

Nursery Habitat Study

Date 12/2/04 Location _____ Quad _____ Obser _____

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

# of Trials	Species	SPPcode	FL (mm)
	molly		7.7
			5.2
			8.5
			6.2
			5.3
			6.2
			6.3
			5.6
			5.5
			6.0
			6.1
			4.7
			5.5
	talapia		12.0
	Molly		5.9
			5.6
			6.7
	talapia molly		11.6
	Molly		5.6
			6.0
			5.7
			6.8
			6.5
			6.5
			6.2

	Species	SPPcode	FL(mm)
1	Molly		6.0
2	O'opu		17.2
3	molly		5.0
4			6.0
5			6.0
6			5.5
7			5.5
8			6.4
9	white oloa		11.6
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

more on back

NOTES: Imi, Ma, Chloe, Kanea, Kaori, Jacob & Ani
3, 2, 13, 11, 9, 4, 0 = 42 O'opu caught
in an hour and a
half on December 2, 2004!

42 O'opu

FIELD TRIALS

RECAP _____

Standard Sample _____ Marquesan Sample _____ Nursery Habitat _____

Obser _____

Date 2/16/05

System _____

Location/
Station _____

Quad/
Substation _____

GPS N _____ W _____

of Trials _____

Time in _____

Time out _____

Random: YES NO

Salinity(ppt) _____

pH _____

Cond.(ms/cm) _____

D.O.(mg/L) _____

Temp.(c) _____

WINDY

Net Dia / Mesh Size _____

Water condition: FLAT

WHITE WATER

Tide Stage Low Tide - Start at 1000hrs

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather clear

Secchi (cm) _____

Depth(cm) _____

Species	SPPcode	FL (mm)	Tag "Y"
<u>Molly</u>		<u>2</u>	
		<u>2</u>	
		<u>2</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>2</u>	
		<u>1.5</u>	
		<u>2</u>	
		<u>2</u>	
		<u>2</u>	
		<u>1.5</u>	
		<u>2.5</u>	
		<u>1</u>	
		<u>1.5</u>	
		<u>1</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>1</u>	
		<u>1.5</u>	
		<u>1</u>	
		<u>1.5</u>	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Species	SPPcode	FL(mm)	Tag "Y"
<u>Molly</u>		<u>2</u>	
		<u>2</u>	
		<u>2</u>	
		<u>1.5</u>	
		<u>1</u>	
		<u>1.5</u>	
		<u>2</u>	
		<u>1</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>1.5</u>	
		<u>4.5</u>	
		<u>4</u>	
		<u>2</u>	
		<u>3.5</u>	
		<u>3.5</u>	
		<u>3</u>	
		<u>4</u>	
		<u>2</u>	
		<u>3</u>	
		<u>2</u>	
		<u>1.5</u>	

more on back

NOTES:

Very Windy, Berm at river mouth open.
stream shallow

2/16/05

~~2/16/05~~**FIELD TRIALS**

RECAP _____

Standard Sample _____ Marquesan Sample _____ Nursery Habitat _____

Observer _____

Date _____ System _____ Location/ Station _____ Quad/ Substation _____

GPS N _____ W _____ # of Trials _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

Species	SPPcode	FL (mm)	Tag "Y"
Molly		4.5	
Molly		7.4	
Molly		2	
Molly		9.7	
Molly		16.5	
Molly		3.5	
Molly		4	
" "		4	
" "		4	
" "		5	
" "		4	
" "		4	
" "		4	
" "		4.7	
" "		5	
" "		5	
" "		3.5	
Anchoate			
" "		3	
" "		4	
" "		2	
" "		2	
" "		2	
" "		4.5	
" "		1.5	

Species	SPPcode	FL(mm)	Tag "Y"
1 Molly		1.5	
2 " "		1.5	
3 " "		2.5	
4 " "		4.4	
5 " "		1.8	
6 " "		4.7	
7 " "		3.5	
8 " "		2	
9 " "		4	
10 " "		4	
11 " "		2	
12 " "		4	
13 " "		4	
14 " "		3.5	
15 " "		4.5	
16 " "		5	
17 " "		4.5	
18 " "		4	
19 " "		4	
20 " "		5.4	
21 " "		4	
22 " "		4	
23 " "		4	
24 " "		3.5	
25 " "		4	

more on back _____

NOTES:

2/16/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	Molly		2	
2	Molly		2	
3	Molly		2	
4	" "		4	
5	" "		6.5	
6	" "		2.5	
7	" "		5.6	
8	" "		4	
9	" "		4	
10	Bullfrog		12.5	
11	Molly		4	
12	Molly		4	
13	" "		4	
14	" "		1.5	
15	" "		4	
16	" "		3.5	
17	" "		4	
18	" "		3.5	
19	" "		5	
20	" "		3.1	
21	" "		1.5	
22	" "		1.5	
23	" "		4.5	
24	" "		4.5	
25	" "		1.5	
26	" "		3.5	
27	" "		4	
28	" "		2	
29	" "		3	
30	" "		4	
31	" "		4.2	
32	" "		3.5	
33	" "		3.7	
34	" "		3	
35	" "		2	
36	" "		3	
37	" "		4	
38	" "		2	
39	" "		4.2	
40	" "		3.5	
41	" "		2	
42	" "		3.2	
43	" "		3.4	
44	" "		3	
45	" "		4	
46	" "		4	
47	" "		3.5	
48	" "		3.5	
49	" "		1.4	
50	" "		4.5	

	Species	SPPcode	FL(mm)	Tag "Y"
	Molly		3.5	
	" "		4.5	
	" "		2	
	" "		4	
	" "		2.5	
	" "		1.8	
	" "		3.5	
	" "		4	
	" "		2	
	" "		4.5	
	" "		4	
	" "		4.7	
	" "		2	
	" "		4	
	" "		4.4	
	" "		4	
	" "		1.5	
	" "		4	
	" "		3	
	" "		3	
	" "		5	
	" "		3	
	" "		4.5	
	" "		2	
	" "		4	
	" "		3	
	" "		4	
	" "		4	
	" "		3.5	
	" "		1.5	
	" "		2.5	
	" "		3	
	" "		2.5	
	" "		4.3	
	" "		3.5	
	" "		3.5	
	" "		4	
	" "		4.5	
	" "		4	
	" "		4	
	" "		3	
	" "		4	
	" "		4	
	" "		3.5	
	" "		2.5	
	" "		4.5	
	" "		4.2	

	Species	SPPcode	FL (mm)	Tag "Y"
	" "		4.5	
	" "		3	
	" "		4	
	" "		3.5	
	" "		3	
	" "		3	
	" "		1.5	
	" "		4	
	" "		3	
	" "		4.5	
	" "		5	
	" "		1.5	
	" "		4	
	" "		4.5	
	" "		5	
	" "		4.5	
	" "		4.5	
	" "		4.5	
	" "		5	
	" "		4.2	
	" "		3.5	
	" "		4.5	
	" "		4.5	
	" "		2	
	" "		1.2	
	" "		2.2	
	" "		1.5	
	" "		3.5	
	" "		2	
	" "		4.5	
	" "		4.5	
	" "		2	
	" "		4.5	
	" "		4.5	
	" "		3.5	
	" "		2.5	
	" "		4.2	
	" "		4	
	" "		4.5	
	" "		4.5	
	" "		2.5	
	" "		4	
	" "		3	
	" "		4	
	" "		4.5	

2/16/05

FIELD TRIALS

RECAP _____

Standard Sample _____ Marquesan Sample _____ Nursery Habitat _____

Obser _____

Date _____ System _____ Location/ Station _____ Quad/ Substation _____

GPS N _____ W _____ # of Trials _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

