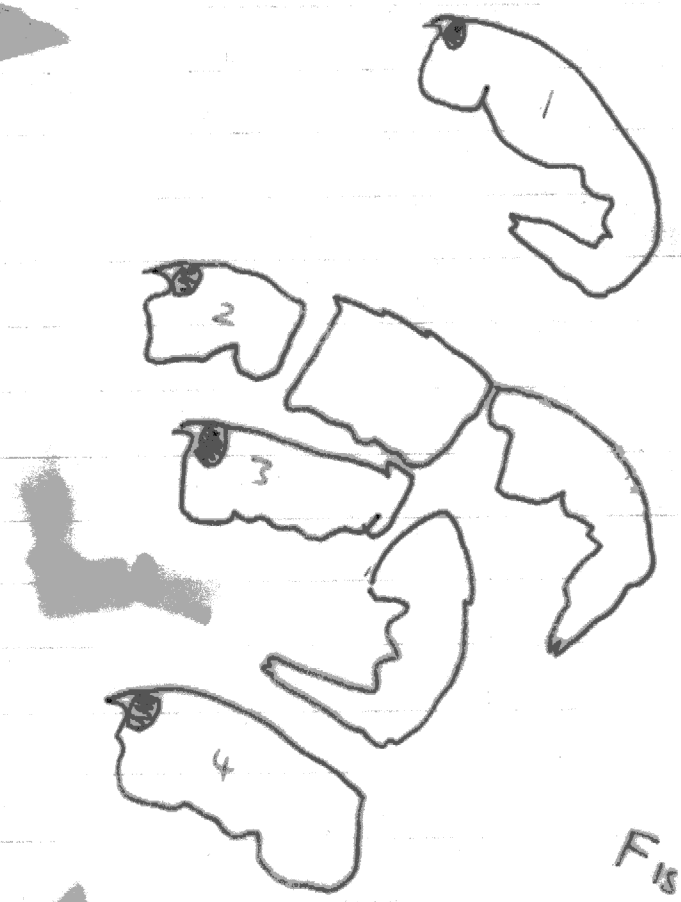
17/7/82 feeding expt. 1

Time 1350 Water Temp 21·5.

3 sieve fractions of amphs 1·0, ·71, ·5 ÷ 40 amps each.
5 fish for 30 mins in Hab Comp 25.

Fish 1 25 mm.

Fish $\bar{x}$ 23

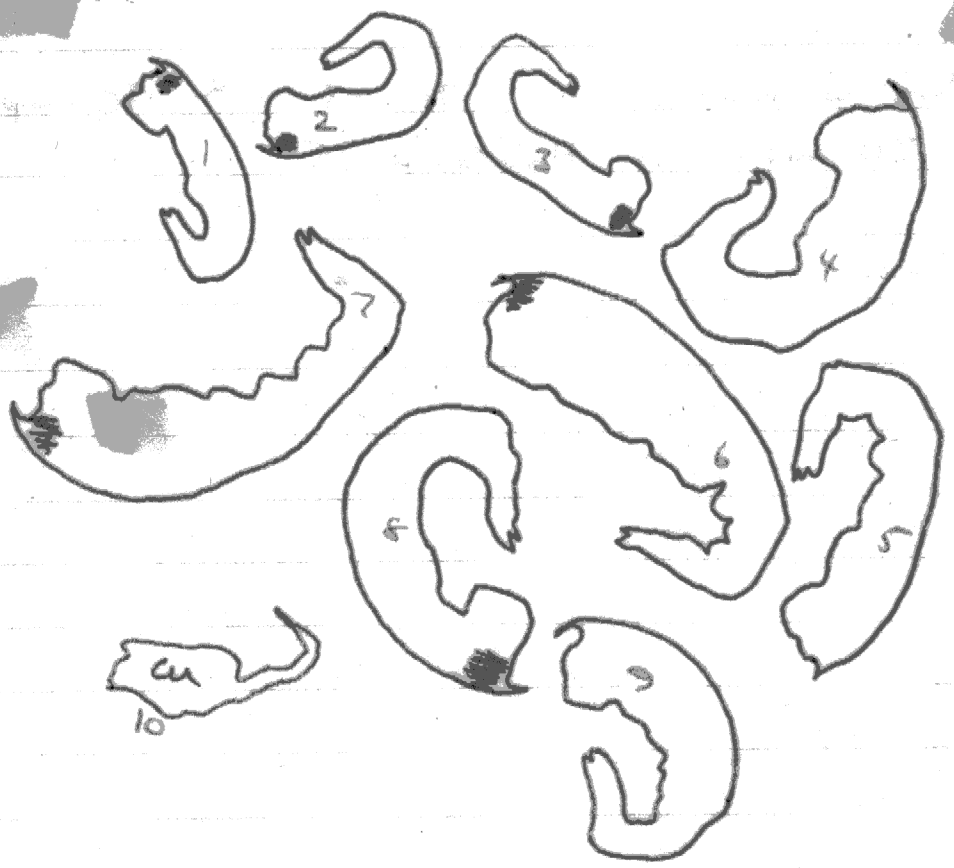


×20

Fish 1 25 mm
17/7

1 3·1
2 4·0
3 3·9
4 4·6
5

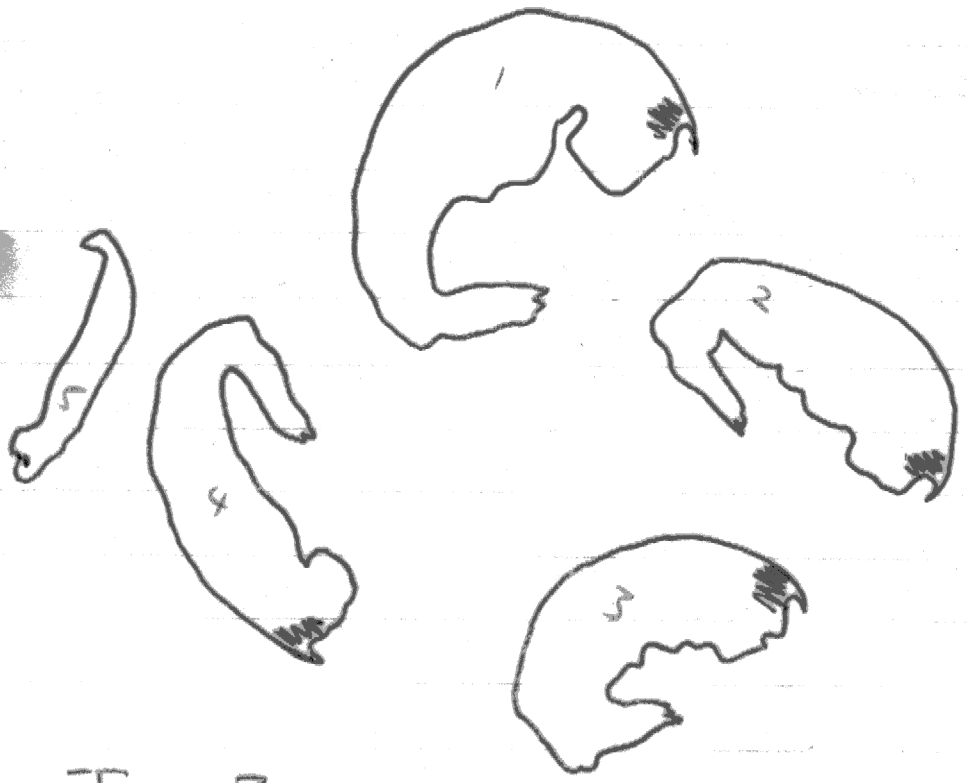
FISH 2. 23 mm.



