Field Record: Makua Shellfish Study						
Sample Processor	SUSAN CARSTENN, MAREN ANDERSON					
Data Recorder	YVONNE PARRY					
Additional Personnel and Duties	DAWN LLECES - FIELD NOTES					
Environmental Conditions						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
9/29/2008	11:45	M1	COLATR	6.1	21	MNS-03
				6.3	26	
				4.8	29	
				6.2	31	
				5.4	19	
				5.5	28	
				6.0	22	
				6.9	37	
				5.9	28	
				6.0	27	
				5.4	24	
				6.4	28	3rd jar
9/29/2008	11:45	M1	COLATR	6.4	32	MNS-03 4th
				7.3	52	
				5.8	25	
				6.3	24	
				5.7	29	
				4.9	23	
				5.1	17	
				5.2	16	
				5.4	19	
				5.7	29	
				5.7	24	
				5.5	32	
				5.5	24	4th

Field Record: Makua Shellfish Study						
Sample Processor	SUSAN CARSTENN, MAREN ANDERSON					
Data Recorder	YVONNE PARRY					
Additional Personnel and Duties	DAWN LLELES ~ FIELD NOTES					
Environmental Conditions						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
9/29/2008	1145	M1	COLATR	5.3	18	MNS-Ø3
				6.2	22	
				4.5	11	
				5.6	19	
				5.7	24	
				5.4	18	
9/29/2008	1145	M1	COLATR	5.1	18	MNS-03
				6.6	35	
				6.2	26	
				4.6	17	
				4.7	15	
				5.4	21	
				4.6	16	
				6.0	28	
				5.4	20	
				53	21	
				5.5	29	
				5.0	17	
				52	17	
				5.6	19	
				4.2	11	
				6.0	23	
				5.1	22	
				5.6	19	
				5.2	15	

4th jar

5th jar

Field Record: Makua Shellfish Study	
Sample Processor	SUSAN CARLSTENN, MAREN ANDERSON
Data Recorder	YVONNE PARRY
Additional Personnel and Duties	DAWN LLECES - FIELD NOTES
Environmental Conditions	

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
9/29/2008	1145	M1	COLATR	6.0	24	MNS-Ø3
				5.4	18	
				5.0	15	
9/29/2008	11:45	M1	COLATR	5.3	18	MNS-Ø3
				4.8	15	
				3.4	7	
				5.7	22	
				4.5	11	
				5.2	22	
				4.0	10	
				5.0	13	
				5.7	27	
				4.9	15	
				4.9	19	
				4.5	13	
				4.0	16	
				4.4	12	
				4.6	14	
				4.5	13	
				4.0	16	
				5.2	15	
				4.5	9	
				4.8	10	
				3.6	8	
				5.2	15	

5th / 6th

Field Record: Makua Shellfish Study						
Sample Processor	SUSAN CARSTENN, MAREN ANDERSON					
Data Recorder	YVONNE PARRY					
Additional Personnel and Duties	DAWN LLECES - FIELDNOTES					
Environmental Conditions						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
9/29/2008	1145	M1	COLATR	4.4	14	MNS-Ø3
			COLATR	5.5	31	
				5.0	14	
				4.5	10	
				5.1	18	
				4.3	10	
				3.6	7	
				4.9	16	
				4.0	8	
				4.5	10	
				4.3	8	
				5.0	16	
				5.6	22	6th
9/29/2008	1145	M1	COLATR	5.0	15	MNS-Ø3 7th
				5.0	19	
				5.2	18	
				4.8	9	
				5.2	18	
				4.6	14	
				4.8	14	
				4.6	11	
				4.9	19	
				5.0	15	
				4.8	13	
				5.1	18	

~~195~~ 972
~~1389~~ 1716
501
2217
666
2883
788
3671

6/8

Field Record: Makua Shellfish Study	
Sample Processor	SUSAN CARSTENN, MAREN ANDERSON
Data Recorder	YVONNE PARRY
Additional Personnel and Duties	DAWN LLEZES - FIELD NOTES
Environmental Conditions	

Date	Time	Location	Species	Length/Width (cm) ~~(g)~~	~~Mass (g)~~ cm	Composite ID	
9/29/2008	1145	M1	COLATR	4.5/10	4.6/16	MNS-03	
				6.1/28	4.2/11		
				4.5/14	5.1/20		
				5.4/24	4.9/10		
				4.8/14	5.5/18		
				4.9/18	4.6/19		
				4.2/10	4.5/14		
				4.7/15	6.2/20		
				4.4/9	4.3/11		7th
9/29/2008	1145	M1	COLATR	4.8/18	4.5/16	MNS-03	8th
				5.0/18	4.9/10		
				5.9/23	4.2/16		
				5.0/25	4.0/8		
				4.9/17	4.5/13		
				4.6/13	5.1/16		
				4.8/15	4.3/12		
				4.0/15	4.0/6		
				4.0/13	4.6/20		
				4.9/15	4.3/11		
				4.4/10	5.0/20		
				4.7/19	5.8/27		
				4.9/15	5.2/18		
				5.0/19	5.1/16		8th
9/29/2008	1145	M1	COLATR	5.8/26	4.9/15	MNS-03	9th
				4.8/17	4.1/10		

Field Record: Makua Shellfish Study	
Sample Processor	SUSAN CARSTENN, MAREN ANDERSON
Data Recorder	YVONNE PARRY
Additional Personnel and Duties	DAWN LLECES- FIELD NOTES
Environmental Conditions	

Date	Time	Location	Species	Length/Width (cm) / Mass	Length/Width Mass (g)	Composite ID	
9/29/2008	1145	M1	COLATR	4.4 / 15	4.3 / 11	MNS-Ø3	9th
				4.4 / 11	5.4 / 26		
				4.2 / 8	4.9 / 20		
				3.8 / 9	5.5 / 22		
				4.8 / 18	4.9 / 15		
				4.9 / 13	4.5 / 11		
				3.4 / 21	4.0 / 32		
				3.3 / 22	4.9 / 30		
				3.5 / 15	3.4 / 15		
				3.4 / 17	4.7 / 29		
				3.4 / 16	3.4 / 19		
				3.5 / 15	9/29/2008 YKP		9th jar
9/29/2008	1145	M1	COLATR	3.4 / 19	3.1 / 14	MNS-Ø3	10th jar
				3.5 / 21	3.4 / 11		
				2.9 / 10	3.6 / 16		
				4.0 / 21	3.3 / 13		
				3.1 / 11	3.5 / 15		
				4.0 / 23	4.0 / 19		
				3.7 / 17	3.3 / 17		
				4.0 / 15	4.0 / 18		
				2.6 / 13	3.5 / 19		
				4.3 / 24	3.5 / 15		
				3.5 / 20	2.5 / 13		
				3.6 / 13	2.9 / 9		
				3.1 / 11	YKP 3.9 ~~3.9~~ / 16		10th jar