Species	SPPcode	FL (mm)	Tag "Y"
Opae		5.1	
molly		3.5	
		1.5	
		4	
		3.5	
		4	
		7	
		2.5	
		3.5	
		4	
		3.9	
		3.4	
		4.5	
		4	
		2	
		2	
		1.5	
		1.5	
		4.5	
		2	
		2.4	
		4.5	
		2	
		4.5	
		1.5	

Species	SPPcode	FL(mm)	Tag "Y"
molly		1.5	
		1	
		4.5	
		4.5	
		4.5	
		4.3	
		4.1	
		4.5	
		4	
		4	
		2	
		3.2	
		3.2	
		4.1	
		1.7	
		3.5	
		3.5	
		4	
		4	
		4.3	
		4	
		4	
		3.5	
		3.7	
		4	

more on back _____

NOTES:

2/16/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	molly		3.7	
2			4.2	
3			4.7	
4			4	
5			4.5	
6			4	
7			4	
8			3.4	
9			4	
10			4	
11			4	
12			4.3	
13			3.9	
14			4	
15			3.7	
16			4.5	
17			4.2	
18			3.8	
19			4	
20			5	
21			4.2	
22			4	
23			1.8	
24			1.5	
25			2	
26			3.5	
27			3.5	
28			1.5	
29			5	
30			4.2	
31			4.3	
32			4.4	
33			4	
34			3	
35			2.5	
36			4	
37			3.6	
38			3	
39			3	
40			2	
41			4	
42			4	
43			4.6	
44			4	
45			3.5	
46			3.7	
47			3.8	
48			1	
49			1.5	
50			3.5	

	Species	SPPcode	FL(mm)	Tag "Y"
	molly		2.2	
			3	
			3	
			3.1	
			2.5	
			3.3	
			4	
			3	
			2.2	
			3.3	
			2	
			3	
			4	
			4	
			3.5	
			3.3	
			2	
			1.9	
			1.5	
			1	
			4	
			0.5	
			1	
			4	
			2	
			2	
			2	
			1.5	
			1	
			1.5	
			4	
			2.5	
			2	
			3.2	
			2	
			4	
			2	
			3.5	
			1	
			3.5	
			1	
			2.5	
			3	
			2	
			3	

	Species	SPPcode	FL (mm)	Tag "Y"
	molly		2.5	
			4	
			2	
			4	
			2	
			2.5	
			2	
			3.5	
			3.5	
			3.2	
			3	
			2.7	
			4	
			4	
			2	
			1.5	
			3	
			2	
			2	
			2	
			2	
			1.5	
			2	
			3	
			1.5	
			2	
			2.5	
			2	
			2.5	
			2	
			2	
			2	
			2	
			1.5	
			1	
			1.5	
			1.5	
			1.5	
			2	
			2	
			3	
			2	

FIELD TRIALS

RECAP

Standard Sample _____ Marquesan Sample _____ Nursery Habitat _____

Obser_____

Date _____ System _____ Location/ Station _____ Quad/ Substation _____

GPS N _____ W _____ # of Trials _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt)_____ pH_____ Cond.(ms/cm)_____ D.O.(mg/L)_____

Temp.(c)_____ Net Dia / Mesh Size_____

Water condition: FLAT WHITE WATER Tide Stage

Bottom cond: DETRITUS___SED___SAND___GRAVEL___BOULDER___BEDROCK

Weather _____ Secchi (cm) _____ Depth(cm) _____

Species	SPPcode	FL (mm)	Tag "Y"
		3.5	
		4	
		3	
		4	
		4.5	
		4	
		4.5	
		3.7	
		1.5	
		4.1	
		4.2	
		3.5	
		3.5	
		4	
		4	
		3	
		3	
		2.2	
		2.2	
		1.5	
		1.5	
		2.5	
		2	
		1.5	
		1	

	Species	SPPcode	FL(mm)	Tag "Y"
1			2	
2			3.5	
3			2	
4			2.5	
5			1.2	
6			1.5	
7			1.5	
8			3.5	
9			4.5	
10			1.5	
11			1.5	
12			1.5	
13			4	
14			3	
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

more on back

NOTES:

2/16/05

FIELD TRIALS

RECAP _____

Standard Sample _____ Marquesan Sample _____ Nursery Habitat _____

Observer _____

Date 2/16/05 System _____ Location/ Station _____ Quad/ Substation _____

GPS N _____ W _____ # of Trials _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

TL C

Species	SPPcode	FL (mm)	Tag "Y"
Guppy/Molly		8.1 cm	
		7.1 cm	
		5.5 cm	
		4 cm	
		4 cm	
		4.8 cm	
		7 cm	
		4 cm	
		1 cm	
		4 cm	
		5 cm	
		4.3 cm	
		4 cm	
		4 cm	
		3.7 cm	
		4.5 cm	
		5 cm	
		4 cm	
		6 cm	
		5 cm	
		6.5 cm	
		4.4 cm	
		4.2 cm	
		4.6 cm	
		4 cm	

TL C

Species	SPPcode	FL (mm)	Tag "Y"
		4.2 cm	
		4.3 cm	
		2.5 cm	
		3.9 cm	
		4.4 cm	
		4 cm	
		4.2 cm	
		9 cm	
		4.3 cm	
		4.5 cm	
		4.5 cm	
		9 cm	
		4.1 cm	
		9.5 cm	
		4.4 cm	
		5 cm	
		3.5 cm	
		1.2 cm	
		4.5 cm	
		3.9 cm	
		4 cm	
		1 cm	
		7.5 cm	
		4.5 cm	
		9.5 cm	

more on back _____

NOTES:

2/16/05

TL (cm)

	Species	SPPcode	FL (mm)	Tag "Y"
1	Guppy/molly		2.5	
2			2.3	
3			8.6	
4			7	
5			8	
6			1.4	
7			4	
8			4.5	
9			4.3	
10			4.3	
11			8	
12			4.8	
13			4.2	
14			9	
15			4.4	
16			4	
17			0.5	
18			1	
19			4	
20			3.7	
21			1.5	
22			4.3	
23			4	
24			7	
25			3	
26			3	
27			4	
28			4.1	
29			3.5	
30			4	
31			2.2	
32			2	
33			4.5	
34			4	
35			3	
36			3.5	
37			1	
38			1	
39			4	
40			2	
41			3.6	
42			4.8	
43			3	
44			3.8	
45			4	
46			4.5	
47			4.5	
48			4	
49			4	
50			4.9	

TL (cm)

Species	SPPcode	FL (mm)	Tag "Y"
		4	
		3	
		2.5	
		2	
		3	
		4.5	
		3.7	
		4	
		3	
		5.5	
		4.5	
		4	
		5	
		4	
		4.5	
		4.3	
		4.5	
		4	
		3	
		3 1/2	
		4	
		3	
		3.6	
		4	
		4.2	
		4	
		4	
		2 1/2	
		3.4	
		3.6	
		4.7	
		4	
		3.4	
		4.5	
		3	
		4.2	
		4	
		4.5	
		3.5	
		3.8	
		4	
		3.5	
		2.5	
		3.2	
		4.4	
		4	
		4.5	
		3.5	
		4	
		4.1	
		4.2	

Species	SPPcode	FL (mm)	Tag "Y"
		3.5	
		3.6	
		4.5	
		4.3	
		2.5	
		4.3	
		4	
		4.3	
		4	
		4.6	
		4.5	
		1.2	
		3.3	
		3.5	
		3.4	
		4.1	
		3.5	
		3.5	
		3.7	
		4.5	
		4.2	
		4.5	
		3.5	
		4	
		4	
		3.7	
		4.6	
		3.3	
		4	
		3.7	
		4	
		3	
		1	
		4	
		4	
		3.3	
		4	
		4.8	
		8	
		4	
		6	
		8	
		10	
		2	
		3.5	
		3.5	
		3.5	
		3.5	
		3	

4/13/05

Nursery Habitat StudyDate 04/13/05 Location Wai'ioa Muliwai Quad _____ Obser Kamehameha students

