

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJA coll.
 HSA CODE: - - - TEMPERATURE: - (°C)
 NAME: Hillawe ELEVATION: 90 (ft.)
 DATE: 7 114 103 TIME: 4:03 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL 10
 COBBLE 20 BOULDERS 70 BEDROCK -
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m - 10 inch deep

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE deep
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

30 sweeps - 2m radius (Aerial)

Embedness: 20% - high gradient

N 20, 10665

W 155, 59627

Wypfl. 003

Water depth: 10 inches

4-5 flies, (minus - saldid caught earlier)

COMMENTS:

Random No.: 7, 1

Site No.: 1

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJA coll.
 HSA CODE: - - - TEMPERATURE: - (°C)
 NAME: Hillawe ELEVATION: 90 (ft.)
 DATE: 7 114 103 TIME: 4:13 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND 20 GRAVEL 30
 COBBLE 20 BOULDERS 30 BEDROCK -
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2x2 m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

2
 Embed = 65%

GPS = 20, 10643
 155, 59615

Wypfl. 4

COMMENTS:

Random No.: 6, 2

Site No.: 2

STREAM SURVEY FORM

5

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJA collect
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Hillawee ELEVATION: 90 (ft.)
 DATE: 7/14/03 TIME: 4:22 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND 15 GRAVEL 15
 COBBLE 40 BOULDERS 30 BEDROCK _____
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Embeds - 15%

Depth - 15 in.

Several small flies

No GPS - Doesn't work here

COMMENTS:

Random No.: 6, 0

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switched sheets
 Site No.: 3

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STREAM SURVEY FORM

4

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJA collect
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Hillawee ELEVATION: _____ (ft.)
 DATE: 7/15/03 TIME: 1:42 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND 10 GRAVEL 30
 COBBLE 20 BOULDERS 40 BEDROCK _____
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

0.8 ft. deep

Embeds - 25%

30 Net Swings - nice habitat

No GPS

COMMENTS:

Random No.: 3, 3

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New Loc
 Site No.: 4

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STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Hillman (below falls) ELEVATION: _____ (ft.)
 DATE: 7 115 103 TIME: 1354 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL 10
 COBBLE 15 BOULDERS 75 BEDROCK _____
 DETRITUS _____

HABITAT TYPE: SURVEY AREA (l" x w" x h"): 2m x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

0.3 ft deep ~ shallow riffle to run,
inv. to defin c, partly dry stream (50%)
embed. ~ 10%

COMMENTS:

Random No.: 6, 6

Site No.: 5

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP call
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Hillman ELEVATION: _____ (ft.)
 DATE: 7 115 103 TIME: 1359 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND 10 GRAVEL 25
 COBBLE 25 BOULDERS 40 BEDROCK _____
 DETRITUS _____

HABITAT TYPE: SURVEY AREA (l" x w" x h"): 2 x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

0.4 ft. deep
embed. 25%

NO GPS

COMMENTS:

Random No.: 1, 9

Site No.: _____

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Huilawe ELEVATION: 10 (ft.)
 DATE: 7/15/03 TIME: 1409 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND 40 GRAVEL 15
 COBBLE _____ BOULDERS 25 BEDROCK _____
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

0.7 ft deep

Embed 35%

Run below

GPS w/pt. 5

20.10516

155.59567

long-legged ant at all sites

COMMENTS:

Random No.: 7, 6

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Site No.: 7

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Huilawe ELEVATION: 120 (ft.)
 DATE: 7/15/03 TIME: 1428 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND 30 GRAVEL 10
 COBBLE 50 BOULDERS 20 BEDROCK _____
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Embed: 40

0 depth

GPS:

20.10464

155.59578

Dry Area

COMMENTS:

Random No.: 9, 8

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Site No.: 8

TRA

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STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Hiltawe ELEVATION: _____ (ft.)
 DATE: 7 115 103 TIME: 1440 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL 10
 COBBLE 30 BOULDERS 60 BEDROCK _____
 DETRITUS _____

HABITAT TYPE: SURVEY AREA (l" x w" x h"): 2m x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

0.5ft deep - High gradient
 16% Embed

Wypst. 7
 20.10455
 155.59569

Alison - Site 10, exact same spot

COMMENTS:

Random No.: 2, 5

Site No.: 9

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Hiltawe ELEVATION: 120 (ft.)
 DATE: 7 115 103 TIME: 1446 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE _____ BOULDERS 80/100 BEDROCK _____
 DETRITUS _____