YKP see back of page

Date	Time	Location	Species	Length/width	Mass [g]	Composite ID
9/29/2008	1145	M1	COLATR	3.4	16	MNS03
				3.5	17	
				4.0	15	
				3.7	17	
				3.4	14	
				2.7	10	
				2.5	9	
				2.5	7	
				2.6	12	
				3.2	14	
				3.4	21	
				2.2	15	
				3.0	10	
				3.7	15	
				3.6	18	
				4.0	20	
				3.2	14	
				4.1	21	
				4.2	26	

11th ja

Field Record: Makua Shellfish Study						
Sample Processor	SUSAN CARSTENN, MAREN ANDERSON					
Data Recorder	YVONNE PARRY					
Additional Personnel and Duties	DAWN LLECES - FIELD NOTES					
Environmental Conditions						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
9/29/2008	11:55	M1	GRATEN	1.0	7	~~MNS~~ MNS-02

Field Record: Makua Shellfish Study							
Sample Processor	MAREN ANDERSON, SUSAN CARSTENN						
Data Recorder	YVONNE PARRY						
Additional Personnel and Duties	DAWN LLECES						
Environmental Conditions							
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
9/29/2008	11:45	Mi ~~MNS~~ inner tidal	PACPL/MP	3.3	19	MNS-Ø1	
9/29/2008	12:57	North Muliwai	PLADEP SCYSER	7.1	163	MNM-Ø4	jar 1
9/29/2008	12:57	North Muliwai	SCYSER	9.0	224	MNM-Ø4	Ziplock 1

Makua Beach Sept. 30, 2008

0914 Tetra Tech team arrives at MMR Range Control to sign in and check out Makua Beach keys and Range Control radio.

0925 Tetra Tech team arrives at Makua beach and sets up sample station near south muliwai. Tetra Tech personnel on site: Dawn A. Lleces and Maren Anderson

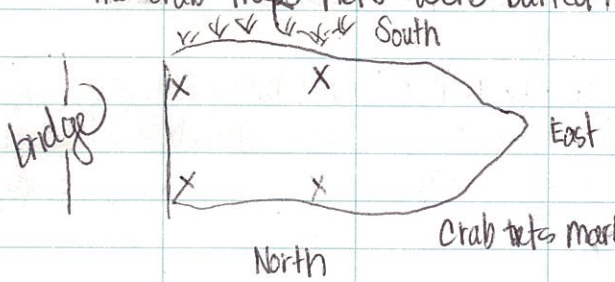
1015 Field conditions: Sunny weather with gusty trade winds coming out of south west. Temperatures around 85°F.

1035 Oceanic Institute team crew arrives on site with Malama Makua. Oceanic Institute personnel Tom Ogawa and Don De Lepena. Dr. Fred Dodge is the representative for Malama Makua Contact information for Dr. Dodge:
cell 808 227-2756
home 808 696-4677

10:45 Tail gate safety meeting held with entire field team + Malama Makua

11:00 Minnow traps left over night at South muliwai were checked. Both contained akupa, mosquito fish and tilapias. Traps were rebaited and redeployed.

11:17 Minnow traps left over night at North muliwai were pulled. Traps contained mosquito fish, akupa. These traps were brought in to be redeployed at the south muliwai.
The crab ~~traps~~ nets were baited. Four crab nets were deployed at four corners of north muliwai. 01 team checked nets periodically and when net lines were pulled taut. Bait, when nets were checked on showed signs of being torn.



Crab nets marked with X

1:51 Team arrives at south muliwai. Dr. Dodge leaves and asks that he be called if the team relocates to the Nanakuli muliwai.

1:52 Two additional minnow traps were deployed in the south muliwai.

Crab nets marked with X

12:15 Passive crab traps 15 gallon buckets deployed at near shore rocky area

13:07 Team arrives at North to check on crab traps. Two crab traps were pulled ~~on north~~ up empty (southwestern corner and north eastern corner). The northwestern net was deployed in southwestern corner to see if something would bite

3:15 Crab net from south eastern was pulled with a juvenile Samoan crab.

1330 Field crew returns to sample station to process samoan crab from north muliwai

1335 Passive crab trap pulled up empty from rocky near shore area.

1343 Minnow traps from south muliwai pulled up with tilapia, mosquito fish and akupa

1350 Field team broke down team sample station

~~1440~~ 1415 Tetra Tech personnel returned to Range Control to return keys and radio and to sign out.

Photo Log Makua Beach Sept 30, 2008

101-3300	11:00	First minnow trap from South muliwai pulled up with mosquito fish and akupa
101-3301	11:05	Second minnow trap from South muliwai pulled up with the large akupa,
101-3302	11:06	Release of mosquito and tilapia from second minnow trap in south muliwai
101-3303	11:17	First trap (minnow trap) from North muliwai pulled.
101-3304	11:21	Second minnow trap from north muliwai pulled with juvenile akupa.
101-3305	11:21	(Juvenile) akupa from second minnow trap left over night in north muliwai.
101-3306	11:22	Plant growing at the eastern edge of the muliwai. May be a tomato plant.
101-3307	11:24	Crab nets being baited before being deployed at north muliwai.
101-3308	11:52	Two additional minnow traps deployed in the south muliwai. Facing ~~East~~ West
101-3309	1312	Crab nets at North muliwai are checked and redeployed.
101-3310	1321	(Juvenile) Samoan crab pulled from Norther Muliwai
101-3311	1343	Minnow trap at south muliwai, north eastern corner facing south east.
101-3312	1345	Minnow trap at south muliwai, northwestern corner facing south east
101-3313	1350	Minnow trap at south eastern corner of south muliwai pulled up with akupa and mosquito fish.
101-3314	1522	crab trap at southwestern corner of Nanakuli muliwai. Facing East
101-3315	1526	crab trap #2 at north end of Nanakuli muliwai.
101-3316	1528	Nanakuli muliwai
101-3317	1641	crab net #1 recovered from water - southeastern corner