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
Molly		65.0
stripe Mullet		45.0
"		50.0
"		50.0
"		54.0
"		45.0
"		31.0
"		31.0
"		31.0
Nanika		55.0
stripe Mullet		36.0
Molly		90.0
"		71.0
"		92.0
Molly		87.0
"		90.0
"		76.0
"		88.0
"		91.0
"		89.0
"		56.0
"		74.0
"		87.0
"		95.0
"		55.0

Species	SPPcode	FL(mm)
Molly		84.0
"		55.0
"		83.0
"		55.0
"		49.0
"		87.0
"		46.0
"		46.0
"		100.0
"		65.0
"		09.0
"		70.0
"		72.0
"		25.0
"		11.0
"		32.0
"		31.0
"		55.0
"		63.0
Akupa		65.0
Molly		82.0
"		60.0
"		70.0
"		80.0
Aholehole		30.0

more on back _____

NOTES:

4/13/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	Molly		53.0	
2	"		87.0	
3	"		43.0	
4	"		50.0	
5	"		66.0	
6	"		93.0	
7	"		56.0	
8	"		50.0	
9	"		96.0	
10	"		63.0	
11	"		60.0	
12	"		50.0	
13	"		96.0	
14	"		50.0	
15	"		55.0	
16	Akupa		15.0	
17	Molly		50.0	
18	"		50.0	
19	"		10.0	
20	"		15.0	
21	Andenole		40.0	
22	Molly		55.0	
23	"		40.0	
24	"		60.0	
25	"		60.0	
26	"		60.0	
27	"		50.0	
28	"		89.0	
29	"		90.0	
30	"		60.0	
31	"		65.0	
32	"		55.0	
33	'Opae		125.0	
34	Molly		70.0	
35	"		65.0	
36	"		50.0	
37	"		35.0	
38	"		50.0	
39	'Opae		110.0	
40	Nahina		50.0	
41	Molly		20.0	
42	"		50.0	
43	'Opae		105.0	
44	Molly		40.0	
45	"		70.0	
46	"		50.0	
47	"		55.0	
48	"		60.0	
49	Mullet		25.0	
50	"		30.0	

[illegible][illegible]

4/13/05

Nursery Habitat StudyDate 4-13-05Location Wailoa

Quad _____

Observer Kaori

GPS N _____

W _____

Muliwai

(Kamehameha student)

Time in _____

Time out _____

Random: YES NO

Salinity(ppt) _____

pH _____

Cond.(ms/cm) _____

D.O.(mg/L) _____

Temp.(c) _____

Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER

Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____

Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
Mali		55
Tadpole		45
V		78
V		81
V		68
V		68
V		60
V		46
Samuli		63
'O'op Nana		61
V		51
V		38
V		32
V		38
Tadpole		34
Mali		35
V		53
V		40
Tadpole		90
Tadpole		39
'O'op Nana		34
Mali		59
V		32
V		55
V		36

Species	SPPcode	FL(mm)
V		32
Aholehole		38
Tadpole		60
V		40
'O'op Nana		40
Mali		40
V		40
V		27
V		20
V		15
Crawfish		146
Mali		56
Crawfish		75
Molly		45
		60
Aholehole		80
Crawfish		100
Molly		63
Aholehole		25
Molly		55
		65
		60
		65
		50
		60

more on back

NOTES:

4/13/05

Nursery Habitat StudyDate 4-13-05 Location Wailoo Quad _____ Obser Iwalani (Kamehameha student)
Muliwai

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
<u>Mali</u>	<u>93</u>	<u>95</u>
		<u>64</u>
		<u>8.1</u>
		<u>9.2</u>
		<u>95</u>
		<u>73</u>
		<u>87</u>
		<u>90</u>
		<u>86</u>
		<u>90</u>
		<u>80</u>
		<u>59</u>
		<u>89</u>
		<u>59</u>
		<u>47</u>
		<u>88</u>
		<u>83</u>
		<u>14</u>
		<u>73</u>
		<u>53</u>
		<u>62</u>
<u>Anolehd</u>		<u>77</u>
<u>Anolehd</u>		<u>31</u>
<u>Mali</u>		<u>74</u>
		<u>66</u>

Species	SPPcode	FL(mm)
<u>Mali</u>		<u>54</u>
		<u>63</u>
		<u>57</u>
		<u>49</u>
		<u>59</u>
		<u>17</u>
		<u>85</u>
		<u>51</u>
		<u>59</u>
		<u>86</u>
		<u>51</u>
		<u>46</u>
		<u>61</u>
		<u>61</u>
		<u>63</u>
<u>ORL</u>		<u>49</u>
		<u>83</u>
		<u>83</u>
<u>Mali</u>		<u>62</u>
		<u>76</u>
		<u>64</u>
		<u>32</u>
		<u>54</u>
<u>Tadpole</u>		<u>69</u>
		<u>75</u>

more on back

NOTES:

4/13/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	Molly	→	55	
2			43	
3			40	
4			35	
5			30	
6	Aholehole	→	63	
7	Molly	→	55	
8			64	
9			53	
10			50	
11			70	
12	O'opu	→	60	
13	Molly	→	35	
14			50	
15			60	
16	opae	→	60	
17	Molly	→	40	
18			60	
19	Opae	→	73	
20	Molly	→	30	
21			30	
22			40	
23			30	
24			25	
25			30	
26			15	
27	O'opu	→	40	
28			49	
29			35	
30			42	
31	opae	→	60	
32	Molly	→	40	
33			50	
34	Aholehole	→	25	
35	O'opu	→	30	
36	Molly	→	12	
37	Opae	→	65	
38	O'opu	→	40	
39	Molly	→	15	
40			15	
41			20	
42			15	
43			10	
44	Aholehole	→	20	
45	Molly	→	15	
46			10	
47			7	
48				
49				
50				

[illegible][illegible]

4/16/05

Nursery Habitat Study

Date 4/16/05 Location Wailoa stream Quad 20 Observer Kanu
mouth

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
molly		8cm
molly		7cm
molly		3cm
molly		5cm
"		4.5
"		7
"		6
"		5.5
"		7
"		5
"		5.6
"		5.3
"		6.2
"		5.2
"		1.3
"		5
"		4.3
"		4.4
"		2.5
"		4.5
"		4.5
"		3.4
"		1.2
"		2.5
"		3.2

Species	SPPcode	FL(mm)
"		6
"		7.2
"		5.6
"		7
"		5.0
"		3.5
"		5.0
"		5.0
"		4.5
"		1.5
"		5.7
"		3.2
"		0.7
"		4.0
"		
"		
"		
crayfish		5.8
tad Pol's		6.0
"		5.6
"		6.0
"		3.5
"		3.5
"		4.0
"		3.2

more on back

NOTES:

4/16/05

CM

	Species	SPPcode	FL (mm)	Tag "Y"
1	molly		5	
2	"		5.2	
3	"		2.8	
4	"		5.4	
5	Tadpole		4.5	
6	Aholehole		2.7	
7	molly		6.6	
8	"		5.1	
9	"		2.5	
10	"		4.2	
11	"		5.2	
12	"		2.1	
13	"		2.1	
14	"		3.2	
15	"		2.9	
16	"		5.0	
17	"		6	
18	"		5.9	
19	"		5.3	
20	"		6.2	
21	"		5.7	
22	"		5.1	
23	"		4.6	
24	"		5.2	
25	"		5.3	
26	"		5.5	
27	Aholehole		1.8	
28	molly		2	
29	"		5	
30	"		6	
31	"		5	
32	"		5.5	
33	"		5.2	
34	"		2.3	
35	"		1.8	
36	"		6.2	
37	"		6.3	
38	"		3.5	
39	"		2.1	
40	"		3.5	
41	"		5.2	
42	"		5.5	
43	"		5.5	
44	"		6.2	
45	"		5.0	
46	"		5.5	
47	"		4.5	
48	"		4.5	
49	"		4.5	
50	"		4.6	

