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Project No. 3031038

April 4, 2007

Mrs. Theresa Stevens  
Ventura County Watershed Protection District  
800 South Victoria Ave.  
Ventura, CA 93003

Re: Hueneme Pump Station Reconstruction Project: Construction Monitoring and Fish Relocation Report

Dear Mrs. Stevens:

ENTRIX, Inc. (ENTRIX) is pleased to provide the Ventura County Watershed Protection District (District) with this monitoring and fish relocation report related to construction and maintenance activities conducted in the J-Street Drain in Port Hueneme, California. Fish relocation activities directed by a USFWS permitted fisheries biologist commenced prior to dam construction and deconstruction activities. A qualified fisheries biologist was onsite during all work (dam construction and deconstruction) conducted within the wetted or inundated J-Street drain. The work proceeded in accordance with the Mitigation Monitoring and Reporting Plan, the U.S. Fish and Wildlife Service Programmatic Biological Opinion, the California Fish and Game Streambed Alteration Agreement, the California Regional Water Quality Control Board Water Quality Certification, and the U.S. Army Corps of Engineers Section 404 permit.

This report provides a description of the sensitive species identified in the Hueneme Drain area, project construction activities, survey methods, and findings.

This letter report is organized as follows:

- Project Background
- Fish Species Composition

- Site Description
- Monitoring and Relocation Methods
- Monitoring Results
- Summary of Findings

## **PROJECT BACKGROUND**

The District owns and operates the Hueneme Pump Station, which pumps water from the Hueneme Drain into the J-Street Drain and Ormond Beach Lagoon. The objectives of this project were to: 1) replace aging water pumps; 2) increase the storm flow capacity of the facilities; and 3) to improve debris and sediment clearance at the Hueneme Drain Pump Station. Construction at the Hueneme Drain Pump Station was proposed to require approximately 5 months to completion. Contractual issues delayed construction at the Hueneme Drain Pump Station following the placement of the dam and dewatering activities. The dam remained in place while contractual issues were amended. In September 2004, the District decided to take out the dam because of project delays and the onset of winter creating the potential for high flow conditions in the J-Street Drain that could potentially compromise the integrity of the dam. Reconstruction on the dam began on April 7, 2005.

ENTRIX was hired by the District to provide onsite monitoring during construction activities to minimize potential impacts to fish and wildlife species, including the endangered tidewater goby (*Eucylogobius newberri*), within the construction area.

A Programmatic Biological Opinion was issued for the project by the U.S. Fish and Wildlife Service that allowed a take of no more than 5 tidewater gobies. If more than 5 dead or injured tidewater gobies were found during the project, the USFWS would review the project activities to determine the need for additional protective measures. One dead tidewater goby was discovered on April 19, 2005 which was severely decomposed and is not considered a project related take of this endangered species. Additionally, 212 dead gobies were discovered on December 13, 2006 shortly after the breaching of the berm in Ormond Lagoon. Chris Dellith of U.S. Fish and Wildlife Service was immediately contacted and it was determined that the mortalities were not a consequence of the project.

## **FISH SPECIES COMPOSITION**

The only sensitive species known to occur within or in the vicinity of the J-Street Drain is the endangered Tidewater Goby (*Eucylogobius newberryi*). Other species known to inhabit the J-Street Drain and Ormond Beach Lagoon include Topsmelt (*Atherinops affinis*), sailfin molly (*Poecilia latipinna*), California killifish (*Fundulus parvipinnis*), staghorn sculpin (*Leptocottus armatus*), and striped mullet (*Mugil cephalus*). Exotic species captured include Mosquito Fish (*Gambusia affinis*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), common carp (*Cyprinus carpio*), longjaw mudsucker (*Gillichthys mirabilis*), rainwater killifish (*Lucania parva*), and crayfish (*Procambarus clarki*). These exotic species were sacrificed as required by CDFG collecting permit guidelines. Additionally, pacific tree frog larvae (*Pseudacris regilla*) and red-eared slider turtles (*Trachemys scripta elegans*) were captured and relocated.

## **SITE DESCRIPTION**

The pump reconstruction project is located at the junction of the Hueneme Drain with the J-Street Drain, just before the J-Street Drain enters the Ormond Beach Lagoon, in the City of Port Hueneme, Ventura Co. The project is a reconstruction of the pump station that controls release of the Hueneme Drain into the J-Street Drain.

