	0	0
9	1151	19	62		2.2	1	0
10	1151	21	58		1.9	0	0
11	1151	23	83		5.7	0	0
12	1151	24	86		6.1	0	0
13	1151	25	58		1.7	0	0
14	1151	27	63		2.9	0	0
15	1151	28	63		2.4	0	0
16	1151	30	54	44	1.6	0	0
17	1151	31	59	47	1.9	1	0
18	1151	33	52		0.9	0	0
19	1151	34	69		3.3	1	0
20	1151	35	68		2.6	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
21	1151	36	62		2.1	0	0
22	1151	37	24	20	0.1	0	0
23	1151	39	70		2.7	0	0
24	1151	41	73		3.1	0	0
25	1151	42	82		5.7	0	0
26	1151	43	60		2	0	0
27	1151	44	67		2.3	0	1
28	1151	45	60		2	0	0
29	1151	47	56		1.5	0	0
30	1151	48	58		1.3	0	0
1	1120	1	57	48	2.1	0	0
2	1120	2	65	56	3.1	0	0
3	1120	3	56	47	2.1	0	0
4	1120	4	63	53	2.5	0	0
5	1120	7	54	45	1.8	0	0
6	1120	8	57	51	1.9	0	0
7	1120	10	64	55	2.2	0	0
8	1120	11	61	53	2.9	0	0
9	1120	13	56	47	2.6	1	0
10	1120	23	61	50	2.5	1	0
11	1120	27	59	50	2.2	0	0
12	1120	29	52	44	1.6	0	1
13	1120	31	57	49	2	0	0
14	1120	32	63	53	2.9	0	0
15	1120	33	59	50	2.5	0	0
16	1120	35	36	31	0.5	0	0
17	1120	36	54	46	2.1	0	0
18	1120	37	70		3.4	0	0
19	1120	41	53	45	1.5	1	0
20	1120	43	58	50	2.6	0	0
21	1120	45	56	48	2.1	0	0
22	1120	46	64	54	2.7	0	0
23	1120	50	59	50	2.1	0	0
24	1120	53	62	53	2.6	0	0
25	1120	55	64		2.4	0	0
26	1120	56	58	51	2.6	0	0
27	1120	57	55	47	2.3	1	0
28	1120	58	55	47	1.9	0	0
29	1120	61	57	49	2.2	1	0
30	1120	62	48	42	1.3	0	0
1	1162	1	69	59	3.4	1	1
2	1162	2	44	38	0.7	1	2
3	1162	3	40		0.4	1	1
4	1162	4	55	50	1.9	1	1
5	1162	5	40	37	0.6	1	2
6	1162	7	49	41	1.1	1	1
7	1162	8	47	44	1.1	2	2
8	1162	9	72	61	3.7	0	1
9	1162	10	46	43	1.1	1	2
10	1162	11	33	27	0.3	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
11	1162	12	54	47	1.6	0	0
12	1162	13	42	34	0.5	0	0
13	1162	15	50	46	1.3	1	1
14	1162	16	59	48	1.7	1	1
15	1162	17	48	37	0.8	1	0
16	1162	19	36	33	0.4	0	#NA
17	1162	20	56	51	1.9	1	0
18	1162	21	32	29	0.3	1	0
19	1162	22	24	23	0.2	0	1
20	1162	23	28	24	0.1	0	0
21	1162	24	41	38.6	0.8	0	0
22	1162	25	44	36	0.6	0	1
23	1162	26	46	39	0.7	1	0
24	1162	27	56	47	1.5	1	2
25	1162	28	44	40	0.9	2	2
26	1162	29	34	29	0.3	1	1
27	1162	30	74	63	3.9	0	0
28	1162	31	75	60	3.8	0	0
29	1162	32	78	64	5	0	1
30	1162	33	42	37	0.7	1	1
1	1119	6	47		0.9	1	0
2	1119	7	57		1.4	0	0
3	1119	13	51		1.1	0	0
4	1119	23	48		0.6	1	0
5	1119	28	49	39	1	1	1
6	1119	33	50		1.1	0	0
7	1119	45	42	34	0.7	0	0
