



## BARRETT'S BIOLOGICAL SURVEYS

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August 7, 2010

City of Westmorland  
Wastewater Treatment Plant  
355 South Center Street  
Westmorland, Ca 92281

Re: Biological Assessment of the City of Westmorland's Wastewater Treatment Facility Discharge Location

Dear Sir,

This letter report documents the results of the bioassessment of the Trifolium Drain (Map: Attachment A) at the City of Westmorland's wastewater treatment facility discharge. Samples were taken at three locations along the Trifolium Drain using an aquatic kick net dragged along the drain bottom. These samples were gathered 100 meters upstream of discharge, at the discharge and 100 meters downstream of the discharge. Water samples were collected at the same areas. The Trifolium Drain flows to New River. The New River flows approximately 50 miles north through Imperial County to the Salton Sea.

### Objective

Barrett's Biological Surveys was retained by City of Westmorland to conduct a rapid assessment of aquatic and shore organisms in the Trifolium Drain at the point of discharge from the City of Westmorland's wastewater treatment facility (located at northeast corner of the intersection of Martin and Howenstein Roads, Westmorland CA). The objective of this survey was to determine whether the water, plant life and aquatic life at this discharge point are more typical of saltwater or freshwater environments. The goal of City of Westmorland is to gain approval from the U.S. Environmental Protection Agency (EPA) to use alternative freshwater criteria for a body of water segment where no marine beneficial use designation occurs, even if the salinity is above one part per thousand.

### Background

The City of Westmorland wastewater treatment facility discharges into the Trifolium Drain which ultimately flows north to the Salton Sea. The Trifolium Drain is approximately 20 feet wide with a flow of less than 2 foot deep at all three collection

sites.

The Trifolium Drain discharges into the New River which drains into the Salton Sea. The New River flows north from Mexico. Agricultural drain waters, industrial wastes and treated and untreated wastewater enter the United States within the flow of the New River. In the United States, agricultural drain and runoff water and treated wastewater enter the New River. All agricultural water is from the Colorado River and enters Imperial County through the All American Canal.

Agricultural water from the Colorado River has elevated salt levels. Farmers have installed tile at an average depth of 3 to 4 feet in their farm ground to remove excess salinity and prevent salt contamination of their ground. As a result of removing salt from the soil, drain waters can show an elevated salinity level.

The California Toxics Rule (CT) 40 CFR 131.38©(3) provides that waters that have salinity between 1 and 10 parts per thousand should be addressed as follows:

For waters in which the salinity is between 1 and 10 parts per thousand as defined in paragraphs at (3)(i) and (ii) of this section, the applicable criteria are the more stringent of the freshwater or saltwater criteria. However, the Regional Administrator may approve the use of the alternative freshwater or saltwater criteria if scientifically defensible information and data demonstrate that on a site-specific basis, the biology of the water body is dominated by freshwater aquatic life and that freshwater criteria are more appropriate; or conversely, the biology of the water body is dominated by saltwater aquatic life and that saltwater criteria are more appropriate.

## Methods

A bioassessment of the outfall was conducted between the hours of 1330 and 1425 (40.0° C- 104 °F) on August 7, 2010 by M. Barrett and G. Westbrook of Barrett's Biological Surveys. Sampling stations were established at the discharge and 100 meters upstream and downstream. At each sampling station the following data were collected:

- Water salinity
- Dominant vegetation
- Aquatic organisms
- Animals

Aquatic invertebrates were collected from shore using an aquatic kick net, which was dragged along the bottom of the Trifolium Drain perpendicular to the bank for a linear distance of approximately 5 feet. This net is also efficient in capture of small fishes.

Shore vegetation and animal species were visually observed.

Equipment used:

- Aquatic kick net
- Swing sampler/wide mouth bottles
- Garmin GPS
- Swarovski binoculars
- Caldwell wind wizard

## Results and Discussion

The Trifolium Drain serves as the discharge point for the City of Westmorland's wastewater treatment plant. The dominant plant in the project area included Bermuda grass (*Cynodon dactylon*) and salt cedar (*Tamarix sp.*).

### Salinity

Water salinity was measured using a hand held, temperature compensated salinity refractometer (VeeGee Refractometer Model STX-3). Instrument is accurate to 1% . Equipment was cleaned with distilled water after each sampling.

Readings:

100 meters upstream of discharge: 0% = 0 ppt

Discharge: 0% = 0 ppt

100 meters downstream of discharge: 0% = 0 ppt

### Vegetation

Vegetation was similar at all sampling sites (Photographs: Attachment B). The dominate species included bermuda grass and salt cedar. Also observed: watergrass (*Echinochloa sp.*), Mexican sprangletop (*Leptochloa uninervia*), curly dock (*Rumex crispus*), quail bush (*Atriplex spp.*) 5 hook bassia (*Bassia hyssopifolia*), rabbit's foot grass (*Polypogon monspeliensis*), phragmites (*Phragmites australis*) and salt bush (*atriplex spp.*). All are common along agricultural waterways and bermuda grass and salt cedar can tolerate salinity.

