

TECHNICAL MEMORANDUM

DATE: November 26, 2018

TO: Carolyn Geraghty

FROM: Ken Jarrett and Ethan Bell

SUBJECT: 2018 Chorro Creek Pikeminnow Suppression Efforts

1 INTRODUCTION

Stillwater Sciences worked with the Morro Bay National Estuary Program to conduct a second sampling effort in Chorro Creek in September 2018. Sampling in 2018 continued efforts initiated in 2017. Suppression of Sacramento pikeminnow (*Ptychocheilus grandis*) (pikeminnow) in Chorro Creek was identified as a priority action item in the Chorro Creek Pikeminnow Management Plan (management plan, Stillwater 2017). Sampling in Chorro Creek was conducted to characterize the species composition and to remove pikeminnow from the creek, consistent with the direction of the management plan. In addition, a subset of sample sites were sampled during both years (2017 and 2018) to evaluate the effectiveness of suppression efforts as a means for benefiting steelhead in Chorro Creek. This brief memo is intended to provide a summary of the effort.

2 EFFORT SUMMARY

Sampling in Chorro Creek was conducted using two backpack electrofishers from September 4 through September 6, 2018 within the Chorro Creek Ecological Reserve (CCER) and the Cal Poly reaches (Figure 1). Prior to electrofishing, crews placed block nets at the upstream and downstream ends of natural habitat breaks. Multiple pass (\geq 3) removal efforts were conducted within the blocked off units. Additional sampling targeting deep pool habitat was conducted in the CalPoly Reach downstream of Unit 16 and on Camp San Luis Obispo downstream of Highway 1. Deep pool habitat was sampled using angling between October 15 and October 17, 2018. All captured fish were identified to species and measured to standard length (SL) and fork length (FL).

A total of 107 steelhead (*Oncorhynchus mykiss*) and 63 pikeminnow were captured during 2018 along with Sacramento sucker (*Catostomus occidantalis*), speckled dace (*Rhinichthys osculus*), three-spine stickleback (*Gasterosteus aculeatus*), and largemouth bass (*Micropterus salmoides*) (Table 1). Pikeminnow ranged from 29 mm to 355 mm (SL) with most in the 30–50 mm (SL) size range. Steelhead ranged from 46 mm to 270 mm (SL) with most in the 50–75 mm (SL) size range (Figure 2).



Figure 1. Chorro Creek study area and high priority sampling locations.

| Table 1. | Chorro Creek fish capture summary for the CCER and Cal Poly Reaches, September | |
|--------------------------|--|--|
| 2018 and September 2017. | | |

| | Number Captured | |
|-------------------------|-----------------|------|
| Species | 2018 | 2017 |
| Steelhead | 107 | 23 |
| Sacramento pikeminnow | 63 | 239 |
| Sacramento sucker | 26 | 180 |
| Speckled dace | 99 | 122 |
| Three-spine stickleback | 39 | 134 |
| Largemouth bass | 2 | 0 |
| Total | 336 | 698 |



Figure 2. Length frequency distribution of steelhead and Sacramento pikeminnow captured in Chorro Creek, September 2018.

Overall abundance showed a shift from pikeminnow being the most abundant species in 2017 to steelhead being the most abundant in 2018 (Table 1). Length frequency distribution showed a similar distribution of fish size classes for both steelhead and pikeminnow between years, with the majority of fish captured representing smaller fish ($\leq 100 \text{ mm SL}$) (Figure 2 and Figure 3). Within the subset of sites sampled in both 2017 and 2018, a dramatic shift in relative abundance can be seen between pikeminnow and steelhead. In 2017, pikeminnow were found in high abundance and steelhead were less common; however, in 2018 within sites that had been sampled the previous year steelhead became the most abundant and pikeminnow were less common (Figure 4). Based on these results, it appears that the pikeminnow suppression effort initiated in 2017 has resulted in lower abundance of pikeminnow and higher abundance of steelhead within the areas sampled in both years. Therefore, continued suppression efforts are expected to be effective and continue to benefit steelhead in Chorro Creek.



Figure 3. Relative abundance for steelhead and pikeminnow for sites sampled in 2017 and 2018.