8	1119	50	50		1.1	0	0
9	1119	69	44	35	0.8	1	0
10	1119	71	50		1.1	0	0
11	1119	72	48		0.9	1	0
12	1119	80	41		0.6	0	0
13	1119	81	47		0.8	0	0
14	1119	85	51		1.9	0	0
15	1119	87	44		0.7	0	0
16	1119	94	44		0.6	0	0
17	1119	97	49		1	1	0
18	1119	100	50		0.9	0	0
19	1119	118	46		0.7	0	0
20	1119	120	46		0.9	0	0
21	1119	126	55		1.3	0	0
22	1119	128	47		0.8	0	1
23	1119	131	43		0.6	0	0
24	1119	133	53		1.2	0	0
25	1119	142	43	35	0.7	0	0
26	1119	144	48		0.8	0	0
27	1119	149	46		0.8	0	0
28	1119	154	48	40	1	0	0
29	1119	159	33		0.2	1	0
30	1119	165	49		1	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
1	1155	4		50	2.8	0	0
2	1155	5		42	1.2	0	0
3	1155	6		59	4.2	0	0
4	1155	12		54	3	0	0
5	1155	16		51	2.7	0	0
6	1155	18		54	3.4	0	0
7	1155	20		43	1.6	0	0
8	1155	23		39	1	0	0
9	1155	25		49	2.2	0	0
10	1155	32		44	1.6	0	0
11	1155	33		41	1.3	0	0
12	1155	35		41	1.3	0	0
13	1155	36		44	1.7	0	0
14	1155	37		49	2.3	0	0
15	1155	38		53	1.8	0	0
16	1155	39		54	2.7	0	0
17	1155	40		42	1.3	0	0
18	1155	41		43	1.4	0	0
19	1155	42		36	1	0	0
20	1155	43		48	2.2	0	0
21	1155	49		49	2.2	0	0
22	1155	54		44	1.6	0	0
23	1155	56		49	2	0	0
24	1155	58		41	1.3	0	0
25	1155	59		39	1.1	0	1
26	1155	60		59	4	0	0
27	1155	66		40	1.9	0	0
28	1155	67		47	1.9	0	0
29	1155	70		42	1.4	0	0
30	1155	72		52	3	0	0
1	1130	4		55	2.7	0	0
2	1130	15		54	2.1	1	1
3	1130	36		545	3.3	0	0
4	1130	37		52	2.5	0	0
5	1130	38	66	52	2.4	0	0
6	1130	40		55	3.2	0	0
7	1130	55		52	2.5	1	0
8	1130	64		70	5.9	0	0
9	1130	65		52	2.7	0	0
10	1130	68		51	2.6	0	0
11	1130	69	68	53	2.7	0	0
12	1130	71	75	59	3.7	0	0
13	1130	73	71	57	3.7	0	0
14	1130	78		34	0.6	0	0
15	1130	85	69	55	2.9	0	0
16	1130	102		55	3.3	0	0
17	1130	103		36	0.7	0	0
18	1130	108	69	55	2.9	0	0
19	1130	114	78	62	3.6	0	0
20	1130	122		51	2.2	1	1

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
21	1130	140		55	2.8	0	0
22	1130	143		36	0.9	0	1
23	1130	144	68	54	2.9	0	0
24	1130	149	66	54	2.7	0	0
25	1130	153		50	2.2	0	0
26	1130	164	66	52	2.1	0	1
27	1130	169		75	6.6	0	0
28	1130	171		43	1.3	1	0
29	1130	175		52	2.7	0	0
30	1130	176		55	2.9	0	1
1	1125	9	55		1.3	0	0
2	1125	54	53	41	1.3	0	0
3	1125	61	56		1.7	0	0
4	1125	67	78		4	0	0
5	1125	76	47	38	1	0	0
6	1125	85	45	37	0.9	1	0
7	1125	91	62		2.3	0	0
8	1125	92	46		1	0	0
9	1125	102	40		0.6	1	0