Species	SPPcode	FL(mm)	Tag "Y"
"		5.5	
"		5.5	
"		4	
"		5	
"		5	
"		5.5	
Mali		3.0	
Mali		5.0	
Mali		5.3	
Mali		5.0	
Mali		2.8	
Mali		3.0	
Mali		6.2	
Mali		6.1	
Mali		5.6	
Opae		4.1	
Mali		6.6	
Mali		6.7	
Mali		5.2	
Mali		6.0	
Aholehole		3.1	
Mali		5.8	
Opae		4.9	
Mali		5.5	
Mali		6.8	
Tadpole		4.1	
Mali		5.3	
Mali		5.0	
Opae		4.0	
Molly		4.9	
Opae		7.6	
Mali		5.5	
Mali		4.7	
Opae		4.0	
Mali		4.1	
Mali		5.8	
Mali		6.5	
Mali		4.1	
Mali		6.5	
Mali		3.5	
Mali		3.9	
Mali		4.7	
Mali		4.6	
Mali		4.7	
Mali		3.0	
Mali		3.0	
Aholehole		2.9	
Mali		3.4	
Mali		2.7	

Species	SPPcode	FL (mm)	Tag "Y"
Mali		2.5	
Mali		2.3	
Opae		3.8	
Mali		4.2	
Mali		3.6	
Mali		3.4	
Mali		3.0	
Mali		4.0	
Opae		3.5	
Opae		2.0	
Mali		2.5	
Mali		3.5	
Mali		2.9	
Mali		1.8	
Mali		2.4	
Opae		6.5	
Opae		9.1	
Opae		6.8	
Opae		7	
Opae		5.5	
Opae		8	
Opae		6	
Opae		5.6	
Opae		5.5	
Opae		5.4	
Opae		4.1	
Opae		5.5	
"		4.7	
"		5.5	
"		4.6	
"		6	
"		3.5	
"		5	
"		4	
"		6.1	
"		2.2	
"		5.2	
"		6.3	
"		4.4	
"		6.2	
"		4.1	
"		4.3	
"		2.2	
"		5.1	
"		3.4	
"		1	
"		2.3	
"		2.2	
"		1.5	
"		2	

Nursery Habitat Study

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt)_____ pH_____ Cond.(ms/cm)_____ D.O.(mg/L)_____

Temp.(c)_____ Net Dia / Mesh Size_____

Water condition: FLAT WHITE WATER Tide Stage

Bottom cond: DETRITUS SED SAND GRAVEL BOULDER BEDROCK

Weather _____ Secchi (cm) _____ Depth(cm) _____

[illegible]

more on back

NOTES:

4/16/05

Nursery Habitat StudyDate Apr. 16 - 2005 Location Wai Nua Quad _____ Observer Kanu
(stream mouth)

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

# of Trials	Species	SPPcode	FL (mm)
	Molly		6.5
	Molly		5.5
	Molly		6
	Molly		5.5
	Molly		5.5
	Molly		5
	Molly		5
	Molly		5.3
	Molly		5.6
	Molly		5.7
	Molly		5.5
	Molly		6.2
	Molly		5
	Molly		4.6
	Molly		6
	Molly		5.5
	Molly		2.5
	Molly		5.2
	Molly		5
	Molly		3
	Molly		2.5
	Molly		3.2
	Molly		3.4
	Molly		2.1
	Molly		2

	Species	SPPcode	FL(mm)
1	molly	3.2	3-2
2	molly	3	3
3	molly	2.5	2.5
4	molly	2.9	2.9
5	molly	2.1	2.1
6	molly		2.6
7			2
8			1.5
9			1
10			1.5
11			4.5
12			5
13			3
14			2.5
15			2
16			2.3
17			2
18			1.5
19			4.5
20			5
21			3.5
22			3.6
23			2
24			1
25			2

more on back

NOTES:

4/16/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	Molly		1.2	
2	Molly		1.2	
3	Aholehole		3	
4	Aholehole		2.5	
5	Molly		4.6	
6	Molly		5.5	
7	Molly		6	
8	Molly		5	
9	Molly		9.5	
10	Molly		3	
11	Molly		6	
12	Molly		5.5	
13	Molly		3.9	
14	Molly		5.6	
15	Molly		4.9	
16	Molly		1.9	
17	Molly		1.5	
18	Molly		1.5	
19	Molly		2.5	
20	Molly		2.3	
21	Molly		2.8	
22	Molly		2.4	
23	Molly		1.5	
24	Molly		2.5	
25	Molly		6	
26	Molly		4.8	
27	Molly		2.4	
28	Molly		2.7	
29	tadpole		5.4	
30	Pran		12.2	
31	Molly		1.8	
32	Molly		5.4	
33	Molly		4.9	
34	Molly		3	
35	Molly		6.9	
36	Molly		3.1	
37	Molly		3.3	
38	Molly		5.5	
39	Molly		3.4	
40	Molly		5.5	
41	Opai		11.5	
42	Opai		10.5	
43	pran		17.7	
44	pran		19.1	
45	Opai		6.4	
46	Molly		1.	
47	Molly		1.8	
48	Molly		5.4	
49	"		5.2	
50	Tadpole		6.3	

	Species	SPPcode	FL (mm)	Tag "Y"
	Aholehole		2.8	
	Molly		4.6	
	Opai		2.9	
	Tadpole		4	
	Opai		6	
	Tadpole		4	
	Molly		5.3	
	Molly		3.5	
	Molly		2.7	
	Molly		6.2	
	Molly		2	
	Molly		2	
	Molly		2.6	
	Molly		4.1	
	Molly		4.1	
	Molly		2.6	
	Molly		3.5	
	Molly		1.9	
	Molly		3.2	
	Tadpole		6.3	
	Tadpole		6	
	Tadpole		5.2	
	Tadpole		5.2	
	Tadpole		3.6	
	Tadpole		4.1	
	Tadpole		6.2	
	Tadpole		4.1	
	Molly		5.3	
	Aholehole		3.5	
	Aholehole		3	
	Opai		5	
	Opai		5	
	Opai		4	
	Aholehole		2.6	
	Aholehole		2.5	
	Tadpole		4	
	Aholehole		3	
	Aholehole		3.3	
	Molly		4	
	Molly		5.8	
	Molly		3.6	
	Molly		3.3	
	Molly		4.8	
	Molly		6	
	Molly		5.8	
	Molly		4.8	
	Molly		3.2	
	Molly		3.7	
	Molly		3.5	
	Molly		3.5	

	Species	SPPcode	FL (mm)	Tag "Y"
	Aholehole		3	
	Molly		3.2	
	Molly		3.2	
	Molly		3.8	
	Molly		3.3	
	Aholehole		3	
	Molly		3.5	
	Molly		3	
	Aholehole		3	
	Molly		3.5	
	Molly		3	
	Molly		5.2	
	Molly		2.4	
	Aholehole		2.5	
	Aholehole		3	
	Molly		2.2	
	Molly		2.3	
	Molly		4	
	Molly		2.7	
	Molly		2	
	Molly		2	
	Molly		2	
	Molly		2.5	
	Molly		2.5	
	Molly		2.2	
	Molly		2.1	
	Molly		2.6	
	Molly		2.5	
	Molly		2	
	Molly		1.5	
	Molly		1.6	
	Opai		9	
	O'opunaiha		8.3	
	O'opunaiha		3.3	
	O'opunaiha		4.0	
	Opae		6.0	
	"		4.0	
	"		4.2	
	"		5.0	
	"		4.5	
	"		4.0	
	"		5.3	
	"		6.0	
	"		4.0	
	"		3.6	
	"		4.7	
	"		3.7	
	"		3.8	
	"		3.0	
	"		5.3	