The J-Street Drain is a concrete lined, trapezoidal channel that is approximately 15 m wide. When the Ormond Beach Lagoon sand berm has not breached and the lagoon is full, the J-Street Drain can be entirely filled with water and can be as deep as 1.5 m. When the lagoon has emptied, only a small amount of flow, less than 25 cm, may be present and the wetted channel narrows to 5 m or less in width. Substrate in the channel is bare concrete covered with fine silt and algal growth. Trash and refuse are common in the Drain.

The Hueneme Drain in the project area is approximately 10 m wide and ranges in depth up to 1.5 m. The banks are composed of rip-rap with a heavy growth of iceplant cover. Most of the drain has a floor of concrete with 10-90 cm of soft, black, anoxic sediment. The water was up to 80 cm deep when the area was drained and about 150 cm deep for the last meter or two before the wooden baffles at the pump station. The concrete bottom terminates approximately 2 meters short of the baffles and the water depth is greater in this area. Approximately 3-5 patches of ditch grass, *Ruppia*, are present in the project area and cover about 20% of the sediment.

## **MONITORING AND RELOCATION METHODS**

A USFWS permitted fisheries biologist directed fish relocation activities during all work conducted within the wetted or inundated J-Street Drain. One-eighth inch mesh block nets were placed upstream and downstream of the work area prior to all work conducted within the wetted J-Street Drain. The bottom of each block net was weighted with a leadline and also held down with sandbags. After the block nets were in place, a 1/8<sup>th</sup>-inch mesh, 15x6 foot, lead weighted seine or a 1/8<sup>th</sup>-inch mesh, 6x4 foot, lead weighted seine was used to capture and relocate all fish including tidewater gobies out of the work area. Additionally, 45x30 cm, 3 mm mesh dip nets (18x12 inch, one eighth inch mesh) were occasionally used to capture and relocate fish. Seining activities continued during dewatering to assure that all tidewater gobies were transported out of the work area. Seining was also performed each time the block nets were compromised and had to be re-erected. All captured fish were transferred to a 5-gallon bucket and were counted and identified to species during relocation. The relocation site was located in the Ormond Beach Lagoon, approximately 100 feet downstream of the work site.

### ***Preconstruction Training and Survey***

A pre-construction, environmental training meeting was conducted prior to the beginning of both the dam construction and deconstruction projects. A biologist permitted by the USFWS to handle tidewater gobies educated the contractor and crew regarding tidewater goby status, life history, and habitat requirements. The biologist also reviewed the project mitigation measures and permit requirements. A guide was distributed to the contractor and other interested project personnel that summarized the environmental training information.

Following fish capture and relocation activities, a dam was constructed of K-rails, sandbags and visquine within the J-Street Drain to allow construction activities to be conducted in a dry area within the containment area. Dewatering of the containment area commenced following dam construction using 1/8-inch mesh screened pumps. The capture and relocation of all native fish species occurred prior to dam construction and during dewatering activities between and prior to dam deconstruction in December, 2006.

### ***Environmental Compliance Monitoring***

A tidewater goby monitor was onsite during all work conducted in the wetted or inundated J-Street Drain. The primary objective of the tidewater goby monitor was to oversee compliance of all mitigation measures and permit requirements and ensure that construction methods conducted within the J-Street Drain would not cause take of the endangered tidewater goby.

### **MONITORING RESULTS**

This section provides a description of the daily monitoring results, based on biological monitoring and fish capture and relocation surveys conducted at the Hueneme and J-Street Drains during the period of April 4, 2005 through December 15, 2006. A summary of these results is provided in Table 1.

#### ***April 4, 2005***

Prior to construction of the new dams, block nets were placed in both Drains and all excluded areas were seined. At the J-Street Drain, one tidewater goby was captured and relocated. No other fish were netted. A total of twenty-four seine hauls were conducted between the hours of 10:30 and 13:30. Water depth at time of netting ranged from 1 to 5 feet. At the Hueneme Drain, fifteen seine hauls were conducted, beginning at 14:00 hours. One tidewater goby was captured and relocated and two mosquito fish were captured and sacrificed. Approximately 50% of the drainage area was not fished due to thick organic debris.

#### ***April 6, 2005***

Beginning at 08:00, ten to fifteen seine hauls were conducted at the J-Street Drain, as the downstream block net had been torn free. The net was subsequently repaired and properly reinstalled. No fish were captured. One crayfish was netted and sacrificed.