10	1125	104	43	36	0.8	1	0
11	1125	110	46		0.8	0	0
12	1125	119	50		0.9	0	1
13	1125	120	51		1.2	0	0
14	1125	121	44	36	1.1	0	0
15	1125	122	52		1.2	0	0
16	1125	135	47		0.9	0	0
17	1125	144	70		2.6	0	0
18	1125	148	44	34	0.7	0	0
19	1125	149	49		0.9	0	0
20	1125	168	58		2	0	0
21	1125	169	52		1.2	0	0
22	1125	174	53		1.3	0	1
23	1125	189	47		0.9	0	0
24	1125	191	55		1.4	0	0
25	1125	198	57		1.6	1	0
26	1125	200	62		2.2	1	0
27	1125	208	49		1.1	0	0
28	1125	230	55		1.4	0	0
29	1125	239	53		1.3	0	0
30	1125	256	56	46	1.6	0	0
1	3961	1	70		2.3	0	0
2	3961	2	62		2.1	0	0
3	3961	3	88		6.8	0	0
4	3961	4	78		4.3	2	1
5	3961	5	70		3.5	0	1
6	3961	6	70		3	0	0
7	3961	7	77		3.7	0	0
8	3961	8	72		3.3	0	0
9	3961	9	68		3.6	0	0
10	3961	10	82		5.9	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
11	3961	11	82		4.5	0	0
12	3961	12	81		5.3	0	0
13	3961	13	64		2	0	1
14	3961	14	63		2.5	0	0
15	3961	15	76		4.1	0	0
16	3961	16	92		7.5	0	0
17	3961	17	80		4.7	0	0
18	3961	18	66		2.8	0	0
19	3961	19	65		2.9	0	0
20	3961	20	88		61	0	1
21	3961	21	70		3.1	0	1
22	3961	22	86		5.3	0	0
23	3961	23	87		5.3	0	0
24	3961	24	73		3.8	0	0
25	3961	25	85		5.7	0	0
26	3961	26	74		3.8	0	0
27	3961	27	59		1.9	0	0
28	3961	28	80		4.6	0	0
29	3961	29	88		4.8	1	1
30	3961	31	62		2.1	0	1
1	4338	2	42		0.6	0	0
2	4338	3	36		0.3	0	0
3	4338	8	51		1.1	0	1
4	4338	19	38		0.4	0	0
5	4338	34	39		0.4	0	2
6	4338	44	47		0.9	0	1
7	4338	52	25		0.1	0	0
8	4338	56	50		1.1	0	0
9	4338	57	28		0.2	0	0
10	4338	62	30		0.2	0	0
11	4338	77	48		0.9	0	0
12	4338	81	52		1.2	0	0
13	4338	89	46		0.7	0	0
14	4338	93	46		0.7	0	0
15	4338	99	49	40	1.1	0	0
16	4338	123	44	35	0.7	0	1
17	4338	131	49		1.1	0	0
18	4338	137	47	41	1.4	1	0
19	4338	138	39	37	0.7	0	1
20	4338	151	34		0.3	0	0
21	4338	156	49		1	0	0
22	4338	157	30	25	0.3	0	0
23	4338	159	32		0.3	0	0
24	4338	167	49		1.1	0	0
25	4338	173	47		0.9	0	0
26	4338	190	45		0.7	1	0
27	4338	195	39		0.5	0	0
28	4338	196	47		0.9	0	0
29	4338	198	33		0.3	0	0
30	4338	234	32		0.3	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
1	4384	13	64		2.5	0	0
2	4384	24	57		0.9	0	0
3	4384	35	59		2.3	0	0
4	4384	73	62		2.4	1	0
5	4384	78	55		1.5	0	0
6	4384	90	62		2.2	0	1
7	4384	93	62		2.1	0	0
8	4384	95	47		0.9	0	1
9	4384	102	71		4	0	0
10	4384	113	66		2.7	1	0
11	4384	115	70		3.4	1	1