X 20 FISH 2.

1	2·0
2	2·1
3	2·1
4	2·3
5	3·4
6	3·6
7	3·4
8	3·4
9	3·0
10	1·8 cumacean.

FISH 3 22mm



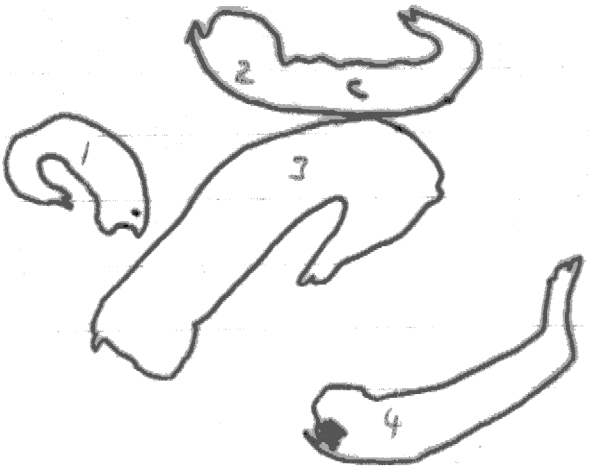
FISH 3

x20 11/7

1	4·6
2	3·5
3	3·4
4	3·4
5	1·8
6	
7	

FISH 4 21 mm nil

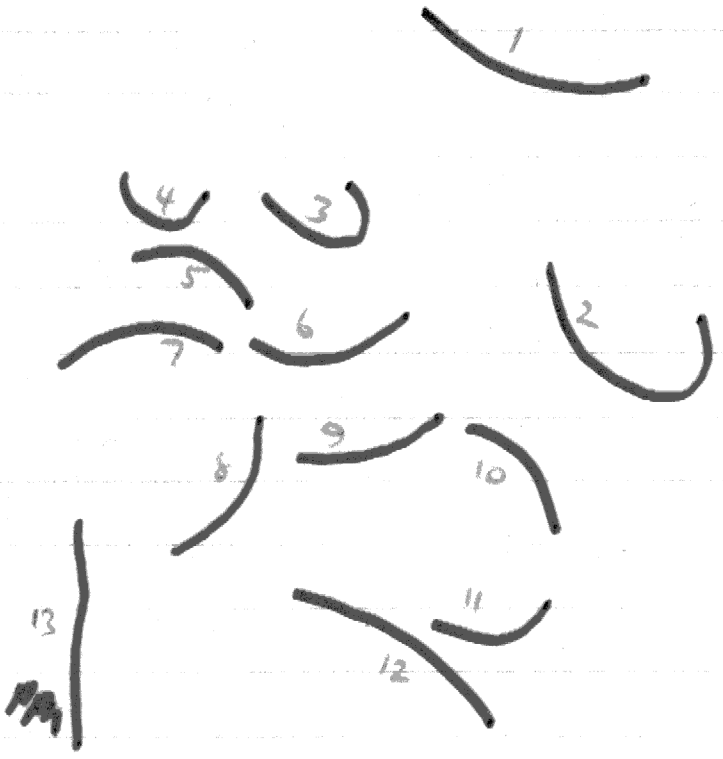
FISH 5 20 mm



FISH 5 x 20
17/7

1	1·7
2	2·4
3	3·8
4	2·4

AMPHIPODS REMAINING.



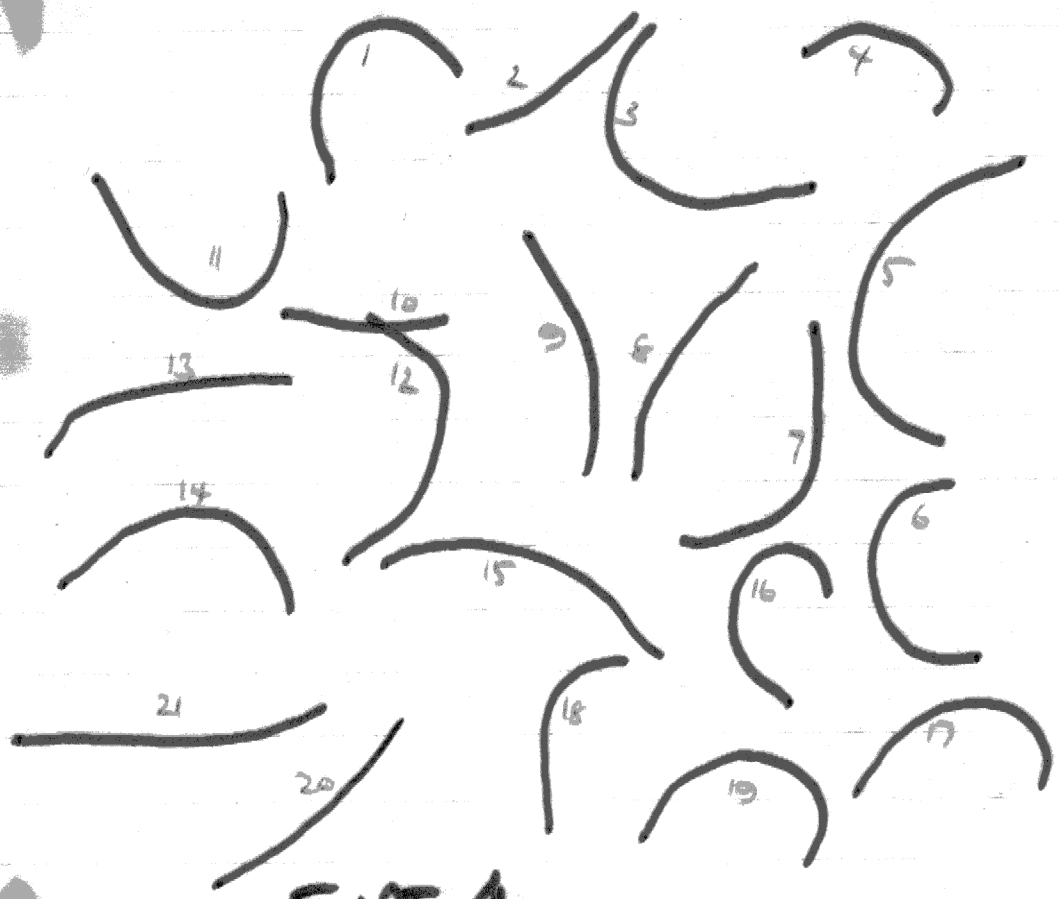
x10 EXPT 1

13

1	3·4
2	4·0
3	2·3
4	1·6
5	2·0
6	2·4
7	2·3
8	2·3
9	2·1
10	2·0
11	1·8
12	3·4
13	3·2