#### ***April 14, 2005***

Due to block net failure as a result of pumping out the Hueneme Drain on April 13, 2005, the block nets were replaced and the excluded area was seined. At the J-Street Drain, nineteen seine hauls were conducted between the hours of 07:30 and 09:30. The only

fish captured was a single sailfin molly, which was relocated. Additionally, two crayfish were captured and sacrificed. At the Hueneme Drain, four mosquito fish and six crayfish were captured and sacrificed after nineteen hauls. No other fish were captured. Seining in the Hueneme Drain was conducted between the hours of 09:30 and 10:30.

*April 22, 2005*

Due the breaching of the temporary sandbag barrier at the J-Street Drain, the area between the temporary sandbag barrier and the K-rails was seined. A total of ten seine hauls were completed in this area between the hours of 10:00 and 14:00 and no fish were captured.

*April 25, 2005*

At the Hueneme Drain, high tides occurring the previous night compromised the sandbag berm, allowing water to enter the enclosed area and possibly allowing some fish to move upstream beyond the downstream block net. The net was repaired and re-attached. Seine hauls were conducted over an approximate 3.5 hour period (11:30-14:50). Of seventeen hauls, seven were conducted inside the lower block net, but outside the sandbag enclosure, and covered an estimated 210 square meters. The remaining ten hauls were conducted inside the sandbag enclosure and covered approximately 280 square meters. The water depth ranged from about 90 to 120 cm, the temperature was 18 degrees C. at 11:30, and the salinity was 8 to 9 parts per thousand (ppt) at the surface. No evidence of salinity stratification was evident in the project area. The water was moderately turbid with visibility to about 30 to 40 cm.

The seven hauls conducted outside the sand-bagged enclosure resulted in the capture of five tidewater gobies and thirty-five young-of-the-year (YOY) striped mullet. In addition, approximately sixty mullet were observed in the vicinity and at least a few hundred were observed above and below the block net. The tidewater gobies were large adults and the mullet ranged in size, from approximately 70 to 120 millimeters Standard Length (SL).

During the ten hauls conducted inside the enclosure, several areas were repeatedly seined with some hauls overlapping areas that were swept previously. A total of thirty-one tidewater gobies were taken. All tidewater gobies ranged from half-grown to adult size, with the exception of one individual that was larval and was approximately 12 mm SL. In addition, approximately sixty striped mullet, sixteen topsmelt, one mosquitofish, and one treefrog tadpole were captured. The striped mullet were similar in size to those captured outside the enclosure. Eight of the top smelt were adults ranging in size, from

approximately 90 to 130 mm SL. Four top smelt were YOY ranging in size, from 25 to 30 mm SL. A sample of 25 striped mullet and some of the topsmelt were preserved for documentation.

During the seine hauls conducted inside the enclosure, part of the seine was sucked into one of the 36 inch drain outlet pipes and had to be extricated. This provides at least one potential way for tidewater gobies and other fishes to go upstream into the Hueneme Drain.

Clear evidence of recent reproduction in tidewater gobies and topsmelt was obtained in the capture of one larval goby and four YOY topsmelt. This observation indicates that reproduction has barely started; late April through early May is the usual time when breeding in these species commences. Neither species appears to actually have spawning substrate in the vicinity, namely deep sand for burrows for the goby and aquatic vegetation for the topsmelt. The topsmelt would possibly lay eggs on the block nets, but no other suitable substrate for them is apparent in the project area. Therefore, these YOY likely represented strays from the lagoon downstream.

#### *April 28, 2005*

Due to a breach in the sand-bagged berm at multiple locations and failure of the block nets, the Hueneme drain area was seined to relocate any fish introduced to the work area. Seining was conducted between the hours of 08:30 to 15:30. The water level in the lagoon and outside the barrier was 20-30 cm deep on our arrival and slowly became shallower during the removal process. The water was 15 degrees C. at the beginning and fresh (by refractometer) inside and outside the containment area. By 13:30 the water temperature increased to 24 degrees C. and was probably still fresh, although we did not measure salinity again.

Removal was first conducted using dip nets. Approximately forty to sixty dips were taken and were then followed by forty to fifty seine hauls. Both methods were used upstream and downstream of the enclosure. A visual examination of the clear shallow water upstream, downstream, and marginal to the berm was also conducted.

