Non-native species monitoring and control in the upper San Juan River, New Mexico 2005

FINAL REPORT

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SAN JUAN RIVER RECOVERY IMPLEMENTATION PROGRAM

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DRAFT REPORT

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submitted to:

San Juan River Recovery Implementation Program
Biology Committee

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EXECUTIVE SUMMARY

Intensive non-native removal in 2005 on the upper San Juan River marked the fifth year of such efforts. A total of 4,045 channel catfish *Ictalurus punctatus* and 715 common carp *Cyprinus carpio* were removed from RM's 166.6 – 147.9 during 10 removal trips. Of the 10 trips, five were conducted from PNM Weir to Hogback Diversion (RM's 166.6 – 159.0) and five from Hogback Diversion to Shiprock Bridge, New Mexico (RM's 158.8 – 147.9). In addition to intensive removal efforts, opportunistic removal during riverwide monitoring trips continued in 2005.

PNM WEIR TO HOGBACK DIVERSION - SECTION 1

Channel catfish, all life stages combined, CPUE (fish/hour of electrofishing) varied little among trips, 2005. Among year comparisons revealed no reduction in CPUE, 2001-2005. Juvenile CPUE declined in 2005 but remained higher than values observed in 2001 ($p = 0.001$). It appeared that channel catfish CPUE was highly influenced by the season in which non-native removal occurred. Since 2001, CPUE was significantly higher during summer months than any other season of the year. Increased CPUE during the summer may be influenced by a variety of factors including: 1.) increased activity, 2.) increased water temperatures, and 3.) increased movement or immigration into the study Section. Channel catfish mean total length (TL) was higher than 2004 but remain lower than 2001 values ($p < 0.001$). Fish $\leq$ 400 mm TL comprised 69.1% of the total channel catfish catch with only two individual fish collected > 600 mm TL.

Common carp, all life stages combined, varied little among trips in 2005 with all trips having a CPUE < 10 fish/hour. Overall CPUE declined ($p < 0.001$) for the fifth consecutive year. Similar to previous years, adult common carp comprised the majority of the total catch. Although common carp were less abundant, overall kilograms/fish (kg/fish) and mean condition factor ($K_{(f)}$; Fulton Type $(W/L^3)*1000$) increased in 2005, indicating fewer but larger, more robust fish.

HOGBACK DIVERSION TO SHIPROCK BRIDGE – SECTION 2

Channel catfish CPUE, all life stages combined, varied among trips in 2005. Among year comparisons indicated a reduction in channel catfish relative abundance, 2003-2005 (p <

0.001). Reductions are a result of decreased CPUE for both juvenile and adult channel catfish. Mean TL was higher than 2004 but remained lower than 2003 ($p < 0.001$), resulting in a five year mean TL of 361.4 mm. Fish ≤ 400 mm comprised 69.3% of the total catch in 2005 and fish > 501 mm comprised 6.6% of the total catch.

Common carp CPUE, all life stages combined, remained relatively constant in 2005 and averaged 3.9 fish/hour. Similar to channel catfish, common carp CPUE decreased for the third straight year and remained lower than 2003 values ($p < 0.001$). Adult (> 250 mm TL) fish composed the majority of the common carp catch.

RIVERWIDE REMOVAL

Channel catfish trends in riverwide CPUE increased ($p = 0.001$) from 2004 to 2005 but remained lower than values observed prior to the initiation of intensive non-native removal in 2001. Increases in riverwide channel catfish CPUE was attributed to increases in four out of six Geomorphic Reaches. The highest CPUE occurred in Geomorphic Reaches 5 and 4, areas that lie between where intensive non-native removal takes place. Mean TL of channel catfish riverwide increased from 2004 to 2005 and was similar to values observed from 1999-2001. Size class structure was spatially distributed with larger fish collected in upstream Geomorphic Reaches; average length decreased in downstream Geomorphic Reaches.

Common carp CPUE decreased in 2005 to 4.1 fish/hour ($p < 0.001$), the lowest value recorded in the 1998-2005 sampling period. A decline in CPUE was observed in all Geomorphic Reaches, excluding Reach 6. The observed declines in common carp CPUE appeared to be associated with the initiation of intensive non-native removal in 2001. Similar to previous years, overall common carp catch was highly dependent on adult fish (91% of common carp catch).

RARE FISHES

A total of 253 Colorado pikeminnow *Ptychocheilus lucius* and 236 razorback sucker *Xyrauchen texanus* were collected during 10 removal trips in 2005. Of these, 57 Colorado pikeminnow (73 – 538 mm TL) and 15 razorback sucker (385 – 489 mm TL) were collected in sampling from PNM Weir to Hogback Diversion. A total of 196 Colorado pikeminnow

(45 – 603 mm TL) and 221 razorback sucker (265 – 534 mm TL) were collected from Hogback Diversion to Shiprock Bridge. A ripe male Colorado pikeminnow (603 mm TL; 1,990 grams) was collected on 28 July 2005 at RM 158.1. This fish lacked any detectable tag and was likely a survivor from augmentation efforts of the late 1990's.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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INTRODUCTION

The presence of non-native fishes within the San Juan River may have deleterious effects on recovery efforts for Colorado pikeminnow and razorback sucker. Channel catfish and common carp may affect native aquatic communities through trophic interactions (direct predation, possible competition for food), spatial interactions (competition for habitat, spawning space or feeding areas), and by habitat alteration (Brooks et al. 2000; Minckley 1991; Sigler 1987; Tyus and Saunders 2000). Of these factors, only direct predation and aggressive behavior/harassment has been documented on the San Juan River (Brooks et al. 2000 and Ryden 2005). Opportunistic removal of non-native fishes began in 1996 and was formally adopted as a management tool in 1998. United States Fish and Wildlife Service (FWS), New Mexico Fishery Resources Office (NMFRO) evaluated numerous capture techniques and determined that raft mounted electrofishing was the most efficient method to remove large bodied non-native fish (Brooks and Smith 2005).

Removal efforts by NMFRO officially began in 1998 with intensified efforts beginning in 2001. Efforts focused on a 7.6 mile reach of river located near Fruitland, NM (Figure 1). Location of concentrated removal efforts was influenced by information on adult fish distribution and abundance reported on by FWS – Grand Junction (FWS-GJ) (Ryden 2000). Data suggested that the numbers of channel catfish and common carp were lower upstream of PNM Weir (RM 166.6) and that the majority of non-native fishes within Geomorphic Reaches 6 and 5, as described by Bliesner and Lamarra (2000), were considered adult. The presence of water diversion structures that may serve as potential impediments to upstream fish movement and the propensity of large adult non-native fishes determined where intensive removal efforts would take place.

Efforts in 2005 marked the fifth consecutive year of removal from PNM Weir to Hogback Diversion (RM 166.6 - 159.0). Due to seasonal variance in catch rates (CPUE; fish/hour of electrofishing) of non-native fishes, efforts were expanded in 2003 to include an additional 11.1 river miles immediately downsteam. Mark/recapture work conducted by NMFRO documented upstream movement into the study reach by channel catfish and common carp (Davis and Coleman 2004). These movement patterns correspond with the completion of the non-selective Hogback fish ladder in 2001 at RM 159.0. In addition to intensive non-native removal trips, opportunistic removal riverwide during sub-adult and adult fish monitoring trips has occurred since 1996.

Study objectives were:

1. Continue data collection and mechanical removal of non-native species during main channel adult rare fish monitoring efforts.
2. Evaluate distribution and abundance patterns of non-native species to determine effects of mechanical removal on abundance and distribution patterns.
3. Continue transplantation of channel catfish to fishing impoundments isolated from the San Juan River.
4. Characterize the distribution and abundance of striped bass *Morone saxatilis* upstream of Lake Powell during removal efforts and determine predation impacts via stomach content analysis.
5. Develop catch per unit effort targets for use in evaluation of mechanical removal in discrete river reaches.

STUDY AREA

Non-native fishes were removed from the San Juan River; Colorado, New Mexico, Utah; in all accessible habits from Farmington, New Mexico (Animas River confluence [RM 180.0]) downstream to Clay Hill's Landing (RM 2.9), Utah (Figure 1). Intensive non-native removal efforts were focused on 18.7 river miles of the San Juan River located in the northwestern portion of New Mexico near the towns of Fruitland and Shiprock (Figure 1). Two removal Sections were sampled between RM's 166.6 – 147.9 and were located within Geomorphic Reaches 6 and 5. These separate Sections are delineated by a water diversion structure, Hogback Diversion. Throughout this report Section 1 will refer to PNM to Hogback Diversion (RM 166.6 – 159.0) while Section 2 refers to Hogback Diversion to Shiprock Bridge (RM 158.8 – 147.9).

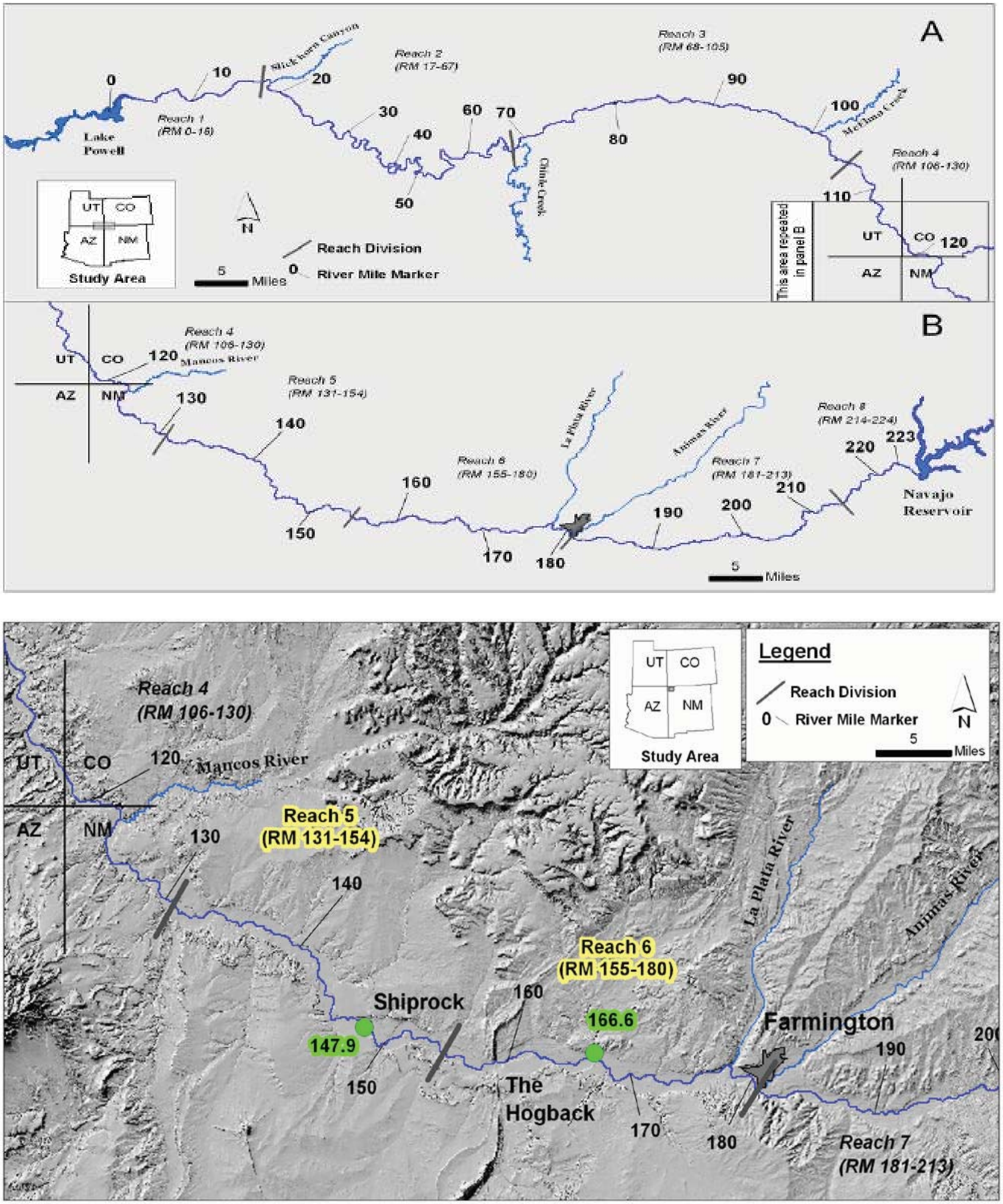

Figure 1. Map of study area including entire San Juan River basin (top) and a more detailed map of intensive removal reaches (green highlights; bottom). –map provided by UNM MSB

METHODS

Sampling conducted during adult monitoring trips in 2005 followed similar protocols to previous years (Ryden 2000). Fishes were collected using raft mounted electrofishers. Rafts consisted of a rower and a netter and floated near the shoreline netting all fish seen. Sampling was conducted in one RM increments. At the end of each RM, all fish collected were enumerated by species and size class. At the end of every fifth mile fish were measured to the nearest millimeter (mm) for total and standard lengths and weighed to the nearest 5 grams (g) for mass. All non-native fishes were removed from the river with exception of anchor tagged fish that were returned to the river.

Sampling conducted in intensive removal reaches followed protocol similar to adult monitoring. In addition, a support raft was used both to collect any non-native fishes that surfaced behind the shocking rafts and to serve as a holding unit for transporting live fish. Fish collected by the support raft were included in the calculation of CPUE. All non-native fishes or a representative sub-sample were measured (nearest 1 mm) for total and standard lengths and weighed (nearest 5 g) for mass. All non-native fishes were removed from the river. When possible, channel catfish were held for transplantation. Channel catfish were kept in live wells treated with salt and stress coat to alleviate stress caused by holding and transporting. A battery powered aeration system or compressed oxygen was used for circulation and aeration. Channel catfish were transported from the San Juan River in distribution trucks provided by New Mexico Department of Game and Fish and Navajo Nation Department of Fish and Wildlife.

All available capture data were analyzed independently by Section and project. For example, catch rates among years from PNM to Hogback, Hogback to Shiprock and Riverwide sampling were compared only with the same Section and not across Sections. To determine trends in distribution and abundance, mean CPUE and standard error was calculated using software packages SPSS versions 10.0 and 13.0. Species CPUE represents the total number of fish collected divided by the total effort of sampling (hours of electrofishing). Data were summarized by type of trip (i.e. intensive removal, riverwide), year, reaches and by individual trips. If CPUE data met the assumptions of normality and variance, a One Way Analysis of Variance (ANOVA) was conducted to determine if significant differences existed. Multi pairwise comparisons using Bonferroni post hoc tests were used to determine where specific differences existed. If variances were heteroscedastic but the data were normally distributed, an ANOVA with a Dunnett's T3 post hoc was used to determine where the differences existed. All CPUE data that did not meet the assumptions of an ANOVA were first analyzed using a non-parametric Kruskal-Wallis rank test. If significant differences were observed, among year comparisons of ranked data were conducted using a Mann-Whitney U test with a Bonferroni correction (?/n; where ? = 0.05 and n = number of groups compared) (Sokal and Rohlf 1995). The Bonferroni correction is a statistical adjustment that raises the standard of proof needed to determine an effect. Essentially, this correction increases the chance of making a Type II error (failure to detect a difference when in fact there is an effect). With a project such as non-native removal a conservative approach may be more beneficial than the risk of making a Type I error (detecting a change when in fact there is no effect). Trends in length data were analyzed using an ANOVA with Bonferroni post hoc multiple pairwise comparisons.

To compare channel catfish and common carp abundance between Sections, a series of intensive non-native removal trips were conducted (2003-2005) in each Section within four to five days of each other. Trips were conducted in the same general time frame to ensure that sampling conditions, i.e. discharge, temperature, water clarity, etc., were essentially the same. Sampling under similar conditions helped to limit variability among comparisons.

RESULTS

PNM WEIR TO HOGBACK DIVERSION (RM166.6 – 159.0) – SECTION 1

A total of 1,112 channel catfish and 266 common carp were collected during five trips and 57.81 hours of electrofishing (Table 1). All nonnative fishes were removed from the river. In addition to channel catfish and common carp, other non-native fishes removed from Section 1 included rainbow trout *Oncorhynchus mykiss*, brown trout *Salmo trutta*, bullhead catfishes *Ameiurus spp.*, largemouth bass *Micropterus salmoides*, green sunfish *Lepomis cyanellus*, bluegill *Lepomis macrochirus*, and white sucker *Catostomus commersoni* . No striped bass *Morone saxatilis* were collected or observed.

Table 1. Total count of major species collected during intensive non-native removal efforts from PNM Weir to Hogback Diversion, 2005. Species listed by the first three letters of the Genera and first three letters of Species (i.e. *Ptychocheilus lucius = Ptyluc)*

Trip	*Ptyluc*	*Xyrtex*	*Ictpun*	*Cypcar*	*Micsal*	*Ameiurus spp*	*Saltru*
March	3	10	1	99	0	0	20
July	14	2	145	65	6	2	23
August	4	1	39	16	6	1	5
September	21	2	878	53	9	7	10
October	11	0	49	33	3	0	4
Totals	**53**	**15**	**1,112**	**266**	**24**	**10**	**62**

Five trips were conducted from March to October (Table 1). Channel catfish CPUE was initially low ranging from 0.8 to 6.6 fish/hour of electrofishing. Catch rates increased during the September trip with juvenile CPUE increasing from 2.0 fish/hour in August to 14.0 fish/hour in September (Figure 2). Similarly, adult CPUE increased from 4.7 to 34.6 fish/hour among the same comparison. During the October trip, CPUE for all life stages combined decreased to rates similar to those observed March-August. Overall channel catfish CPUE for all trips and all life stages combined was17.0 fish/hour (Figure 3).

One individual channel catfish was collected during the March 2005 sampling trip. This fish had an anchor tag indicating that it had immigrated from downstream into the study reach. This marks the first trip since intensive non-native removal began that zero, non-tagged, channel catfish were collected in a three pass depletion sampling trip.

Channel catfish CPUE among years has not declined since intensive non-native removal began in 2001. Although a significant decline was not observed, overall channel catfish CPUE was at the lowest level (17.2 fish/hour) observed among 2001-2005 comparisons (Figure 3). Juvenile CPUE decreased from values observed in 2004 but remained higher than 2001 (Mann Whitney U = 920.0, p = 0.001). A declining trend in adult CPUE was observed but a significant difference was not detected (Figure 3).

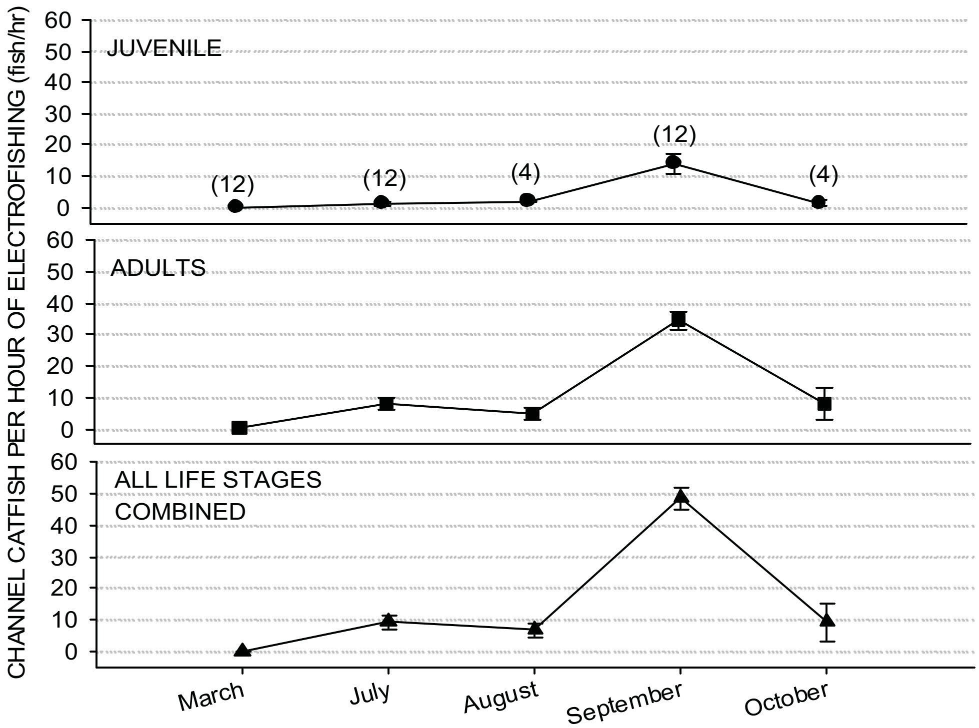

Figure 2. Channel catfish CPUE (fish/hour) by trip within the PNM Weir to Hogback Diversion Section. Sample size listed parenthetically and error bars represent + 1 SE.