12	4384	121	62		2.4	1	0
13	4384	127	68		3.1	0	0
14	4384	156	60		2.1	0	0
15	4384	163	57		1.7	0	0
16	4384	165	59		1.9	0	1
17	4384	168	49		1.1	0	0
18	4384	189	51		1.3	0	1
19	4384	192	53	44	1.5	0	0
20	4384	213	59		2.1	0	0
21	4384	215	48		0.9	0	0
22	4384	218	61		2.2	1	1
23	4384	222	60		1.8	0	1
24	4384	227	66		3.1	0	0
25	4384	232	48		0.9	0	0
26	4384	238	63		2	0	0
27	4384	239	54		1.6	0	0
28	4384	242	53		1.4	0	1
29	4384	261	64		2.6	1	0
30	4384	263	52		1.2	0	0
1	5730	2	63		2.4	1	1
2	5730	6	62		2.6	1	1
3	5730	8	62		2.3	0	0
4	5730	13	51		1.2	0	1
5	5730	15	56		1.6	0	1
6	5730	17	60		2.4	0	0
7	5730	19	59		2.2	1	1
8	5730	20	61		2.4	1	1
9	5730	21	65		2.9	1	1
10	5730	24	58		1.9	0	1
11	5730	27	65		2.8	0	1
12	5730	32	56		1.6	1	1
13	5730	33	70		3.8	1	0
14	5730	35	59		1.8	0	0
15	5730	39	88		6.8	1	1
16	5730	44	58		2.1	1	0
17	5730	45	63		2.2	1	1
18	5730	46	63	48	2.3	0	0
19	5730	47	43		0.6	0	1
20	5730	48	63		2.5	0	1

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
21	5730	55	58		1.8	1	1
22	5730	60	78		5.6	1	1
23	5730	62	65		2.9	1	1
24	5730	63	61		2.1	1	1
25	5730	64	57		1.8	0	0
26	5730	65	86		7.3	0	0
27	5730	70	60		1.8	1	1
28	5730	75	90		6.7	1	1
29	5730	76	51		1.7	0	1
30	5730	78	50		1.2	0	0
1	5934	23	47	38	0.7	0	1
2	5934	34		55	2.9	1	1
3	5934	184		42	1.1	2	2
4	5934	262		59	3.4	0	0
5	5934	284		59	3.1	2	1
6	5934	340	51	40	1.0	1	1
7	5934	406	55	44	1.1	2	2
8	5934	533	51	40	1.0	0	0
9	5934	563		40	1.0	0	0
10	5934	572		62	3.7	1	1
11	5934	737		36	0.7	0	0
12	5934	805		54	2.5	0	1
13	5934	845	59	46	1.6	1	1
14	5934	858	59	46	1.6	1	1
15	5934	1039		61	3.7	1	1
16	5934	1046		51	2.3	0	1
17	5934	1109		45	1.5	0	0
18	5934	1183		40	1.2	0	0
19	5934	1268		64	3.7	0	0
20	5934	1295		40	1.1	0	0
21	5934	1593		42	1.1	1	1
22	5934	1596		45	1.4	0	1
23	5934	1627		40	1.0	0	0
24	5934	1805	48	38	0.8	1	1
25	5934	1830		36	0.8	1	1
26	5934	1899		39	1.0	0	0
27	5934	1911		56	2.8	1	1
28	5934	2054	51	40	1.0	0	1
29	5934	2112		41	1.1	1	1
30	5934	2248	45	36	0.6	0	0
1	11589	7	40		0.6	0	1
2	11589	8	50		0.8	1	1
3	11589	14	45		0.8	0	0
4	11589	18	37		0.4	0	0
5	11589	20	40		0.5	1	1
6	11589	21	53		1.2	1	0
7	11589	22	45		0.6	1	1
8	11589	32	34		0.3	0	0
9	11589	40	44		0.7	1	1
10	11589	41	43		0.6	0	1

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