6/15/05

Nursery Habitat Study

Allen

Date 6/15/05

Location

Wailoa River

Quad

Observer

Kaitly Lorenzo

GPS N

W

Time in

Time out

Random: YES NO

Salinity(ppt)

pH

Cond.(ms/cm)

D.O.(mg/L)

Temp.(c)

Net Dia / Mesh Size

Water condition: FLAT

WHITE WATER

Tide Stage

Bottom cond: DETRITUS SED SAND GRAVEL BOULDER BEDROCK

Weather

Secchi (cm)

Depth(cm)

of Trials

Species	SPPcode	FL (mm)
Molly		10 cm
tarpo		11 cm
tarpo		11 cm
molly		7 cm
molly		6.5 cm
molly		9 cm
molly		10 cm
molly		8 cm
molly		9 cm
molly		7 cm
molly		7 cm
molly		6 cm
molly		7.2 cm
molly		7 cm
molly		9.2 cm
molly		9 cm
molly		7.2 cm
molly		7.2 cm
molly		7.3 cm
molly		8 cm
molly		6.9 cm
molly		9.2 cm
molly		8 cm
molly		2 cm
molly		5.4 cm

Species	SPPcode	FL(mm)
molly		8 cm
molly		6.5 cm
molly		4.5
molly		6.4
molly		2.6
molly		6.9
molly		4.1
molly		7.1 cm
molly		2.6 cm
molly		3 cm
molly		5 cm
molly		3.4 cm
molly		2.5 cm
molly		7.6 cm
molly		2.1 cm
molly		3.1 cm
molly		7.1 cm
molly		5.5 cm
molly		7.7 cm
molly		5.1 cm
molly		6.0 cm
molly		4.1 cm
molly		4.1 cm
molly		2.9 cm
molly		5.6 cm

more on back

NOTES:

6/15/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	molly		7.2 cm	
2	molly		5.5 cm	
3	molly		7 cm	
4	molly		2.5 cm	
5	molly		6.8 cm	
6	molly		5.5 cm	
7	molly		4.9 cm	
8	molly		5.1 cm	
9	molly		5.2 cm	
10	molly		6.2 cm	
11	molly		3.1 cm	
12	molly		5.6 cm	
13	molly		3.5 cm	
14	molly		2.1 cm	
15	molly		4.5 cm	
16	molly		3.3 cm	
17	molly		6.6 cm	
18	molly		3.3 cm	
19	molly		3.5 cm	
20	molly		5 cm	
21	molly		3 cm	
22	molly		3.5 cm	
23	molly		2.4 cm	
24	molly		3.2 cm	
25	molly		2 cm	
26	molly		4 cm	
27	molly		4.8 cm	
28	molly		1.5 cm	
29	molly		3.4 cm	
30	molly		4 cm	
31	molly		0.8 cm	
32	molly		2.8 cm	
33	molly		1.5 cm	
34	molly		3 cm	
35	molly		2 cm	
36	molly		2.6 cm	
37	molly		5 cm	
38	molly		4 cm	
39	molly		2.1 cm	
40	molly		3.4 cm	
41	molly		6.7 cm	
42	molly		3.1 cm	
43	molly		2.3 cm	
44	molly		1 cm	
45	molly		1 cm	
46	molly		6.4 cm	
47	molly		2.7 cm	
48	molly		3.8 cm	
49	molly		5 cm	
50	molly		2 cm	

	Species	SPPcode	FL (mm)	Tag "Y"
	molly		4 cm	
	molly		2.3 cm	
	molly		2.5 cm	
	molly		2.1 cm	
	molly		2.5 cm	
	molly		3.5 cm	
	molly		2 cm	
	molly		3.2 cm	
	molly		1.7 cm	
	molly		2.1 cm	
	molly		5 cm	
	molly		2.1 cm	
	molly		2.3 cm	
	molly		2.3 cm	
	molly		2 cm	
	molly		2.4 cm	
	molly		1 cm	
	molly		2.1 cm	
	molly		2.4 cm	
	molly		5.4 cm	
	molly		3.1 cm	
	molly		2 cm	
	molly		3.4 cm	
	molly		1.3 cm	
	molly		6 cm	
	molly		3.5 cm	
			3.3 cm	
			3.4 cm	
			2.5 cm	
			2 cm	
			1.1 cm	
			5.3 cm	
			3 cm	
			1.1 cm	
			2 cm	
			2.5 cm	
			2.1 cm	
			2.3 cm	
			5.6 cm	
			3 cm	
			5.1 cm	
			5 cm	
			2 cm	
			4 cm	
			2 cm	
			2.5 cm	
			3 cm	
			2.5 cm	
			3 cm	
			2.5 cm	

	Species	SPPcode	FL (mm)	Tag "Y"
	molly		3 cm	
	molly		1.5 cm	
	molly		2.6 cm	
	molly		2 cm	
	molly		2.5 cm	
	molly		2.3 cm	
	molly		2 cm	
	molly		3.4 cm	
	molly		1.5 cm	
	molly		2 cm	
	molly		2.5 cm	
	molly		2 cm	
	molly		2.5 cm	
	molly		1.5 cm	
	molly		1.4 cm	
			2 cm	
			2 cm	
			1.8 cm	
			2.1 cm	
			2.2 cm	
			2 cm	
			2 cm	
			1.2 cm	
			1.5 cm	
			1.5 cm	
			1.3 cm	
			1.7 cm	
			1.3 cm	
			1.1 cm	
			2.3 cm	
			1.2 cm	
			2.7 cm	
			2.5 cm	
			1 cm	
			0.8 cm	
			1.2 cm	
			1.2 cm	
			1.7 cm	
			2.4 cm	
			1.8 cm	
			1.9 cm	
			0.1 cm	
			0.4 cm	
			1.5 cm	
			1.7 cm	
			1.5 cm	
			1.3 cm	
			1.5 cm	
			1.7 cm	
			1.5 cm	

6/15/05

Nursery Habitat StudyDate 6/15/05 Location waipi'o Quad _____ Obser Honu / Kaleo, Kanuoka

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
akupa		20.5
akupa		14.5
akupa		17.5
akupa		13.5
"		17
"		15
"		18.5
"		15.5
"		17.3
"		14.2
"		11.9
"		13.6
"		14.7
"		11.5
"		11
"		14.2
"		15
"		13.2
"		12
Maniha		4.0
Anolehole		2.8
Naniha		7.0
Papio		2.6
Naniha		5.5
Opa		5.0

Species	SPPcode	FL(mm)
Opa		2.5
"		5.0
Naniha		7.2
akupa		18.5
akupa		15.0
akupa		18.0
Naniha		4.0
Anolehole		4.0
akupa		16.0
Naniha		7.5
Naniha		2.0
akupa		11.3
akupa		16.0
Anolehole		2.0
akupa		11.5
akupa		12.0
Anolehole		4.0
akupa		14.0
Anolehole		4.5
Anolehole		2.5
akupa		16.0
akupa		13.0
akupa		14.0
Naniha		3.5
Opa		7.0

more on back

NOTES:

6/15/05

Nursery Habitat Study

Kaniela, Kaha

Date 6/15/05 Location Waipi'o Quad _____ Obser Lakela, Kama, Ka'iulani

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

# of Trials	Species	SPPcode	FL (mm)
	Mullet		9.0
	Akupa		15.0
	"		12.00
	"		12.5
	Aholehole		3
	Ope		3
	Akupa		11
	Aholehole		5
	"		3
	"		2.5
	Mullet		5
	Aholehole		3
	"		2.5
	"		2.5
	"		2.5
	"		2
	"		3
	"		3
	"		3
	"		2.5
	"		2.5
	"		1
	Nahina		5
	Aholehole		2.5
	"		4