"Rite in the Rain" ALL-WEATHER WRITING PAPER

Photo Log (Continued)

Makua Beach

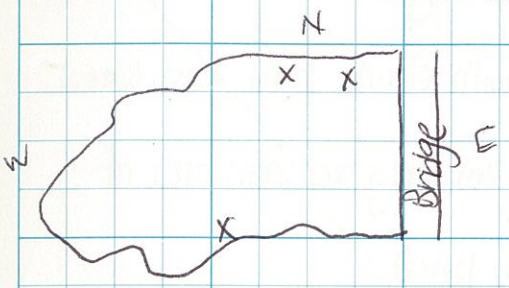
Sept 30, 2008

Makua Beach Sept. 30, 2008

Field notes continued.

1417 Tetra Tech and OI leaving Makua to pick up additional supplies and to mobilize to Nanakuli

1513 Tetra Tech and OI assessing Nanakuli muliwai to set crab traps/nets.



1515 Three crab nets were baited and prepared for deployment in the Nanakuli muliwai.

x = crab nets deployed

1523 crab net set at southwestern corner of Nanakuli muliwai

1525 crab net #2 set at north end of Nanakuli muliwai

1528 crab net #3 set at northeast end of Nanakuli muliwai

conditions of Nanakuli muliwai: Very shallow water. Clear to plants growing on bottom. Entire ground covered in seaweeds.

1641 recovery of crab net #1 at southwest corner of Nanakuli muliwai

1644 recovery of crab net #2 at north edge of Nanakuli muliwai

1649 recovery of crab net #3 at northeastern corner of Nanakuli muliwai

all crab nets #'s 1-3 were brought up empty.

1656 Tetra Tech team leaves Nānākuli Muliwai

"Rite in the Rain" ALL-WEATHER WRITING PAPER

Sandy Beach Oct 1, 2009

9:04 Tetra Tech Team arrives at Sandy Beach. Tetra Tech team includes Susan Carstenn, Dawn A. Lleces, Maren Anderson.

10:04 Oceanic Institute team arrives on site. OI team includes Tom Ogawa and Don De Lepena.

10:15 Tail gate safety meeting.

10:18 Site conditions Temperatures are approximately 85°F, sunny with clouds to the east. Wave conditions are flat to 1ft.

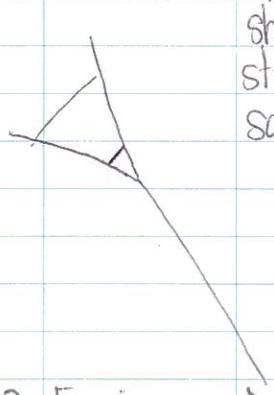
10:20 Team sets up sample station and starts to harvest helmet urchin in the rocky near shore area at Sandy Beach

12:00 Lower East Sandy Beach. Field crew relocates to Lower east sandy Beach

12:25 Processing samples retrieved from Sandy Beach intertidal zone
OBNS - Sample code for Sandy Beach

310 Field crew breaks down sampling station at lower east Sandy Beach location and returns to Sandy Beach intertidal zone. Ocean conditions at the lower east location become too rough to be safe.

320 Focus for harvesting shifts from sea urchins to rock crab. Field team is attempting to use traditional method for crabbing. A bamboo pole with two bamboo sticks taped in a Y shape at the end and sugi line tied between the widest point of the sticks is the tool being used. Samples continue to be processed at the sample station



~~340~~ 1410 Environmental conditions Light rain coming in from the north, over cast with strong, constant trade winds, water conditions are flat to 1 ft. Tide is coming in.

~~1520~~ 1520 Environmental conditions. Rain and cloud clears.

1530 Scale for weighing samples break

1600 Yvonne Parry brings an additional scale.

1615 ~~X~~

Oct 1, 2000

Field notes.

Dawn (Ilos)

"Rite in the Rain"
ALL-WEATHER WRITING PAPER

Photo Log — Sandy Beach — Oct. 1, 2008

102-3319	OI sampling at Sandy Beach Intertidal zone. Facing east
102-3320	OI sampling for shellfish (mainly crabs and urchins) at Sandy Beach Intertidal zone. Facing east.
102-3321	Gobies in the Sandy Beach Intertidal zone tidepools.
102-3322	OI sampling at Sandy Beach Intertidal zone with capture bucket. Facing east.
102-3323	OI scanning different areas of the tidepools for shellfish at Sandy Beach Intertidal zone. Facing southeast.
102-3324	Spiny urchin in tidepools at Sandy Beach Intertidal zone.
102-3325	OI sampling at Sandy Beach Intertidal zone. Facing east.
102-3326	Sandy Beach Intertidal tidepools. Facing southeast.
102-3327	Sandy Beach. Facing southeast.
102-3328	OI Sampling at Sandy Beach Intertidal zone. Facing north.
102-3329	Bucket of Helmet urchins sampled from Sandy Beach Intertidal zone.
102-3330	OI sampling at Bamboo Ridge area of Sandy Beach. Facing south.
102-3331	Intertidal zone at Bamboo Ridge area of Sandy Beach. Notes holes in rocky substrate. This is usual habitat of Helmet urchins. Facing south.
102-3332	View of Bamboo Ridge sampling area on Sandy Beach. Facing South.
02-3333	Tom of OI holding Helmet urchin at Bamboo Ridge. Facing South.
02-3334	Tom of OI sampling / looking for Helmet urchins at Bamboo Ridge. Facing southeast.
02-3335	Hole in tidepool housing Helmet urchins at Bamboo Ridge.
02-3336	Don of OI sampling at Bamboo Ridge. Facing south.
02-3337	Helmet urchins at Bamboo Ridge at Sandy Beach.
02-3338	Two Helmet urchins and murex.
02-3339	Tom of OI employing a new surveying technique at Sandy Beach. New technique used to sample crab species. Facing east.
02-3340	Tom of OI using 'Y-shaped' surveying technique to catch crabs at Sandy Beach. Facing east.
02-3341	Tom of OI surveying the intertidal area for crabs at Sandy Beach. Facing east / southeast.
02-3342	Don of OI employing the 'Y-shaped' crab-surveying technique at Sandy Beach. Facing north/northeast.