11	11589	49	47		0.8	1	1
12	11589	50	46		0.7	1	1
13	11589	61	45		0.8	1	1
14	11589	65	47		0.8	1	1
15	11589	70	43		0.6	1	1
16	11589	74	40	32	0.5	2	1
17	11589	80	45		0.8	0	0
18	11589	82	47		0.8	1	2
19	11589	88	48		0.8	1	1
20	11589	90	51		1.0	1	0
21	11589	91	47		0.9	1	0
22	11589	95	57		1.1	1	1
23	11589	96	45		0.8	0	0
24	11589	112	52		1.0	2	2
25	11589	116	43		0.6	1	1
26	11589	121	40	33	0.7	1	0
27	11589	126	42		0.5	1	0
28	11589	127	44		0.4	1	0
29	11589	128	48		0.7	0	0
30	11589	142	46		0.8	1	0
1	13472	1	76		5.2	0	0
2	13472	2	78		6.0	1	1
3	13472	4	72		4.6	1	0
4	13472	5	73		2.9	2	0
5	13472	6	72		4.2	0	1
6	13472	7	77		4.0	1	0
7	13472	8	71		4.3	0	0
8	13472	9	71		3.9	1	0
9	13472	10	70		3.5	1	1
10	13472	11	68		3.6	0	1
11	13472	12	67		2.6	1	1
12	13472	13	72		4.4	1	0
13	13472	14	69		4.1	1	1
14	13472	15	74		3.7	1	1
15	13472	16	93		7.2	0	0
16	13472	17	79		5.3	0	0
17	13472	18	70		4.4	1	0
18	13472	20	71		3.0	0	0
19	13472	21	70		3.7	0	0
20	13472	27	79		5.4	0	0
21	13472	28	70		3.5	1	0
22	13472	29	73		5.0	1	0
23	13472	31	77		5.1	0	0
24	13472	32	81		7.8	0	0
25	13472	34	71		3.1	1	1
26	13472	35	73		5.0	0	1
27	13472	36	93		6.1	1	1
28	13472	37	56		1.7	1	0
29	13472	39	72		3.6	1	1
30	13472	40	72		4.6	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
1	49969	1	57		1.6	2	2
2	49969	2	67		3.1	0	0
3	49969	3	62		2.4	0	0
4	49969	4	65		2.3	2	2
5	49969	6	76		4.8	0	0
6	49969	7	64		2.3	0	1
7	49969	9	53		1.5	0	0
8	49969	11	60		1.8	0	0
9	49969	13	72		3.2	0	0
10	49969	14	68		3.0	0	0
11	49969	15	75		4.0	0	0
12	49969	19	65		2.4	0	1
13	49969	20	72		3.4	0	0
14	49969	22	69		3.1	1	2
15	49969	23	68		2.8	1	1
16	49969	24	56		1.8	0	1
17	49969	25	67		2.8	1	1
18	49969	26	59		2.3	0	0
19	49969	28	63		2.3	0	0
20	49969	29	59		1.9	0	1
21	49969	31	67		2.6	1	1
22	49969	34	64		2.4	1	2
23	49969	35	65		2.5	0	0
24	49969	37	61		2.6	0	0
25	49969	38	79		4.6	0	0
26	49969	39	60		1.9	1	1
27	49969	40	55		1.7	2	2
28	49969	41	64		2.5	1	2
29	49969	42	53		1.6	0	0
30	49969	43	64		2.7	2	2
1	20396	1	52		1.0	0	0
2	20396	3	79		4.2	0	0
3	20396	4	55		1.2	0	0
4	20396	5	56		1.4	0	0
5	20396	6	42		0.7	0	0
6	20396	8	56		1.3	0	0
7	20396	9	47		1.0	0	1
8	20396	10	52		1.1	0	1
9	20396	11	48		0.8	0	0
10	20396	12	48		0.8	0	0
11	20396	13	81		4.0	0	0
12	20396	14	55		1.3	0	0