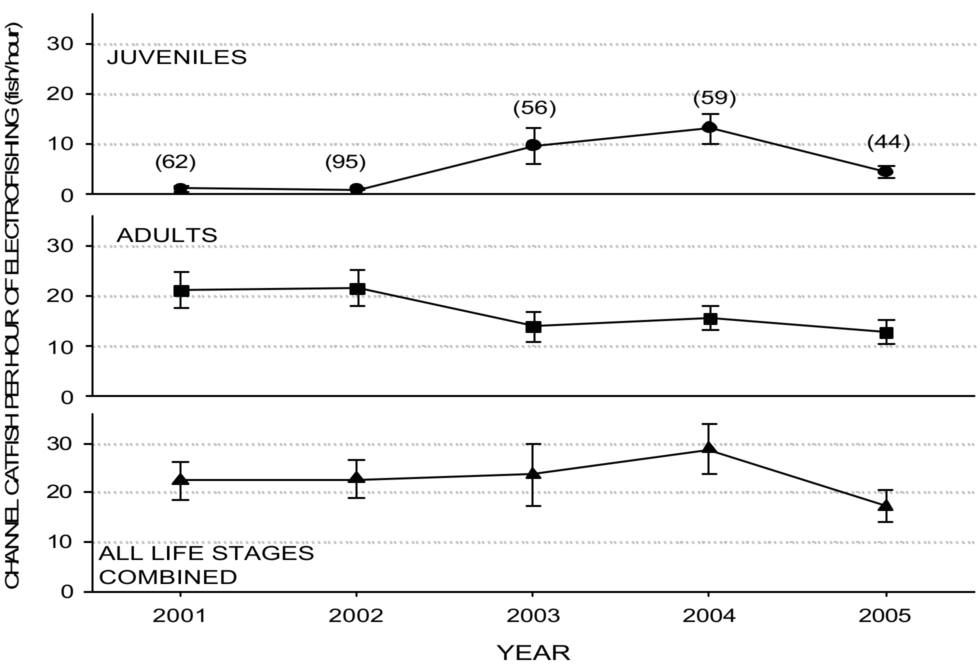

Figure 3. Channel catfish CPUE (fish/hour) by year within the PNM Weir to Hogback Diversion. Section. Sample size listed parenthetically and error bars represent + 1 SE.

Shifts towards smaller sized channel catfish have been documented since 1999. Although mean TL increased to 368.4 mm in 2005, it was than less than 2001 (ANOVA; $F = 534.071_{(4, 13189)}$; $p < 0.001$). A shift towards smaller size classes of channel catfish continued in 2005 with 69.1% of fish collected < 400 mm TL compared to 18.8% in 1999 (Figure 4). Juvenile fish (< 300 mm TL) decreased in abundance from 2004-2005 but remained higher in abundance than values observed in 2001 and 2002. In addition, large channel catfish > 500 mm TL comprised 52.6% of the catch in 1999 compared to 6.2% in 2005 (Figure 4). Two individual catfish > 600 mm were collected in 2005.

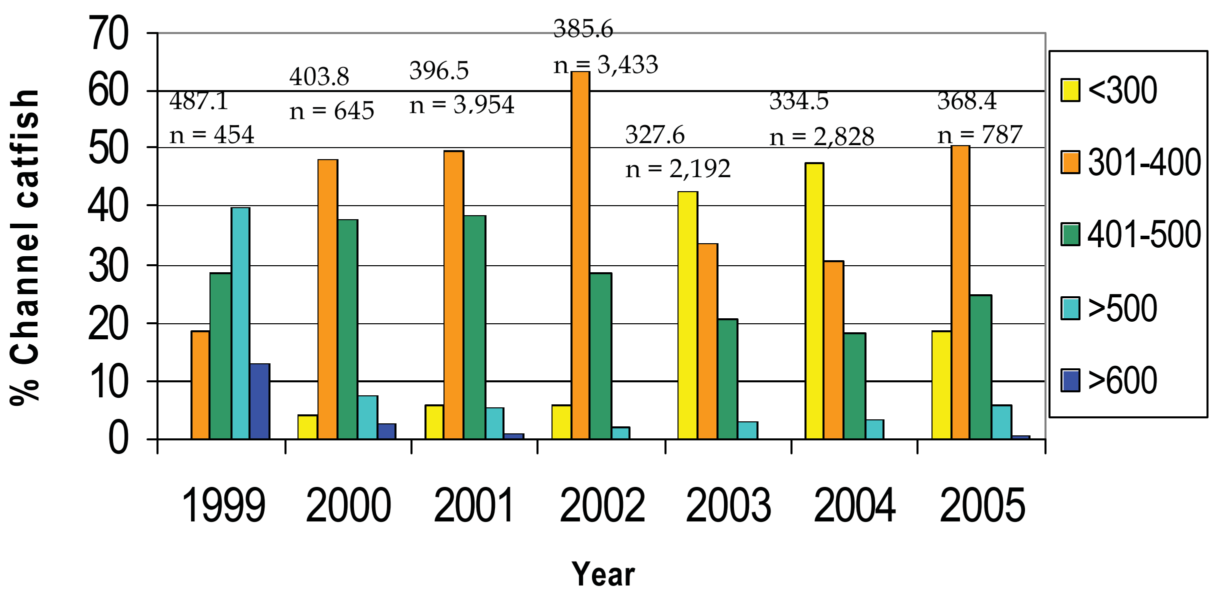

Figure 4. Size class distribution of channel catfish collected from PNM Weir to Hogback Diversion, 1999 – 2005. Mean total length (mm) and sample size above bars.

Common carp CPUE varied little among 2005 sampling trips, having a five trip mean of 4.2 fish/hour of electrofishing (Figure 5). The highest CPUE occurred in March (6.7 fish/hour of electrofishing) and the lowest in August (3.0 fish/hour of electrofishing). No individual trip in 2005 had CPUE > 10 fish/hour, the first year this occurred since intensive nonnative removal began.

Common carp CPUE, all life stages combined, declined from 2001 to 2005 and was the lowest observed since intensive nonnative removal began (Mann Whitney U = 504.0; p <

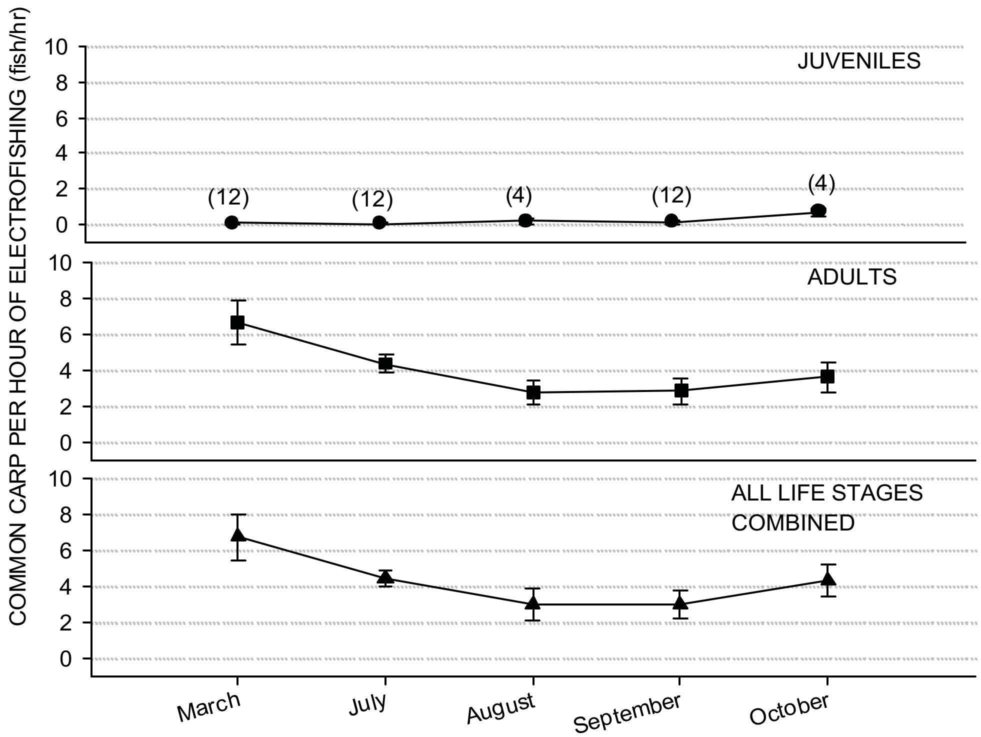

Figure 5. Common carp CPUE (fish/hour) by trip within the PNM Weir to Hogback Diversion Section, 2005. Sample size listed parenthetically and error bars represent $\pm$ 1 SE.

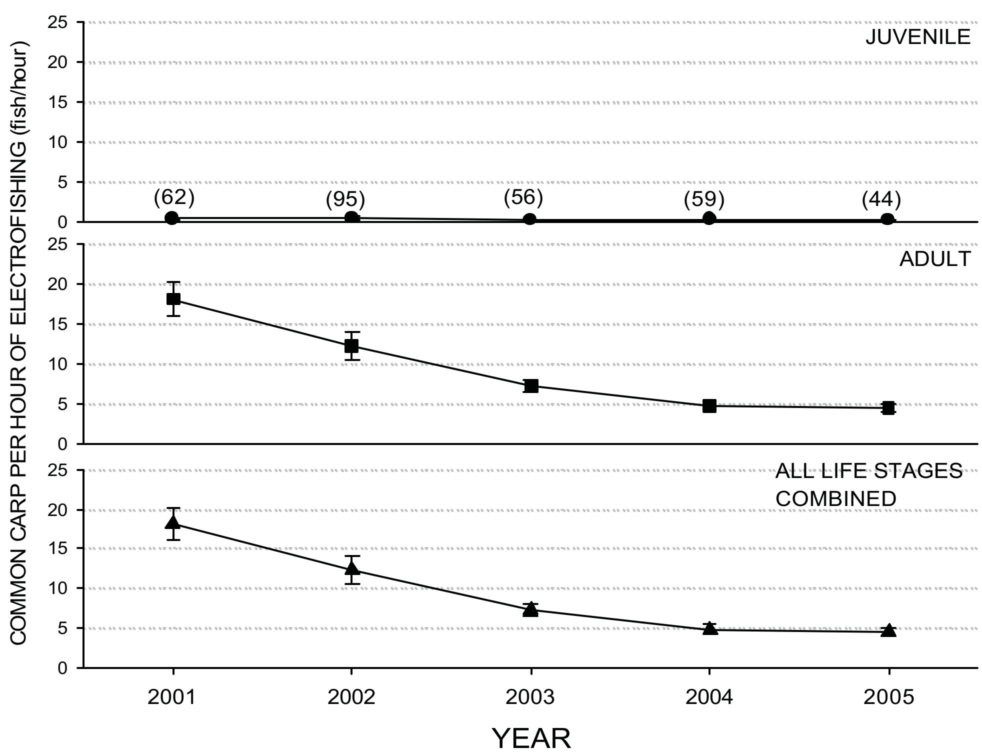

Figure 6. Common carp CPUE (fish/hour) by year within the PNM Weir to Hogback Diversion Section. Sample size listed parenthetically and error bars represent $\pm$ 1 SE.

0.001). Common carp CPUE declined with each subsequent year of removal (Figure 6). The highest trip CPUE (6.7 fish/hour) in 2005 was lower than 70% of trips conducted in 2001. For example, 10 out of 19 trips (53%) conducted from 2001-2002 had common carp CPUE $\geq$ 15 fish/hour of electrofishing, more than twice the highest value observed in 2005.

Mean TL of common carp increased from 2001-2005 and increased each subsequent year of intensive removal (ANOVA; $F = 17.098_{(4, 4082)}$, $p < 0.001$). In 2005, the five trip mean TL was 512.4 mm compared to 475.4 mm in 2001 ($p < 0.001$). Mean condition factor $K_{(f)}$ (Fulton type; (W/L^3)*100,000)) of common carp increased from 1.37 in 2001 to 1.69 in 2005. In addition, mean kilograms per fish (kg/fish) increased from 1.52 kg in 2001 to 2.30 kg in 2005. In other words, fewer common carp were collected in 2005 but individuals were larger and more robust (Figure 7).

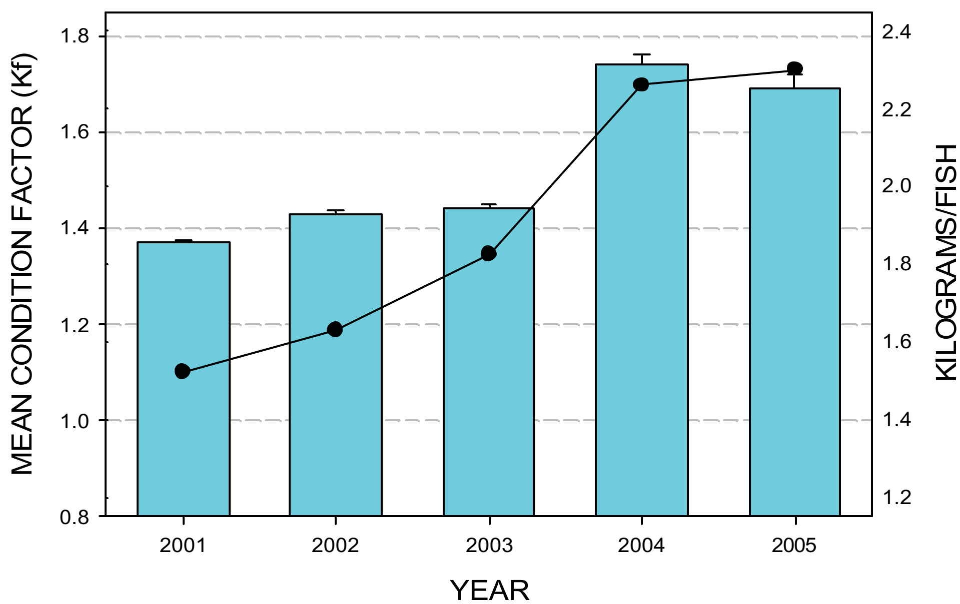

Figure 7. Mean condition factor $K_{(f)}$ and kilograms/fish of common carp collected from PNM Weir to Hogback Diversion, 2001-2005. Bars represent Mean $K_{(f)}$ and lines represent kilograms/fish.

HOGBACK DIVERSION TO SHIPROCK BRIDGE (RM 158.8 – 147.9) – SECTION 2

A total of 2,933 channel catfish and 449 common carp were collected within this Section during five trips and 97.91 hours of electrofishing (Table 2). All non-native fishes were removed from this Section. In addition to channel catfish and common carp, other non-native fishes removed included rainbow trout, brown trout, bullhead catfishes, largemouth bass, green sunfish, bluegill, and white sucker. No striped bass were collected or observed.

Five trips were conducted from April to November (Table 2). Channel catfish CPUE varied by trip and ranged from 6.21 to 64.47 fish/hour (Figure 8). Channel catfish CPUE was < 10 fish/hour during the first two trips in April and June. This was the lowest CPUE for channel catfish in this Section since 2003, when intensive removal began. Beginning in July, CPUE for all life stages combined increased with the September trip yielding the highest CPUE of the five trips. The observed increase was attributed to increases in CPUE for both juvenile and adult fish (Figure 8).

Table 2. Total count of major species collected during intensive non-native removal efforts from Hogback Diversion to Shiprock Bridge, 2004.

Trip	*Ptyluc*	*Xyrtex*	*Ictpun*	*Cypcar*	*Micsal*	*Ameiurus* spp	*Saltru*
April	17	105	101	25	1	3	21
June	7	30	132	92	2	5	21
July	49	13	745	114	13	3	6
September	30	41	1152	64	5	1	4
November	89	46	803	154	0	4	7
Totals	**192**	**235**	**2,933**	**449**	**21**	**16**	**59**

Channel catfish CPUE, all life stages combined, declined from 57.7 to 23.1 fish/hour, 2003-2005 (Mann Whitney U = 4326; $p < 0.001$) (Figure 9). Values of CPUE in 2005 were the lowest since intensive nonnative removal began in 2003. Decreases in both juvenile and adult CPUE was observed in 2005 with both representing the lowest CPUE since intensive non-native removal began (juvenile: Mann Whitney U = 6215; $p \leq 0.001$; adult: Mann Whitney U = 6871.5; $p < 0.001$). Juvenile CPUE decreased from 11.0 to 7.2 fish/hour and adult CPUE decreased from 46.9 to 15.8 fish/hour, 2003-2005 (Figure 9).

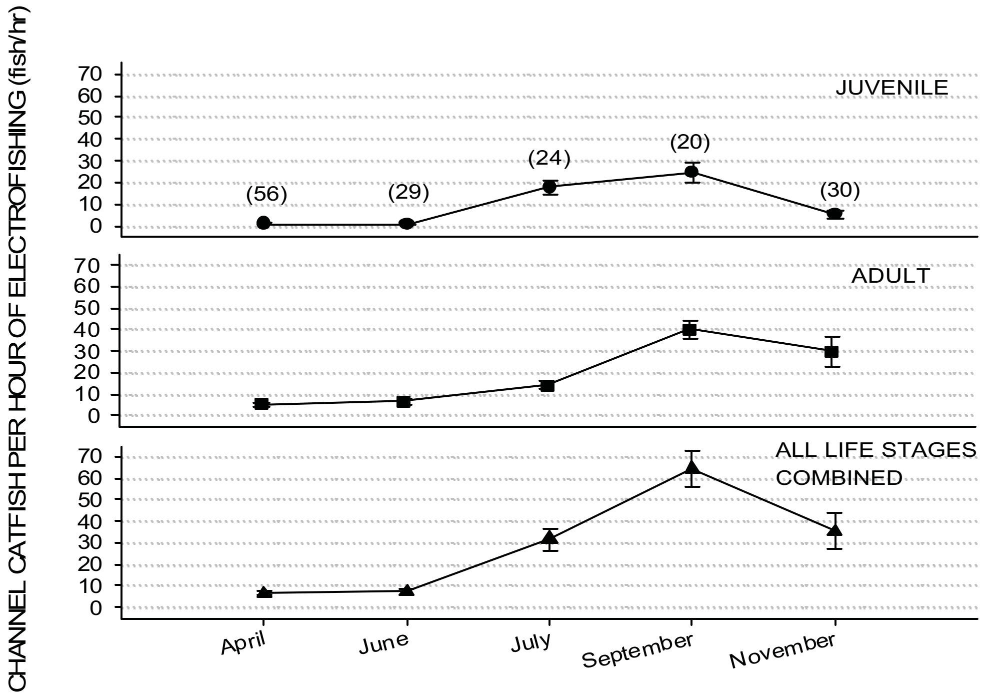

Figure 8. Channel catfish CPUE (fish/hour) by trip within the Hogback Diversion to Shiprock Bridge Section, 2005. Sample size listed parenthetically and error bars represent ± 1 SE.

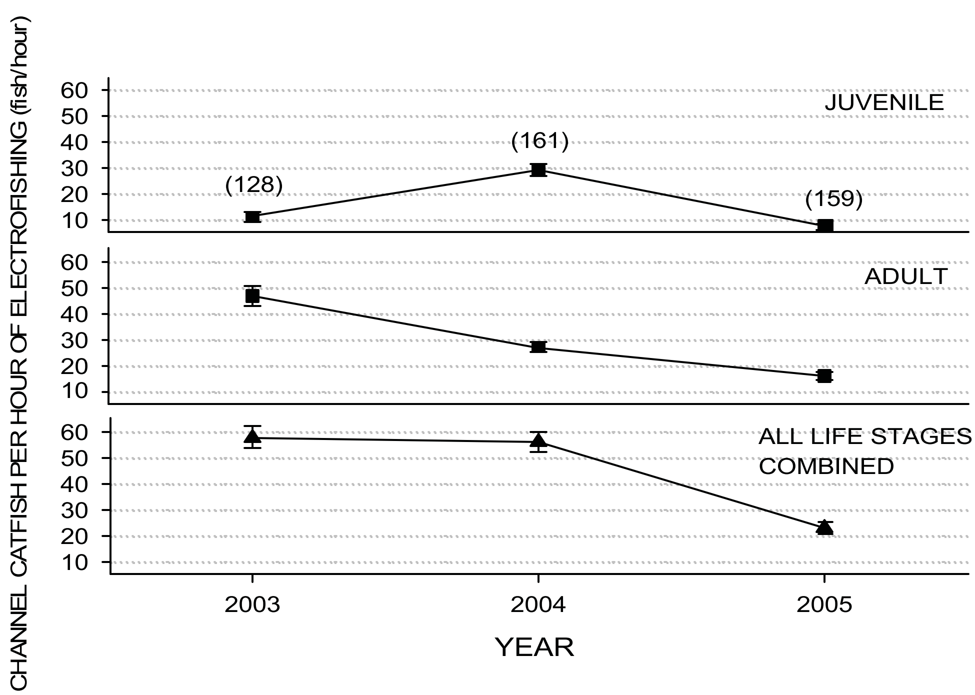

Figure 9. Channel catfish CPUE (fish/hour) by year within the Hogback Diversion to Shiprock Bridge Section. Sample size listed parenthetically and error bars represent ± 1 SE.

Channel catfish mean TL increased from 332.2 mm to 361.5 mm between 2004 and 2005 (ANOVA; $F = 290.16_{(2, 8304)}$, $p < 0.001$). Although mean TL increased, shifts towards a higher dependence on smaller size classes occurred. Fish ≤ 400 mm TL comprised 51.4% of the total catch in 2003 compared to 69.3% in 2005. Fish ≥ 501 mm TL continued to comprise a small portion of the total channel catfish catch in 2005, 6.5% (Figure 10).

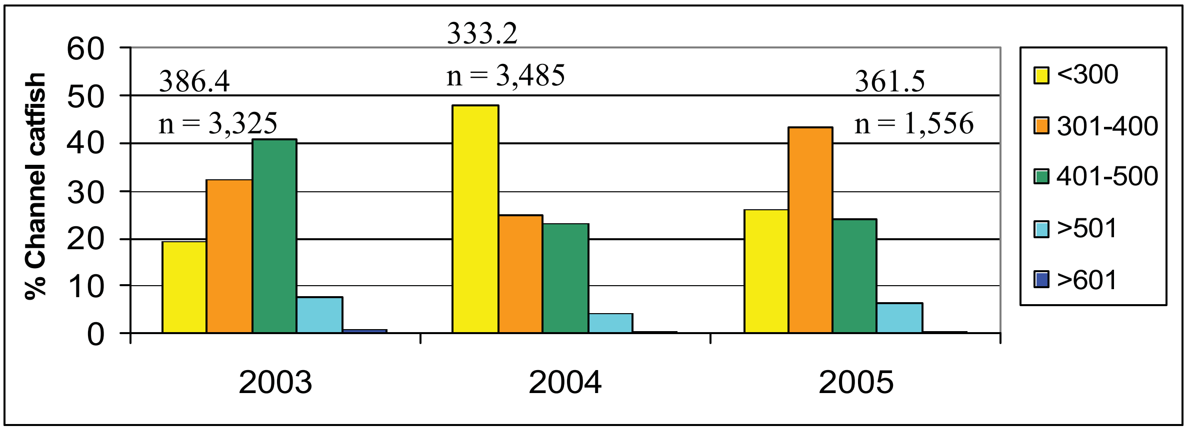

Figure 10. Size class distribution of channel catfish collected within the Hogback Diversion to Shiprock Bridge Section, 2003-2005. Mean total length (mm) and sample size above bars.