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Jason A. Lleces
Additional Personnel and Duties	
Environmental Conditions	See field notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/1/08	1200	SBNS/Habitat	COLATR	7.1	62	SBNS-01	
				6.2	43		
				6.6	45		
				5.4	38		
				6.9	67		Jar 1
				4.9	20		348
				5.4	22		
				6.2	47		
				6.2	40		
				5.8	44		
				6.5	42		
				6.0	51		Jar 2
				5.1	24		410
				5.2	23		
				7.5	55		
				6.9	54		
				5.6	47		
				6.5	30		
				6.8	43		
				6.2	25		Jar 3
				6.9	60		
				7.4	39		
				6.5	36		
				5.9	30		
				5.4	25		

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Dawn A. Lleces
Additional Personnel and Duties	
Environmental Conditions	See field notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/1/09	1200	SBNS/Habitat	COLATR	6.7	50	SBNS-01	Jar 3
↓	↓	↓	↓	6.7	30	↓	(cont)
				6.9	50		
				6.5	36		451
				4.0	19		
				7.0	39		Jar 4
				4.5	10		
				3.7	5		
				4.6	11		
				3.6	9		
				5.1	22		
				5.5	22		
				4.5	12		
				5.1	15		
				6.2	29		
				5.0	15		
				4.1	11		
				4.5	19		
				4.1	10		
				4.9	14		
				3.7	9		
				5.0	14		
				5.2	34		
				4.0	7		
↓	↓	↓	↓	4.6	13	↓	

513

Field Record: Makua Shellfish Study							
Sample Processor	Maren Anderson						
Data Recorder	Dawn A. Lleces						
Additional Personnel and Duties							
Environmental Conditions	See field notes						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/1/09	1200	SBNS/Habitat	COLATR	3.7	10	SBNS-01	Jar 4
↓	↓	↓	↓	5.8	26	↓	(cont.)
↓	↓	↓	↓	5.2	15	↓	371
				3.9	6		Jar 5
				5.5	21		
				5.4	17		
				5.0	15		
				3.7	10		
				5.4	28		
				3.6	6		
				4.7	14		
				4.0	9		
				5.3	17		
				4.7	12		
				4.4	8		
				4.5	10		
				5.5	19		
				4.0	9		
				4.9	19		
				5.0	24		
				4.0	8		
				4.3	12		
				4.9	19		
				5.9	24		
↓	↓	↓	↓	4.7	14	↓	

Field Record: Makua Shellfish Study							
Sample Processor	Maren Anderson						
Data Recorder	Dawn Lieces						
Additional Personnel and Duties							
Environmental Conditions	See Field notes						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/01/08	12:00	SBNS/Habitat	COLATR	5.6	25	SBNS-01	Jar 5 (cont.)
				4.1	10		
				4.8	15		
				4.3	9		
				4.2	9		453
				4.3	15		
				4.2	14		
				4.3	8		
				5.6	29		sample 1
				5.2	15		Jar 6
				3.6	7		
				4.8	16		
				4.5	16		
				5.3	17		
				3.8	10		
				6.9	46		
				5.6	25		
				4.8	15		
				4.9	13		
				4.7	15		
				5.3	21		
				5.5	16		
				5.5	20		
				3.4	8		
				5.1	19		

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Dawn A. Lleces
Additional Personnel and Duties	
Environmental Conditions	See field notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10-01-08	1200	SBNS/Habitat	COLATR	4.7	10	SBNS-01	Jar 6
				4.7	19		(cont.)
				3.8	10		
				4.3	13		398
				4.4	15		
				5.3	24		
				6.0	20		
				4.7	14		Jar 7
				4.0	8		
				4.2	11		
				5.7	30		
				3.5	6		
				4.1	10		
				3.4	9		
				5.2	17		
				5.5	23		
				5.5	26		
				4.9	15		
				4.8	15		
				4.7	14		
				4.9	17		
				4.7	17		
				3.9	5		
				4.7	16		
				4.1	15		

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Dawn Lleces
Additional Personnel and Duties	
Environmental Conditions	See field notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10-01-00	12:00	SBNS/Habitat	COLATR	4.4	9	SBNS-01	Jar 7
↓	↓	↓	↓	5.1	27	↓	(cont.)
				5.4	17		
				4.9	13		
				4.6	14		409
				5.1	15		
				6.6	30		
				5.3	16		
				5.0	17		Jar 8
				4.3	10		
				4.6	14		
				4.3	11		
				4.5	12		
				4.5	10		
				4.5	14		
				5.0	17		
				4.7	12		
				5.7	24		
				5.7	22		
				5.3	19		
				5.7	29		
				5.1	18		
				3.9	8		
				4.2	11		
				4.7	15		

Field Record: Makua Shellfish Study							
Sample Processor	Maren Anderson						
Data Recorder	Dawn A. Ueces						
Additional Personnel and Duties							
Environmental Conditions	See field notes						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/01/08	12:00	SBNS/Habitat	COLATR	5.9	24	SBNS-01	Jar 8
↓	↓	↓	↓	3.4	9	↓	(cont.)
				4.1	14		
				4.7	17		
				4.9	18		
				5.1	16		417
				4.2	11		
				4.8	13		
				3.7	8		
				4.4	12		
				4.7	12		
				6.0	35		Jar 9
				5.7	20		
				5.7	26		
				4.2	14		
				4.8	12		
				4.3	14		
				4.9	13		
				6.3	37		
				5.5	24		
				6.6	34		
				5.2	17		
				6.4	29		
				5.2	12		
				4.8	14		