HABITAT TYPE: SURVEY AREA (l" x w" x h"): 2m x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

- Raised Boulders in center of stream
 Embed = 10%
 Wypst. 8

20.10447
 155.59578

Using GPS map 785 - for all data points

COMMENTS:

Random No.: 2, 5

Site No.: 10

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: OTR call
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Huilaue ELEVATION: 1 (ft.)
 DATE: 7/15/03 TIME: 1455 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL -
 COBBLE - BOULDERS 100 BEDROCK -
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2 x 2 m

POOL - SIDE POOL - PLUNGE POOL - RUN - RIFFLE - CASCADE -
 NO WATER - DIRTY WATER -

SPP: - SIZE - ♂ - ♀ - ? -

3.0 Pt.
 0% Emb. - Large cascade

Wyp. CO9
 20.10432
 155.59604

30 sweeps - Beautiful cascade
 Dig. Photo # #6568 earlier

Raining Hard! May affect bug
 catch

COMMENTS:

Random No.: 6.4

Site No.: 11

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Lalakea ELEVATION: 1880 (ft.)
 DATE: 7/16/03 TIME: 1024 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL -
 COBBLE - BOULDERS - BEDROCK 100
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 1m x 1m

POOL - SIDE POOL - PLUNGE POOL - RUN - RIFFLE - CASCADE -
 NO WATER - DIRTY WATER -

SPP: - SIZE - ♂ - ♀ - ? -

Embed: 0%
 Depth: 1 inch

GPS: Wyp. 15 N 20.08957
 155.59869

1st site - Lalakea below diversion

N 20.08957
 155.59869

(Change David's Label in bottle to sidepool #1)
 30 net swings

COMMENTS:

Random No.: 6.3

Site No.: 1 Lalakea

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lutken ELEVATION: 1880 (ft.)
 DATE: 7/10/03 TIME: 1044 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND 20 GRAVEL 20
 COBBLE 40 BOULDERS 30 BEDROCK _____
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

0.9 ft. deep
 embed = 10%
 GPS = wght. 16

N 20.0896
 155.59880

COMMENTS:

Random No.: 9, 4

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Site No.: 2

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lutken ELEVATION: 1990 (ft.)
 DATE: 7/16/03 TIME: 1053 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT 30 SAND _____ GRAVEL _____
 COBBLE _____ BOULDERS _____ BEDROCK 40
 DETRITUS 30 - (Ginger)

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 1m x 1m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

- Dry Ginger
 embed = 50%

GP3 = wght. 17
 N 20.08974
 155.59880

COMMENTS:

Random No.: 7, 2

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Site No.: 3

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STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lalakea ELEVATION: 1998 (ft.)
 DATE: 7/16/03 TIME: 1111 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE _____ BOULDERS _____ BEDROCK _____
 DETRITUS 100% (Ginger)

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2 x 2m

POOL NO WATER SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 DIRTY WATER

SPP: _____ SIZE _____ ♂ _____ ♀ _____ ?

Dry Island
 Embed = 100%
 Wyp. 18
 N 20.08971
 155.59877

* No sample taken here
 - completely dry, 3m Tall Ginger
 Ø Insects

COMMENTS:

Random No.: 6, 6

Site No.: _____

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lalakea ELEVATION: 2006 (ft.)
 DATE: 7/16/03 TIME: 1117 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE _____ BOULDERS 75 BEDROCK _____
 DETRITUS 25 (Ginger roots)

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL NO WATER SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 DIRTY WATER

SPP: _____ SIZE _____ ♂ _____ ♀ _____ ?

Embed: 50%
 No water
 Wyp. 14
 20.08985
 155.59947

site 5 - sample taken here, in Ginger
 many small black bugs?

COMMENTS:

Random No.: 5, 5

Site No.: 5

STREAM SURVEY FORM

6

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: ASP
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Lalakea ELEVATION: 2017 (ft.)
 DATE: 7/16/03 TIME: 1127 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL 10
 COBBLE 30 BOULDERS 30 BEDROCK 30
 DETRITUS -

HABITAT TYPE: SURVEY AREA (l" x w" x h"): 2 x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Wg pf. 20
 N 20.08966
 155.59975
 Embed = 30%
 0.6 ft deep

COMMENTS:

Random No.: 8, 1

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 GRH 2/02

Site No.: 6

STREAM SURVEY FORM

7

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: ASP
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Lalakea ELEVATION: 2017 (ft.)
 DATE: 7/16/03 TIME: 1138 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND 10 GRAVEL 20
 COBBLE 40 BOULDERS 30 BEDROCK -
 DETRITUS -