	Species	SPPcode	FL(mm)
1	"	2	2
2	"	"	2
3	"	"	1
4	"	"	2
5	"	"	2
6	"	"	2
7	Mullet		3.5
8	Nahina		4
9	Aholehole		3.5
10	"	"	2
11	Nahina		1
12	Aholehole		4
13	Ope		2
14	Aholehole		2
15	Ope		11
16	Aholehole		3
17	Nahina		4
18	Aholehole		3
19	"	"	2
20	"	"	2.5
21	Aholehole		1
22	"	"	2
23	Nahina		5
24	Aholehole		2
25	Nahina		3

more on back

NOTES:

4/15/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	Aholehole		2	
2	"		2	
3	Naniha		2	
4	Aholehole		2	2
5	"		3	
6	Naniha		3	
7	"		2	
8	Aholehole		2	
9	"		2	
10	"		2	
11	"		3	
12	Naniha		3	
13	Aholehole		3	
14	Naniha		4	
15	Aholehole		2	
16	Naniha		3	
17	Aholehole		1	
18	Naniha		6	
19	Aholehole		2	
20	Naniha		3	
21	"		2	
22	"		3	
23				
24				
25				
26				
27				
28				
29				
30				
31				
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[illegible][illegible]

6/15/05

Nursery Habitat Study

Date 6/15/05 Location Waimanu Quad _____ Obser Hillei Levenson
side

GPS N _____ W _____

Time in 2:37 p.m. Time out _____

Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____

Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER

Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
molly		6.1cm
molly		8.5cm
molly		6.3cm
molly		9.3cm
molly		6.7cm
molly		7.4cm
molly		8.4cm
molly		7.7cm
molly		6 cm
molly		1.5cm
molly		6.5cm
molly		6 cm
molly		10 cm
molly		6.8cm
molly		8.5cm
molly		7.1cm
molly		7.5cm
molly		8.2cm
molly		7.4cm
molly		8.5cm
molly		8 cm
molly		7.4cm
molly		5.7cm
molly		7 cm
molly		7 cm

Species	SPPcode	FL(mm)
1 molly		7.2cm
2 molly		6.2cm
3 molly		6.5cm
4 molly		6 cm
5 molly		7.5cm
6 molly		6 cm
7 molly		7 cm
8 molly		6.5cm
9 molly		6.5cm
10 molly		6 cm
11 molly		7.2cm
12 molly		6.7cm
13 molly		7.3cm
14 molly		8.3cm
15 molly		7.5cm
16 molly		8 cm
17 molly		6.9cm
18 molly		6.9cm
19 molly		7 cm
20 molly		8.5cm
21 molly		6.5cm
22 molly		6.5cm
23 molly		6.5cm
24 molly		7 cm
25 molly		6 cm

more on back

NOTES:

4/15/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	molly		7cm	
2	molly		6.5cm	
3	molly		5.7cm	
4	molly		6.7cm	
5	molly		6.2cm	
6	molly		6.3cm	
7	molly		6.9cm	
8	molly		6.3cm	
9	molly		6.4cm	
10	molly		5.5cm	
11	molly		5.7cm	
12	molly		3.5cm	
13	molly		3cm	
14	molly		5cm	
15	molly		5.8cm	
16	molly		7.8cm	
17	molly		2cm	
18	molly		6.3cm	
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
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49				
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[illegible][illegible]

6/15/05

Nursery Habitat Study

Date 6/15/05 Location Waimanu side waialoa river Quad _____ Obser Honu Lindsey

GPS N _____ W _____

Time in 1:30 Time out 2:37 Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

# of Trials	Species	SPPcode	FL (mm)
	opae		2
	akapu		14
	mullet		20.5
p26666	capio		23.5
	molly		8.1
	"		7.2
	"		7.4
	"		8.1
	Tilapia		20.5
	Molly		6.6
	"		6.0
	"		8.5
	"		8.6
	✓ "		8.8
	"		6.3
	"		8.6
	"		7.0
	"		8.9
	"		8.8
	"		8.5
	"		8.2
	"		7.6
	"		8.2
	"		8.1
	"		6.6

	Species	SPPcode	FL(mm)
1	Molly		7.2
2	"		7.9
3	"		7.9
4	"		6.6
5	"		6.5
6	"		7.5
7	"		7.5
8	"		8
9	"		6.5
10	"		9
11	"		8.2
12	"		6.6
13	"		6.9
14	"		7.5
15	"		7.5
16	"		7.6
17	"		7.8
18	"		5.5
19	"		6.5
20			7
21			7.5
22			6.5
23			6.1
24			6.5
25			2.5

more on back

NOTES:

6/15/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	11		1.5	
2	11		2.5	
3	11		4.8	
4	11		4.5	
5	11		7.2	
6	11		6.6	
7	11		7	
8	11		6.7	
9	11		8.5	
10	11		8.6	
11	11		6.9	
12	11		7	
13	11		7.2	
14	11		7.5	
15	11		5.4	
16	11		7.8	
17	11		7.1	
18	11		6.5	
19	11		6.6	
20	11		6.7	
21	11		5.4	
22	11		6.9	
23	11		6.7	
24	11		6.4	
25	11		7	
26	11		6.5	
27	11		7.1	
28	11		5.5	
29	11		8.1	
30	11		3	
31	11		4.1	
32	11		7	
33	11		5.5	
34	11		6.5	
35	11		6.4	
36	11		6.6	
37	11		5.4	
38	11		6.7	
39	oopy		7.2	
40	oopy		4.4	
41	oopy		7.2	
42	oopy		6.4	
43	oopy		7.4	
44	oopy		6.2	
45	oopy		6.6	
46	oopy		6.2	
47	oopy	ak upa	8.1	
48	oopy		4.5	
49	oopy	nanika	4.6	
50	oopy	nanika	4.4	

Species	SPPcode	FL(mm)	Tag "Y"
opac		5	
opac	NAHila	3	
opac		4.1	
opac		7	
opac		5.2	
Hinaba		3	
opac		5	
NAHila		2.4	
opac		7	
Molly		2.4	
NAHila		6.9	
opac		6.5	
Hinaba		3.6	
NAHila		3	
NAHila		6.3	
Analebaile		2 1/2	
NAHila		5.2	
NAHila		5.3	
NAHila		3	
NAHila		3.7	
opac		2.2	
opac		2.5	
opac		3.5	
opac		2	
opac		2.6	
opac		2.5	

[illegible]

Nursery Habitat Study

Date 6/15/05 Location Waikanae River Quad _____ Obser Iini Kanukagaia

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
Molly		5
		8
		8
		5
		5
		6.5
		6.2
		4.4
		5
		1
		6.7
		6.2
		7.5
		4.4
		7.1
		7.5
		2.2
		5.5
		9.5
		7.5
		4
		4.1
		3
		6.2

Species	SPPcode	FL(mm)
Molly	3	2.5
		2.5
		1
		5.5
		2.2
		1
		2.9
		6.8
		5
		5.6
		5.2
		2.2
		7.3
		5.6
		4.6
		2.3
		5.5
		5

more on back

NOTES:

2008

4/15/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	Molly		3.0	
2			1.0	
3			1.0	
4			3.5	
5			3.5	
6			2.5	
7			1.3	
8			5.3	
9			1.2	
10			1.2	
11			2.1	
12			2.6	
13			2.5	
14			2.0	
15			5.7	
16			3.5	
17			6	
18			4.2	
19			4.8	
20			3.5	
21			5.5	
22			5.6	
23			4	
24			2.5	
25			2.9	
26			2	
27			5.5	
28			1.9	
29			3.7	
30			3	
31			0.8	
32			4	
33			3	
34			0	
35			1.8	
36			2.2	
37			2.2	
38			2.2	
39			2.7	
40			2.4	
41			5.3	
42			2.5	
43			1.3	
44			2.1	
45			2	
46			2.2	
47			2.1	
48			2.8	
49				
50				