Field Record: Makua Shellfish Study							
Sample Processor	Maren Anderson						
Data Recorder	Dawn A. Lleces						
Additional Personnel and Duties							
Environmental Conditions	See field notes						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/01/09	1200	SBNS/Habitat	COLATR	4.3	7	SBNS-01	Jar 9
↓	↓	↓	↓	4.4	10	↓	
				6.7	35		
				5.0	10		
				3.7	7		448
				4.2	19		
				3.5	9		
				5.6	28		
				~~5.~~ 4.7	14		
				5.0	15		Jar 10
				4.6	16		
				7.2	53		
				5.9	25		
				6.6	43		
				5.9	23		
				4.3	15		
				4.3	12		
				6.1	25		
				4.2	9		
				4.9	15		
				4.1	13		
				4.6	11		
				4.6	15		
				4.8	11		
↓	↓	↓	↓	4.5	13	↓	

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Dawn A. Lleces
Additional Personnel and Duties	
Environmental Conditions	See ~~on~~ field notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/01/00	12:00	SBNS/Habitat	COLATR	4.0	11	SBNS-01	Jar 10
				4.6	10		(cont)
				3.8	9		
				3.9	8		
				4.3	13		
				3.5	5		467
				5.4	18		
				4.2	13		
				5.2	13		
				6.0	30		
				4.6	10		
				3.8	7		
				4.1	6		
				4.5	10		Jar 11
				6.2	20		
				4.7	15		
				4.5	15		
				4.6	19		
				5.0	15		
				4.4	12		
				3.9	8		
				6.9	43		
				5.3	16		
				4.9	15		
				4.1	9		

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Dawn A. Lleces
Additional Personnel and Duties	
Environmental Conditions	See a field notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10-01-08	1200	SBNS/Habitat	COLATR	4.3	14	SBNS-01	Jar 11
				3.7	7		(cont.)
				5.4	20		
				4.8	14		
				4.0	10		
				3.9	7		
				4.0	12		
				4.4	10		491
				~~5.4~~ 5.5	25		
				5.4	19		
				4.8	14		
				4.6	11		
				5.4	24		
				3.7	~~4~~ 7		
				4.9	14		
				5.1	16		
				4.7	19		
				6.3	45		
				6.2	30		Jar 12
				5.5	24		
				6.2	32		
				5.2	30		
				7.3	63		
				5.7	40		
				5.7	26		

11 05 12

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Yvonne Parry / Dawn A. Lleces
Additional Personnel and Duties	
Environmental Conditions	see Field Notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/01/08	1200	SBNS / ~~Holoki~~ DAL	COLATR	6.2	47	SBNS-01	Jar 12 (cont.)
				6.2	43		
				6.3	45		
				6.2	45		511
				6.4	33		
				6.0	26		
				6.0	27		
10/02/08	1115	SBNS	COLATR	6.5	37	SBNS-01	517.0g Jar 13
				6.0	32		
				6.6	38		
				7.9	62		
				6.6	45		
				7.3	58		
				7.5	55		
				6.1	27		
				6.0	26		
				6.2	40		
				6.8	41		
				6.7	42		
	1115	SBNS	COLATR	6.0	30	SBNS-01	503 Jar 14
				6.4	33		
				6.0	26		
				7.1	42		
				5.8	25		
				6.0	20		

Field Record: Makua Shellfish Study						
Sample Processor	Maren Anderson					
Data Recorder	Yvonne Parry					
Additional Personnel and Duties						
Environmental Conditions	see Field notes					
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
10/2/08	1115	SBNS	COLATR	6.2	30	SBNS-01
↓	↓	↓	↓	6.5	39	↓
				6.7	21	
				6.5	26	
				5.5	25	
				6.0	30	
				6.7	50	
				6.6	40	
				6.5	28	
				5.8	31	
				5.0	16	
				5.6	40	
				6.2	44	
↓	↓	↓	↓	5.2	21	↓

↑ 617
↓

11 05 12

Field Record: Makua Shellfish Study							
Sample Processor	Maren Anderson						
Data Recorder	Yvonne Parry / Dawn A. Lieces						
Additional Personnel and Duties							
Environmental Conditions	See Field Notes						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/01/08	1200	SBNS / ~~Hawk~~ DAL	COLATR	6.2	47	SBNS-01	Jar 12 (cont.)
↓	↓	↓	↓	6.2	43	↓	
				6.3	45		
				6.2	45		511
				6.4	33		
				6.0	26		
↓	↓	↓	↓	6.0	27	↓	
10/02/08	1115	SBNS	COLATR	6.5	37	SBNS-01	517.0g Jar 13
↓	↓	↓	↓	6.0	32	↓	
				6.6	38		
				7.9	62		
				6.6	45		
				7.3	58		
				7.5	55		
				6.1	27		
				6.0	26		
				6.2	40		
				6.8	41		
	↓	↓	↓	6.7	42	↓	503
	1115	SBNS	COLATR	6.0	30	SBNS-01	↓ Jar 14
↓	↓	↓	↓	6.4	33	↓	
				6.0	26		
				7.1	42		
				5.8	25		
↓	↓	↓	↓	6.0	20	↓	

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Yvonne Parry
Additional Personnel and Duties	
Environmental Conditions	see Field notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10/2/08	1115	SBNS	COLATR	6.2	30	SBNS-01	
				6.5	39		
				6.7	21		
				6.5	26		
				5.5	25		
				6.0	30		
				6.7	50		
				6.6	40		
				6.5	28		
				5.8	31		
				5.0	16		
				5.6	40		
				6.2	44		
				5.2	21		↑ 617

Field Record: Makua Shellfish Study						
Sample Processor	March Anderson					
Data Recorder	Dawn A. Lieces					
Additional Personnel and Duties						
Environmental Conditions	See field notes					
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
10/01/08	1200	SBNS / Habitat	PLADEP	3.0	32	SBNS - 02

Sandy Beach Oct 2, 2008

Time: 900 - 1335

TE team: Maren Anderson, Yvonne Parry

OI team: Tom Ogawa, Don De Lepena

weather: sunny, Trades ~ 10 mph, 80 - 85°F

Equipment: scale, minnow trap (2 cylindrical, 1 square)

900 TE Maren Anderson arrives on site

915 TE Yvonne Parry arrives on site

930 OI team arrives on site

945 Health and Safety tailgate meeting

955 OI team starts baiting minnow traps with kahala (Amberjack)

1005 OI team goes out to intertidal zone at Sandy Beach to set crab traps.

1015 OI team goes out to collect more urchins (helmet urchin), TE set up equipment

1110 OI team returns with urchins and moves on to check on minnow traps. TE team starts measuring and weighing urchins
These urchins are part of sample SBNS-01

