



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

FIELD INVESTIGATION REPORT
FI2008102801 (East Maui, Honopou IIFS Site A)

| | | | |
|-------------------------------------|--|------------------------|-------------|
| Date of Field Investigation: | October 28, 2008 | Time (24-hour): | 0740 - 0920 |
| CWRM Staff: | Ed Sakoda, Dean Uyeno, and Chui Ling Cheng | | |
| Individuals Present: | EMI - Garret Hew (EMI Water Resources Manager) and Henry Robello (Field Superintendent) Honopou community - Beatrice Kekahuna, and Wanda Vierra | | |
| Hydrologic Unit: | Honopou (6034) | | |
| Stream Name: | Honopou Stream | | |

Findings:

On October 27, 2008, CWRM staff documented the flow release at Lowrie Side Ditch bypass sluice gate on Honopou Stream. Refer to Field Investigation Report FI2008102704 (East Maui, Honopou Lowrie Ditch, restore) for more information. Since flow was restored, the following flow measurements represent post-release flow conditions.

At approximately 0740 hours, CWRM staff arrived at the Haiku Ditch diversion on Honopou Stream. CWRM staff took a volumetric measurement of the water flowing through the three 4-inch (O.D.) PVC pipes that bypasses the ditch. With a stopwatch, staff recorded the number of seconds each of the pipes took to fill a 2 gallon bucket. This process was repeated 5 times, making a total of 5 measurements per pipe. As computed back in the Honolulu Office, the flow from the pipes was 0.121 cubic feet per second (0.078 million gallons per day).

CWRM staff then walked to a large pond downstream from Haiku Ditch on Honopou Stream.

Staff then drove to the bridge that crosses Honopou Stream further downstream to measure flow at IIFS Site A. Staff met with Garret Hew, Henry Robello, and members of the Honopou community at the bridge. CWRM staff prepared IIFS Site A on Honopou Stream for flow measurement. CWRM staff checked the downstream gage pool for debris and there was none. Staff noticed that the water level in the gage pool was considerable lower than the water level observed in previous field visits, during which the water overtopped the concrete-reinforced masonry (CRM) wall of the gage pool. Since the water level in the gage pool was low, and that water was not spilling over the CRM wall, Garret Hew noticed leakage at the center of the wall footing that was not apparent in previous field visits when the water overtopped the wall. When CWRM staff returned to the Honolulu Office, Matt Wong of the USGS-Maui Office contacted Chui Ling Cheng regarding the leakage. He mentioned that a gage pool with multiple leakages may not be stable enough for gage height readings. CWRM staff plans to return to this site in November to investigate this issue further.

The entire flow measurement was completed in 20 minutes. Gage height readings were taken at the downstream gage pool at the start and finish of flow measurement. In addition to flow measurement, staff crew also recorded wind velocity, air temperature, water temperature and weather conditions. The weather was overcast with vog and no rain. As computed back in the Honolulu Office, the flow at IIFS Site A was 0.060 cubic feet per second (0.039 million gallons per day), with no change in gage height.

Staff crew left Honopou IIFS Site A at approximately 0920 hours, and continued further downstream to conduct flow measurement at IIFS Site B on Honopou Stream. Refer to Field Investigation Report FI2008102802 (East Maui, Honopou IIFS Site B) for more information.

Image Listing: (Attach PDF of image contact sheet)

| File Name: | Brief Description: |
|-------------------|--|
| 20081028001 | Pond downstream of Haiku Ditch on Honopou Stream. |
| 20081028002 | Pond downstream of Haiku Ditch on Honopou Stream. |
| 20081028005 | Pond downstream of Haiku Ditch on Honopou Stream. |
| 20081028006 | Gage pool and reference point on Honopou Stream IIFS Site A. |
| 20081028009 | Gage pool and reference point on Honopou Stream IIFS Site A. |
| 20081028010 | Gage pool and reference point on Honopou Stream IIFS Site A. Water level was below the CRM wall. |

GPS Listing:

Shapefiles: (List file names of all shapefiles created and a brief description of each)

| | |
|---|---|
| <u>File Name:</u> East_Maui_POI.shp | <u>Brief Description:</u> 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. |
|---|---|