A total of twenty-one half grown to adult tidewater gobies were captured and represented the only live fish captured inside the berm. All but two of these tidewater gobies were captured before the brief opening of the berm at the end of the day. One gravid female mosquitofish was seen and captured outside and downstream of the berm and was the only fish seen outside the berm throughout the day. One decomposing adult topsmelt was found in the leaf litter inside the berm, and two recently deceased striped mullet were found in the trash and debris wrapped up in the displaced downstream block net. About thirty-five treefrog tadpoles and fifteen red swamp crayfish were also

captured inside the sand-bagged area. Most of the tadpoles were legless but two or three had developed back legs. Four of the crayfish were very large and the others were quite small, 30 mm or less in total length. A live turtle, likely a southwestern pond turtle, was observed in the Hueneme Drain about 15 m upstream of the pump station and downstream of the block net.

*May 9, 2005*

During the dewatering of the Hueneme Drain the two biologists utilized dip nets to rescue stranded fish. Thirty-five dip net hauls along scoured bank areas and near the pump station resulted in the capture of fifteen mosquitofish, fifteen carp, thirty crayfish, and one red-eared slider turtle. All species were sacrificed.

*October 12, 2005*

Prior to moving the temporary dam in the J-Street Drain closer to the work area, upstream and downstream block nets were deployed and the excluded area was seined. A total of forty seine hauls were conducted and resulted in the capture of one-thousand one-hundred and seventeen tidewater gobies, one mudsucker, one staghorn sculpin, thirteen California killifish, three goldfish, five-hundred and ninety mosquitofish, ninety-four sailfin molly, one rainwater killifish, and eight crayfish. All of the native species were relocated and all of the invasive species were sacrificed.

*October 13, 2005*

Continued seining for dam relocation activities resulted in the capture of four-hundred and sixty tidewater gobies, one staghorn sculpin, eleven California killifish, two goldfish, three-hundred and seventy-seven mosquitofish, forty-eight sailfin molly, and eight crayfish. All of the native species were relocated and all of the invasive species were sacrificed.

*December 4, 2006*

Installation of a temporary dam in front of the earthen dam at the Hueneme Drain required exclusion of the area and fish relocation. Two biologists installed an upstream block net and seined the proposed dam area. Seventeen seine hauls resulted in the



capture of fifty-one mosquitofish, two killifish, one carp, and one crayfish. All of these species were sacrificed.

*December 13, 2006*

A small rain storm over the weekend prior to the 13<sup>th</sup> resulted in the breaching of the berm in Ormond Lagoon. This breaching lowered water levels in the J-Street Drain from approximately 4 feet to 6 inches. The new conditions allowed for a much easier removal of the dam. Prior to removal, two biologists excluded and seined the area. Between 07:30 and 15:30, block nets were placed at the lower end of the Drain, approximately 20 feet above the dam.

Forty-four seine hauls were conducted throughout the excluded area. Two passes were made from the lower to upper block net with a focus on the area surrounding the dam. After conducting the two passes, an additional five hauls were taken in this area. The dam had been constructed of K-rails with a visqueen plastic tarp covering. During the course of the project, tidal influence caused slight shifts in the K-rails and allowed the tarp to become loose which created cover and habitat for tidewater gobies. Seine hauls with the largest numbers of gobies came from within this area.

In the upstream corner of the dam, a large portion of the bottom of the visqueen became loose which created a flap through which water flowed. While lifting the visqueen to dip net for gobies, two-hundred and twelve goby mortalities were discovered. The USFWS's biological opinion for the project had stated if more than 5 dead or injured gobies were found, then the USFWS would review the project to determine the need for additional protective measures. Camm Swift, of ENTRIX, notified Chris Dellith, of the USFWS, immediately following the discovery. It was determined that the mortalities were not project related for two reasons:

1. The first reason relates to the length of the project. The dam was in place for approximately eight months. The average goby life span is about one year. It is fair to assume that the dead gobies had gone through a natural life cycle and died. The receding water after the berm breach created a flow and the pocket of loose visquine captured the dead fish.
2. The second reason is that gobies have been observed as far as 100 meters upstream of the project site near the rail crossing culverts. With the breaching of the berm, flow may have carried previously dead gobies downstream where they were caught by the pocket of visqueen.

The USFWS was not concerned by the mortalities and no action was taken.