HABITAT TYPE: SURVEY AREA (l" x w" x h"): 2 x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

1.8 ft. Deep
 Embed: 10%
 Wg pf. 21
 N 20.08940
 155.59984

COMMENTS:

Random No.: 4, 4

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 GRH 2/02

Site No.: 7

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: - - - - - TEMPERATURE: - (°C)
 NAME: Lalakea ELEVATION: - (ft.)
 DATE: 7 16 103 TIME: 124 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL -
 COBBLE - BOULDERS - BEDROCK 100
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

3 inches depth
 Embed = 0%

Wght. 22

N 20.08899
 155.59985

COMMENTS:

Random No.: 7 1

Site No.: 8

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP call
 HSA CODE: - - - - - TEMPERATURE: - (°C)
 NAME: Lalakea ELEVATION: - (ft.)
 DATE: 7 16 103 TIME: 1254 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL 30
 COBBLE 50 BOULDERS 20 BEDROCK -
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER 6m x 5m DIRTY WATER

SPP: SIZE ♂ ♀ ?

Embed = 50%

N depth
 Wght. 23
 N 20.08887
 155.60011

Side pool - shallow

COMMENTS:

Random No.: 7 1

Site No.: 9

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lalakea ELEVATION: 2035 (ft.)
 DATE: 7/16/03 TIME: 1320 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT 25 SAND 50 GRAVEL 25
 COBBLE _____ BOULDERS _____ BEDROCK _____
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: _____ SIZE _____ ♂ _____ ♀ _____ ?

1.0" deep - 1.0" deep

Wght 24

N 20.08891

155.60023

Embed - 60% - Mostly fines

COMMENTS:

Random No.: 46

Site No.: _____

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lalakea ELEVATION: 1967 (ft.)
 DATE: 7/16/03 TIME: 1321 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE _____ BOULDERS _____ BEDROCK 100
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: _____ SIZE _____ ♂ _____ ♀ _____ ?

Embed = 0% - Bedrock

Depth = 0.4 ft

High Velocity Riffle - Below Dam

COMMENTS:

Random No.: 62

Site No.: 11

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Lakea - Below Div. ELEVATION: 1982 (ft.)
 DATE: 10/16/03 TIME: 1329 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL -
 COBBLE - BOULDERS - BEDROCK 100
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Depth = 1.8 ft.

Embed = 0%

Fast Run = w/pt. 26

N 20.08847

155.60057

COMMENTS:

Random No.: 1, 2

Site No.: 12

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP coll
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Lakea ELEVATION: 2000 (ft.)
 DATE: 7/16/03 TIME: 1335 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL -
 COBBLE - BOULDERS - BEDROCK 100
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

0% Embed

N 20.08847

155.60056

Depth = 0.3 ft.

Just below dam

COMMENTS:

Random No.: 1, 5

Site No.: 13

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: ASP 14
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Lalakea - Below Div. ELEVATION: 2000 (ft.)
 DATE: 7/16/03 TIME: 1350 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL -
 COBBLE - BOULDERS - BEDROCK 100
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
NO WATER ? DIRTY WATER seep or little water
nowater?

SPP: SIZE ♂ ♀ ?
 (Depends on bugs)

Embed = 0
 Depth = 0.5 inches

Wg pt. 29

N 20.08844

155.60065

Need New Habitat, was wetted
 seep area near dry rock

COMMENTS:

Random No.: 2, 8

Site No.: -

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: ASP 15
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Lalakea #1st Above Diversion ELEVATION: 2000 (ft.)
 DATE: 7/16/03 TIME: 1521 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL -
 COBBLE - BOULDERS - BEDROCK 100
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Fast Run

Wg pt. 32

N 20.08758

155.60072

Depth: 8 inches
 Embed: 0/0

* 1st Station above Lalakea
 Diversion

COMMENTS:

Random No.: 3, 4

Site No.: 15

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: OTJ coll.
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lalakea above Divers ELEVATION: 2000 (ft.)
 DATE: 7 16 103 TIME: 1536 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL 15
 COBBLE 85 35 BOULDERS 50 BEDROCK _____
 DETRITUS _____

HABITAT TYPE: _____ SURVEY AREA (l" x w" x h"): 2m x 2m
POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: _____ SIZE _____ ♂ _____ ♀ _____ ?