1125 measuring is completed and all urchins necessary for analysis have been placed in jars, approximately 20 urchins are placed back onto the rock in the splash zone; OI checks crab traps, no crabs found

1200 OI off site for lunch

1215 OI returns and checks crab traps (minnow), no crabs found in trap

1300 OI team performs final check of minnow traps, no crabs could be trapped, traps are removed from area

1305 TE packs up equipment

1335 TE & OI off site

"Rite in the Rain" ALL-WEATHER WRITING PAPER

Oct 2, 2008

Field notes

Dawn (Alice)

Photo Log Sandy Beach Day 2 10.2.08

103-3343	01-Tom taking minnow traps out to set baited traps for crab at Sandy Beach Intertidal zone. Facing northeast.
103-3344	01-Tom setting the baited crab trap in a rocky ledge at Sandy Beach Intertidal zone. Facing east.
103-3345	View of a baited crab trap on rocky intertidal area of Sandy Beach Intertidal zone. Facing northeast. (crab trap #1)
103-3346	View of cylindrical baited crab trap on rocky intertidal area of Sandy Beach Intertidal zone. Facing east. (crab trap #2)
103-3347	View of cylindrical baited crab trap on rocky intertidal area of Sandy Beach Intertidal zone. Facing east. (crab trap #2)
103-3348	View of cylindrical baited crab trap placed in rocky ledge at Sandy Beach intertidal zone. Facing east. (crab trap #2)
103-3349	View of rectangular baited crab trap on rocky intertidal zone at Sandy Beach. Facing northeast. (crab trap #1)
103-3350	View of rectangular baited crab trap on rocky intertidal zone at Sandy Beach. Facing northeast. (crab trap #1)
103-3351	A crab (potentially scaly rock crab) moving towards the rectangular baited crab trap at Sandy Beach. Facing northeast.
103-3352	Rocky intertidal zone at Sandy Beach. Facing northeast
103-3353	Splash zone on intertidal area at Sandy Beach. Facing northeast.
103-3354	Helmet urchins from sampling effort at Sandy Beach Intertidal zone.
103-3355	Tom from 01 picking up the baited crab trap at Sandy Beach. Facing nor
103-3356	Intertidal zone at Sandy Beach. Facing northeast.
103-3357	Molt from a rock crab. Found at Sandy Beach.

"Rite in the Rain" ALL-WEATHER WRITING PAPER

Mākua Beach. Oct 3, 2008

915 Tetra Tech arrives at Makua Military Reservation range control to sign in, check out keys and radio.

940 Tetra Tech team arrives at Mākua Beach. Susan Carstenn, Dawn A. Lleces, Maren Anderson Mālama Mākua representative & Leandra Wai and Damien (3yr old grandson) arrives and drives in with field team.

945 Tetra Tech team Gets up sample station

1020 Oceanic Institute's Tom Ogawa arrives at Mākua Beach

1030 Tail gate safety meeting

1040 Crab nets are baited before being deployed

1040 Environmental conditions. Skies are overcast with little to no trade winds coming from the south. Temperature is approximately 85-87°F. Water is flat to 1 ft

1120 Kayak is deployed from near shore rocky area and crab nets are deployed & from kayak, approximately 50m - 100 m from near sh

1140 Kayak returns from deploying crab nets. Crab nets were deployed in approximately 20 ft of water

1150 A pod of spinner dolphins arrive at northern end of Makua Bay

200 Dolphins are swimming near crab nets. Tetra Tech observes buoys being pulled under water and goes out to check on the nets after dolphins have left immediate area!

210 Tropical fisherman arrives on a boat and are cruising in the areas where the crab net are laid. Field crew return from checking on crab nets. Nets need to be re baited and redeployed. Tom Ogawa is considering staying out in kayak to watch nets.

220 Field crew heads out with kayak to rebait crab nets

1227 Tropical Fish fisherman boat and crew are leaving the area

140 Leeandra Wai - 696-2823 Leeandra leaves the site and asks us to call her if we leave before she returns

320 Environmental conditions: Winds increase with rain clouds overhead. Light rain, with overcast and some sun. Winds increase over waters to

330 Kayak is still out on the water and dolphin pod is still present within the bay area

340 Kayak returns shore with 8 kona crab.

350 Field team start to process samples. Kona Crab - frog crab - Ranina ranina

425 Field kayak is deployed to check bait in crab nets

520 Kayak returns to shore with 2 kona crabs

525 Field crew begins to ~~sample~~ process samples

550 Field team releases 7 kona crabs not needed for sampling back into water. Team begins to break down equipment.

625 Field team departs from sampling site.

Mākua Beach (cont)

Oct. 3, 2008

Dawn Allen

"Rite in the Rain"
ALL-WEATHER WRITING PAPER

Photo Log

Oct 3, 2008

104-3358	11:14	Kayak used for near shore sampling
104-3359	11:14	Kayak used for near shore sampling with crab nets being loaded onto front end of the kayak.
104-3360	1120	Kayak launches from near shore rocky area with crab nets.
104-3361	1123	First crab net is dropped/deployed approximately 50-100 meters off of near shore rocky area. Facing north east
104-3362	1140	Crab nets deployed with floaters showing on eastern side of the kayak
104-3363	1219	Kona crab retrieved from crab nets deployed off shore.
104-3364	1231	Crab nets are rebaited and redeployed. A diving boat arrives and divers are entering water.
104-3365	13:42	Kona crab retrieved from crab nets and being transfered to 5 gallon bucket of sea water to await processing
104-3366	13:45	Kona crab weighing 236 g and measuring 9.0 cm in length. Top view
104-3367	1345	Kona crab weighing 236 g and measuring 9.0 cm in length. Bottom view
104-3368	1340	Seven smaller crabs retrieved from Makua near shore.
104-3369	1349	Two larger crabs retrieved from Makua near shore.
104-3370	14:05	Crab being processed
104-3371	16:23	Kayak returning to shore

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Dawn Lleces
Additional Personnel and Duties	
Environmental Conditions	see Field Notes

Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
10/3/00	~~1300~~ 1400	MNS	RANRAN	7.8 / 6.2	156	MNS-05
				9.0 / 6.8	236	-
				9.0 / 7.0	223	-
				7.4 / 6.0	132	-

Nānākuli Muliwai Oct 6, 2008

940 Tetra Tech team arrives on site on north side of Farrington Highway. Team present: Susan Carstenn, Dawn A. Lieces, Maren Anderson

950 Environmental conditions. Sunny with clouds overhead. Temperatures at 85°F. No trade winds

1010 Oceanic Institute team arrives. Tom Ogawa, Don De Lepena.

1015 Team takes a look at access to the muliwai. Muliwai is bordered by private properties on the north and south sides, with keawe trees hindering direct access to the water areas. The bottom of the muliwai directly under Farrington Highway bridge and immediately west of the bridge is covered in seaweed.