Common carp CPUE varied little among trips averaging 3.9 fish/hour for 2005 (Figure 11). Common carp CPUE ranged from 1.2 to 6.8 fish/hour and for the second consecutive year no individual trip exceeded 10 fish/hour. Majority of common carp collections consisted of adult fish with juveniles (< 250 mm TL) comprising less than 2% of the total catch (0.2 fish/hour) (Figure 11).

Adult common carp CPUE declined for the third consecutive year, with a significant decline between 2003 and 2005 (Mann Whitney $U = 736.5$; $p < 0.001$ (Figure 12). Mean CPUE for adult common carp was < 8.0 fish/hour during all trips in 2005 and was the lowest adult CPUE among 2003-2005 comparisons.

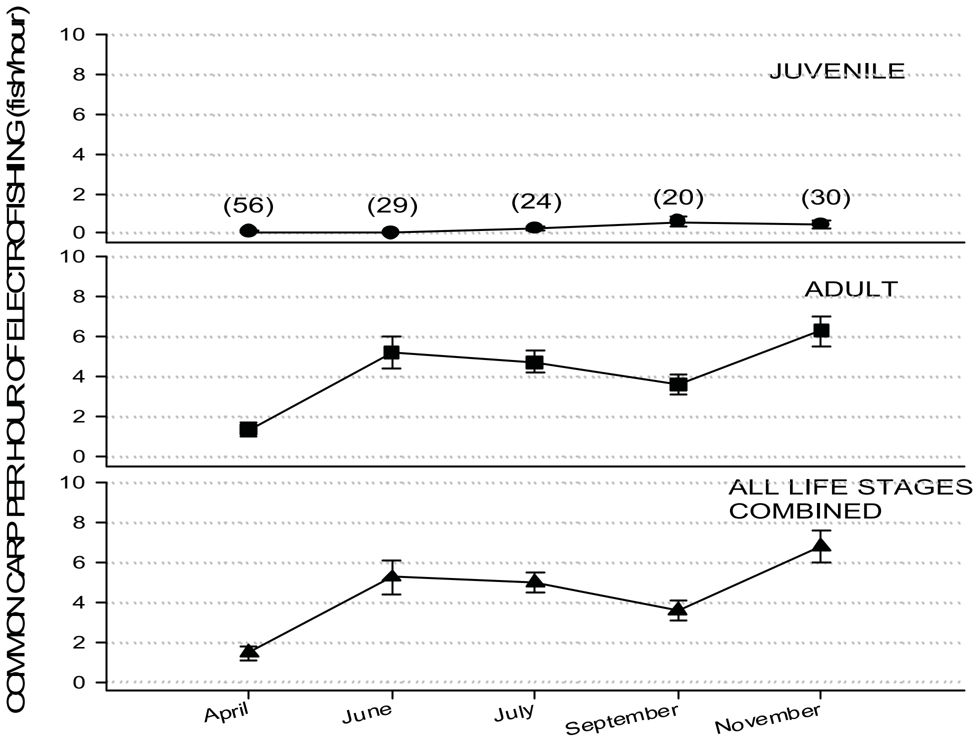

Figure 11. Common carp CPUE (fish/hour) by trip within the Hogback Diversion to Shiprock Bridge Section, 2005. Sample size listed parenthetically and error bars represent + 1 SE.

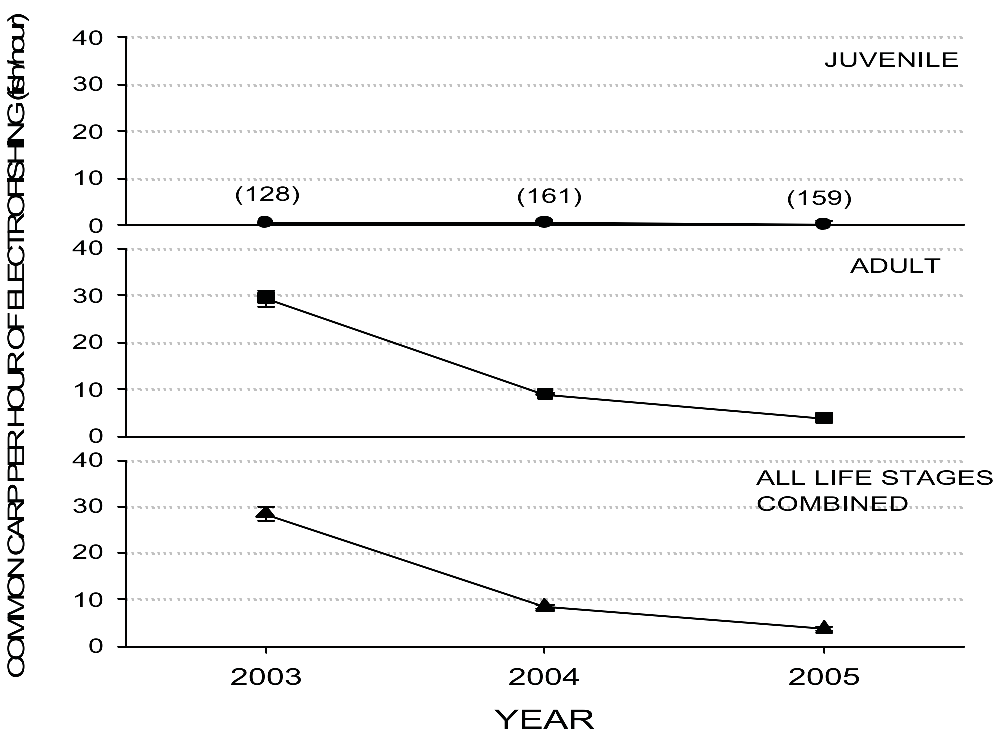

Figure 12. Common carp CPUE (fish/hour) by year within the Hogback Diversion to Shiprock Bridge Section. Sample size listed parenthetically and error bars represent + 1 SE.

SEASONAL COMPARISONS IN CATCH RATES AND COMPARISONS BETWEEN SECTIONS 1 AND 2

Channel catfish CPUE (PNM to Hogback) varied seasonally. Channel catfish CPUE was low during spring trips and increased more than four times during the post runoff (summer) trip (8.5 fish/hour to 45.0 fish/hour) (Figure 8). Since intensive removal began in 2003, summer values of channel catfish CPUE ($\bar{x}$ = 45 fish/hour) have been higher than any other season ($\bar{x}$ = 11 fish/hour; Kruskal Wallis; Chi-squared = 110.79, df = 3, 312; $p < 0.001$).

Seasonal CPUE values varied among years for spring and fall samples (Figure 13). In the spring of 2005, CPUE was lower compared to spring values for 2004 (Mann Whitney U = 52.0, p = 0.003). The mean CPUE in the spring of 2005 was the lowest observed (0.8 fish/hour) among 2001-2005 comparisons. Summer CPUE was similar among years. Catch rates in 2005 differed only from 2002 (Mann Whitney U = 157.0, p = 0.001) and were at the lowest values (25.7 fish/hour) among 2001-2005 comparisons. Since 2001, fall CPUE remained at levels < 10 fish/hour (Figure 13).

Channel catfish CPUE varied between Sections and among years with typically much higher CPUE below Hogback Diversion (Figure 14). This trend is illustrated within Section 1 (PNM Weir to Hogback), channel catfish CPUE in 2005 ranged from 0.1 to 48.5 fish/hour. Catch rates, although elevated seasonally, were relatively low in comparison with Section 2 (Hogback to Shiprock) CPUE. Lowest channel catfish CPUE within Section 2 in 2005 was 6.2 fish/hour and ranged to 64.5 fish/hour. The five trip mean CPUE in Section 1 was 17.2 fish/hour compared to 23.1 fish/hour in Section 2.

Common carp CPUE varied between reaches and years with values in 2003 of 6.8 fish/hour within Section 1 and 38.4 fish/hour in Section 2. However, common carp CPUE in 2005 between Sections was similar with 6.1 fish/hour in Section 1 and 6.8 fish/hour in Section 2 (Figure 14). Inter-Section comparison of abundance trends of common carp followed similar declining trends observed in each Section individually.

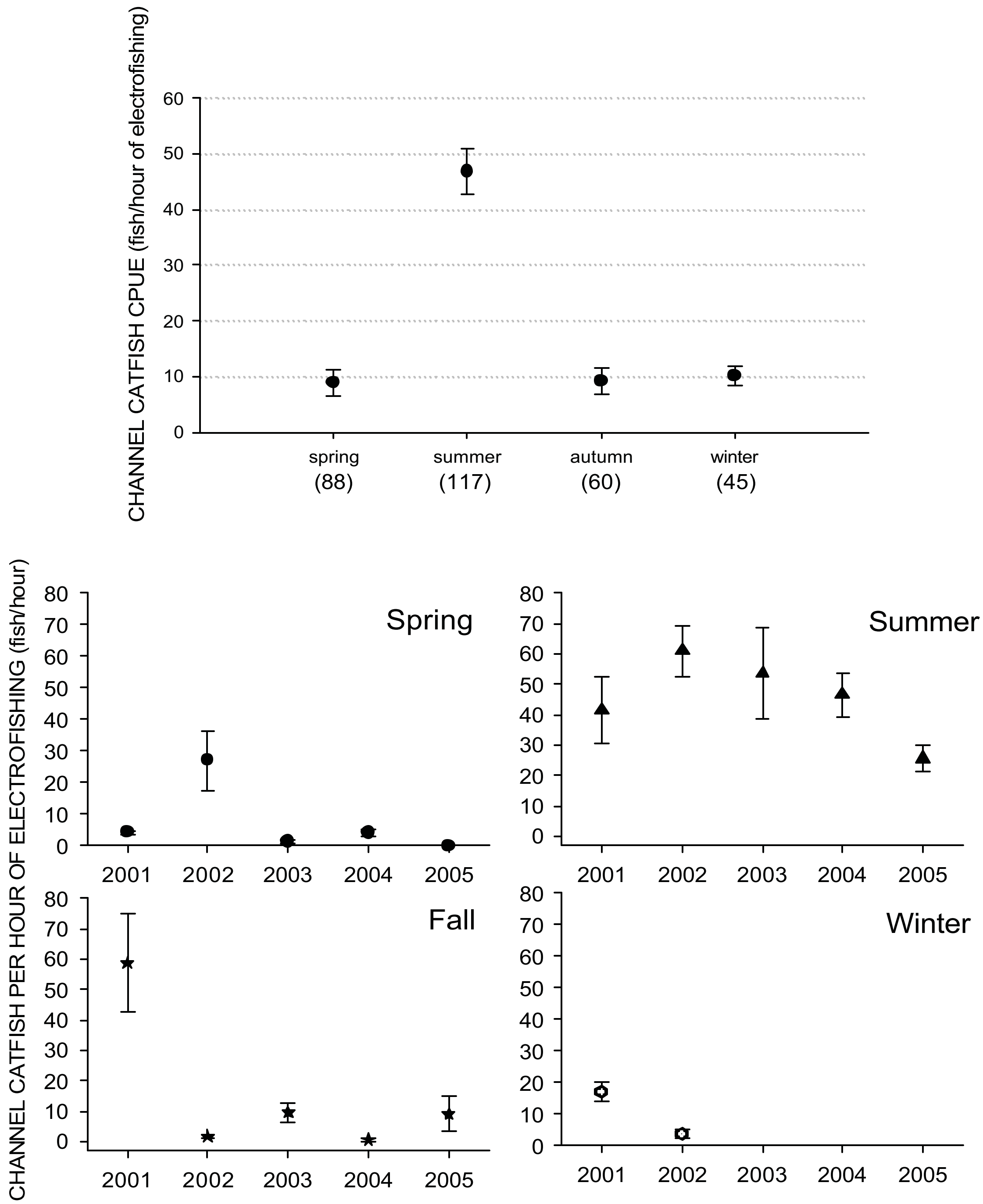

Figure 13. Channel catfish CPUE (fish/hour of electrofishing) by season and year (bottom) and by season alone (top) collected from PNM Weir to Hogback Diversion, 2001-2005. Error bars represent $\pm$ 1 SE.

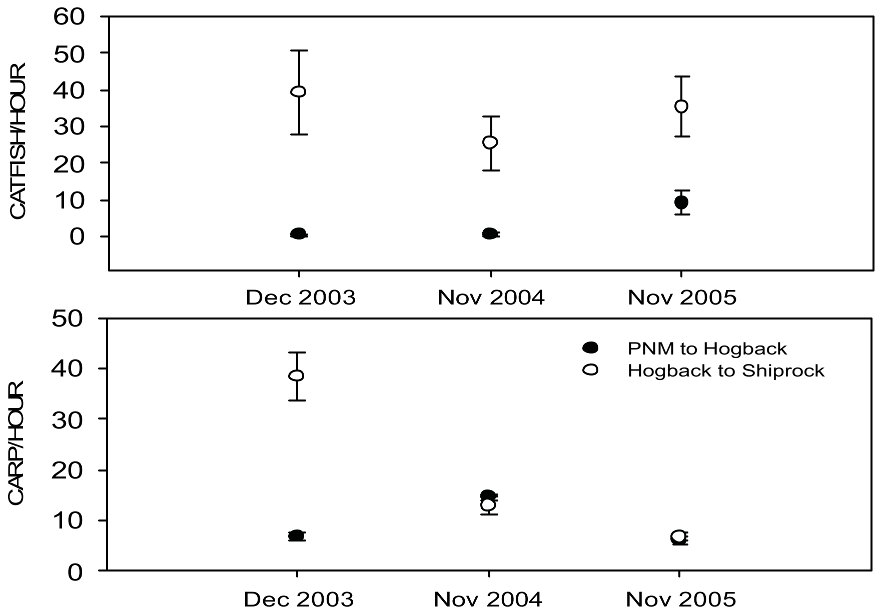

Figure 14. Comparison of channel catfish and common carp CPUE between separate Sections where intensive non-native removal takes place. Error bars represent ± 1 SE.

RIVERWIDE REMOVAL EFFORTS (RM180.0 – 0.00)

A total of 2,965 channel catfish and 536 common carp were opportunistically removed during monitoring trips in 119.41 hours of electrofishing, 2005 (Table 3). Majority of channel catfish collected in 2005 were young-of-year or juvenile fish (n = 1,859; 62.7%). Prior to 2005, adult channel catfish numbers decreased annually since 2001. In 2005, an increase in the number of adult channel catfish was observed with adults comprising 37.3% of the total channel catfish catch. Common carp removed were primarily adult fish comprising 91% of the total common carp catch. These numbers were similar to previous years and represent the fewest number of adults collected during monitoring efforts among 1998-2005 comparisons (Table 3).

CHANNEL CATFISH

Channel catfish CPUE for all Geomorphic Reaches and all life stages combined has varied since 1998 but generally exhibit a declining trend in abundance (Table 3, Figure 15). Catch rates increased in 2005 for the second straight year, but remained lower than 2001 values (Mann Whitney U = 39802; $p < 0.001$). Juvenile CPUE increased (Mann Whitney U = 30415; $p = 0.002$) in 2005 but remained lower than values observed in 1999-2001 (Figure

15). Adult CPUE increased in 2005 marking the first increase observed since intensive removal efforts began in 2001 (Mann Whitney U = 28937; $p < 0.001$). However, adult CPUE remained lower than those observed from 1999-2001.

Increases in channel catfish CPUE can be attributed to observed increases in four out of six of the Geomorphic Reaches (Figures 16-18). Within Geomorphic Reach 6, catch rates generally increased but significant differences were not observed. Catch rates in Geomorphic Reach 5 increased from 11.5 to 56.4 fish/hour, 2004-2005 (Mann Whitney U = 179; $p < 0.001$). Juvenile and adult CPUE in Geomorphic Reach 5 was the highest observed since intensive non-native removal began in 2001 (Figure 16). This five fold increase may have contributed to the overall significant increases observed among yearly comparisons of riverwide CPUE. An increase in channel catfish CPUE, all life stages combined, was also observed in Geomorphic Reach 4. The observed CPUE of 33.1 fish/hour was the second highest among 1998-2005 comparisons and was significantly higher than 2003 (Mann Whiney U = 335; $p \leq 0.002$) (Figure 17). Channel catfish CPUE within Geomorphic Reaches 2-1 remained relatively low in 2005 and were lower than observed values in 2001 (Figure 18).

Channel catfish mean total length (TL) for all Geomorphic Reaches combined increased from 218.1 mm to 274.27 mm, 2004-2005 (ANOVA; $F = 31.478_{(7, 4847)}$, $p < 0.001$). This mean was the fourth highest among 1998-2004 comparisons and was at levels similar to those observed in 2000 and 2001 (Figure 19). Although an increase was observed in 2005, trends towards higher frequency of smaller sized fish was observed from 1998-2005 (Figure 19). Similar to previous years, mean TL of channel catfish decreased from upstream to downstream (Figure 20).

Changes in mean TL of channel catfish within Geomorphic Reach 5 seemed to influence riverwide mean TL in 2004 and 2005 (Figure 20). These differences can be attributed to the influence that large discrepancies in sample size by year (2004: $\bar{x} = 183.17$, n = 12 [five of which were < 100 mm); 2005: $\bar{x} = 352.47$, n = 215) may have on overall means. Mean TL of channel catfish in 2005, excluding Geomorphic Reach 5, was 235.8 mm compared to 274.3 mm including fish collected in Geomorphic Reach 5.

Table 3. Total number of channel catfish and common carp and percent abundance by size class collected during main channel electrofishing surveys conducted in the spring and fall of each year.

Species	Year	Young of Year	Juvenile	Adult	Total	Total Effort (Hours)
Channel catfish	1998	63 (1.3)	2,738 (57.1)	1,994 (41.6)	4,795	241.78
	1999	114 (2.2)	2,798 (54.5)	2,224 (43.3)	5,136	158.88
	2000	112 (1.8)	4,305 (68.1)	1,907 (30.2)	6,320	178.06
	2001	110 (1.6)	4,435 (65.1)	2,269 (33.3)	6,814	212.05
	2002	40 (1.7)	1,193 (49.5)	1,166 (48.4)	2,409	243.45
	2003	52 (3.3)	774 (48.4)	773 (48.3)	1,599	126.64
	2004	253 (10.9)	1,387 (59.6)	689 (29.6)	2,329	128.19
	2005	179 (6.0)	1,680 (56.7)	1,106 (37.3)	2,965	119.41
	Total	**949 (2.9)**	**19,310 (59.7)**	**12,088 (37.3)**	**32,367**	**1,378.46**
Common carp	1998	1 (0.03)	51 (1.5)	3,308 (98.5)	3,360	
	1999	0 (0.0)	13 (0.4)	3,075 (99.6)	3,088	
	2000	99 (3.6)	235 (8.5)	2,430 (87.9)	2,764	
	2001	0 (0.0)	98 (2.7)	3,508 (97.3)	3,606	
	2002	31 (2.4)	154 (12.1)	1,082 (85.3)	1,268	
	2003	3 (0.4)	52 (6.4)	757 (93.2)	812	
	2004	29 (3.2)	191 (21.2)	681 (75.6)	901	
	2005	2 (.4)	46 (8.6)	488 (91.0)	536	
	Total	**165 (1.0)**	**840 (5.1)**	**15,329 (93.8)**	**16,335**	

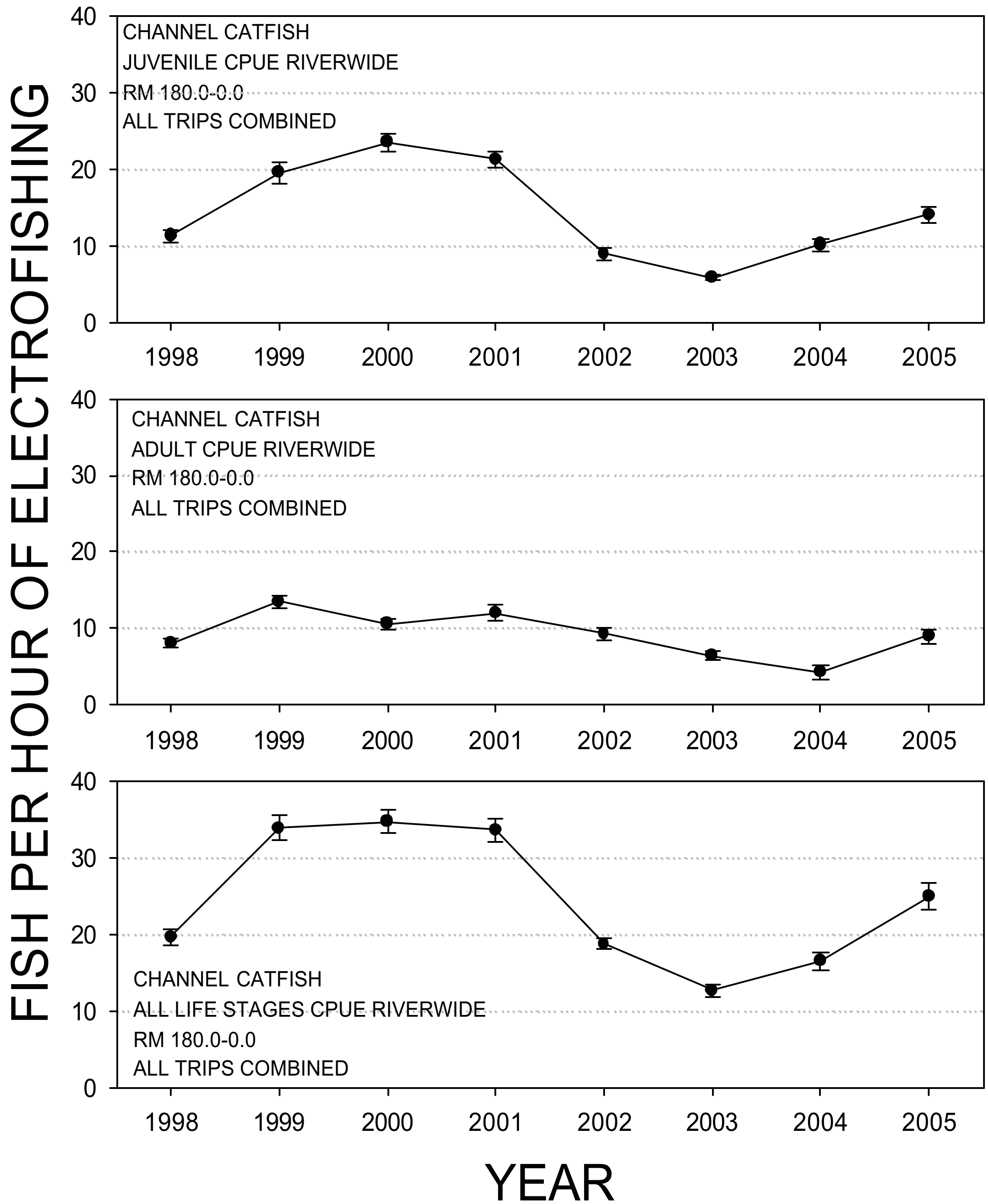

Figure 15 Channel catfish CPUE (fish/hour) by size class and by year, 1998-2004. Fish collected during riverwide monitoring efforts conducted by FWS-GJ in the spring and fall of each year. Error bars represent ± 1 SE.