Embed = 10%
 Depth = 1.0 ft.
 Wgpt. 33
 N 20.08743
 155.60069

Above Diversion

COMMENTS:

Random No.: 2, 2

Site No.: 16

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: _____
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lalakea above Divers ELEVATION: _____ (ft.)
 DATE: 7 16 103 TIME: 1544 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE 100 BOULDERS _____ BEDROCK _____
 DETRITUS _____

HABITAT TYPE: _____ SURVEY AREA (l" x w" x h"): 2m x 2m
 POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: _____ SIZE _____ ♂ _____ ♀ _____ ?

Wgpt. 34
 N 20.08752
 155.60101

Embed = 0
 Depth = 11 inches

No Brata = 0, David had no
 vials

COMMENTS:

Random No.: 5, 6

Site No.: 17

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DTP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lalakea above ELEVATION: 2000 (ft.)
 DATE: 7/16/03 TIME: 1549 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE _____ BOULDERS 40 BEDROCK 60
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Wyp. 33

N20.08745

W155.60121

Embed = 0

Depth = 8 inches

High Velocity Riffle

COMMENTS:

Random No.: 37

Site No.: 18

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DTP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lalakea above ELEVATION: _____ (ft.)
 DATE: 7/1/03 TIME: 1556 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE _____ BOULDERS 100 BEDROCK _____
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Wyp. 36

N20.08744

W155.60136

Embed = 0

Depth ≈ 2 inches

COMMENTS:

Random No.: 59

Site No.: 19

20 STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: JJP
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Lakeview above Divers ELEVATION: 3000 ft (ft.)
 DATE: 7/16/03 TIME: 1602 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE 20 BOULDERS 70 BEDROCK 10
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (1" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Wght. 37

N 20.08734

155.60141

Embed = 0

Depth = 15 inches

COMMENTS:

Random No.: 17

Site No.: 20

12 STREAM SURVEY FORM

Start of Below Road
 HSA CODE: _____ TEMPERATURE: _____ (°C)
 NAME: Hakalaoa ELEVATION: 1968 (ft.)
 DATE: 7/17/03 TIME: 1220 AM TO _____ AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT _____ SAND _____ GRAVEL _____
 COBBLE 90 BOULDERS 10 BEDROCK _____
 DETRITUS _____

HABITAT TYPE:

SURVEY AREA (1" x w" x h"): 2m x 1m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Embed = 90% Embed,

Depth = 1.0 inch

Mud pump

No insects - No collection
 about 40m above falls - No GPs

Cond. = 102.6 μ S (2) 113.4 sp. cond.

Temp = 20.1 °C

D.O. = 6.27 mg/L

6.05 at 10

Hakalaoa Below Falls

Specific Cond. = 2nd Reading

Riffle Habitat
 for water qual.
 pH = 6.8

COMMENTS:

Random No.: 40

Site No.: 1

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
HSA CODE: - TEMPERATURE: - (°C)
NAME: Haha Lagoon - Below Road ELEVATION: - (ft.)
DATE: 7/17/03 TIME: 1248 AM TO - AM
Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):
SEDIMENT 20 SAND - GRAVEL -
COBBLE 50 BOULDERS 30 BEDROCK -
DETRITUS -

HABITAT TYPE: SURVEY AREA (l" x w" x h"): 1m x 1m
POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

- Partly in water / out of water

No GPS

Embedded: 60%
Depth 3 inches

COMMENTS:

Random No.: 9, 7

DIVISION OF AQUATIC RESOURCES
GRH 2/02

Site No.: 2

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP coll.
HSA CODE: - TEMPERATURE: - (°C)
NAME: Haha Lagoon - Below Road ELEVATION: Below Rd (ft.)
DATE: 7/17/03 TIME: 1258 AM TO - AM
Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):
SEDIMENT 30 SAND 5 GRAVEL 5
COBBLE 30 BOULDERS 30 BEDROCK -
DETRITUS -

HABITAT TYPE: SURVEY AREA (l" x w" x h"): 2 x 2m
POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

N 20.08978 wypt. 43
155.59682

Embedded = 60%
Depth = 2 in

- obs. Microvelia / 2 coll.

COMMENTS:

Random No.: 6, 3

DIVISION OF AQUATIC RESOURCES
GRH 2/02

Site No.: 3

Green swordtails / Crayfish 2 obs.

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Hakalapa - Above Rd ELEVATION: - (ft.)
 DATE: 7/17/03 TIME: 1342 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT 30 SAND 30 GRAVEL 10
 COBBLE 10 BOULDERS - BEDROCK -
 DETRITUS 20

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2 x 2 m

POOL NO WATER SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 DIRTY WATER

SPP: SIZE ♂ ♀ ?