X10 EXT 1

1	2·8	16	2·5	31	3·6
2	4·0	17	2·4	32	2·0
3	2·6	18	3·7	33	2·6
4	2·6	19	3·1		
5	2·0	20	3·0		
6	2·7	21	2·4		
7	3·4	22	3·9		
8	4·8	23	1·9		
9	2·2	24	3·5		
10	2·4	25	4·8		
11	3·6	26	2·3		
12	1·7	27	2·8		
13	2·5	28	2·2		
14	2·6	29	2·0		
15	2·0	30	2·1		



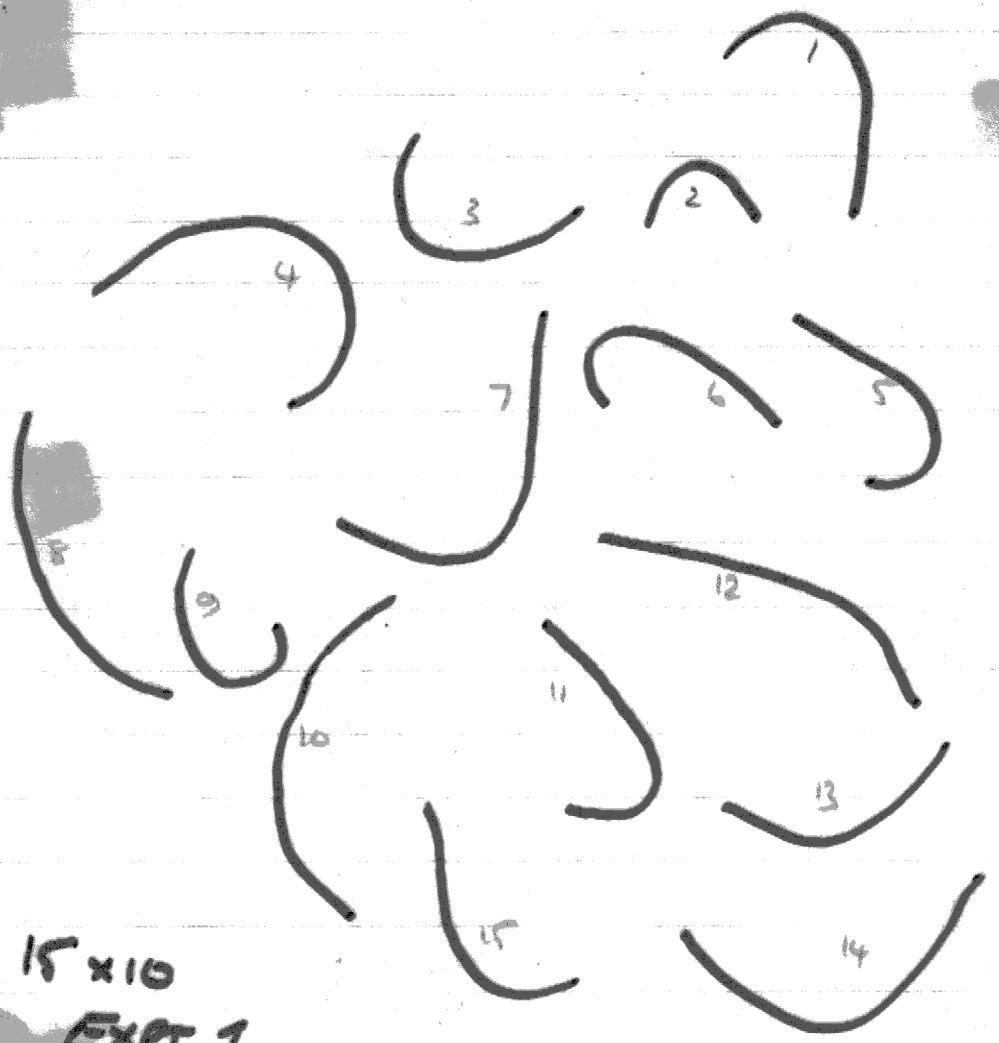
EXPT 1 x10

1	3.9	13	~~4.3~~ 3.6
2	2.8	14	~~3.6~~ 4.5
3	4.8	15	4.4
4	2.8	16	3.6
5	5.7	17	3.8
6	4.0	18	3.0
7	4.1	19	4.1
8	3.4	20	3.5
9	3.5	21	4.3
10	2.3		
11	4.3		
12	4.4		

X10

Ex 1

1	4.2	13	4.4
2	2.0	14	4.5
3	5.8	15	4.3
4	4.4	16	4.2
5	4.1	17	3.4
6	3.8	18	2.1
7	3.9	19	2.6
8	5.2	20	3.9
9	4.8		
10	2.9		
11	3.6		
12	3.8		



15 x 10

EXPT 1

1	4·3
2	2·2
3	4·0
4	6·3
5	4·0
6	3·9
7	5·6
8	4·9
9	3·4
10	5·3
11	4·2
12	5·2
13	3·7
14	5·5
15	3·9