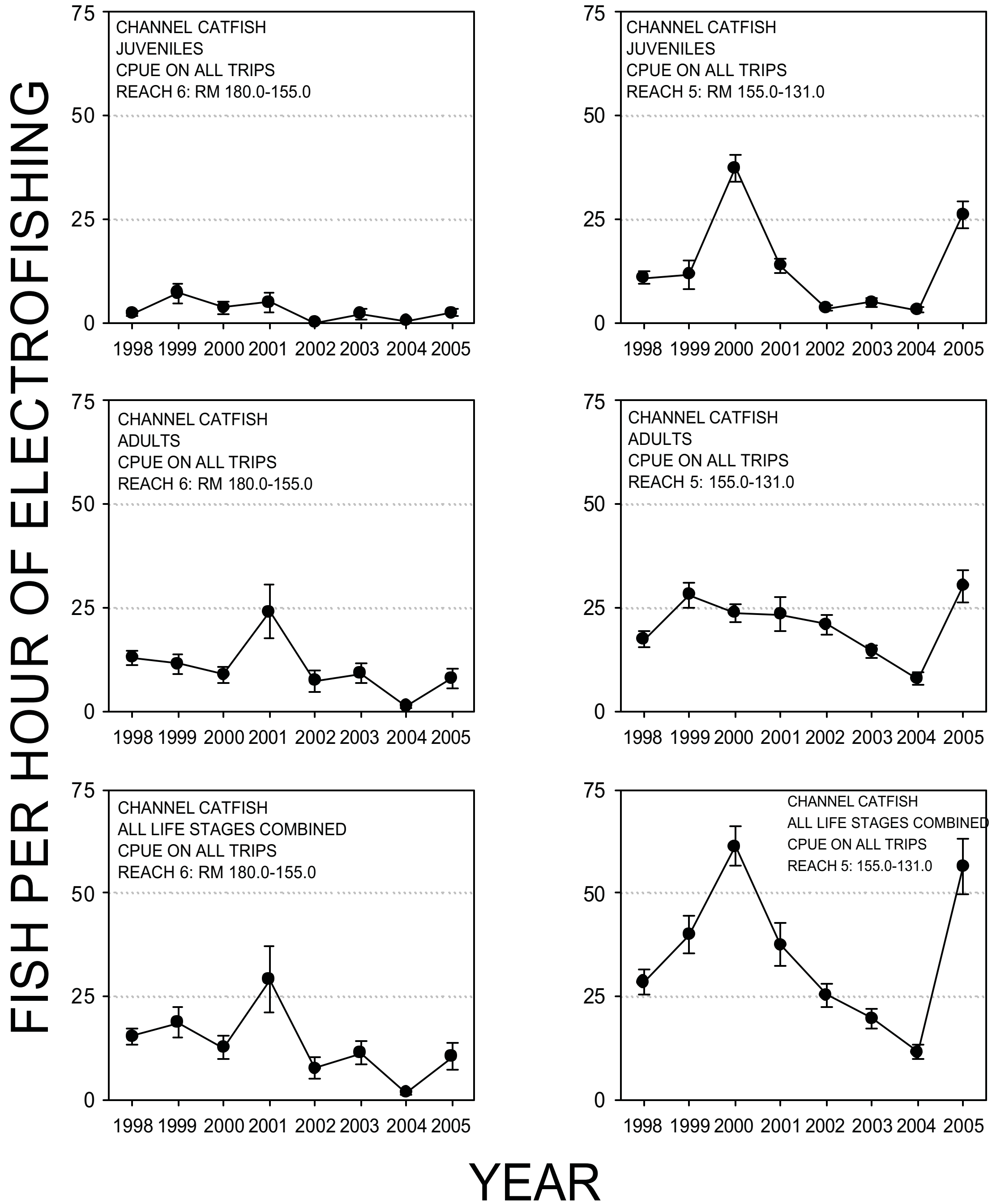

Figure 16. Channel catfish CPUE (fish/hour) in Geomorphic Reaches 6 and 5 by size class and by year, 1998-2004. Fish collected during riverwide monitoring efforts conducted by FWS-GJ in the spring and fall of each year. Error bars represent ± 1 SE.

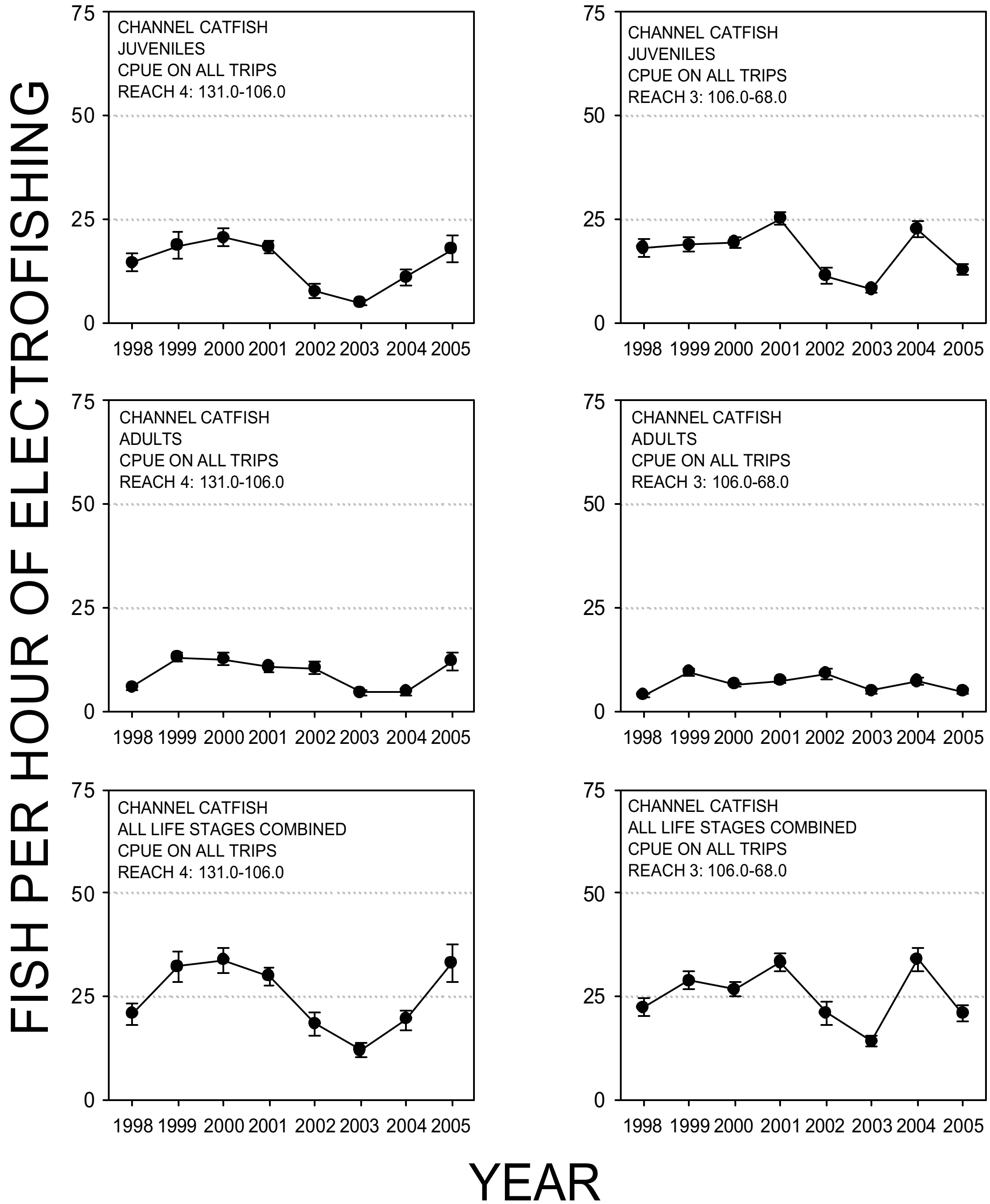

Figure 17. Channel catfish CPUE (fish/hour)in Geomorphic Reaches 4 and 3 by size class and by year, 1998-2004. Fish collected during riverwide monitoring efforts conducted by FWS-GJ in the spring and fall of each year. Error bars represent + 1 SE.

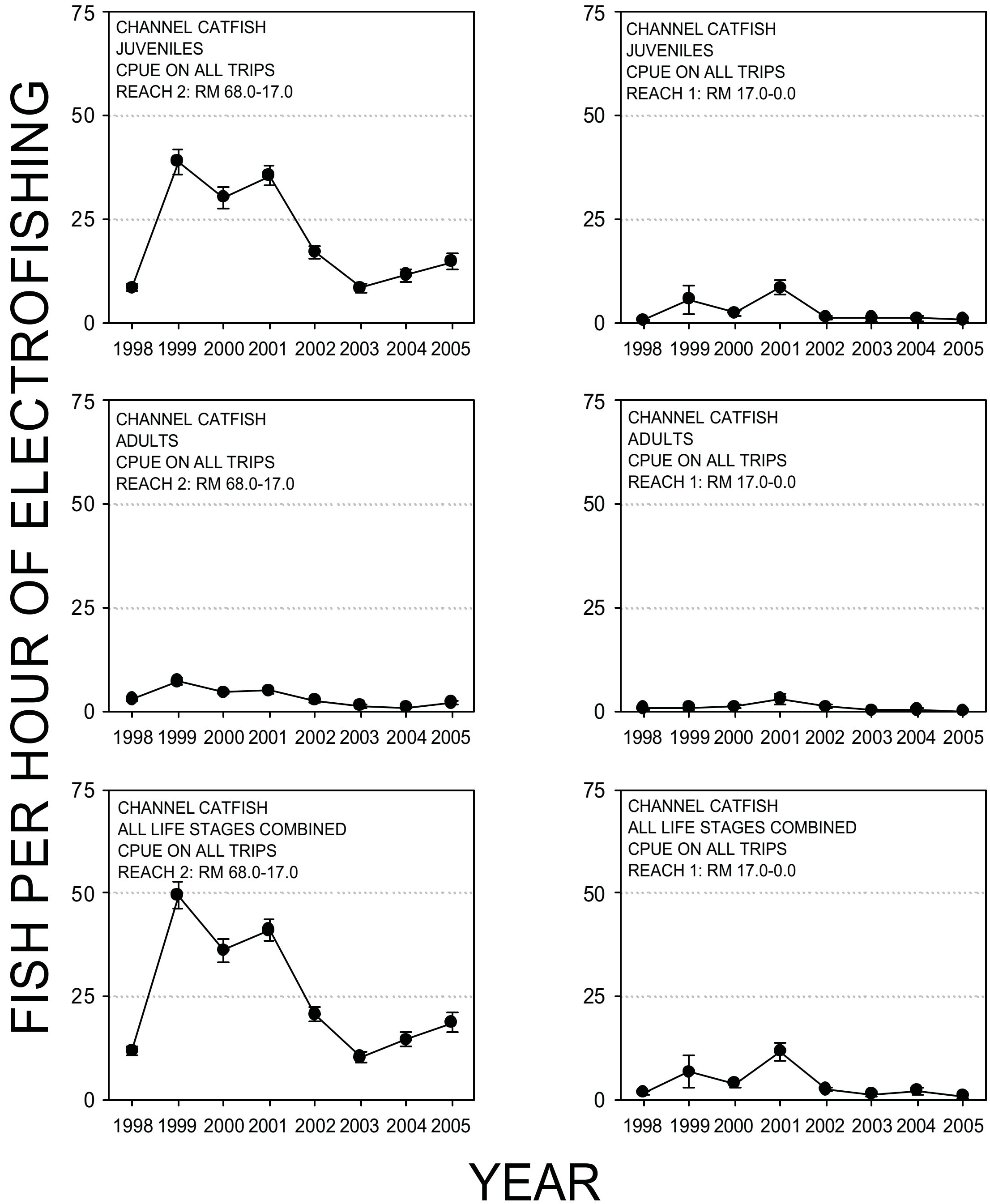

Figure 18. Channel catfish CPUE (fish/hour)in Geomorphic Reaches 2 and 1 by size class and by year, 1998-2004. Fish collected during riverwide monitoring efforts conducted by FWS-GJ in the spring and fall of each year. Error bars represent ± 1 SE.

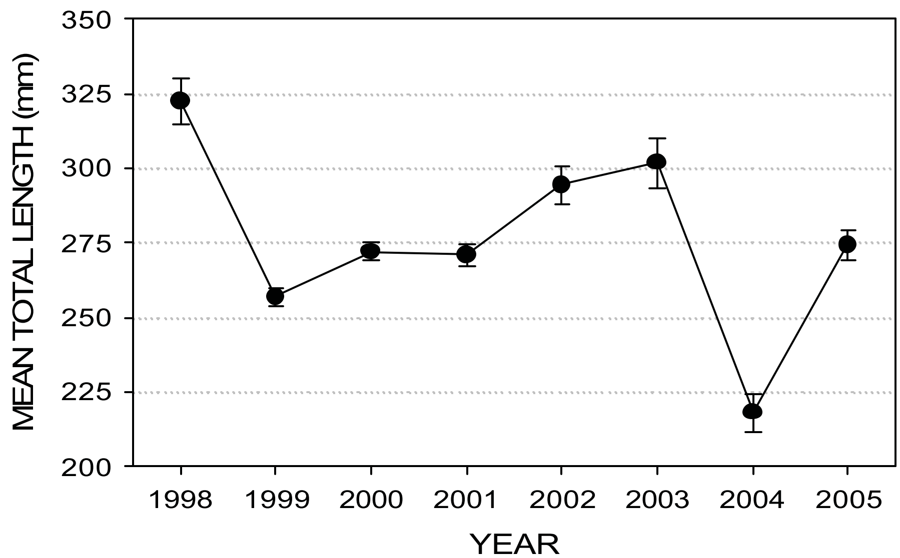

Figure 19. Mean total length (mm) of channel catfish collected in all Geomorphic Reaches during fall monitoring of each year 1998-2004. Error bars represent + 1 SE

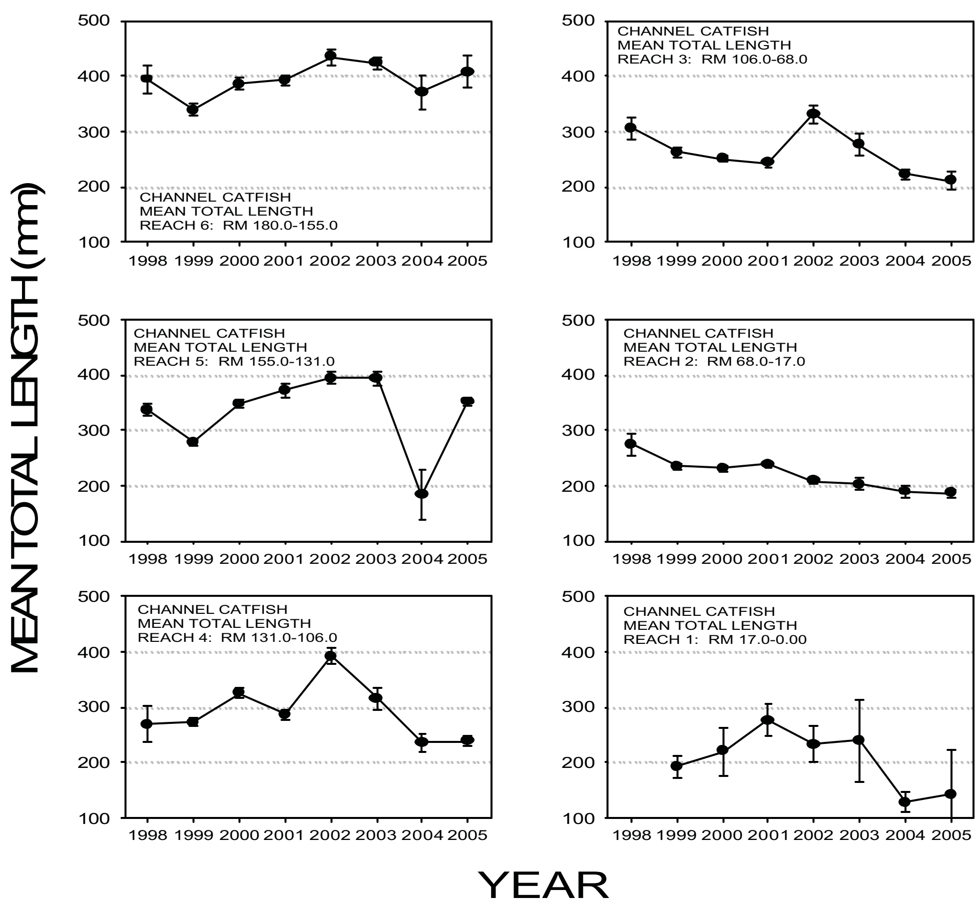

Figure 20. Mean total length (mm) of channel catfish by Geomorphic Reach and by year. Error bars represent + 1 SE.

COMMON CARP

Common carp CPUE for all Geomorphic Reaches and all life stages combined has tended to decline over the period of study, with sharp declines observed since the onset of intensive removal in 2001 (Table 3, Figure 21). Mean CPUE in 2005 was 4.1 fish/hour compared to 18.5 fish/hour in 1999 (Mann Whitney U = 16051; $p < 0.001$) and 6.6 fish/hour in 2004 (Mann Whitney U = 27644; $p < 0.001$). Common carp CPUE in 2005 was lower than all other years, 1998-2005. Similar to previous years, common carp CPUE was almost exclusively composed of adult fish (Figure 21).

Across all Geomorphic Reaches, excluding Geomorphic Reach 1, overall common carp CPUE declined in 2005 (Figures 22 – 24). Within Geomorphic Reach 6, common carp CPUE for all life stages combined remained similar among 2003-2005 comparisons (Figure 22). Although a significant decline was not observed in 2005, CPUE decreased (5.6 fish/hour) for the third straight year and was lower than 2001 (Mann Whitney U = 284; $p = 0.001$). Juvenile CPUE in Geomorphic Reach 6 remained low in 2005, 0.6 fish/hour, and continued to comprise little of the overall catch (Figure 22). Adult CPUE in Geomorphic Reach 6 remained lower than values observed in 2001 (Mann Whitney U = 271; $p < 0.001$)

Since 2002, common carp CPUE was < 15 fish/hour in each individual Geomorphic Reach and exhibited general decreases as sampling continued downstream. The highest recorded CPUE among 1998-2005 comparisons occurred within Geomorphic Reach 5 in 1999 with a CPUE of 33.4 fish/hour compared to 10.0 fish/hour in 2005 (Figure 22). In addition, common carp CPUE in Geomorphic Reaches 4 and 3 in 2005 was significantly ($p \leq 0.05$) lower than all other years (excluding Geomorphic Reach 4 in 2003), 1999-2005 (Figure 23).

Common carp mean TL for all Geomorphic Reaches combined increased from 360.8 mm to 471.8 mm, 2004-2005 (ANOVA; $F = 34.71_{(7, 1896)}$, $p < 0.001$) (Figure 25). Mean TL in 2005 was the second highest since 1998 (Figure 26). Mean TL increased in Geomorphic Reaches 6-3 with the largest increase occurring in Geomorphic Reach 5 (Figure 26).