13	20396	15	53		1.1	0	0
14	20396	16	82		4.6	0	#NA
15	20396	17	53		1.2	0	1
16	20396	18	86		4.3	0	0
17	20396	19	44		0.9	0	0
18	20396	20	53		1.2	0	0
19	20396	21	80		4.3	0	0
20	20396	22	52		1.1	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
21	20396	23	56		1.4	0	0
22	20396	24	38		0.6	0	0
23	20396	25	54		1.3	0	0
24	20396	26	54		1.4	1	1
25	20396	27	51		1.0	0	0
26	20396	28	44		0.8	0	0
27	20396	29	54		1.1	0	1
28	20396	30	84		4.5	0	0
29	20396	31	78		3.6	0	0
30	20396	32	44		0.9	0	0
1	22671	4	51		1.4	0	1
2	22671	6	61		2.4	0	0
3	22671	8	52		1.5	0	1
4	22671	10	58		1.8	1	1
5	22671	12	56		1.9	0	0
6	22671	19	55		1.7	0	0
7	22671	20	60		2.1	1	1
8	22671	25	51		1.5	0	0
9	22671	27	53		1.6	0	1
10	22671	28	55		1.5	0	0
11	22671	29	62		2.3	0	1
12	22671	32	51		1.1	0	0
13	22671	33	51		1.8	0	0
14	22671	34	54		1.9	1	0
15	22671	38	55		1.7	0	1
16	22671	39	53		1.4	0	0
17	22671	43	62		2.0	1	1
18	22671	44	72		3.0	0	0
19	22671	46	63		2.3	0	1
20	22671	49	54		1.5	0	1
21	22671	50	63		2.2	0	0
22	22671	51	57		1.4	0	0
23	22671	54	51		1.8	0	1
24	22671	59	64		2.7	1	1
25	22671	61	54		1.6	0	0
26	22671	62	65		2.6	1	1
27	22671	65	58		2.0	0	0
28	22671	66	54		1.7	1	0
29	22671	67	51		1.1	0	0
30	22671	68	56		1.4	0	0
1	30032	1	63		2.6	0	0
2	30032	2	60		1.8	1	1
3	30032	3	55		1.5	0	1
4	30032	4	59		1.8	2	1
5	30032	5	54		1.5	1	1
6	30032	6	59		1.7	0	1
7	30032	7	62		2.3	0	0
8	30032	8	59		1.8	1	1
9	30032	10	59		1.7	0	1
10	30032	11	61		1.9	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
11	30032	12	65		2.3	0	0
12	30032	13	62		1.9	0	0
13	30032	14	63		2.0	0	0
14	30032	15	58		1.8	1	1
15	30032	16	58		1.9	0	0
16	30032	17	53		1.2	0	0
17	30032	18	62		2.8	0	0
18	30032	19	65		2.2	0	0
19	30032	20	61		2.3	0	0
20	30032	21	71		2.2	0	1
21	30032	23	55		1.5	1	1
22	30032	24	76		4.5	0	0
23	30032	25	63		2.1	0	0
24	30032	26	58		1.6	0	0
25	30032	27	73		4.0	0	0
26	30032	28	55		1.4	0	1
27	30032	29	61		1.8	0	0
28	30032	30	60		1.9	0	0
29	30032	32	57		1.7	0	0
30	30032	33	53		1.1	0	1
1	30246	1	67		3.4	0	0
2	30246	4	73		3.6	0	0
3	30246	5	95		10.7	1	0
4	30246	8	63		2.3	0	0
5	30246	12	73		4	1	0
6	30246	13	73		5	0	0
7	30246	16	72		4	0	0
8	30246	20	73		4.2	0	0
9	30246	22	70		4.6	0	0
10	30246	23	71		3.7	0	0
11	30246	25	69		4.4	0	0
12	30246	26	77		5.6	0	0
13	30246	29	72		4.1	0	0