15

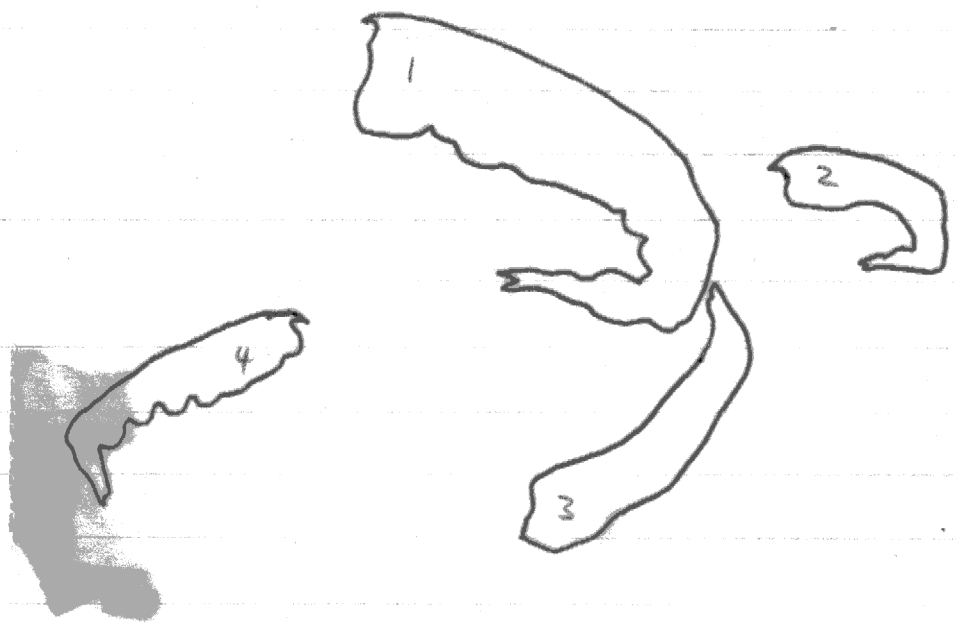
T 124

FEEDING EXPT 2 20/7/83

3 sizes shrimps amps 1.0, .71, .5 20 amps each
5 fish for 30 mins in Hab Comp 25

Water temp 20.5 Time 1140 Fish ∑ 26

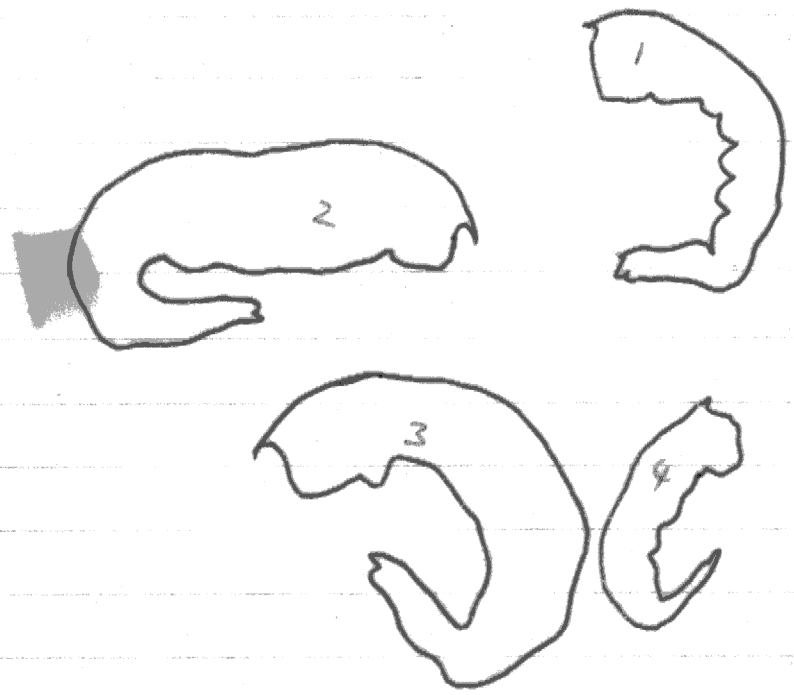
Fish 1 26 mm



FE 2 -1
X 20

1 4.2
2 1.8
3 2.3
4 2.1

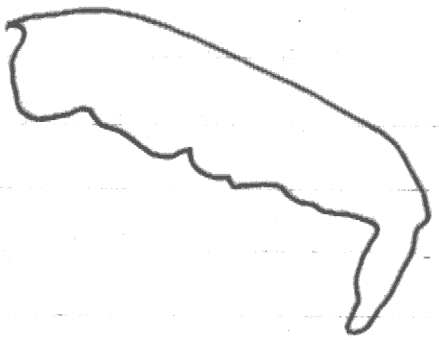
Fish 2 – 25mm



FE 2 – 2
×20

1	3.2
2	4.2
3	4.4
4	2.2

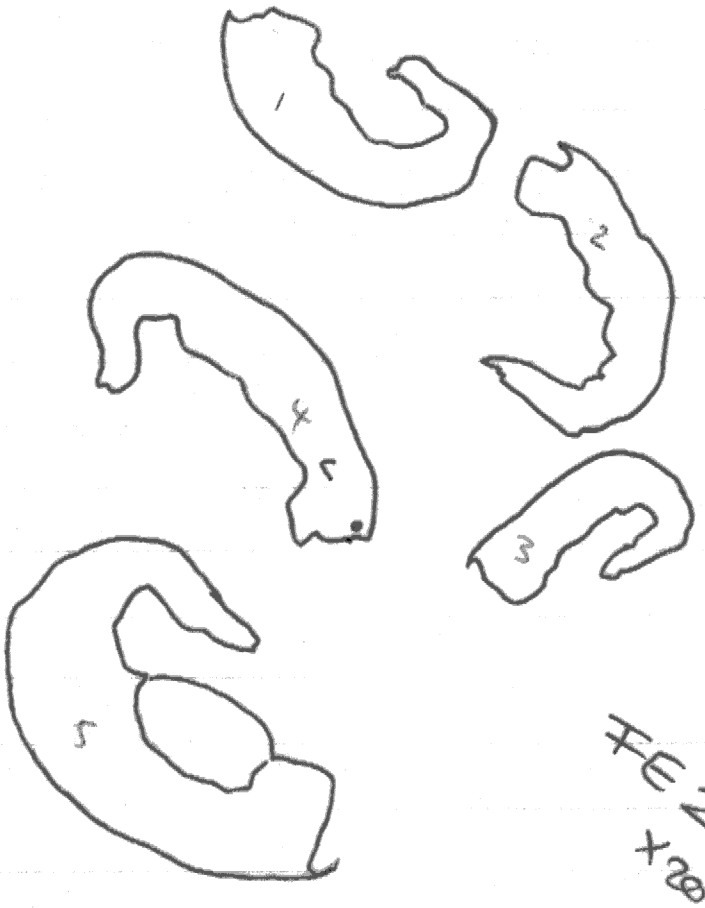
F.43 - 27mm



FE2-3
x20

3.8

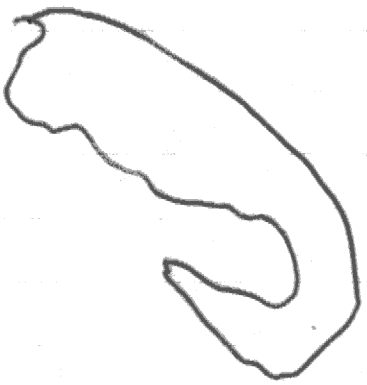
Fish 4 - 27 mm



FE2-4
×20

1 3·1
2 2 &
3 2·3
4 3·4
5 4·5

Fish [redacted] - 24 mm



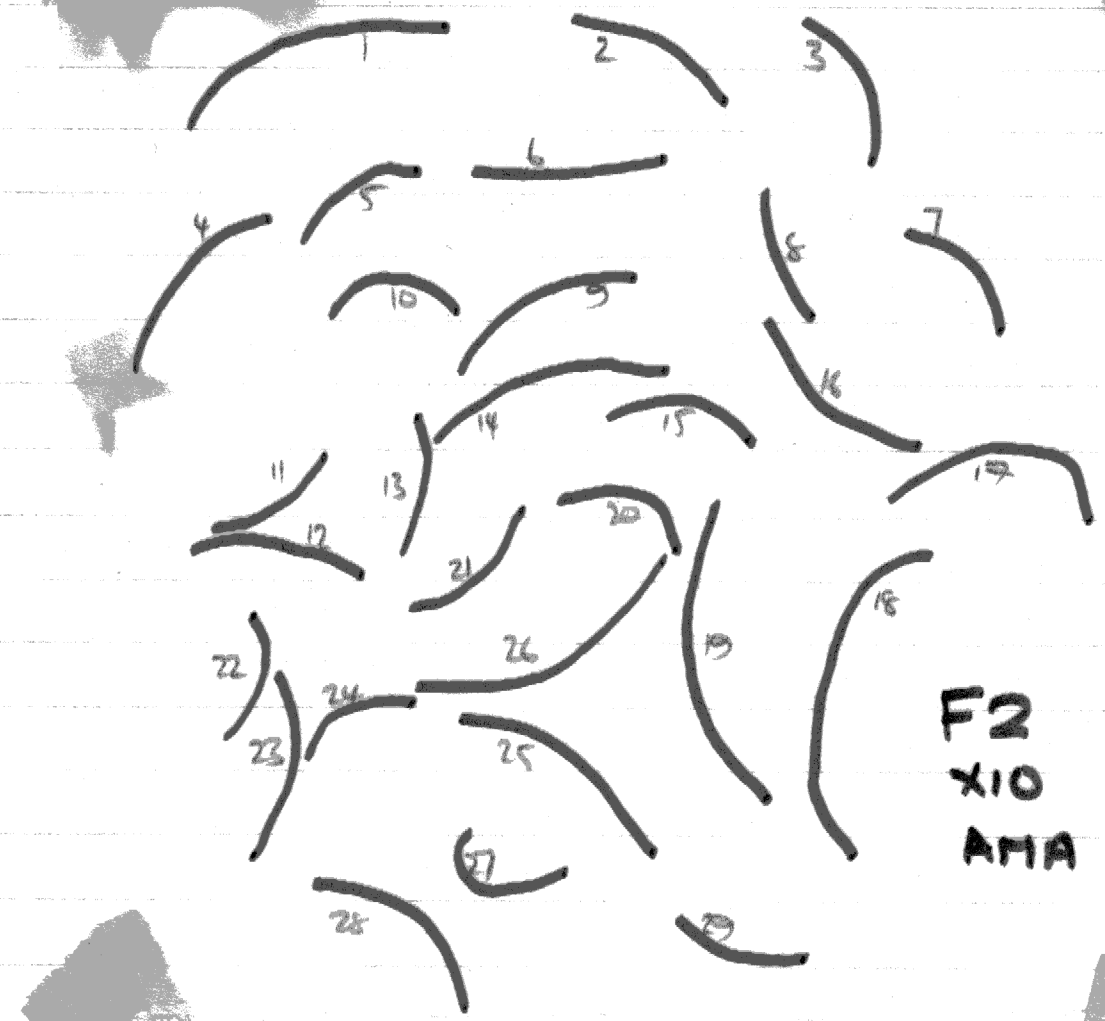
#E2-5
x20

