Revision Date: September, 2005

California Stream Bioassessment Procedure
Biological and Physical Habitat Field Audit

Field Team: Russell Grimmer and Mark Abramson (Heal the Bay Institute)

Field Location: Malibu Creek @ Malibu State Park

Date of Audit: May 16, 2006

Background of Group and Audit Objectives:

Heal the Bay has been monitoring chemical, physical and biological condition at various sites within the Malibu Creek watershed for many years. They received training and continuous auditing throughout the life of their program. They have a paid, dedicated field crew that conducts all the sampling. They send their invertebrate samples to SLSI for processing, but analyze the data and report the information on their own. This group has always used the CSBP and had their data converted to the new 500 individuals/sample format so they could take advantage of the SoCal IBI. They had developed their own phab protocols based on a modified EMAP, but in 2005 converted back to the older CSBP protocol. The objective of this audit was to go over their sampling procedures and show them the basic version of the 2006 SWAMP bioassessment protocol.

Preliminary Sampling Site QA/QC Measures	
Procedure	Comments
Sampling Team Briefing – insure that all field personnel are aware of the site requirements and procedures of the CSBP and project SOP	*Well organized with labels and COCs labeled prior to field sampling*
Equipment Inspection – insure that all the equipment is present and working order	√
Equipment Calibration – insure that all equipment is calibrated as described in SOP	√
Initial Sample Site Delineation – insure that the sampling site is surveyed for access, hazards and special concerns	√
Sampling Site Description – insure that all the requirements of the CSBP field form are measured and recorded	√
Transect Layout – insure that the 11 transect locations are located and adequately marked	√

Biological Sampling QA/QC Measures	
Procedure	Comments
Determine Collection Locations – insure that the collection locations are determined according to high or low gradient procedures	HTB samples the same site each year
Assemble Equipment – insure that all equipment identified in the SOP is assembled before approaching collection location	√
Net Placement – insure that the sampling net is correctly placed in the substrate and perpendicular to flow	√
Substrate Excavation Adequacy – insure that the substrate is adequately scrubbed of all BMIs	√
Substrate Excavation Duration – insure that the substrate is scrubbed for a consistent duration (1-3 minutes) and in accordance with the type of substrate	√
Substrate Excavation Depth – insure that the substrate is excavated to a depth (4-6 inches) adequate to collect all BMIs	*Make sure you do this procedure every time*
Excavated Material Cleaning – insure that no BMIs are lost when large material is cleaned from the net	√
Handling of Excavated Material – insure that no BMIs are lost when transporting the net between collection locations	√
Compositing of Excavated Material – insure that no excavated material is lost when compositing and placing material in jars	*They used wide-mouth jars and tray to minimize sample loss*
Labeling of Samples – insure that all jars are labeled according to the SOP	Labels were pre recorded
Collection of Duplicates – insure that all procedures required for collecting duplicate samples are followed according to SOP	*They did not do this during the audit. Mark explained how they would do it and it was correct*

Special Comments: This site had heavy growth of algae. Sampling was difficult and Mark Abramson could have put considerable algae in the sample. His technique was quite good and the algae was minimal in the sample.

Physical Habitat QA/QC Measures	
Procedure	Comments
Substrate Cross-Sectional and Inter-Transect Information – insure that the width, depth, substrate size and embeddedess measures are collected in accordance with the CSBP	√
Habitat Complexity – insure that all components are properly rated in accordance with the CSBP	√

Visual Riparian Estimates – insure that all components are properly rated in accordance with the CSBP	√
Human Influence – insure that all components are properly rated in accordance with the CSBP	√
Densiometer – insure that the densiometer is placed and used in accordance with the CSBP	√
Field Data Sheets– insure that all field data sheets are filled out completely and correctly	√
Field Personnel Communication– insure that all personnel communicate constantly during the rating procedure	√

EPA/RBP Physical Habitat QA/QC Measures	
Procedure	Comments
1. Epifaunal Substrate/ Available Cover – insure that this component of the procedure is rated according to procedures described in the SOP	√
2a. Embeddedness – insure that this component of the procedure is rated according to procedures described in the SOP for high gradient reaches	√
2b. Pool Substrate Characterization – insure that this component of the procedure is rated according to procedures described in the SOP for low gradient reaches	√
3a. Velocity/ Depth Regimes – insure that this component of the procedure is rated according to procedures described in the SOP for high gradient reaches	√
3b. Pool Variability – insure that this component of the procedure is rated according to procedures described in the SOP for low gradient reaches	√
4. Sediment Deposition – insure that this component of the procedure is rated according to procedures described in SOP	√
5. Channel Flow Status – insure that this component of the procedure is rated according to procedures described in SOP	√
6. Channel Alteration – insure that this component of the procedure is rated according to procedures described in SOP	√
7a. Frequency of Riffles (or bends) – insure that this component of the procedure is rated according to procedures described in the SOP for high gradient reaches	√
7b. Channel Sinuosity – insure that this component of the procedure is rated according to procedures described in the SOP for low gradient reaches	√
8. Bank Stability – insure that this component of the procedure is rated according to procedures described in SOP	√
9. Vegetative Protection – insure that this component of the	√

procedure is rated according to procedures described in SOP	
10. Riparian Vegetative Zone Width – insure that this component of the procedure is rated according to procedures described in SOP	√
Field Data Sheets – insure that all field data sheets are filled out completely and correctly	√
Field Personnel Communication – insure that all personnel communicated constantly during the rating procedure	√
Field Personnel Verification and Agreement – insure that all personnel are in agreement on the rating procedure and verify what is recorded on the field data sheets	√

Sampling Event Conclusion QA/QC Measures	
Procedure	Comments
Sampling Equipment – insure that all equipment is accounted for and in operating condition	√
Biological Sample COC – insure that all information is provided on the Chain-of-Custody form	√
Field Paperwork – insure that all paperwork is accounted for and inspected for completion	√
Water Chemistry Measures – insure that all parameters of water chemistry are measured in according to procedure described in the SOP	√
Stream Gradient – insure that the percent slope of the stream reach is measured according to procedures described in the SOP	√
GPS Coordinates – insure that the latitude and longitude of the sampling location is measured as described in the SOP	√
Substrate Delineation of Reach – insure that percent substrate types are measured in accordance with the CSBP	√
Stream Flow Determination – insure that stream flow is measured in accordance with the CSBP	√
Sampling Reach Photo-documentation – insure that digital photos are taken at the transects and in the direction described in the SOP	√
Sampling Event Comments – insure that at the end of the sampling events comments specific to the event are recorded on the field form	√

I CERTIFY THAT THIS FIELD TEAM HAS ADEQUATELY FULLFILLED ALL REQUIRMENTS OF THE FIELD AUDIT FOR THE CALIFORNIA STREAM BIOASSESSMENT PROCEDURE

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James M. Harrington
Staff Environmental Scientist
California Department of Fish and Game

COMMENTS:

I verified the quality of the preliminary sampling site QA/QC measures and biological sampling procedures. HTB has considerable experience and did an excellent job with these tasks. I went over the EPA RBP phab procedures and they did quite well on this due to their extensive experience monitoring the Malibu watershed. Many of the sites are repeated each year and they are all relatively consistent in habitat which helps with HTB repeatability. I demonstrated the new basic version of the SWAMP phab procedures. Since HTB had experience with a modified EMAP procedure, they were quite familiar with the new procedures.

Eventually, HTB will need to decide the level of phab they want to conduct. They are one of the only groups in California who have extensive experience with quantitative EMAP protocols and have even tested them for effectiveness. They may need to resolve this issue with the LA Regional Board someday.