14	30246	32	72		3.8	0	0
15	30246	41	70		3.6	0	0
16	30246	42	69		3.1	0	0
17	30246	46	68		3.4	0	0
18	30246	47	71		3.4	0	0
19	30246	48	78		5.6	0	0
20	30246	50	66		2.7	0	0
21	30246	55	63		2.9	0	0
22	30246	56	66		2.9	0	0
23	30246	58	76		3	0	0
24	30246	59	68		3.6	0	0
25	30246	62	71		3.7	1	0
26	30246	63	72		4.9	0	0
27	30246	64	71		3.5	0	0
28	30246	66	76		5.5	0	0
29	30246	70	70		4.1	0	0
30	30246	73	76		4.5	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
1	39103	1	65		2.6	0	0
2	39103	3	73		4	0	0
3	39103	4	68		3.3	0	0
4	39103	5	65		2.6	1	0
5	39103	6	72		3.4	0	1
6	39103	9	76		4.6	0	0
7	39103	10	61		2	0	0
8	39103	11	70		3	0	1
9	39103	15	75		3.8	1	1
10	39103	16	72		3.3	0	0
11	39103	17	64		2.5	1	0
12	39103	18	63		2.2	0	0
13	39103	22	66		2.9	0	0
14	39103	23	56		1.7	0	0
15	39103	28	54		1.6	0	0
16	39103	32	72		3.3	1	1
17	39103	33	72		3.3	1	1
18	39103	36	61		2.4	0	0
19	39103	37	72		3.7	0	1
20	39103	38	54		1.3	0	0
21	39103	39	66		2.6	0	0
22	39103	42	71		3.4	0	0
23	39103	45	61		2.2	0	0
24	39103	46	66		3.1	0	0
25	39103	57	64		2.3	1	1
26	39103	59	61		2	1	1
27	39103	63	72		3.6	0	0
28	39103	65	73		3.5	0	1
29	39103	68	66		2.7	0	0
30	39103	69	71		3.5	1	1
1	44627	3		56	3.2	#NA	1
2	44627	17		56	2.8	0	0
3	44627	29		59	2.2	1	1
4	44627	31		63	3.4	0	0
5	44627	34		#NA	#NA	#NA	#NA
6	44627	35		53	2.4	0	1
7	44627	43		56	2.7	0	0
8	44627	44		61	3.8	1	1
9	44627	56		52	2.9	0	0
10	44627	57		55	2.3	1	1
11	44627	62		57	2.4	0	1
12	44627	63		56	3.2	0	0
13	44627	78		60	3.2	1	1
14	44627	88		55	2.9	1	1
15	44627	95		56	2.6	1	0
16	44627	98		52	2.8	0	1
17	44627	107		54	2.8	1	1
18	44627	113		61	3.4	0	1
19	44627	115		48	1.8	1	2
20	44627	130		70	5.7	2	2

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
21	44627	142		52	2.6	1	1
22	44627	156		62	4.2	0	0
23	44627	159		64	4.4	0	1
24	44627	178		64	4.4	2	1
25	44627	183		56	3.3	0	1
26	44627	200		56	2.6	1	1
27	44627	206		57	3.5	0	0
28	44627	212		56	3.1	0	1
29	44627	214		52	2.2	0	0
30	44627	216		58	3.4	2	2
1	43314	4	28		0.1	0	0
2	43314	11	29		0.2	0	0
3	43314	17	32		0.2	1	0
4	43314	20	28		0.2	1	0
5	43314	24	35		0.3	1	0
6	43314	27	35		0.4	0	0
7	43314	29	35		0.3	0	0
8	43314	30	37		0.4	0	1
9	43314	34	30		0.2	0	0
10	43314	35	29		0.2	0	0
11	43314	39	30		0.2	1	0
12	43314	40	31		0.3	0	0
