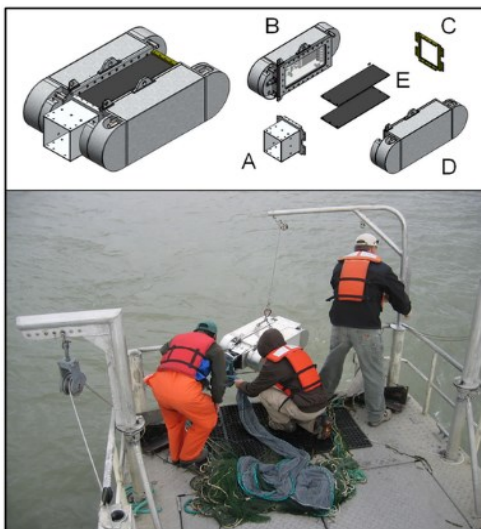


## FACT SHEET

<b>SmeltCam Bridge Funding (13-22)</b>	
<b>Deliverables:</b> Completion of fall 2012 SmeltCam investigation 11/26-30, 2012.	
<b>Status:</b> Complete	
<b>Primary Investigator:</b> Fred Feyrer, Bureau of Reclamation	<b>Recipient Organization:</b> Darren Odom, SureWorks LLC
<b>Project Cost:</b> \$28,000	<b>SFCWA Funding:</b> \$28,000
<b>Partners:</b> Interagency Ecological Program	



Upper panel is a diagram of the SmeltCam showing (A) net cowling and bow frame, (B) sealed electronics compartment, (C) stern frame, (D) ballast hull and (E) top and bottom vision tube covers. Bottom panel is a photograph of the SmeltCam being deployed.

### Introduction

The SmeltCam is a device that functions as an open-ended codend that automatically collects information on the number and species of fishes that pass freely through a trawled net without handling. It was developed as a tool to overcome many challenges faced with sampling delta smelt in the wild, including reducing the effects of “take” under the federal Endangered Species Act. The tool could potentially be applied to many items relevant to SFCWA, including the Fall X2 Adaptive Management Plan and to other species such as longfin smelt or juvenile salmonids.

### Objective

Establish the efficacy of the SmeltCam by investigating the fine scale distribution of delta smelt in the water column. Field sampling took place November 26- 30, 2012. SFCWA funding supported SureWorks, LLC’s (SmeltCam developer) involvement in the field study. The IEP provided all other necessary resources.

### Results

1. SFCWA funding enabled the successful completion of the field work.
2. A presentation was given at the 2013 IEP workshop on the SmeltCam and study results.
3. A paper has been published in the open-access journal PLOS ONE describing the SmeltCam as an effective tool to sample imperiled species together with the results of the 2012 investigation supported by SFCWA. The paper is available at <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0067829>

## Conclusions

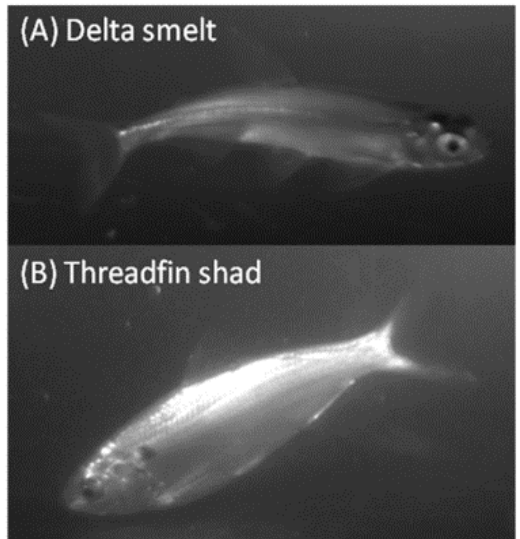
1. SmeltCam is an effective tool for sampling delta smelt while greatly minimizing the effects of traditional sampling gear. Mortality of individual delta smelt was reduced by 72%.
2. Distribution of delta smelt in the water column varies across tidal stage and has potentially important implications for the interpretation of long-term monitoring, the sampling design of future studies, habitat restoration and water project operations. .

## Relevance

There are a number of delta smelt-related hypotheses that SFCWA would like to investigate (e.g., delta smelt densities (or patterns of presence and absence) vary predictably in their local distribution in relation to bathymetric gradients or features; delta smelt densities (or patterns of presence and ab-

## Next Steps

SFCWA has been approached to fund the next stage of development for Smelt Cam, which includes hardware and software improvements to improve resolution and recognition capabilities, and construction of a sampling platform to place the Smelt Cam at the front of the boat so that shallower inshore waters can be effectively sampled.



*Examples of raw images of (A) delta smelt and (B) threadfin shad obtained by the SmeltCam during our field study.*