	Species	SPPcode	FL (mm)	Tag "Y"
1	Molly		3.4	
2			1.8	
3			1.9	
4			2	
5			1.8	
6			1.2	
7			1.2	
8			2.6	
9			2.3	
10			0.7	
11			2	
12			1.7	
13			2.5	
14			2.7	
15			0.3	
16			2.1	
17			2.5	
18			2.1	
19			2.3	
20			1.5	
21			1.1	
22			0.6	
23			1.5	
24			1.2	
25			1.2	
26			0.1	
27			0.1	
28			1.9	
29			1.8	
30			1.5	
31			1.7	
32			2.5	
33			1.7	
34			1.8	
35			1	
36			1.2	
37			1.9	
38			2.1	
39			1.3	
40			2.5	
41			1	
42			1.5	
43			1.5	
44				
45				
46				
47				
48				
49				
50				

	Species	SPPcode	FL (mm)	Tag "Y"
1			1.7	
2			2.3	
3			1.8	
4			0.7	
5			0.4	
6			1.5	
7			1.7	
8			1.8	
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
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40				
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42				
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45				
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47				
48				
49				
50				

8/31/05

Nursery Habitat StudyDate 8/31/05 Location Wailoa north Quad _____ Obser Kanu

GPS N _____ W _____

Time in _____ Time out _____ Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
popu gila		12.5
molly		4.5
bull frog		
molly		7.2
bull frog tadpoles		12.2
molly		8.1
" "		1
" "		1.5
" "		9
" "		9.5
" "		4.6
" "		2.5
" "		5.9
" "		6.5
" "		5.4
" "		2.7
" "		3.5
" "		4.88
" "		2.3
" "		1.6
" "		4.1
" "		2.5
" "		8.4
" "		1.9
" "		6.1

Species	SPPcode	FL(mm)
" "		2.8
" "		3-8
" "		2.6
" "		3-5
" "		1.5
" "		9.2
" "		3-8
" "		1.5
" "		7.7
" "		5
" "		7
" "		3
" "		2.2
" "		5.5
" "		4
" "		1.5
" "		5.5
" "		3-8
" "		3.2
" "		3.1
" "		4.5
" "		8.1
" "		3.1
" "		3.1
" "		2.4

more on back _____

NOTES:

8/31/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	molly		2.4	
2	"		2.6	
3	"		2.1	
4	"		2.7	
5	"		2	
6	"		2.3	
7	"		3.3	
8	"		2.1	
9	"		1.8	
10	"		1	
11	"		1.9	
12	"		3.2	
13	"		2.0	
14	"		2.1	
15	"		3.8	
16	"		3.2	
17	"		3.7	
18	"		4	
19	"		5.1	
20	"		4.9	
21	"		2.0	
22	"		3.2	
23	"		2.4	
24	"		6.2	
25	"		5.3	
26	"		2.6	
27	"		3.0	
28	"		2.8	
29	"		4.0	
30	"		2.1	
31	"		4.2	
32	"		8.3	
33	"		1.1	
34	"		7.9	
35	"		1.5	
36	"		5.2	
37	"		6.4	
38	"		3.4	
39	"		2.1	
40	"		2.4	
41	"		4.7	
42	"		3.1	
43	"		1.6	
44	"		1.3	
45	"		3.3	
46	"		2.5	
47	"		1.5	
48	"		1.9	
49	"		2.0	
50	"		2.1	

	Species	SPPcode	FL(mm)	Tag "Y"
	molly		2.7	
	"		4.1	
	"		2.6	
	"		8.0	
	"		1.9	
	"		3.3	
	"		3.4	
	"		4.3	
	"		2.5	
	"		3.3	
	"		2	
	"		5.2	
	"		4.2	
	"		8.7	
	"		4.5	
	"		6.5	
	"		4.1	
	"		5.3	
	"		2.3	
	"		3.5	
	"		6.5	
	"		3.5	
	"		5.5	
	"		7.2	
	"		4.2	
	"		6.2	
	"		1.5	
	"		1.7	
	"		3.2	
	"		8.5	
	"		1.3	
	"		3.5	
	"		4.0	
	"		4.3	
	"		3.2	
	"		2.5	
	"		6.3	
	"		9	
	"		3.2	
	"		2.5	
	"		5.1	
	"		4.7	
	"		7	
	"		3.9	
	"		5.8	
	"		2.9	
	"		1.9	
	Shrimp		6.8	
	molly		8.4	

	Species	SPPcode	FL (mm)	Tag "Y"
	molly		4.8	
	"		1.9	
	"		5.1	
	"		1.5	
	"		1.6	
	"		1.8	
	"		4	
	"		4.1	
	"		4	
	"		1.5	
	"		2.5	
	"		4.1	
	"		3.8	
	"		2.9	
	"		6	
	"		6.1	
	"		5.5	
	"		3.7	
	"		3	
	"		2	
	"		1.5	
	"		5.4	
	"		5.2	
	"		4	
	"		3.9	
	"		2	
	"		2.2cm	
	"		3.7cm	
	"		3.2cm	
	"		1.5cm	
	"		2.4cm	
	"		2.5cm	
	"		1.5cm	
	"		1.9cm	
	"		1cm	
	"		1cm	
	"		2.5cm	
	"		0.9cm	
	"		1.5cm	
	"		2.2cm	
	"		1cm	
	"		1.5cm	
	"		1.5cm	
	"		1cm	
	"		1.8cm	
	"		1cm	
	"		3cm	
	"		1.5cm	
	"		2cm	
	"		1.4cm	

8/31/05

Nursery Habitat StudyDate 31 Aug 2005 Location Wailoa Quad _____ Obser Kana / Krilly

river mouth

GPS N _____ W _____

Time in 10:00 AM Time out 1:30 PM Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
hahila		4.9 cm
hahila		9.2 cm
hahila		11.8 cm
molly		3 cm
"		2.9 cm
"		1.9 cm
"		3.5 cm
"		3.5 cm
"		3.9 cm
"		1.6 cm
"		1.8 cm
"		9.3 cm
"		5.9 cm
"		1.2 cm
Prawn		15.3 cm
prawn		11.7 cm
"		11.4 cm
"		11.6 cm
"		11.5 cm
"		10.5 cm
tadpoles		10.5 cm
"		11.0 cm
"		9.1 cm
"		14.4 cm
"		5.6 cm

Species	SPPcode	FL(mm)
"		12.1 cm
"		11.7 cm
"		5.14 cm
"		10.1 cm
"		8.6 cm
"		1.3 cm
molly		7.3 cm
"		3.5 cm
"		7 cm
"		5.5 cm
Opa e		3.4 cm
Molly		3.4 cm
"		2 cm
"		4.2 cm
"		3.3 cm
"		3.2 cm
"		2.2 cm
Opa e		2.5 cm
Molly		2 cm
"		2 cm
"		2.4 cm
"		2 cm
"		2.5 cm
"		2.5 cm
"		1.9 cm

more on back

NOTES:

8/31/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	Molly		1.5	1.5cm
2	"			1.6cm
3	"			1.7cm
4	"			1.5cm
5	"			1.6cm
6	"			1.5cm
7	"			1.4cm
8	"			3.5cm
9	"			2.2cm
10	"			2.9cm
11	"			1.9cm
12	"			1.5cm
13	"			3cm
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
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49				
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[illegible][illegible]

8/31/05

Nursery Habitat StudyDate 31/Aug/2005 Location Wailoa River mouth Quad _____ Obser Kaher/Kaily

GPS N _____ W _____

Time in 10:20 Am Time out 2:0 PM Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size _____

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials
Huge!