Wght. 44

N20.08946

155.59679

1st sample above road

Embed = 85%

No Aquatics / None collected

Above Rd, - But below diversion

COMMENTS:

Random No.: 8.2

DIVISION OF AQUATIC RESOURCES
 GRH 2/02

Site No.: (4)

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP - coll.
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Hakalapa - Above Rd ELEVATION: 1990 (ft.)
 DATE: 7/17/03 TIME: 1350 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL 30
 COBBLE 30 BOULDERS 40 BEDROCK -
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2 m x 2 m

POOL NO WATER SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 DIRTY WATER

SPP: SIZE ♂ ♀ ?

Wght. 45

N20.08903

155.59668

Embed. 50%

COMMENTS:

Random No.: 9.1

DIVISION OF AQUATIC RESOURCES
 GRH 2/02

Site No.: (5)

MTA

J. L. DARLING CORP.
 www.RiteintheRain.com

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP call
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Hakaloo ELEVATION: 1990 (ft.)
 DATE: 7/17/03 TIME: 1401 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT 20 SAND 20 GRAVEL 30
 COBBLE 10 BOULDERS 10 BEDROCK -
 DETRITUS 10

HABITAT TYPE:

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

4 in. deep
 Embred = 40010

~~40~~
 GPS = Wyp 46
 N 20.08898
 155.59662

Below Diversion
 Above Road

COMMENTS:

Random No.: 2, 4

Site No.: 6

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP call
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Hakaloo ELEVATION: - (ft.)
 DATE: 7/17/03 TIME: 1408 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT 10 SAND - GRAVEL -
 COBBLE - BOULDERS - BEDROCK 90
 DETRITUS -

HABITAT TYPE:

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Wyp 47
 N 20.08877
 155.59645

Ø Aquatic Insects - No Vial

COMMENTS:

Random No.: 4, 6

Site No.: 7

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Hakalooa ELEVATION: 2000 (ft.)
 DATE: 7 17 103 TIME: 1415 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND - GRAVEL -
 COBBLE 60 BOULDERS 30 BEDROCK -
 DETRITUS 10

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

Wyp¹. No - Insects / No Vial
 40

N 20.08854

155.59625

Embed = 40%

Depth = 12 inches

Ischnura posita coll - outside area
 Anax strenuus obs.

COMMENTS:

Random No.: 9, 3

Site No.: 8

STREAM SURVEY FORM

SURVEY TYPE: RANDOM NONRANDOM OBSERVER: DJP
 HSA CODE: - TEMPERATURE: - (°C)
 NAME: Hakalooa ELEVATION: 2000 (ft.)
 DATE: 7 17 103 TIME: 1443 AM TO - AM
 Mo. Day Yr. (START) PM (STOP) PM

SUBSTRATE TYPE (%):

SEDIMENT - SAND 20 GRAVEL 25
 COBBLE 15 BOULDERS 40 BEDROCK -
 DETRITUS -

HABITAT TYPE:

SURVEY AREA (l" x w" x h"): 2m x 2m

POOL SIDE POOL PLUNGE POOL RUN RIFFLE CASCADE
 NO WATER DIRTY WATER

SPP: SIZE ♂ ♀ ?

- Below Diversion, above Flume
 Wyp¹. 51

N 20.08821

155.59593

Embed. = 80

Depth = 1.0 ft.

20030717-IN-009

Walahe
 Diversion = Wyp¹. 50
 N 20.08837
 155.59605

COMMENTS:

Random No.: 6, 9

Site No.: 9

Insect Sampling - Hakaiaoa Above Divers,
17 July 2003 - Random Pt. Counts

#1 1508 hrs.

Habitat: Pool

Substrate: 50% Bedrock; sand 25%
Gravel 25%

Embed: 30%

Wyp. 53 - N 20.08807
155.59584

Insects: Vial #10, Sample #10

Depth: 3 ft.

Area: 2 x 2 m

Random Insects
(#2) Pool - Hakalaga
30% Boulder, 50% Cobble
20% s.l.t

Wght. 54

Sample #11

Embed = 40%

Time = 1518

Depth = 18 inches

Area = 2 x 2m

No Insects; ~~0~~
No Vial

WQ = at same area as Flow; 20m above Road

pH = 6.6

Temp = 20.5°C

% Sat = 53.5%

D.O. = 4.70 mg/l

Cond = 106

sp. Cond. = 116