13	43314	42	33		0.3	0	0
14	43314	44	30		0.2	0	0
15	43314	46			0.2	1	0
16	43314	50	32		0.3	0	0
17	43314	52	30		0.2	1	1
18	43314	61	31		0.3	1	1
19	43314	63			0.4	0	0
20	43314	72	29		0.2	0	0
21	43314	78	31		0.2	0	0
22	43314	81	26		0.2	1	0
23	43314	82	31		0.2	0	0
24	43314	91	34		0.3	1	0
25	43314	93			0.2	0	0
26	43314	98	31		0.2	0	0
27	43314	99	29		0.2	1	0
28	43314	103	30		0.2	0	0
29	43314	105	32		0.3	0	0
30	43314	106	26		0.2	0	0
1	45271	1	68		2.9	0	0
2	45271	2	72		3.3	0	0
3	45271	3	67		3	0	0
4	45271	4	65		2.8	0	0
5	45271	5	65		2.3	0	1
6	45271	6	94		7.3	0	0
7	45271	7	64		2.4	0	0
8	45271	8	67		2.9	0	1
9	45271	9	73		3.9	0	0
10	45271	10	64		2.5	0	0

Appendix 2K. Observations of Length (mm), weight (g) and Opercula Shortening in archival Rio Grande silvery minnows from the University of New Mexico Museum of Southwestern Biology.

MSB New Fish Number	MSB Catalog Number	Random Fish Number	Total Length (mm)	Standard Length (mm) (when tail fin degraded)	Mass (g)	Left Opercule (index of shortening)	Right Opercule (index of shortening)
11	45271	11	64		2.4	0	1
12	45271	12	71		3.7	0	0
13	45271	13	66		2.7	0	0
14	45271	14	65		2.8	1	1
15	45271	15	71		3.3	0	0
16	45271	16	68		3	1	1
17	45271	17	67		3	0	0
18	45271	18	60		2.2	0	0
19	45271	19	30		0.3	0	0
20	45271	20	68		2.3	1	1
21	45271	22	65		3	1	1
22	45271	23	64		2.1	0	1
23	45271	24	67		2.9	0	0
24	45271	25	68		3	0	1
25	45271	26	71		3.4	1	0
26	45271	27	60		2.1	1	0
27	45271	28	67		2.9	0	0
28	45271	29	72		4.1	0	0
29	45271	30	69		3.4	1	1
30	45271	31	72		3.7	0	1
1	48229	4	50		1.0	1	1
2	48229	6	25		0.1	0	0
3	48229	11	22		0.1	0	0
4	48229	12	25		0.1	0	0
5	48229	18	26		0.1	0	0
6	48229	20		24	0.2	2	2
7	48229	22	45		0.9	0	1
8	48229	24	28		0.2	1	0
9	48229	25	21		0.1	0	1
10	48229	28	25		0.1	1	1
11	48229	32	27		0.2	0	0
12	48229	33		54	2.3	2	2
13	48229	34	24		0.1	0	0
14	48229	36	26		0.2	1	0
15	48229	43	32		0.3	0	0
16	48229	45	27		0.1	0	0
17	48229	46	29		0.2	2	2
18	48229	49		23	0.2	1	1
19	48229	50	24		0.1	0	0
20	48229	51	25		0.1	0	0
21	48229	56	25		0.1	1	1
22	48229	59	29		0.2	1	0
23	48229	65	27		0.2	1	1
24	48229	66	#NA		#NA	#NA	#NA
25	48229	68	29		0.2	0	1
26	48229	70	24		0.1	2	1
27	48229	71		55	2.4	2	2
28	48229	74	27		0.2	0	0
29	48229	75	25		0.1	1	1
30	48229	77	24		0.2	1	1