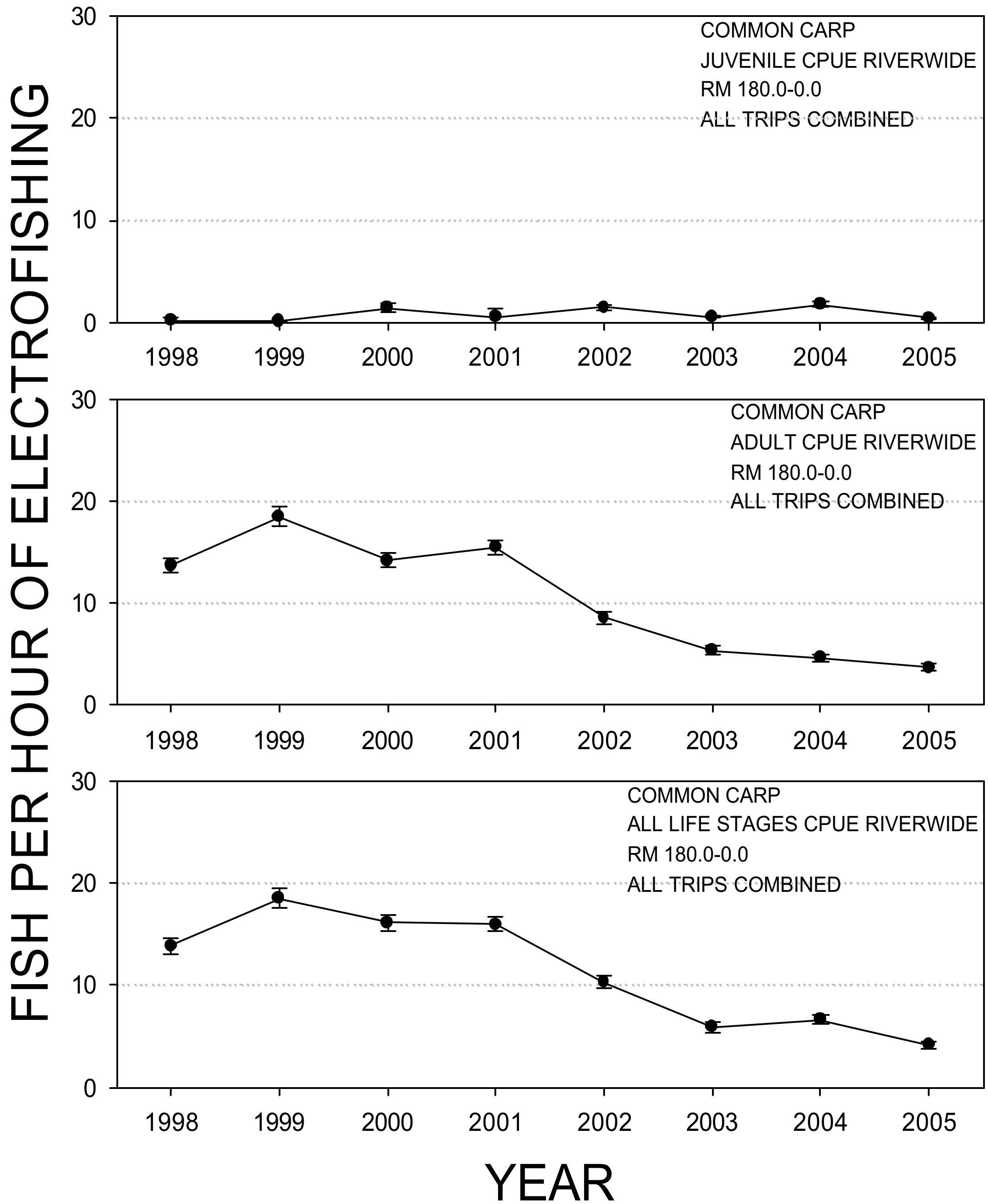

Figure 21. Common carp CPUE (fish/hour) by size class and by year, 1998-2004. Fish collected during riverwide monitoring efforts conducted by FWS-GJ in the spring and fall of each year. Error bars represent $\pm$ 1 SE.

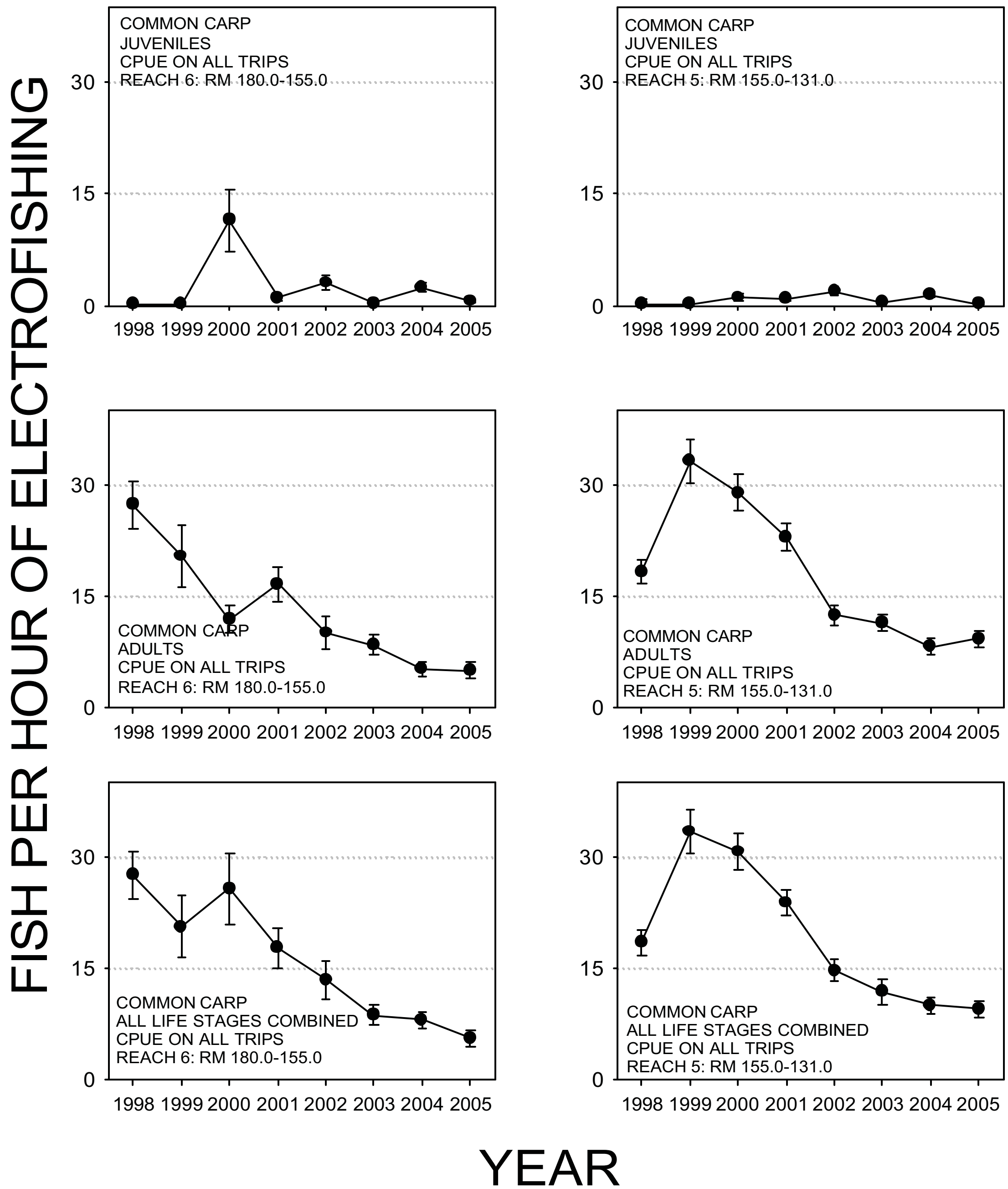

Figure 22. Common carp CPUE fish/hour in Geomorphic Reaches 6 and 5 by size class and by year, 1998-2004. Fish collected during riverwide monitoring efforts conducted by FWS-GJ in the spring and fall of each year. Error bars represent + 1 SE.

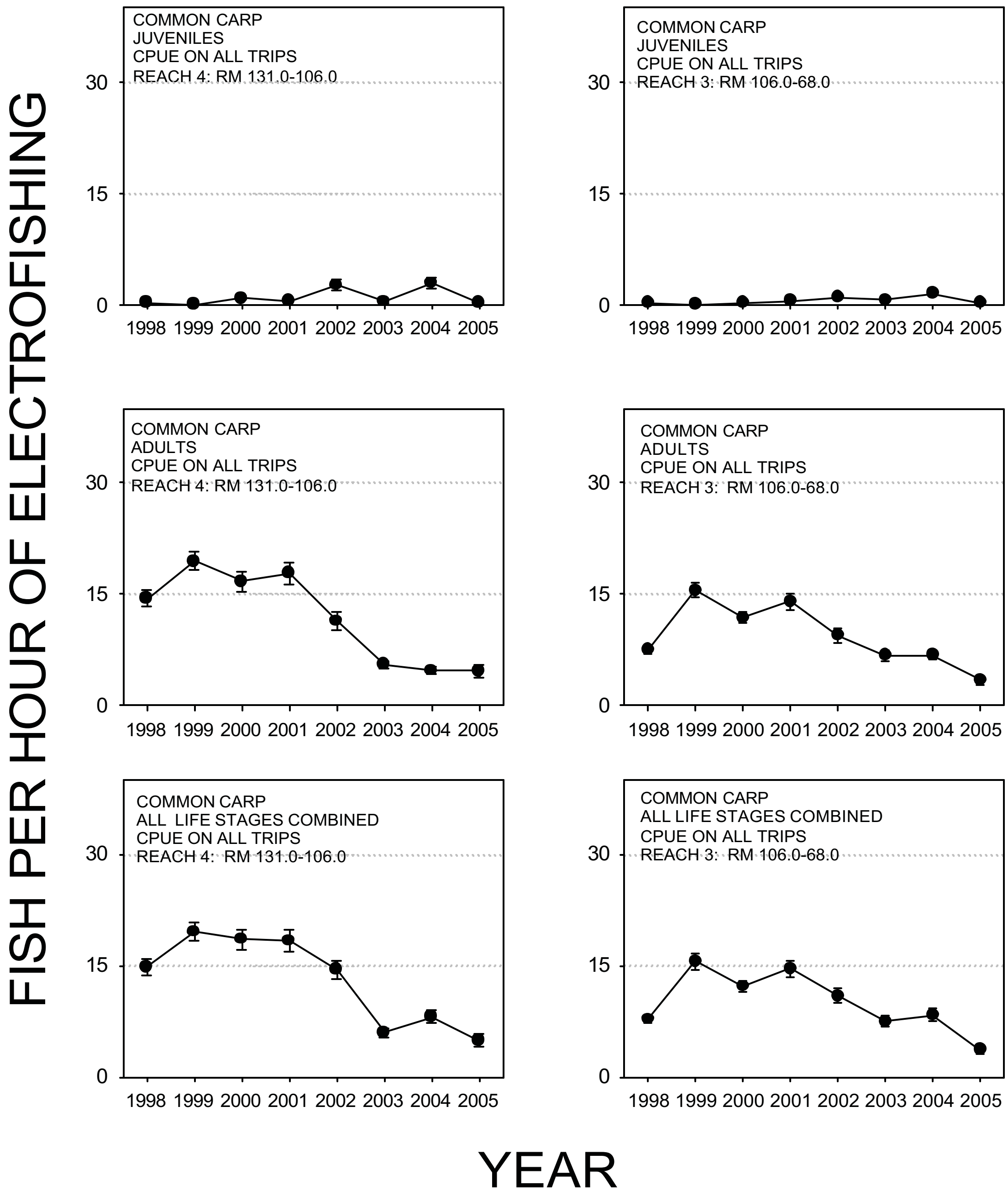

Figure 23. Common carp CPUE (fish/hour) in Geomorphic Reaches 4 and 3 by size class and by year, 1998-2004. Fish collected during riverwide monitoring efforts conducted by FWS-GJ in the spring and fall of each year. Error bars represent $\pm$ 1 SE.

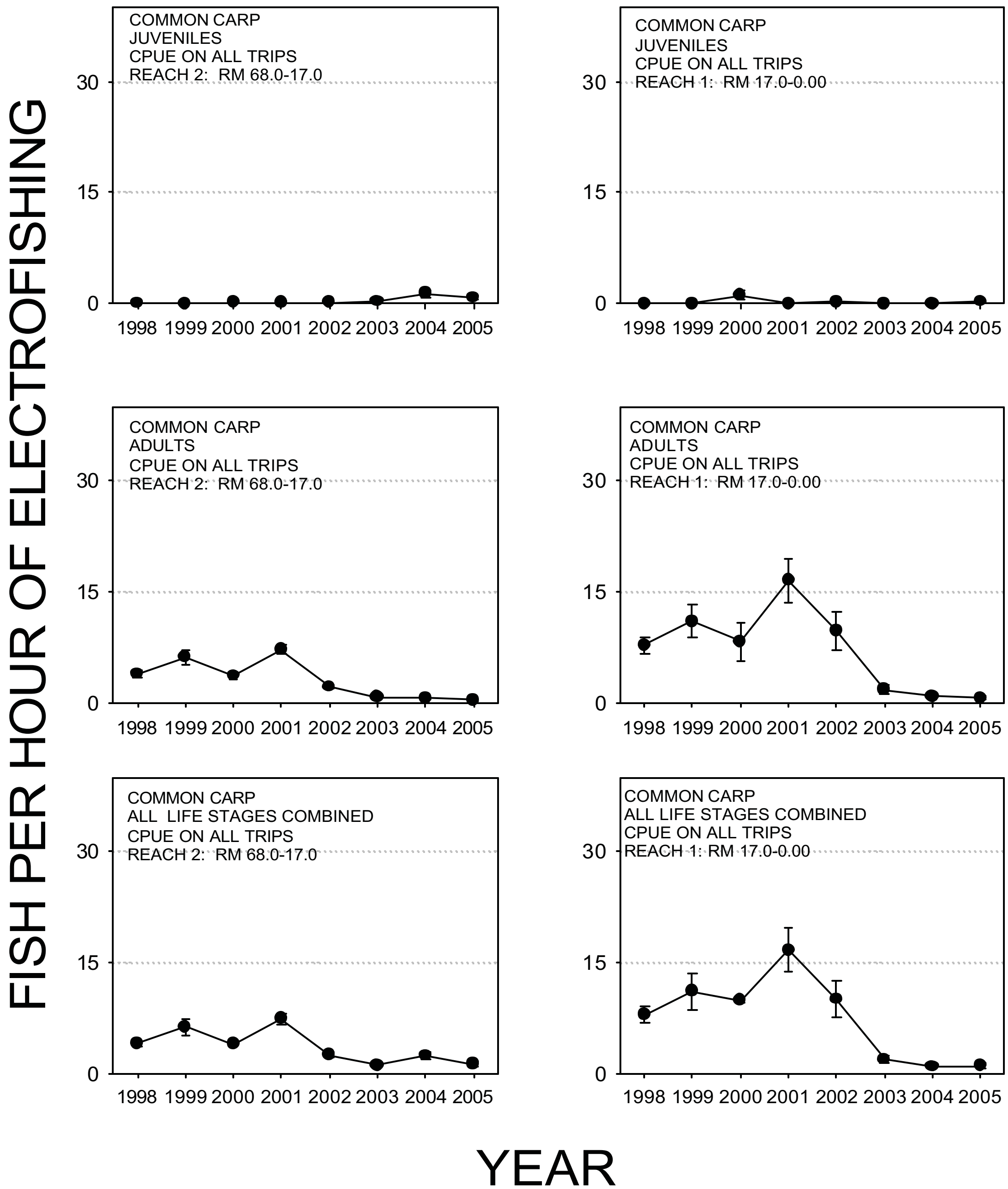

Figure 24. Common carp CPUE (fish/hour) in Geomorphic Reaches 2 and 1 by size class and by year, 1998-2004. Fish collected during riverwide monitoring efforts conducted by FWS-GJ in the spring and fall of each year. Error bars represent $\pm$ 1 SE.

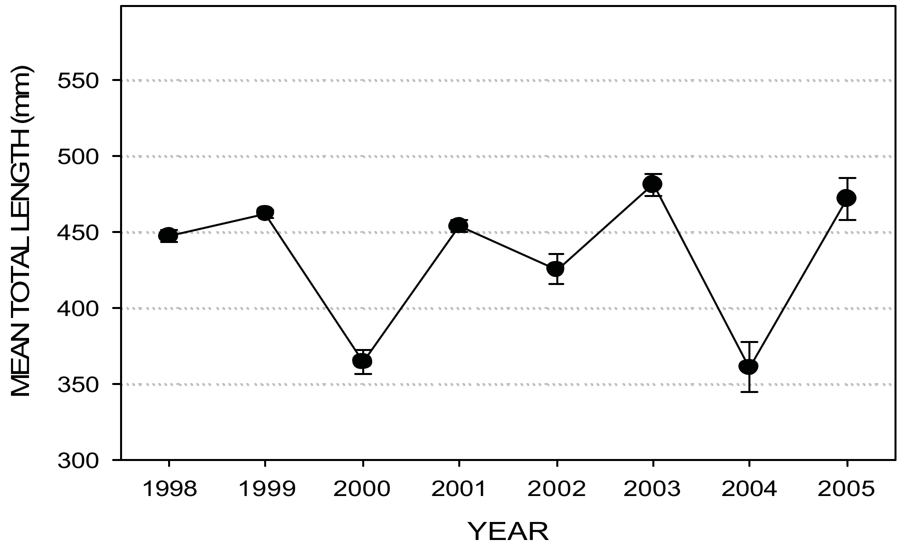

Figure 25. Mean total length (mm) of common carp collected in all Geomorphic Reaches during fall monitoring of each year 1998-2004. Error bars represent + 1 SE

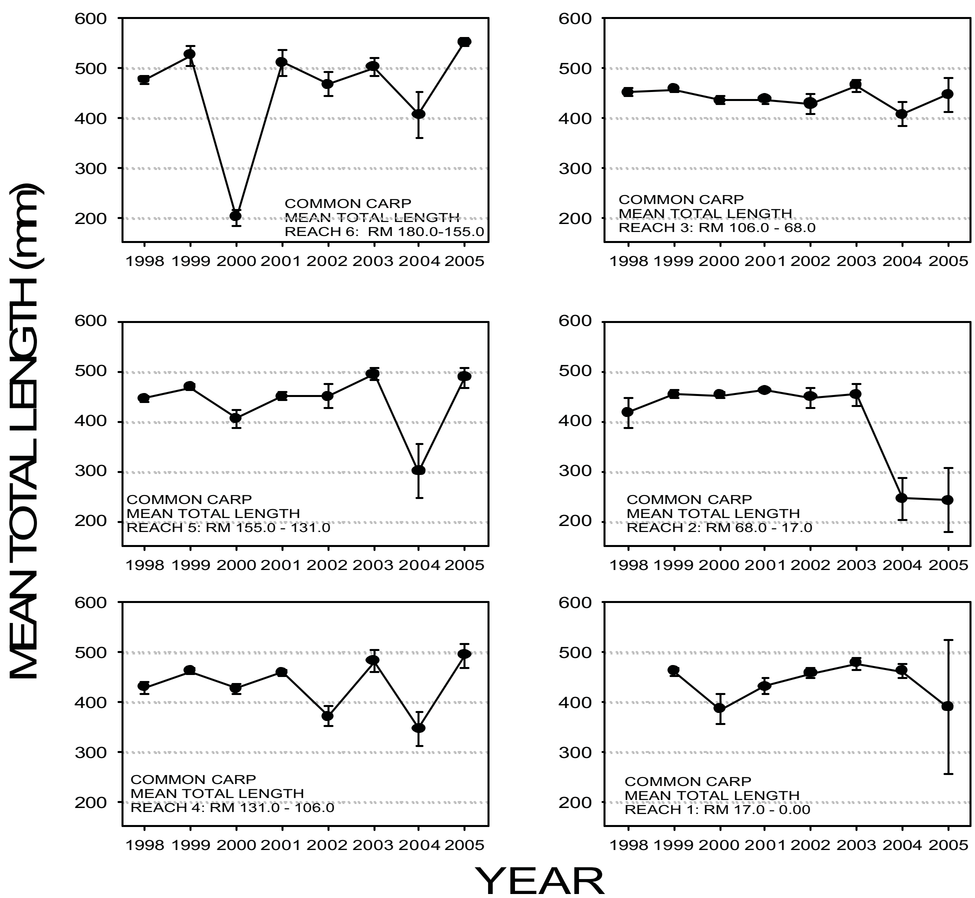

Figure 26. Mean total length (mm) of common carp by Geomorphic Reach and by year. Error bars represent + 1 SE.

RARE FISH COLLECTIONS

A total of 253 Colorado pikeminnow *Ptychocheilus lucius* and 236 razorback sucker *Xyrauchen texanus* were collected during 10 removal trips in 2005 (Tables A-1 and A-2). Of these, 57 Colorado pikeminnow (73 – 538 mm TL) and 15 razorback sucker (385 – 489 mm TL) were collected in sampling from PNM Weir to Hogback Diversion. A total of 196 Colorado pikeminnow (45 – 603 mm TL) and 221 razorback sucker (265 – 534 mm TL) were collected from Hogback Diversion to Shiprock Bridge. A ripe male Colorado pikeminnow (603 mm TL; 1,990 grams) was collected on 28 July 2005 at RM 158.1. This fish lacked a detectable tag and was likely a survivor from augmentation efforts in the late 1990's.

DISCUSSSION

Channel catfish CPUE, all life stages combined, from PNM Weir to Hogback Diversion has changed little since 2001. Although channel catfish CPUE was similar among year comparisons, 2005 CPUE was the lowest observed from 2001-2005. Similarly, channel catfish adult CPUE decreased in 2005 and continued to exhibit a general declining trends in abundance.