1030 Team prepares crab nets to be deployed in muliwai.

1050 Team walks down to muliwai to deploy crab nets

1050 1st crab net deployed under bridge.

1055 2nd crab net deployed under bridge.

Team reports that there was a carcass of a cat under the bridge

1130 Environmental conditions: Skies are completely over cast with light rains coming in from the south west. Temperature is approximately 82°F.

1140 Team walks down to ~~the~~ muliwai to check on crab nets. Crab nets were retrieved with nothing in them. Crab nets were immediately redeployed.

1210 Team walking down to muliwai to retrive nets. ~~One prawn retrieved~~

Macrobrachium grandemanus

1215. First crab net retrieved

1220 Second crab net retrieved. One prawn retrieved. Macrobrachium grandemanus

1245 Crab nets were ~~d~~ retrieved with nothing inside

1250 Team relocates to east side of Farrington Highway to sample near shore area.

1305 Environmental conditions: Sunny skies with clouds overhead. Rains have stopped. Ocean is flat. Temperature is 85°F.

1305 Team starts to prepare six crab nets with bait, to deploy near shore.

1325 Team ~~d~~ takes kayak out, wearing life vests, and paddles out in flat conditions to deploy crab nets

1345 Team returns from deploying six crab nets near shore at Nanakuli beach. Nets were deployed between 1330 and 1340. Team reports that the bottom is covered with sand and some rocks.

1430 Dolphin cruise boat, Kai Ko'olina, rides through the Nānākuli bay area

1440 Team takes kayak into water to check on crab nets

1510 Team returns to shore. One crab net was brought in to rebait. Another crab net couldn not be found.

1535 Team heads out with kayak to retrieve crab nets

1550 Team returns from retrieving crab nets. One box crab was caught and released. One kona crab was caught and processed for a sample. Nets were deployed in 50-60 ft of water.

1600 Team breaks down sampling station

1615 Team leaves Nānākuli Beach

"Rite in the Rain" ALL-WEATHER WRITING PAPER

Oct 6, 2008

Photo Log — Nānākuli Muliwai — Oct 6, 2008

105-3374		Nanakuli muliwai, taken from bridge on Farrington Highway. Looking ~~North~~. Time 1009
105-3375	1010	Nanakuli muliwai. Taken from bridge on Farrington Highway. Looking ~~North~~ West
105-3376	1103	Team inspects muliwai west of Farrington Hwy. Looking west.
105-3377	1106	Oil sheen on top of muliwai, adjacent to highway bridge
105-3378	1224	Macobrachium grandemanus retrieved from Nānākuli muliwai, west of Farrington Highway
105-3379	1224	Macobrachium grandemanus.
105-3380	1304	Nānākuli near shore area showing sandy beach with sandy bottoms. Facing east
105-3381	1320	Team takes ~~by~~ kayak out to deploy crab nets. Facing East.
105-3382	1430	Dolphin cruise tour boat ~~Rook~~ Kai Koolina drives through the Nānākuli bay area, near crab nets. Facing east.
105-3383	1517	Helmet urchin on nearshore rocky area at Nānākuli beach.
105-3384	1517	Helmet urchin on near shore rocky area at Nānākuli beach
105-3385	1518	Rock crab on near shore rocky area at Nānākuli beach.
105-3386	1518	Helmet urchin
105-3387	1520	Rock crab.
105-3388	1524	Habitat on the rocky near shore area at Nānākuli beach.
105-3389	1524	Rock crab.
105-3390	1525	Rock crab
105-3391	1531	Habitat on the rocky near shore area at Nānākuli beach.
105-3392	1552	~~Rock~~ Box crab caught in near shore area at Nānākuli beach
105-3393	1552	Box crab and Kona crab in crab nets
105-3394	1553	Box crab set in kayak.
105-3395	1553	Kona crab caught for sample.

"Rite in the Rain" ALL-WEATHER WRITING PAPER

Field Record: Makua Shellfish Study	
Sample Processor	Maren Anderson
Data Recorder	Dawn A. Lleces
Additional Personnel and Duties	Susan Carstenn
Environmental Conditions	See ~~envir data~~ Field notes

Date	Time	Location	Species	Length/Width (cm) (Full length/carapace length)	Mass (g)	Composite ID	
10-6-08	1225	NM	MACGRA	7.3/3.4	9	NM-01	Jar 1
10-7-08	1442	NM	MACGRA	7.2/ 3.4	9	NM-01	
				7.5/3.6	9		
				6.9/2.3	8		
				7.2/3.4	9		
				7.1/3.5	5		
				7.4/3.5	5		
				7.5/3.6	8		
				7.2/3.5	6		
				7.3/3.6	6		
				7.1/3.4	5		
				7.6/3.7	6		
				6.5/3.1	4		
				7/3.3	3		
				7.5/3.6	6		
10-6-08	1555	NNS	RENREN	6.75/5.3	94	NNS-01	
10-7-08	1442	NM	MACGRA	7.1/3.5	9	NM-01	Jar 1 (cont)
				6.2/2.7	4		
				7.0/3.3	6		
				6.4/3.0	3		
				4.9/2.2	0.5		
				5.3/2.4	1		
				5.7/2.5	2		
				6.8/3.4	5		
				5.4/2.6	1		