4.4

F2
X10
AMA

14

1	2·9	11	3·4
2	2·9	12	4·0
3	4·6	13	2·0
4	3·9	14	4·8
5	3·6		
6	4·0		
7	4·9		
8	3·5		
9	2·8		
10	3·0		



29

1	4.1
2	2.5
3	2.3
4	3.0
5	2.0
6	2.7
7	2.0
8	1.9
9	2.9
10	2.0
11	2.0
12	2.5
13	~~3.6~~ 2.0
14	3.5
15	2.3
16	2.9
17	3.6
18	4.9
19	4.5
20	2.0
21	2.2
22	2.0
23	2.7
24	1.8
25	3.4
26	4.2
27	2.1
28	3.0
29	19

FEEDING EXPTS 26/7/83

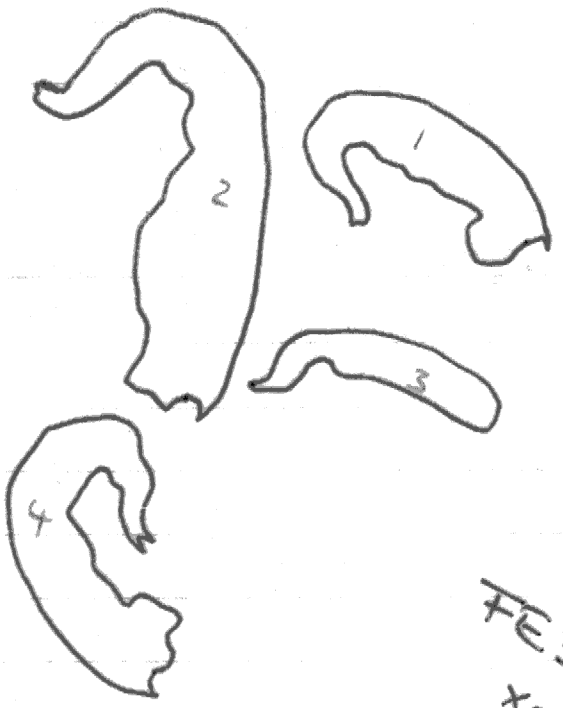
3 wave heights amplitudes 1.0, .71, .50 20, 40, 60 amps.
5 fish 30 mins in Hab comp 25.
Water temp 20.5 Time 1330

Fish $\bar{x}$ 25

Fish ① 27mm

1	1.8	8	3.1
2	2.1	9	2.4
3	3.3	10	2.0
4	1.8	11	2.3
5	2.0	12	3.2
6	1.6	13	2.2
7	3.7	14	2.6
		15	3.6