The lack of clear, significant declines in channel catfish abundance within this Section can be attributed to large seasonal fluctuations in CPUE. Since the initiation of removal efforts, channel catfish CPUE was typically low early in the year and significantly increased during the warmer summer months. Spring CPUE was < 10 fish/hour in four out of five of the last years. Sampling conducted post-runoff and during the summer months was often > 40 fish/hour. Probable influences causing CPUE fluctuations include: 1.) lower water temperatures influencing catch (Quinn 1988, Justus 1996), 2.) increased activity, and 3.) seasonal movement patterns (Davis in prep, Dames et al. 1989, Funk 1955). Other factors which may influence channel catfish CPUE include morning water temperature (C) and discharge (ft^3/second) at time of sampling. Simple linear regression in 2005 showed a general positive relationship between water temperature ($F = 1.727_{(1, 6)}$, R-squared = 0.224, p = 0.237) and negative relationship with discharge ($F = 3.879_{(1, 8)}$, R-squared = 0.327, p = 0.084). These data suggest that sampling conditions in 2005 may have influenced the efficacy of electrofishing for channel catfish.

Due to observed seasonal fluctuations, intensive non-native removal trips were timed to maximize the ability to capture and remove the highest numbers of channel catfish. It appears that in order to maximize removal efforts, trips should be conducted during summer months when channel catfish are more active, post spring movement has occurred, and water temperature has increased. However, trips are still recommended during the spring with the purpose of removing as many reproductively active adults as possible prior to reproduction.

The observed declining trends in CPUE of large channel catfish and shifts in size class distribution to smaller, less fecund fish was encouraging. Shifts towards smaller fish may be important in long term suppression and reduction of channel catfish numbers in the San Juan River by reducing overall reproductive potential and recruitment. Helms (1975) found that 1 of 10 channel catfish were sexually mature at 330 mm TL, compared to 5 of 10 at 380 mm TL. In addition, he found that channel catfish at 330 mm TL produced around 4,500 eggs/fish compared to the production of 41,500 eggs at 380 mm TL.

A shift towards smaller channel catfish may also be important in limiting overall predatory impacts on native fishes by channel catfish. Brooks et al. (2000) found that San Juan River channel catfish < 300 mm TL consumed almost exclusively macroinvertebrates and Russian olive fruits. Piscivory occurred most frequently in fish > 450 mm TL. Documentation of predation on endangered fishes during their study was not observed due to the relatively low numbers of in the San Juan River at the time of their study, but has been documented elsewhere in SJRIP work (Jackson 2005). If unchecked, as augmentation efforts continue and the numbers of rare fishes increase, predation by channel catfish will undoubtedly increase.

Continued reduction in mean TL and shifts to smaller size class distributions of channel catfish are considered important indicators of successful removal and exploitation efforts. Results from the upper San Juan River are similar to those Pitlo (1997) observed as evidence of overexploitation of channel catfish in the Mississippi River. It was observed that as the numbers of large fish decline, the population became highly dependent on newly recruited fish, resulting in large fluctuations in catch and dependence on the strength of individual year-classes.

Although decreasing trends in overall channel catfish abundance is encouraging, much debate is being generated on the costs/benefits associated with shifting the size class structure to a higher dependence on smaller sized fish. It has been suggested that non-native removal efforts on the San Juan River are simply increasing the numbers of juvenile fish and argue that these efforts could actually increase predation pressure on early life stages of native fishes (Mueller 2005). The observed shift towards smaller sized channel catfish may indeed create more occurrences of negative interactions (i.e. harassment, interspecific competition) in the short term. However, by continuing a non-size selective removal program, these smaller sized fish continue to be removed and may result in an overall, measurable effect on predation pressure by limiting channel catfish abundance.

Channel catfish CPUE, riverwide, increased in 2005 for the second straight year. If the efficacy of mechanical removal was to be determined by riverwide trends one might be tempted to fail to reject the null hypothesis ($H_? = \bar{x}_{1998} = \bar{x}_{1999} = \ldots \bar{x}_{2005}$). However, when CPUE trends were analyzed by Geomorphic Reach a different story is told. The highest observed CPUE in 2005 occurred within Geomorphic Reaches 5 and 4 and coincide with areas of the river where only opportunistic removal occurs once or twice a year. Intensive removal by FWS-ABQ encompass RM's 166.6 – 147.9 while intensive removal by UDWR is conducted from RM's 53.0 – 0.0. Whether intensive removal is having a measurable effect or the repeated efforts are chasing channel catfish out of the study areas to those that are only opportunistically sampled; it appears that a 'stronghold' for channel catfish may be developing. If the control of non-native fishes is to be seriously considered then these data support the need to expand intensive removal efforts to include those areas that are only sampled opportunistically to date.

Common carp are ubiquitous in the San Juan River and during 1991-1997 SJRIP studies were found to be the fourth most abundant fish in electrofishing collections (Ryden 2000). In addition to widespread abundance, majority of common carp collected were large adult fish > 400 mm TL, weighing up to or exceeding 1,800 grams. Within intensive removal reaches, total biomass of common carp removed declined, 2001-2005. It appears that removal efforts have been successful in decreasing common carp abundance, possibly limiting competitive interactions with native fishes and negative habitat modifications often associated with common carp (i.e. uprooting of aquatic plants causing increased turbidity, possible cause of noxious algae blooms by recycling of nutrients from silt substrates) (Cooper 1987). Although overall biomass of common carp declined in 2005, average mass increased since 2001 resulting in a higher mean condition factor $K_{(f)}$. It appears that common carp are becoming less common in collections but fish that are collected are generally larger, more robust fish than in previous years.

Common carp abundance, based on CPUE, decreased since 1998 and is primarily a result of fewer large adult fish in electrofishing collections. Common carp, once common, are becoming rare in electrofishing collections across all studies. These decreases and the subsequent decreases in carp biomass may allow for higher utilization of resource use by native fishes with limited levels of interspecific competition.

With recent flow conditions in the San Juan River lacking out of bank flow, available low flow or slackwater, spawing and nursery habitats for common carp has likely been limited. Lack of available nursery habitat may have influenced recent common carp abundance trends as much as mechanical removal did and close watch on trends post out of bank flow is recommended.

In addition to monitoring distribution and abundance trends of non-native fishes in relation to mechanical removal, FWS-ABQ continued to work with both state and tribal partners in transplanting channel catfish from the San Juan River to closed impoundments in the area. These efforts were initiated to address negative concerns by private citizens about the removal of game fish from the river. By transplanting channel catfish, anglers in the Four Corners region still have the opportunity of fishing for quality sized fish. To date, > 10,000 channel catfish have been transferred to closed impoundments with the assistance of Navajo Nation Department of Fish and Wildlife and New Mexico Department of Game and Fish. Fish transferred are often larger than those produced by federal and private hatcheries and provide regional anglers immediate opportunities for quality fishing opportunities.

Intensive removal efforts will continue in 2006 with trips distributed between each of the two Sections. These trip will continue to track distribution and abundance trends in relation to non-native removal. In addition to sampling from PNM Weir to Shiprock Bridge, trips will be conducted from Shiprock Bridge downstream to Mexican Hat, Utah. These efforts are in response to riverwide trend data indicating the highest abundance of channel catfish were found within Geomorphic Reaches that lie between where current intensive removal occurs. Trips from Shiprock to Montezuma Creek, UT are at the recommendation and approval of the SJRIP Coordination and Biology Committees (February 2006) and will be conducted by FWS-ABQ and the Utah Department of Wildlife Resources. Important information on movement and retention of augmented rare fishes will continue to be collected and will aid researchers in evaluation of augmentation efforts.

CONCLUSIONS

PNM Weir to Hogback Diversion (RM 166.6 – 159.0)

- A total of 1,112 channel catfish and 266 common carp were collected in 2005.
- Channel catfish CPUE among year comparisons revealed no reduction, 2001-2005.
- Juvenile CPUE declined in 2005 but remained higher than values observed in 2001 ($p = 0.001$).
- Majority of channel catfish were collected during post-runoff or summer trips suggesting high rates of immigration into the study reach.
- Channel catfish mean total length (TL) was higher than 2004 but remained lower than 2001 values ($p < 0.001$).
- Common carp CPUE in 2005 varied little among trip comparisons.
- Common carp CPUE declined for the fifth consecutive and was significantly lower than 2001 values ($p < 0.001$).
- Common carp mass (kilograms/fish) and mean condition factor ($K_{(f)}$) increased in 2005.

Hogback Diversion to Shiprock Bridge (RM 158.8 – 147.9)

- A total of 2,933 channel catfish and 449 common carp were collected in 2005.
- Among year comparisons indicate a reduction ($p < 0.001$) in channel catfish CPUE from 2003-2005.
- Mean TL of channel catfish increased in 2005 but remained lower than 2003 values ($p < 0.001$).
- Channel catfish mean TL and CPUE was higher in this Section than in the adjacent upstream Section.
- Common carp CPUE decreased for the third consecutive year and remained lower than 2003 ($p < 0.001$).
- Common carp mean TL did not decline among year comparisons, 2003-2005.

Riverwide Removal Efforts (RM 180.0 – 0.00)

- A total of 2,965 channel catfish and 536 common carp were removed in 2005.
- Riverwide, channel catfish CPUE increased from 2004-2005 but remained lower than values observed in 2001, when intensive non-native removal began.
- Channel catfish CPUE was higher in Geomorphic Reaches 5 and 4, reaches that lie between those where intensive non-native removal trips are conducted.
- Mean TL of channel catfish increased in 2005 and was similar to values observed from 1999-2001.
- Common carp CPUE decreased in 2005 to 4.1 fish/hour; the lowest value recorded in the 1998-2005 sampling period.
- Similar to channel catfish CPUE, common carp appear to be most abundant in Geomorphic Reaches 5 and 4.

Future removal efforts on the upper San Juan River

- Continue intensive removal efforts from RM 166.6 to 147.9.
- Due to trends in distribution and abundance of both channel catfish and common carp, and the presence of a waterfall near Lake Powell preventing upstream movement of non-native fishes, the expansion on intensive removal is recommended.
- Expansion of removal trips, FWS-ABQ and UDWR-Moab, to include at least two trips from Shiprock Bridge to Mexican Hat, Utah (RM 147.9 – 53.0).

Rare Fishes

- A total of 253 Colorado pikeminnow and 236 razorback sucker collected during 10 intensive removal trips.
    - 57 Colorado pikeminnow and 15 razorback sucker from PNM Weir to Hogback Diversion and 196 Colorado pikeminnow and 221 razorback sucker from Hogback Diversion to Shiprock Bridge
- Adult ripe male Colorado pikeminnow collected on 28 July 2005
    - 603 mm TL and 1,990 grams
    - no tag present – implanted with a PIT tag
    - possible wild fish or hold over from augmentation in the late 1990's

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APPENDIX

Table A-1. Rare fishes collected from PNM Weir to Hogback Diversion during intensive non-native removal, 2005.

DATE	YEAR	TRIP	REACH	SPECIES$	TL	SL	WT	OLD TAG#	NEW TAG#	NEW TAG RECAP#
3/22/2005	2005	36	2	PTYLUC	73	62		NO TAG	NO TAG	NO TAG
3/22/2005	2005	36	2	PTYLUC	172	141	26	NO TAG	#3D9.1BF18D0AFE	NO TAG
3/22/2005	2005	36	2	PTYLUC	538	468	1380	#7F7B1B0B31	NO TAG	NO TAG
7/12/2005	2005	37	1	PTYLUC	102	85	8	NO TAG	NO TAG	NO TAG
7/12/2005	2005	37	1	PTYLUC	194	150	43	#436350325C	#3D9.1BF18D35EB	NO TAG
7/12/2005	2005	37	2	PTYLUC	212	175	64	NO TAG	#3D9.1BF18D0413	NO TAG
7/12/2005	2005	37	2	PTYLUC	235	190	80	#43641D6E66	#3D9.1BF18D1E17	NO TAG
7/13/2005	2005	37	2	PTYLUC	198	165	35	#4362404A16	#3D9.1BF18D148D	NO TAG
7/13/2005	2005	37	2	PTYLUC	209	174	48	NO TAG	#3D9.1BF1D6FFD2	NO TAG
7/13/2005	2005	37	2	PTYLUC	225	175	60	#4362721E17	#3D9.1BF18D1F14	NO TAG
7/13/2005	2005	37	2	PTYLUC	237	193	100	NO TAG	#3D9.1BF1D6EAA9	NO TAG
7/13/2005	2005	37	2	PTYLUC	253	200	89	#5338282B41	#3D9.1BF18B8CF2	NO TAG
7/14/2005	2005	37	2	PTYLUC	185	147	41	#5341735345	#3D9.1BF18D6A4B	NO TAG
7/14/2005	2005	37	2	PTYLUC	212	172	63	NO TAG	#3D9.1BF18BA0F6	NO TAG
7/14/2005	2005	37	2	PTYLUC	215	171	60	#43626C7F1E	#3D9.1BF18D5115	NO TAG
7/14/2005	2005	37	2	PTYLUC	217	176	60	#44782B2679	#3D9.1BF18B9413	NO TAG
8/16/2005	2005	38	2	PTYLUC	180	225	80	NO TAG	#3D9.1BF18D7783	NO TAG
8/16/2005	2005	38	2	PTYLUC	230	190	90	#4363695D55	NO TAG	NO TAG
8/16/2005	2005	38	2	PTYLUC	270	225	150	NO TAG	#3D9.1BF18D6847	NO TAG
8/16/2005	2005	38	1	PTYLUC	290	235	160	NO TAG	#3D9.1BF18D63A4	NO TAG
8/16/2005	2005	38	2	PTYLUC	300	240	180	NO TAG	#3D9.1BF18D6334	NO TAG
8/30/2005	2005	39	2	PTYLUC	124	103	14	NO TAG	NO TAG	NO TAG
8/30/2005	2005	39	2	PTYLUC	155	125	29	NO TAG	NO TAG	NO TAG
8/30/2005	2005	39	2	PTYLUC	167	140	38	NO TAG	#3D9.1BF18D5FB3	NO TAG
8/30/2005	2005	39	2	PTYLUC	170	140	40	NO TAG	#3D9.1BF18D2830	NO TAG
8/30/2005	2005	39	2	PTYLUC	226	187	99	NO TAG	#3D9.1BF18D7D74	NO TAG
8/31/2005	2005	39	1	PTYLUC	117	93	11	NO TAG	NO TAG	NO TAG
8/31/2005	2005	39	2	PTYLUC	129	108	11	NO TAG	NO TAG	NO TAG
8/31/2005	2005	39	1	PTYLUC	131	109	14.5	NO TAG	NO TAG	NO TAG
8/31/2005	2005	39	2	PTYLUC	146	118	23	NO TAG	NO TAG	NO TAG
8/31/2005	2005	39	2	PTYLUC	151	122	24	NO TAG	#3D9.1BF18D3665	NO TAG
8/31/2005	2005	39	2	PTYLUC	158	132	34	NO TAG	NO TAG	NO TAG
8/31/2005	2005	39	2	PTYLUC	230	195	110	#43637F0109	NO TAG	NO TAG
8/31/2005	2005	39	1	PTYLUC	233	195	98	NO TAG	NO TAG	#3D9.1BF1D6C4AD
8/31/2005	2005	39	2	PTYLUC	310	263	330	NO TAG	NO TAG	NO TAG
8/31/2005	2005	39	2	PTYLUC	372	305	365	#441E474835	#3D9.1BF18D73B5	NO TAG
9/1/2005	2005	39	2	PTYLUC	125	98	14	NO TAG	NO TAG	NO TAG
9/1/2005	2005	39	2	PTYLUC	130	104	15	NO TAG	NO TAG	NO TAG
9/1/2005	2005	39	2	PTYLUC	139	110	22	NO TAG	NO TAG	NO TAG
9/1/2005	2005	39	2	PTYLUC	143	120	29	NO TAG	NO TAG	NO TAG
9/1/2005	2005	39	2	PTYLUC	150	122	25	NO TAG	#3D9.1BF18D056A	NO TAG
9/1/2005	2005	39	2	PTYLUC	152	122	26	NO TAG	#3D9.1BF18B97C9	NO TAG
10/18/05	2005	40	1	PTYLUC	129	105	13.5	NO TAG	NO TAG	NO TAG

10/18/05	2005	40	1	PTYLUC	130	109	14	NO TAG	NO TAG	NO TAG
10/18/2005	2005	40	2	PTYLUC	132	108	18.5	NO TAG	NO TAG	NO TAG
10/18/2005	2005	40	2	PTYLUC	138	115	6	NO TAG	NO TAG	NO TAG
10/18/2005	2005	40	2	PTYLUC	157	121	22	NO TAG	#3D9.1BF1A50C44	NO TAG
10/18/05	2005	40	1	PTYLUC	240	195	115	#43635C3429	#3D9.1BF18D662E	NO TAG
10/18/05	2005	40	1	PTYLUC	241	198	120	#436528746D	#3D9.1BF18D7522	NO TAG
10/18/2005	2005	40	2	PTYLUC	265	225	140	#43637F0109	#3D9.1BF1D85DEA	NO TAG
10/18/05	2005	40	1	PTYLUC	267	220	0	NO TAG	#3D9.1BF1D6D736	NO TAG
10/18/05	2005	40	1	PTYLUC	267	220	155	NO TAG	NO TAG	#3D9.1BF1D6D736
10/18/2005	2005	40	2	PTYLUC	283	234	210	NO TAG	#3D9.1BF1A023A5	NO TAG
10/20/2005	2005	40	2	PTYLUC	177	145	32	NO TAG	#3D9.1BF18D6020	NO TAG
10/20/2005	2005	40	2	PTYLUC	244	198	120	#43626E3E23	#3D9.1BF18D689F	NO TAG
10/20/2005	2005	40	2	PTYLUC	244	202	160	#43662C6F5D	#3D9.1BF1A02B31	NO TAG
10/20/2005	2005	40	2	PTYLUC	314	265	320	NO TAG	#3D9.1BF1D87A80	NO TAG
3/22/2005	2005	36	2	XYRTEX	421	356	1010	#4507487E66	NO TAG	NO TAG
3/22/2005	2005	36	2	XYRTEX	437	364	1190	#423F7C5B46	NO TAG	NO TAG
3/22/2005	2005	36	2	XYRTEX	450	377	1320	#531A30367F	NO TAG	NO TAG
3/22/2005	2005	36	2	XYRTEX	455	378	1050	#423F5D406A	NO TAG	NO TAG
3/22/2005	2005	36	2	XYRTEX	467	386	1320	#423F125050	NO TAG	NO TAG
3/22/2005	2005	36	2	XYRTEX	489	411	1350	#42422A7575	NO TAG	NO TAG
3/23/2005	2005	36	2	XYRTEX	413	338	910	#4472004E79	NO TAG	NO TAG
3/23/2005	2005	36	1	XYRTEX	440	365	950	#52392E0545	NO TAG	NO TAG
3/24/2005	2004	36	2	XYRTEX	440	375	1100	#45040E7B46	NO TAG	NO TAG
3/24/2005	2004	36	2	XYRTEX	455	395	1380	#4240181B0C	NO TAG	NO TAG
7/12/2005	2005	37	2	XYRTEX	415	345	690	#4367254032	#3D9.1BF18D6124	NO TAG
7/12/2005	2005	37	2	XYRTEX	437	367	770	#4365483B29	#3D9.1BF18D67A0	NO TAG
8/16/2005	2005	38	2	XYRTEX	405	330	550	NO TAG	NO TAG	#3D9.1BF1A05060
8/31/2005	2005	39	2	XYRTEX	385	331	650	#441A6D7833	NO TAG	#3D9.1BF18B9CB6
9/1/2005	2005	39	1	XYRTEX	400	345	640	#441D294109	NO TAG	#3D9.1BF18D6A02

Table A-2. Rare fishes collected during intensive non-native removal from Hogback Diversion to Shiprock Bridge, 2005.