Field Record: Makua Shellfish Study							
Sample Processor	Maren Anderson						
Data Recorder	Dawn A. Lees						
Additional Personnel and Duties							
Environmental Conditions	See field notes						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10-7-08	1442	NM	MACGRA	5.4 / 2.5	1	NM-01	Jar 1 (cont.)
↓	↓	↓	↓	5.0 / 2.4	1	↓	
				5.3 / 2.5	1		
				5.4 / 2.5	3		
				4.9 / 2.2	2		
				6.0 / 2.6	3		
				5.0 / 2.3	0.5		
				3.6 / 1.7	0.25		
				4.3 / 2.0	0.25		
				3.9 / 1.6	0.25		
				5.6 / 2.5	2		
				5.7 / 2.5	3		
				5.7 / 2.4	3		
				4.5 / 1.9	2		
				6.0 / 2.7	3		
				5.4 / 2.5	2		
				4.5 / 2.0	0.5		
				5.6 / 2.6	2		
				4.0 / 1.9	1.5		
				4.9 / 2.3	0.5		
				5.0 / 2.3	1		
				4.7 / 2.1	1		
				5.2 / 2.4	2		
				3.4 / 1.7	~~0.25~~ 1		
↓	↓	↓	↓	3.2 / 1.5	~~0.25~~ 1	↓	

Field Record: Makua Shellfish Study							
Sample Processor	Maren Anderson						
Data Recorder	Dawn A. Lleces						
Additional Personnel and Duties							
Environmental Conditions	see Field Notes						
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID	
10-07-08	1442	NM	MACGRA	7.1 / 3.5	8	NM-01	Jar 1 (cont.)
↓	↓	↓	↓	6.5 / 2.9	7	↓	
				7.8 / 3.6	6		
				6.7 / 3.2	6		
↓	↓	↓	↓	7.3 / 3.7	7	↓	
10-07-08	1442	NM	MACGRA	6.9 / 3.6	8	NM-01	Jar 2
				6.9 / 3.1	5		
				5.6 / 2.5	2		
				7.3 / 3.5	7		
				4.9 / 2.3	1		
				7.0 / 3.3	5		
				5.5 / 2.5	2		
				5.3 / 2.5	2		
				5.2 / 2.5	1		
				5.2 / 2.4	1		
				5.7 / 2.6	3		
				5.0 / 2.7	2		
				6.7 / 3.3	5		
				5.5 / 2.5	2		
				5.9 / 2.6	3		
				4.6 / 2.2	1		
				7.0 / 3.5	5		
				4.7 / 2.3	1		
				5.2 / 2.5	2		
				5.1 / 2.4	1		

Field Record: Makua Shellfish Study						
Sample Processor	Marin Anderson					
Data Recorder	Dawn A. Lecos					
Additional Personnel and Duties						
Environmental Conditions	See field notes.					
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
10.07.08	1442	NM	MACGRA	4.4/2.2	2	NM-01
↓	↓	↓		5.2/2.5	1	↓
10.08.08	1000	NM	MACGRA	7.5/3.8	6	
				7.0/3.3	5	
				7.4/3.6	10	
				7.5/3.7	7	
				7.8/3.8	9	
				7.4/3.6	9	
				7.8/3.7	7	
				7.2/3.3	8	
				8.3/4.0	9	
				7.0/3.4	5	
				5.4/2.5	3	
				5.8/2.8	2	
				5.2/2.4	3	
				4.7/2.4	2	
				6.4/3.2	4	
				5.4/2.4	1	
				5.8/2.8	3	
				5.2/2.3	2	
				3.7/1.8	0.5	
				5.7/2.8	3	
				5.4/2.3	3	
				5.6/2.5	3	
				4.8/2.2	2	

Jar 2 (cont.)

170.5

Field Record: Makua Shellfish Study						
Sample Processor	Maren Anderson					
Data Recorder	Dawn A. Lleces					
Additional Personnel and Duties						
Environmental Conditions	See field notes					
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
10-07-00	1625	NM	PACMIN	3.1	27	NM-02
				2.4	12	-
				1.5	3	
				2.3	10	

Field Record: Makua Shellfish Study						
Sample Processor	Maren Anderson					
Data Recorder	Tom Ogawa / Susan Carstenn					
Additional Personnel and Duties						
Environmental Conditions	see Field Notes					
Date	Time	Location	Species	Length/Width (cm)	Mass (g)	Composite ID
10.08.08						

Nānākuli Muliwai Oct 7, 2008

10:10 Tetra Tech arrives on site

10:15 Phone conference call

Paul Tise, Rick , Gary Floyd Susan Carstenn, Dawn A. Lees, Maren Anderson

What direction on will the sampling team take and where will our efforts be focused

Settlement Aggreement does not specify species. We do not need to return to Sandy Beach. Todays efforts will be focused on Nānākuli. The original CAP does not contain near shore at Nānākuli. Because we're not catching anything in the muliwai, we are shifting focus to near shore

Keep going on muliwai ~~tomorrow~~ today, at Nānākuli

Makua tomorrow.

If we do not have the samples from the muliwai

1026 Environmental Conditions: Extremely sunny conditions. Clouds overhead, temperatures are 87°F and waters are flat.

1026 Oceanic Institute arrive on site, Tom Ogawa and Don De Lepena.

1046 Traps and nets will be deployed in the muliwai. Four minnow traps and six crab nets are

11:30 baited with kahala fish parts. Paul Tise and Rick depart before nets and traps are deployed

~~11:00~~ Nets and minnow traps are deployed in Nānākuli muliwai, under Nānākuli bridge. Field team sees several prawns in the vicinity of the traps. Traps and net positions are manipulated to take advantage of the depth of the water and position of the debris to make sure that trap entrances are accessible. Traps and nets are left in the muliwai.

1313 Field team returns to muliwai to check on traps. Scoop nets (with 10 inch nets) on short (~24 inch) and long (~42 inch) handles are brought to use as active device for crabbing / prawning

1413 Field team returns with prawns. Prawns were caught using passive traps and scoop nets.

1430 Environmental conditions: Sunny with clouds overhead. Winds and gusts are coming in from south east direction

1450 Team returns to muliwai while samples continue to be processed

1625 Team retrieves two minnow traps from the muliwai. Two traps are left for overnight deployment

1630 Team begins to process more prawns

1709 Team breaks down sample station and departs from site.

Oct 7, 2008

Dawn Ellis

"Rite in the Rain"
ALL-WEATHER WRITING PAPER