Fish (2) 22 mm



FE3-2
×20

1	2.5
2	3.8
3	1.8
4	2.9

Fish ③ 26 mm

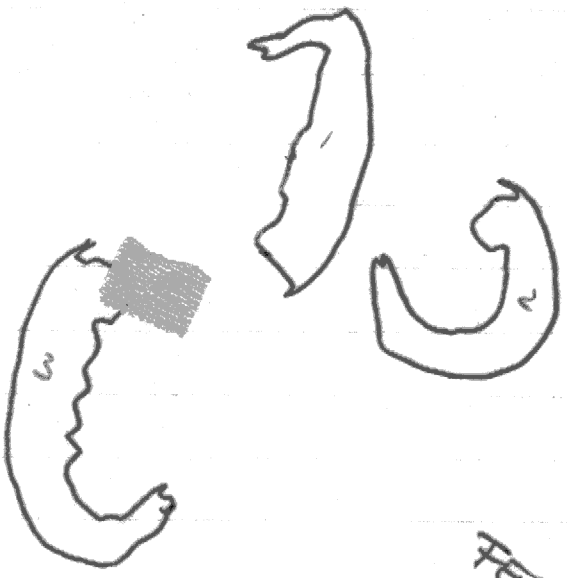
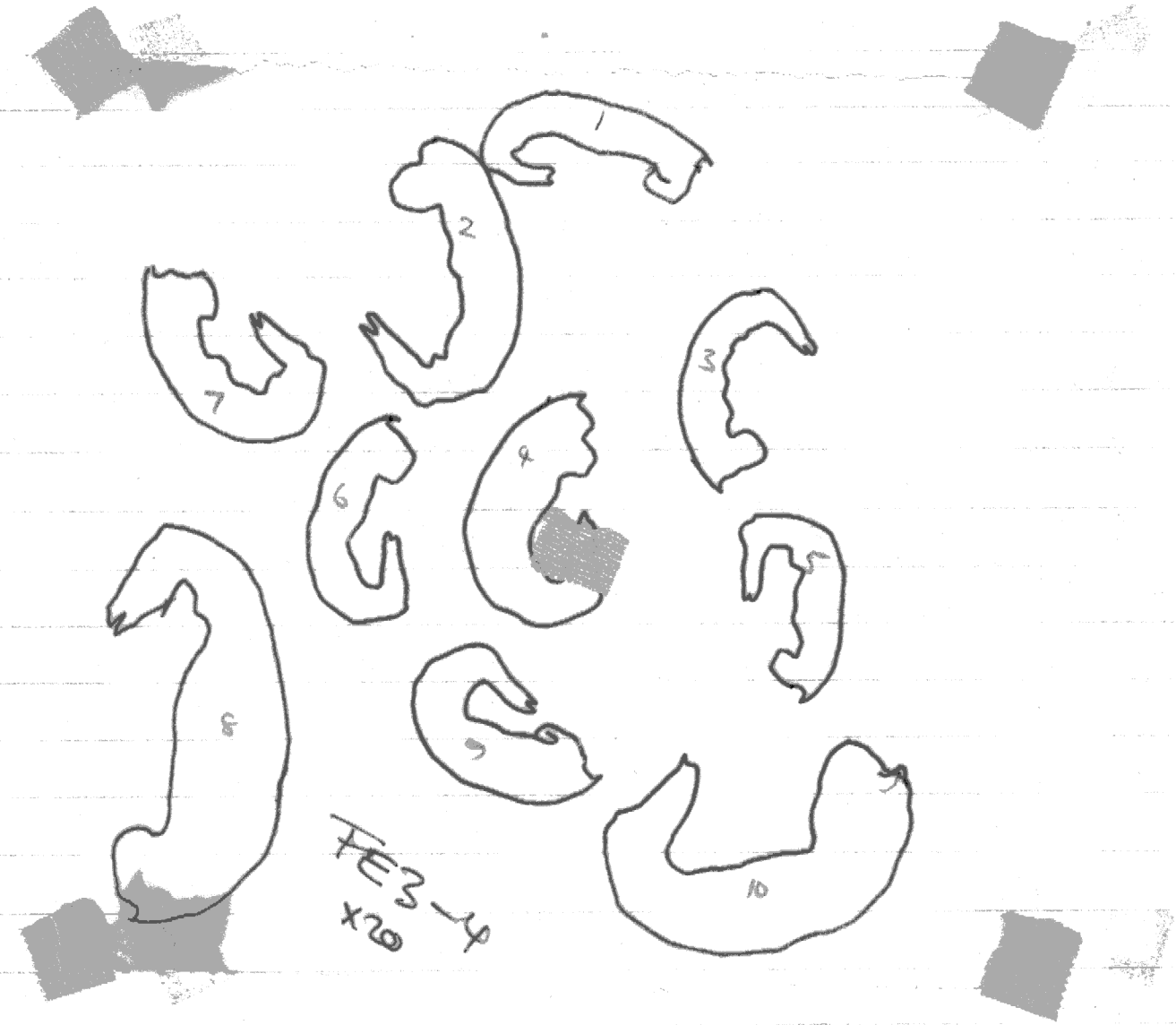