Species	SPPcode	FL (mm)
AKUPA		20.5 cm
Papio		7.5 cm
oopa Nahia		6.2 cm
Akup		19 cm
Akup		16.5 cm
Akup		13.4 cm
Akup		17 cm
Akup		14.2 cm
Akup		19 cm
Akup		15.3 cm
Nahia		6 cm
Akup		19.5 cm
opae		5.5 cm
Akup		16.3 cm
Akup		15.8 cm
Akup		13 cm
Nahia		11.6 cm
opae		5.7 cm
Akup		13.3 cm
opae		6.5 cm
Nahia		6.5 cm
Akup		13.2 cm
Nahia		7.5 cm
Akup		11.5 cm
Akup		9 cm

Species	SPPcode	FL(mm)
Akup		13.2 cm
Nahia		9.7 cm
akup		13 cm
opae		4.5 cm
Nahia		8.4 cm
Akup		9.3 cm
Akup		13.2 cm
opae		4.3 cm
opae		4.5 cm
akup		12.4 cm
opae		4.6 cm
akup		11.4 cm
Nahia		7.1 cm
Nahia		14.5 cm
opae		4.6 cm
Nahia		6.4 cm
akup		8 cm
Nahia		4.6 cm
opae		3.1 cm
opae		3.6 cm
Nahia		6 cm
Nahia		7.3 cm
Nahia		13 cm
opae		6 cm
opae		4 cm

more on back

NOTES:

8/31/05

	Species	SPPcode	FL (mm)	Tag "Y"
1	opae		2.5cm	
2	opae		2.5cm	
3	opae		4.9cm	
4	opae		5.5cm	
5	opae		5cm	
6	hahiba		5cm	
7	opae		2.6cm	
8	opae		4.5cm	
9	opae		4cm	
10	opae		4.6cm	
11	opae		4.5cm	
12	hahiba		7.8cm	
13	opae		5cm	
14	opae		4.6cm	
15	hahiba		3.4cm	
16	hahiba		3cm	
17	opae		4.8cm	
18	hahiba		6cm	
19	opae		3cm	
20	opae		6.1cm	
21	opae		4.5cm	
22	hahiba		7.5cm	
23	opae		3.2cm	
24	hahiba		4.5cm	
25	opae		3.9cm	
26	opae		4cm	
27	opae		4cm	
28	hahiba		2.4cm	
29	hahiba		3cm	
30	opae		3.5cm	
31	opae		3cm	
32	opae		3cm	
33	hahiba		5.5cm	
34	opae		4.5cm	
35	hahiba		4.3cm	
36	hahiba		4.1cm	
37	opae		3.2cm	
38	hahiba		4cm	
39	hahiba		3.2cm	
40	opae		4.5cm	
41	opae		6cm	
42	opae		4cm	
43	opae		3.5cm	
44	opae		4cm	
45	opae		3cm	
46	opae		4.5cm	
47	hahiba		3.1cm	
48	hahiba		4cm	
49	hahiba		4cm	
50	opae		3.1cm	

	Species	SPPcode	FL (mm)	Tag "Y"
	Opae		4.1cm	
	opae		4.7cm	
	opae		3.2cm	
	opae		3.4cm	
	opae		4cm	
	hahiba		3cm	
	opae		3.9cm	
	opae		3.9cm	
	opae		2.1cm	
	opae		5.9cm	
	opae		3.5cm	
	hahiba		5.2cm	
	opae		4.6cm	
	opae		3.9cm	
	opae		2.6cm	
	opae		5.5cm	
	hahiba		4cm	
	hahiba		2.6cm	
	hahiba		6.5cm	
	opae		5.2cm	
	hahiba		5cm	
	hahiba		4.1cm	
	opae		4.4cm	
	opae		3.2cm	
	hahiba		4.9cm	
	hahiba		4cm	
	hahiba		4.1cm	
	hahiba		6cm	
	opae		4.9cm	
	opae		7.2cm	
	opae		3cm	
	opae		1.2cm	
	hahiba		5.1cm	
	hahiba		5.2cm	
	opae		4.4cm	
	opae		4.1cm	
	opae		4.5cm	
	opae		3cm	
	opae		3.3cm	
	opae		5.2cm	
	opae		5.3cm	
	opae		4.4cm	
	opae		2.1cm	
	hahiba		4.3cm	
	hahiba		5cm	
	hahiba		5cm	
	opae		4cm	
	hahiba		6cm	
	hahiba		5.4cm	
	opae		3.2cm	

	Species	SPPcode	FL (mm)	Tag "Y"
	Opae		2.5cm	
	opae		4.5cm	
	opae		2cm	
	hahiba		3.5cm	
	opae		3.4cm	
	akupa		7.4cm	
	akupa		6.6cm	
	opae		5.3cm	
	hahiba		3cm	
	opae		4.6cm	
	opae		4.5cm	
	hahiba		5.3cm	
	hahiba		4.6cm	
	hahiba		4cm	
	opae		3.6cm	
	opae		4.5cm	
	opae		4cm	
	hahiba		7.6cm	
	hahiba		5cm	
	hahiba		4cm	
	opae		1.5cm	
	hahiba		4.5cm	
	hahiba		5.8cm	
	hahiba		4.1cm	
	opae		2.9cm	
	opae		2.3cm	
	hahiba		4cm	
	opae		5cm	
	hahiba		6.2cm	
	hahiba		5.5cm	
	Hahiba		2.4cm	
	akupa		3.3cm	
	opae		3cm	
	hahiba		6cm	
	opae		2cm	
	hahiba		5.5cm	
	opae		4.5cm	
	opae		5.1cm	
	hahiba		6.5cm	
	hahiba		6.6cm	
	opae		5.4cm	
	hahiba		5.5cm	
	hahiba		5cm	
	hahiba		4.3cm	
	hahiba		4.7cm	
	Hahiba		2.8cm	
	hahiba		5cm	

10/18/05

Nursery Habitat Study

Date 10/18/05 Location Wailoa moku Quad _____ Obser Kanu 'o ka 'aiha

GPS N _____ W _____

Time in 10:45 a.m. Time out 11:45 a.m. Random: YES NO

Salinity(ppt) _____ pH _____ Cond.(ms/cm) _____ D.O.(mg/L) _____

Temp.(c) _____ Net Dia / Mesh Size Dip nets / opae nets

Water condition: FLAT WHITE WATER Tide Stage _____

Bottom cond: DETRITUS _____ SED _____ SAND _____ GRAVEL _____ BOULDER _____ BEDROCK _____

Weather _____ Secchi (cm) _____ Depth(cm) _____

of Trials

Species	SPPcode	FL (mm)
'opae		27 mm
" "		40 mm
" "		40 mm
'o'opu		137 mm
" " Naniha		51 mm
'opae		23 mm
" "		32 mm
" "		10 mm
" "		23 mm
Molly		22 mm
Molly		33 mm
Molly		43 mm
Molly		42 mm
Molly		26 mm
Molly		30 mm
Molly		42 mm
Molly		50 mm
Molly		16 mm
Molly		8 mm
Molly		8 mm
Molly		7 mm
Molly		14 mm
Molly		29 mm
Molly		23 mm
Molly		32 mm

Species	SPPcode	FL(mm)
Molly		12 mm
Molly		31 mm
Molly		21 mm
Molly		21 mm
Molly		21 mm
Molly		14 mm
Molly		24 mm
Molly		14 mm
Molly		28 mm
Molly		36 mm
Molly		22 mm
Molly		24 mm
Molly		12 mm
Molly		20 mm
Molly		17 mm
Molly		11 mm
Molly		12 mm
Molly		11 mm
Molly		20 mm
Molly		20 mm
Molly		11 mm
Molly		10 mm
Molly		12 mm
Molly		12 mm
Molly		16 mm

more on back _____

NOTES:

PCI XI error

	Species	SPPcode	FL (mm)	Tag "Y"
1	Subsystem: KERNEL			
2	Error:	IllegalTag		
3	Operator:	0x1B		
4	Position:	5194		
6	molly		18 mm	
7	molly		14 mm	
8	molly		16 mm	
9	molly		14 mm	
10	molly		14 mm	
11	molly		30 mm	
12	molly		30 mm	
13	molly		22 mm	
14	molly		12 mm	
15				
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19				
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