



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
 Stream Protection and Management Branch

FIELD INVESTIGATION REPORT
FI2008121001 (East Maui, Wailuanui IIFS Site)

Date of Field Investigation:	December 10, 2008	Time (24-hour):	0830 - 1000												
CWRM Staff:	Ken Kawahara, Ed Sakoda, Dean Uyeno, and Chui Ling Cheng														
Individuals Present:	Amanda Martin (President of Na Moku) and Ed Wendt (Wailua farmer); EMI - Garret Hew (Water Resources Manager), Mark Vaught (Operations Manager), Henry Robello (Field Superintendent); DOCARE officers														
Hydrologic Unit:	Wailuanui (6056)														
Stream Name:	Wailuanui Stream														
Findings:	<p>At 0830, CWRM staff met with Amanda Martin and DOCARE officers at the Wailua Valley Lookout. Ken Kawahara briefly summarized the activities planned for that day. Ed Wendt stopped by and gave an overview of the auwai system in Wailua Valley.</p> <p>At approximately 0910 hours, CWRM staff arrived at the Hana Highway bridge that crosses Wailuanui Stream. CWRM staff hiked down from the bridge to the stream via a small trail that begins on the right bank of the stream, on the downstream side of the bridge. The trail condition was hazardous because of the loose rocks and large boulders on the hill. The IIFS site is below the Hana Highway bridge.</p> <p>CWRM staff prepared the site for flow measurement. Flow measurement was completed in 30 minutes. Staff also recorded air temperature, water temperature and weather conditions. Gage height readings were taken at the downstream reference point at the start and finish of flow measurement. As computed back in the Honolulu Office, the flow at IIFS Site was 2.076 cubic feet per second (1.342 million gallons per day), with 0.01 decrease in gage height. The gage height reading was 0.03 feet lower than the previous day (refer to FI2008120902).</p> <p>According to the flow measurements taken at East Wailuanui tributary (0.921 cubic feet per second, refer to FI2008121002) and at West Wailuanui (1.242 cubic feet per second, refer to FI2008121003), the stream lost 0.087 cubic feet per second (0.056 million gallons per day) of flow between Koolau Ditch and the IIFS Site on this day. Calculations are shown below:</p> $\begin{array}{rclcl} \text{Flow at IIFS Site} & - & (& \text{Flow at E. Wailuanui} & + & \text{Flow at W. Wailuanui} &) & = & \text{Flow losses} \\ 2.076 \text{ CFS} & - & (& 0.921 \text{ CFS} & + & 1.242 \text{ CFS} &) & = & 0.087 \text{ CFS} \end{array}$ <p>Staff left Wailuanui IIFS Site at approximately 1000 hours, and proceeded to take flow measurements at East Wailuanui tributary. Refer to Field Investigation Report FI2008121002 (East Maui, East Wailuanui Koolau Ditch) for more information.</p>														
Image Listing:	(Attach PDF of image contact sheet)														
File Name:	Brief Description:														
GPS Listing:	<p>Shapefiles: (List file names of all shapefiles created and a brief description of each)</p> <p>File Name: Brief Description:</p> <p>East_Maui_POI.shp Points of interest (POI) recorded with the GPS unit during the field visit. The file includes POI recorded from all the East Maui field investigations.</p> <p>Waypoints: (List all waypoints in decimal degrees and provide a brief description of each)</p> <table border="1"> <thead> <tr> <th>WP No.</th> <th>Latitude</th> <th>Longitude</th> <th>Brief Description:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>20.832394</td> <td>-156.138458</td> <td>IIFS Site Flow Measurement on Wailuanui Stream</td> </tr> <tr> <td>4</td> <td>20.833606</td> <td>-156.13696</td> <td>Parking area near IIFS Site on Wailuanui Stream</td> </tr> </tbody> </table>			WP No.	Latitude	Longitude	Brief Description:	0	20.832394	-156.138458	IIFS Site Flow Measurement on Wailuanui Stream	4	20.833606	-156.13696	Parking area near IIFS Site on Wailuanui Stream
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Attachments:

Brief Description:

1. Discharge Measurement and Gage Inspection Notes

Recommendations:

ANGLE COEF- FICIENT	DIST. FROM INITIAL POINT	WIDTH	DEPTH	OBSERVA- TION DEPTH	REVO- LUTIONS	TIME IN SEC- ONDS	VELOCITY		ADJUST- ED FOR HOR. ANGLE OR	AREA	DISCHARGE	.80
							AT POINT	MEAN IN VER- TICAL				
	LEW	@	0920			GHT	= 5-	2.57 =	2.43			
												.85
	3.55	.075	0							0	-	
	3.7	.225	0.3			40		.05		.068	.003	
	4.0	.40	0.68			40		.03		.272	.008	.90
	4.5	.50	0.97			40		0		.485	0	.92
	5.0	.50	1.02			40		0		.510	0	
	5.5	.50	1.01			40		.04		.505	.020	.94
	6.0	.50	1.01			40		.12	2.345	.505	.061	.96 .092
	6.5	.50	1.08			40		.13		.540	.070	.97
	7.0	.50	1.10			40		.14		.550	.077	.98
	7.5	.50	1.19			40		.25	4.03	.595	.149	.99
	8.0	.50	1.10			40		.16		.550	.088	.476
	8.5	.50	0.98			40		.21	5.07	.490	.103	.579
0	9.0	.50	1.12			40		.32		.560	.179	1.00
	9.5	.50	1.09			40		.34	6.175	.545	.185	.943
	10.0	.50	1.20			40		.27		.600	.162	1.105
	10.5	.50	.90			40		.43	7.225	.450	.194	.99 1.297
	11.0	.50	.79			40		.46		.395	.182	.98 1.481
	11.5	.50	.60			40		.37	7.92	.300	.111	.97
	12.0	.50	.67			40		.36	8.375	.335	.121	.96 1.713
	12.5	.50	.63			40		.34	8.57	.315	.107	1.82
	13.0	.50	.60			40		.35		.300	.105	.94 1.925
	13.5	.50	.70			40		.26	9.22	.350	.091	.92 2.016
	14.0	.35	.75			40		.23		.263	.060	.90
	14.2	.10	0							0	-	
	10.65	10.65					AVE =	.22		9.483	2.076	.85
	REW	@	0949			GHT	= 5-	2.56 =	2.44			.80