The Trifolium Drain receives water from agricultural drainage water which has originated from the Colorado River, a freshwater source.

Aquatic Invertebrates

The aquatic invertebrates and vertebrates collected at each sampling site are presented in Table 1, below.

Fishes

Three species of fish were observed:

1. Mosquito fish (*Gambusia affinis*). This fish was observed at the sampling site located 100 m downstream of the discharge. Mosquito fish can tolerate salinity and therefore are not a good indicator of freshwater (Moyle, P, *Inland Fishes of California*, 1976).

2. Red Shiner (*Notropis lutrensis*) which are not known to be tolerant of saline conditions (Moyle, 1976).

Vertebrates

Grackles (*Quiscalus mexicanus*) were observed in the vicinity and crickets (*Gryllodes sigulatus*) were heard. Ants and bees were also observed in the vicinity

Table 1  
 List of Organisms Found at Sampling Sites

Sample	100 M Upstream	Discharge	100 M Downstream
<b>Classification</b>			
<u>Chordata</u>			
Osteichthyes			
Cyprinodontiformes			
Poeciliidae			
<i>Gambusia affinis</i>	Present	Present	Present
Cyprinidae			
<i>Notropis lutrensis</i>	Present	Present	Present

### Conclusion

Based on the freshwater aquatic organisms and freshwater vegetation and wildlife at the Trifolium Drain where it receives the discharge from the City of Westmorland's wastewater treatment plant, it is concluded that this is a freshwater ecosystem.

Species typically found in a saltwater system, such as barnacles (*Balanus amphrite*), pileworms (*Nenathes succinea*), or brackish water snail (*Thiara granifera*) were not observed. Saltwater vegetation or wildlife were also not observed.

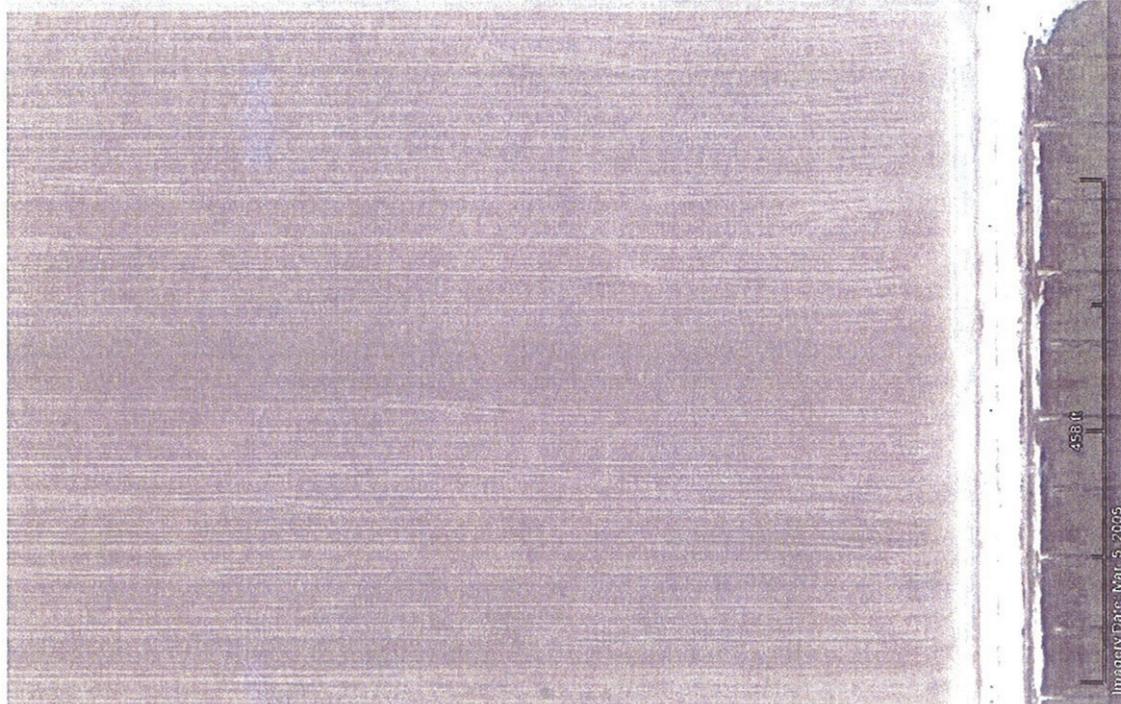
The discharge area is a typical agricultural drain found in Imperial County and easily accessed. As a result, the samples collected during this rapid assessment are considered representative of the overall system.