DATE	YEAR	TRIP	RM END	SPECIES	TL	SL	WT	OLD TAG #	NEW IMPLANT #	NEW RECAP #
09/13/05	2005	13	157	PTYLUC	215	179	69	#433F6E536B	#3D9.1BF18D0F4E	NO TAG
07/28/05	2005	12	150.0	PTYLUC	208	163	44	#43446E5764	#3D9.1BF18D7A1C	NO TAG
07/28/05	2005	12	157.0	PTYLUC	215	165	60	#43447D5830	#3D9.1BF18D4E73	NO TAG
07/28/05	2005	12	152.5	PTYLUC	212	170	66	#4362287735	#3D9.1BF18B95EF	NO TAG
07/26/05	2005	12	152.0	PTYLUC	195	162	48	#43622D3F12	#3D9.1BF18D2D2A	NO TAG
07/28/05	2005	12	152.5	PTYLUC	204	165	54	#43623B1B06	#3D9.1BF18CFD25	NO TAG
07/27/05	2005	12	152.5	PTYLUC	218	170	75	#43624F056B	#3D9.1BF18D61BF	NO TAG
09/13/05	2005	13	150	PTYLUC	242	200	100	#4362561901	#3D9.1BF18D7A32	NO TAG
11/08/05	2005	14	152.6	PTYLUC	254	208	145	#43628F5E36	#3D9.1BF18BA7EF	NO TAG
07/27/05	2005	12	155.0	PTYLUC	225	183	60	#4362A7A4C	#3D9.1BF18D06F4	NO TAG
07/27/05	2005	12	155.0	PTYLUC	206	166	55	#4363087746	#3D9.1BF18D7D04	NO TAG
11/08/05	2005	14	150.0	PTYLUC	240	190	100	#43630E0C78	#3D9.1BF18C6632	NO TAG
09/14/05	2005	13	155.0	PTYLUC	255	202	120	#4363695D55	#3D9.1BF18D2A24	NO TAG
09/13/05	2005	13	157	PTYLUC	258	214	130	#43641A146F	#3D9.1BF18CFA61	NO TAG
11/08/05	2005	14	157.0	PTYLUC	245	200	120	#4366305672	#3D9.1BF18C250F	NO TAG
04/21/05	2005	10	153	PTYLUC	306	232	240	#441B25426E	#3D9.1BF1D8B85A	NO TAG
04/20/05	2005	10	155.0	PTYLUC	296	245	200	#441C45664E	#3D9.1BF18BAB83	NO TAG
04/19/05	2005	10	151.0	PTYLUC	262	219	140	#441E2F6817	#3D9.1BF1D8AC5F	NO TAG
09/14/05	2005	13	150	PTYLUC	328	270	150	#441E2F6817	NO TAG	#3D9.1BF1D8AC5F
04/20/05	2005	10	151	PTYLUC	299	248	200	#441E487C7A	#3D9.1BF18D4787	NO TAG
07/28/05	2005	12	157.0	PTYLUC	237	192	85	#447A6D6215	#3D9.1BF18D5EB5	NO TAG
07/28/05	2005	12	152.5	PTYLUC	236	192	80	#4515406076	#3D9.1BF18D1847	NO TAG
07/27/05	2005	12	150.0	PTYLUC	222	181	60	#4515447313	#3D9.1BF18D6399	NO TAG
09/13/05	2005	13	155	PTYLUC	272	228	N/A	#53333E784F	#3D9.1BF18D7CE5	NO TAG
07/28/05	2005	12	152.5	PTYLUC	260	214	100	#5338343F12	#3D9.1BF18D744B	NO TAG
11/08/05	2005	14	155.0	PTYLUC	255	205	150	#53383B3548	#3D9.1BF18CAA6D	NO TAG
07/27/05	2005	12	152.5	PTYLUC	215	176	73	#5340191230	#3D9.1BF18D64AF	NO TAG
11/09/05	2005	14	157.0	PTYLUC	250	222	120	#5340527F70	#3D9.1BF18C4504	NO TAG
11/08/05	2005	14	155.0	PTYLUC	232	188	120	#53407C5E7B	#3D9.1BF18C66B1	NO TAG
09/13/05	2005	13	152	PTYLUC	262	214	114	#5341673803	#3D9.1BF18D79A2	NO TAG
07/28/05	2005	12	155.0	PTYLUC	227	175	76	#534300395E	#3D9.1BF18D6CA9	NO TAG
11/10/05	2005	14	155.0	PTYLUC	162	130	22	NO TAG	#3D9.1BF18B95E2	NO TAG
11/10/05	2005	14	153.0	PTYLUC	275	222	140	NO TAG	#3D9.1BF18BA091	NO TAG
11/08/05	2005	14	152.6	PTYLUC	164	128	24	NO TAG	#3D9.1BF18BA512	NO TAG
09/14/05	2005	13	149	PTYLUC	159	128	32	NO TAG	#3D9.1BF18BAB01	NO TAG
09/13/05	2005	13	155	PTYLUC	163	132	29	NO TAG	#3D9.1BF18BAF48	NO TAG
11/08/05	2005	14	149.0	PTYLUC	154	128	22	NO TAG	#3D9.1BF18C25AA	NO TAG
11/08/05	2005	14	150.0	PTYLUC	155	121	25	NO TAG	#3D9.1BF18C2869	NO TAG

11/08/05	2005	14	150.0	PTYLUC	160	130	130	NO TAG	#3D9.1BF18C385E	NO TAG
11/09/05	2005	14	155.0	PTYLUC	166	133	46	NO TAG	#3D9.1BF18C43BC	NO TAG
11/09/05	2005	14	157.0	PTYLUC	273	221	152	NO TAG	#3D9.1BF18C5216	NO TAG
11/08/05	2005	14	155.0	PTYLUC	160	125	30	NO TAG	#3D9.1BF18C6B3E	NO TAG
11/08/05	2005	14	152.6	PTYLUC	161	128	32	NO TAG	#3D9.1BF18C7F2E	NO TAG
09/15/05	2005	13	155	PTYLUC	162	138	29	NO TAG	#3D9.1BF18CD894	NO TAG
04/20/05	2005	10	157	PTYLUC	173	146	33	NO TAG	#3D9.1BF18CE843	NO TAG
09/13/05	2005	13	157	PTYLUC	181	150	40	NO TAG	#3D9.1BF18D018F	NO TAG
11/10/05	2005	14	153.0	PTYLUC	159	128	28	NO TAG	#3D9.1BF18D08B9	NO TAG
04/20/05	2005	10	155.0	PTYLUC	170	132	32	NO TAG	#3D9.1BF18D139D	NO TAG
04/20/05	2005	10	153.0	PTYLUC	179	146	37	NO TAG	#3D9.1BF18D2BAA	NO TAG
04/19/05	2005	10	150.0	PTYLUC	164	120	30	NO TAG	#3D9.1BF18D3120	NO TAG
07/28/05	2005	12	157.0	PTYLUC	220	175	65	NO TAG	#3D9.1BF18D36BE	NO TAG
09/14/05	2005	13	157	PTYLUC	154	123	20	NO TAG	#3D9.1BF18D6481	NO TAG
09/13/05	2005	13	157	PTYLUC	166	147	31	NO TAG	#3D9.1BF18D6EF0	NO TAG
09/13/05	2005	13	150	PTYLUC	160	139	28	NO TAG	#3D9.1BF18D6F4F	NO TAG
11/09/05	2005	14	151.0	PTYLUC	165	130	28	NO TAG	#3D9.1BF18D7084	NO TAG
09/15/05	2005	13	155	PTYLUC	178	145	N/A	NO TAG	#3D9.1BF18D70B3	NO TAG
07/28/05	2005	12	157.0	PTYLUC	603	510	1990	NO TAG	#3D9.1BF18D723B	NO TAG
11/10/05	2005	14	153.0	PTYLUC	185	152	40	NO TAG	#3D9.1BF18D763A	NO TAG
11/10/05	2005	14	155.0	PTYLUC	300	248	235	NO TAG	#3D9.1BF18D791A	NO TAG
07/26/05	2005	12	153.8	PTYLUC	165	142	35	NO TAG	#3D9.1BF18D7A41	NO TAG
09/15/05	2005	13	155	PTYLUC	172	142	38	NO TAG	#3D9.1BF18D7E1A	NO TAG
11/08/05	2005	14	155.0	PTYLUC	150	121	25	NO TAG	#3D9.1BF18D812B	NO TAG
07/27/05	2005	12	155.0	PTYLUC	167	137	30	NO TAG	#3D9.1BF18D817B	NO TAG
07/28/05	2005	12	150.0	PTYLUC	190	155	46	NO TAG	#3D9.1BF18D9F59	NO TAG
07/27/05	2005	12	155.0	PTYLUC	225	183	80	NO TAG	#3D9.1BF19ECDBF	NO TAG
07/26/05	2005	12	153.0	PTYLUC	277	230	145	NO TAG	#3D9.1BF19ED297	NO TAG
04/19/05	2005	10	151.8	PTYLUC	171	142	42	NO TAG	#3D9.1BF1A026F6	NO TAG
04/19/05	2005	10	150.0	PTYLUC	160	129	27	NO TAG	#3D9.1BF1A03D10	NO TAG
06/29/05	2005	11	155.0	PTYLUC	161	130	26	NO TAG	#3D9.1BF1AF8F44	NO TAG
11/08/05	2005	14	155.0	PTYLUC	160	126	26	NO TAG	#3D9.1BF1CD2B20	NO TAG
09/14/05	2005	13	155	PTYLUC	155	127	24	NO TAG	#3D9.1BF1D4EDA5	NO TAG
06/30/05	2005	11	149.0	PTYLUC	245	215	110	NO TAG	#3D9.1BF1D6CCFC	NO TAG
07/26/05	2005	12	152.0	PTYLUC	230	198	90	NO TAG	#3D9.1BF1D6CD52	NO TAG
09/05/05	2005	13	155	PTYLUC	175	138	50	NO TAG	#3D9.1BF1D6CF08	NO TAG
09/13/05	2005	13	155.0	PTYLUC	192	161	40	NO TAG	#3D9.1BF1D6D4B3	NO TAG
09/14/05	200	13	157	PTYLUC	182	150	45	NO TAG	#3D9.1BF1D6DD8F	NO TAG
07/27/05	2005	12	155.0	PTYLUC	245	200	130	NO TAG	#3D9.1BF1D6DE91	NO TAG

09/05/05	2005	13	155	PTYLUC	262	232	30	NO TAG	#3D9.1BF1D6DFB1	NO TAG
09/13/05	2005	13	150	PTYLUC	296	248	203	NO TAG	#3D9.1BF1D6E7DA	NO TAG
09/15/05	2005	13	157	PTYLUC	189	152	45	NO TAG	#3D9.1BF1D6ECEB	NO TAG
09/14/05	2005	13	152.0	PTYLUC	155	127	28	NO TAG	#3D9.1BF1D6F0C8	NO TAG
09/14/05	2005	13	155	PTYLUC	156	119	9	NO TAG	#3D9.1BF1D70CF4	NO TAG
06/29/05	2005	11	155.0	PTYLUC	182	146	30	NO TAG	#3D9.1BF1D867F4	NO TAG
04/19/05	2005	10	150.0	PTYLUC	296	246	200	NO TAG	#3D9.1BF1D8BA79	NO TAG
11/10/05	2005	14	153.0	PTYLUC	240	193	100	NO TAG	NO TAG	#3D9.1B1F8C66B1
11/08/05	2005	14	150.0	PTYLUC	277	228	150	NO TAG	NO TAG	#3D9.1BF18BA701
11/08/05	2005	14	150.0	PTYLUC	255	205	122	NO TAG	NO TAG	#3D9.1BF18BA7EF
11/09/05	2005	14	153.0	PTYLUC	173	141	55	NO TAG	NO TAG	#3D9.1BF18C43BC
11/08/05	2005	14	155.0	PTYLUC	161	135	30	NO TAG	NO TAG	#3D9.1BF18C80FB
09/15/05	2005	13	157	PTYLUC	405	345	480	NO TAG	NO TAG	#3D9.1BF18D05F3
11/10/05	2005	14	149.0	PTYLUC	410	340	530	NO TAG	NO TAG	#3D9.1BF18D0DF3
11/08/05	2005	14	150.0	PTYLUC	259	215	60	NO TAG	NO TAG	#3D9.1BF18D6E91
07/27/05	2005	12	150.0	PTYLUC	223	180	58	NO TAG	NO TAG	#3D9.1BF18D7C3D
07/28/05	2005	12	150.0	PTYLUC	221	178	74	NO TAG	NO TAG	#3D9.1BF18D7C3D
11/09/05	2005	14	155.0	PTYLUC	276	220	170	NO TAG	NO TAG	#3D9.1BF18D7CE5
09/14/05	200	13	157	PTYLUC	163	131	29	NO TAG	NO TAG	#3D9.1BF19ED1C4
11/08/05	2005	14	155.0	PTYLUC	290	250	235	NO TAG	NO TAG	#3D9.1BF1A022CC
11/09/05	2005	14	149.0	PTYLUC	344	282	380	NO TAG	NO TAG	#3D9.1BF1CD3BC2
07/27/05	2005	12	152.5	PTYLUC	245	202	105	NO TAG	NO TAG	#3D9.1BF1D4DDAD
09/13/05	2005	13	152.0	PTYLUC	256	212	140	NO TAG	NO TAG	#3D9.1BF1D4FF3C
07/28/05	2005	12	155.0	PTYLUC	197	160	54	NO TAG	NO TAG	#3D9.1BF1D6B428
07/28/05	2005	12	152.5	PTYLUC	211	170	50	NO TAG	NO TAG	#3D9.1BF1D6BB38
11/10/05	2005	14	151.0	PTYLUC	178	140	38	NO TAG	NO TAG	#3D9.1BF1D6CF08
07/27/05	2005	12	152.5	PTYLUC	202	164	60	NO TAG	NO TAG	#3D9.1BF1D6E26E
07/28/05	2005	12	152.5	PTYLUC	216	174	60	NO TAG	NO TAG	#3D9.1BF1D6EB73
07/28/05	2005	12	152.5	PTYLUC	225	180	80	NO TAG	NO TAG	#3D9.1BF1D6EBF5
07/28/05	2005	12	150.0	PTYLUC	254	207	110	NO TAG	NO TAG	#3D9.1BF1D6ED0D
07/27/05	2005	12	150.0	PTYLUC	234	288	80	NO TAG	NO TAG	#3D9.1BF1D7014A
07/28/05	2005	12	155.0	PTYLUC	193	150	56	NO TAG	NO TAG	#3D9.1BF1D867F4
11/10/05	2005	14	155.0	PTYLUC	390	318	N/A	NO TAG	NO TAG	#3D9.1BF1D8B85A
04/20/05	2005	10	155.0	PTYLUC	153	121	38	NO TAG	NO TAG	NO TAG
04/21/05	2005	10	155.0	PTYLUC	144	117	20	NO TAG	NO TAG	NO TAG
04/21/05	2005	10	155.0	PTYLUC	180	144	44	NO TAG	NO TAG	NO TAG
04/21/05	2005	10	150	PTYLUC	78	59	3	NO TAG	NO TAG	NO TAG
09/13/05	2005	13	157	PTYLUC	137	110	16	NO TAG	NO TAG	NO TAG
09/15/05	2005	13	155	PTYLUC	138	110	16	NO TAG	NO TAG	NO TAG
09/13/05	2005	13	155.0	PTYLUC	149	130	23	NO TAG	NO TAG	NO TAG

09/14/05	2005	13	155	PTYLUC	149	124		26	NO TAG	NO TAG	NO TAG
04/21/05	2005	10	152	PTYLUC	68	49		2	NO TAG	NO TAG	NO TAG
06/29/05	2005	11	157.0	PTYLUC	74	58		5	NO TAG	NO TAG	NO TAG
06/30/05	2005	11	155.0	PTYLUC	95	80		10	NO TAG	NO TAG	NO TAG
06/30/05	2005	11	153.0	PTYLUC	81	64		3.5	NO TAG	NO TAG	NO TAG
07/27/05	2005	12	155.0	PTYLUC	127	110		16	NO TAG	NO TAG	NO TAG
07/27/05	2005	12	150.0	PTYLUC	112	95	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	157.0	PTYLUC	130	100		16	NO TAG	NO TAG	NO TAG
07/28/05	2005	12	155.0	PTYLUC	110	80	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	155.0	PTYLUC	115	90	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	155.0	PTYLUC	117	95	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	152.5	PTYLUC	113	94	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	150.0	PTYLUC	98	79	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	152.5	PTYLUC	96	74	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	152.5	PTYLUC	96	54	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	152.5	PTYLUC	105	85	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	152.5	PTYLUC	123	105	N/A		NO TAG	NO TAG	NO TAG
07/28/05	2005	12	150.0	PTYLUC	144	128		22	NO TAG	NO TAG	NO TAG
09/15/05	2005	13	157	PTYLUC	127	100		13	NO TAG	NO TAG	NO TAG
09/14/05	2005	13	157	PTYLUC	137	106		16	NO TAG	NO TAG	NO TAG
09/05/05	2005	13	155	PTYLUC	137	109		20	NO TAG	NO TAG	NO TAG
09/15/05	2005	13	157	PTYLUC	142	118		18	NO TAG	NO TAG	NO TAG
09/15/05	2005	13	157	PTYLUC	144	115		19.5	NO TAG	NO TAG	NO TAG
09/14/05	2005	13	155.0	PTYLUC	154	120		19	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	57	49	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	67	53	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	71	57	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	72	59	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	73	57	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	74	57	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	77	62	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	80	62	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	86	70	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	149	117		21	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	152.6	PTYLUC	80	62	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	150.0	PTYLUC	63	57	N/A		NO TAG	NO TAG	NO TAG
11/08/05	2005	14	149.0	PTYLUC	145	115		20	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	157.0	PTYLUC	68	53	N/A		NO TAG	NO TAG	NO TAG
11/09/05	2005	14	157.0	PTYLUC	74	56	N/A		NO TAG	NO TAG	NO TAG
11/09/05	2005	14	157.0	PTYLUC	75	60	N/A		NO TAG	NO TAG	NO TAG
11/09/05	2005	14	155.0	PTYLUC	65	55	N/A		NO TAG	NO TAG	NO TAG

11/09/05	2005	14	155.0	PTYLUC	80	63	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	155.0	PTYLUC	135	107	12	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	53	43	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	64	50	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	65	57	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	66	52	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	67	55	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	72	57	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	74	57	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	78	62	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	79	61	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	80	60	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	81	64	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	153.0	PTYLUC	92	73	6.4	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	151.0	PTYLUC	45	37	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	151.0	PTYLUC	54	44	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	151.0	PTYLUC	75	59	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	151.0	PTYLUC	85	67	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	151.0	PTYLUC	145	114	19	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	149.0	PTYLUC	64	50	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	149.0	PTYLUC	64	53	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	149.0	PTYLUC	74	61	N/A	NO TAG	NO TAG	NO TAG
11/10/05	2005	14	155.0	PTYLUC	136	112	14	NO TAG	NO TAG	NO TAG
11/10/05	2005	14	151.0	PTYLUC	75	58	N/A	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	157.0	PTYLUC	140	115	17	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	157.0	PTYLUC	148	125	25	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	80	65	4	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	155.0	PTYLUC	120	95	12	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	152.6	PTYLUC	59	49	3	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	152.6	PTYLUC	62	54	4	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	152.6	PTYLUC	71	58	5	NO TAG	NO TAG	NO TAG
11/08/05	2005	14	152.6	PTYLUC	120	96	11	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	155.0	PTYLUC	142	116	24	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	151.0	PTYLUC	71	56	N/A	NO TAG	NO TAG	NO TAG
11/09/05	2005	14	151.0	PTYLUC	144	119	23	NO TAG	NO TAG	NO TAG
11/10/05	2005	14	157.0	PTYLUC	140	112	20	NO TAG	NO TAG	NO TAG
11/10/05	2005	14	155.0	PTYLUC	90	70	7	NO TAG	NO TAG	NO TAG
11/10/05	2005	14	151.0	PTYLUC	156	125	26	NO TAG	NO TAG	NO TAG
11/10/05	2005	14	149.0	PTYLUC	149	120	25	NO TAG	NO TAG	NO TAG

04/21/05	2005	10	55.0	XYRTEX	320	265	300	#1BF1CD2873	#3D9.1BF18D6D29	
04/21/05	2005	10	151.0	XYRTEX	461	360	970	#423C7A6305	#3D9.1BF1D8B411	
06/28/05	2005	11	149.0	XYRTEX	458	370	900	#423E2A0977	#3D9.1BF1CD515E	
06/29/05	2005	11	152.5	XYRTEX	445	363	800	#423E38730A	#3D9.1BF1D6C7B1	
07/28/05	2005	12	157.0	XYRTEX	441	365	810	#423E5E5D7C	#3D9.1BF18D0619	
11/09/05	2005	14	151.0	XYRTEX	471	390	1060	#423E66702C	#3D9.1BF18D8062	
04/19/05	2005	10	149	XYRTEX	461	370	1240	#423E677038	#3D9.1BF18D8097	
04/21/05	2005	10	155	XYRTEX	444	355	940	#423E687D6F	#3D9.1BF1D8B44F	
11/10/05	2005	14	155.0	XYRTEX	460	375	1100	#423E6F352F	#3D9.1BF18D78A6	
06/29/05	2005	11	155.0	XYRTEX	470	393	1100	#423E714355	#3D9.1BF1CD287B	
07/27/05	2005	12	155.0	XYRTEX	453	375	860	#423E7A1558	#3D9.1BF18D7AF7	
04/20/05	2005	10	154	XYRTEX	459	382	1310	#423F057F06	#3D9.1BF18CF4F6	
09/14/05	2005	13	150	XYRTEX	469	399	900	#423F154B0D	#3D9.1BF18CF31F	
04/20/05	2005	10	154	XYRTEX	442	369	1280	#423F181B45	#3D9.1BF18D1D47	
11/09/05	2005	14	153.0	XYRTEX	450	368	900	#423F602862	#3D9.1BF18D1FF1	
09/14/05	2005	13	150	XYRTEX	534	452	1480	#423F6333D	#3D9.1BF18D15C5	
04/20/05	2005	10	157	XYRTEX	490	413	1800	#423F6A4379	#3D9.1BF18D06C0	
09/13/05	2005	13	152.0	XYRTEX	459	383	950	#423F6A7E7B	#3D9.1BF1D6BB26	
06/30/05	2005	11	153.0	XYRTEX	465	390	1025	#423F6C3D7E	#3D9.1BF18D70B3	
06/29/05	2005	11	153.0	XYRTEX	474	403	1105	#4240017E60		
07/27/05	2005	12	150.0	XYRTEX	473	400	1075	#4241604073	#329.1BF18D0E24	
04/20/05	2005	10	154	XYRTEX	460	393	NA	#4242473622	#3D9.1BF18D6784	
04/20/05	2005	10	157.0	XYRTEX	411	315	750	#426A253147	#3D9.1BF1D8C0EF	
04/19/05	2005	10	157.0	XYRTEX	400	330	630	#434F017C71	#3D9.1BF18D7359	
04/21/05	2005	10	157	XYRTEX	419	335	650	#434F110352	#3D9.1BF1CD6563	
07/28/05	2005	12	155.0	XYRTEX	422	340	620	#434F304879	#3D9.1BF18D7FC7	
04/20/05	2005	10	156.0	XYRTEX	460	355	950	#4364360801	#3D9.1BF1A0341E	
09/13/05	2005	13	150	XYRTEX	470	402	1160	#4364403D34	#3D9.1BF18D7A60	
04/19/05	2005	10	157.0	XYRTEX	428	330	660	#43651E0F28	#3D9.1BF18D5F98	
04/20/05	2005	10	155.0	XYRTEX	390	300	550	#43652B762A	#3D9.1BF1D8611E	
04/19/05	2005	10	151.8	XYRTEX	406	336	680	#4365406028	#3D9.1BF1E9152F	
04/21/05	2005	10	156	XYRTEX	390	305	590	#4365425C6E	#3D9.1BF1A03900	
09/15/05	2005	13	155	XYRTEX	412	357	700	#43654E782C	#3D9.1BF18D2C9E	
11/10/05	2005	14	151.0	XYRTEX	447	375	950	#4365515720	#3D9.1BF18CF1C9	
04/20/05	2005	10	154	XYRTEX	458	388	1280	#43656C722E	#3D9.1BF18D80FA	
06/29/05	2005	11	157.0	XYRTEX	390	345	750	#43656F0760	#3D9.1BF18D14B3	
04/19/05	2005	10	154.0	XYRTEX	430	355	780	#4365727573	#3D9.1BF1D8BB3F	
04/20/05	2005	10	154	XYRTEX	407	345	680	#43657B5410	#3D9.1BF18BA939	
04/19/05	2005	10	148.4	XYRTEX	430	332	810	#436600543D	#3D9.1BF18D2EBA	
04/19/05	2005	10	154.0	XYRTEX	404	325	620	#4366075058	#3D9.1BF1CD65CF	
06/30/05	2005	11	151.0	XYRTEX	415	380	620	#4366075058		#3D9.1BF1CD65CF