Waypoints: (List all waypoints in decimal degrees and provide a brief description of each)

| <u>WP No.</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Brief Description:</u> |
|----------------------|------------------------|-------------------------|--|
| 6 | 20.916212 | -156.245203 | Bridge on Honopou Stream |
| 7 | 20.916187 | -156.245174 | IIFS Site A Reference Point on Honopou Stream |
| 8 | 20.916096 | -156.245077 | IIFS Site A Flow Measurement on Honopou Stream |

Attachments:

Brief Description:

1. Image Contact Sheet
2. Discharge Measurement and Gage Inspection Notes

Recommendations:

IMAGE CONTACT SHEET



20081028001.JPG



20081028002.JPG



20081028005.JPG



20081028006.JPG



20081028009.JPG



20081028010.JPG

.0 .10 .20 .30 .40 .50 .60 .70 .75

River at

| 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 |
|------------------------|-----------------------------------|-------|-----------------|------------------------|------------------|----------------------------|-------------|--------------------------|---------------------------------------|------|-----------|
| | | | | | | | AT POINT | MEAN IN VER- TICAL | | | |
| | LEW | @ | 8:25 | | | | GHT = | 1.00 - | 0.95 = | 0.05 | |
| | | | | | | | | | | | .85 |
| | 2.6 | .05 | 0 | | | | | | | | |
| | 2.7 | | 0.32 | | | 40 | | .04 | | | |
| | 2.8 | | | | | | | | | | .90 |
| | 2.7 | .1 | 0.18 | | | | 1/2(.03) = | .02 | | .018 | 0 |
| | 2.8 | .1 | 0.42 | | | 40 | | .03 | | .042 | .001 |
| | 2.9 | .1 | 0.45 | | | 40 | | .03 | | .045 | .001 |
| | 3.0 | .1 | 0.42 | | | 40 | | .06 | | .042 | .003 |
| | 3.1 | .1 | 0.37 | | | 40 | | .05 | | .037 | .002 |
| | 3.2 | .1 | 0.37 | | | 40 | | .05 | | .037 | .002 |
| | 3.3 | .1 | 0.39 | | | 40 | | .07 | | .039 | .003 |
| | 3.4 | .1 | 0.36 | | | 40 | | .09 | | .036 | .003 |
| | 3.5 | .1 | 0.35 | | | 40 | | .08 | | .035 | .003 |
| 0 | 3.6 | .1 | 0.35 | | | 40 | | .07 | | .035 | .002 |
| | 3.7 | .1 | 0.36 | | | 40 | | .07 | | .036 | .003 |
| | 3.8 | .1 | 0.35 | | | 40 | | .06 | | .035 | .002 |
| | 3.9 | .1 | 0.35 | | | 40 | | .07 | | .035 | .002 |
| | 4.0 | .1 | 0.42 | | | 40 | | .07 | | .042 | .003 |
| | 4.1 | .1 | 0.42 | | | 40 | | .09 | | .042 | .004 |
| | 4.2 | .1 | 0.40 | | | 40 | | .08 | | .040 | .003 |
| | 4.3 | .1 | 0.40 | | | 40 | | .09 | | .040 | .004 |
| | 4.4 | .1 | 0.40 | | | 40 | | .10 | | .040 | .004 |
| | 4.5 | .1 | 0.35 | | | 40 | | .10 | | .035 | .004 |
| | 4.6 | .1 | 0.32 | | | 40 | | .10 | | .032 | .003 |
| | 4.7 | .1 | 0.31 | | | 40 | | .08 | | .031 | .002 |
| | 4.8 | .1 | 0.28 | | | 40 | | .07 | | .028 | .002 |
| | 4.9 | .1 | 0.28 | | | 40 | | .06 | | .028 | .002 |
| | 5.0 | .1 | 0.21 | | | 40 | | .06 | | .021 | .001 |
| | 5.1 | .1 | 0.21 | | | 40 | | .03 | | .021 | .001 |
| | 5.2 | .15 | 0.20 | | | 40 | | .01 | | .03 | 0 |

.009

.018

.027

.037

.049

.06