Sincerely,



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Marie Barrett  
Biologist



↓ Martin Road

◆ 100 Meters downstream

↓ Trifolium Drain

↓ Discharge

↓ City of Westmorland Wastewater Plant

100 meters upstream

458 ft

Imagery Date: Mar. 5, 2005

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33° 28' 54.88" N 115° 37' 05.81" W elev: 172 ft

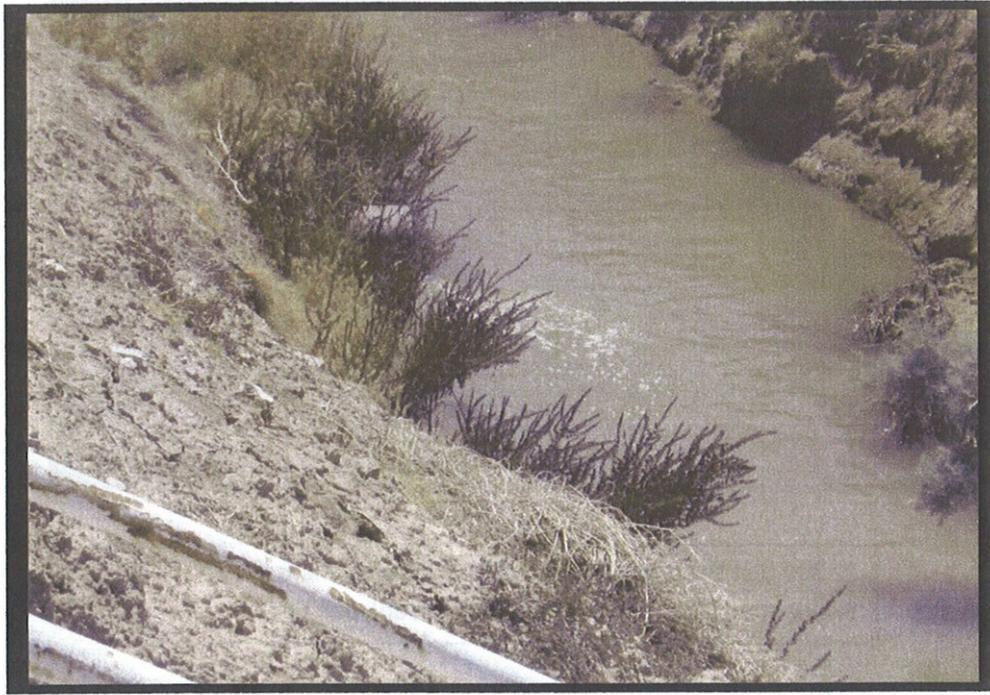
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Earth - 14.95 ft

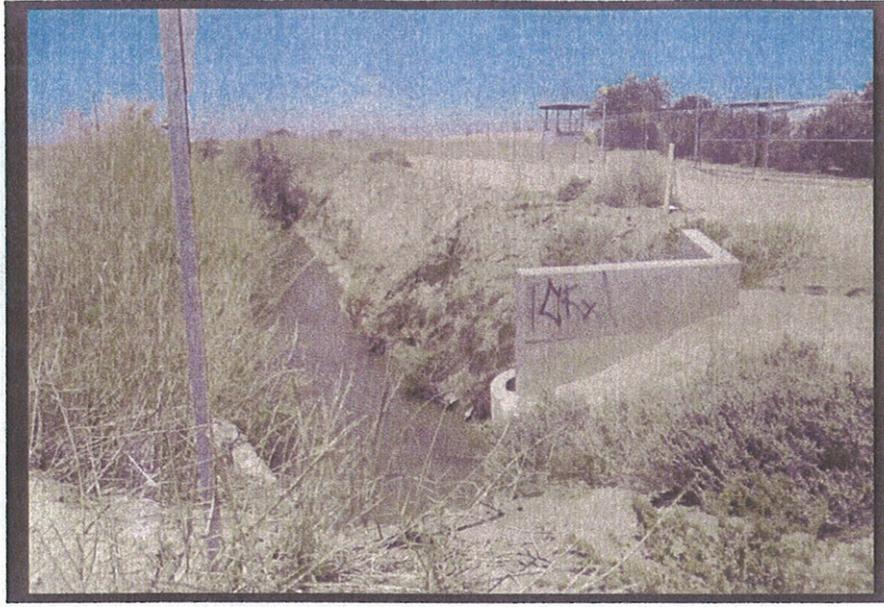
PHOTOGRAPHS



1. Discharge Area. Salt Cedar, curly dock in background. Trifolium Drain



2. 300 feet Downstream. Vegetation: Salt Cedar, Quail Bush, Rabbit's Foot Grass and Salt Bush



3. 300 feet Upstream. Wastewater Treatment Plant in Background. Vegetation: Phragmites (dead), Salt Cedar

## Works Referenced

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