11/08/05	2005	14	150.0	XYRTEX	445	377	900	#4366077562		#3D9.1BF18D775D
04/20/05	2005	10	157.0	XYRTEX	381	321	600	#4367190B3A	#3D9.1BF1A50FB2	
11/09/05	2005	14	153.0	XYRTEX	446	378	890	#4368446222	#3D9.1BF18CE7C9	
04/20/05	2005	10	157.0	XYRTEX	415	335	700	#4368491D22	#3D9.1BF1CD5B68	
07/28/05	2005	12	152.5	XYRTEX	457	392	1000	#43684D6A27	#3D9.1BF18D1597	
04/19/05	2005	10	157	XYRTEX	400	325	600	#4368550D68	#3D9.1BF1CD2E29	
09/13/05	2005	13	155	XYRTEX	413	348	490	#4368562147		#3D9.1BF18BA838
04/19/05	2005	10	154.0	XYRTEX	410	333	630	#4368570916	#3D9.1BF1AF91CB	
04/20/05	2005	10	154	XYRTEX	410	353	670	#43685F317A	#3D9.1BF18BA6E2	
04/20/05	2005	10	150.0	XYRTEX	420	358	790	#4368673156	#3D9.1BF18CF351	
04/20/05	2005	10	153.0	XYRTEX	425	355	1020	#4368746C31	#3D9.1BF18D1529	
04/19/05	2005	10	157	XYRTEX	420	345	600	#4368771717	#3D9.1BF1A05E82	
04/19/05	2005	10	151.8	XYRTEX	427	361	754	#43687F4B1B	#3D9.1BF1D876EA	
04/19/05	2005	10	155.0	XYRTEX	493	390	1560	#4369377E0D	#3D9.1BF18D0B55	
04/20/05	2005	10	155.0	XYRTEX	395	327	510	#436940062A	#3D9.1BF1801687	
04/19/05	2005	10	151.0	XYRTEX	382	312	680	#4416781603	#3D9.1BF1E9171D	
04/20/05	2005	10	150.0	XYRTEX	410	342	630	#4417131A69	#3D9.1BF18D0B3C	
04/19/05	2005	10	154.0	XYRTEX	445	350	1260	#4418424357	#3D9.1BF1E99F38	
04/19/05	2005	10	151.0	XYRTEX	431	361	920	#4419233E2A	#3D9.1BF1A030B3	
09/14/05	2005	13	152	XYRTEX	391	324	515	#441B035755	#3D9.1BF18D9A1E	
09/05/05	2005	13	155	XYRTEX	426	338	700	#441D392505		#3D9.1BF19ED136
11/09/05	2005	14	157.0	XYRTEX	401	336	810	#441D530C25	#3D9.1BF18C2C65	
09/15/05	2005	13	157	XYRTEX	443	385	990	#447045414B	#3D9.1BF18BA7F3	
09/14/05	2005	13	149	XYRTEX	420	358	710	#4470C1801	#3D9.1BF18D7A32	
11/10/05	2005	14	153.0	XYRTEX	421	358	690	#44717C6579	#3D9.1BF18D3593	
04/21/05	2005	10	154	XYRTEX	406	314	600	#4472037712	#3D9.1BF1E92A2D	
04/20/05	2005	10	156.0	XYRTEX	408	314	725	#447206262E	#3D9.1BF1A05177	
06/29/05	2005	11	157.0	XYRTEX	395	331	660	#44720A6101	#3D9.1BF1D6E8B3	
04/20/05	2005	10	156	XYRTEX	426	365	660	#44720F3D42	#3D9.1BF18D036F	
06/29/05	2005	11	155.0	XYRTEX	442	365	800	#4472155D64	#3D9.1BF1CD3FE1	
04/21/05	2005	10	155.0	XYRTEX	420	357	640	#44722B7B0E	#3D9.1BFA8BA745	
06/29/05	2005	11	155.0	XYRTEX	412	346	700	#4472443B29	#3D9.1BF1D6D30D	
11/08/05	2005	14	149.0	XYRTEX	436	371	910	#4474193528	#3D9.1BF18C700A	
06/29/05	2005	11	155.0	XYRTEX	388	319	500	#447474575F	#3D9.1BF1CD3682	
11/09/05	2005	14	157.0	XYRTEX	401	337	690	#4475256C0E	#3D9.1BF18C3DEE	
04/21/05	2005	10	154	XYRTEX	395	325	900	#4476093A78	#3D9.1BF18D68B7	
04/21/05	2005	10	157	XYRTEX	402	340	590	#44790C1812	#3D9.1BF18D7AB6	
06/30/05	2005	11	157.0	XYRTEX	372	315	530	#447910597F	#3D9.1BF18D5EC3	
04/20/05	2005	10	157	XYRTEX	408	346	NA	#447960407E	#3D9.1BF18D6DD9	
04/20/05	2005	10	154	XYRTEX	462	398	1480	#44796B4E32	#3D9.1BF18D0984	
04/21/05	2005	10	155	XYRTEX	387	307	550	#44796E6D3E	#3D9.1BF1E8D65D	

06/28/05	2005	11	153.0	XYRTEX	405	340	610	#447A0C1801	#3D9.1BFID85D62	
11/09/05	2005	14	157.0	XYRTEX	410	340	620	#447B2F2E52	#3D9.1BF18C6E26	
04/19/05	2005	10	157	XYRTEX	390	325	350	#447B343B5D	#3D9.1BF1D86831	
04/21/05	2005	10	156	XYRTEX	446	382	830	#447B551F26	#3D9.1BF18D7155	
04/20/05	2005	10	150.0	XYRTEX	414	350	700	#447C284D0F	#3D9.1BF18D636F	
04/19/05	2005	10	148.4	XYRTEX	380	285	560	#447C300A40	#3D9.1BF18D72F4	
04/20/05	2005	10	157.0	XYRTEX	364	285	490	#447C407949	#3D9.1BF1D8BE3A	
04/21/05	2005	10	157	XYRTEX	408	320	620	#447C435E34	#3D9.1BF1CD5415	
06/29/05	2005	11	155.0	XYRTEX	415	352	650	#447C435E34		#3D9.1BF1CD5415
04/20/05	2005	10	157.0	XYRTEX	390	325	650	#447D651209	#3D9.1BF1D8B5DF	
06/28/05	2005	11	157.0	XYRTEX	415	350	850	#447D651209		#3D9.1BF1D8B5DE
04/21/05	2005	10	155	XYRTEX	425	327	670	#447D656617	#3D9.1BF1D8C5FF	
04/21/05	2005	10	156	XYRTEX	361	275	510	#447D715729	#3D9.1BF1CD56E3	
07/27/05	2005	12	150.0	XYRTEX	389	313	475	#447D7B0304	#3D9.1BF18D7F40	
04/21/05	2005	10	155	XYRTEX	399	301	570	#447E436F1D	#3D9.1BF1E8ED19	
04/19/05	2005	10	156	XYRTEX	360	295	495	#447F213210	#3D9.1BF1E907D2	
06/29/05	2005	11	155.0	XYRTEX	465	395	900	#447F28355E	#3D9.1BF1D6B70E	
04/20/05	2005	10	155.0	XYRTEX	447	375	1400	#447F29177D	#3D9.1BF18BAA38	
04/19/05	2005	10	151.0	XYRTEX	386	330	500	#45032E3953	#3D9.1BF1D87499	
09/13/05	2005	13	155	XYRTEX	370	320	380	#4503436F43	#3D9.1BF18D80C6	
04/20/05	2005	10	153.0	XYRTEX	403	345	920	#45035D4D24	#3D9.1BF18D72B0	
04/19/05	2005	10	155.0	XYRTEX	422	345	740	#45040661D	#3D9.1BF18D0DF6	
09/14/05	2005	13	150	XYRTEX	410	343	680	#45040C396C	#3D9.1BF18D360C	
11/09/05	2005	14	151.0	XYRTEX	428	360	860	#45041E0772	#3D9.1BF118D6F8E	
06/28/05	2005	11	155.0	XYRTEX	N/A	N/A	N/A	#4504232E20	#3D9.1BF18D7D4D	
04/20/05	2005	10	153.0	XYRTEX	420	359	1020	#450441081C	#3D9.1BF18D6C8C	
04/21/05	2005	10	156	XYRTEX	407	320	650	#450444687E	#3D9.1BF1D8A6F3	
06/28/05	2005	11	155.0	XYRTEX	355	285	440	#4504661F07	#3D9.1BF1A060F4	
11/08/05	2005	14	155.0	XYRTEX	415	342	730	#4505216957	#3D9.1BF18D0DE7	
11/10/05	2005	14	155.0	XYRTEX	419	345	720	#45055A2833	#3D9.1BF18BFD33	
04/20/05	2005	10	151	XYRTEX	394	327	635	#4506246039	#3D9.1BF18D6AE1	
04/21/05	2005	10	153	XYRTEX	409	312	540	#4506603449	#3D9.1BF1E91814	
04/21/05	2005	10	154	XYRTEX	428	320	725	#4506645940	#3D9.1BF1A06154	
09/14/05	2005	13	155.0	XYRTEX	437	362	660	#45066F1B29	#3D9.1BF18D6EE8	
04/21/05	2005	10	157	XYRTEX	484	380	1250	#4507006F0D	#3D9.1BF1AF983B	
06/30/05	2005	11	155.0	XYRTEX	481	405	1050	#4507014F1A	#3D9.1BF18D0D82	
06/28/05	2005	11	155.0	XYRTEX	385	325	500	#4507082A1A	#3D9.1BF18D6542	
11/08/05	2005	14	155.0	XYRTEX	450	390	1000	#45073B4400	#3D9.1BF18CA77D	
04/20/05	2005	10	156	XYRTEX	391	337	580	#450745611C	#3D9.1BF18D1C00	
04/19/05	2005	10	150.0	XYRTEX	411	345	850	#4507601951	#3D9.1BF1E9228F	
04/19/05	2005	10	148.4	XYRTEX	401	320	590	#45076E112B	#3D9.1BE18D7C16	

07/27/05	2005	12	155.0	XYRTEX	396	330	640	#450775595C	#3D9.1BF18D0004	
06/30/05	2005	11	153.0	XYRTEX	412	347	590	#45097C2671	#3D9.1BF18D0579	
07/28/05	2005	12	152.5	XYRTEX	435	365	740	#450A0E242B	#3D9.1BF18D17CA	
04/20/05	2005	10	157	XYRTEX	451	385	940	#450A6B7758	#3D9.1BF18D6A4D	
04/19/05	2005	10	155.0	XYRTEX	408	345	660	#450B127823	#3D9.1BF18BA386	
07/26/05	2005	12	157.0	XYRTEX	428	365	920	#450B1E1270	#3D9.1BF18D3535	
04/20/05	2005	10	156	XYRTEX	409	352	700	#450B4D4B6C	#3D9.1BF1ID9A6B	
04/21/05	2005	10	155.0	XYRTEX	422	352	660	#450B747F33	#3D91BF18B9AC7	
04/20/05	2005	10	151	XYRTEX	441	370	790	#450C7B2A6A	#3D9.1BF18D7F3E	
07/28/05	2005	12	155.0	XYRTEX	450	375	810	#450D076B15	#3D9.1BF18D227A	
09/15/05	2005	13	155	XYRTEX	452	390	990	#450D076B15		#3D9.1BF18D227A
06/29/05	2005	11	152.5	XYRTEX	363	301	415	#4512702736	#3D9.1BF1D6DC26	
11/09/05	2005	14	157.0	XYRTEX	480	412	980	#4512726A57	#3D9.1BF18D1148	
04/21/05	2005	10	153	XYRTEX	420	340	710	#451301633F	#3D9.1BF1D8C574	
04/21/05	2005	10	157	XYRTEX	392	325	530	#4638562147	#3D9.1BF18BA838	
09/05/05	2005	13	155	XYRTEX	450	371	100	#520900136B		#3D9.1BF1D70C86
09/13/05	2005	13	150	XYRTEX	447	378	850	#522A1D0041	#3D9.1BF18D37D5	
06/28/05	2005	11	151.0	XYRTEX	426	333	890	#522A1E116F	#3D9.1BF1A062DB	
11/10/05	2005	14	155.0	XYRTEX	440	367	890	#522A5F7E2B	#3D9.1BF18CA244	
09/13/05	2005	13	157	XYRTEX	411	340	580	#5239306E3E	#3D9.1BF18C8ADC	
09/15/05	2005	13	157	XYRTEX	490	405	1200	#53241E2D0F	#3D9.1BF1D7042A	
09/13/05	2005	13	155	XYRTEX	445	385	800	#532457044B	#3D9.1BF18D6C56	
06/29/05	2005	11	155.0	XYRTEX	495	409	1350	#5324594E7C	#3D9.1BF1CD4658	
04/20/05	2005	10	154	XYRTEX	485	409	1620	#53256E784F	#3D9.1BF18B966F	
06/28/05	2005	11	157.0	XYRTEX	474	404	1100	#53257A7764	#3D9.1BF1CD37D7	
04/21/05	2005	10	154	XYRTEX	524	424	1610	#5328656061	#3D9.1BF1D8C1C9	
04/20/05	2005	10	149	XYRTEX	426	360	820	NO TAG	#3D9.1BF18D7619	
04/20/05	2005	10	157.0	XYRTEX	431	362	800	NO TAG	#3D9.1BF1A0298C	
04/19/05	2005	10	156	XYRTEX	395	330	600	NO TAG	#3D9.1BF1D8B5E3	
04/20/05	2005	10	155.0	XYRTEX	406	380	670	NOT READ	#3D9.1BF18BA386	
04/20/05	2005	10	157.0	XYRTEX	395	324	625	NOT READ	#3D9.1BF18D7359	
04/19/05	2005	10	150.0	XYRTEX	295	242	280	NOT READ	#3D9.1BF1A0367F	
04/21/05	2005	10	154	XYRTEX	448	370	1400	NOT READ		#3D9.1BF18BAA38
04/21/05	2005	10	155	XYRTEX	411	309	670	NOT READ		#3D9.1BF18D9A6B
04/21/05	2005	10	152	XYRTEX	456	352	750	NOT READ		#3D9.1BF1A0341E
04/21/05	2005	10	151.0	XYRTEX	303	225	290	NOT READ		#3D9.1BF1E8A0D8
11/10/05	2005	14	155.0	XYRTEX	437	360	850		#3D9.1BF18C42A2	
09/15/05	2005	13	157	XYRTEX	393	335	680		#3D9.1BF18D5875	
06/28/05	2005	11	151.0	XYRTEX	523	440	N/A		#3D9.1BF19ECD66	
11/08/05	2005	14	155.0	XYRTEX	265	230	175		#3D9.1BF1CD7247	
11/10/05	2005	14	155.0	XYRTEX	458	390	1000			#3D9.1BF18D05F6

06/28/05	2005	11	155.0	XYRTEX	490	410	1200	#3D9.1BF18D0B55
11/08/05	2005	14	155.0	XYRTEX	450	395	1100	#3D9.1BF18D0DF6
09/14/05	2005	13	149	XYRTEX	442	371	650	#3D9.1BF18D37D5
11/09/05	2005	14	149.0	XYRTEX	440	372	820	#3D9.1BF18D775D
11/09/05	2005	14	155.0	XYRTEX	345	283	410	#3D9.1BF1A021BE
11/08/05	2005	14	155.0	XYRTEX	305	250	232	#3D9.1BF1A022CC
09/14/05	200	13	157	XYRTEX	438	368	850	#3D9.1BF1A03674
09/14/05	2005	13	155.0	XYRTEX	407	342	500	#3D9.1BF1A03AE4
07/26/05	2005	12	153.0	XYRTEX	402	330	560	#3D9.1BF1A05177
07/26/05	2005	12	155.0	XYRTEX	367	298	520	#3D9.1BF1A060F4
11/08/05	2005	14	155.0	XYRTEX	380	320	620	#3D9.1BF1A060F4
06/28/05	2005	11	153.0	XYRTEX	326	260	300	#3D9.1BF1A06600
09/05/05	2005	13	155	XYRTEX	272	210	180	#3D9.1BF1A079B3
11/08/05	2005	14	157.0	XYRTEX	380	315	460	#3D9.1BF1A07C7F
09/14/05	200	13	157	XYRTEX	461	391	940	#3D9.1BF1A08516
09/13/05	2005	13	155	XYRTEX	267	224	160	#3D9.1BF1A089D4
09/14/05	2005	13	157	XYRTEX	431	360	615	#3D9.1BF1A0C977
09/13/05	2005	13	155	XYRTEX	325	275	180	#3D9.1BF1A0CE2A
09/13/05	2005	13	157	XYRTEX	485	420	1100	#3D9.1BF1AF9790
11/09/05	2005	14	157.0	XYRTEX	397	325	720	#3D9.1BF1CA37C4
11/09/05	2005	14	157.0	XYRTEX	297	238	222	#3D9.1BF1CD26AC
11/08/05	2005	14	155.0	XYRTEX	432	360	860	#3D9.1BF1CD2960
11/08/05	2005	14	157.0	XYRTEX	450	380	870	#3D9.1BF1CD2E29
11/08/05	2005	14	155.0	XYRTEX	417	342	730	#3D9.1BF1CD31D8
09/13/05	2005	13	155.0	XYRTEX	393	330	550	#3D9.1BF1CD3445
11/08/05	2005	14	155.0	XYRTEX	400	350	640	#3D9.1BF1CD4132
11/08/05	2005	14	155.0	XYRTEX	410	355	710	#3D9.1BF1CD43C6
11/09/05	2005	14	149.0	XYRTEX	496	414	480	#3D9.1BF1CD4658
09/15/05	2005	13	157	XYRTEX	441	378	775	#3D9.1BF1CD4BAA
09/14/05	2005	13	155	XYRTEX	430	361	534	#3D9.1BF1CD4C13
09/14/05	2005	13	157	XYRTEX	270	212	66	#3D9.1BF1CD4EDF
09/13/05	2005	13	155.0	XYRTEX	332	274	235	#3D9.1BF1CD57F3
11/08/05	2005	14	149.0	XYRTEX	420	350	700	#3D9.1BF1CD5801
09/13/05	2005	13	157	XYRTEX	385	330	485	#3D9.1BF1CD587A
11/09/05	2005	14	157.0	XYRTEX	426	355	800	#3D9.1BF1CD598C
09/14/05	2005	13	149	XYRTEX	374	304	440	#3D9.1BF1CD5C09
11/08/05	2005	14	155.0	XYRTEX	402	340	710	#3D9.1BF1D85B49
06/30/05	2005	11	151.0	XYRTEX	399	340	650	#3D9.1BF1D85D62
09/14/05	2005	13	157	XYRTEX	425	385	590	#3D9.1BF1D85E4C
11/09/05	2005	14	157.0	XYRTEX	425	361	750	#3D9.1BF1D85E4C
04/20/05	2005	10	152.0	XYRTEX				#3D9.1BF1D8611E

11/10/05	2005	14	155.0	XYRTEX	435	360	840	#3D9.1BF1D8651E
09/05/05	2005	13	155	XYRTEX	493	416	1250	#3D9.1BF1D86BB2
09/14/05	2005	13	157	XYRTEX	458	385	660	#3D9.1BF1D87A8C
11/08/05	2005	14	157.0	XYRTEX	454	375	850	#3D9.1BF1D87A8C
09/14/05	2005	13	149	XYRTEX	410	339	565	#3D9.1BF1D87C1A
07/26/05	2005	12	155.0	XYRTEX	445	361	850	#3D9.1BF1D8A6F3
06/28/05	2005	11	153.0	XYRTEX	415	345	720	#3D9.1BF1D8B5E3
09/15/05	2005	13	157	XYRTEX	422	362	600	#3D9.1BF1E87B37
11/08/05	2005	14	155.0	XYRTEX	425	375	980	#3D9.1BF1E87C1D
11/08/05	2005	14	152.6	XYRTEX	405	346	595	#3D9.1BF1E8902F
06/29/05	2005	11	152.5	XYRTEX	401	330	540	#3D9.1BF1E8ED19
09/14/05	2005	13	157	XYRTEX	455	392	1020	#3D9.1BF1E91490
11/08/05	2005	14	157.0	XYRTEX	455	390	910	#3D9.1BF1E91490
11/09/05	2005	14	149.0	XYRTEX	387	330	460	#3D9.1BF1E91EB0
09/14/05	200	13	157	XYRTEX	450	378	790	#3D9.1BF1E9285B
11/08/05	2005	14	157.0	XYRTEX	420	352	740	#3D9.1BF1E92DC3
11/08/05	2005	14	155.0	XYRTEX	420	360	710	#3D9.1BF1F87B77
06/28/05	2005	11	149.0	XYRTEX	509	405	1530	

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