Fig 3-3
×20

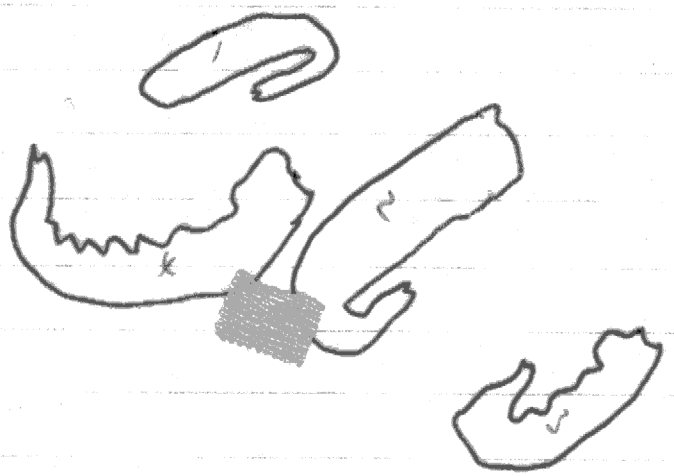
1	2·4
2	2·4
3	2·8

Fish ⊕ 26mm



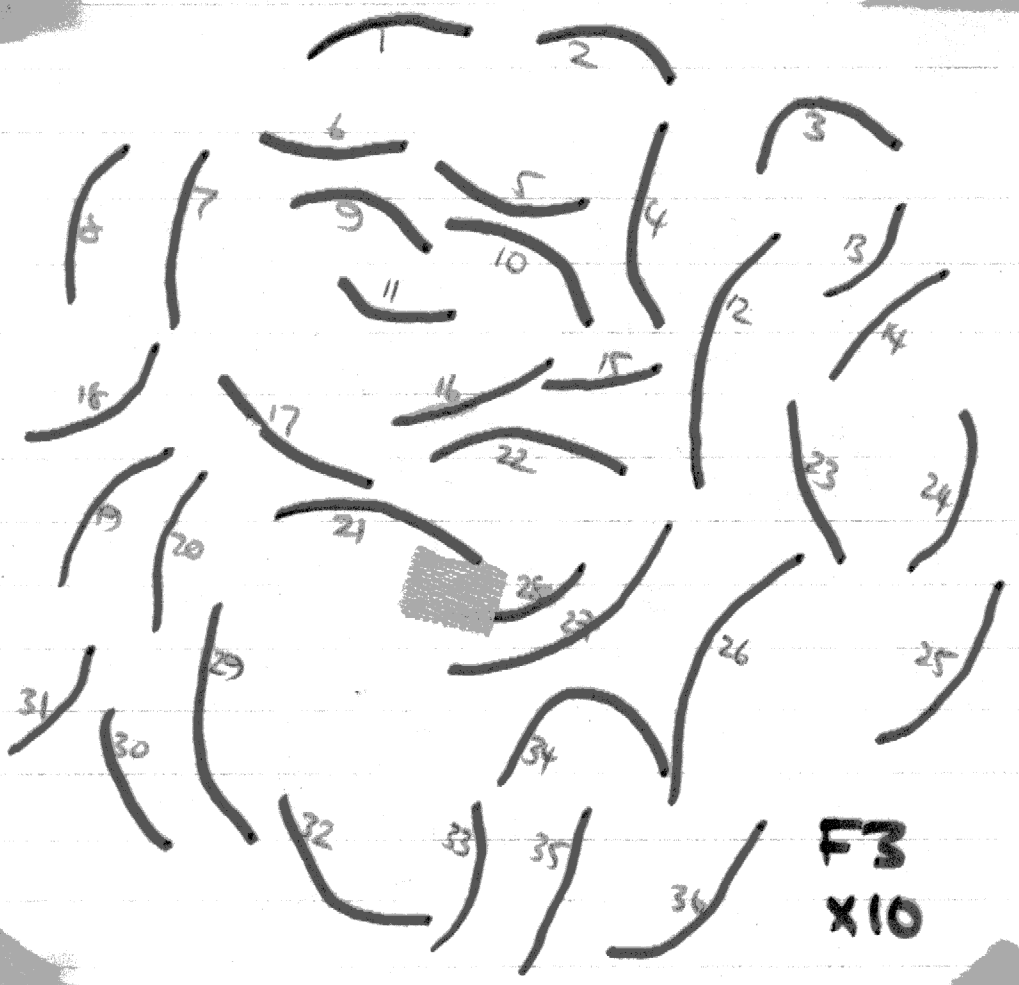
1	2·3
2	2·9
3	2·1
4	2·8
5	2·1
6	2·4
7	2·6
8	4·2
9	2·5
10	4·0

Fish ⑤ 25mm.



FE3-5
×20

1	1.8
2	2.8
3	2.2
4	2.8



1	2.4	16	2.4	31	2.2
2	2.1	17	2.6	32	3.0
3	2.6	18	2.4	33	2.2
4	2.9	19	2.5	34	2.4
5	2.2	20	2.4	35	2.5
6	2.0	21	3.1	36	3.0
7	2.5	22	2.9		
8	2.4	23	2.2		
9	2.2	24	2.5		
10	2.6	25	2.9		
11	1.8	26	4.1		
12	3.8	27	3.9		
13	1.8	28	2.1		
14	2.2	29	3.4		
15	1.6	30	2.2		

1	4·8	16	2·9	31	2·7
2	2·2	17	2·5	32	1·6
3	4·0	18	2·6	33	3·0
4	3·2	19	2·8	34	2·2
5	3·8	20	3·2	35	2·4
6	1·6	21	2·0	36	3·0
7	2·5	22	4·1	37	2·0
8	2·4	23	2·7		
9	2·0	24	3·1		
10	3·3	25	2·0		
11	1·7	26	2·6		
12	2·0	27	3·1		
13	2·1	28	2·1		
14	3·6	29	2·0		
15	3·0	30	2·0		

2·6	0·09	·91
2·3	0·06	·94
0·3	0·03	·97

$\frac{1}{2}$ hr

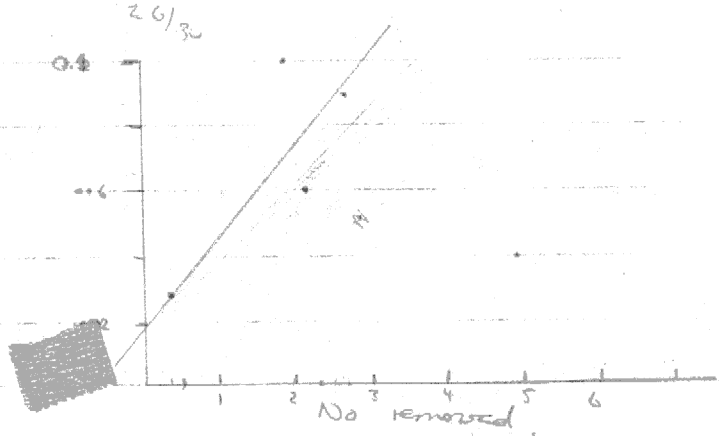
	no.		
0·04	120	=	5/fish (4·7)
0·1	20	=	2/fish
0·09	30	=	2·6
0·06	40	=	2·3
0·05	60	=	3/fish
0·03	120	=	4·4
	10	=	0·3
y			x

prop

5/120

2/20

26/30



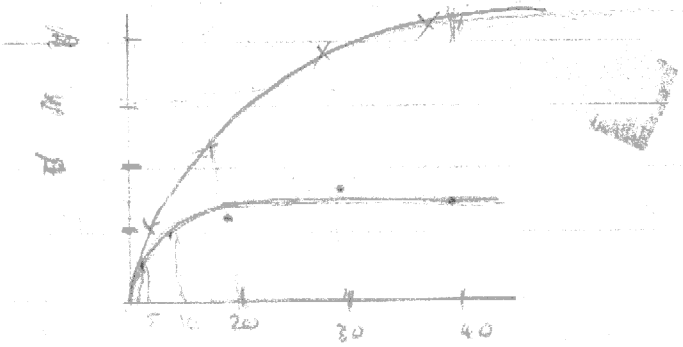
20 = 2

30 = 2·6

40 = 2·3

60 = 3

120 = 4·7



(0·79)