In total, one-thousand three-hundred and ninety-seven tidewater gobies were captured and relocated to the lagoon. Other species captured include one-hundred and fifty-seven mosquitofish, eighty sailfin molly, five goldfish, and twenty-three crayfish. All non native species were sacrificed.

*December 14, 2006*

Two biologists continued to conduct fish relocations as dam removal proceeded. The excluded area was seined as well as the area within the dam. Although water did not previously exist within the dam area, the removal process allowed water to enter. To ensure that no gobies entered the area, the biologists mainly employed dip nets to capture and relocate gobies.

Thirty-three seine hauls and dip netting activities resulted in the capture of one-thousand four-hundred and sixty-two gobies. Other species captured include fifty mosquito fish, twenty-nine sailfin molly, one green sunfish, twenty longjaw mudsuckers, and one-hundred and forty-one crayfish. All non native species were sacrificed and the tidewater gobies were relocated.

*December 15, 2006*

One biologist was on-site as the dam removal was completed. As the last of the instream sections were removed a total of fifteen dip nets were taken which resulted in the capture of thirty tidewater gobies, thirteen sailfin molly, fifteen longjaw mudsucker, and ten crayfish.

Table 1. Fish species captured and relocated

Date	Drainage	Seine Hauls	California killifish	carp	crayfish	goldfish	green sunfish	longjaw mudsucker	mosquitofish	Pacific tree frog	rainwater killifish	red-eared slider	sailfin molly	staghorn sculpin	striped mullet	tidewater goby	topsmelt
4/4/2005	J-Street	24														1	
	Hueneme	15						2								1	
4/6/2005	J-Street	15	None caught														
4/14/2005	J-Street	19			1							1					
	Hueneme	19			6			4									
4/22/2005	J-Street	10	None caught														
4/25/2005	Hueneme	17						1	1					95	36	16	
4/28/2005	Hueneme	50			15			1	35						21		
5/9/2005	Hueneme	35 (dip net)		15	30			15			1						
10/12/2005	J-Street	40	13		8	3		1	590		1		94	1		1117	
10/13/2005	J-Street	30	11		8	2			377			48	1			460	
12/4/2006	Hueneme	17	2	1	1				51								
12/13/2006	J-Street	44			23	5			157			80				1397	
12/14/2006	J-Street	33			141		1	20	50			29				1462	
12/15/2006	J-Street	15 (dip net)			10			15				13				30	
TOTALS		333	26	16	243	10	1	36	1248	36	1	1	265	2	95	4525	16

### ***Environmental Compliance Monitoring***

Compliance of the adopted mitigation measures and permit requirements were met except for a single event that occurred during dam construction. During dam construction, the contractor attempted to apply a roofing compound to adhere the visquine to the K-rails. This method was not included in the construction plans. The monitor observed this application soon after it began and stopped the project. The monitor met with District representatives and the contractor to once again educate the contractor regarding the sensitivity of the project area, and to remind him that all variances from construction plans must be approved by the District and the permitting agencies. The roofing compound was applied to a portion of the K-rails in the dry impound. The District told the contractor to remove the roofing compound and double line the K-rails with visquine to mitigate for any potential existing residue. Padre Associates, Inc. gathered water samples around the work area that were analyzed for total petroleum hydrocarbons (TPH) which indicated no degradation of water quality occurred. No tidewater gobies were impacted by this activity due to the immediate response of the project team and the cooperation of the contractor.

## SUMMARY OF FINDINGS

- A total of 4525 tidewater gobies were captured and relocated over the course of the project.
- No tidewater gobies were adversely affected as a result of the project.
- No other special status species were adversely affected as a result of the project.

We appreciate the opportunity to be of service to the Ventura County Watershed Protection District. Please contact Joel Mulder or Camm Swift at (805) 644-5948 if you have any questions.

Sincerely,

ENTRIX, Inc.



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Joel Mulder  
Aquatic Ecologist



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Camm Swift, Ph.D.  
Senior Fisheries Biologist

## PROJECT

## **PHOTOGRAPHS**



Photo 1 – The J-Street Drain downstream block net.



Photo 2 – Seining in the J-Street Drain.





Photo 3 – The Hueneme Drain block net.



Photo 4 – The first J-Street Drain dam.



Photo 5 – Hueneme Drain block net and pump house.



Photo 6 – Hueneme Drain temporary earthen dam.





Photo 7 – The second J-Street Drain dam.



Photo 8 – Relocated tidewater goby.