$Ne = \frac{aNT}{1 + aNTh}$

$Ne(1 + aNTh) = aNT$

$Ne \quad NeaNTh = anT$

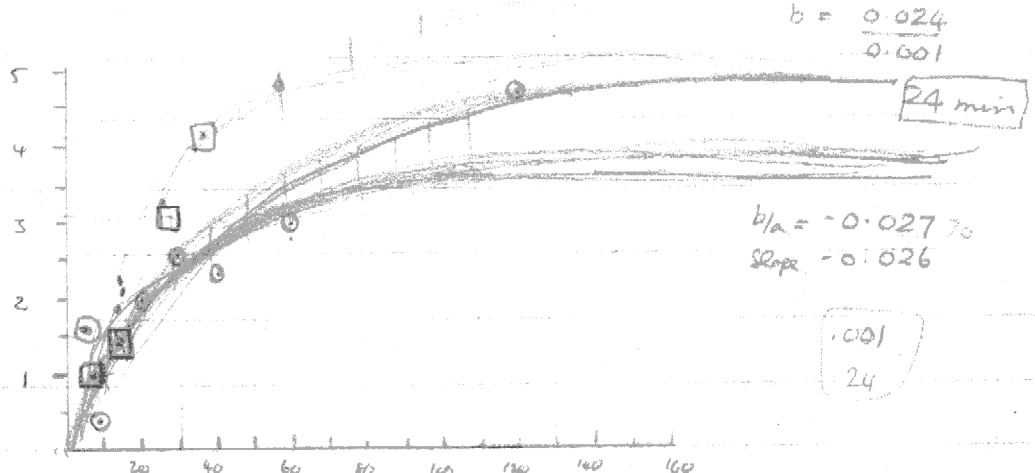
$b/a = 0.026 \div 30 \times a'$

slope = 0·024

$a' = \frac{0.026}{30} = 0.001$

$-0.001\ b = 0.024$

$b = \frac{0.024}{0.001}$



24 min

$b/a = -0.027 \div 30$

slope -0.026

·001

24

FUNCTIONAL RESPONSE 2.

26/7/83.

① Large amphs (>1·0 sieve)
3 fish 30 mins Hab Comp 25
20 amph present
14 " remaining
∴ 6 " eaten. 2.

② Lge amphs
3 fish 30 mins HC 25 30, 27, 26 mm.
40 present Lge
33 rem
7 eatn 2·3

③ 30 pres as above
22 rem
8 eaten 2·6

④ 27/7/83
3 fish 30 mins HC 25 24, 26, 28
10 Lge.
9 rem
1 eatn ·3.

⑤ 10 Lge 28/7/83 25 28 28
5 rem
5 eatn.

) 20 Lge 28/7/83 28 25 26
17 rem

26/7/83.

① Large amphs (>1.0 sieve)
3 fish 30 mins Hab Comp 25
20 amph present
14 " remaining
∴ 6 " eaten. 2.

② Lge amphs
3 fish 30 mins HC 25 30, 27, 26 mm.
40 present Lge
33 rem
7 eatn 2.3

③ 30 pres as above
22 rem
8 eaten 2.6

④ 27/7/83
3 fish 30 mins HC 25 24, 26, 28
10 Lge.
9 rem
1 eatn .3

⑤ 10 Lge 28/7/83 25 28 28
5 rem
5 eatn

) 20 Lge 28/7/83 28 25 26
17 rem
3 eatn

2.776

FUNCTIONAL RESP[redacted] LGE AMPHS

	10	20	30	40	60	80	100
1	1	6	8	(7)?	18		
2	5	3	11	16	23		
3	3	7	17	(7)?	15		
4	2	5	12	16	14		
5				17			
6				11			
7							
$\bar{X}$	2.75	5.25	12.0	15.0	17.5		
σ	1.71	1.71	3.74	2.71	4.04		
SE	0.855	0.855	1.87	1.355	2.02		
95%	2.373	2.373	5.19	3.76	5.61		

30
18
12

2.776

Fish size			amph size	
25	25	32	5.32	4.2
30	27	26	2.68	4.4
24	26	28	5.2	4.4
25	28	28	2.96	4.32
28	25	26	3.72	4.4
30	27	27	4.28	5.32
31	23	27	4.36	5.8
27	28	24	4.76	4.6
31	32	27	4.2	4.4
31	32	30	4.93	4.92
27	30	29	3.0	5.4
29	31	24	4.92	4.24
30	30	29	5.16	3.68
26	29	29	4.2	4.52
33	33	25	5.2	4.8
34	26	33	4.2	5.52
29	29	29	4.12	4.64
31	28	28	5.4	5.04
33	30	27	3.76	4.72
31	28	29	3.8	4.84

Small amps - funct resp.

	10	20	30	40	60	80	100
	6	11	18	26	29		
	4	13	11	19	34		
	7	15	17	21 (3x)	32		
	5	8	15	19	30		
$\bar{X}$	5.5	11.75	15.25	21.25	31.67		
σ	1.29	2.99	3.095	3.304	2.52		
SE	0.645	1.495	1.548	1.652	1.26		
95%	1.79	4.15	4.29	4.586	3.49		

Fish size

30	28	28
27	27	32
28	28	29
33	27	30
28	32	27
32	29	26
30	29	26
29	29	32
28	26	31
32	29	27
30	30	24
33	27	31
33	32	27
26	28	30
29	26	26
30	25	33
28	26	25
30	30	29
28	32	25

	amph size
3.04	2.72
2.72	2.08
2.40	3.0
2.48	2.44
2.92	2.8
2.48	2.64
2.32	1.6
2.28	2.56
2.08	2.24
3.16	3.04
3.08	2.52
2.08	2.8
2.16	2.44
3.16	3.44
2.0	2.24
2.4	3.28
2.56	2.24
2.6	2.88
1.92	2.0
2.52	3.32

Choice — Total abund = 50

LGE : SM

	8 · 2	6 · 4	4 · 6	2 · 8
	40 : 10	30 : 20	20 : 30	10 : 40
1	17 : 4	16 : 9	5 : 15	4 : 17
2	14 : 3	9 : 8	10 : 15	1 : 20
3	18 : 3	8 : 10	8 : 13	3 : 19
4	16 : 0	6 : 5	12 : 19	4 : 12
$\bar{x}$	16.25 2.5	9.75 8	8.75 15.5	3 17
σ	1.71 1.73	4.35 2.16	2.99 2.52	1.41 3.56

28	27	24
32	29	28
29	29	25
30	26	27
29	25	24
29	29	28
30	29	25
28	25	29
30	25	24
26	27	24
29	24	25
28	30	32
26	27	24
31	27	26
27	27	24
29	29	23
31	26	27
28	25	26
26	25	26

$n = 57$ $\bar{x}$ 27.16 $\sigma = 2.24$

Choice : Tot abund = 20

LGE : SM

	.2 .8	.4 .6	.6 .4	.8 .2
	4 : 16	8 : 12	12 : 8	16 : 4
	2 : 4	6 : 4	4 : 3	10 4
	2 : 12	2 5	5 . 7	8 0
	3 : 9	1 : 5	8 : 7	12 3
	2 : 5	6 8	4 : 3	6 2
$\bar{x}$	2.25 7.5	3.5 5.5	5.25 5	9 2.25
σ	0.5 3.7	2.38 1.73	1.89 2.31	2.58 1.71

32 28 24
24 24 27
26 27 30
30 23 26
30 28 24
30 29 26
33 31 22
27 30 25
30 26 28
29 30 26
29 28 30
~~26 29 24~~
27 25 30
30 29 27
30 30 25
29 26 27
33 27 27
27 31 27
34 31 26
28 27 26

n = 57 27.91 2.59